

WATERLINE

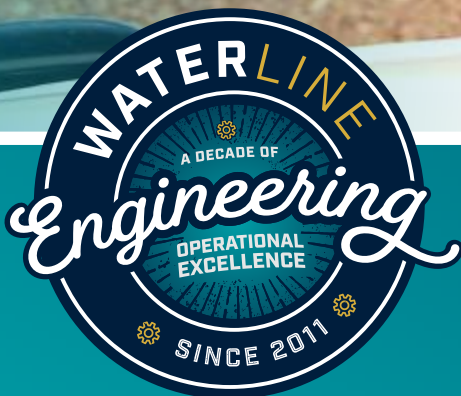
CERTIFIED | EXPERIENCED | ENGINEERING

WE KEEP THE COGS TURNING



Waterline is tailor-made to support operational sites

With a team of site-experienced engineers and more than 90% of our clientele in the mining sector, we keep our clients' projects, operations and people supported and safe.



waterlineprojects.com   



LONGWALL SUPPORT



Waterline's Operational Support team protects your operations against unscheduled downtime, delays and productivity losses—on site or off site.

And when things don't go to plan, we're right here to support you and keep cogs turning. One of our key specialties is our Longwall Support Services. Our site-experienced team have worked in technical support roles with global OEMs (original equipment manufacturers) and operational support, giving you the peace of mind that your team is fully supported.

SCOPE



Automation support

Longwall automation increases safety and efficiency for site. Waterline's Operational Support team specialises in:

- ▶ automation design and implementation
- ▶ operator training
- ▶ automation support —on site or off site



Strategy development

The decades of underground mining experience, coupled with our tech know-how, have enabled us to develop and deliver Longwall strategies that improve safety, efficiency and reliability for site. So, we can assist you with as little or as much as you'd like, including the creation of reports and presentation templates



Project management

Our site-experienced team are on hand to keep your projects moving, from inception right through to project close-out

We'll work with you every step of the way, collaborating with our multi-discipline team, ensuring the best site outcomes, while keeping you informed of the project's progress

COMMITMENTS



Peace of mind

Our certified compliance specialists will assess your site's risks through the completion of Hazardous Area assessments and Hazardous Areas audits, ensuring you comply with the relevant legislation and standards, while keeping your team safe



Free up your team

Our technical specialists are on hand to support you, so you can tap into our engineering and operational expertise as you need, helping to reduce your overhead costs. This enables your team to focus on other priorities while we take care of the rest



Ownership

We take ownership of our work and will keep you informed, giving you the clarity you need to ensure the project is progressing smoothly



Ease of engagement

We're an extension to your team, so you can access our multi-discipline team's expertise all under one roof. It's easy and convenient



BENEFITS

Our site-experienced team

We understand your challenges because we've been there. This experience coupled with our technical expertise ensures we deliver the best outcome for site

As an extension to your team

We're on hand to help, so you can be confident you and your team are always supported

Access to our multi-discipline team

Waterline supports you with all your engineering needs. We'll coordinate everything for you, so you will have one point of contact, yet access to the entire Waterline team



PROJECT EXAMPLES



Longwall remote support

SCOPE: Remote Longwall support

OVERVIEW

- ▶ The client needed to minimise risks to its people and operations by removing people from the high-risk areas of the Longwall face
- ▶ Waterline delivered operational and project management support, enabling the client to implement a remote operation station on the surface of the mine, allowing full operation of the Longwall from the surface. This included project management, completion of documentation and project close-out

SOLUTION

- ▶ Waterline successfully delivered a solution that allowed remote operation from the surface

OUTCOMES

- ▶ The client was happy with the outcome

You can learn more about our proud projects via our [case study e-book](#) or waterlineprojects.com/projects/



WE'RE MULTI-DISCIPLINE ENGINEERS

We add value to your operations—an extension to your team

WE'RE RESPONSIVE

We're quick to the mark + work at your pace

WE'RE SITE-EXPERIENCED ENGINEERS

We understand the operational environment—we support you on site or off site

WE'RE AUTHENTIC

We are transparent + reliable



LET'S COLLABORATE

Let's chat to see how we'll keep you supported 24/7. Get in touch with **Kylie Davey** or **Dan Harrison** today and see for yourself the difference we can make. Book a chat: waterlineprojects.com/lets-talk

BURN-BRITE POWER SUPPLY CoC ASSESSMENT



As the compliance partner of choice, clients turn to Waterline for support with the industry-wide Ampcontrol Burn-Brite voluntary suspension.

KEEPING SITES COMPLIANT, EFFICIENT + SAFE

Our site-experienced team understands the importance of keeping clients informed, especially when information is critical in ensuring the safety of your team.

We work as an extension to your team, so as soon as information comes to hand, we share the news with you. Just like with the Burn-Brite voluntary suspension news, and we work with you to assess the impacts for your site. Read how our Hazardous Area (HA) Engineers jumped in to support our client to keep their site compliant, efficient and safe.

THE CHALLENGE

- ▶ Spark tests for MK2 Burn-Brite 12V 2.5A ISPSs yielded inconsistent results to those previously established on the CoC IECEx ITA 14.0005X
- ▶ As a result, the certificate of conformity (CoC) was suspended while an investigation was completed into a high inductance / low resistance electrical load combination. These elements affect the published Lo value on the CoC, which may result in revisions or additional special conditions upon retesting
- ▶ Disparate spark testing results were obtained by several IECEx accredited TLs when testing the Burn-Brite 2.5A MK2 ISPS to IEC 60079.11 requirements
- ▶ The vendor voluntarily suspended the relevant CoCs pending investigation. They provided a technical note confirming there were no safety implications with the power supplies already in use. The vendor provided recommendations on which checks should be conducted for existing I.S. audits that include Burn-Brite 2.5A Mk2 ISPS units

THE SOLUTION

- ▶ The client engaged Waterline to conduct I.S. calculations and a compliance assessment for existing underground systems involving MK2 Burn-Brite 12V 2.5A ISPSs for the recommended checks stated in the Burn-Brite technical advice. These included:
 - ▶ Shuttle Car lights
 - ▶ Pump Pods lights
 - ▶ Feeder Breaker lights and beacons
 - ▶ Longwall control systems



- ▶ Waterline also provided independent advice, based on our assessment, to help the client determine if the controls in place for existing installations were adequate, while the outcomes of the investigation were finalised

THE OUTCOME

Our client was impressed with Waterline's ability to quickly complete the HA assessment, providing the client with the peace of mind needed to ensure the safety of their team. For the assessment, we:

- ▶ produced updated I.S. descriptive documents (I.S. block diagrams and calculations) for different circuit arrangements, aligned with the three checks recommended by the Burn-Brite vendor, as detailed in the technical note
- ▶ confirmed that all the I.S. circuits within the scope were compliant against Australian Standards (60079 series) and the vendor's technical note
- ▶ confirmed the Li <1% of Lo condition and an existing I.S. calculation met the compliance requirements of AS/NZS60079.25, Annexure A. In combination with the known existing controls for underground coal mines, we considered it adequate for Burn-Brite MK2 2.5A ISPSs to remain in operation until the Ex-TL completes the full suite of certification tests

We have completed various HA assessments for clients such as:



BROADMEADOWS



GROSVENDOR • AQUILA



CARBOROUGH DOWNS

LET'S COLLABORATE

Let's chat over coffee and see how we will keep your site compliant, efficient and safe.

Get in touch with **Seb Gorrell** or **Chris Mapleson** today and see for yourself the difference we can make. Or book a video chat at waterlineprojects.com/lets-talk/



ABOUT WATERLINE

With a team of site-experienced engineers and more than 90% of our clients in the mining sector, we have streamlined processes keeping your projects, operations and people supported and safe. Regardless of site and personnel restrictions, check out our services below.

We've got you covered, 24/7.



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EST. 2011

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DRAFTING SUPPORT



Waterline's Design + Drafting Services are fundamental for every project, to communicate your engineering visions. Our design team is integral to Waterline's multi-discipline engineering offerings, from design and concept, to end of asset lifecycle.

Communication reduces risks to your operations and helps assure safety and efficiency on site. We have you covered with 24-hour backdrafting, document management, 2D + 3D design and modelling services, ensuring the information you need is supplied when and how you need it.

OUR OFFERING



Accurate drawings 24/7

Our site-experienced team ensures your engineering information is accurate through our 24-hour backdrafting, document management, 2D and 3D design services. Site changes? We'll update your As-Built drawings, ensuring your team can access precise engineering information, anywhere any time



Engineering data accuracy

We understand the need to comply with legislative requirements while ensuring your engineering information is accurate, to improve asset integrity



Customer success representative

A dedicated customer success representative is driven to see your engineering data set improve. They are the quality assurance person responsible and accountable for our clients' drafting package success



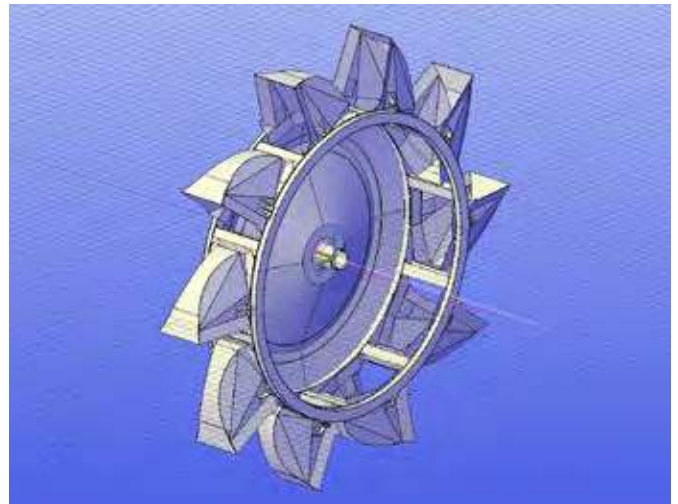
Free up your team

Your teams' time is better spent on high value activities, like supervising and managing critical assets. Leave the drafting to our site-experienced team and free up your team



As-Built verification

In addition to our Drafting Support offering, our trade and engineering specialists will also add value to your team by completing As-Built verification of drawings. This gives you confidence that your engineering drawings accurately reflect your assets in the field



Insights + reporting

Give your managers transparency with dashboards that extract key metrics from your Drawing Management System for recent drafting work performed and monthly trends. As an add-on service, these insights will help you make better informed decision



Confidence + consistency

Drawing changes are made by a proven drafting house with strong QA process and operational experience in the mining environment. We build strong relationships with site operational personnel. While on site staff change over time, Waterline will always remain consistent—we've got you covered



Ease of engagement

A long-term agreement removes the hassle of raising purchase orders and allows Waterline to provide you with a consistent support team. It's easy and convenient



BENEFITS

- ▶ We ensure the accuracy of your engineering information in your Document Management System (DMS)
- ▶ Our site-experienced team works with a range of systems, including but not limited to ProjectWise, Meridian, SharePoint and RedEye
- ▶ We integrate easily with your chosen DMS. This improves efficiencies of drawing updates, reduces costs and provides ultimate control and transparency of drawing changes
- ▶ We develop strong ongoing relationships with our clients to take ownership of engineering drawing updates and provide consistency to maintain a high integrity engineering data set over time
- ▶ As an extension to your team, we become embedded as a trusted part of the Engineering and Maintenance teams' workflows, which improves efficiency for the site team to manage drawing updates. This enables site leaders to concentrate on the critical site tasks on site, while we take care of the rest

PROJECT EXAMPLES

Anglo-wide drafting + DMS administration

SCOPE: Managing Statutory Drawings

OVERVIEW

- ▶ Establishment of Anglo-wide drafting and DMS
- ▶ Ongoing system administration on behalf of client
- ▶ 24-hour turnaround drawing updates and DMS uploads for all statutory drawings

CLIENT BENEFITS

- ▶ Compliant drawings sets managed by us. As the owner you'll have full visibility of drawings that are:
 - ▶ Compliant
 - ▶ Fast
 - ▶ Accurate
 - ▶ Reliable
- ▶ Improved efficiency
- ▶ Improved safety
- ▶ Ensures all operational and maintenance personnel access the latest up-to-date engineering information



DRAFTING AS A SERVICE PACKAGE:

Our package is flexible, allowing us to work at your cadence and support you as you need. With our package, you will have access to:

- ▶ Project Coordination and reporting
- ▶ Redline and backdrafting services
- ▶ Quality Assurance
- ▶ Uploads to DMS or transmittals
- ▶ Draw down on your package as you go

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FINITE ELEMENT ANALYSIS



Providing you with the peace of mind you need by ensuring the safety and integrity of existing equipment, Waterline's Mechanical Engineering team will support you with all aspects of commissioning of a new plant, design, modelling and installation.

Our extensive site experience across the resources industry enables our engineers to understand the realities of the conditions that your equipment operates in. We factor in realistic boundary conditions, loading assumptions and cycle factors to ensure a realistic model is created. Our combined experience from both technical and site perspectives allows us to address each problem with a balanced approach, ensuring the best outcome for site.

COMMITMENTS

Waterline's site experienced team will help you keep your site safe and efficient with Finite Element Analysis (FEA). We'll use computational tools that enable you to visualise the impacts to equipment in a timely and cost-effective manner, without the need to undertake experimental investigations, which can be costly and lengthy to execute.

Our team provides:



Certified assessment

completed by our RPEQ Engineers, giving you confidence you're complying with the relevant standards, keeping your site safe and efficient



Detailed modelling

using specialist FEA software, we'll analyse the stresses in equipment or components, while reviewing designs to optimise equipment use. We'll investigate failures and outline impacts of fatigue



24/7 operational support

as an extension to your team, we are always just a phone call, text or [email](#) away





BENEFITS

With more than 90% of our clients in the mining sector, we're adept at working with mining industries—underground and open cut, ports and processing facilities.

As part of our FEA work, we will deliver:

- ▶ Finite element model files
- ▶ Finite element analysis report
- ▶ Optimised design drawings
- ▶ Fatigue analysis report

Our Mechanical Engineers are:

- ▶ RPEQ Certified Engineers
- ▶ Experienced with Strand7 FEA Software

Experienced across:

- ▶ Linear static analysis
- ▶ Non-linear static analysis
- ▶ Natural frequency assessments
- ▶ Linear transient dynamic analysis
- ▶ Non-linear transient dynamic analysis

Our Mechanical Engineering team has delivered FEA modelling for various clients, including but not limited to:



**GOONYELLA
RIVERSIDE
MINE**

GLENCORE

**MOUNT ISA
MINES**

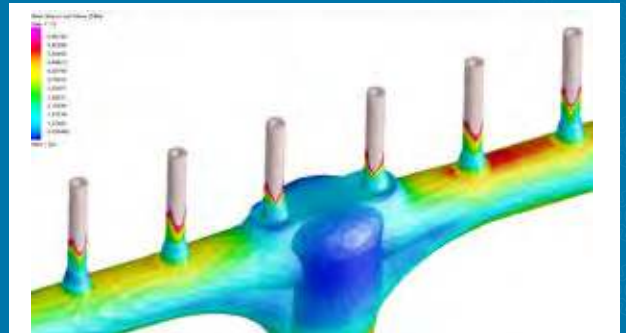
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Limited**

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PROJECT EXAMPLES

Reformer bull tees FEA modelling

SCOPE: Reformer bull tees



OVERVIEW

- ▶ Waterline was engaged to increase the lifetime of frequently failing welds on the critical reformer bull tees at the client's site
- ▶ Using thermal FEA modelling and Fitness for Service, Waterline redesigned the reformer bull tees to prevent failures at the welds
- ▶ We managed the installation of these tees, sourced from Europe and made from Incoloy 800H exotic metal
- ▶ This increases the bull tees repair time from 18 months to 10 years, improving site efficiencies



You can learn more about our proud projects via our [case study e-book](#) or waterlineprojects.com/projects/

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LET'S COLLABORATE

Let's chat over coffee and see how we'll keep your site compliant, safe and productive, now and into the future. Get in touch with **Tom Barber** today and see for yourself why clients turn to Waterline for FEA services. Book a chat: waterlineprojects.com/lets-talk



HAZARDOUS AREAS



Waterline's Electrical Engineering team provides you with the peace of mind you need to ensure the safety and integrity of existing equipment, or the design, modelling, planning and commissioning of new infrastructure.

That is why our clients choose us when it comes to electrical design projects, compliance, network planning, power system modelling, installation of new equipment, earthing, auditing, hazardous areas, functional or machine safety, site project management and commissioning.

BOOK YOUR HAZARDOUS AREA AUDIT TODAY

OUR HAZARDOUS AREA ENGINEERS WILL:



Classify

We will complete classification of documentation to outline what and where hazardous areas are, specific to your site



Design

Calculations, drawings and equipment selection for within a hazardous area



Inspect

Electrical equipment installed within a hazardous area



Audit

Documentation to support Authority to Energise—we have QLD ESO appointed auditors



Compile Dossiers

Ensuring all hazardous area documentation is compiled and available to your team

BENEFITS



Peace of mind

Our Hazardous Area Engineers have extensive site experience within mining, oil and gas and hazardous facilities. We'll make sure your site is safe and compliant

Compliance specialists

We'll guide you through the hazardous area process. Our site-experienced QLD ESO appointed auditors will work with you to provide the required audit documentation to support Authority to Energise, which is specific to the hazardous area



BENEFITS

Project experience

- ▶ Group I / II / III installations
 - ▶ Underground coal mines
 - ▶ Above ground coal mine reclaim tunnels and materials handling
 - ▶ Helipad fuel storage, loading facilities
 - ▶ Mineral processing plants
- ▶ Paint spray booths and storage
- ▶ Gas wells, compressor hubs and port facilities
- ▶ Sugar, grain, wheat, coal and other dusts at bulk handling facilities
- ▶ Laboratories and chemical storage
- ▶ Defence fuel and chemical handling
- ▶ Petroleum storage and processing facilities
- ▶ Industrial workshop flammable material handling



PROJECT EXAMPLES:

Waterline has experience in various hazardous area projects, here's a few of our proudest:

- ▶ Coal terminal helipad hazardous area classification, design and audit
- ▶ Simple device intrinsically safe assessment
- ▶ Underground Longwall intrinsically safe audit
- ▶ Reclaim tunnel hazardous area classification and design
- ▶ Ventilation shaft hazardous area design

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See how we will keep your site running safely 24/7, now and into the future.

Get in touch with **Seb Gorrell** or **Luke Miller** today and see for yourself why clients turn to Waterline for hazardous area engineering support. Book a chat: waterlineprojects.com/lets-talk



I.S. AUDITS: KEEPING SITES COMPLIANT + SAFE



Waterline's Electrical Engineers have the expertise and experience to provide you with the peace of mind you need for your Hazardous Area (HA) requirements. We will ensure the safety and integrity of existing operational equipment, as well as complete design, planning and commissioning of new installations.

Clients turn to Waterline as their compliance partner of choice, for we are a leading specialist in intrinsically safe (I.S.) systems. Our team will conduct a thorough assessment of your project requirements and develop a solution that is practical, cost-effective and reduces compliance risks to your site.

We have consistently demonstrated our ability in designing I.S. systems and selecting the right equipment for the environment. With more than 90% of our clients in the mining industry, we know what is required to keep your site compliant, supported and safe.

COMMITMENTS



Certified assessments

Completed by our RPEQ Engineers, giving you confidence that your design is right, your site is compliant and does not introduce additional risk to your site or people



In-depth I.S. assessments

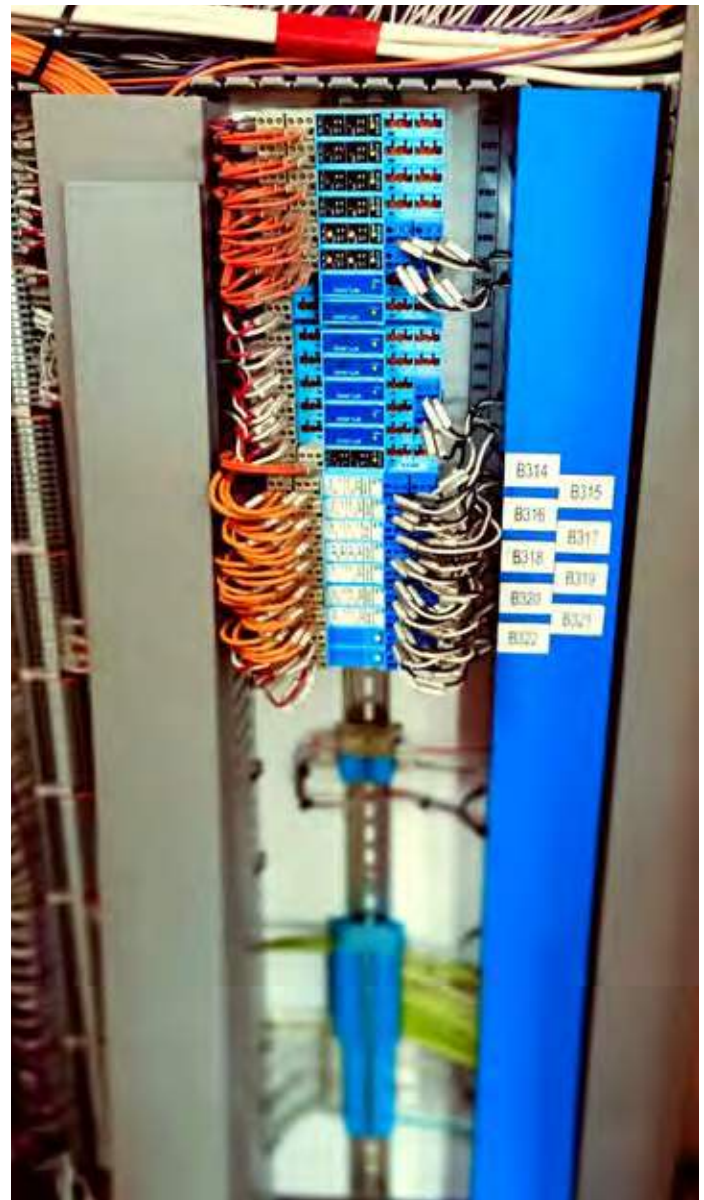
Our team will produce accurate set of documentation, including formal I.S. assessment calculations for all the intrinsically safe circuits, against requirements of the following standards:

- ▶ AS/NZ60079.11
- ▶ AS/NZ60079.14
- ▶ AS/NZ60079.25
- ▶ Recognised Standard 01



24/7 operational support

As an extension to your team, we are always just a phone call, text or email away





BENEFITS

Our Hazardous Area Engineers will streamline processes by completing:

- ▶ an in-depth information gathering phase that comprises project management, desktop assessment of I.S. circuits and I.S. equipment register establishment
- ▶ information review + drawing updates
- ▶ I.S. descriptive documents + block diagrams



Our Hazardous Area Engineers will ensure safety by providing you with detailed recommendations on how to achieve compliance across the relevant legislation and standards including:

- ▶ QLD Coal Mining Safety and Health Act 1999
- ▶ Coal Mining Safety and Health Regulation 2017
- ▶ Recognised Standard 01
- ▶ AS/NZS 3000
- ▶ AS/NZS 3007
- ▶ AS/NZS 60079 series



PROJECT EXAMPLES

Longwall roof supports

SCOPE: Roof support I.S. audits

OVERVIEW

- ▶ The client's power supplies used in underground HA areas were at the end of life
- ▶ Therefore, a new model needed to be installed
- ▶ Waterline conducted an I.S. audit of existing and new equipment and existing circuits to ensure compliance requirements were met
- ▶ We also updated the client's As-Built I.S. Longwall drawings

Longwall system I.S. audit

SCOPE: I.S. audit

OVERVIEW

- ▶ Waterline was engaged to provide engineering support to compile accurate set of electrical drawings followed by an I.S. assessment for all the intrinsically safe circuits
- ▶ Audit comprised:
 - ▶ information gathering + I.S. register set up
 - ▶ information review + drawing updates
 - ▶ I.S. descriptive documents + block diagrams
 - ▶ desktop assessment of the I.S. circuit
 - ▶ I.S. assessment + providing As-Built support

Our team has delivered various I.S. audits for a range of clients, including but not limited to:



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LIFE OF MINE SERVICES MODELLING



Providing you with the peace of mind you need by ensuring the safety and integrity of existing equipment, Waterline's Mechanical Engineering team will support you with all aspects of commissioning of a new plant, design, modelling and installation.

We will ensure your site remains operational by producing industrial equipment designs, discrete element modelling, finite element modelling, fitness for service assessments and fluid modelling. As operational engineers, we know what it takes to enhance your operation across its lifecycle.

COMMITMENTS



Certified assessments

Completed by our RPEQ Engineers, giving you confidence you're complying with the relevant standards



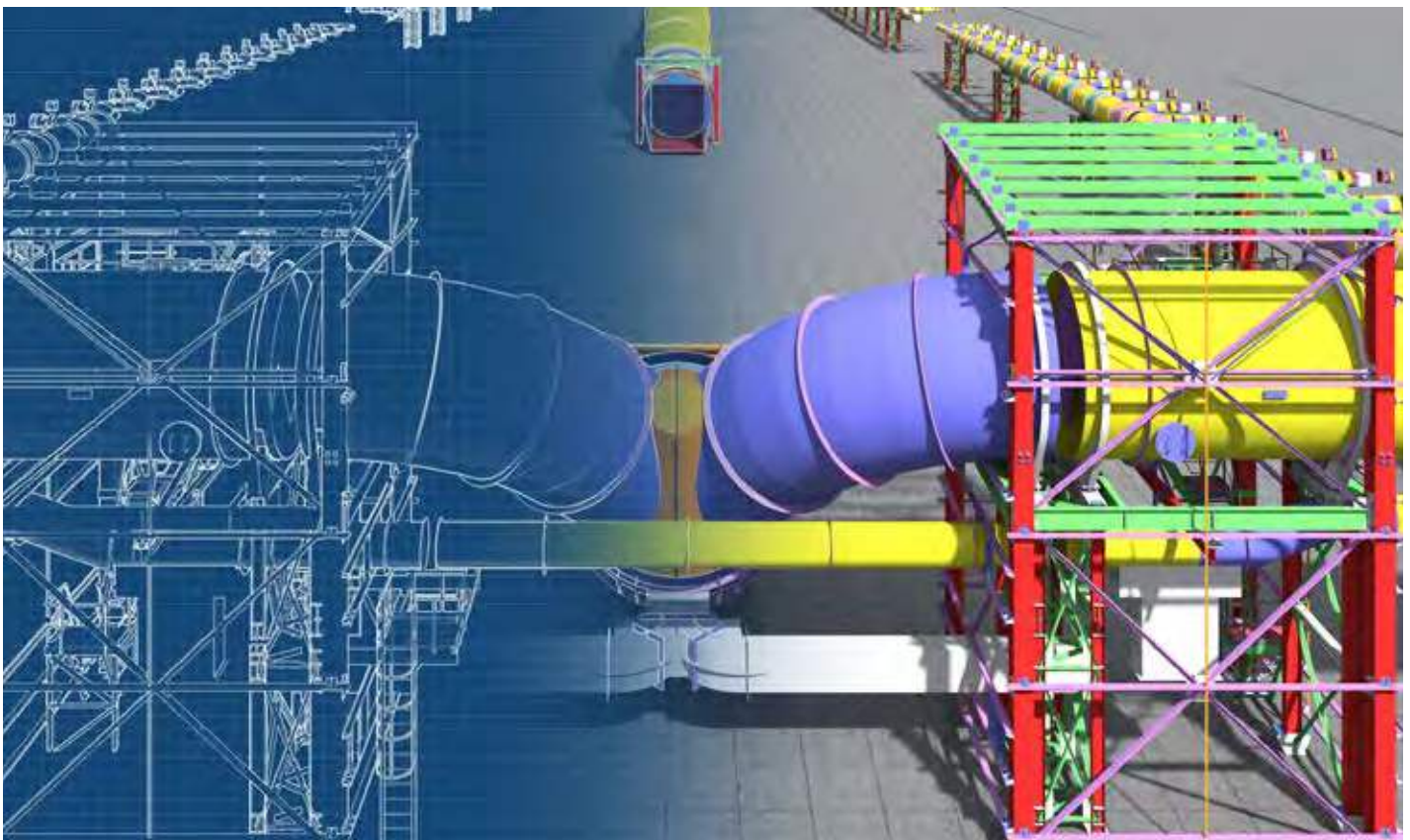
Detailed assessments

Using specialist software we'll ensure your site has reliable water, compressed air supply and pressure. And our assessment will detail how you can avoid pipe breakage, poor pump performance and production delays



24/7 operational support

As an extension to your team, we are always just a phone call, text or email away





BENEFITS

With more than 90% of our clients in the mining industry, we're adept at working with mine sites—underground and open cut, ports and processing facilities.

We apply our experience and project learnings to continually improve processes for our clients. And using specialist software we can provide you with additional insights to help inform decision making. For instance, with Fluid Modelling, our operational engineers can also analyse numerical data and data structures to:

- ▶ review the services infrastructure against the forward mine plan, ensuring that production units will be able to obtain their required pressure and flow rates
- ▶ ensure infrastructure such as pumps and PRVs are positioned in the optimal locations
- ▶ ensure that your site remains compliant with firewater requirements
- ▶ model alternative cost-effective reticulation solutions to optimise expenditure on services

This enables us to test the impact of extreme conditions, model proposed changes or 'simulate' a site without impacting productivity.



PROJECT EXAMPLES

Life of Mine Modelling

SCOPE: *Modelling and recommendations to improve efficiencies*

OVERVIEW

- ▶ The client's booster pumps required regular relocation and maintenance to deliver raw service water. The pumps also added single points of failure to the production units, increasing risks of interruptions to surface infrastructure and operations
- ▶ The client engaged Waterline to deliver a solution that would minimise disruptions to its operations, while ensuring efficient delivery of raw service water and compliance with legislation and standards
- ▶ Successfully designed, modelled and verified an efficient new raw water delivery strategy that was aligned with the client's 10-year future production schedule
- ▶ It had a greater level of redundancy against worst-case scenarios and emergency situations including firefighting in all proposed panels
- ▶ The model remains compliant with legislative codes and standards



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KEEPING SITES COMPLIANT + SAFE



Waterline's Civil + Structural team communicate your engineering intent through our design services and detailed assessments, ensuring your assets can withstand relevant design actions.

And we complete structural integrity audits and assessments, providing you with critical feedback about the structural capacity of your facility, its stability and reliability.



COMMITMENTS

Our Civil + Structural Engineering team provides:



Certified assessments

Completed by our RPEQ Engineers, giving you confidence you're complying with the relevant standards



Detailed assessments

On the structural capacity of your facility, its stability and reliability



Reviews

We will review your existing assets to maintain usability in the short or long term



24/7 on and off site support

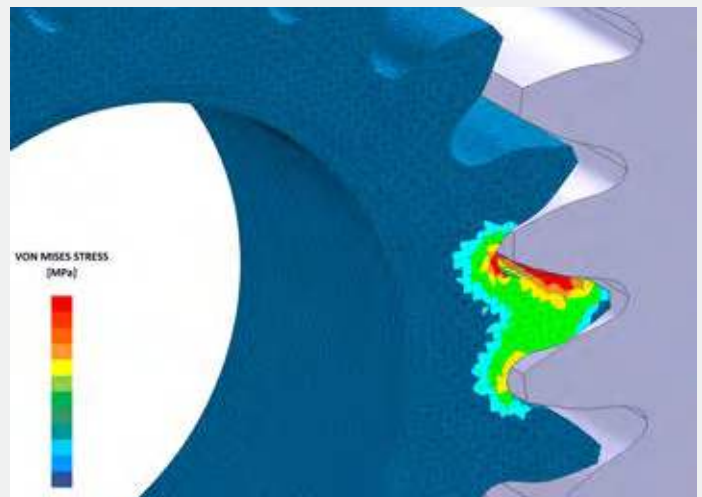
As an extension to your team, Waterline will keep you supported 24/7

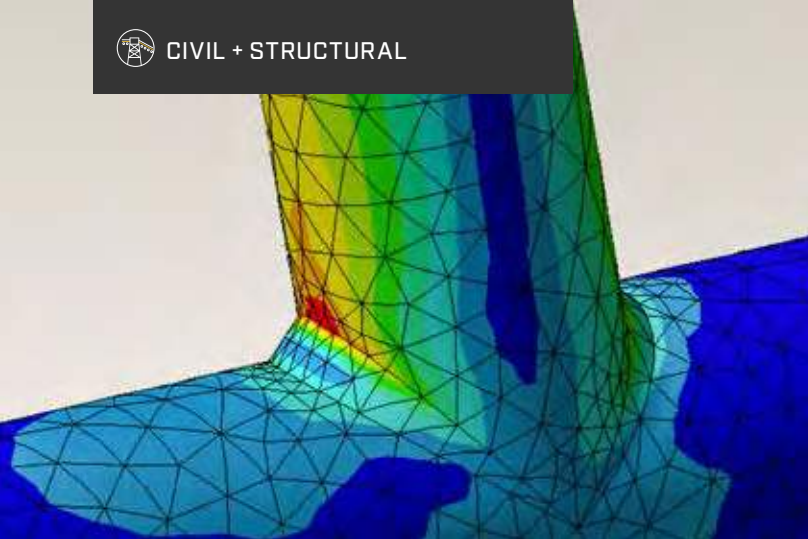
BENEFITS

Optimising remedial works

We can help you optimise and prioritise your remedial works with the use of strain gauge and FEA (finite element analysis) technology.

We assess the real-time performance of your structure (which has noticeably deteriorated through corrosion or damage) to accurately predict when remedial intervention is required. This assessment could extend the lifespan of your assets / structures that are marked for replacement by 5-10 years, or even longer. Helping you prioritise critical items that require immediate or short-term action, while helping you defer or save on significant costs.



**Key features of a Structural Integrity Audit by Waterline using FEA technology include:**► **Accurate asset lifespan assessment**

For most structures there is generally a reserve of strength due to conservative design assumptions; lower cumulative loads than anticipated at design; operational considerations that restrict major change-outs, favouring asset life extension; some midlife enhancements adding to design strength. These elements affect the considered lifespan of the asset and using this technology we can more accurately identify that time-frame irrespective of current physical condition

► **Asset performance**

With intelligent structural management, on site measurement tools and 3D analysis modelling, we can quantify in real time the damage or deterioration of assets / structures, to assess the performance of each structural element under consideration

► **Practical maintenance plans**

That can be implemented for economical solutions

► **Prioritisation of assets**

Requiring critical remedial attention

Our Civil + Structural team has delivered structural integrity audits for various clients, including but not limited to:



PROJECT EXAMPLES

Stacker and reclaimer upgrades

SCOPE: Bulk handling machine upgrades

OVERVIEW

- Client needed to improve compliance and reliability of ageing electrical and mechanical equipment on mounted machines
- Works were needed to be delivered on a stringent 12-month period to meet the client's shutdown period
- Multi-discipline engineering design
- Structural integrity upgrades and fitness for service assessments
- Construction and commissioning support
- Procurement management
- Project delivery support

Gypsum Pipe Bridge

SCOPE: Structural Integrity Audit

OVERVIEW

- Structural integrity audit of client's gypsum pipe bridge to ensure it could withstand the addition of two new pipes without overstressing the existing structure
- We assessed the structural integrity of the bridge using Spacegass and analysed existing and proposed additional pipe loads
- Client was impressed with the quality of Waterline's deliverables and speed of completion

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WE'RE RESPONSIVE

We're quick to the mark + work at your pace

WE'RE SITE-EXPERIENCED ENGINEERS

We understand the operational environment—we support you on site or off site

WE'RE AUTHENTIC

We are transparent + reliable



LET'S COLLABORATE

Let's chat over coffee and see how we'll keep your site compliant, safe and productive, now and into the future. Get in touch with **John Gilley** today and see for yourself why clients turn to Waterline for structural integrity audits. Book a chat: waterlineprojects.com/lets-talk

LIFE OF MINE SERVICES MODELLING



As the compliance partner of choice, clients rely on Waterline to improve the delivery of raw service water, while complying with legislative requirements.

Clients benefit from having access to a multi-discipline team, working as an extension to their team, who know and understand site requirements—because we've been there.

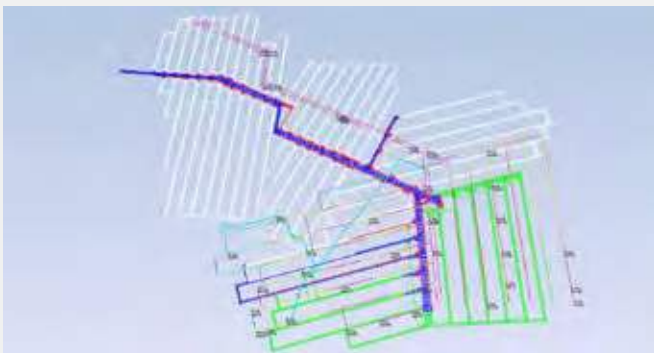
KEEPING SITES COMPLIANT, EFFICIENT + SAFE

Our Mechanical Engineering team ensures your site remains operational by producing industrial equipment designs, finite element modelling, fitness for service assessments and life of mine services modelling.

As operational engineers, we know what it takes to enhance your operation across its lifecycle while keeping your team supported and safe. Just like one of our many clients, who we helped by providing a water delivery strategy that improved its infrastructure while delivering energy and cost efficiencies.



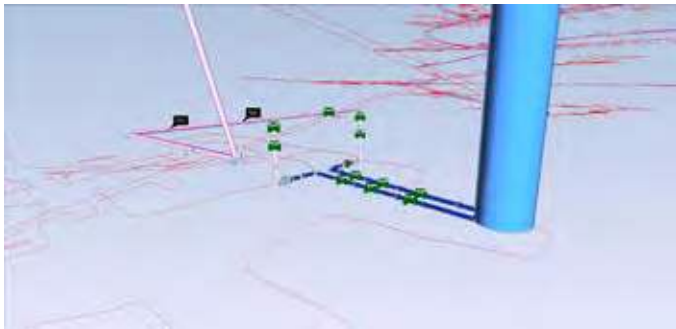
THE CHALLENGE



- ▶ The client's service water supply network strategy for the upcoming production panels was complex, comprising a series of multiple booster pumps
- ▶ While the pumps enabled the delivery of raw service water, they required regular relocation, added additional underground power supply requirements and maintenance throughout their life. The pumps also added single points of failure to the production units

THE SOLUTION

- ▶ Waterline's multi-discipline team delivered a revised service water system that integrated cohesively with the existing infrastructure. The system extended the network to the current production area, feeding service water to each of the individual gate roads via a newly designed surface-fed service water network
- ▶ The new design reduced the need for multiple underground booster pumps, replaced by mid-block boreholes at strategic locations along the production panels



- ▶ These improvements ensured firefighting flowrate and pressure requirements would be met without the need for underground booster pumps in case of an underground power outage

THE OUTCOME

We delivered an updated layout of the surface infrastructure to better service underground, which included relocating the service water storage facility, supplying a service water pump skid and adding pressure-reducing valves at various locations in the underground workings to manage pressure requirements. The individual gate roads are better supplied via a network surface poly infrastructure with dual redundancy.



CARBOROUGH DOWNS

GLENCORE

DAKY CREEK

LET'S COLLABORATE

Let's chat over a drink and see how we will keep your site compliant, efficient and safe. Get in touch with **Louw Olivier** today and see for yourself the difference we can make. Or book a video chat at waterlineprojects.com/lets-talk/



ABOUT WATERLINE

With a team of site-experienced engineers and more than 90% of our clients in the mining sector, we have streamlined processes keeping your projects, operations and people supported and safe. Regardless of site and personnel restrictions.

We've got you covered, 24/7.



WE'RE MULTI-DISCIPLINE ENGINEERS

We add value to your operations
—an extension to your team



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WATERLINE

EST. 2011

CERTIFIED | EXPERIENCED | ENGINEERING

waterlineprojects.com

I.S. ASSESSMENTS



As the compliance partner of choice, clients turn to Waterline for support with their I.S. assessments.

KEEPING SITES COMPLIANT, EFFICIENT + SAFE

Having worked on site ourselves, we know the importance of complying with legislation and government requirements. With our knowledge and experience, our multi-discipline team will work with you as an extension to your team to deliver the best possible outcomes for site.

Read how our team jumped in to support one of our clients with an I.S. assessment, to keep their site running safely and efficiently.

THE CHALLENGE

- ▶ The client's mine site was in the process of assembling a Longwall system in preparation for underground mining operation
- ▶ Within the project scope, the client required engineering support to compile a clean and accurate set of electrical drawings for the Longwall package



THE SOLUTION

- ▶ Waterline's certified engineers completed an I.S. assessment for all intrinsically safe circuits within the defined battery limits for the client's Longwall system to assess compliance against the relevant Australian Standards
- ▶ We completed the I.S. assessment in two phases:



THE OUTCOME

Overall the client was delighted with the outcomes Waterline delivered for site. With a balanced approach we:

- ▶ delivered the latest As-Built electrical drawings for the Longwall package
- ▶ assisted with equipment selection where non-conformances were identified in vendor studies, to establish compliance with Australian Standards and relevant legislation (60079 series and Recognised Standard 01)
- ▶ delivered recommendations on HA dossier maintenance strategies
- ▶ provided assessments on more than 400 I.S. circuits with I.S. descriptive documentation (I.S. block diagrams and calculations), most were able to be confirmed as compliant
- ▶ identified several technical non-conformances with the relevant standards. We liaised with the vendors to develop solutions and provide recommendations for closing these items

"You guys have done a great job and set the benchmark for the standard of investigative auditing as a third party. I also have enjoyed the professionalism of the Waterline team on this project, but to be perfectly honest, I didn't expect anything less."

KEY SERVICES



Hazardous Area assessments
(Underground Mine - Group I)



Operational support



Remote engineering



Quality + assurance

LET'S COLLABORATE

Let's chat over coffee and see how we will keep your site compliant, efficient and safe. Get in touch with **Seb Gorrell** or **Chris Mapleson** today and see for yourself the difference we can make. Or book a video chat at waterlineprojects.com/lets-talk/

ABOUT WATERLINE

Our team has delivered various I.S. assessments for a range of clients, including but not limited to:



With a team of site-experienced engineers and more than 90% of our clients in the mining sector, we have streamlined processes keeping your projects, operations and people supported and safe. Regardless of site and personnel restrictions.

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OPERATIONAL SUPPORT SERVICES



Our Operational Support team is here to help when you need it most, on or off site.

With our 24/7 support, we can assist you with your projects, breakdowns, certification issues, and any other operational engineering challenges that may arise on site.

MEET OUR TEAM



KYLIE DAVEY 0408 087 004

*Operational Support
Team Lead*



DAN HARRISON 0487 267 676

*Longwall + Operational
Support Specialist*



CHRIS MAPLESON 0459 867 510

*Electrical Project Engineer
+ Compliance Lead*



MELANIE MASON

*Drafting Support + Project
Coordinator*



JESS SCOINS

*Project
Coordinator*



JESS ELLIOT

*Project Coordinator
+ Scheduler*



BRITTANY RILEY

Document Controller



CRAIG WARD

PCS Site Support



GAIL FREEMAN

Project Coordinator



TEAM SKILLS

*Structural
Auditing*

PCS Support

*Drafting
Support*

DMS Support

*Operational
remote + on
site Support*

*Technical
Longwall
expert*

*Automation
+ strategy
subject matter
expert (SME)*

*Project
management
- full project
cycle*

*Scheduling +
reporting*

*Operational
Support*

*Document
control*

Our team is only an email, message or phone call away operationalsupport@waterlineprojects.com

KEEP YOUR BMA SITE BLUEPRINT COMPLIANT



Waterline's BMA Blueprint Compliance support will keep your site compliant and personnel safe.

Our multi-discipline engineering and drafting team actively support most BMA sites. So, we're highly experienced in your site systems, processes and standards. While we deliver engineering and drafting projects, Waterline has a strong focus on helping sites achieve and maintain compliance with BMA's Blueprint Standard and Procedure. With our site-experience and mining industry knowledge, we give you peace of mind that you and your team are in good hands.

COMMITMENTS

Keeping you compliant

Waterline's multi-discipline engineering team will keep you compliant via:

- ▶ applying our experience in the BMA Blueprint Standard (BMA-STD-15758741) across your site
- ▶ a streamlined and consistent approach, using the Blueprint Procedure developed by Waterline and BMA IAM
- ▶ our site-experienced team who complete the bulk of works remotely—reducing cost and impact to site operations

Your Blueprint

Our site-experienced engineers will deliver a Safety & Compliance Matrix that:

- ▶ outlines the areas where your site meets BMA Blueprint and legislative requirements
- ▶ identifies areas requiring attention and recommended actions to achieve compliance
- ▶ enables you to prioritise actions and work with Waterline to keep your site compliant and team safe

BENEFITS



Fast turnaround

We understand BMA's safety and compliance requirements because we're familiar with your systems, so we hit the ground running



Site experience

We are the BMA Blueprint Compliance partner. Our knowledge and experience from other sites is transferable



Multi-discipline engineering

You have access to our multi-discipline engineers and we'll work with you as an extension to your team



LET'S COLLABORATE

Want to implement the Blueprint at your site?

Chat with our Electrical Project Engineer + Compliance Lead **Chris Mapleson**. Or visit our website and book a video call with Chris waterlineprojects.com/lets-talk

CERTIFIED ⚙️ EXPERIENCED ⚙️ ENGINEERING



CERTIFIED | EXPERIENCED | ENGINEERING

**WE KEEP
THE COGS
TURNING**

CIVIL + STRUCTURAL ⚙️ MECHANICAL ⚙️ ELECTRICAL
⚙️ DESIGN + DRAFTING ⚙️ CONTROL SYSTEMS
⚙️ OPERATIONAL SUPPORT ⚙️

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