



CAPABILITY STATEMENT

RUC

Cementation

MINING

RUC Cementation Mining is a diversified underground mining contractor with an extensive portfolio of completed and current projects throughout Australia and the Asia-Pacific.

From its beginnings as a raise drilling specialist, the company has gone on to partner with some of the biggest names in the mining industry across the full range of their underground development and production requirements.

With its extensive fleet of modern equipment and a highly experienced and qualified team of mining professionals, the company has gained a reputation for successfully tackling the most complex and challenging works.

As part of the global Murray & Roberts group, RUC Mining is a confident and steadfast partner committed to innovation in designing ever safer working practises and more efficient development and production techniques. Operating in locations from the remote to the highly urbanised, the company seeks to maximise the engagement of local workers, whilst maintaining quality and world's best practices.



MECHANISED MINING
SHAFT SINKING
RAISE DRILLING
SPECIALIZED GROUND SUPPORT GROUTING & CONSTRUCTION
UNDERGROUND CONSTRUCTION
BOXHOLE BORING
MASS EXCAVATIONS
AUTOMATION AND MINING TECHNOLOGY

We offer a complete turnkey underground hard rock solution with all the expertise and capability under the one roof.

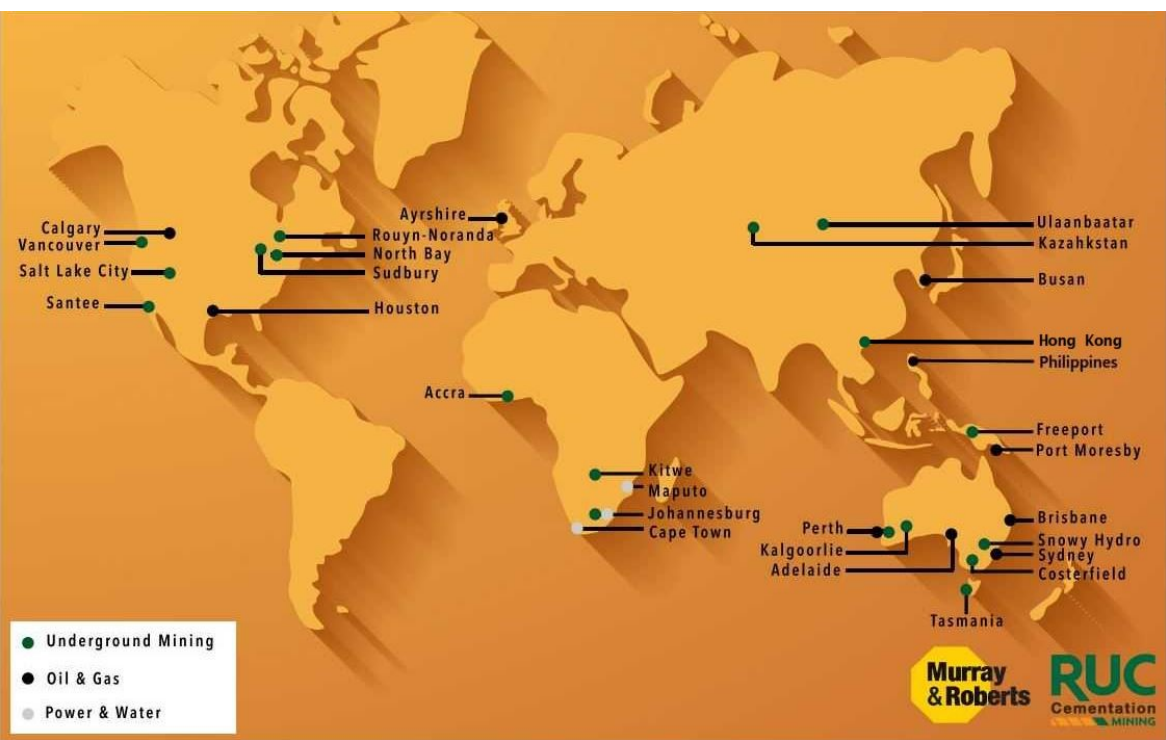
ABOUT MURRAY & ROBERTS - PARENT COMPANY OF RUC CEMENTATION MINING



RUC is 100% owned subsidiary of Murray & Roberts group of companies. It is part of the Underground Mining platform of Murray and Roberts. The Underground Mining platform operates globally, and its service offering spans the project life cycle, including feasibility studies, specialist engineering, vertical and decline shaft construction, mine development, specialist mining services such as raise boring and grouting, and contract mining.

As one of the largest underground mining contractors in the world, the platform has significant market share in the jurisdictions in which it operates. It is currently engaged on projects in Australia, Canada, Indonesia, Mongolia, South Africa, USA, Mexico, Chile, Kazakhstan and Zambia. These include 18 shaft sinking and equipping projects, 21 decline and mine development projects, eight production mining projects, 13 support and construction projects, and two major ore handling infrastructure construction projects.

During the last financial year Murray & Roberts generated A\$2.0 billion in revenue with \$126m in profit before interest, depreciation and amortisation. The underground mining platform was the most dominant earner contributing A\$1.0 billion to the revenue and \$79m to profit before interest, depreciation and amortisation.



Revenue: A\$2.0 billion
(FY2019)

EBITDA: \$126 million
(FY2019)



MURRAY & ROBERTS GROUP STRUCTURE

Murray & Roberts

Murray & Roberts Group divides its capabilities into three global primary market sectors: oil & gas; metals & minerals and power & water. Murray & Roberts is headquartered in Johannesburg, South Africa, and is listed on the JSE Limited. It also has offices in Mozambique, Zambia and Ghana. Australia, South Korea, Scotland, USA and Canada. Murray & Roberts is a group of world-class companies and brands aligned to the same purpose and vision, and guided by the same set of values.

UNDERGROUND MINING



Cementation Canada & USA is a leading provider of underground mining contracting and engineering services throughout North and South America.



Murray & Roberts Cementation

Murray & Roberts Cementation (Africa) is a first-choice mining contractor providing the best value for mining development and contracting services.

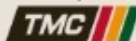


RUC Mining is a shaft sinking and raise drilling specialist. RUC is based in Western Australia and operates in Australia and the Asia Pacific region. RUC's shaft sinking capability includes blind sinking and strip and line operations and offers a complete solution from installing shaft collars and excavating pre-sinks to main sinking and equipping large diameter shafts, in some of the most challenging environments in the world. The company has offices in Australia, Hong Kong, Indonesia and Mongolia.



RUC partners with InSig Technologies, a company that specialises in Internet of Things (IoT) OT and IT solutions. InSig covers the full scope of intelligent solutions from strategy to reality including consulting and advisory services, IoT platform services, big data and analytics and other technical services.

In October 2011 RUC acquired the specialist underground shotcrete service company InCycle Shotcrete (ICS). InCycle will continue to operate as a standalone entity but enabling RUC Cementation to offer this service in conjunction with our existing operations.



TURAN MINING CONTRACTORS

Recently RUC has established a joint venture in Kazakhstan, known as Turan Mining Contractors. This is a joint venture between RUCCEM LLC (RUC's Mongolian subsidiary Co.), Keremet Projects and Turan Industrial. The goal of the joint venture is to establish western mining practices in Kazakhstan for the benefit of the local mining operations to improve safety, productivity and mechanization including increased automation and digitalization.



Merit is based in Vancouver, Canada and provides project and construction management services.



Cementation is an underground mine contracting and engineering company providing mine development and production services to the mining sector worldwide.



Terra Nova Technologies is based in Australia, Santee and USA. TNT designs, supplies and commissions overland conveyors, crushing/conveying systems, industry-renowned mobile stacking systems, heap leach systems and crushing and screening plants.

OIL & GAS



Clough works with some of the world's largest companies to engineer, construct, commission and maintain a comprehensive range of facilities for oil and gas, metals and minerals, and infrastructure projects.



Clough Enercore (Canada) brings together leading engineering and project management contractor, Clough, with Canada's niche but renowned oil and gas EPCM contractor Enercore, to offer a fresh approach to contracting for the Canadian oil and gas sector.



Clough Coens (South Korea) is a joint venture between Clough and Coens Energy to provide specialised commissioning and completions services to facilities.



e2o is Australia's leading multi-discipline commissioning contractor. The company provides an independent commissioning solution across the entire project lifecycle.



Booth Welsh (Scotland) specialises in the provision of electrical, instrumentation and automation design, process consultancy, project management, implementation and commissioning services.



CH-IV (USA) provides consulting services to global LNG asset developers, regulators, facility owners, operators and lenders to ensure assets are designed, developed, constructed and operated safely and in accordance with codes, regulations, and the project's technical and commercial specifications.

POWER & WATER



Murray & Roberts Power & Energy
Engineers and Constructors

Murray & Roberts Power & Energy is the platform's engineering, procurement and construction ("EPC") projects implementer, adding unique value to the constructability, integration and ultimate performance of the projects it undertakes.



Murray & Roberts Water
Engineers and Constructors

Murray & Roberts Water has the capability and expertise to design, supply equipment, construct, commission, operate and maintain water treatment plants in Africa.



Aquamarine designs, manufactures and installs water treatment solutions. It offers a complete customised solution, including support for and maintenance of its installations.



OptiPower Projects delivers projects in the transmission, distribution and substation sectors of the power market.

ABOUT RUC CEMENTATION MINING AUSTRALIA



RUC offers a complete turnkey underground hard rock solution with all the expertise and capability under the one roof.

RUC's domestic operations are managed from offices in Perth and a regional operations center in Kalgoorlie. Internationally, RUC has offices and branches/subsidiaries in Indonesia, Mongolia, Kazakhstan, Hong Kong, New Zealand, and the Philippines. We're well experienced and highly respected in Australia. We have earned trust marks across the globe for our work in managing major projects.

Mining is inherently uncertain, and while there may be no such thing as certainty, we believe it's worth striving for. Certainty of quality, performance, delivery and industry-leading safety. It's the driving factor of our purpose – to bring certainty underground.

InCycle Shotcrete was formed in 2004, to bring a new level of professionalism and capability to the supply and application of ground support materials for the mining and civil construction sectors. After a successful period of organic growth and diversification, in 2011, the company became part of the international RUC Cementation Mining Contractors.

RUC Cementation Mining delivered a remarkable result in FY 2019. The securing of a significant shaft sinking contract for two large diameter vertical shafts for Rio Tinto at its Oyu Tolgoi mine in Mongolia supported this performance. Further scope growth in the contract with Freeport in Indonesia, and the exceptional efficiencies achieved by this project team contributed significantly to earnings. RUC Mining Australia secured several other contracts e.g. Ramelius Resources, Edna May, Vivien and Grange Resources at Savage River.



Barry Upton
Managing Director

Barry Upton graduated from the WA School of Mines in 1983 as a Mining Engineer. Since then, he has worked in the underground hard rock mining industry both in Australia and internationally and served as President of Thyssen Mining Construction Canada for 3 years from 2000 to 2002.



Greg Miller
Associate Director - Domestic Operations

Greg is a senior mining professional with 20+ years of industry experience. Responsible for the leadership of the Underground Division of a major Australian contractor, his expertise encompasses safety, leadership, business development, operations management, and general business management activities.



Paul Barisich
Technical Director

Paul has over 30yrs' experience in the technology field, and has led large software development teams and been involved in operation technology such as SCADA, PLC's, guidance systems and financial trading algorithms. Paul has worked overseas in roles as Development Management, Lead Architecture & Lead Designer and is known for out of the box thinking and developing innovative solutions for large complex problems.



David Smith
Director - People, Risk & Environment

David commenced his mining career in engineering design and moved into mechanical supervisory roles after graduating. David moved into his safety professional career after completing post graduate studies. In the last 20 yrs' David has held senior project and corporate mining and construction HSE lead positions globally for owner miner and contract mining organizations.'



Mike Da Costa
Chairman

Mike was appointed to the executive committee for Murray & Roberts in 2018. He is responsible for the Underground Mining business platform, which includes; Cementation AG, Cementation Canada & USA, Merit Consultants International, Murray & Roberts Cementation and RUC Cementation Mining.



Lawrence Newnham
Specialist and Key Account Manager

Lawrence began his mining career in South Africa as an Underground Maintenance Superintendent. Lawrence moved to Kalgoorlie in 1993 to establish RUC Mining, but has been in the RUC group since 1983 as a Supervisor, Contracts Manager, International Operations Manager, and as an Executive Director.



Robert Pettit
Associate Director International Operations

Rob is a Mining Engineer who joined RUC Mining in July 2010 as the Project Manager for the HATS2A Project in Hong Kong. Since then, Rob has taken the role of Regional Manager – Asia Pacific, where he is seen managing numerous contracts at the Freeport Operations.



Gerrie Pieters
Finance Director

Gerrie started his career in South Africa with the Murray & Roberts group in 1990, his career of over 30 years was in the Underground Mining contracting field. He obtained his BCompt degree in 2003 and fulfilled various administrative and commercial roles throughout his career in all aspects of the Mining field. He was also responsible for various international contracts.

MAJOR LOCATIONS & UNDERGROUND MINING PROJECTS

RUC
Cementation
MINING
ALL THE ANSWERS UNDERGROUND

**Murray
& Roberts**

SHAFT SINKING PROJECT

GCR MONGOLIA

RUC RAISE DRILL
PROJECT KAZAKHSTAN

RUC CEMENTATION
INDONESIA PROJECT

Underground
Mining Projects:

VIVIEN GOLD, WA

EDNA MAY, WA

MT MORGANS, WA

COSTERFIELD, VIC

SAVAGE RIVER, TAS

SHAFT SINKING:
SNOWY HYDRO, NSW

RUC HONG KONG
Cementation MINING OFFICE

RUC HEAD
Cementation MINING OFFICE
PERTH

insig
technologies

RUC KALGOORLIE
Cementation MINING SERVICE
CENTER

 **incycle**
DELIVERING SHOTCRETE & CIVIL SOLUTIONS

MECHANISED MINING

Operators face a number of challenges as they strive to exploit ever deeper and more complex orebodies. Realistic development and extraction rates must be achieved, whilst ensuring that the quest for an incident-free safety record is in no way compromised. For this reason, mine owners are increasingly turning to the more highly mechanised mining solutions, as offered by RUC Mining.

Mechanised mining offers the best of both worlds—rapid development with faster access to new reserves, and far fewer personnel involved at the active face. It means that owners can be generating revenue earlier in the life of the mine, whilst enjoying the productivity, cost and safety enhancements that mechanised mining brings.

By working with RUC Mining, owners profit from the increased efficiency of modern, technologically advanced equipment, together with the expertise of a highly-skilled workforce. The company has been heavily involved in providing skilled operators throughout Asia-Pacific into Southern Africa and recently to central Asia productive . These personnel bring with them years of experience in developing and achieving highly effective mining operations to optimise the benefits that come from mechanised mining.

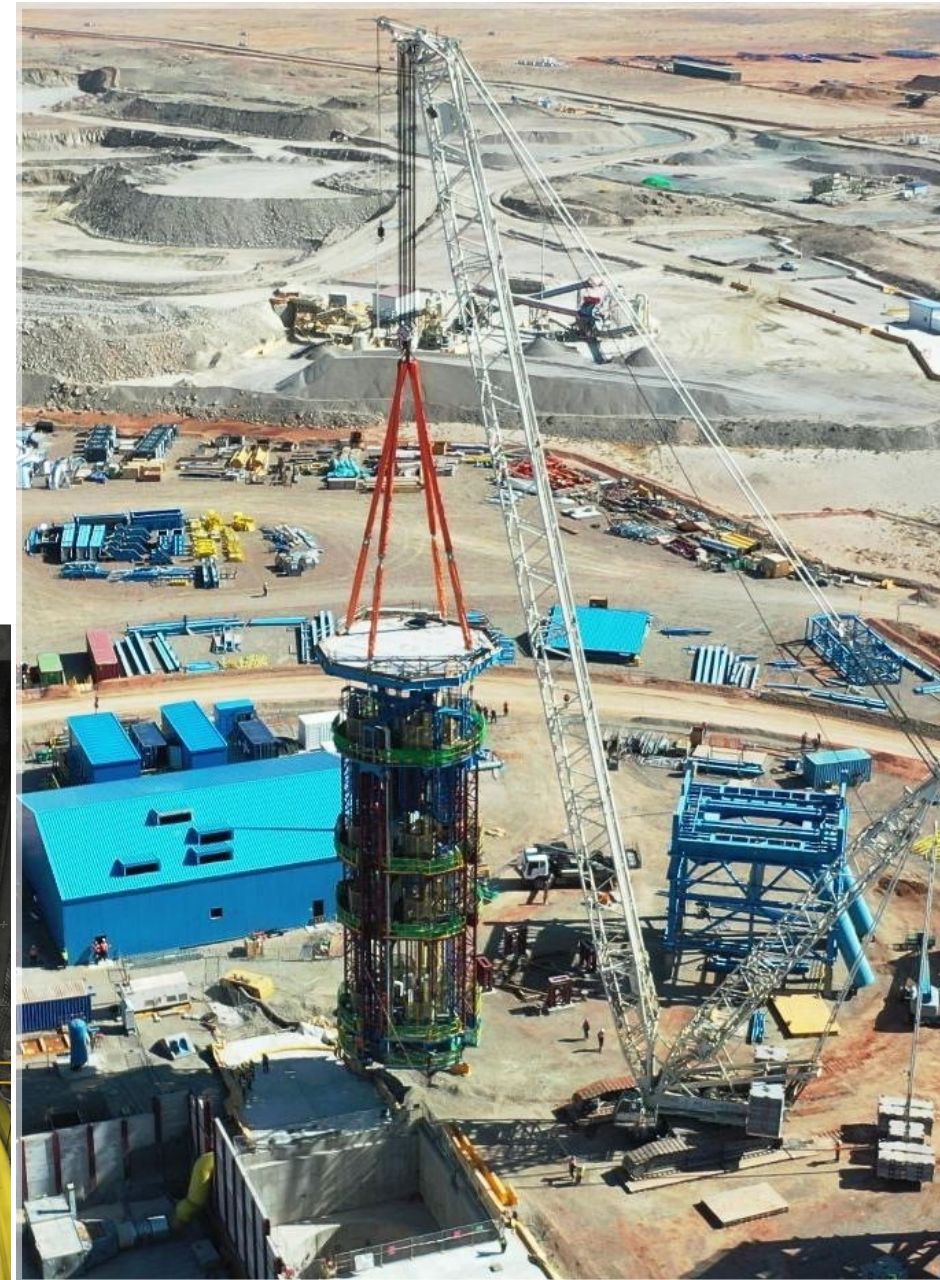


SHAFT SINKING

Shafts are a core component of many underground mining operations—an activity that sits squarely in the critical path of the project manager's schedule. Traditionally, it has always been one of the most challenging of operations, and for that reason it remains the preserve of specialist contractors like RUC Mining.

Challenges include restricted working space, tight timelines, underground water ingress, rigorous design and QA/QC requirements, together with geotechnical considerations, all of which have the potential to impact on the success or failure of the operation. Risks associated with the activity comprise not only schedule and cost but also safety—particularly the risk of falls. As a result modern techniques focus on improved safety and risk mitigation.

RUC Mining brings a huge range of experience and expertise to the discipline, gained from sinking and equipping some of the largest diameter shafts in the world, often in the harshest conditions. The company has sunk shafts in environments ranging from the remote highlands of Papua, Indonesia to the dense conurbation of Hong Kong. RUC Mining provides a turnkey solution for shaft projects, utilising other core skills of the business to deliver a final constructed hoisting solution.



RAISE DRILLING

Demand for raise drilling is increasing, as mine operators constantly seek productivity improvements without compromising safety imperatives. RUC Mining is regarded as the industry leader in this specialised area, with extensive experience across the widest range of conditions. With 21 operating rigs suitable for every situation, the company is in a unique position to deliver the most effective solutions, whether raise drilling of vertical shafts, or vertical and inclined drilling of boxholes.

Applications include pilot hole reaming for shaft sinking, escape rises, ore passes, ventilation shafts and slot raises.

There are few innovations that have given miners as many benefits as modern raise drilling. By reaming rather than blasting, smooth-walled bores are created that may need little or no ground support. Diameters can range from 0.66m to over six metres, with pinpoint accuracy delivered up to 1,000 m or more in depth.

The implications for safety and manning levels are just as impressive. By using non-entry methods, no personnel enter the hole during boring, no blasting takes place, and there is limited exposure to falling rocks or harmful exhaust fumes. With only two operators generally required per shift, cost benefits are obvious – raise drilling is by far the cheapest, safest and most cost-effective approach to creating vertical and sub-vertical openings in mines and construction projects.

Large Diameter Holes

RUC Mining holds the record for the largest completed raise drilled excavation in Australia of 930 m at 6.0 m diameter.

We are the leading contractor in the industry when it comes to drilling long raises at large diameters.

Accuracy & Precision

RUC Mining constantly strives to create new industry benchmarks for accuracy and precision in raise drilling.

At the Oyu Tolgoi development in Mongolia, the company succeeded in drilling a ventilation raise with a final deviation of just 20 mm over a 1,300 m raise – a variation of less than 0.002%.



SPECIALIST GROUND SUPPORT GROUTING & CONSTRUCTION

Effective ground support is perhaps the most important factor in ensuring the ongoing viability of underground mines – it follows therefore that mine owners must extract the maximum performance from every system component. As one of the largest installers of cable bolts in the world, RUC Mining is at the forefront of specialist ground support providers, helping clients to achieve productivity gains, whilst ensuring that safety is never compromised.

Operating with a fleet of specialised ground support and service machines, RUC Mining is able to install, tension and pressure grout all types of ground support, whether cable bolts, resin bolts, split sets, grouted dowels, steel straps or mesh. Together with the company's wholly owned subsidiary, InCycle Shotcrete, RUC Mining also delivers remote high-quality shotcrete and concrete solutions, either sprayed directly or as part of an integrated system over mesh and rockbolts.

In moving to eliminate hazards, RUC Mining has embraced the adoption of full and semi-mechanised systems for bolting and spraying. With both high and low profile machines, holes are drilled and bolted in rapid sequence in accordance with mine plans. The company's remote spray units (including vertical shaft spray units) have gained rapid acceptance within the industry by eliminating the need for personnel to enter shafts or unsupported drives, thereby helping miners reach productivity targets in an environment of enhanced worker safety.



UNDERGROUND CONSTRUCTION

With the widest range of technical skills and expertise gained throughout the Asia-Pacific region, RUC Mining is ideally placed to deliver the full range of civil, mechanical, electrical, structural and installation services for all underground mining projects.

Underground construction is a highly specialised area where safe work practices and detailed planning are non-negotiable. The work is distinguished by the requirement to achieve pinpoint accuracy first time, usually in time critical environments where the quality of the excavation is paramount. Whether the client requirements are the installation of internal hoists, electrical substations, ventilation fan systems or the construction of sophisticated ore handling and conveyance systems, RUC Mining brings exceptional skills and value to the operation.



BOXHOLE BORING

With safe boring techniques an imperative in underground mine development, boxhole boring provides a mechanised, non-entry solution for the excavation of stope slot rises, ore rises, through passes and ventilation passes.

Where access to the upper level is limited or not possible, the boxhole boring machine sits at the lower level, and a raise is bored upward. Cuttings fall under gravity and are deflected from the machine using a muck chute.

RUC Mining has a range of drills available to complete boxhole boring safely and quickly, with a capability of up to 50 m in length and 1.5 m in diameter. Boring can be completed with or without a pre-drilled pilot hole, either vertically or inclined down to 45° from the vertical.



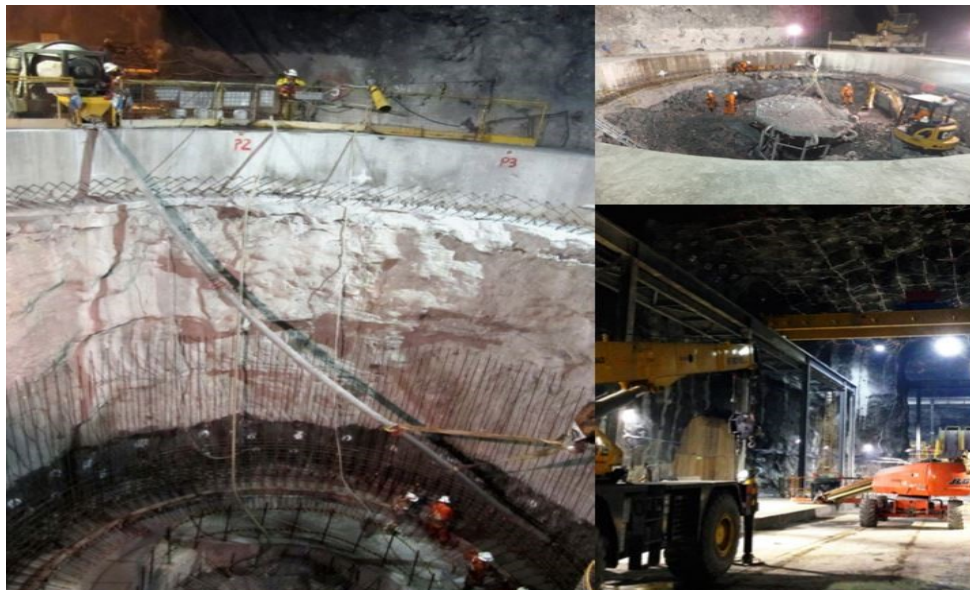
MASS EXCAVATIONS

Successful installation of static underground equipment such as crushers, rock breakers, conveyors and associated storage are as depends principally on the quality of the preceding excavation work and the related ground support. Unlike advancing a decline for truck haulage, large excavations are civil engineering projects, and require the same disciplines that pertain to sophisticated above ground constructions.

Because of the company's total commitment to engineering excellence, RUC Mining has been awarded a number of large projects within Australia and overseas. Excavations have been created for the installation of facilities such as crushing stations, ore bins, loading stations, hoists, workshops and pumping stations.

Prior to excavation, the company reviews the design specifications to select the correct choice of technique, whether handheld or mechanised, to meet the required excavation tolerances.

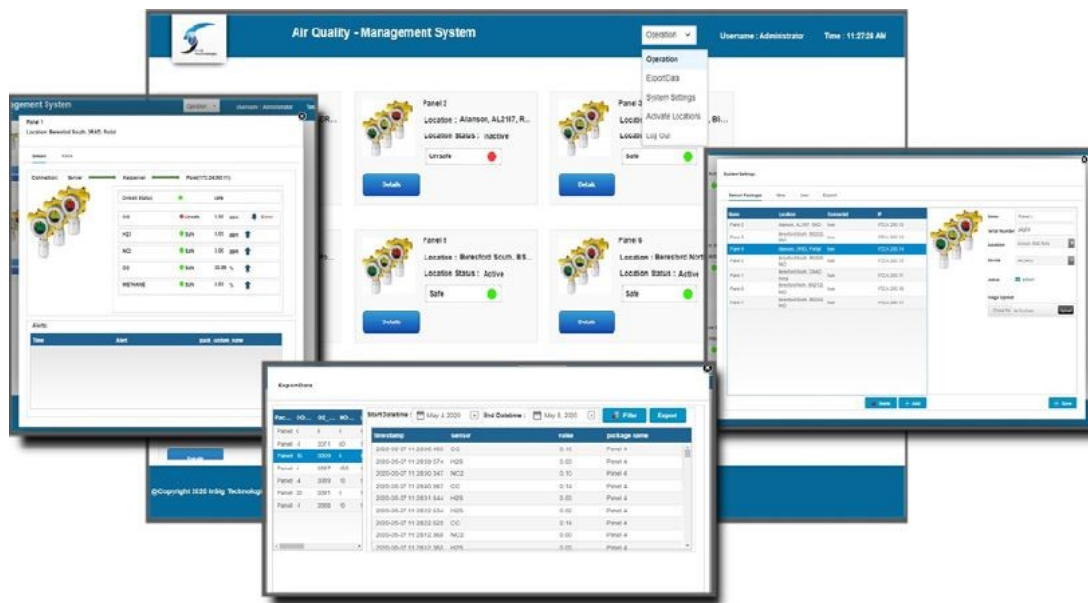
RUC Mining understands that to ensure subsequent construction activities progress without delay, all work must be completed to a high degree of accuracy. Design tolerances are invariably tight, so supervisors demand rigorous adherence to the design plan, and constantly survey and review operations. Combined with the specialist ground support expertise that RUC Mining brings to a project, the end product achieves full compliance to all specifications. It means that clients can enjoy the quality and schedule benefits that come from a project that is 'right first time'.



AUTOMATION AND MINING TECHNOLOGY

Mine operators are constantly seeking operational improvements, and by the application of wireless and fixed fiber optic technology, RUC Mining is making significant progress down the digitalization path. With a highly skilled, high tech in-house technology partner, RUC Mining is in a unique position to not only promise to deliver a "Digital Mine" but are actually delivering on this promise. From design to installation of above and below ground communications networks to heavy vehicle and drill automation (remote, guidance control systems). We also provide site based highly skilled remote technology specialists, to support our installed systems and deliver ongoing continuous business improvement through productivity gains by ensuring maximum upload time of the autonomous fleet, (getting more of the 24 hours day).

insig
technologies



KALGOORLIE SERVICE CENTRE

Situated in the iconic home of gold mining in Australia, RUC has established a world class service centre in Kalgoorlie, Western Australia.

Raise drill operations and warehousing are managed from this facility.

In addition with full capability across engineering, fabrication, mechanical, machining, HV electrical and auto electrical disciplines as well as fixed workshops housing overhead gantries up to 25t, RUC Mining has the capacity to undertake full rebuilds for all of our static plant including winders, raise drills and mobile fleet. Being located in the geographic centre for most of our projects provides for a service unmatched by our competitors.

RUC Mining even has the capability to manufacture the Strata series of raise drills and boxhole borers from this facility and have done so with ten drills manufactured to date.

Having freight connections that allow triple road trains door to door to most sites from Kalgoorlie provides an enviable advantage in terms of site mobilization and logistics.

Our fully stocked warehouse provides 24/7 support to the projects with a large inventory of high use items as well as strategic spares.





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ALL THE ANSWERS UNDERGROUND