



Paradigm
ENGINEERS

SAFETY AUDITING

PROFILE





Why are Safety Audits Required?

A regular audit of your site is an excellent way to ensure the field devices and control systems of your plant and machines are operating as originally intended.

An independent evaluation of the functionality and status of the equipment will also ensure your site meets its risk management and legal obligations.

What are the Benefits?

There are many benefits in performing regular audits as outlined below:

- Assist in ensuring equipment achieves its projected life without structural failure
- Reduce the risk of injury to personnel due to failure of protection devices
- Minimise damage to protection devices (e.g. tilt switches, limit switches and microwave devices)

Completing scheduled audits will also help identify other areas of concern such as hazards, leaks, unusual wear or other areas that may require attention.

Why Paradigm Engineers?

Paradigm Engineers is a specialty rail mounted (mobile) machines engineering company and has over 15 personnel with extensive experience in the electrical and control aspects of machines and machine auditing.





Paradigm's Auditing Services

Control and Protective Device Audit (CAPD)

This is a complete assessment and test of all control and protective devices to prove that they operate as originally intended. The audits include functional and operational testing of the following devices:

- Lock off stops
- Limit switches
- Software limits
- Tilt switches
- Microwave sensors

Control System Software Audit

This is a systematic review of the control system software installed on site to ensure modifications are implemented correctly, change management procedures have been followed and no 'illegal' overrides are installed.

In the case of balanced rail mounted machines, the control system auditing is an essential part of the owner's statutory obligation to implement a system of checks and inspections to ensure that the machine achieves its projected life without structural failure.

Anti-Collision System (ACS) Audits

This is a site based audit of stockyard machines which includes testing of the response of the anti-collision system to loss of inter-PLC communications, PLC CPU faults, operation of protective devices and encoder discrepancies. The correct display of the statuses and alarms related to ACS on the HMI is also audited.

A critical component of this testing involves verifying that the machine(s) are interlocked from moving towards a potential collision.





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Reporting

At the completion of an audit Paradigm Engineers will promptly produce a comprehensive report. The audit report will be tailored to the client's requirements and will include items such as the following:

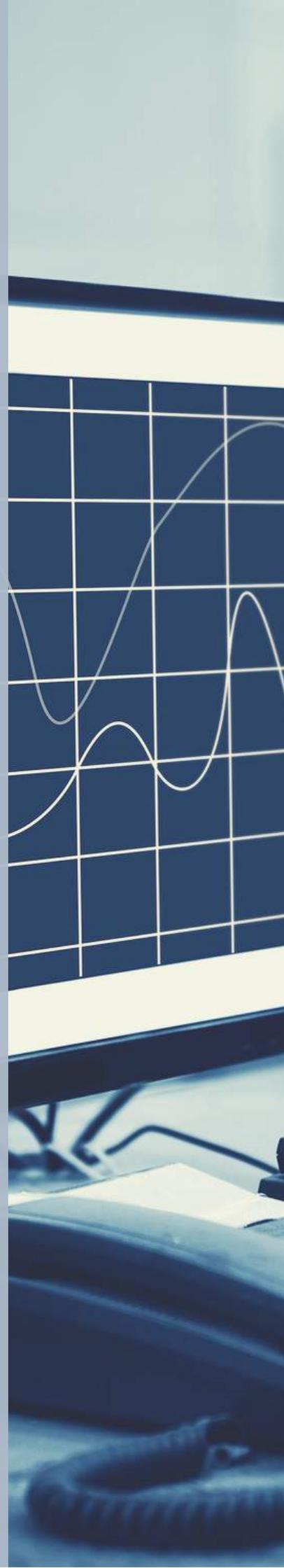
- Comprehensive List of Findings
- Risk Assessment of Findings
- Recommended Remedial Actions
- PLC Bridge Report
- Review of Items from Previous Audits

On-Site Rectification

It is understood that auditing of plant and rail mounted machines usually occurs during periods of time restricted maintenance outages. The Paradigm Engineers team that attend site to undertake the auditing process are also experienced in the correction and rectification of the various systems. Where appropriate rectification of issues identified during the audit can be completed immediately.

Development of Audit Procedures

The Paradigm Engineers' team has extensive experience in the development of and writing client specific audit procedures and check sheets to suit our clients' requirements.





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Our Company

Paradigm Engineers is a control systems and electrical engineering company based in Perth, Western Australia with a regional office in Queensland. Our focus is the mining, mineral processing, infrastructure and water industries.

Paradigm Engineers was formed in 2012 by Garry McGrechan. Since then, Paradigm Engineers has sustained continued growth and now employs over 30 professional engineers, draftspersons and project managers.

Our Capabilities

Paradigm Engineers delivers a high standard of project, operations and maintenance services to a variety of clients. Our key personnel are experienced in brownfields and greenfields projects and in all phases of project delivery including:

- Control System Design and Engineering
- Software Development, Testing and Commissioning
- Electrical Design and Engineering
- Plant and Rail Mounted Machine Safety Auditing

Our Mining and Rail Mounted Machine Expertise

Paradigm Engineers is an industry leader in the design, programming and commissioning of mining, port operations and materials handling systems. For many of our clients, Paradigm Engineers is the 'go to' specialist for machine automation, stockyard management systems and machine auditing.





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Our Systems

Project Management

At Paradigm Engineers we know that a successful project is about understanding and specifying what tasks need to be undertaken and managing how to do them to maximise the use of time and resources. Our aim is always to combine a sound project management system with effective project execution to achieve an in scope, on schedule and on budget result. The success of our projects is driven by selecting a project manager and team with the right skills and experience.



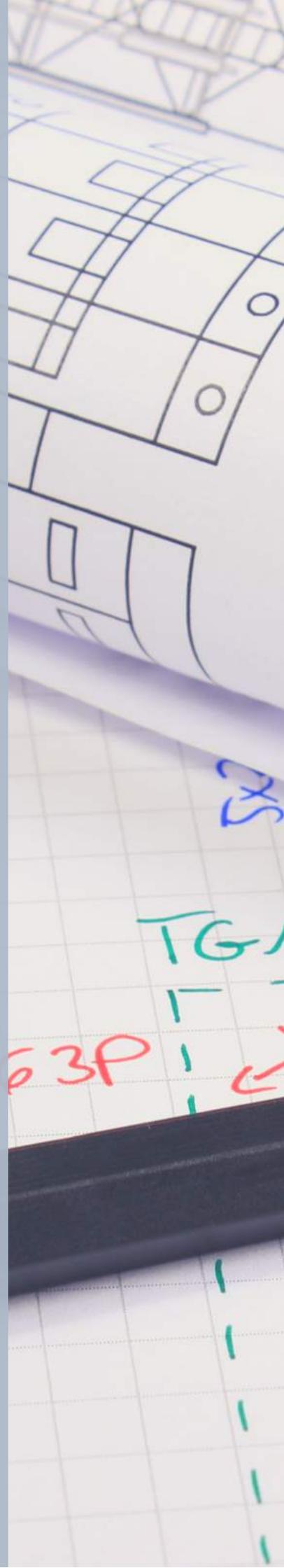
To ensure a fully integrated and standardised approach Paradigm Engineers utilises the IFS World ERP Software package. IFS is a fully integrated and comprehensive package which consists of Contract Management,

Correspondence and Document Management, Accounting and HR, HSE, Procurement, Project Management and Time Registration.

Quality Assurance

Paradigm Engineers uses a Quality Management system in accordance with the AS/NZS ISO 9001 Quality Management Systems which:

- Ensures that all work is carried out in accordance with our quality assurance procedures.
- Ensures all employees undergo Quality Awareness training.
- Invites and encourages feedback from our employees and clients, directed towards continuous quality improvement.
- Involves continuous review and improvement to our quality management system and procedures.





Health, Safety and Environment

One of our key business objectives is delivering excellence in all organisational aspects of Health, Safety and Environment, based on the Paradigm Engineers' core value of eliminating harm at the workplace.

The integration of health and safety within all aspects of our business is a central part of our operations. The management at Paradigm Engineers strives to have a people-safe work environment and believes no one should be harmed through our activities. We are all responsible for our safety, that of our colleagues and the public. We are determined that our employees, our clients' employees, contractors and anyone else on site, conduct their work in a safe manner.

We are committed to the protection of the environment in all our activities and in our engineering designs. It is Paradigm Engineers' policy that all work is carried out in compliance with statutory requirements, established company and client standards and our own safety and environmental principles.

Upholding Paradigm's health, safety and environment values is the responsibility of every employee. Managers at all levels are held accountable, with key performance indicators regularly monitored to ensure continual improvement in performance.

By dealing with health, safety and the environment in an open and transparent manner everyone at Paradigm is empowered to improve work methods, design solutions and safety and environmental outcomes.



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