

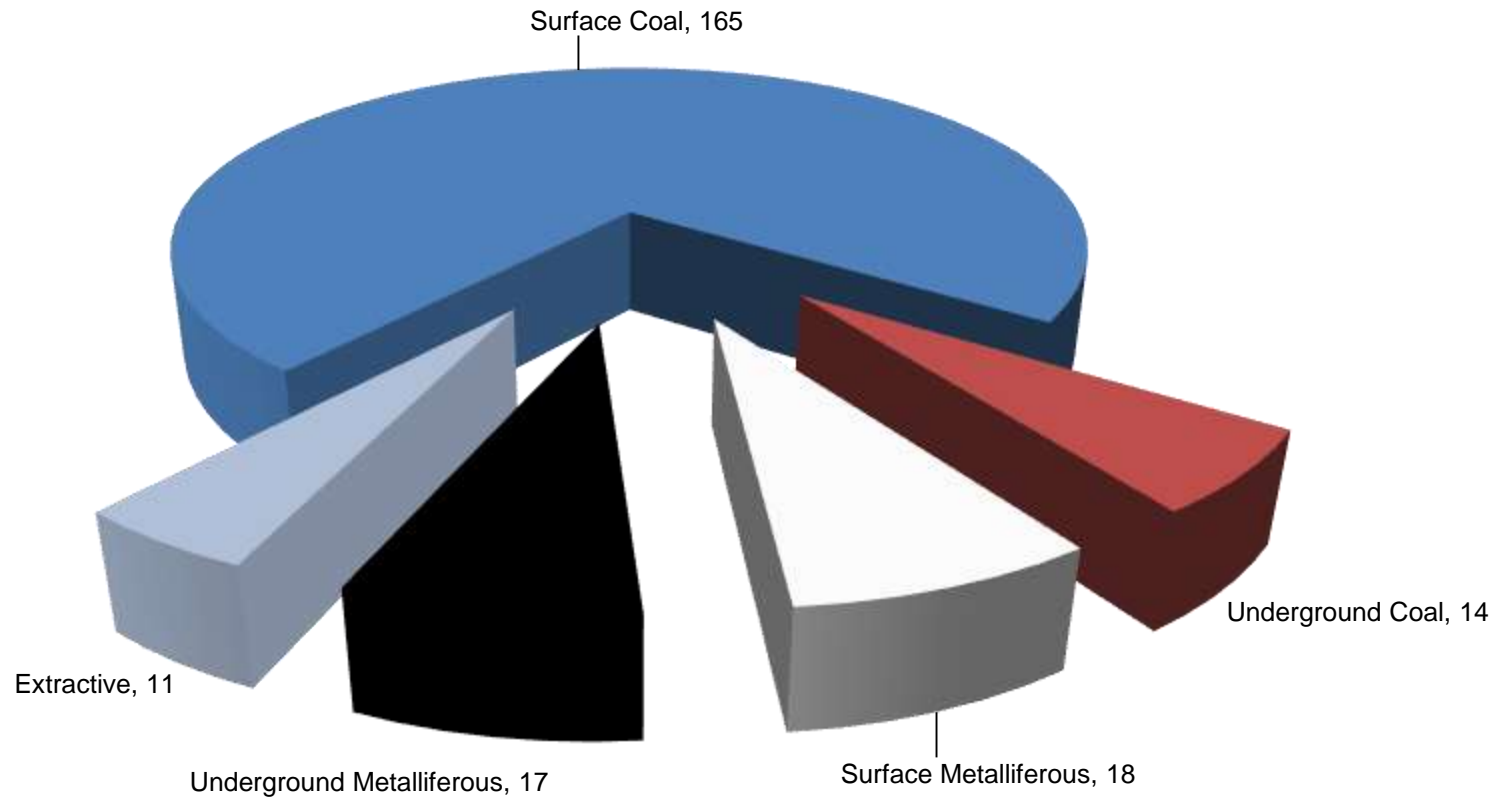
Selection of a Collision Management System utilising MDG2007



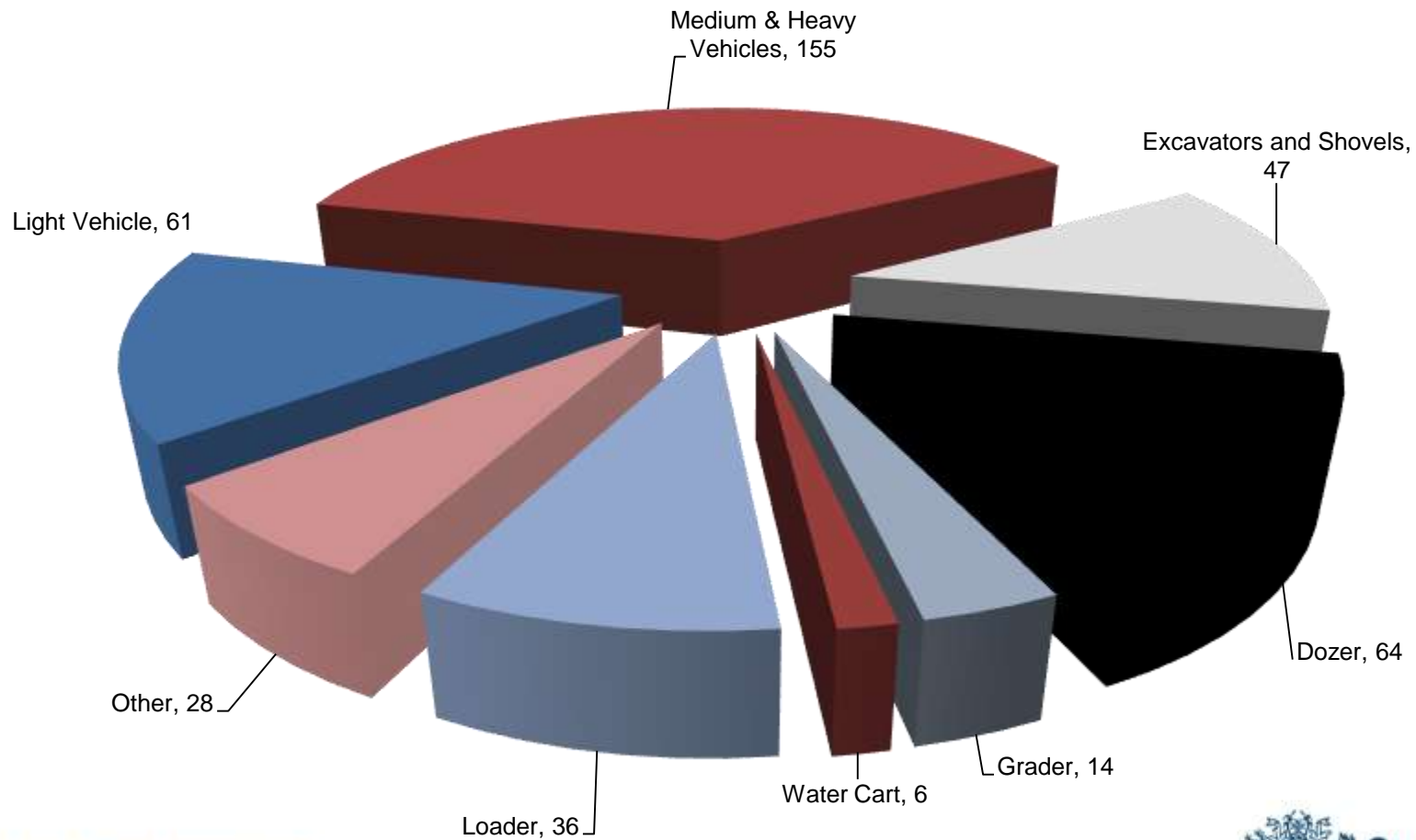
Information Release: Collision between
haul truck and light vehicle Investigation
Information Release No: IIR13-06*

Presented by **Lionel Smith**
Mines Inspectorate – South Region

The past year in Queensland



What has been involved



Who is MEPIAG?

Mining Equipment, Personnel Interaction Advisory Group formed in 2011 to develop guidance material associated with interaction of people, infrastructure and equipment.

The origins of this publication

Qld were already concerned about the number of interactions and had started work in this area.

USA were concerned over the number of fatalities in there industry involving collision management.

NSW had also identified a concern and needed to move forward but how?

In 2011 NSW held a 2 day workshop in Sydney and the outcome was to develop an industry guideline.

Who was involved

Chaired by the Mine Managers Association of NSW.

Organised by NSW Trade & Investment.

Scribed by QLD DNRM.

Working group consisted of representation from;

- Surface mines – QLD and NSW
- Underground Mines– QLD and NSW
- Proximity equipment suppliers
- Original equipment manufactures

Published by NSW in February 2014 following a public comment period.

The scope of the working group

Advise industry on the interaction of risks to personnel, infrastructure, and equipment during operation.

Advise industry on the implementation of systems.

Be the forum for mining operators, employee bodies, equipment suppliers and regulators to improve safety in this dynamic environment.

Be the focus group for all types of mining.



Trade &
Investment
Mine Safety

GUIDELINE

MDG 2007

**Guideline for the selection
and implementation of
collision management
systems for mining**



The purpose

Provide information to assist a mine to navigate the path of selection of a collision management system for their mine.

The guideline applies to equipment under control that interact with people, other equipment and infrastructure.

This is a minimum approach and each site needs to consider their own operating environment.

Context

The collision management system needs to provide additional layers of protection to reduce the risk of collision interaction. It is not intended that these systems replace existing administrative controls (e.g. induction, training etc.) but will be elevated within the hierarchy of controls to engineering as a minimum to ensure that the risks associated with interactions are as low as reasonably practicable.

Our challenges

What would work for industry?

Organisations wanted prescription rather than another document –

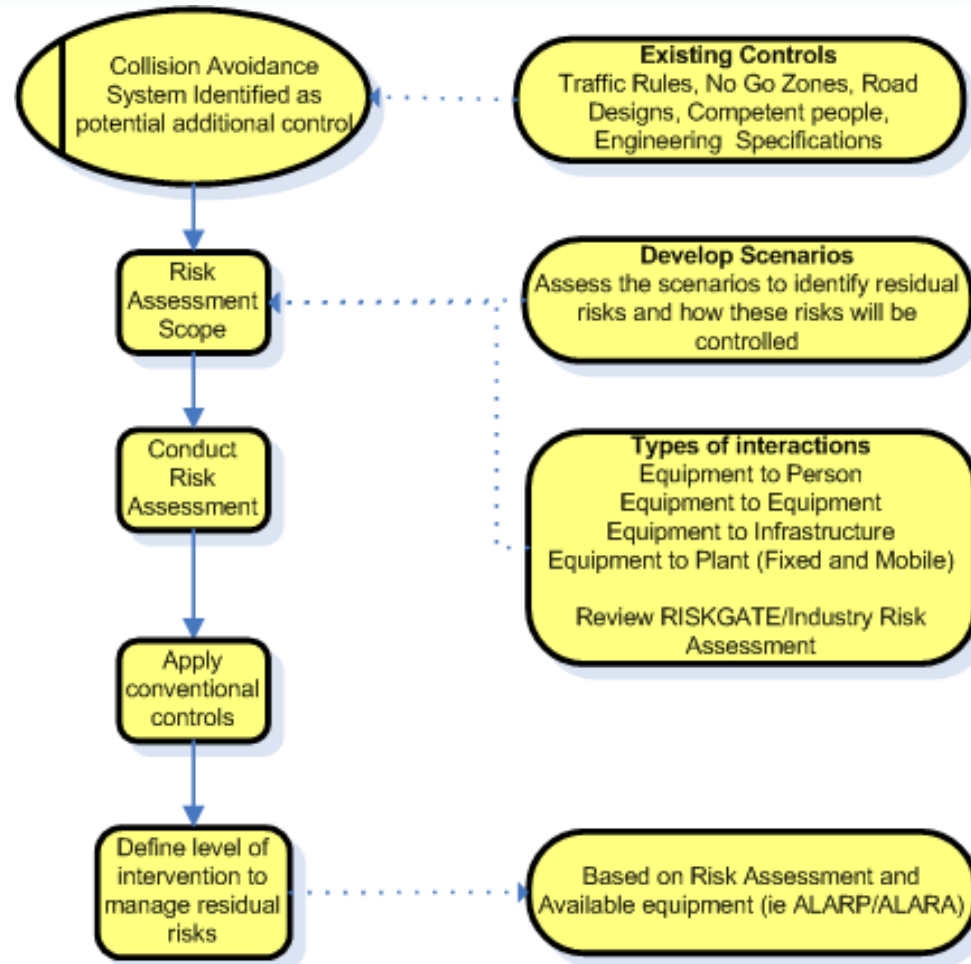
- Tell us what to do.
- Tell us how to build a system.
- What is the desired outcome.

OEM's trying to guide towards International Standards (without success)...

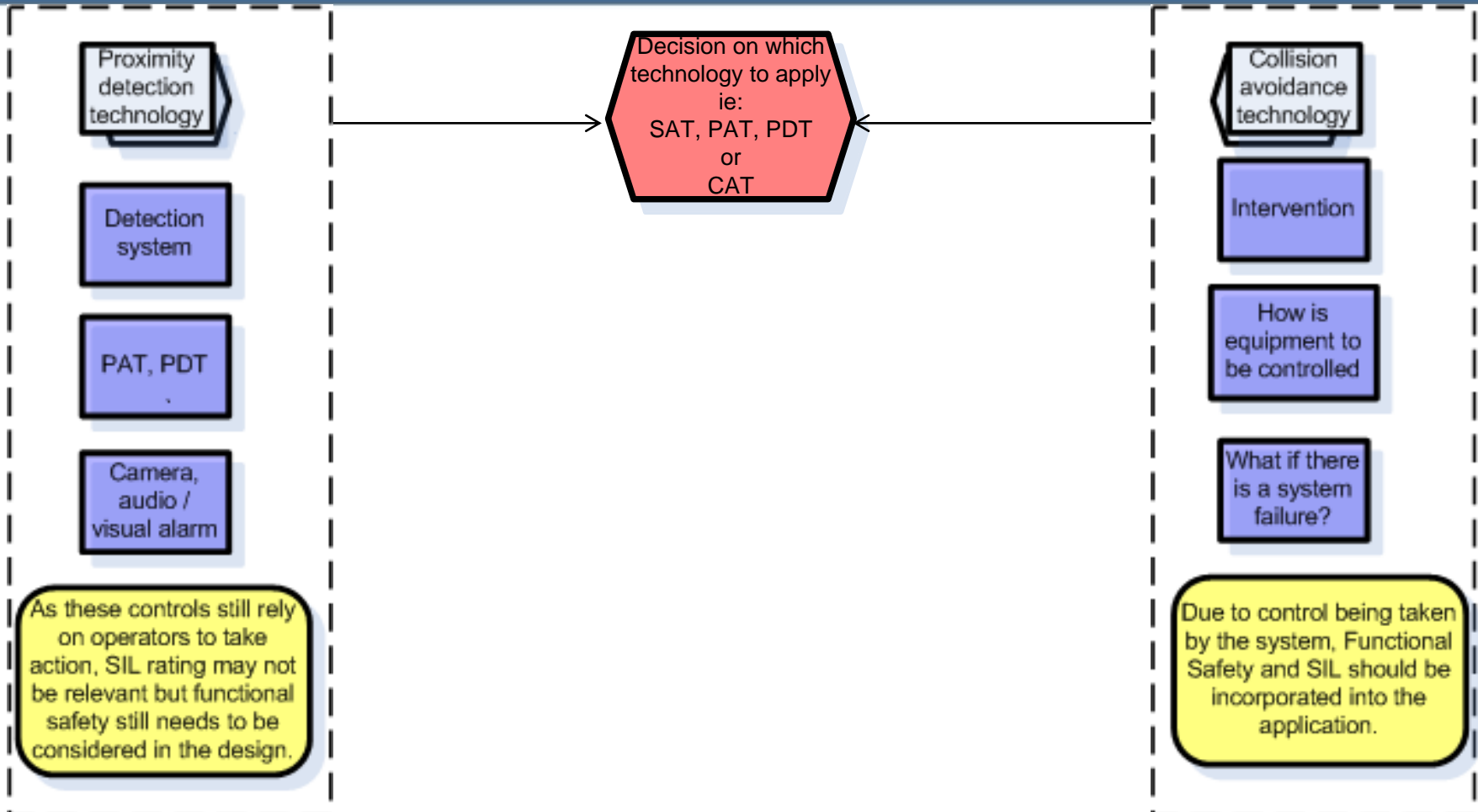
Wanting detail on how to build a system to sell to a mine.

General objections to what we were doing.

A walk in the park



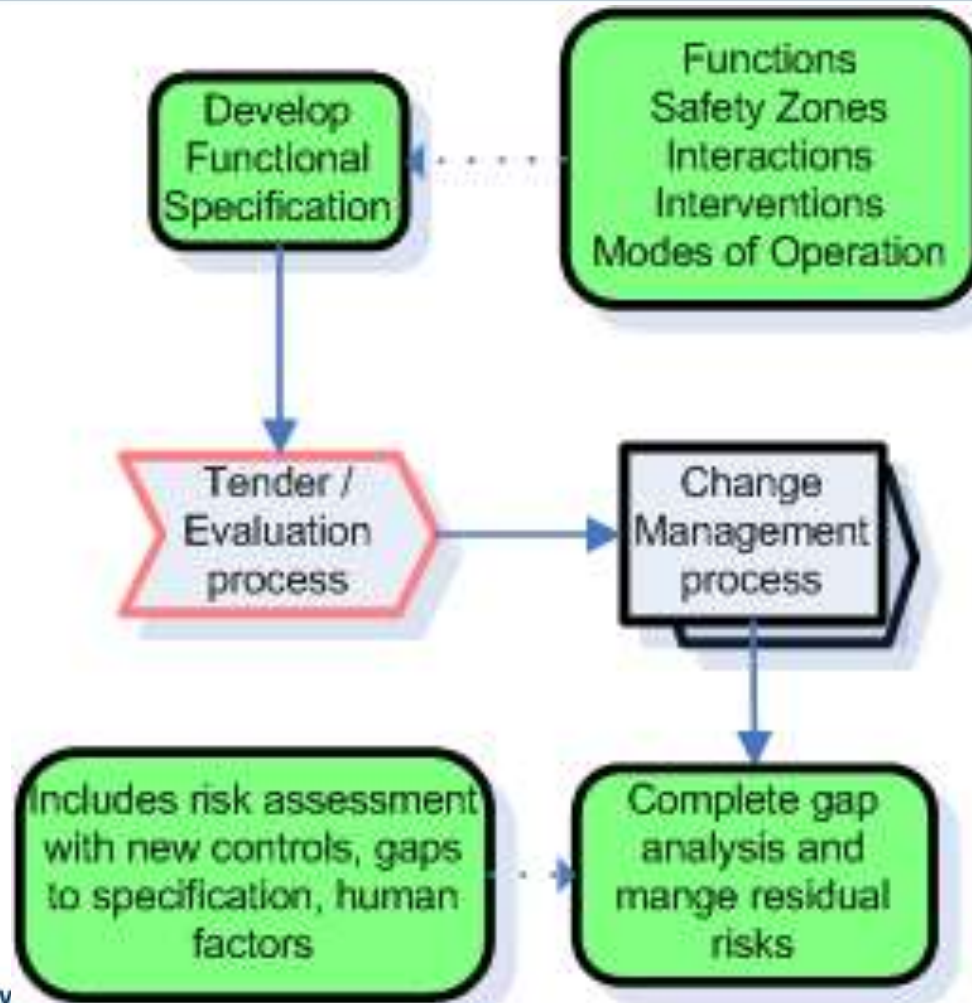
Or is it?



Great state. Great opportunity.



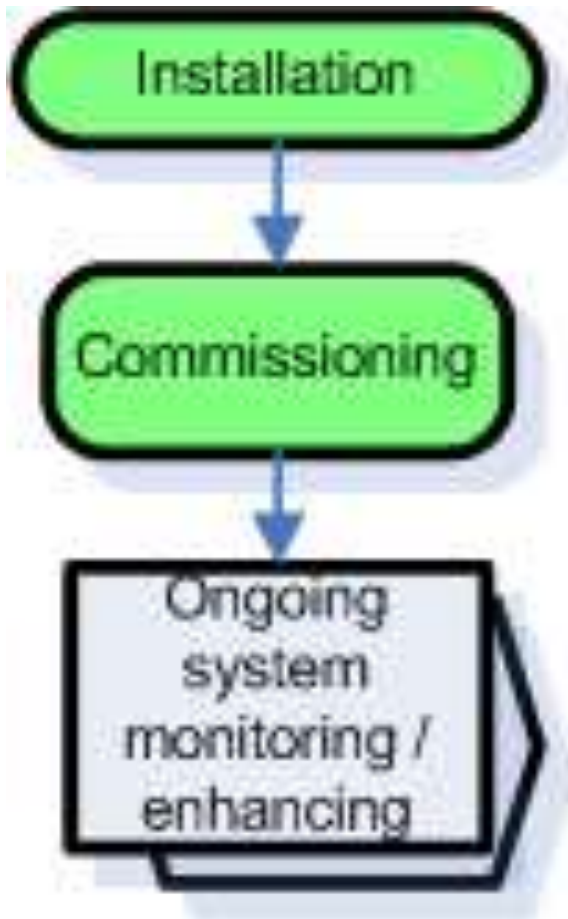
We have decided



Sample hazard zone requirement

Nominated Hazard	Criteria		Technology			
			SAT	PAT	PDT	CAT
Personnel	Zone	Alarm	Desired	Required	Not Required	Not Required
		Alert	Required	Not Required	Required	Not Required
		Stop	Required	Not Required	Not Required	Required
	SIL / PL		To be determined			
	Demand		N/A	High	High	Low
	Response Time		N/A	<1s	<1s	<1s

Lets go



Training, documentation, maintenance strategy, risk assessments, monitoring if the system has delivered the outcomes etc

Define what you want for your mine

Clearly define what functionality the system should provide to workers to reduce risk to as low as reasonably practicable.

Where appropriate, the mine should ensure that designers identify safety critical components of the system so that the mine can determine a quantifiable level of risk to workers.

Safety critical functions should be identified. An appropriate Safety Integrity Level (SIL) or Performance Level (PL) needs to be assigned.

Interfacing with other systems

Consideration should be made by the mine of how hire plant and equipment fitted with a collision management system can be / will be integrated into the mines system(s). (e.g. Contractor plant and equipment, hire equipment).

Define your safety zones

Speed and direction of travel of EUC.

Location of workers.

Operating conditions.

Operating environment.

Location of EUC operators.

Define your safety zones

Visibility from EUC position.

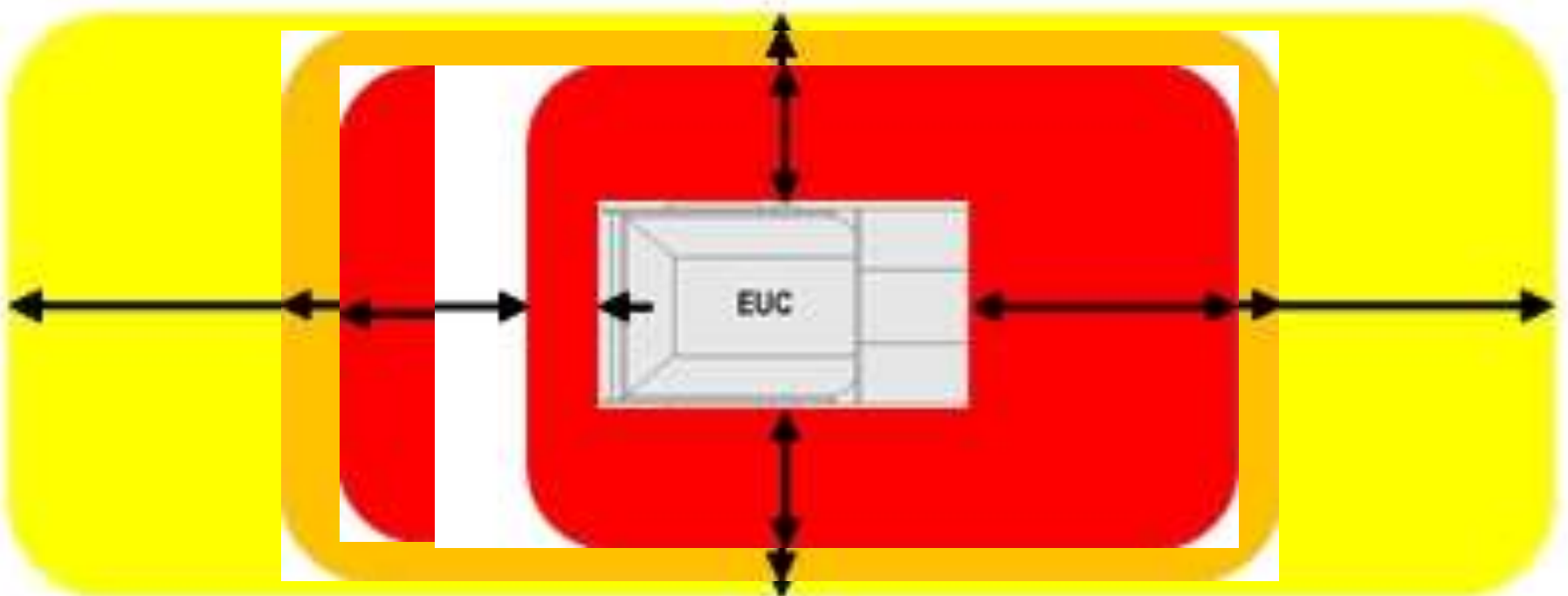
Operation of machine.

“Demand load” on the system.

Latency of system.

During the defining of the detection / protection zones, consideration should be considered to the dynamic shape of zones under all operational scenarios.

Defining zones



Developing the scope

Level or levels of intervention.

How functional safety is to be determined and maintained through the equipment's lifecycle.

Identification of safety critical functions.

Site specific requirements.

Ability to interface with other systems.

Limitations associated with operating conditions.

Testing and commissioning and verification requirements.

Certification documentation (where applicable).

Developing the scope

Ability to accept future technology.

Ability to record and log events for retrieval.

Maximum scan time and reaction time of system or output events.

Developing the scope

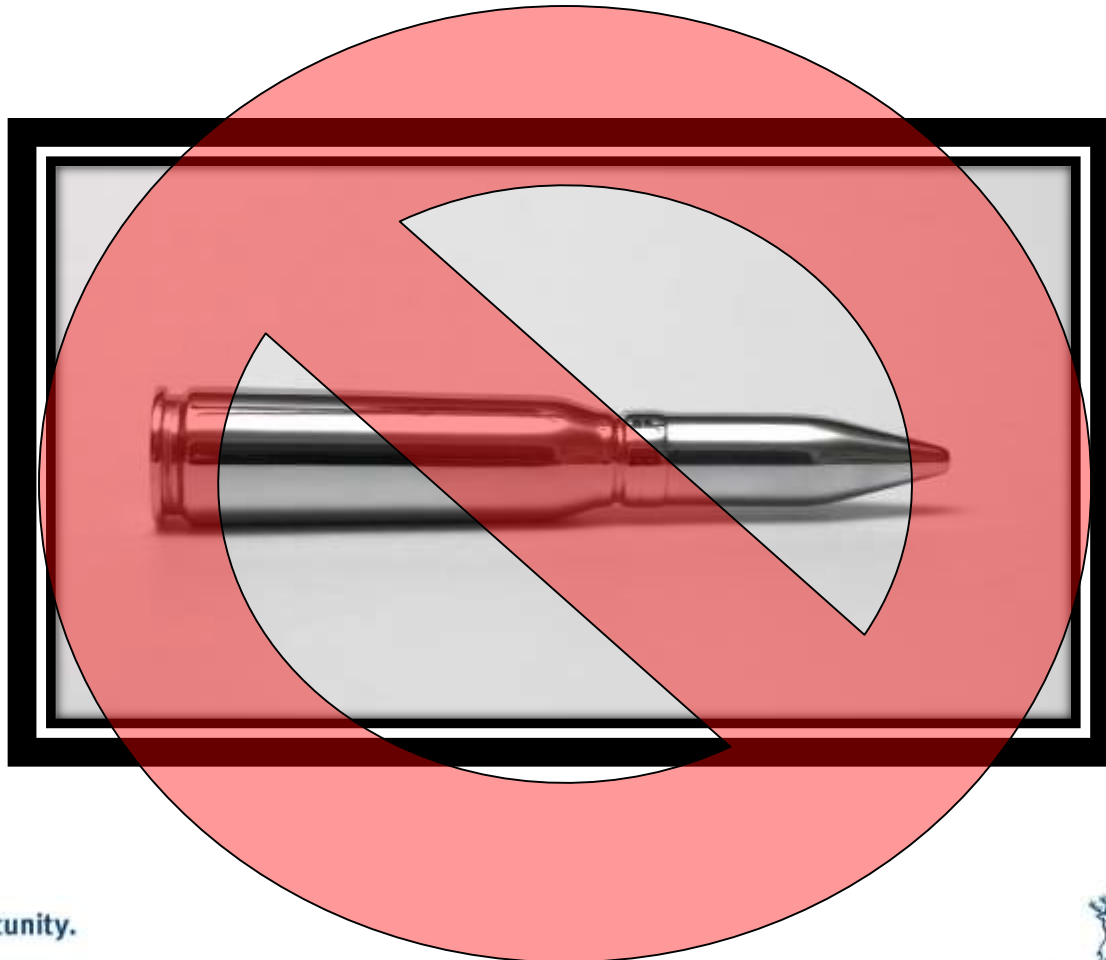
Notification from the supplier/s of

- residual risk and/or,
- limitations associated with the supplied system/s or any of its components,
- ability to over-ride system/s in the event of a system/component failure to make the equipment safe.
- system ‘self-test’ functions.
- system safety zone range, accuracy and polar coverage.

Acknowledgments

Acknowledgement is given by the working group to AngloAmerican and Glencore Xstrata for allowing use of material to allow development of this publication.

Is this the silver bullet?



Where can I get a copy

Pick up your copy of the document from

http://www.resourcesandenergy.nsw.gov.au/__data/assets/pdf_file/0004/507316/MDG-2007-Guideline-for-the-selection-and-implementation-of-collision-management-systems-for-mining-2014.pdf

Thank you

Questions??

