



**Murray  
& Roberts**



**DELIVERING  
ON OUR  
PROMISE  
OF A NEW  
STRATEGIC  
FUTURE**

OIL & GAS + UNDERGROUND MINING + POWER & WATER



**BUSINESS  
PLATFORM  
REPORT**

**20  
18**





# OIL & GAS PLATFORM REPORT

**PETER BENNETT**  
BUSINESS PLATFORM CEO

## Overview

The Oil & Gas platform delivers projects across the full asset life cycle, from specialist engineering to procurement, construction, commissioning and operations and maintenance. Projects are delivered both on new-build facilities (greenfield) and operating facilities (brownfield).

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### BUSINESSES WITHIN THIS PLATFORM

- + CH•IV – Houston, USA

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- + Clough – Perth, Australia

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- + Clough Booth Welsh – Ayrshire, Scotland

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- + Clough Enercore – Calgary, Canada

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- + Clough Murray & Roberts – Cape Town, South Africa

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- + e2o – Adelaide, Australia

Global liquid natural gas (“LNG”) markets are set to remain in oversupply until at least 2021 and there is currently little opportunity for new greenfield LNG developments in Australia. However, new supply must be developed over the next two years to meet the expected increase in LNG demand from 2021/22. The platform is targeting identified LNG projects in Australia, Canada, Mozambique and Papua New Guinea (“PNG”).

The Wheatstone hook-up and commissioning (“HUC”) offshore works were extended during FY2018, with successful close-out in June 2018. Strong execution continued on the Ichthys central processing facility and floating production, storage and offloading facility. Projects are expected to extend into the first half of FY2019 as Ichthys moves towards first gas.

In response to challenging oil and gas market conditions, Clough’s tactical shift to complementary growth markets such as Australia’s metals and minerals and infrastructure markets was rewarded. In FY2018 it gained significant project awards for BHP and Alcoa in Australia and Rio Tinto in Mongolia.

## Performance

Since the 2014 collapse of the oil price, earnings have been materially impacted by the marked decline in spending by energy companies and a lack of new capital project opportunities in the Australasian oil and gas market as clients deferred expenditure. The recent stabilisation in the crude oil price at above US\$70 a barrel and the improved market outlook for LNG demand has renewed sector confidence. Recovery and resulting earnings growth from the Australasian oil and gas market are only expected in the medium term and brownfields developments will continue to be the main source of earnings from this sector for the next few years.

In FY2018, revenue increased to R8,4 billion (FY2017: R6,7 billion), predominantly due to scope growth on existing projects. In a very competitive market, the platform’s operating profit was R211 million compared to R217 million in FY2017. Pleasingly, the order book increased to R6,2 billion (FY2017: R5,2 billion), comprising a diversified portfolio of new work and signalling a more optimistic marketplace. Meaningful growth off this low base is expected as market confidence gradually returns, global energy producers start investing in new construction projects and the reach into complementary markets progresses.

The platform regularly reviews and adjusts cost structures in line with revenue, maintaining a balance between investment in strategic growth and capability and cost control. In a challenging FY2018, approximately a third of total overhead costs represented continued business development and tendering efforts to secure order book and establish a presence in strategic geographic areas.

Overhead costs for the year were below budget and include onerous lease provisions and asset impairment associated with Clough's corporate head office. Discretionary spend was tightly managed and enforced to maintain the balance in overhead expense.

## Strategic delivery

The platform has set the following strategic objectives to achieve future growth:

- + Establish strong businesses in complementary growth markets (Australia's metals & minerals and infrastructure markets)
- + Maintain current strong businesses in core markets
- + Grow international businesses in core markets

Good progress has been made over the past year towards achieving these objectives.

Extending the platform's service offering to complementary markets with active investment programmes is critical for maintaining and growing the platform's earnings profile during the downcycle in its core market. The capital expenditure on infrastructure in Australia is expected to be more than 10 times the forecast oil and gas spend over the next five years (a funded project portfolio of AUD\$370 billion over the next 10 years). An office in Sydney has been established to pursue these opportunities on a selective basis.

Entry into complementary markets has been achieved despite tough market conditions and strong competitors. The Rio Tinto project was awarded to the GCR Mongolia joint venture between Global Infrastructure Partners LLC (a local Mongolian company), Clough and RUC Cementation Mining. Together with the BHP and Alcoa project awards, these projects have added around R4 billion to the platform's order book and confirm the platform's ability to secure projects in complementary markets based on its project delivery capability. The platform has also been shortlisted and is completing tender submissions for two major infrastructure projects on the East Coast of Australia, which have the potential to contribute several billion rand to the order book in FY2019.

Globally the metals and minerals sector is showing strong recovery and the platform is targeting projects aligned with its capabilities. Early project awards validate this strategy and the sector will provide significant opportunities for the platform in the future.

We expect the Australian market to lag the international market in the oil and gas recovery and are therefore actively pursuing international opportunities. Clough remains committed to a strategic acquisition that will expand its project delivery capability to a full engineering, procurement and construction ("EPC") offering in the USA. This strategy is well supported by strong project opportunities in the midstream and shale oil market. The platform's key international energy producing clients have expressed strong support for Clough's entrance into this market.

The platform's international subsidiaries delivered acceptable performances in FY2018 and focus is on better integrating these businesses and laying the foundations for a more flexible global operation. The platform is tendering for targeted opportunities with several of its global clients in the Kazakhstan oil and gas market, alongside a credible local partner. An office has been opened in Almaty, Kazakhstan, as the region may provide good opportunities in the short to medium term.

## Contractor of choice

### Engineered Excellence

The platform's world-class health, safety and environmental ("HSE") performance is driven by core programmes designed to proactively manage HSE risks. The Lost Time Injury Frequency Rate ("LTIFR") decreased to 0.14 (FY2017: 0.25) and Total Recordable Injury Rate ("TRIR") increased to 1.71 (FY2017: 0.98). While lag indicators remain the focus for improvement, the low severity of incidents and the delivery of two EPC projects with Zero Harm is encouraging.

HSE performance is managed through the following initiatives:

- + **The HSE Leadership Programme:** uses neural-safety programmes at all levels in Clough to set Zero Harm expectations from line managers, employees and sub-contractors.
- + **The Major Accident Prevention ("MAP") Programme:** implemented and effective across all Clough managed project sites, MAP assures critical controls which directly prevent major accidents.
- + **Management site visits:** ensure the personal participation of leaders at a project level and employee engagement at sites to reinforce HSE expectations.

These initiatives are designed to work together to achieve a strong and consistent HSE performance. Their success has been demonstrated by the platform's first two Zero Harm projects – Karratha Life Extension ("KLE") project and Mundaring Weir project – delivered without injury or environmental impact, an exceptional performance in the construction industry.

OIL & GAS PLATFORM REPORT – *continued*

The platform's major risks, which include poor execution of projects and a major HSE event, are mitigated through rigorous risk management processes. Responsible tender budgets are developed to price for effective project risk management. A growing order book and no projects in distress indicate the effectiveness and rigour of the risk review and tender processes.

The platform's risk management process is embedded in all aspects of project planning and execution activities. It is consistently applied to ensure timely identification and proactive management of all threats to project and platform objectives. All project risk management activities are undertaken in accordance with ISO 31000:2018.

## Project delivery

### Clough

#### Australia:

- + **Wheatstone HUC for Chevron:** project scope expanded leading to a successful project close out. Chevron undertook a phased start-up approach to bring the offshore gas platform online to optimise the onshore plant start-up. The integrated delivery model between Clough and the client resulted in the most successful start-up of a Chevron offshore facility in the company's history.
- + **Ichthys HUC for Inpex:** successful execution resulted in additional scope work and Clough has been engaged to deliver the offshore electrical equipment in a hazardous areas inspection campaign prior to start-up.
- + **KLE project for Woodside:** the successful project added 30 years of operational capability to Woodside's Northwest Shelf facility and reinforced the platform's reputation for delivery excellence.
- + **Mundaring Weir project for the Water Corporation of Western Australia:** completed with Zero Harm and marked a significant milestone in the tactical move to complementary markets. The project has also demonstrated the platform's competitiveness in tendering for smaller EPC work.

## Digitalisation

The platform adopts a Pursuit of Excellence philosophy, encouraging creative thinking, innovation and continuous improvement. A forum has been established as the formal conduit and custodian of innovation, which is an enabler of the platform's growth strategy in an industry that faces increasing disruption.

To support more effective project execution, Clough is applying smart technology to optimise materials handling and management. While the logistics-related technology is not new, it is a value-adding business offering that is new to the platform's industry.

Using gaming engine software and virtual reality technology, Clough produces simulations of construction sequencing to enhance project execution planning and development for large complex construction projects at the tendering stage. In addition, the platform has leveraged augmented reality technology to develop an application, which sends manual work instructions to field devices for operators to execute remotely. The application guides the operator through the correct procedures for successful completion of the field task and the tablet's camera is used to scan equipment bar codes.

Across the platform, data is gathered and analysed in a defined process to improve performance and enable more predictive outputs. Formalising the approach to innovation aims to keep the platform at the leading edge of innovation and early progress is encouraging.

Underpinning these developments, the platform is overhauling its IT infrastructure to become a truly global business. The focus on system integration and information management has realised considerable reduction in IT costs and is enhancing capability.

## Employer of choice

### Leadership succession and development

Significant time and effort is invested in maintaining and developing a quality leadership and management team with sufficient succession depth to achieve the platform's strategic objectives. A formal capability review session is held annually and incorporates succession planning. High potential employees are coached and mentored in preparation for future leadership roles within the platform.

### Best people practices

The platform is committed to providing ongoing development opportunities for its employees. The annual performance review process assesses an employee's development needs and a wide range of internal training courses are available. An employee engagement survey was undertaken during the year and existing practices are being improved and new initiatives implemented to address the insights gained.

Investment in human capital focuses on strengthening existing teams and the capabilities needed to deliver predictable project outcomes and services to complementary markets. The Construction Management Academy, opened during the year, supports operational excellence by ensuring a common level of capability and understanding across all project managers and supervisors.

The platform's commitment to being a responsible corporate citizen requires all its employees to comply with internal and external standards. The Clough Code of Conduct sets the mandatory standards for decision-making and ways of work. All employees complete the Code of Conduct training and assessment annually.

## Corporate reputation

### Diversity and localisation

A diverse workforce promotes diverse thinking and new ideas, which in turn cultivates innovation. In support of this, the platform is placing a greater focus on improving the participation of indigenous communities and women across its projects.

### Stakeholder management

No industrial action was experienced during FY2018. In Australia, a robust evaluation process is applied when engaging subcontractors through enterprise agreements approved under the Fair Work Act 2009. Direct engagements with labour have been prioritised to resolve workforce matters. For international projects, relevant local industrial frameworks are reviewed prior to starting a project and an industrial relations plan is developed and implemented. Clough is a member of several employer organisations, including employee relations and industrial relations policy groups, which also support its clients and service companies.

The Clough Foundation contributes to community development in line with Clough's six-pillar corporate and social responsibility strategy, and the impact of charitable contributions is measured to ensure meaningful support.

## Prospects

Activity in the oil and gas sector in Australia will remain muted in the near term. The platform is actively pursuing complementary infrastructure market opportunities in Eastern and Western Australia. Projects include major transport infrastructure, water and wastewater infrastructure and hydroelectric projects.

The platform's track record in safety and project delivery are key differentiators in positioning it for these opportunities. Partnerships have been established to support the delivery of these projects based on the successful model used to deliver LNG projects in Australasia.

The platform will continue to pursue opportunities in the Western Australian mining and minerals sector. Clough's partnership with RUC Cementation Mining in the Underground Mining platform has opened additional opportunities both domestically and abroad, with a combined capability that is unique in the market.

Opportunities are present in several brownfield and greenfield developments in the LNG market in PNG where Clough has 42 years of project delivery experience. Large upstream gas gathering and conditioning projects, infrastructure projects and LNG export facility and marine loading projects are key opportunities for FY2019. With a credible local partner in Kazakhstan, and Clough's strong focus on safety, project execution and high-quality project delivery, the joint venture is well positioned to win significant projects in this region. In Africa, Clough is partnering with the Power & Water platform on oil and gas project developments, as the Group endeavours to leverage its capabilities across platforms.

Finally, Clough's successful track record in marine and near-shore marine work position it well to compete for emerging projects in South East Asia, relating particularly to terminal facilities.





# UNDERGROUND MINING PLATFORM REPORT

**ORRIE FENN**  
BUSINESS PLATFORM CEO

## Overview

The Underground Mining platform's geographic footprint covers six continents 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.

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Recently completed and current projects include the construction or rehabilitation of 20 shafts and more than 30 decline projects in Australia, Canada, Indonesia, Mongolia, South Africa, USA and Zambia. The platform deploys 59 large-diameter raise and blind-hole boring machines globally, one of the largest fleets of its kind in the world. It has also sunk the deepest single-lift shafts in South Africa (South Deep: 3 000m) and the USA (Resolution: 2 100m), as well as the deepest secondary shafts in Canada (Kidd: 3 014m below surface) and the USA (Hecla Lucky Friday: 2 922m below surface).

## Performance

Stronger commodity prices, which supported investments into projects, resulted in a pleasing financial performance. This was offset to an extent by mining companies' continued focus on capital preservation, which limited the number of project opportunities associated with new mines. The platform's success in securing ongoing infrastructure replacement and development projects (a function of 'stay-in-business' capital spending by mining companies), and annuity income from contract mining, contributed to its performance.

The platform delivered flat revenue of R8,0 billion (FY2017: R8,0 billion) and operating profit of R471 million (FY2017: R464 million). The order book increased to R22,1 billion (30 June 2017: R17,5 billion), an all-time high, with project awards across all businesses during the second half of the year. The order book includes R4,8 billion for the Kalagadi Manganese project, which commenced in the third quarter of FY2018. Near orders showed a marked increase to R7,9 billion, compared to R6,3 billion in FY2017.

Murray & Roberts Cementation exceeded expectations, delivering results well above last year despite revenue being flat. For three consecutive years, the business has had no loss-making projects. Booyensdal and Venetia delivered much improved performances and all projects outside of South Africa performed well.

### BUSINESSES WITHIN THIS PLATFORM

- + Cementation AG – Salt Lake City, USA
- + Cementation Canada – North Bay, Canada
- + Cementation USA – Salt Lake City, USA
- + Merit Consultants International – Vancouver, Canada
- + Murray & Roberts Cementation – Johannesburg, South Africa
- + RUC Cementation Mining – Perth, Australia



The North American operations delivered mixed results. Revenue decreased for Cementation Canada as a result of projects coming to an end, scope reductions and the delayed start-up of new projects awarded. A high idle equipment depreciation charge negatively affected profitability. Cementation USA exceeded expectations, delivering increased revenue primarily from scope growth on existing projects.

Both Merit Consultants International and Cementation Above Ground ("Cementation AG") made positive contributions to performance as activity levels picked up in their respective markets.

In Australia, market conditions continued to improve, particularly in the gold mining sector and for large-diameter raise boring work. However, RUC Cementation Mining delivered results well below the prior year given the non-renewal of the Saracen Minerals contract.

## Strategic delivery

The Underground Mining platform has a well-recognised and respected brand and reputation as one of the world's leading underground hard rock mining contractors, with strong leadership in each business entity. Key to the platform's growth strategy is developing 'life-of-mine' relationships with clients, which encompass early client engagement through upstream engineering work and establishing long-term annuity income opportunities through downstream contract mining work.

The platform has contract mining projects in Australia, Canada, Indonesia, South Africa and the USA and is pursuing new contract mining opportunities globally, but with a particular focus on South Africa and North America. Contract mining makes up just over 40% of the platform's order book for FY2018 with the majority of projects being for mid-tier mining clients. Lower than FY2017, this ratio was impacted by Northam Platinum's decision to take the route of owner-mining at their Booyendal mine. The platform continues to win new work and was recently awarded the contract mining agreement for Freeport's Big Gossan mine in Indonesia.

Murray & Roberts Cementation is leveraging the capabilities of the platform's other businesses to enhance its competitive position in Africa. It aims to further develop its trackless mechanised mining service offering, given the pipeline of opportunities in this method. The platform's Africa strategy is to establish a local presence in targeted geographic regions. The Kitwe office in Zambia is driving this strategy and suitable local partnerships in other African regions are being identified.

The platform has identified North America as an attractive region for organic and acquisitive growth. Cementation Canada operates from coast to coast; based in North Bay, Ontario, with offices in Quebec, Sudbury, Rouyn-Noranda and Vancouver. Merit Consultants International, based in Vancouver, provides a full range of project and construction management services to the global mining industry.

It establishes a west coast presence for Cementation Canada, providing further access to the mining industry in British Columbia and surrounding provinces. Suitable acquisition targets are being identified in selected provinces where Cementation Canada has limited presence.

Cementation USA is firmly established as a leading mining contractor in the USA. Cementation AG operates out of Salt Lake City and was initially formed to provide an entry point to the mining and minerals bulk material handling sector. Today, it is actively involved in several projects on the continent.

Emphasis is on leveraging synergies between Cementation AG and Merit Consultants International, as well as across the portfolio of mining businesses to increase the platform's service offering to clients worldwide.

Engineering, raise boring and other speciality work in South America is tendered by the North American businesses.

RUC Cementation Mining continues to expand and promote its mine development service offering, and is actively exploring opportunities to further extend its operations into the Asia Pacific region.

Competitive advantage is gained through the ongoing collaboration between the Underground Mining platform's businesses and other Group companies. RUC Cementation Mining in a joint venture with Clough from the Oil & Gas platform, Cementation Canada and Murray & Roberts Cementation, all played key roles in the recent award of the 1 000m deep twin shafts at Rio Tinto's Oyu Tolgoi copper mine in Mongolia.

## Contractor of choice

### **Engineered Excellence**

Safety is a priority for the platform and its clients, and moving towards Zero Harm is a fundamental tenet of *Engineered Excellence*. After a fatality-free FY2017, we are deeply saddened by a fatal accident at the Freeport Big Gossan contract mining project in Indonesia. The Group extends its condolences to the family and colleagues of Hendry Munardi who sustained fatal injuries. This was the first fatality recorded by RUC Cementation Mining in over 20 years.

Many projects are delivering 'best-in-class' safety performances. Cementation USA and RUC Cementation Mining in Australia remained Lost Time Injury-free ("LTI") for the fifth year running. The GCR joint venture in Mongolia recorded more than 1.5 million man hours without an LTI. The platform continues to make progress implementing the MAP Programme designed to prevent serious incidents and fatalities on projects. Differences in safety performance between the South African and international operations is addressed by identifying and sharing best practices.

UNDERGROUND MINING PLATFORM REPORT – *continued*

The Underground Mining platform supports the Group's HSE framework and measures its safety performance using both lag and lead indicators. Following a poor first half performance, LTIFR and Total Recordable Case Rate ("TRCR") decreased to 1.9 (FY2017: 1.4) and 8.0 (FY2017: 7.7) respectively.

Murray & Roberts Cementation, Cementation Canada, Cementation USA and RUC Cementation Mining are OHSAS 18001, ISO 9001 and ISO 14001 accredited. No environmental issues were recorded during the year.

Murray & Roberts Cementation continually works to improve its risk, project and commercial management to maintain and enhance project margins. Project managers and key project support employees must complete a certified project management programme aligned to the Murray & Roberts project management and project assurance frameworks. The project management office drives project management excellence through increased project oversight and assurance at all operations. The absence of loss-making projects over the past three years is evidence of the improved project management capability, which is reflected in the platform's operating margin of 6.2%, the highest reported since FY2011.

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## Project delivery

## Murray &amp; Roberts Cementation

## South Africa:

+ **De Beers' Venetia mine:** improved performance (productivity levels and margins) with less community unrest and Section 54 (safety-related) stoppages. At year end, both shafts were approaching the 900m deep mark.

+ **Northam Platinum's Booyendal mine:** good performance with production exceeding targets at the UG2 and Merensky projects, and a successful first year for the Central Mine project. Northam Platinum opted to convert to owner-mining, ending the contract. Murray & Roberts Cementation assisted with a smooth transition.

+ **Kalagadi Manganese (joint venture contract mining project):** commenced in January 2018 and good progress made towards reaching a steady-state production level in 2019.

+ **Lonmin EPL2 (13-year contract mining project):** completed in December 2017 with the depletion of the orebody.

+ **Ivanhoe Mines' Platreef number 2 production shaft project:** commenced early works.

## Zambia:

+ **Mopani Copper mines:** successfully completed the shaft equipping and ground handling conveyor infrastructure at the Synclinorium mine and continued to perform well on the shaft sinking and mine development projects at the Mufulira mine.

## RUC Cementation Mining

## Australia:

+ Severely impacted by the non-renewal of the Saracen Minerals Karari and Whirling Dervish contract.

+ **Mandalay Resources' Costerfield mine:** won a new contract for capital development, establishing a first market presence for mechanised mining in the State of Victoria.

+ **Dacian Gold's Mount Morgans mine:** strong execution performance on the three-year contract (secured at the end of FY2017) for underground mine development and production. The contract provides the option to extend for a further two years, and is a major milestone in RUC Cementation Mining's transformation from a mid-tier to top-tier mining contractor in Australia.

+ **Raise drilling:** recorded another good year with rig utilisation at almost 80% at year end. Major contracts awarded at St Barbara's Gwalia mine and Newmont's Tanami mine, both situated in the Northern Territory, for long large-diameter raise boring work.

## Indonesia:

+ **Indonesian Freeport operations:** performed above expectation with the workforce growing from 640 to 1 100 by year end. New contracts awarded for contract mining at the Big Gossan mine and ore flow conveyor system cleaning. Successes included new productivity benchmarks set for the installation of ground support, operation and maintenance of both the Grazberg Block Cave ("GBC") and Big Gossan shafts and the construction of the rail chutes in GBC completed to a high standard.

## Mongolia:

+ **Rio Tinto's Oyu Tolgoi copper mine:** the GCR Mongolia joint venture worked on the surface construction contract. Several variation orders have been issued and approved, extending the contract to December 2018. The joint venture also secured two major contracts for underground crusher and ore flow construction, as well as the sinking contract for the 1 000m deep by 10m diameter shafts 3 and 4. At year end, GCR Mongolia's order book was over AU\$400 million.

## New Zealand:

+ **Newmont:** won and successfully completed raise drilling works.



## Cementation Canada

### Canada:

- + **Kirkland Lake Gold's Macassa and Glencore's Onaping Depth projects:** started two new large shaft sinking projects, showcasing Cementation's design-build capability.
- + **Compass Minerals' Goderich mine (world's biggest salt mine):** effective shaft rehabilitation work at two shafts (one nearing completion and the other in progress).
- + **Various projects:** good performance recorded at Rio Tinto's Diavik contract mining project (extended for another year, marking it Cementation's 16th year onsite), Alamos Gold's Young-Davidson shaft construction project, TMAC's Hope Bay mine development and contract mining project and Gowest's Bradshaw decline development projects.

## Cementation USA

### North America:

- + **Resolution Copper's number 9 shaft:** rehabilitation underway with a potential shaft deepening opportunity on the horizon (marking Cementation's 11th year onsite).
- + **Nevada Copper's Pumpkin Hollow project:** shaft sinking restarted in the previously mothballed production shaft sunk by Cementation. There is potential to access additional work as the mine becomes fully operational.
- + **Lundin's Eagle mine:** contract mining and development work continues. A major decline development programme to access new ore reserves is nearing completion and will soon transition to full-scale production.
- + **Arizona Mining's Hermosa project:** mobilisation commenced for the development of twin decline shafts to provide initial access to the orebody.
- + **Cargill's Cayuga salt mine (Lansing, New York):** early engineering work underway for a new shaft. Cementation AG will provide construction management services for the surface facilities scope of work.

## Merit Consultants International and Cementation AG

- + **Merit Consultants International:** providing construction management support to Continental Gold's flagship Buriticá project in Columbia (second year of a three-year contract) and continues to pursue several other prospects in the Americas.
- + **Cementation AG:** decline and lateral development work in progress at Minera Plata Real's Los Gatos project in Mexico's Chihuahua province. Recently awarded engineering, procurement, construction and management ("EPCM") scope on this project with infrastructure design and installation already commenced.

## Digitalisation

Innovation and digitalisation provide competitive advantage by enabling productivity and safety improvements. Transitioning to the future 'digital mine' starts with automating physical operations and digitalising assets in core mining processes. The platform is aligning its innovation programme to its overall strategy and the businesses are targeting specific core mining processes associated with mine development and ore extraction.

RUC Cementation Mining is taking the lead with the use of semi-autonomous trackless mechanised machinery in the lateral development and mining of the orebody. Its global technology partnership agreement with Remote Control Technologies will provide the business with first access to new developments in remote control and automation systems, specifically for use in the underground mining environment. It has also established full 'digital capability' at Dacian Gold's Mount Morgans project in Laverton (Western Australia), through a fibre backbone network and digital drift technology which extends to all working faces. RUC Cementation Mining operates the latest semi-autonomous drilling and ore handling equipment at this site.

For the African and North American businesses, non-explosive-based, mechanised shaft sinking (vertical and decline shafts) is of key focus and relationships are being developed with several original equipment manufacturers in this field.

## Employer of choice

### Leadership succession and development

I welcome Mike da Costa, formerly executive vice president of Lonmin Platinum, as new platform chief executive officer.

Platform chief financial officer, David Meyer, relocated to Salt Lake City to assume the role of financial director of the Canada and USA businesses. Trevor Naidoo, formerly finance director of Aveng Mining, has been appointed as the new platform chief financial officer, effective 1 August 2018.

In July 2017, Justin Oleson (previously president of Cementation USA) was appointed president of the businesses in the Americas, taking over from Roy Slack who continues to play a key role in business development and engineering.

Jay Collins, president of Merit Consultants International, retired in December 2017 and vice president, David Rees, was appointed in his place.

Leadership development remains a priority and talent reviews have assessed the strength of leadership and senior management succession. Developmental plans ensure the platform's leadership is empowered to deliver on its strategic objectives.

UNDERGROUND MINING PLATFORM REPORT – *continued***Best people practices**

The foundation for the 'life-of-mine' strategy is good project performance, which supports strong long-term client relationships. A key driver of project performance is positive employee relationships. Furthermore, the platform's project portfolio covers a wide spread of commercial and contractual arrangements. As activity levels increase across all sectors of the mining industry, competition for skilled resources increases. In South Africa, the lack of specialist contracting, mine production, shaft sinking, engineering and technical skills is a key risk, as well as the movement of skilled staff between employers. This directly impacts the platform's and the clients' ability to deliver on projects. Skills shortage is also a concern in Australia. Other risks for South Africa are the ongoing threat of industrial action and community unrest.

Murray & Roberts Cementation continues to enjoy sound employee relations with all its industry unions based on the three-year wage agreement signed in FY2016, which is being renegotiated. Cementation Canada has been recognised six times as one of Canada's Top 100 Employers by Mediacorp, and twice as one of The Financial Post's Ten Best Companies to Work For. It has also been recognised as one of the safest companies in Canada for four years running.

Focus areas for Murray & Roberts Cementation are retention, skills development and establishing a strong succession pipeline. The business operates a database of internal and external candidates who have the skills it needs. Of the 990 candidates, 87% are black (African, Coloured and Indian) and of all targeted placements in the last 12 months, 54% have been sourced from this pool.

Murray & Roberts Cementation's world-class training facility at Bentley Park, Carletonville, is accredited by the Mining Qualifications Authority to provide training in engineering, mineral extraction, and occupational health and safety. It provides training to Murray & Roberts Cementation employees as well as the external market, using the latest training methodologies including trackless mechanised mining equipment simulators and 3D-virtual reality technology. The facility is also a member and approved training provider of the British Safety Council in the areas of health, safety and risk.

**Corporate reputation****Diversity and localisation**

In South Africa, transformation and diversity remain priority focus areas. Murray & Roberts Cementation achieved a Level 4 rating under the generic codes for broad-based black economic empowerment. While black representation at top management level remains challenging, 59% of promotions into junior management levels and 50% into middle management levels were of black employees. All appointments at executive and senior management levels were awarded to black employees.

Broader stakeholder relationships are a prominent feature of securing work in certain jurisdictions. Cementation Canada has established several partnerships and joint ventures with First Nation groupings in Canada, and with local companies in Mexico and some South American countries. In Mongolia, RUC Cementation Mining and Clough have partnered with a local contracting company and continue to tender and be awarded work at Rio Tinto's Oyu Tolgoi mine, which is transitioning from open pit to underground operations.

**Prospects**

Mining is a cyclical business with deep troughs and high peaks. After the commodity super cycle which peaked in 2011, the mining industry was forced into preservation mode. From 2013, mining companies reduced capex and focused on preserving cash flows, reducing debt and restoring investor confidence. This strategy has paid off with the free cash flows of key mining companies currently at record levels. It is expected that this will allow a relaxation of capital preservation, which has limited the number of project opportunities associated with new mines.

Exploration is at its highest level in six years and mining equipment delivery times are extending. These lead indicators suggest that the industry has moved into an upturn. In addition, general consensus supported by various research reports, indicates that demand for commodities will continue to grow in the short to medium term on the back of supply constraints and demand dynamics. A supply deficit is predicted in certain commodities, particularly copper, in which the platform has a significant presence globally.

Many new and large project opportunities are presenting themselves in sub-Saharan Africa and North America. Engineering-led international opportunities outside of North America are increasing, as well as large-hole raise boring and shaft sinking prospects in Australasia.

In countries and regions where current mining activity is high, there is a large investment pipeline of underground mining projects, which is expected to grow. The platform is well positioned to take advantage of these opportunities and most commodities are represented in the current portfolio of projects.

There is substantial scope for organic growth in the jurisdictions in which the platform operates, as mining companies continue with infrastructure replacement (brownfields) spend to sustain their operations and new (greenfields) investment to meet future demand. With its global footprint and the ability to pool and leverage resources, the Underground Mining platform is well placed to win work as it supports its clients during the upturn.



# POWER & WATER PLATFORM REPORT

**STEVE HARRISON**  
BUSINESS PLATFORM CEO

## Overview

The Power & Water platform operates predominantly in Southern Africa and sub-Saharan Africa. Its service offering includes feasibility studies, detailed engineering, procurement, construction, commissioning and repairs and maintenance work.

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For the last seven years, the platform's revenue has been underpinned by mega power station projects Medupi and Kusile, where MRPE provides mechanical boiler construction work as a sub-contractor to Mitsubishi Hitachi Power Systems Africa. Boiler construction advanced significantly at both power stations during the year.

MRW is a small business that needs to develop critical mass. In FY2018, it built and commissioned an Organica Water resource recovery demonstration facility, to showcase its innovative licensed technology, at the Verulam wastewater treatment plant owned and operated by the eThekweni Municipality.

The platform leads the Group's focus in West and East Africa with offices in Accra (Ghana) and Maputo (Mozambique). During the year, a company was established in Kenya as a base for the platform's planned expansion into Kenya and Tanzania.

### BUSINESSES WITHIN THIS PLATFORM

- + Murray & Roberts Power & Energy ("MRPE") – primarily focuses on the power sector with a secondary focus in complementary markets (oil, gas, industrial, resources and minerals).
- + Murray & Roberts Water ("MRW"), including Aquamarine Water Treatment – focuses on water and domestic and industrial wastewater treatment solutions.

## Performance

The platform's markets remained depressed with very few large project opportunities. During FY2018, no significant power projects came to market, and the renewable energy independent power producer procurement ("REIPPP") projects only restarted in April 2018 with the signing of the fourth-round agreements by the Energy Minister. The coal baseload independent power producer ("IPP") procurement programme continues to be delayed.

With the Medupi and Kusile power station projects nearing completion, revenue for FY2018 decreased to R4,8 billion (FY2017: R5,9 billion) and the order book declined to R1,5 billion (FY2017: R3,7 billion). Operating profit was down to R134 million compared to R171 million in FY2017.

In anticipation of the planned demobilisation of personnel at Medupi and Kusile, overhead costs were restructured to rightsize MRPE for a lower revenue base, without compromising on its ability to deliver on its strategic objectives, service the current order book and pursue new work to strengthen its project pipeline.



Operational performance was satisfactory with all projects except one being profitable. Operational performance on the loss-making project has improved considerably in the final quarter of FY2018.

## Strategic delivery

Given the current market conditions, the platform has redefined its strategy. Implementation plans for the next three years have been developed, which include positioning the platform to participate at the project development phase with the objective of creating new project execution opportunities.

In response to the limited opportunities in the power plant EPC construction sector, MRPE has shifted its focus to include high-voltage transmission and distribution projects in South Africa and sub-Saharan Africa. A focused and dynamic approach to enter the transmission and distribution sector in Kenya, Ghana and Mozambique is being pursued. A target company has been identified and engaged for a potential bolt-on acquisition to complement the platform's service offering.

The platform will track and develop opportunities through its strategic cooperation agreement with the Shanghai Electric Company Group in sub-Saharan Africa. A key differentiator in this region's power transmission and distribution sector is the platform's ability to offer funded EPC solutions. Relationships with development finance institutions and commercial lenders matured during FY2018 and term sheets are being discussed with energy ministries in Angola, Ghana, Kenya and Mozambique.

In its sixth year of operation, MRW is well positioned to take advantage of opportunities in the water and wastewater treatment sector, driven by water shortages, Organica Water's differentiated technology and the business' strategic partnerships and key consortium partners. Aquamarine Water Treatment has been relocated from the Western Cape to Gauteng with expectations for considerable growth, albeit from a low base.

The Organica Water resource recovery demonstration facility in Verulam, KwaZulu-Natal, is being operated by MRW to demonstrate Organica Water's technology, and the platform expects the municipality to utilise the demonstration plant to prove the technology and then implement new plants at larger scale capacity. During FY2018, MRW provided water security solutions to the Western Cape healthcare sector. Water treatment plants to treat borehole water to potable standard (SANS 241) were provided at two Life Healthcare and two Mediclinic hospitals.

MRW also has the capability and capacity to participate in public-private partnerships ("PPPs"), whereby Murray & Roberts Limited will potentially take a shareholding at special purpose vehicle ("SPV") level and MRW will execute the EPC and operators & maintenance ("O&M") scope with SPV partners. The PPP model will require funding.

In complementary markets, the platform has consolidated its capacity and capability in the oil and gas market at Sasol's Secunda facility. In its fifth year of operation, the platform's primary focus is to support Sasol's operations with structural, mechanical and piping construction services.

The successful completion of the EPC fuel storage project in Takoradi Port, Ghana, has led to further project opportunities in refined products storage. During FY2018, Murray & Roberts Ghana Limited ("MRG") obtained its petroleum commission licence, which will provide access to opportunities in the country's developing upstream sector.

Opportunities in Mozambique (predominantly in complementary resource and industrial markets) continue to be tracked with emphasis on LNG developments in Rovuma Basin Area 1 and 4. Murray & Roberts Mozambique Limitada ("MRML") secured tank repair work at Sasol's Temane operation during the year.

## Contractor of choice

### *Engineered Excellence*

Safety remains a priority for the platform and its clients. The platform is committed to the Group's vision of Zero Harm and the safety pledge of personal commitment, accountability and operational discipline.

The health and safety performance for FY2018 was world class. The LTIFR decreased to 0.12 (FY2017: 0.43), which equates to two lost-time injuries with more than 16 million work hours completed. No potentially high consequence incidents were recorded during the year.

All businesses are OHSAS 18001, ISO 9001 and ISO 14001 certified. In FY2018, the fabrication facility at Secunda achieved the prestigious South African Institute of Welding ISO 3834 accreditation.

The MAP Programme is fully entrenched. Following its implementation, all projects showed a significant improvement in their total incident rate. The platform received the Group CE Award for the best safety performance in the Group in FY2018. Zero reportable environmental incidents were recorded.

The robust governance processes implemented last year were further embedded in FY2018, with continuing executive oversight on project performance. Considerable improvement in project delivery was achieved during the year. However, there was one loss-making project in the platform's portfolio.

POWER & WATER PLATFORM REPORT – *continued*

## Project delivery

## MRPE

## South Africa:

- + **Medupi:** Units 3, 4, 5 and 6 now provide power to the grid. Unit 2 has completed its first fire on coal, which is a significant milestone – this is the first time the boiler generates steam through the coal pulverisation and firing systems. The next milestone is when the steam from the boiler is synchronised to the steam generator and the unit produces electricity. Unit 1 has complete its hydro test which ensures the integrity of the boiler through a high-pressure water test.
- + **Kusile:** Units 1 and 2 now provide power to the grid. Units 3, 4 and 5 have been successfully hydro tested.
- + **Morupule A power station:** the return to service of the station was completed.
- + **Secunda:** continued work on the Coal Tar Filtration East project for Sasol. Community unrest and violent protests, with damage to offices and infrastructure, led to a temporary suspension of operations at the fabrication facility. An electrical and instrumentation project for Air Liquide and a shutdown project at Naphtha Hydrotreatment (“NHT”) East were completed with follow on shutdown work awarded for FY2019 at NHT West.
- + **Electrical and instrumentation services:** a number of projects are underway.

## Employer of choice

## Leadership succession and development

Patrick Metswi was promoted to human resources executive and Martin Thomas as proposals and estimating executive.

Charmaine Mabuza was appointed as managing director of Aquamarine Water Treatment, responsible for implementing a three-year growth strategy aimed at geographical and product diversification, and a rationalised operating model.

The FY2018 talent review and executive succession planning was successfully concluded with a strong talent pool in place. In-depth reviews at senior and middle management levels have identified talented black (African, Coloured and Indian) individuals for career development and succession. Many of the 14 high-potential individuals identified were developed through the Group’s graduate training programme and have gained experience from the power programme and the oil and gas sector. These individuals are participating in a development and mentorship programme to strengthen their leadership skills and will soon be able to transition into more senior roles.

## Best people practices

Skilled and experienced employees are key to successful project delivery. The platform’s current headcount is around 3 500 (FY2017: 6 800) of which 121 (FY2017: 191) are based at head office, providing operational enablement and functional support. As a project company, employees are predominantly engaged on limited duration project specific contracts, which allows for flexibility in scaling up or down to meet business requirements.

Skills transfer and development remain high priority items for organised labour. The platform provides extensive training and development opportunities to meet these expectations and to build a high-performing core group of artisans and supervisors to meet its strategic objectives.

In FY2018, R42,2 million was invested in skills development, with 98% of this investment aimed at technical training through learnerships and apprenticeships. On the power programme, 2 789 learners have been trained to date with a further 173 learners on current training programmes.

The platform supports a successful bursary scheme and graduate programme, which nurtures young engineers in the business. At head office, a structured internship programme is offered in procurement and human resources.

Platform employees have access to the Philisa Care Employee Health and Wellness programme, which provides free support services to employees and immediate family members living with them.

## Corporate reputation

## Diversity and localisation

MRPE is a Level 4 broad-based black economic empowerment contributor. Meeting enterprise development and skills development targets are key priorities as the business works towards a Level 3 rating. The Murray & Roberts Khula Nathi Enterprise and Supplier Development Experience, in partnership with Raizcorp, has been successful. The programme invests in developing talented entrepreneurs, assisting them to grow successful businesses, to create employment and to develop their capacity to participate in MRPE’s supply chain.

The platform’s overall employment equity (“EE”) profile improved during the year. The EE plan develops and nurtures young black talent through the leadership pipeline and talent management review programmes. The results of this targeted initiative are an increase in black representation at all management levels.

During the year, a Ghanaian national was appointed as country manager of MRG.

## Prospects

The completion of the Eskom power programme at Medupi and Kusile will create significant opportunity for maintenance services, which can be provided by MRPE's skilled and experienced workforce. This capacity and capability is transferrable to new-build coal baseload IPP opportunities, such as the Thabametsi and Khanyisa projects. MRPE has provided subcontract construction pricing to the preferred bidders on both these projects. Although financial close on these projects has been delayed, MRPE is engaging with both of the selected EPC contractors.

The platform is targeting opportunities in the renewable energy sector and is well positioned to secure work in the new generation coal power, solar and gas-to-power sectors. However, the delays to the signing and progression of IPP projects has been disappointing. Obtaining preferred bidder status on the George Biomass project was an important achievement for the platform, as it comprises full project life cycle participation, including equity participation as a developer for Murray & Roberts Limited. Progress on the smalls renewable programme and development of the George Biomass project is eagerly anticipated.

There is increased tendering activity in the complementary resource and industrial markets, with financial investment decisions on the majority of these projects expected in FY2019. Opportunities include the expansion projects for Sappi (Saiccor) and Mondi (Richards Bay).

To respond to the influx of Chinese and Indian EPC contractors in sub-Saharan Africa, MRPE has adjusted its business model and is working with strong equity and funding partners to enable it to provide a combined EPC and funding solution.

Limited refining capacity has led to several opportunities in the refined fuel storage sector in South Africa and sub-Saharan Africa, specifically Ghana, Mozambique and Swaziland.

Despite lessons learnt from the Cape Town water crisis, including medium- to long-term planning requirements by the public sector to avoid similar occurrences in a water scarce country such as South Africa, it is likely that emergency situations will continue to arise. This, together with an ongoing demand from various sectors to become self-sufficient, will provide opportunities for Aquamarine's 'off-the-shelf' products which guarantee water quality and quantity.

Growth in the water sector is expected to come from the wastewater treatment sub-sector, given the increasing pressure to upgrade dysfunctional municipal wastewater treatment plants and to reuse the treated effluent. Growth is also expected in the industrial sector as companies look to reuse and recycle water to secure supply, save water and reduce costs. The Organica Water demonstration plant for the eThekweni Municipality should provide much-needed stimulus for this technology, which has been well received by the market. Based on the successful implementation of water treatment plants at Life Healthcare's hospitals, the hospital group is in discussion with MRW to roll out similar solutions to more of its hospitals country-wide.

Growth for the platform will be primarily organic, supported by targeted bolt-on acquisitions – particularly in the transmission, industrial water treatment and petrochemical maintenance sectors – to better position the platform for opportunities in these markets, as well as to expand and complement its existing service offering.





The principle of ***Engineered Excellence*** informs all our decision-making and means we will **engineer** or plan everything we do, in such a way that we achieve an outcome of **excellence**.

# ENGINEERED EXCELLENCE

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