AngloAmerican

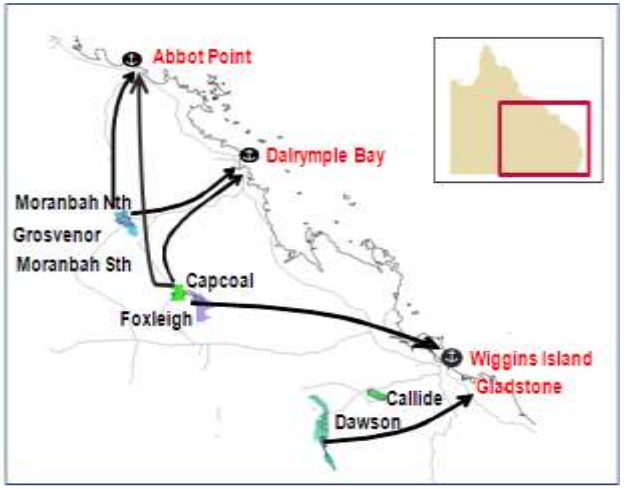
CRITICAL CONTROL EFFECTIVENESS

Real Mining. Real People. Real Difference.

ANGLO AMERICAN

Who we are at a glance

- One of the world's largest diversified mining companies
- More than 145,000 permanent employees and contractors
- Focused on operating world class assets in the most attractive commodities:
- Operations in Australia are part of the global Coal business unit
- Six mines in Queensland, one in New South Wales; one metallurgical coal mine in British Columbia
- Three growth projects



THE INCIDENT

Critical Control Effectiveness Monitoring process was initiated by a significant incident that occurred at Dawson mine.

Low wall toppled into the pit partially engulfing an excavator and haul truck.

Investigation revealed a fundamental failure in managing critical controls over the long term.

Specific program was developed to ensure the ongoing effectiveness of critical controls.

Critical controls are now subjected to high level monitoring

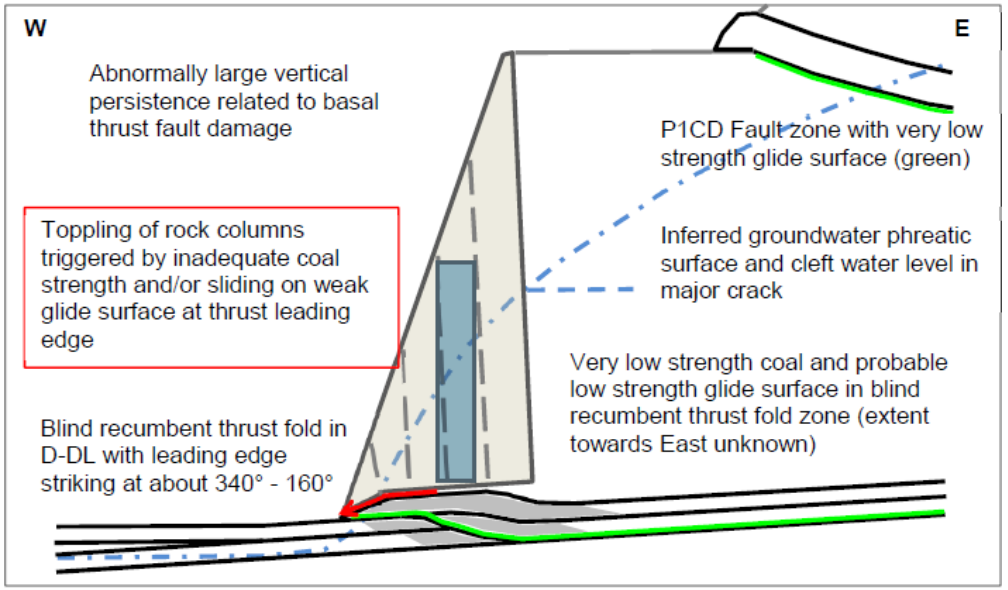
OUTCOME OF INVESTIGATION

Direct Cause

- Complex full-face “topple” of the strata

Contributing Factors

- Geotechnical Issues
- Mining activities that progressively removed support for the pit wall
- Communications



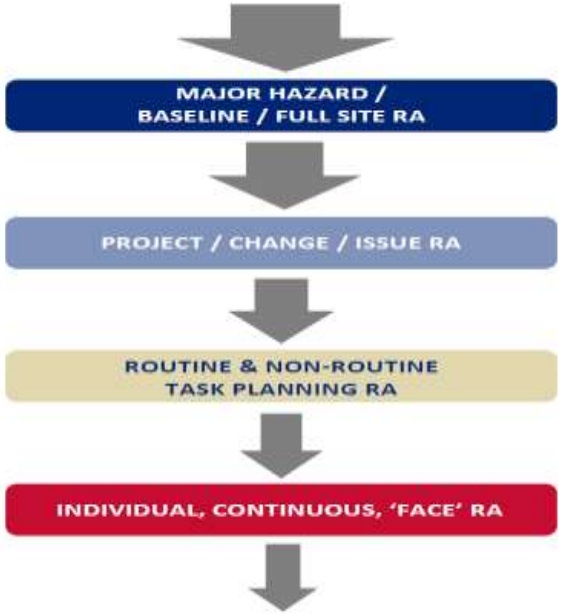
CRITICAL CONTROL FAILURES

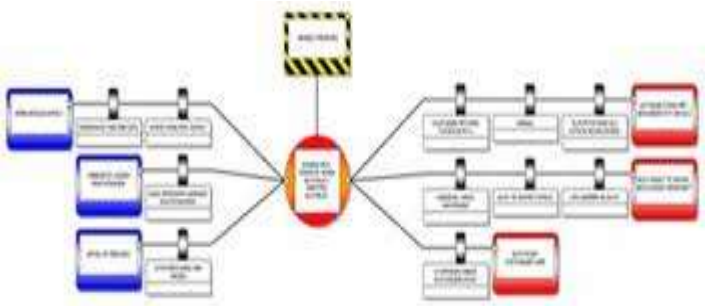
- The slope stability radar
- Monitoring the top of the pit wall for cracks
- No hard barrier was put in place at the toe of the pit
- Verbal advice on managing the risks associated with mining

PROCESS ASSUMPTIONS

The Critical Control Effectiveness Monitoring process is dependent on the following processes:

- A comprehensive ‘baseline’ risk assessment conducted across the site;
- Identification of ‘Priority Unwanted Events’ or events that could lead to multiple fatalities; and
- Controls required for the management of Priority Unwanted Events have been identified via comprehensive risk assessment exercises (typically ‘bow-tie’ analyses).





CRITICAL CONTROL EFFECTIVENESS MONITORING (CCEM)

Critical Control Management	**does not replace** the requirement to have day to day checks and monitoring processes for critical and other controls that are routinely undertaken by Supervisors, Open Cut Examiners, and other coal mine workers.
Critical Control Effectiveness Monitoring	an **additional higher level assurance process** to verify and ensure the ongoing effectiveness of critical controls for multiple fatality risks.

Critical Control Effectiveness Monitoring Example

Critical Control Management

Critical Control	Critical Control Owner	Critical Control Specification – Criteria for Effective Control	Critical Control Management		
			Management Action	By Who	Frequency
Monitoring of Low Wall Stability	Production Manager	• A standoff distance of 15 metres from base of Low Wall	Inspect low wall drop zones are in place and at 15 metres	OCE	Daily
		• Ground Control Radar in place to monitor stability	Ensure Ground Control Radar in place and functioning	Geotech	Weekly

Critical Control Effectiveness Monitoring

Requirements to verify Effectiveness	Frequency	Owner
• Review a selection of OCE reports to ensure information has been acted on. • Inspect the integrity of standoff distance of 15 metres from base of Low Wall • Review a selection of Geotech pit inspection forms for quality • Conduct checks to verify the integrity of existing controls (review Incidents, etc)	Monthly	Production Manager

THE REPORTING PROCESS

The CCEM process has been operating at all of the company's open cut mines in Australia and Canada since late 2013.

The system is now well embedded and the use of the process is becoming more mature.

Manual process of managing and reporting

- Check Sheets for verification of each critical control
- Critical Control Effectiveness Summary Report
- Mine Site CCEM Report

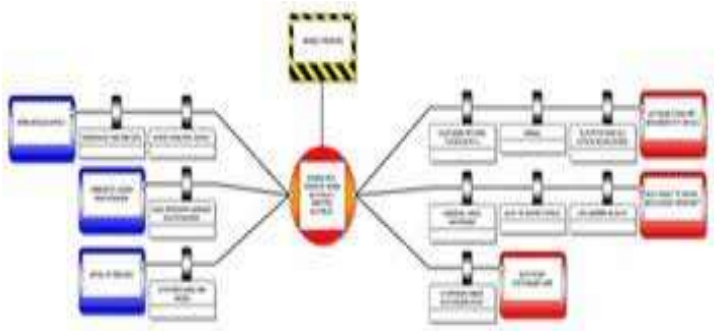
The current paper based system has limitations

Risk management platform will been implemented to automate the reporting process

AUTOMATING THE PROCESS – THE WAY FORWARD

enablon
Enabling the Sustainable Company

- Risk Management
- Action Management
- Inspection / Monitoring



CRITICAL SUCCESS FACTORS

- Baseline Risk Assessment
- Identification of Priority Unwanted Events
- Identification of Critical Controls
- Process for Monitoring Effectiveness of Critical Controls
- Reporting and Accountability

CONCLUSION

An investigation following an Incident revealed a fundamental failure in managing critical controls.

Implementation of a formal process for managing control effectiveness

Benefits

1. Substantial increase in the focus on critical controls
2. Practical means of ensuring critical control effectiveness
3. Greater levels of assurance around the management of multiple fatality risk
4. Increase in improvements made to critical controls

AngloAmerican

QUESTIONS