

Hazardous Areas

Flammable Liquids, Gases & Vapours
Combustible Dusts, Fibres & Flyings



Our Vision

Quantum Electrical & Technical Solutions aim to lead the industry in exceptional Hazardous Areas service delivery and provision of the highest skilled and experienced EEHA personnel to Australian industries.

Our Commitment

Quantum Electrical & Technical Solutions are committed to assisting our clients with meeting their Hazardous Areas management and compliance obligations to ensure the highest safety standards within the explosive atmospheres industries.

We are dedicated to delivering high value to our clients through consistently meeting and exceeding upon your requirements and expectations.

We achieve this by employing and partnering with only the best in the industry, to ensure we provide the highest level of service, technical knowledge and cost-effective solutions for your Hazardous Areas operations, whilst still maintaining our exemplary safety, quality and environmental responsibility performance.

We apply an Integrated Management System which incorporates continuous consultation, planning, implementation, review and continuous improvement of all our work practices whilst instilling and upholding our core values of honesty, accountability, reliability, respect and pride.

Our Services

Quantum Electrical & Technical Solutions provides complete end-to-end solutions for all your Hazardous Areas compliance requirements. We pride ourselves on our technical knowledge and our commitment to our clients. We ensure at all times that we maintain a practical approach to all of our service delivery to enable our clients to meet their compliance obligations in the safest and most cost-effective manner.



Inspection & Compliance

- EEHA inspections to ensure your current installations are compliant with AS/NZS 60079 series. Under AS/NZS 60079.17:2017, inspections are required every 4 years to meet your compliance obligations.
- Recommendations on inspection software that are fit for purpose and specific to the nature and scale of your operations. Smaller scale operations can utilise Quantum ETS's documents.
- We use compliant tablet-based devices to ensure we deliver an efficient and cost-effective inspection campaign.
- Compliance reports and Punch lists are provided and detail cost-effective recommendations for any remediations that may be required.
- Remediations and rectifications can be completed at the same time, where possible, enabling a streamlined approach to the compliance process.

“

From engineering design through to maintenance ...

Auditing

- EEHA audits to ensure your site and operations meet Australian compliance requirements.
- Review of existing Hazardous Area Verification Dossier (HA VD), the Ex Equipment Register and identify gaps (if any).
- Punch list of non-compliances and reporting.
- Remediations and rectifications, where possible, can be completed at the same time, enabling a streamlined approach to the compliance process.

Installations & Commissioning

- New installations of electrical equipment and plant in Hazardous Areas.
- Selection of the appropriate electrical equipment, in line with the latest technologies, whilst ensuring your site's ongoing Hazardous Areas compliance.
- Wiring systems compliant with Hazardous Areas, sealed cables (where required) to prevent migration of gases, wiring enclosures protected from mechanical damage and use of appropriate equipment during wiring installations to reduce sparking.
- Small and large scale projects.

Maintenance & Testing

- Maintenance of existing electrical equipment and plant in Hazardous Areas, including rectifying power and lighting faults, machinery breakdowns, cabling or data issues and system malfunctions.
- Fully compliant modifications to existing electrical equipment in Hazardous Areas.
- Routine testing of electrical equipment in Hazardous Areas where it is required for classification compliance.
- Testing and assessment of electrical equipment in Hazardous Areas to ensure they are functioning efficiently and in accordance with relevant safety standards.

Engineering Design & Classification

- Cost-effective Hazardous Areas designs and zone classifications through our industry partner to ensure your site is compliant with Australian Standards.
- Provision of zone classification reports, delineation drawings and all supporting documentation.
- Review and audit of existing site zone classifications, with practical and cost-effective recommendations on avenues to reduce the zoning of your existing equipment installations.
- New installations, existing installations and plant modifications.

Conformity Assessment

- EEHA conformity assessment of foreign certified equipment through our industry partner.
- Provision of Conformity Assessment Documentation (CAD), as required.
- Equipment under the AUSEx, ANZEx and IECEx schemes can be installed without the requirement for additional CAD, per the Australian Standards.





Consultation

- Review and analysis of your Hazardous Area electrical equipment requirements to tailor an electrical system to your specific operational needs, including flame-proof lighting (Ex d), hazardous areas junction boxes (Ex e), intrinsically safe instrumentation (Ex i) as an example.
- We understand that compliance requirements for electrical equipment in Hazardous Areas may present a challenge for our clients. We are open to discuss your site and overall operations, to better help you understand your obligations and to build upon your knowledge on the subject.
- We are proud of the relationships we have developed with our existing client's engineers, operations directors, managers, safety personnel, and office and support staff. We are committed to helping you both understand and meet your compliance obligations.



Subject Matter Expert (SME)

- As Subject Matter Experts (SME) within the industry, we are engaged by RTOs and companies to supervise, mentor and train their EEHA personnel.
- Support Services – Technical phone support in line with our business rostering requirements.
- Mentoring Services – Training and mentoring of your EEHA personnel on the job.
- Auditing Services – Supervision and compliance checking of your EEHA personnel work.
- Training Services – Pilot testing core training competencies for new RTOs.



Digital Solutions

- Assisting our clients to meet their compliance obligations in the most cost-effective and safe manner, and without any competing interests.
- Provide recommendations on the implementation of Digital Inspection Software with Certified RFID tagging systems where they have the potential for future cost savings.
- We have no affiliations (financial or otherwise) with any of the Digital Solution products available in Australia, and as such, our recommendations are unbiased and specific to our client's needs.



EEHA Personnel

- Quantum Electrical & Technical Solutions can further assist our clients with all their EEHA personnel resourcing and labour requirements.
- We are best placed to recruit, select and provide highly skilled and experienced Hazardous Areas personnel for your operations. We have an intimate understanding of the industry, Hazardous Areas and electrical skills and knowledge, ensuring that we present the highest calibre candidates to you. We have placed highly skilled and experienced EEHA personnel for client's Australia-wide. Our personnel have worked on sites across a range of Hazardous Areas industries.
- We can provide personnel for one-off, casual, short term, seasonal and long-term work. Additionally, we can provide permanent placement of personnel under an initial labour hire arrangement for the probationary period, or direct permanent placement from the onset.



Our Most Recent Projects



Ensign Energy, Onshore Drill Rigs Australia-wide

Sites: Various Onshore Drill Rigs: Canning Basin (East of Broome WA), Cooper Basin (Moomba SA), Perth Basin (Dongara WA), Surat Basin (QLD)

Recruited, selected and provided the best-fit, highly experienced Hazardous Area electricians for Ensign Energy's onshore gas drill rig operations. Under a labour hire arrangement with option to transfer to the client permanently, we have fulfilled multiple resourcing needs for the client to date (ongoing).



Clean Energy Fuels Australia, Onshore LNG Process & Storage

Sites: Kaolin and future West Gold Sites (4) – Gas Storage Facilities (5)

An ongoing project to establish LNG storage facilities at 5 CEFA sites in WA. QETS's team of EEHA site personnel undertook the installation of cable ladders, cables, instrumentation, motors and the control room on site. Inclusive of the full wiring of control room sea containers and upgrades to MCC to facilitate the change from 22kW to 55kW motors. All associated testing and commissioning activities.



Buru Energy, Onshore Oil Production

Sites: Ungani Oil Process Facility

Hazardous Areas rectification works inspections and sign-off. Testing and inspections of earthing and lightning protection system (LPS). Engineering and design of rectifications for lightning protection system.



Elgas, LPG Gas Storage & Filling Depots

Sites: Geraldton Depot, Kalbarri Depot, Denmark Depot, Narrogin Depot, Bunbury Depot, Boddington Gas Storage, Canning Vale Depot and various warehouses and workshops in Perth Metro

Refurbishment of LPG tanks for forklift refueling; disconnections of LPG forklift refueling tanks, installation of LPG tanks including development of Hazardous Area Verification Dossiers (HA VD), maintenance including replacement of switches, motors, scales and level sensors at LPG refueling and gas filling depots and updating of existing HA VD, carry out testing of equipotential bonding at refueling depots and earth resistivity testing of earth electrodes.



CBH, Grain Handling Depots

(for Trinity MSAS)

Sites: Metro Grain Centre Forrestfield, York Grain Depot

Disconnections and reconnections to facilitate the replacement of a conveyor tripper unit. Ongoing provision of multiple EEHA qualified electricians for maintenance operations.



Synergy, Power Station

(for HazTech Solutions)

Site: Kwinana – 2, Gas Fired GE Turbines and associated Gas Infrastructure

Undertook 4 yearly periodic EEHA inspections of electrical equipment in Hazardous Areas (250+), trialing SafeEx software-based system and demonstrated to Synergy the streamlining of future inspection campaigns.



Origin Energy, LPG Storage & Filling

(for Wavelane)

Site: Linfox Hazlemere & Kewdale – LPG Forklift Refueling Station

Electrical installations, testing and commissioning.

Site: Pinjara Origin Energy Terminal

Carry out EEHA inspections and (pending) rectifications.

Site: Market City Canning Vale

Breakdowns on large LPG refueling station. Rectification works ongoing.



BOC, Gas Production & Storage

(for Selectek & Direct)

Site: Murrin Murrin (Minara Resources) Steam Methane Reformer producing Hydrogen & Air Separation Unit producing Oxygen and Nitrogen

Replaced Ex e local control stations around Hydrogen plant; replaced, programmed and tested/ commissioned safety instrumented trip relays, insulation resistance testing of HV motors, replaced HV insulators, disconnected and reconnected HV and LV motors, carried out micro-Ohm testing of electrical connections (Ductor testing) and assisted with replacing Emergency Shutdown System (ESD).

Site: Canning Vale Depot

Gas bottle buffer upgrade. Disconnection of existing equipment and installation of new equipment.



Kleenheat, Gas Storage & Filling

(for Wavelane & Direct)

Site: Narngulu (Geraldton) – Process Plant

Replaced EEHA stop/ start station and motor on forklift refueling skid. Included all new cabling and barrier glands. Creation of Hazardous Area Verification Dossier.

Site: Churchlands Senior Highschool (Metro) – Workshop

Installed emergency shutdown solenoids for acetylene and LPG gas bottles for the workshop.

Site: Rottneest Island – LPG Facility

Undertook a detailed feasibility study for upgrading the Rottneest Island LPG facility.

Site: Northam Aerodrome – LPG Facility

Installation of >80kl LPG tank. Electrical installation of pump motor, starter and earthing.



Beach Energy, Onshore Gas Production & Processing (for HazTech/ GCo Electrical)

Site: Dongara – Gas Production Facility

As part of a project to install a new gas well head at Beharra Springs Gas Production facility near Dongara WA, we provided supervision for non-EEHA certified electricians to carry out the works. This included training on how to use Ex rated barrier glands to ensure barrier integrity.

Once completed, we provided third party initial detailed inspection services for the entire new installation to ensure compliance to Australian Standards, client specifications and engineering drawings. At the end of construction and pre-commissioning phases, our services were further utilised by Valmec (the construction contractor) for online commissioning and start-up processes.



Triangle Energy, Oil Production & Processing *(for HazTech Solutions/ Powertech)*

Site: (Near) Dongara – Arrowsmith Oil Stabilisation Plant

Undertook 4 yearly periodic EEHA inspections of electrical equipment in Hazardous Areas (200+). Developed a Punch list register of non-conformances with suggested remedial actions. Provided EEHA advice and options going forward to assist with future inspection campaigns. This included suggestions on implementing software-based inspections and a certified RFID tagging system.



Fortescue Future Industries (FFI) *(for HazTech Solutions)*

Site: Curtin University (Disconnections) & Aussie Fluid Power (Reconnections)

Systematically disconnected Hydrogen electrolyser and associated equipment ready for removal. Systematically reconnected Hydrogen electrolyser and commissioned. Tested, developed, altered, improved and (somewhat) redesigned Hydrogen electrolyser for FFI. Disconnected again and installed as a containerised solution.



GRP Tank Solutions, Tank Manufacturing

Site: Bibra Lake, Perth

FRP/ GRP Tank manufacturing facility; undertook 4 yearly periodic EEHA inspections, replaced Ex d resin heaters, replaced facility Ex dembq light fittings, attend to breakdowns, test and maintain earthing system to reduce the incidence of static and maintain integrity of the earthing system and surface resistance testing to IEC 66079.32.2 of carbon cloth coated hydrochloric acid tanks for supply to BHP's Nickel West Kwinana facility.



Trident Fluid Systems, Offshore Services Provider

Site: Canning Vale Workshop, Perth

Termination of subsea cables from umbilical reeler to junction box using EEHA glands, termination of deck jumper cables using Trolex EEHA connectors and undertook an EEHA compliance review of hydraulic power unit.



ATCO, Power Station *(for HazTech Solutions)*

Site: 2, Gas fired GE turbines and associated gas infrastructure KARRATHA

Undertook 3 yearly periodic EEHA inspection of all electrical equipment in Hazardous Areas (300+) within the gas fired power generation station in Karratha. This inspection campaign also required detailed inspections to be conducted at a sample rate of 10%.



Kirkside, Chemical Storage Warehouse

Site: Osborne Park Warehouse, Perth

Reviewed Safety Data Sheets (SDS's) for the chemicals being combined at the facility, reviewed the warehouse facility and layout, and undertook a risk assessment of current company practices and processes to determine the safest and most cost-effective solution for the client to comply with their EEHA obligations. The resulting solution saved the client significant expenses by negating any current and future EEHA costs.



CSBP, Ammonium Nitrate Production

(for Techskills Australia)

Site: CSBP Kwinana – ANE (Ammonium Nitrate) Plant, WA

Subject Matter Expert (SME) on a CSBP Shutdown. The role included providing technical support and mentoring to EEHA Inspectors and Rectification Workers carrying out close and detailed inspections and remediation works, as well as investigating IS circuits and carrying out calculations to ensure compliance.



Mineral Resources Limited, Lithium Mine

(for MOXI HA Services)

Site: Minerals Lithium Mine – Wodgina Port Hedland, WA

Carried out detailed EEHA inspections on instrumentation and motors, in preparation for re-start up of the plant which has been on Care and Maintenance.



Minara Resources, Nickel Cobalt Mine

(for MOXI HA Services)

Site: Murrin Murrin Nickel Cobalt Mine, WA (Leonora/ Laverton)

Carried out detailed EEHA inspections on all electrical and instrumentation equipment on site.



Our People

Les McGrath (Adv Dip Eng)

MANAGER



With over 24 years' experience within the electrical industry, Les has a distinguished career in working in all sectors and all over the state of WA including mining, oil and gas, agriculture, utilities, heavy industrial, commercial and domestic.

Les has a significant background in both open-cut and underground mining and heavy industrial operations, as well as substantial technical experience in electrical design, drafting, tendering and estimation, and supervisory and managerial roles.

Holding an **Advanced Diploma of Electrical Engineering** in addition to his extensive trade experience, technical qualifications and knowledge, Les consistently delivers exceptional results for our clients.

As a hands-on Manager, Les is solution-focused and constantly looking for ways to streamline and improve the Hazardous Areas compliance process for our clients. With a personal passion for, and sole business focus in Hazardous Areas, our clients are in exceptionally competent and experienced hands.

Lynsey McGrath (BEng)

CONTRACTS / ENGINEERING / HSEQ

Senior Engineer and Project Manager, Lynsey McGrath, has 20 years' experience in engineering across a range of industries, in both the public and private sectors.

With over 13 years heavy industrial (open-cut mining) experience in engineering and HSEQ roles and a decade of consulting experience in this industry alone, Lynsey solely and successfully undertook these duties as a consultant for a \$98m Pilbara mining operation employing up to 65 persons plus contractors at its peak.

As the spouse of Les McGrath, Lynsey also has a vested interest in ensuring that Quantum Electrical & Technical Solutions not only meet but exceed upon our client's Hazardous Areas requirements and expectations from the onset.



Our Employees

Quantum Electrical & Technical Solutions employs and provides only the highest quality personnel in the Hazardous Area industry, who adhere to the highest standards of health, safety, quality, environmental responsibility and conduct in all their work practices and interactions.

We value our employees as the best in the industry and acknowledge our commitment to them through the highest remuneration and professional development.

All our employees have extensive trade experience in addition to professional qualifications and significant experience in delivering Hazardous Areas compliance services for our clients.

We have employees Australia-wide and can successfully provide resources for your EEHA inspections, projects, maintenance and ongoing operations, both metro and regionally. Our employees are reliable, highly skilled, efficient, honest and transparent in all of their dealings.

Our Industry Partners

Quantum Electrical & Technical Solutions partners with only the most experienced Hazardous Areas professionals in the industry. We are extremely selective with whom we align ourselves with.

We are proud to work alongside the highly regarded industry expert **Bill Rankin, Electrical Engineer & Senior Electrical Inspector - Texeco Hazardous Areas Compliance Solutions (Oil & Energy)** to deliver our clients with the best engineering and technical services available.

We have a strong ongoing working relationship with other hazardous areas companies Australia-wide, including providing on-the-job supervision and training of their EEHA personnel.



Our Technology

Being at the forefront of Hazardous Areas compliance, we understand the significant cost to our clients in meeting their compliance obligations. As such, we continuously seek out avenues to streamline the Hazardous Areas inspection process to assist our client's in meeting their compliance obligations in the most cost-effective and safe manner.

Quantum Electrical & Technical Solutions may recommend the implementation of Digital Inspection Software with Certified RFID tagging systems to our client's Hazardous Areas operations, if it has the potential for future cost savings. This enables Hazardous Areas assets to be properly identified and tagged to enable streamlining of future inspection campaigns.

This offers significant time and therefore cost savings in undertaking 4 yearly re-inspections. Presently many clients do not have a tagging system in place and many of their assets' associated equipment (glands, blanking elements and adapters/ reducers) are failing EEHA inspections due to being unidentifiable (loss of markings over time due to deterioration, particularly where inspections are 4 years apart).

The cost burden of this includes inefficiency in the EEHA inspection itself (significant time spent attempting to identify associated equipment), increased paperwork for logging and reporting the non-compliance and failure (Punch list and report) and the reinspection post-identification. Implementing Digital Inspection Software with the Certified RFID tagging system completely streamlines future inspection campaign processes. Scanning an RFID tag using the NFC reader on a portable device, automatically loads photos of the equipment for instant one-touch identification. This enables the client's in-house EEHA personnel to easily and efficiently undertake the future inspection campaigns themselves.

Quantum Electrical & Technical Solutions are committed to providing our clients with the most cost-effective solutions to meet their compliance obligations. We confirm that we have no financial interest in or affiliation with any specific Digital Inspection Software or RFID tagging system. Without competing interests, we recommend digital solutions specific to our client's business operations and requirements, with the aim of continual EEHA improvements and efficiency. Where a client has a compatible Asset Management system already in place, we aim to provide the best EEHA solution to integrate RFID tagging into that system.



Our Management Systems

We achieve our business vision and commitments through applying our integrated management system which incorporates continuous consultation, planning, implementation, review and continuous improvement of all our work practices whilst instilling and upholding our core values of honesty, accountability, reliability, respect, pride and contribution.

Our Licences and Insurances

Quantum Electrical & Technical Solutions is a Registered Electrical Contractor (EC012149).

All our personnel hold current and valid Electrical Worker's Licences (for the relevant State), Hazardous Areas (EEHA) qualifications, significant electrical experience and knowledge, as well as numerous other relevant minimum qualifications, including:

- Instrumentation
- Control Systems (including PLCs)
- Confined Space, Working at Heights and Gas Test Atmosphere
- Senior First Aid, LV Rescue and CPR

Quantum Electrical & Technical Solutions holds a current and valid Public and Products Liability Insurance policy to \$20 million specifically covering work in Hazardous Areas. All licences, qualifications and certificates of currency can be provided upon request.

Contact Us

Les McGrath (Manager)
0407 382 454

info@quantumets.com.au

www.quantumets.com.au