

Benchmark Monitoring

Capabilities Statement



The Benchmark Monitoring multi-disciplinary team of highly skilled professionals offers a fusion of both environmental and engineering skill sets to provide complete environmental monitoring services



Company Overview

Benchmark Monitoring is an environmental monitoring company focused on offering independent environmental and process monitoring services, instruments and systems across multiple industry sectors including mining and resources, power generation, manufacturing, transport and construction and government departments. Benchmark Monitoring is an Australian owned company, founded in 2010, with head office located in Singleton NSW.

The Benchmark Monitoring technical team is a multidiscipline group constructed from grounded industry professionals. A high standard of technical support is offered by staff skilled across disciplines including the areas of measurement, automation, telemetry systems, environmental science, consulting and electrical trades. Extensive industry exposure enables management of projects from a strong practical perspective under a comprehensive quality system to ensure a high standard of measurement quality and traceability.



Management Systems

Benchmark monitoring's Safety Management system is continually reviewed, updated and subject to external audit in order to meet or exceed client requirements of our customers and maintain vendor status with major mining and power generation companies.

Benchmark Monitoring operate in accordance with the Environmental Management Plan prepared in compliance with the NSW guidelines which are aligned with ISO14001.

Benchmark Monitoring conduct the supply of goods and services under a comprehensive quality management system compliant with AS17025.



Project Portfolio

Recent key experience in the delivery of environmental monitoring solutions and services to clients includes:

- ➔ Long term and continuing involvement in the design, installation and operational phases of a comprehensive environmental monitoring network for coal producer including real time air quality, noise, meteorology, water quality and water level monitoring and static sample collection across multiple mine sites. Work has also included automation, telemetry, PLC integration and source code development to enable real time data integration to SCADA systems to inform operations.
- ➔ Long term and continuing management of monitoring and reporting for comprehensive network across mine and port sites continuously monitoring dust, noise meteorology, subterranean environment and mine discharge.
- ➔ Installation and continuing operation of Kaboom® TM blast monitoring network across two mines comprising 14 blast monitoring sites equipped with Kaboom® hardware and the web based data management portal.
- ➔ Supply, design, installation and ongoing maintenance and technical support of CEM systems (and/or upgrades) for the thermal coal boilers for a large Power Station. The CEMS System consists of real-time SO₂, CO, CO₂, NO_x and O₂ measurements to Australia Standards and provides data acquisition to the SCADA. Benchmark Monitoring have also supplied, installed and operated ambient monitoring sites including gaseous, particulate and met parameters to AS for campaign based monitoring for the same operation.
- ➔ Project management, including stake holder liaison (community, industry and local government), for installation of 14 monitoring sites for a government Air Quality Monitoring Network that performs continuous monitoring of ambient air quality (gaseous and particulate) and meteorology. Work included site assessment process, electrical service assessments, engagement with public works, EIS, development, application preparation of tender specification and management of subcontractors during construction.



The key elements of the Benchmark Monitoring business are:

➔ Continuous field environmental and process monitoring services

Benchmark Monitoring delivers complete monitoring systems for continuous environmental and process monitoring. Monitoring solutions are designed using best practice principles to meet regulatory compliance requirements and inform operational management. Strong engineering skills combined with extensive environmental management knowledge enables development of robust, well-engineered, innovative bespoke systems to satisfy project specifications and endure harsh climatic conditions.

➔ Static field environmental monitoring services

Campaign based collection of environmental samples including dust deposition, high volume air sampling, gases, surface water, groundwater, soil and microbiological sampling to applicable standards.

➔ Environmental monitoring instrument supply

Benchmark Monitoring can source instruments for environmental monitoring at competitive prices and advise on suitability for client applications. A complete product sales service is offered which includes advice, sales and support for instrumentation, data loggers and telemetry with lease options available. Benchmark Monitoring also supply calibration and measurement standards. The product range includes proprietary and third party manufactured equipment.

Benchmark products include:



Benchmark is the Australian supplier for:



Magee Aethalometers for measuring black carbon and total carbon including ambient real time monitors and a benchtop black carbon analyser.



The Aethlabs microAeth® products include a personal exposure monitor for Black Carbon and family of multi-wavelength instruments in compact, lightweight format for the continuous analysis of the composition of light absorbing carbonaceous aerosol particles.



Duvast technologies multi-gas closed path spectroscopy analysers.



Edgetech instruments including RH-CAL for NIST traceable humidity calibrations.



Tanabyte Ozone analysers and dilution calibration standard.

➔ Environmental monitoring equipment service and repairs

Benchmark Monitoring technicians have over 25 years of experience and are factory trained in servicing and repairing a broad range of instrumentation.

➔ Data management and reporting services

Data management services available from Benchmark Monitoring include data checking, data validation, development and deployment of alarm and exceedance reporting via SMS and emails, website or webportal presentation of data to inform real time management and data import services to client databases. Reporting services include a range of reports from basic tabular summaries, graphs, data capture rates, exceedance and arc of influence analysis. All reporting formats are customisable and are issued at a specified periods (e.g. daily, weekly, monthly) to meet client requirements for regulatory and operational purposes.

➔ Environmental consultancy

Technical consultancy services include advice for compliance and regulatory issues, monitoring program design, execution and reporting, management plan development, monthly and annual reporting, role replacement and independent site auditing of instrumentation to comply to Australia and manufacture's standards.

➔ Research and development of proprietary monitoring solutions

Benchmark Monitoring research and development is dedicated to development of software solutions and field devices for specific environmental monitoring applications. Key skills of our development team include software engineering for customized data acquisition and telemetry solutions for system integration and electronic engineering for robust product design.

Products and Services

Products and services offered by benchmark Monitoring fall under five core categories:



Blast
Monitoring

The Benchmark Monitoring Kaboom system offers a turnkey air blast and vibration monitoring solution available for both mining and construction applications. Kaboom continuously measures the vibration and air blast at a high sampling frequency. Employing the latest data acquisition technology, on board digital processing and wireless communications Kaboom provides superior measurement resolution and data quality over conventional hardware. Each Kaboom field monitoring unit provides data that is transmitted to the Benchmark web portal that can be accessed remotely via the web.

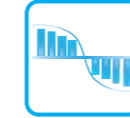
The Benchmark Monitoring web based Blast Permissions Tool continuously uses real time high frequency site meteorological data combined with a set of site specific user defined rules to inform mine site staff of the suitability of the current meteorology for blasting operations. Developed for managing both mine blasting and haul truck dumping management the tool can be tailored to meet site requirements.



Air Quality
Monitoring

Benchmark Monitoring provide best practice air quality monitoring solutions. Our complete air quality monitoring services, including ambient and continuous emissions monitoring, are performed in accordance with standards and guidelines to meet regulatory requirements. Our provision of complete turnkey environmental monitoring systems includes design, fabrication, installation, commissioning, ongoing operation and maintenance and data management services. Benchmark personnel also specialise in industrial communication solutions for ease of integration of monitoring systems into SCADA and DCS systems to satisfy both environmental and process applications.

Benchmark Monitoring offer a fully integrated Dust Management Package enabling real time site meteorology and particulate data to be used to inform automatic implementation of dust management measures to meet Site Management Plan Air Quality Objectives.



Noise
Monitoring

Benchmark Monitoring provides bespoke real-time noise monitoring systems developed with a focus on long-term environmental compliance applications and industrial noise policy needs. Omni and directional noise monitoring solutions have been designed for two specific streams; event based monitoring for applications such as rail, road or heavy industry noise episodes and long-term background monitoring. Our systems have process engines and web based data portals that are fully customizable to meet client specific noise monitoring needs. Systems can be configured for alarming and upon exceedance of a user defined threshold statistical metrics, audio and visual files may be generated.



Meteorological
Monitoring

Benchmark Monitoring meteorological monitoring solutions offer flexibility of design and engineering excellence to meet client and regulatory requirements. Real-time meteorological monitoring data is essential during planning and operation of mining and heavy industry projects. Our staff can customize a meteorological monitoring package to include telemetry, data reporting and web based services to suit your specific needs. Our meteorological services include real time monitoring to inform our dust management package combining real time meteorology and dust measurements for automatic activation of dust control measures and the Blast Permissions Tool which continually analyses the real time meteorology and site specific rules to provide clear guidance on the suitability of conditions for blasting.



Water
Monitoring

Benchmark Monitoring water level and water quality monitoring stations are constructed to meet environmental monitoring industry standards and are tailored to meet site water management and compliance requirements. Our water monitoring stations can be customized to meet project requirements and include portal display of data, alarm notifications and remote control of sites. Our robust data acquisition systems offer capacity for future expansion and stations that are capable of automatic water sampling with event activated measurements that may be linked to alarm and SMS services for field staff intervention. We also offer discharge channel and weir design services.

Benchmark Monitoring offer complete water discharge monitoring systems, which are designed in accordance to Hunter River Salinity Trading scheme and Office of Water best practices.





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