

DETECH ENGINEERING

Innovative Solutions

Detech Engineering is a Maintenance & Engineering consultancy maximising the performance of your asset. We provide a holistic approach to the life cycle of all infrastructure, mobile equipment and processing equipment, providing a complete program of engineering services.

- Engineering Design
- Project Management
- Asset Management
- Closure Management

Experienced in the Mining & Resources, Energy, Sugar, General Processing, and Manufacturing industries.

CAPABILITY STATEMENT

COMPANY VALUES



**Risk
Management**

No compromise to Safety,
Health and Environment



**Working
Together**

Communication and
Teamwork to achieve
common goals



Integrity

We will do what we say we
are going to do

MANAGEMENT SYSTEMS

RISK MANAGEMENT



Managing Risk is a core value, not just a priority, at Detech Engineering. Safety, health, environmental and general risk management commences at the conception phase of any project, no matter the size nor location. Our aim is no injury or incident throughout as we provide:

- Clear scoping and understanding of your needs
- Design due diligence – engaging all stakeholders, completing HAZOP reviews and obtaining relevant approvals
- Site work method statements, risk assessments and JSEA's for tasks
- Certified supervisors on the job, completing job observations & maintaining standards of work
- Injury management plans with appropriate medical attention and rehabilitation planning

All business decisions, design tasks and site activities assess the following three questions.

- What am I about to do?
- What could go wrong?
- What can I do to control it?

As a core value, the management team at Detech Engineering are tertiary qualified in Risk Management and G-MIRM.

WORKING TOGETHER



Detech Engineering believe that working together requires everyone's participation and effective communication. We aim to build relationships with clients to ensure the following:

- Utilisation of everyone's skill sets to ensure the highest quality results
- Effective two-way communication with all our stakeholders

Detech Engineering becomes part of your team throughout a project and ensure that you hear about progress from us first through regular feedback.

INTEGRITY



In conjunction with working together, integrity ensures we achieve our common goals with a client and minimise the risk.



Integrity to Detech Engineering is the quality behind the communication. It is about doing what we say we are going to do. For example, we minimise the risk of injury on site by working with the client to know the procedures and having the integrity to commit to them at all times.

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Structural Refurbishment Project – \$30m

An innovative design solution and methodology was developed to complete roof and structural member replacement without interruption to operations.

We developed the process, designed and certified the specialised equipment for the project, then managed the execution of works within budget and schedule.

CONCEPT DEVELOPMENT

Detech Engineering provides concept development services to solve problems through innovative solutions to improve your business – increasing throughput and reducing operating costs.

We provide you with a flexible and efficient review of the business challenges and realistic solutions for consideration.

- Mechanical
- Structural
- Civil
- Electrical

FEASIBILITY ASSESSMENTS

Review and develop options, provide cost estimates and evaluate options based on return on investment.

Ideal for capital funding requests.



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Asile Crane Rail Repair – \$500k

Dual 40T Asile cranes had cracked welds in their support structure. Detech Engineering determined the most appropriate solution (thermit welding) and developed / designed / trialled an access system mounted to the cranes to complete the works.

ENGINEERING DESIGN

CERTIFIED DETAIL DESIGNS

Complete engineering services for a range of mechanical equipment:

- Processing Equipment – Crushers, Mills, Extraction
- Materials Handling – Conveyors, Pipelines
- Power Generation – Boilers and Ancillary Equipment
- Site Infrastructure – Water, Sewerage, Fire
- Working at Heights Solutions – Major Maintenance without interruption to operations
- Specialised Lifting Equipment

We understand the importance of achieving your operational performance targets for business success.

Professional Indemnity Insurance to the value of \$10m.

DUE DILIGENCE ASSESSMENTS

Detech Engineering completes third party design reviews to minimise project risks. The completion of due diligence assessments during the design process, ensures a successful project and future operation.

We have trained HAZOP facilitators to independently guide owners and designers to practical solutions with minimum operating risks.

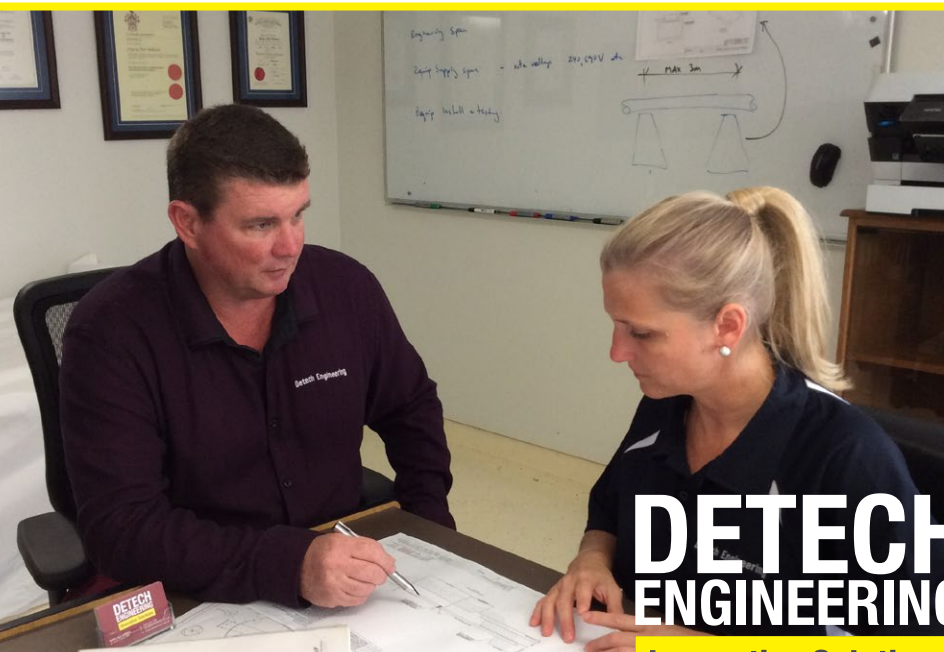
Cooling Tower & Water Infrastructure – \$2m

Design and project management of a mine cooling water system upgrade.



Furnace Wall Handling Equip – \$140k

Prototyping and certified design of specialised lifting equipment, handling equipment and the hydraulic system for a high temperature furnace wall replacement. The project also included the design of the cooling water elements (blocks) to become the new furnace wall.



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Specialised Pipeline Maintenance – \$5m

Remotely located underground pipeline maintenance which required a detailed action plan and specific inspection, repair and commissioning method. Careful excavation and access; precision measuring and inspection equipment; and finally repair and commissioning. Three separate teams were managed in 11 locations over 300km.

METHODOLOGY DEVELOPMENT

Development of procedures and method statements to clarify the innovative solutions to technical problems.

Detech Engineering manages projects in a structured manner across a range of infrastructure or processing fields. The project management team specialise in delivering excellence through:

- Methodology development
- Installation management
- Commissioning

Public liability insurance to the value of \$20m and appropriate building, contents and vehicle insurance.



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PROJECT MANAGEMENT

PROJECT DELIVERY

Detech Engineering scale the project delivery model to suit the size and complexity of your project. We have a good record of managing the relevant logistics associated with multiple teams, various skills with geographical challenges through quality planning, execution and project close out.

COMMISSIONING

Detech Engineering understand that commissioning is a critical phase in a project and must be managed separately to the other aspects of the project.

There are key safety and performance risks to be managed. Equipment is now being fully or partially energised and isolations must be modified. In addition, this critical stage must ensure that the design criteria are achieved, before operating conditions are implemented. QA inspections and monitoring through design, procurement and installation ensures smooth commissioning.

We also provide third party commissioning resources to ensure your requirements are met.



Structural Refurbishment Project – \$30m 2012/08/28

An innovative design solution and methodology was developed to complete roof and structural member replacement without interruption to operations.

We managed high risk activities, with multiple teams on various fronts with a majority of equipment working at height. To achieve this, we developed specific project inductions and ran training sessions with job specific questionnaires tailored to suit.

This project was completed under budget and within schedule.



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AIA Study & Action Implementation – \$20k

Unplanned downtime reduced by up to 50% through appropriate pressure monitoring and filter cleaning, in conjunction with a specific failure recovery plan and site repair kit.

ASSET INTEGRITY ASSESSMENTS

Detech Engineering provide fixed and mobile plant maintenance assessments that evaluate both the condition of the equipment and the integrity of the maintenance program managing its future. This enables a clear understanding of the potential for failure, ability to recover and a risk profile for the business.

Detech Engineering developed and use the Asset Integrity Assessment tool (AIA) to review maintenance practices and equipment condition across seven key categories, as outlined below:

- Performance and Data Analysis
- Resources and Facilities
- Work Standards
- Spares and Redundancy
- Condition Monitoring
- Asset Management Planning
- Contractor Management

The AIA has been successfully used to reduce the consequence of unplanned downtime by identifying improved condition monitoring methods, appropriate stock levels for critical spares and development of failure recovery plans.

MAINTENANCE STRATEGY TO OPTIMISE COSTS

Detech Engineering specialise in developing maintenance programs for your assets, fixed or mobile. These tailored maintenance programs improve plant performance and reduce maintenance costs. This is achieved using a structured approach where the maintenance strategy (maintain on condition, frequency or not at all) is determined based on modes of failure and optimised maintenance plans developed as a result. Maintenance cost savings and improved equipment performance has resulted from these programs.

Detech Engineering have experience with developing preventative maintenance documents and plans for green and brown field plant, including optimised plans for care & maintenance.



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ASSET MANAGEMENT

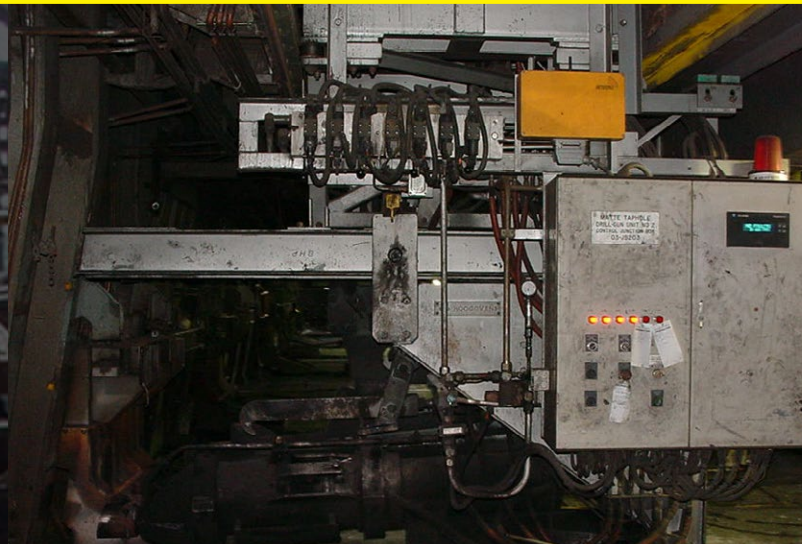
AVAILABILITY IMPROVEMENT PROJECTS

Detech Engineering can provide specific reliability based projects to improve fixed and mobile plant availability and reliability. One off projects or continuous improvement based work is agreed upon to resolve repetitive failures or complicated system improvements. Highly effective specific projects on mobile plant to improve uptime through reduced hose failures and improved plant availability through comprehensive changes to shutdown management in fixed plant operations.

SHUTDOWN PREPARATION & MANAGEMENT

Detech Engineering provide shutdown management and optimisation services. These are aimed at reducing shutdown durations, increasing the run time between shutdowns and improving the start-up performance of the plant from a shutdown. Key areas reviewed and improved through this service include:

- Tailored use of condition monitoring tools to assist shutdown scoping
- Shutdown Communication – All stakeholders contributing in the preparation
- Shutdown Discipline – What's in and out of shutdown scope
- Feedback and Reporting structures
- Quality Assurance Program – Hand back process



Mudgun Availability Improvement Project – \$60k

Availability of these mudguns was doubled from 41% to 83% over a 4 month project which included some basic modifications to thermal guarding and hydraulic maintenance to ensure effective operation of the equipment.

Shutdown Management Project – \$90k

Increased plant availability by 1.5% through a 33% reduction in shutdown hours over a 12 month period. Previously the concentrator scheduled shutdowns every 8-9 weeks, incurring 6 per year with an average downtime of 60 hours. Over a 12 month project, this was modified to 4 shutdowns averaging 70 hrs. An overall reduction from 360 hours to 280 hours over the year.

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SITE CLOSURE

Site closure is a critical activity with a series of sensitive challenges. Detech Engineering is experienced at evaluating the scope required to effectively plan and schedule all the activities associated with each client's needs.

Completion of site assessments to develop accurate budgets that achieve all statutory and environmental requirements. In conjunction with the asset assessment and understanding of the infrastructure requirements for closure, the budget estimates include optimised resourcing.

We provide third party due diligence reviews for closure management plans and the effectiveness of the infrastructure associated in achieving the plan.



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SITE CLOSURE MANAGEMENT

EQUIPMENT PRESERVATION AND CARE & MAINTENANCE

Asset management strategy development for fixed and mobile assets. Determining the optimum preservation plan for care & maintenance equipment, through to detail design and project management of cleaning and modification requirements.

Equipment preservation includes determining the future needs of the infrastructure to support the sites closure needs.

- Fire Systems
- Raw Water
- Potable Water
- Sewerage
- Water Management Networks

Grinding Mill Preservation Project – \$500k

Approximately 1,200T of grinding material had to be removed from three grinding mills in preparation for care & maintenance. Due to the variation in mills and general orientation, three different designs were required and separate teams were mobilised to complete the preservation of each mill as required by the client.

Evaporation dam dewatering project – \$10m

Located in central Queensland, the client had to pump a minimum of 120 L/s from a remote dam that is exposed to seasonal rain. An innovative ramp and channel system was designed and installed to minimise the need to relocate pumps and avoid costly pontoon arrangements.



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