ICMM
International Council on Mining & Metals

Critical Control Management

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Critical control management workshop
20 April 2015
Santiago, Chile




Presentation overview

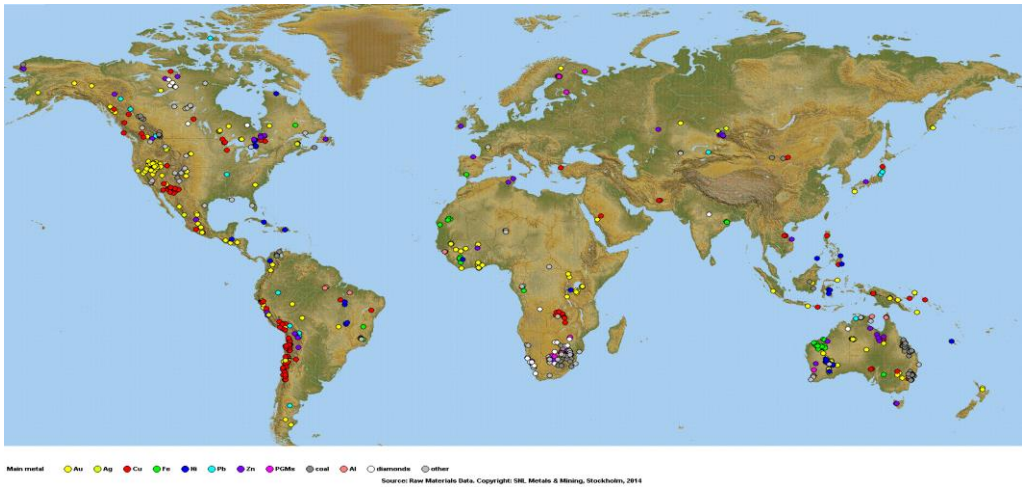
- ICMM introduction
- ICMM risk management journey
- CCM guide development

ICMM at a glance

CEO led

21 Company members

35 Association members



Over 950 sites in 58 countries

ICMM member companies

Member associations

Americas

Cámara Asomineros Andi - Colombia

Consejo Minero de Chile A.G.

Instituto Brasileiro de Mineraçao - Brazil

Instituto de Seguridad Minera - Perú

Mining Association of Canada

National Mining Association - USA

Prospectors and Developers Association of Canada

Sociedad Nacional de Minería - Chile

Sociedad Nacional de Minería, Petróleo y Energía – Perú

Africa

Chamber of Mines of South Africa

Chamber of Mines of Zambia

Ghana Chamber of Mines

Mining Industry Associations of Southern Africa

Europe

Eurometaux

Euromines

Asia-Pacific

Chamber of Mines of the Philippines

Federation of Indian Mineral Industries

Japan Mining Industry Association

Minerals Council of Australia

Australia-Africa Mining Industry Group

Commodity Associations

CaSi Institute

Cobalt Development Institute

International Aluminium Institute

International Copper Association

International Iron Metallics Association

International Lead Association

International Manganese Institute

International Molybdenum Association

International Wrought Copper Council

International Zinc Association

ITRI

Nickel Institute

World Coal Association

World Gold Council

Zircon Industry Association

Our vision and its fundamental implication

ICMM Vision

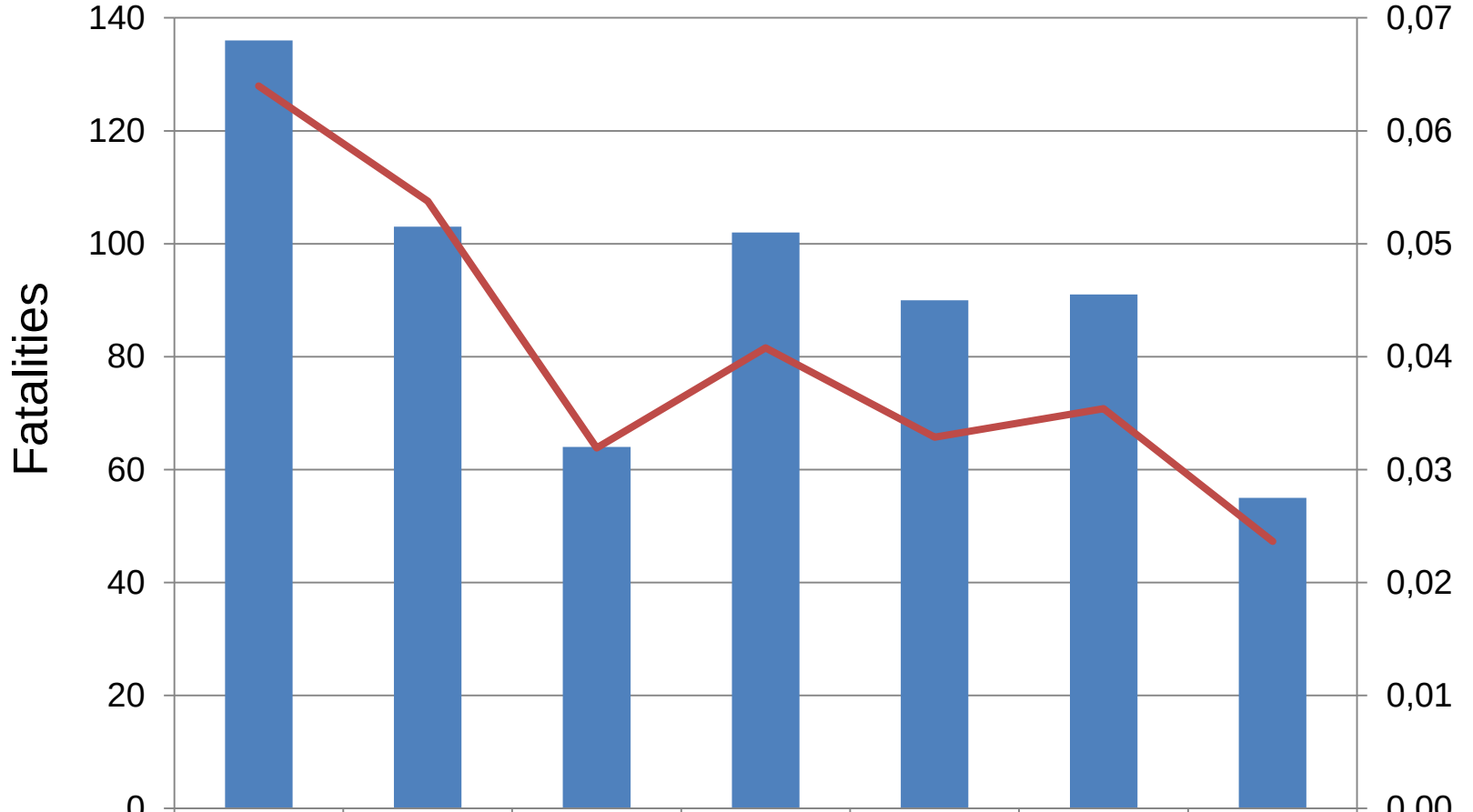
leading mining and metals companies working together and with others to strengthen the contribution to sustainable development

Fundamental implication

creating value for shareholders while simultaneously creating value for the communities and societies in which they operate

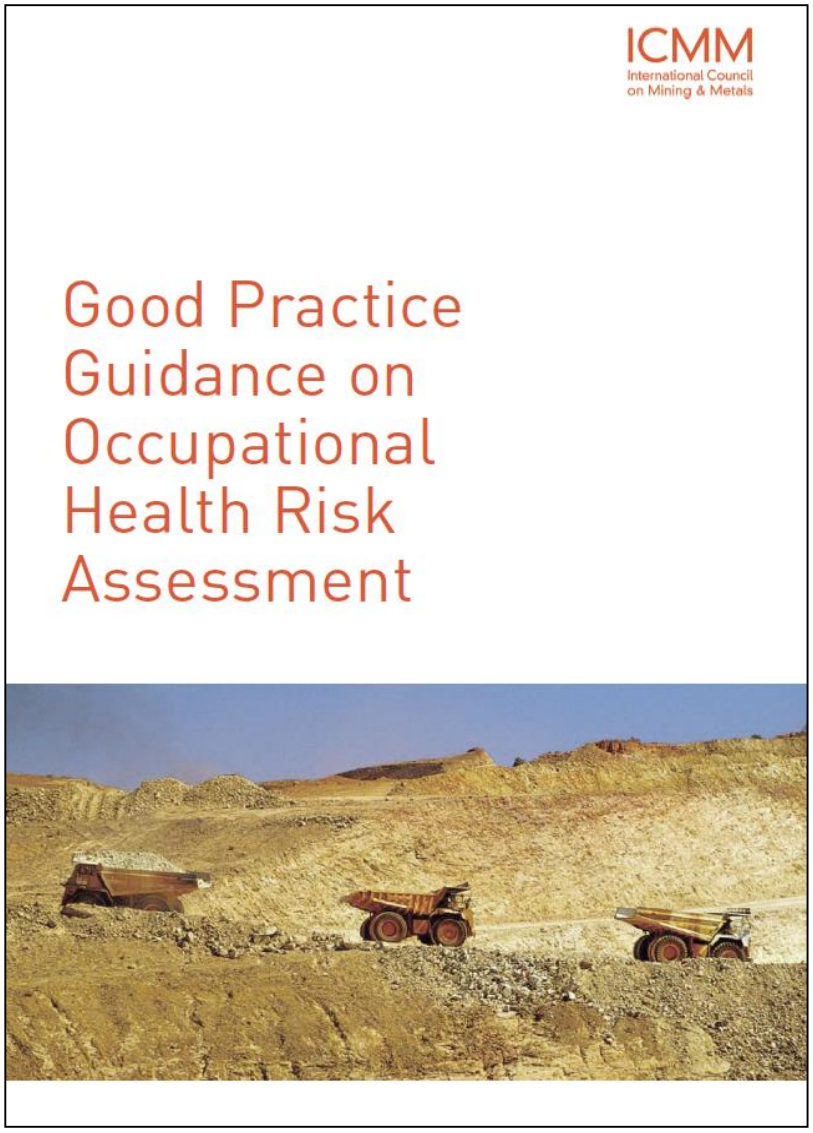
Our role: a catalyst for improving environmental and social performance in the mining and metals industry

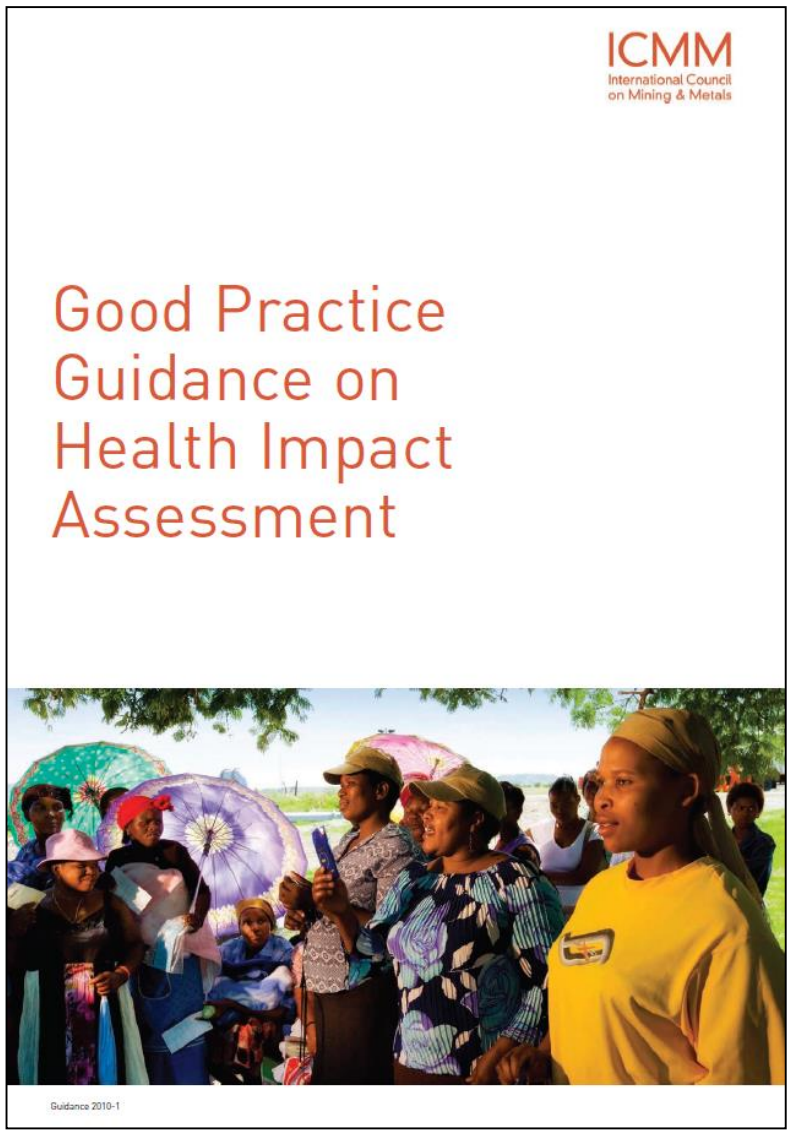
ICMM fatal risk management journey



	2008	2009	2010	2011	2012	2013	2014
Fatalities	136	103	64	102	90	91	55
n	16	16	15	16	20	20	21
FFR	0,06	0,05	0,03	0,04	0,03	0,04	0,02

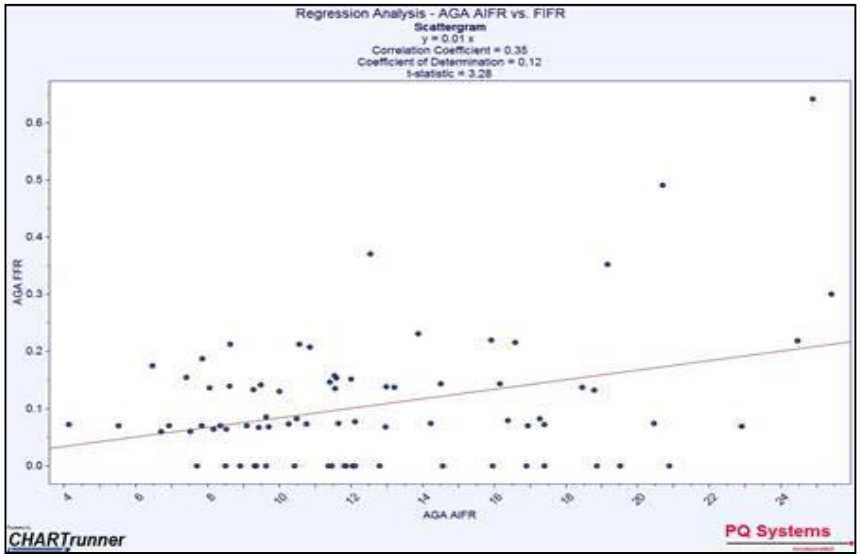
Risk management - 2010



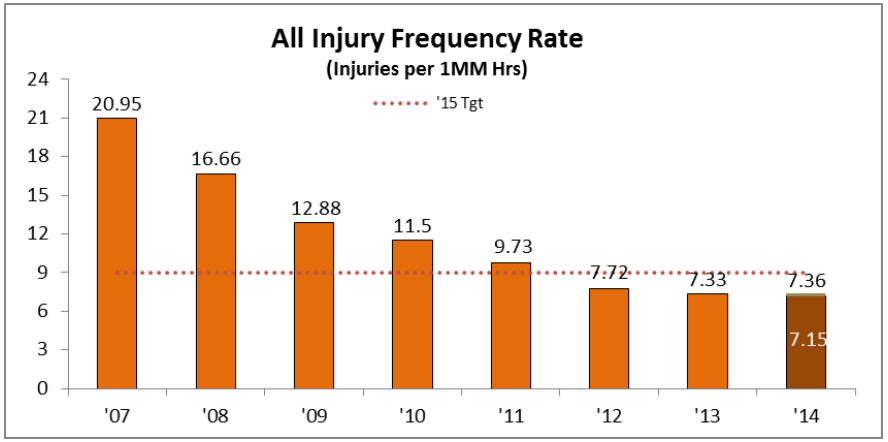


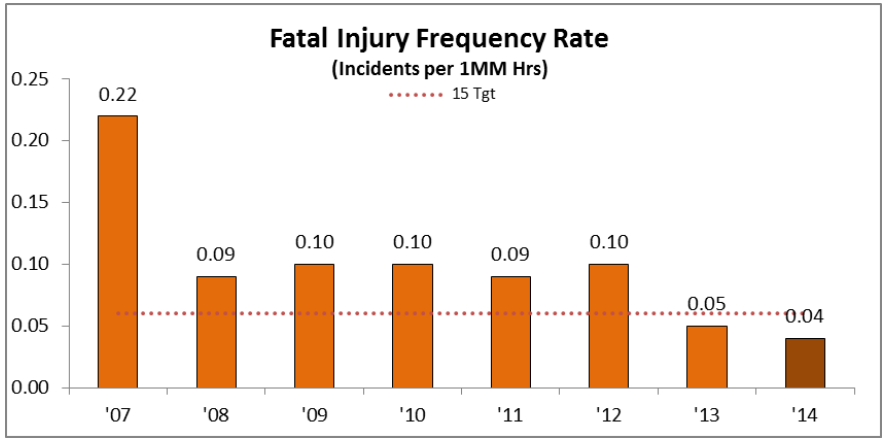
2012 - COLLECTIVE REALISATION

LIMITED CORRELATION BETWEEN LOST TIME AND FATAL INCIDENTS. (AGA)

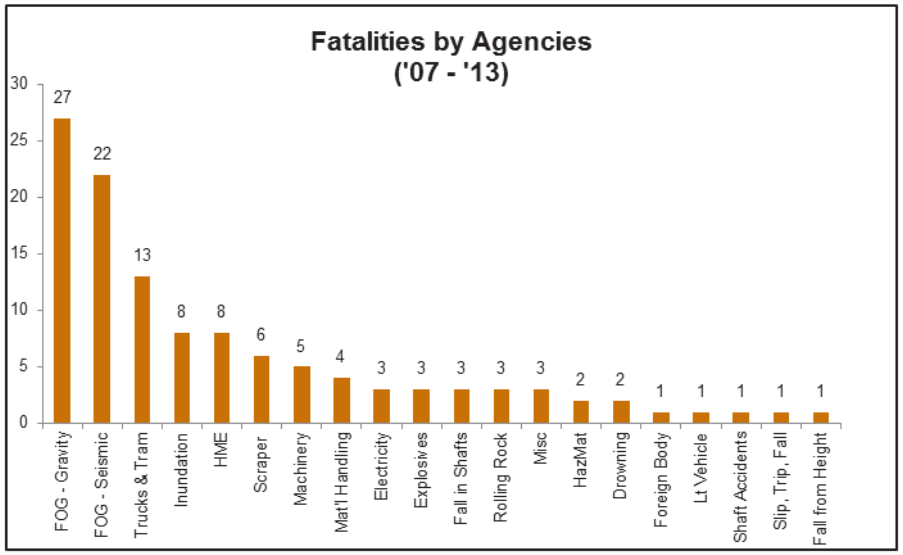


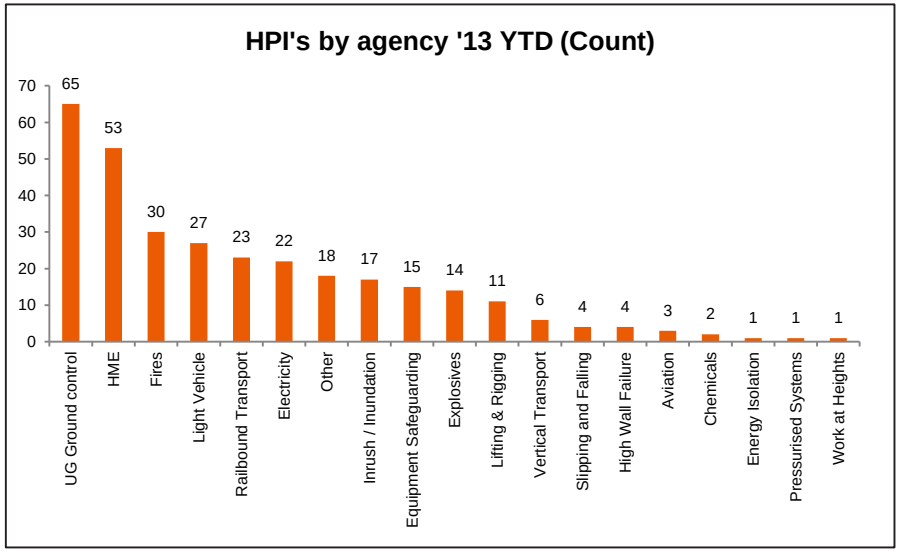
Correlation Coefficient <0.5 …
weak to minimal correlation



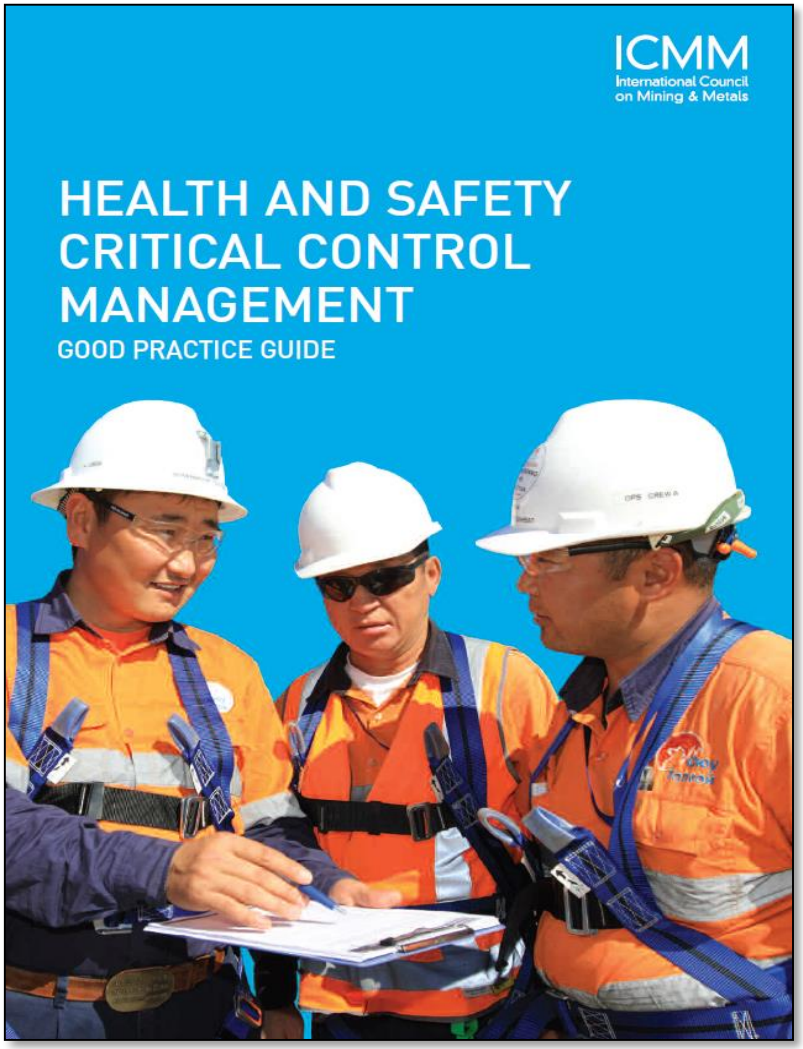


2013 - Initial focus on learning from HPI given the correlation between fatal and HPI incidents





2014
Realised the value potential of CCM



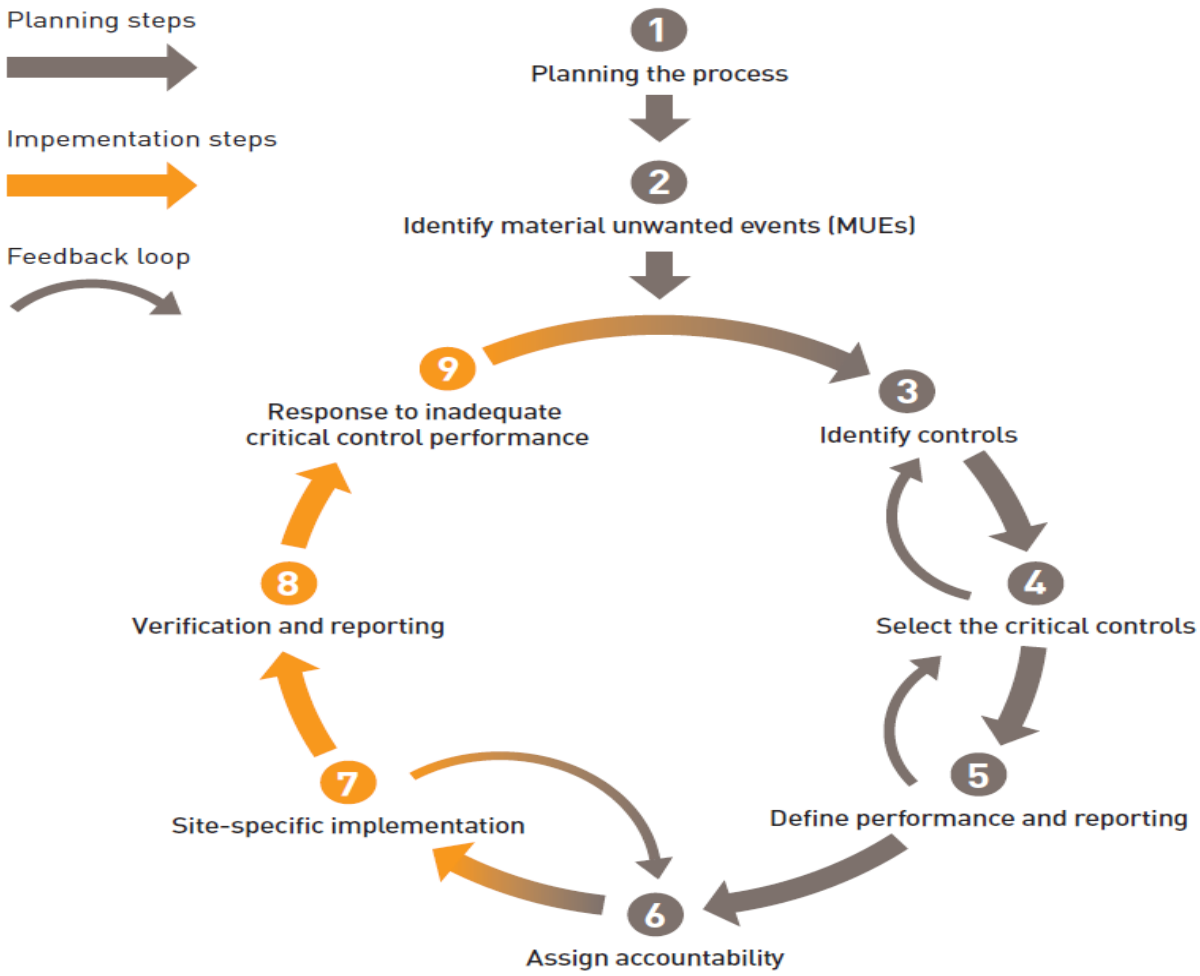
Critical control management is an integral part of risk management with a focus on the critical few risks and associated critical few controls

The process requires the active participation across organisational levels in the establishment of adequate controls given the materiality of the risk, allocation of accountability for implementation/maintenance of controls and performance monitoring of critical controls, to prevent the realisation of material risk

Development of the guide

1. Undertake High Level Telephone Surveys with ICMM Members
2. Identify the leading practice elements
3. Present at the first ICMM workshop (March 2014)
4. Undertake a more detailed information survey with subset of ICMM members based on information from Workshop One
5. Draft the ICMM guidance note
6. Present recommended draft materials at second ICMM workshop (October 2014)
7. Complete the final guidance note and the support resources.
8. Publish guidance (9 April 2015)

CCM process overview



Minimum Critical Controls

1 Personnel

- Pilots meet all licence and experience requirements and are fit for work**.**

2. Aircraft

- Appropriate for the activity and suitably equipped.

3. Fuel

- Acceptable quality and quantity for the activity.

4. Weather monitoring and forecasting

- Appropriate for the activity and operating environment.

5. Infrastructure

- Acceptable design and operating conditions for take-off and landing.

Critical Control Performance Standard

Critical Control 2: Aircraft		
Objective		
Aircraft used in support of contracted aviation operations meet design and operating requirements set by BHP Billiton.		
Performance Standard		
Design Description	**Management system**	**Critical Control Verification**
Single Engine Aircraft: Will only be used for passenger flights in a non-hostile environment under day visual conditions Multi-Engine Aircraft: Will be used: • When operating in a hostile environment • Instrument or night conditions • Extended over-water flights	Risk assessment conducted that determines operating environment as hostile or non-hostile. Use of aviation specialist advice in developing technical schedule for aircraft type used on contract. Aircraft on Short-Term contract (< 6-months): Meet the equipment requirements contained in BARS Appendix 2 Aircraft on Long-term contract (> 6-months): Meet the equipment requirements contained in BARS Appendix 2.	Verify process that defines the operating environment as hostile or non-hostile, and the selection of aircraft type to suit that environment. Verify process that demonstrates contractual specification of aircraft that meet the design and operating requirements of the performance standard. Verify aircraft on contract meet the design and operating requirements of the performance standard Verification and Frequency: Annually.

Question Set for Critical Control Discussion

Critical Control	Question	Anticipated responses
Personnel	How do we know the flight crew on the contracted flight meet the minimum requirements and experience?	• All requirements contractually stipulated • List of approved flight crew known by BHP Billiton • Flight crew scheduling incorporates all minimum requirements • Control self-assessment samples flight records to ascertain compliance
	How do are we assured the aircraft operator's personnel understand the BAR standard?	• Means of verification in place confirming all flight crew and scheduling personnel know and understand requirements of BARS • Operational Reviews sample compliance
Aircraft	How do we know if this aircraft has all of the equipment we require?	• Risk Assessment process established the need for single or twin engine operations. • Equipment specification contractually documented. • Operational Reviews sample compliance.
Fuel	How do we confirm that fuel of a suitable quality is being uplifted?	• Fuel source is known and verifiable assurance provided from (a) aircraft operator or (b) BHPB site providing fuel. • Drum stock stored in acceptable conditions and manner. • Fuel has been tested prior to uplift with verifiable records.
	How do we know the aircraft are always landing with sufficient fuel on-board?	• The fuel requirements are covered as part of the Operational Risk Assessment. • Fuel utilisation covered as part of an Operational Review • Post-flight confirmation from aircraft operator
Weather monitoring and forecasting	How do we know the flight crew are able to receive accurate weather information?	• Activity and departure/arrival sites have government provided weather information services available. • BHPB provided site has weather information service available • Non-standard destinations include weather information source as part of operational risk assessment.
Infrastructure	What have we done to understand our minimum responsibility in providing infrastructure?	• Operational Review has covered the BHP Billiton facility and addressed all requirements against the BAR Standard. • Infrastructure requirements covered with the aircraft operator at Operational Risk Assessment • Any variations required approved and endorsed by all appropriate personnel.

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