

**Coronado Global**  
Curragh North Open  
Cut Mine

**Executive Summary with Key Findings**

Vehicle Interaction Control Effectiveness  
Performance Review with Digital Baseline

**Version 1.1**

Limited Distribution | for Client Comment

# Acknowledgements

Thank you to Ms Teale Hamilton and Mr Andrew King who coordinated the Curragh North Open Cut (CNOC) Mine site activities and inputs for this Vehicle Interaction Control Effectiveness Review.

The authors also acknowledge the capability, commitment, and contributions of the Curragh North contractor and company personnel representing maintenance, site operations, senior management, business partners, and support functions.

This executive summary with key findings report, supporting appendices, and CNOC digital knowledge and performance reporting platform, are built from their experience, insights, and understanding of the current effectiveness of vehicle interaction controls at Curragh North Open Cut Mine.

Over the last eight years, in collaboration with the ICMM, EMESRT and multiple resource industry clients, Risk Mentor has developed the content and processes used globally to undertake Vehicle Interaction Control Effectiveness (VICE) performance reviews.

This Curragh North Open Cut Mine review is supported by Risk Mentor proprietary software and Risk Mentor Version 3 Reference Content, released in June 2024 and updated quarterly.

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## Executive Summary

### Curragh North Open Cut Mine: A Strong Operation with Opportunities for Improvement

Curragh North Open Cut Mine is a well-managed, productive operation with robust practices that align with industry good practice.

The CNOC VICE Baseline confirms that site processes are well-documented, implemented, and generally reliable across both contractor and company workgroups.

#### Key Findings: 95 Opportunities for Improvement (OFIs)

Despite its strong foundation, the review identified 95 OFIs for management consideration highlighting:

##### Gaps Between Intent and Practice

Discrepancies between planning, process and procedures i.e. *"work as documented"* and real-world execution *"work as done"*.

Limited performance measures to identify, understand and address gaps while delivering enhancements systematically.

##### Commitment to Excellence

Many OFIs build on current practices, reflecting the dedication of review participants to improve CNOC performance.

## Focus Areas for Improvement

CNOC leaders, at all levels, are committed to strengthening vehicle interaction controls, especially those that are dependent on operator in-task judgements, and where errors can have fatal consequences.

Delivering on this commitment requires a structured, iterative approach that challenges a good organisation to improve. This begins with reviewing VICE Baseline performance review messages and outputs for relevance, practicality, and value-add.

### Key focus areas include:

**Personnel:** review training, information quality and supervisor support to consistently deliver people dependent site processes.

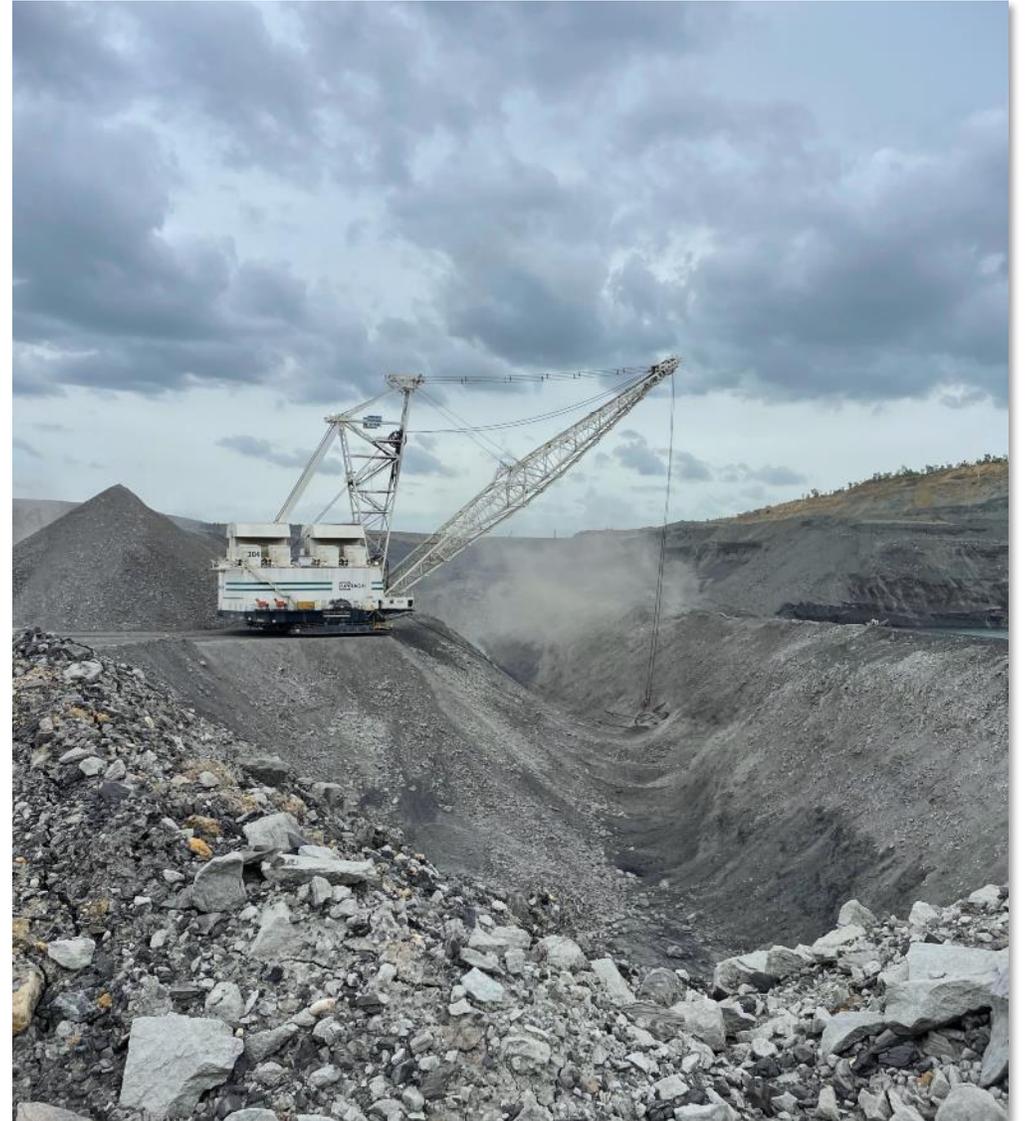
**Systems Optimisation:** review and improve site performance monitoring processes, consider digital options

### Industry Benchmarking CNOC Baseline

Incident patterns and CNOC and OFIs differ from similar mines, with a higher reported incident total and a greater proportion of incidents related to road conditions.

### Next Steps

Senior management appoint and sponsor specialist teams to review and process the Opportunities for Improvement. (Overview next section with full details in the [CNOC Mine Knowledge and Performance Platform](#)).



Section 2

# Curragh North Open Cut Mine VICE Performance Baseline Review Summary Findings



# Opportunities for Performance Improvement

Based on:

- The validation workshop opportunities for improvement and key themes identified by CNOC Mine personnel
- The site vehicle interaction incident experience
- The gaps between site documentation and operational practice identified during baseline mapping, and
- Preparing functional requirements for the operational integration of CAS and other Technology

Risk Mentor recommends an initial focus on performance improvement opportunities for:

- **Personnel**, and
- **Systems Optimisation**



The Risk Mentor Review Process organises performance baseline findings across these five categories:

- Personnel.
- Equipment.
- Operating Environment.
- Workgroup Interactions (Mobile Equipment Interfaces).
- System Optimisation.

## Personnel | Definition and Overview

(25 Business Inputs Reviewed)

Operators and all people working around mobile equipment are trained, competent, authorised, informed, alert, and situationally aware.

These business inputs focus on ensuring:

- Operators in control of mobile equipment are trained, competent, authorised, and situationally aware
- People who routinely work around mobile equipment are trained, competent, authorised, alert, informed and situationally aware
- People who are visitors to mobile equipment locations are authorised, supervised, alert and situationally aware
- Mobile equipment operational requirements (task assignments) are effectively communicated by supervisors to the workforce
- Mobile equipment operations are monitored and adjusted to remain safe and productive e.g. credible failure modes that can compromise alertness and situational awareness are identified and managed.



## Personnel at Curragh North Open Cut Mine | Key Findings (\* 42 Opportunities for Improvement)

### A. Selection, Onboarding, Inductions and Training

- Identify key training modules requiring trainer-led delivery instead of online completion.
- Standardize critical skills (e.g., 50m clearance, blind spot zones) across all CMWs and contracting groups.
- Use explicit instruction—avoid assumptions of “common sense” knowledge.
- Implement post-training assessments to confirm competency in field conditions.

### B. Improve Communication of Instructions and Briefings

- Improve pre-shift briefing infrastructure—start with voice amplification where needed.
- Implement structured feedback loops to confirm understanding of SOP changes and toolbox talks.
- Provide clear, timely follow-ups on CMW-reported hazards and investigation outcomes.

### C. Fitness for Work

- Trial early-warning fatigue detection technology (e.g., biometrics, in-vehicle monitoring).
- Review shift rosters and cumulative working hours for fatigue risk trends.

Operators and all people working around mobile equipment are trained, competent, authorised, informed, alert, and situationally aware.

### D. Leadership and Performance Management

- Strengthen supervisor selection and training to ensure technical and leadership competency.
- Reinforce "Safe Production" principles—prevent production pressures from compromising safety.
- Implement structured leadership feedback and monitoring processes.

### E. Additional Considerations

- If possible, integrate a digital tracking system to log and monitor key initiatives, ensuring visibility on training completions, communication effectiveness, and leadership performance.
- Implement a digital workflow system to allow CMWs and Supervisors to provide information on conditions encountered and decisions made in-field.



\* Some of the OFIs identified apply to more than one Business Input so that the category-by-category OFI count is greater than 95.

## System Level Optimisation Definition and Overview

(27 Business Inputs Reviewed)

Vehicle interaction management is well coordinated, practical and integrated with routine operational and business processes.

This group of Business Inputs includes the system-level business inputs necessary for ongoing safe and productive use of mobile equipment. These focus on having a whole of system overview of activities and when necessary, making modifications. This group of business inputs supports operating sites so that:

- Operators in control of mobile equipment are trained, competent, authorised, informed alert and situationally aware
- People who routinely work around mobile equipment are trained, competent, authorised, alert and situationally aware
- Work environments are designed to be as error free as is practical
- Ensuring that mobile equipment interactions are routinely reviewed during production planning and scheduling
- Mobile equipment operations are monitored and adjusted to remain safe and productive
- Operations are monitored; adjusted to remain safe and productive.



## System Level Optimisation at CNOC Mine | Key Findings (\* 34 Business Inputs Reviewed)

### A. Leadership Intent and Accountability

- Review, update, and more consistently apply the Curragh North Open Cut Mine Traffic Management Plan
- Leverage the VICE workshop outcomes to reinforce Leadership commitment to a strong safety culture at CNOC.

### B. Engagement and Consultation

- Implement more cross-company (CG Business Partners) structured communication to help make everyone's approach and activities consistent and to a high standard.
- Improve change management consultation and communication e.g. on Traffic Management plan requirements, and selection of new equipment for use on site

### C. Supporting Systems

- Review the effectiveness of change management processes for new equipment.
- Review incident management and hazard reporting processes – communicating learnings.
- Review and align mining operations inspections and task observation processes.

Vehicle interaction management is well coordinated, practical and integrated with routine operational and business processes.

### D. Governance and Assurance

- Confirm that experienced senior managers have oversight of site Traffic Management Plans

### E. Improvement Planning and Leveraging Technology

- Confirm and Communicate intentions around improving technology that supports better operator decision making in-field.
- Apply VICE review outcomes to leverage outcomes from deployed and up-coming technology projects to generate the optimum improvements in mine designs and production planning.

## Equipment | Definition and Overview

(23 Business Inputs Reviewed)

Mobile Equipment is fit for use, key systems are functioning.

These business inputs focus on ensuring:

- Fit-for-purpose mobile equipment is selected for use
- Equipment is maintained to be operationally safe and productive
- Support equipment e.g., radio communications is fit-for-purpose and remains in service
- Equipment failures during operations are notified and managed.



## Equipment at Curragh North Open Cut Mine | Key Findings (17 Opportunities for Improvement)

### A. Human Systems Integration

- Confirm ergonomic layout of operator displays aligns with site standards.
- Standardize placement and function of communication tools (radio handsets, etc.).
- Improve in-cabin access to OEM manuals and safety information.

### B. Equipment Selection and Site Use Approval

- Strengthen site processes for equipment selection and approval.
- Standardize technology installations, equipment identification, and lighting requirements.
- Increase CMW involvement in equipment selection to prevent operational inefficiencies.
- Enhance site auditing to prevent non-compliant equipment from remaining in service.

### C. Maintenance

- Improve maintenance backlog management by incorporating in-field inspections before scheduled maintenance.
- Standardize maintenance processes across all contractor groups to ensure consistency.

**Mobile Equipment is fit for use, key systems are functioning.**

### D. Operator Checks and Defect Management

- Review prestart checklists and defect classifications, including non-OEM technologies and operator comfort systems (e.g., air-conditioning, seats).
- Confirm clear response protocols for alerts and alarms to standardize operator actions.

### E. Other Equipment Opportunities

- Establish a unified approach to position and speed alerting to prevent conflicting signals.
- Optimise use of mobile equipment performance data for better operational decision-making.

# Operating Environment Definition and Overview

(13 Business Inputs Reviewed)

The operating environment for mobile equipment is satisfactory; hazards are identified and managed.

This group of Business Inputs focuses on the operational management of mobile equipment covering:

- Standards, rules, and expectations for operating environment design and construction
- Work environment maintenance details covering- gradients, sheeting, drainage, lighting, signage, barriers, segregation etc.
- Work processes for managing changes in operating conditions.



## Operating Environment at CNOC | Key Findings (15 Opportunities for Improvement)

### A. Road and Intersection Design, Construction, and Maintenance

- Ensure consistent application of site standards for haul roads, ramps, and intersections from design through to maintenance.
- Address resource constraints that cause delays in pavement repairs, delineation, and sight-line improvements.

### B. Parking & Pedestrian Safety

- Improve parking area layouts and reduce congestion at go-lines.
- Introduce better defined pedestrian walkways to separate foot traffic from vehicle movement.

### C. Management of Operating Environment Hazards

- Assess lighting adequacy in-pit and at key infrastructure points, implementing improvements as needed.
- Strengthen management of visibility hazards (dust, weather conditions) through improved controls.
- Increase powder factors to reduce muck size and improve in-pit materials handling (excavators and dozers)

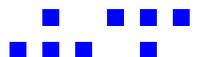
The operating environment for mobile equipment is satisfactory; hazards are identified and managed.

### D. Changes in Conditions

- Standardize trigger action response plans (TARPs) across business partners to ensure a coordinated response to changing conditions.
- Improve communication and enforcement of speed limits and road condition updates to keep all crews informed.

### E. Accountability & Oversight

- Clearly define in-field responsibilities for maintaining roadwork and operational area conditions.
- Improve monitoring and enforcement of compliance with road and traffic management rules.



# Workgroup Interactions Definition and Overview

(23 Business Inputs Reviewed)

Mobile Equipment interfaces with pedestrians and other vehicles are well managed.

This group of business inputs focuses on managing interactions with mobile equipment and covers:

- Pedestrians and mobile equipment interaction
- Mobile equipment unit to unit
- Road design including parking and quarantine areas
- Standards, rules and expectations for safe and productive mobile equipment operations between work groups all situations.
  - Protocols for maintenance and service support in operational areas
  - Protocols for service support in operational areas e.g. refuelling



## Workgroup Interactions at CNOC Mine | Key Findings (25 Opportunities for Improvement)

### A. Planning, Schedule and Shift-to-Shift Briefings

- Improve short-term planning to reduce congestion between business partners and functions.
- Standardize shift handover processes to improve situational awareness.

### B. Operational Practices

- Review breakdown, maintenance, and servicing protocols for better clearance and area delineation.
- Standardize escort and towing processes, ensuring trained personnel.
- Reinforce minimum standards for positive communications (radio use, pedestrian safety, and performance monitoring).
- Assess light vehicle access—limit authorized drivers and vehicle numbers where practical.
- Optimize refueling processes—location, communication, and interaction with HME operations.

Mobile Equipment interfaces with pedestrians and other vehicles are well managed.

### C. Access Control and Exclusion Zones

- Improve pedestrian management in operational areas and workshops.
- Review exclusion zone protocols to ensure consistency across workgroups.

### D. Vehicle Interaction Monitoring

- Develop use cases for CAS and camera technology to differentiate between detected objects (e.g., pedestrians, LV, ancillary equipment) and improve vehicle operator decision making.

### E. Other Workgroup Interaction Opportunities

- Align technology projects with workshop findings to enhance vehicle interaction controls.



## Next Steps: Reviewing Opportunities for Improvement

**Curragh North Open Cut Mine leaders review this report and appoint teams to systematically consider the opportunities for improvement in each of the five RM Control Framework categories to confirm their relevance and performance improvement impacts and provide action plan recommendations.**

### Foundation Concept

All successful vehicle interaction control improvement projects improve task level decision making for personnel operating or working around mobile equipment in two ways (type):

1. By better supporting their **judgement and decision making** e.g., by providing situational awareness technology, and short cycle performance capture, analysis and feedback
2. Through reducing **decision demands** e.g. by lowering the intensity, range, and number of vehicle interactions.

## Reviewing Opportunities for Improvement (cont.)

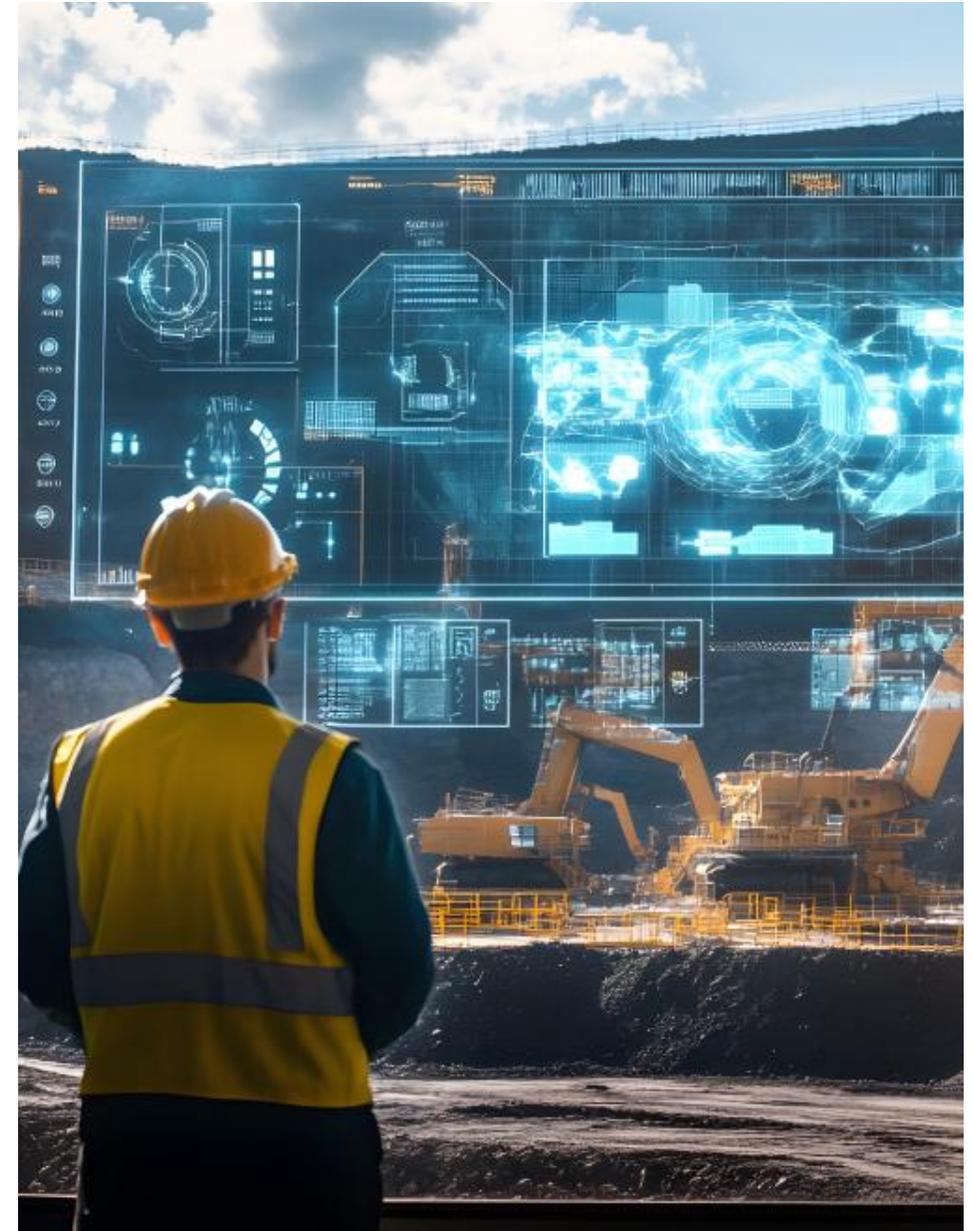
As a large and productive open cut mine, this comprehensive performance review confirms that Curragh North Open Cut Mine has opportunities to deliver improvements in both categories.

The operational integration of OAS technology is a significant **Type 1** opportunity. Other Category 1 opportunities include aggregating and leveraging existing deployed technology and site data streams and work on engaging employees to develop processes that:

- Capture, analyse and provide performance feedback to assist decision making at the task level
- Convert task level performance data into information flows that support supervisor decision making, and
- Aggregate, report and analyse information streams to assist with manager and system level decision making

**Type 2** improvements begin with a focus on the company systems, standards and process documentation that impact operational workflows for:

- Providing fit-for-purpose equipment
- Managing workgroup interactions
- Identifying and managing operating environment hazards
- Those that are legally required.



Section 3

# Improvement Planning

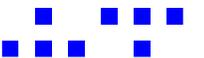


# Coronado Global Mining Multi-Phase Vehicle Interaction Control Improvement Project

A Work Breakdown Structure (WBS) breaks complex projects into smaller components called work packages. This WBS has these component areas:

- A. Manage as a series of interrelated projects over 5 phases (ongoing Project Management)
- B. Phases 1 and 2 Map and validate your Performance Baseline
- C. Work with your people to identify existing operational improvements
- D. Phase 3 - Identify and implement iterative design, operate and technology innovations
- E. Identify and implement - step change design and technology innovations
- F. Fit the project into your broader site and company digital strategy. Leverage existing risk and business system investments, develop detailed performance reports, monitor for drift, and provide timely and accurate information that supports good decision making at multiple levels.

PM. Project Management	1. VI Control Baseline (Phase 1)	2. VI Control Effectiveness (Phase 2)	3. VI Control Enhancement (Phase 3)	VI. Collision Control Deployment (Phase 3+)	LP. Leveraging Performance (Phase 4)
<b>PM.1 Initiation</b>	<b>1.1 External Expectations</b>	<b>2.1 VICE Baseline Workshop Schedule</b>	<b>3.1 VI Improvement Options Feasibility Scoping</b>	<b>3V.1 Capable Solution User Requirements</b>	<b>LP.1 VI Information Stream Digital Twin Analysis</b>
PM.1.1 Maturity Framework Assessment	1.1.1 Legislative Requirements	<b>2.2 VICE Baseline Validation Workshop</b>	3.1.1 Design Option Scope	4.1.1 Use Cases – Tech Functional Requirements	LP.1.1 Asset Performance Data Map
PM.1.2 Project Charter	1.1.2 Company Standards	2.2.1 Participant CFw Briefing	3.1.2 Operate Option Scope	4.1.2 Use Cases – Tech Performance Requirements	LP.1.2 Dispatch System Logistics Data Map
PM.1.3 Project Initiation	1.1.3 Sector Resources	2.2.2 'Work as Done' Validation with CMS	3.1.3 React Option Scope	4.1.3 Site Technical and Infrastructure Requirements	LP.1.3 Proximity Detection Interaction Map
PM.1.4 Stakeholder Management Plan	1.1.4 VICE Review Required Operating States	2.2.3 Intro to Functional Performance Scenarios	<b>3.2 Enhance VI Control Option Selection Process</b>	4.2.1 Technology Selection Process	LP.1.4 Operator Performance Map
<b>PM.2 Planning</b>	<b>1.2 Phase 1 Site VICE Baseline</b>	<b>2.3 Phase 2 VICE Baseline Report</b>	<b>3.3 User Functional Performance Requirements</b>	4.2.2 Option – Funct. Perf. Analysis	LP.1.5 Asset and Personnel Location Data Map
PM.2.1 Scope and Budget	1.2.1 Site Conditions	2.3.1 Sorted Opportunities for Improvement	3.3.1 Enhance Control Use Case (Functional Requirements)	4.2.3 Option – Cost Benefit Analysis	LP.1.6 Output Map of Other Data Streams
PM.2.2 Work Breakdown Structure and Schedule	1.2.2 Site Specific Requirements	2.3.2 Site External Expectation Alignment	3.3.2 Site Performance Requirements Enhance Controls	4.2.4 Technology Option Shortlisting	LP.1.7 Update of Site FP Scenario Review
<b>PM.3 Execution</b>	1.2.3 Credible Failure Modes	2.3.3 Action Plan with Management Approval	<b>3.4 Pilot Validation</b>	<b>4.3 Feasibility Pilot</b>	LP.1.8 Update Site Analysis and Reporting Requirements
PM.3.1 Status and Tracking	1.2.4 Incident Analysis	<b>2.4 Restore Site VI Controls to Nameplate</b>	3.4.1 Pilot with Feedback Process	4.3.1 Technology Requirements	<b>LP.2 Dynamic Performance Dashboard</b>
PM.3.2 Quality and Integration	1.2.5 BI Role Allocation	2.4.1 Progress Tracking Response	3.4.2 Calibration for Operational Deployment	4.3.2 Pilot with Feedback Process	LP.2.1 Decision Maker Information Requirements
<b>PM.4 Monitoring and Control</b>	1.2.6 BI Map 'Work as Documented'	<b>2.5 Phase 2 VICE Baseline Update Process</b>	<b>3.5 Operational Integration Plan</b>	4.3.3 Calibration for Op. Deployment	LP.2.2 Information Architecture Requirement Analysis
<b>PM.5 Handover</b>	1.2.6.1 BI Expectation	<b>2.6 VI Control Improvement Feasibility Option Analysis</b>	3.5.1 Logistics and Infrastructure Plan	4.4 Update Site User Requirements	LP.2.3 Decision Making Workflow Digitisation
	1.2.6.2 BI Specify		3.5.2 Training and Awareness Plan	4.4.1 Site Functional Requirements	<b>LP.3 Operational Validation (Human Centric Digital Twin)</b>
	1.2.6.3 BI Implement		3.5.3 Workforce Feedback Process	4.4.2 Site Performance Requirements	LP.3.1 Task Level Advice and Performance Feedback
	1.2.6.4 BI Monitor		<b>3.6 Operational Deployment Schedule</b>	4.4.3 Site Technical and Infrastructure Requirements	LP.3.2 Supervisory Level Performance Monitoring
	1.2.7 Control Management Sheets (CMS)		3.6.1 Deployment Plan	<b>4.5 Operational Integration Plan</b>	LP.3.3 Manager Level Performance Analysis
			3.6.2 Maintain and Leverage Plan	4.5.1 Logistics and Infrastructure	<b>LP.4 Operational Integration of Baseline Update and Performance Monitor Process</b>
			<b>3.7 Phase 3 VICE Baseline Update and Performance Process</b>	4.5.2 Training and Awareness	LP.4.1 Data Capture Platforms
			3.7.1 Deployment Plan	4.5.3 Workforce Feedback Process	LP.4.2 Performance Reporting Platforms
			3.7.2 Maintain and Leverage Plan	4.5.4 Cold Commissioning	
			<b>3.8 VI Control Improvement Feasibility Option Analysis</b>	4.5.5 Digital Point of Truth Integration	
			3.8.1 Further VI Control Enhance Options Analysis	<b>4.6 Operational Deployment Schedule</b>	
			3.8.2 Collision Technology Options Analysis	4.6.1 Deployment Plan	
				4.6.2 Technology Criticality and Maintenance Strategy	
				4.6.3 Decision Info. Integration Plan	
				4.6.4 Design /Operate Review Process	
				4.6.5 Event Analysis and Configuration Improvement	
				<b>4.7 Phase 4 VICE Baseline Update and Performance Monitor Process</b>	



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				<b>4.6 Operational Deployment Schedule</b>	
				4.6.1 Deployment Plan	
				4.6.2 Technology Criticality and Maintenance Strategy	
				4.6.3 Decision Info. Integration Plan	
				4.6.4 Design /Operate Review Process	
				4.6.5 Event Analysis and Configuration Improvement	
				<b>4.7 Phase 4 VICE Baseline Update and Performance Monitor Process</b>	

## Project Phases

- Phase 1 – Complete
- Phase 2 – In progress

## Improvement Planning and Baseline Maintenance

The work to establish a baseline of Curragh North Open Cut Mine vehicle interaction controls is a significant investment.

Realising its full value begins with teams, nominated by site management, reviewing improvement opportunities for relevance and then preparing plans to address performance gaps and improve and enhance current vehicle interaction controls.

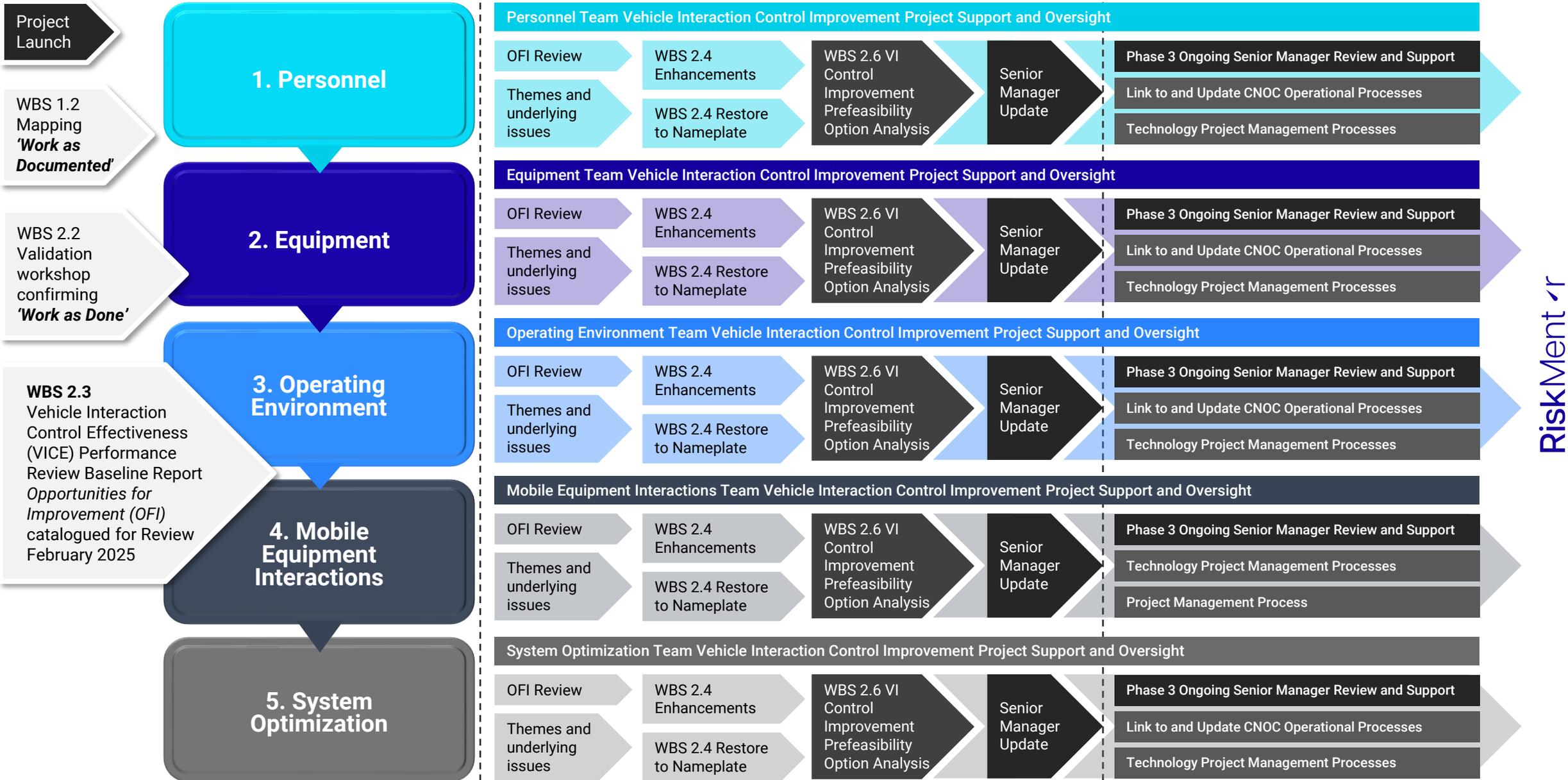
It continues with maintaining and updating the baseline:

- As actions to close performance gaps are implemented
- Before, during, and after the reconfiguration, implementation and operational integration of collision avoidance and other technologies.



## OFI Review Process Notes

- Form the Team
- Each group reviews the relevant Appendix - Opportunities for Improvement from the VICE workshop
- Discuss, confirm and document OFI relevance identifying common themes
- Consider underlying issues – review Potential Return to Name Plate Actions
- List Group agreements covering:
  - Actions that address the underlying issues
  - Other enhancements for site vehicle interaction controls
  - Summarise for senior management review



Project Launch

WBS 1.2 Mapping 'Work as Documented'

WBS 2.2 Validation workshop confirming 'Work as Done'

WBS 2.3 Vehicle Interaction Control Effectiveness (VICE) Performance Review Baseline Report Opportunities for Improvement (OFI) catalogued for Review February 2025

RiskMentor

Detailed Findings available in separate  
Appendices and on the Knowledge and  
Performance Reporting Platform



## Appendices

### Appendix

#### Curragh North Open Cut Mine Vehicle Interaction Control Effectiveness Performance Baseline

This resource provide full Business Input mapping details with comments, Opportunities for Improvement identified at the workshop, with links to Relevant Regulatory and third party (to site) Requirements.

It is searchable and sortable. Use it as a primary resource for assessing site control effectiveness against industry good practice, improvement planning, and governance outcomes.

[Visit link](#)

### Appendix B

#### Curragh North Open Cut Mine Vehicle Interaction Incident Experience

Curragh North Open Cut Mine provided a set of >2,000 incident reports during the preparation phase of the review. This data has been reviewed by Risk Mentor analysts.

[Visit link](#)

## Downloadable Appendices

### Appendix

#### Curragh North Open Cut Mine Vehicle Interaction Control Effectiveness Performance Baseline BI Details with OFI, Notes and details on related clauses addressed

This resource provide details of Business Inputs with Opportunities for Improvement and Notes. It provides context for assessing the VICE Performance Baseline Review Opportunities for site relevance, improvement planning, and performance innovations.

[Visit link](#)

## Risk Mentor Value Proposition: Multi-Phase Vehicle Interaction Control Improvement Process

### Performance step changes within months from:

- Applying a proven and industry-endorsed benchmarking process to map and review the effectiveness of current site vehicle interaction controls.
- Using the review outputs (granular to systems level) to inform, update, and develop improvement road maps for:
  - Operational performance by addressing gaps and implementing enhancements.
  - Mine layout and the design, implementation, and monitoring of operating processes.
  - Assurance and compliance processes covering company standards, industry good practice, and QLD legislation including 2025 critical control amendments.

- The operational integration and leveraging of planned technology investments.
- Rationalising, decluttering and further digitising site processes.

Developing an internal capability through working with the consultants who developed the content and processes used globally to undertake Vehicle Interaction Control Effectiveness (VICE) performance reviews.

**Working with your people to solve today's problems, while building for tomorrow.**

## Incident Analysis | Key Observations

Risk Mentor analysts reviewed three years of incident data as part of preparing for the baseline workshop in February 2025.

### Incident Reporting Volume

A total of **>3,000 incident reports** were provided – which indicates a strong reporting culture (or a higher number of incidents occurring).

### Required Operating State (ROS)

**ROS 01 - Vehicle Operators Maintain Adequate Clearance** is consistent with the proportion seen at other sites.

**ROS 12 – Cabin Protection** is higher than the numbers noted at other sites – which may be indicative of worse road conditions or operating practices.



### Credible Failure Modes

Incidents linked to **equipment not meeting site standards** represents a **higher fraction** of the total incidents than observed at similar sites.

**Mistakes in estimating clearance** account for **25% of incidents**, which is the largest single failure mode present in the incident data – and consistent with levels seen at other sites.

### Consistency with Industry Patterns

The analysis confirmed that **no unique failure modes** were identified at Curragh North Open Cut Mine Coal Mine.

This finding, along with feedback from workshop attendees, validates that the **Control Framework model** is applicable for the site.

Additional Information: The detailed analysis, including summary graphics and underlying data, is accessible via the [report portal](#). A direct link to the [summary page](#) has been provided for ease of reference.

## Executive Summary – Alternative Version

**Curragh North Open Cut Mine leaders, at all levels, are committed to strengthening vehicle interaction controls, especially those that are dependent on operator in-task judgements and where errors can have fatal consequences.**

In February 2025, site personnel represent all contractor and company functions, supported by Risk Mentor, developed a Vehicle Interaction Control Effectiveness (VICE) Baseline to evaluate current performance and identify opportunities for improvement.

As a cornerstone asset for Coronado Global, this initiative at Curragh North Open Cut Mine will guide site improvements, including the future operational integration of technology e.g. for proximity detection and fatigue management

It can also shape the development of company-wide practices and standards to improve vehicle interaction control performance across all operations.

### Mine Overview

Curragh North Open Cut Mine is well managed and productive operation and outputs from the VICE Baseline confirm that site operational practices are extensively documented, adequately implemented, align with industry good practice, and are generally reliable. However, the experienced and knowledgeable participants involved in the review still identified **95 opportunities for improvement (OFI)** for management consideration.

Many of these OFI confirm significant disconnects between documented company intent (work as documented) and operational practice (work as done). Others build from the current operational practice and reflect the positive commitment of review participants to work with and assist Curragh North Open Cut Mine leaders improve site performance from a sound base.

**Expected actions** at Curragh North Open Cut Mine following management oversight and approval includes improving the processes that support the consistent and reliable delivery of people dependent site processes. It is anticipated that this will build on site training, information quality and supervisor support. It also requires enhancement and potential digitization of site performance monitoring processes that confirm that required site standards are inconsistently implemented and maintained across all site functions and work groups.

Improving an already strong operation requires a structured, iterative approach to test the relevance, practicality, and value of the identified OFIs followed by the development of actionable improvement plans. These are summarized in Section 2 of this summary report and detailed in the Curragh North Open Cut Mine Knowledge and Performance Platform.