



CORPORATE PROFILE



WE ARE MEC MINING

MEC Mining is a global technical consulting firm specialising in mining services capabilities across the project life cycle from early-stage exploration through development, mine planning, onsite management to mine closure and rehabilitation.

Since 2005, MEC has grown into one of the leading consultancy firms with an experienced team of consultants; specialising in both the open cut and underground mining for the coal and minerals sectors.

Through our teams' real-world experience, our people have an owner's point of view when executing a project.

We deliver high-quality work that enhances the value of our client's assets and our experienced team brings a diverse range of knowledge to each project.

We pride ourselves on a flexible approach to all services and will gladly tailor our services to meet individual projects or company requirements.

MEC MINING AT A GLANCE



FOUNDED IN
2005



55
EXPERIENCED CONSULTANTS



17TH YEAR
IN OPERATION



379 CLIENTS
MAJOR MINING HOUSES / MINE OWNERS / OPERATORS



6TH YEAR
IN GEOLOGY



3RD YEAR
IN GEOTECHNICAL ENGINEERING



22
COMMODITIES



116,300
CONSULTING HOURS — METALLIFEROUS



1759 PROJECTS
COMPLETED AND COUNTING



362,400
CONSULTING HOURS — COAL

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EXECUTIVE LEADERSHIP TEAM



SIMON COHN

BEng (Hons) (Mining), MAusIMM (CP), RPEQ 11902

Simon joined MEC Mining as a Director in May 2007 and was appointed Managing Director in 2011. Since commencing his career in the mining industry in 1999, Simon has worked in a range of open-cut and underground metalliferous and coal mines throughout Australia and overseas. He specialises in operations improvement, mine design and technical services team management.



DANIEL CHIPPENDALE

BEng (Mining), BBus (Man), MAusIMM (CP), RPEQ 11901

Daniel founded MEC Mining in Mackay in 2005 after working in a range of open-cut coal mines in the Bowen Basin between 2001 and 2004. He is now based in MEC Mining's head office in Brisbane. Daniel has a dual degree in Mining Engineering and Business and specialises in operations improvement, mine design and technical project management.



TED BOULTON

BEng (Hons) (Mining)

Ted graduated with a Mining Engineering degree in 1998 and worked in a range of open cut coal mines in the Bowen Basin before joining MEC Mining as a Director in 2006. After several years in MEC Mining's Mackay office, Ted is now based in Brisbane and specialises in innovative mine design, cost estimation and JORC reserve reporting.



CHRISTOFER CATANIA | CHIEF EXECUTIVE OFFICER

B.Eng(Mining) MAusIMM 228366

Christofer Catania joined the mining industry in 2005 as a mining engineer and now has a depth of experience having worked in commodities such as Zinc, Iron Ore, Copper, Gold, Iron Sands and Coal. Chris has a high level of technical and operational expertise as well as project management and leadership experience in open-cut mining (coal) (metals). Chris demonstrates strong skills in short; medium and long term scheduling across a suite of software.



JULIA COOPER | CHIEF FINANCIAL OFFICER

BBus (Acc) & LL.B

Julia joined MEC Mining in April 2012 as our Chief Financial Officer and has experience in accounting from 2004. She holds a dual degree in Bachelor of Business (Accounting) and Bachelor of Laws, CPA. In January 2015 Julia was appointed as the Commercial Manager, working closely with the Directors and General Manager. She forms part of our management team and displays skills in finance, time management and leadership.

MANAGEMENT TEAM



ERIN SWEENEY | GENERAL MANAGER - EAST

B.Sc (Geology), M.Eng.Sc (Mining Geomechanics) & MBA

Results focused and experienced mining professional who has worked across a broad range of commodities including gold, base metals, iron ore and coal operations. Her background lies in geotechnical engineering, designing, modelling and implementing cost effective, innovative mine solutions in both site based and in consultative roles. Erin has leveraged these skills into project management and then leadership roles with a focus on adding value, ensuring safe sustainable cash flow and growth through technical influence.



ANDREW DITTMANN | GENERAL MANAGER - WEST

BEng (Mining)

Andrew is responsible for spearheading the growth into Western Australia of one of Australia's leading mining consultancies. Andrew manages the day to day of the Western Australian business operations by developing client relationships, mentoring and growing the WA team, drawing on his technical expertise to lead projects, and expanding the success of the MEC brand's capability of offerings in this geographical sector.



GRANT MALCOLM | HEAD OF TECHNICAL

BEng (Mining)

Grant joined the mining industry in 2007 and brings a depth of experience to his role as a Principal Mining Engineer. He manages the MEC Mining East Coast team which comprises over 35 mining engineers. His team operates across numerous clients and commodities both domestically and internationally. Grants team includes the Brisbane based studies team and the site-based engineers. Grant is an expert in drill and blast, with sub-specialties in through seam blasting, coal protection, and electronic blasting. Grant is also adept at a truck & shovel planning mid-term design for open cut coal mines.



MICHAEL ATKINSON | GEOLOGY MANAGER

B.Sc (Hons) Geology & Physical Geography, MAIG

A professional geologist with more than nine year's experience in the mining and exploration industry. Demonstrated leadership capabilities, both in the field and within a corporate environment. A passionate individual with a history of productive stakeholder relationships, whilst delivering projects with integrity, on time and within budget.



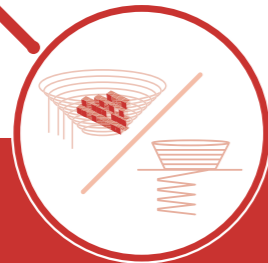
JULIANNE ARMSTRONG | MANAGER OF GEOTECHNICAL SERVICES

B.Eng (Geological), MAusIMM

A proactive and practical geotechnical professional with 19 years' experience in open pit, underground and civil tunnelling projects. Julianne has worked operationally for 17 years, also accumulating extensive design and leadership experience. Exposure to all stress conditions, various mining and construction methods, various commodities, ground supporting elements and backfill types. Julianne's strengths are in geotechnical risk and ground control management; through effective design and review, and value-driven systems. Julianne is creative and proficient in investigation, improvement and feasibility design, backfill and QAQC.

FEASIBILITY

- Mining scoping, pre-feasibility and feasibility studies
- Optimisation and margin ranking
- Mining method selection
- Reserving and scheduling
- Equipment selection
- Capital and operating cost estimation
- Project financial modelling



OPERATIONAL READINESS

- Detailed operational mine designs and schedule
- Planning process development
- Operational systems implementation
- Contractor engagement, management, tender preparation and evaluation
- Provision of professional and supervisory personnel
- Project management
- Due diligence reviews
- Equipment benchmarking
- Engineering training
- IP development

MINE CLOSURE

- Landform planning
- Closure liability minimisation planning
- Pit and dump re-profiling design
- Rehabilitation cost assessment
- Rehabilitation scheduling



OPERATIONS

- Underground Coal - Longwall, Room and Pillar Haulage Optimisation
- Operational design and planning
 - Ore/coal reconciliations
 - Stope/access design
 - Grade control/blending
 - Drill and blast
 - Scheduling
 - Truck and shovel
 - Ventilation
 - Dragline
 - Dozer push
- Medium to long term operational planning
- Innovative mining methods
- Engineering training and development
- Technical audits - business scorecard
- Operational improvement
- Loss and dilution minimisation strategies and reconciliation





ADVISORY

At MEC, our Advisory team can provide your business with the management tools it needs to prosper. Our team has specialist experience in asset optimisation, operational management, ESG, and project evaluation.

COLLABORATIVE AND BESPOKE SERVICES

When you select MEC to partner with you on your project you will find a high level of customer service and bespoke outcomes for the objectives of the project.

We deliver the outcomes that will give you the confidence and direction to move forward and achieve your internal goals. at MEC we pride ourselves on:

- ▶ flexibility and agility to work with the client, to best, meet their needs;
- ▶ providing quality client outcomes as defined by the client;
- ▶ the experience of MEC Advisory's personnel and their ability to support the full life-cycle of mining projects.

ENVIRONMENT, SOCIAL & GOVERNANCE SERVICES

- ▶ Tailing management and governance guidance
- ▶ Decarbonisation scenario assessments
- ▶ Carbon neutral transition plan
- ▶ Environmental Assessment and Management Plans
- ▶ Water Management Plans and Project Management
- ▶ Closure planning and reviews
- ▶ Climate Change assessments
- ▶ Environmental Policy Change assessments

OPERATIONAL MANAGEMENT

- ▶ General management secondment
- ▶ Business improvement and change management
- ▶ Training and mentoring of mid tier management levels
- ▶ Greenfields start up assistance
- ▶ Specialist short term project management
- ▶ Productivity improvement evaluations and audits
- ▶ Peer reviews and audits
- ▶ Operational readiness, planning, design and scheduling

ASSET OPTIMISATION

- ▶ Opportunity Assessments
- ▶ Equipment evaluation, selection and procurement
- ▶ Specialist experience with:
 - Dragline
 - Ultra class fleets
 - In pit crushers and conveyors
 - Shovel/excavator
- ▶ Development and review of asset management strategies
- ▶ Peer review of capital purchases, investment decisions and major/minor contract decisions
- ▶ Contract framework development and review
- ▶ Tender evaluation, preparation and review
- ▶ Cost modelling and estimation
- ▶ Shadow estimates for contract evaluation

PROJECT EVALUATION

- ▶ Mergers and acquisitions
- ▶ Resource, reserve and operational evaluation and review
- ▶ JORC resource and reserve reporting
- ▶ Due diligence and project valuations
- ▶ Feasibility and pre-feasibility studies
- ▶ Strategic review
- ▶ Peer review of infrastructure, mining operations and planning decisions

HITACHI

HITACHI | LOCATION: WESTERN AUSTRALIA

MEC was selected to participate in an innovation investigation process run by Hitachi Construction Machinery across several mining operations to develop an energy power-draw estimation and map against the mine schedule by assessing various waste and ore mining and transportation assets mixes. Fleet analysis was completed on an 'energy agnostic' basis, informing energy intensity models across the Life of Asset. This was then used to understand variability in emissions and how to optimise the schedule where traditional mobile fleet assets were interchanged with fast charge placements and trolley track lines. Furthermore, these assessments were modeled to optimise for pit infrastructure position and asset value impact.

The project deliverable was an emissions-focused schedule that featured the best fit of low power draw waste and ore mining assets for the site given the constraints of the remote locations and the availability of green energy options.



NEWCREST MINING LIMITED | LOCATION: PAPUA NEW GUINEA

A steady and consistent client of MEC, Newcrest utilised the expertise of our Business Improvement Team to work with the team locally in PNG to innovate a mine operations asset productivity improvement project that systematically tackled bottlenecks and constraints in the system to return 70% above target improvement.

The project team was formally recognised as drivers of a high-performance culture at Lihir when they won an internal Living our Values award for the step-change in productivity and throughput.

MEC doubled down on this success in later months with a study to further improve haulage efficiencies where we were commissioned to conduct a study and project manage a dozer push trial to replace truck haulage in difficult environmental and geotechnical conditions.



BMA | LOCATION: CENTRAL QUEENSLAND

BMA challenged MEC to assist them in assessing lower emission material transport options, and a future-fit mine design approach to support this. This was undertaken by profiling and assessing their carbon emissions footprint associated with the operations mining cycle and in particular the mobile fleet used across their extensive strip mine operations. MEC created a baseline mining emissions-focused schedule from current operations and then trialed a mix of alternative technologies suited to the constraints of mining in a strip mine. Factored into the consideration was altering mine designs, pit phase schedules, and most impactfully more technologically advanced and sophisticated continuous conveyor systems and modular crushing units to remove diesel-related emissions that created an opportunity for a step-change in the BMA business ESG goals without reducing throughput.



WHITEHAVEN COAL – TRANSFORMATIONAL REVIEW | LOCATION: NEW SOUTH WALES

MEC Mining was engaged to conduct a full transformational review of the assets of a large coal mining company. The purpose of the review was to identify and quantify the value of business improvement initiatives and innovative mining solutions which improved productivities and reduced operational costs. The areas which were examined included: mining operations; mine planning / technical services; equipment mix; coal product strategy and management (including CHPP operations); mobile equipment maintenance. As a result of this project, MEC Mining identified approximately \$100M of value improvements across our client's business.

BHP

BHP | LOCATION: WESTERN AUSTRALIA

BHP contracted MEC to assist them in undertaking an opportunity assessment to identify options to enable a step-change in carbon emissions to meet their net-zero 2050 target across their WAIO Operations. MEC developed a baseline, life of asset emissions model to understand the opportunities presented by In-Pit Crushing and Conveying, Excavator Electrification, Trolley Assist, and the revolutionary Small Autonomous Battery Electric Truck Fleet or SWARM Principal to directly abate emissions and enable the early capture of "Green Electrons". Utilising our expertise in this field MEC was able to present elegant solutions to the practical and pragmatic application of each technology to not only achieve significant reductions in emissions but simultaneously maintain or improve BaU production and quality, operational productivity and reduce strip ratios through reduced waste mining while increasing ore recovery. The study found a reduction in mine operations emissions opportunities of up to 50% from the baseline across the technology options.



ANGLO AMERICAN | LOCATION: AUSTRALIA

MEC conducted XPAC model consolidation of Three UG operations. This involved the transition and consolidation of mining equipment, production and schedule into an optimised XPAC model. The project deliverables entailed production assumptions, XPAC models, sensitivity analysis and asset optimisation.



MMG | LOCATION: LAOS

With world class assets across the globe, MMG is one of the largest mining houses in the world. MEC has been selected as one of MMG's preferred consultants and has engaged MEC on a number of different projects including onsite operational support, operational improvement, pit optimisation, the life of mine planning and to complete a number of feasibility studies. MEC has also provided project management support for a number of Sepon Mine studies.



METRO MINING | LOCATION: QUEENSLAND

MEC completed a bankable feasibility study for Metro Mining's flagship project – The Bauxite Hills mine worth \$2B. The study consisted of a life of mine plan, schedule optimisation and CAPEX / OPEX cost modelling.



MOTION METRICS | LOCATION: GLOBAL OPERATIONS

MEC has partnered with Motion Metrics to help develop and understand the business improvement opportunities that can be exploited by utilising the motion metrics ecosystem of vehicle, stand-mounted, and process installed units. The hardware, network-integrated via the bespoke AI cloud-based technology, is utilised across the production cycle for tracking material size and characteristic issues. MEC was commissioned by Motion Metrics to identify further opportunities for this technology beyond its original intended purpose. MEC found significant advantages in refining and tracking particle distributions and material characteristics across the site to get step-change improvements in throughput from the dig-face to mill output. MEC used data analytics to optimise dig rates, material tracking for reduced rehandle, payload maximisation and carry back reduction, crusher optimisation, mill-rate and ball dosing and significant cost benefits found in the regrind or HPGR risk management and throughput maximisations. The project successfully demonstrated the strength of MEC's ability to seek out latent value by exploiting new technologies, delivering significant cost and emissions improvements.



GOLD FIELDS | LOCATION: GHANA

In its objective to reduce its carbon emissions footprint Goldfields selected MEC mining to undertake an options study and assessment of the transition plan for their Tarkwa and Damang sites to compare new asset mixes including mobile crushing and conveying systems, Trolley Line and retrofitting diesel trucks with Liquid Natural Gas. The site had unique challenges to overcome with jurisdiction over the source of power adding urgency to the success of the project. MEC's reputation for adding value to projects was validated with findings of further savings for the site in refining the mine sequence to best utilise the new mine operations asset mix.



ENVIRONMENT, SOCIAL & GOVERNANCE

PROJECTS AND GOVERNANCE

MEC provides projects, project management and governance for technical services across the mining sector. The advantage of having MEC apply their governance and project management expertise to your operations is that we work to a framework for the rules, relationships, systems and processes that impact the cohesiveness and effectiveness of your technical services and operational teams. Establishing cascading and dovetailing systems allows greater transparency and accountability for delivering results and managing systems. MEC Engineers apply this know how to a wide range of projects to address environmental, rehabilitation and closure planning needs. We have established Progressive Closure and Rehabilitation Plans for many of our clients in strict adherence to government policy factoring in drainage and final landform requirements. MEC will work with owner teams or contractors to achieve the best overall outcome for the site.

Services include:

- ▶ Business Planning Governance
- ▶ Technical and Operations Systems Improvements
- ▶ Water Management Plans and Project Management
- ▶ Environmental Policy Change assessments
- ▶ Provision of professional and supervisory personnel

DECARBONISATION

MEC Mining assists mining organisations in meeting the demands of decarbonisation whilst ensuring continuity of operations, maintaining productivity and delivering for all parties (governments, shareholders and an increasingly informed public) who demand due diligence for a decarbonised future.

Our services include:

- ▶ Carbon neutral transition plan
- ▶ Detailed operational mine designs and schedules
- ▶ Planning process development
- ▶ Operational systems implementation



ENVIRONMENT, SOCIAL & GOVERNANCE CAPABILITY

MULTICOM PRCP ASSISTANCE

Multicom Resources engaged MEC to undertake the progressive rehabilitation and closure planning study for their St Elmo project. The study centred around the comprehensive material movements of project across its life of mine from undisturbed topography to final landform. MEC assessed material types into blocks to simulate a strip sequence of mining to waste dumps and then material rehandle requirements for reshaping to final landform. The assessment factored in major topographical changes that would alter drainage across the site and where possible made design allowances to mirror the original drainage lines to stabilise the cadence of water flow through the system to pre-mining levels. Furthermore the study considered hydrological and hydraulic modelling to assess the impact of a probable maximum precipitation flood event on the site and local catchment factoring in the most recent climate change data.



PRCP MINERAL PROJECTS – DIANE COPPER MINE

MEC Mining was engaged by Mineral Projects Pty Ltd (MP) to assist with the waste dump and surface diversion drainage design as part of the progressive rehabilitation and closure planning (PRCP) requirements for the Dianne Copper Mine. MEC conducted a review of the available waste characteristic data to assess suitable encapsulation designs on site. The study also included backfilling a settling dam so that it would comply with final landform design; and rehabilitation of the existing waste rock dump to blend with original topography and a geotechnical closure compliant assessment of all final waste rock landforms. A key outcome of this project was the creation of surface drainage profile designs that diverts and maintains separation of clean surface water so that it can continue to run off site as part of the natural ecosystem without the requirement of treatment or capture.



BHP – STEP CHANGE

BHP contracted MEC to assist them in undertaking an opportunity assessment to identify options to enable a step-change in carbon emissions to meet their net-zero 2050 target across their WAIO Operations. MEC developed a baseline, life of asset emissions model to understand the opportunities presented by In-Pit Crushing and Conveying, Excavator Electrification, Trolley Assist, and the revolutionary Small Autonomous Battery Electric Truck Fleet or SWARM Principal to directly abate emissions and enable the early capture of “Green Electrons”. Utilising our expertise in this field MEC was able to present elegant solutions to the practical and pragmatic application of each technology to not only achieve significant reductions in emissions but simultaneously maintain or improve BaU production and quality, operational productivity and reduce strip ratios through reduced waste mining while increasing ore recovery. The study found a reduction in mine operations emissions opportunities of up to 50% from the baseline across the technology options.



PLANNING GOVERNANCE AT BHP QUEENSLAND

MEC was approached by BHP to assist in establishing guiding systems and processes in the coal business planning unit to ensure best mine engineering and planning practice was being applied across the coal division. The team had oversight of the long-term planning and budgeting process and ensured the system could dovetail across to medium and short term planning. The result was a process that defined how the remote corporate team will coordinate activities in mine planning across the business and particularly with sites to sustain value along the planning cycle.



HITACHI – INNOVATION INVESTIGATION PROCESS

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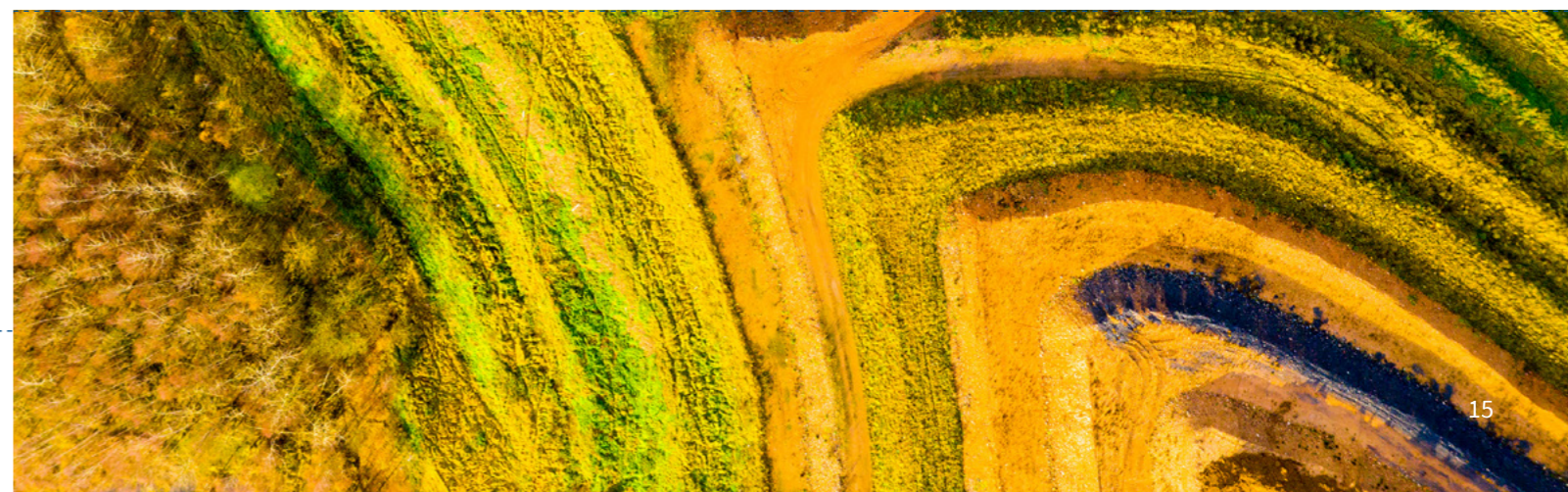
BMA – ASSESSING LOWER EMISSION MATERIAL TRANSPORT OPTIONS

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GEOTECHNICAL ENGINEERING

OUR GEOTECHNICAL ENGINEERS

Commonly, ambiguity or a low level of detail in Environmental Authority agreements means that the rehabilitation concept is not always clear. MEC Mining can assist by optioneering the landform design to quickly evaluate various landform criteria options to understand landform shape and the cost of constructing a variety of options. This allows efficient decision making and enables more productive engagement with regulators.

OUR GEOTECHNICAL ENGINEERING EXPERTISE

The MEC Mining geotechnical engineering expertise include:

- ▶ Site Secondment
- ▶ Geotechnical Management Plans
- ▶ Geotechnical Design Performance and Evaluations
- ▶ Geotechnical Staff training and mentoring
- ▶ Studies (Bankable, Feasibility etc)
- ▶ Independent technical audits

- ▶ Independent expert reports
- ▶ Pit slope stability analysis and design, including numerical modelling
- ▶ Geotechnical reviews and audits
- ▶ Stability assessment of natural slopes and waste dumps
- ▶ Ground awareness and geotechnical hazard training
- ▶ Geotechnical data collection training including Brown and Greenfields drilling program management
- ▶ Closure design
- ▶ Monitoring Implementation and Recommendations

OUR GEOTECHNICAL CAPABILITIES SPAN ACROSS

- ▶ Open Pit Coal
- ▶ Open Pit Metals
- ▶ Underground Coal
- ▶ Underground Metals

LANDFORM OPTIONEERING AND OPTIMISATION

Commonly, ambiguity or a low level of detail in Environmental Authority agreements means that the rehabilitation concept is not always clear. MEC Mining can assist by optioneering the landform design to quickly evaluate various landform criteria options to understand landform shape and the cost of constructing a variety of options. This allows efficient decision making and enables more productive engagement with regulators.

INDEPENDENT EXPERT REPORT (QLD)

ESTIMATED REHABILITATION COST CALCULATOR

MEC Mining provides independent expert reports (shadow tenders) for material movement rates to replace default rates in the Estimated Rehabilitation Cost Calculator. In many instances, the default rates in the calculator are based on small quantities and not representative of the cost advantages achieved when large volumes of material movement are involved. MEC Mining will calculate and provide rates that can be used in the calculator and are accepted by the regulator.

PROJECT MANAGEMENT

MEC Mining provides project management for rehabilitation on active mine sites. The advantage of having MEC Mining manage the rehabilitation execution is that it provides integration between the operations team and the advanced power of the optimisation software to provide designs and plans that are more cost-efficient, meaning lower cost rehabilitation. MEC Mining personnel stationed on site will monitor progress to provide surety around compliance to plan which minimises cost. We have a dozer push training package which is crucial for educating dozer operators on how to work efficiently and prevent costly rehandle. MEC Mining will work with owner teams or contractors to achieve the best overall outcome for the site.



GEOLOGY SERVICES

GEOLOGICAL SERVICES

We provide geological services, designed to get our clients the best value from their tenement land holding.

- ▶ Project evaluation
- ▶ Development of exploration strategies
- ▶ Program design, planning and budgeting
- ▶ Data compilations and target development
- ▶ Exploration database development and management
- ▶ Resources modelling and estimation, code compliant reporting and competent persons
- ▶ Project management and implementation
- ▶ Production geology for open pit and underground



ADDITIONAL SERVICES

MEC geology can also support exploration and field works in ensuring industry-standard health and safety systems/ documentation for your project, including:

- ▶ Exploration field services packages
 - ▶ Soil sampling crew
 - ▶ ATV
 - ▶ Logistical support
- ▶ Provision of cloud-based safety and quality management systems
- ▶ Procedural documentation
- ▶ Environmental, heritage application and approval
- ▶ Compliance and audit

SOFTWARE

- ▶ Mapinfo
- ▶ QGIS
- ▶ Surpac
- ▶ Micromine
- ▶ Leapfrog
- ▶ IOGas

MINERAL RESOURCE ESTIMATION

The MEC Mining Mineral Resource estimation group is comprised of consultants that are expert in data management, QA/QC, geostatistics, geological modelling, resource modelling, risk assessment, and report writing. MEC specialise in the delivery of Independent Technical Reports that can be reported to JORC, NI43-101, or similar standards. MEC understands the importance of timely delivery of the ITR for the client's business. The technical reports may be utilised inhouse, or used for external announcements, and be included within scoping, prefeasibility, or feasibility studies.

OUR MINERAL RESOURCE ESTIMATION SERVICES

- ▶ Review of data collection techniques
- ▶ QA/QC analysis and audits
- ▶ Statistical analysis and variography
- ▶ Grade estimation and validation
- ▶ Risk analysis
- ▶ Resource reporting and classification
- ▶ JORC and NI 43-101 compliance reporting

- ▶ Reconciliation studies
- ▶ Audits and fatal flaw studies

REVIEW DATA COLLECTION TECHNIQUES

- ▶ Data management procedures
- ▶ Design and implementation
- ▶ Data capture and transformations

QA/QC AUDITS

- ▶ Quality control protocols and assessment of analytical data including assay precision, assay bias, standards, blanks, recovery, specific gravity determinations, and survey data
- ▶ Risk analysis

STATISTICAL ANALYSIS

- ▶ Classical statistical analysis
- ▶ Geological cut-off grade determination and domain decisions
- ▶ Geological Interpretation
- ▶ Geological Modelling



GEOLOGY CAPABILITY



PROJECT: MCINTOSH, KIMBERLEY WA | COMMODITY: NI-CU-PGE

Early-stage green fields exploration management

Managing all aspects of exploration activities including holding statutory position with DMIRs, target generation, planning, budgeting, safety, permitting through to on ground exploration activities within the limited field season and identifying as CP in ASX releases.



PROJECT: LIVINGSTONE PROJECT, MURCHISON WA | COMMODITY: AU

Exploration management

Managing all aspects of exploration activities including holding statutory position with DMIRs, target generation, planning, budgeting, permitting, safety through to on ground exploration activities.



PROJECT: WEEBO PROJECT, GOLDFIELDS WA | COMMODITY: AU

Drill program management

Managing 5000m RC/AC program which included all on site safety, personal and logistical support.



PROJECT: LIVINGSTONE PROJECT, MURCHISON WA | COMMODITY: AU

Green fields exploration management

Managing all aspects of exploration activities from target generation, planning, budgeting, and permitting through to on ground exploration activities, with in the limited field season.



PROJECT: JAURDI HILLS, GOLDFIELD WA

Project review & exploration recommendations

Compilation and review of project data and recommendation during due diligence for project acquisition.



PROJECT: MCINTOSH, KIMBERLEY WA | COMMODITY: NI-CU-PGE

Exploration field services

Management and acquisition of 5200 high quality -2mm soil samples over rugged terrain utilising modern All-Terrain Vehicles (ATV's).

GEOSTATISTICAL ANALYSIS

- ▶ Modelling anisotropy and variography

GRADE ESTIMATION AND VALIDATION

- ▶ Linear and Non-linear grade interpolation methods
- ▶ Mineral Resource estimation
- ▶ Block model validation

RESOURCE REPORTING AND CLASSIFICATION

- ▶ Mineral Resource classification
- ▶ Economic cut-off calculation
- ▶ Mineral Resource reporting
- ▶ Sensitivity analysis and grade tonnage analysis
- ▶ Mineral Resource reviews and audits

JORC AND NI 43-101 COMPLIANCE REPORTING

- ▶ Statutory reporting
- ▶ Technical advice Project Review
- ▶ Evaluation
- ▶ Design and review drilling programs and data density
- ▶ Mineral Resource estimation
- ▶ Site visits and lab visit performed by the CP/QP

RECONCILIATION STUDIES

- ▶ Reconciliation of Mineral Resource estimate with actual (mill)
- ▶ Reconciliation of grade control models with actual



OPEN PIT METALS

CONSULTING SERVICES

- ▶ Life of mine planning and long term planning and optimisation Design and scheduling
- ▶ Project review, cost modelling and project optimisation
- ▶ Scheduling model builds
- ▶ Rehabilitation and closure planning
- ▶ Studies – conceptual, pre/feasibility and bankable feasibility JORC resource and reserve reporting
- ▶ Asset management
- ▶ Contract and tender evaluation

SOFTWARE

- ▶ XPAC / XACT
- ▶ Spry
- ▶ Surpac
- ▶ 3D Dig
- ▶ Deswik CAD & Scheduler
- ▶ Shotplus / BLASTPLAN
- ▶ TALPAC
- ▶ Whittle
- ▶ Minex
- ▶ DataVis
- ▶ Mine 2-4D & EPS
- ▶ XERAS
- ▶ Minesight
- ▶ Minescape
- ▶ ArcGIS
- ▶ Vulcan / Vulcan Optimiser

ONSITE OPERATIONAL SUPPORT

- ▶ Relief role coverage from technical services engineers, through to management positions
- ▶ Project management and Operational readiness/startup
- ▶ Operational design, planning, scheduling and optimisation including supply of software where necessary
- ▶ Drill & blast, truck & shovel, haulage and dump design & optimisation
- ▶ Operational review, cost modelling and operational improvement
- ▶ Short to medium term design, planning and scheduling solutions

COMMODITIES

- ▶ Copper
- ▶ Nickel
- ▶ Lead
- ▶ Mineral sands
- ▶ Silver
- ▶ Diamonds
- ▶ Uranium
- ▶ Zinc
- ▶ Gold
- ▶ Iron ore

OPEN PIT METALS CAPABILITY

NEW CENTURY RESOURCES | LOCATION: QUEENSLAND

New Century Resources is an Australian base metal development company with the aim of being one of the world's top 10 zinc producers. MEC Mining was engaged by New Century to complete a bankable feasibility study for its Century Mine. The proper mining study had full authorship; involved reserves sign off and project peer review.

RESOLUTE MINING | LOCATION: QUEENSLAND

Resolute Mining engaged MEC Mining to help completed a pre-feasibility study for Vendor sale. MEC Mining is delighted to note that the Ravenswood Gold Mine was sold in Q1 2020, resulting in a strong strategic merit for Resolute.

METRO MINING | LOCATION: QUEENSLAND

MEC Mining completed a bankable feasibility study for Metro Mining's flagship project – The Bauxite Hills mine worth \$2B. The study consisted of a life of mine plan, schedule optimisation and CAPEX / OPEX cost modelling.

NEWCREST MINING LIMITED | LOCATION: PAPUA NEW GUINEA

MEC Mining was engaged by Newcrest for Mining Improvement projects in relation to the Lihir Project at PNG with project value worth \$8.8B. MEC Mining assisted in mine planning, mobile maintenance and mining departments with major joint improvement projects. The projects included barging operation, truck & shovel, drill and blast, dewatering and geotechnical.

MAYUR RESOURCES | LOCATION: PAPUA NEW GUINEA

Mayur holds a number of assets in PNG and has engaged MEC Mining to undertake numerous studies in order to determine how to extract the greatest value from their projects. A multi commodity company, Mayur holds interests in coal, mineral sands and copper/gold projects. MEC has completed a number of pit optimisations, concept studies, geological model builds and has acted as Mayur's in-house consulting team conducting a pre-feasibility study for one of its Iron Sand projects worth \$150M.

MMG | LOCATION: LAOS

The Sepon Copper Mine is located in the Savannakhet Province of Laos. MMG approached MEC Mining to review its Life of Mine Plan worth \$500M. The project involved the review of several capital options and closure strategies as well as optimisation of mining sequence of the five open pits.

UNDERGROUND METALS

CONSULTING SERVICES

- ▶ Life of mine planning and optimisation
- ▶ Medium and long term design and scheduling
- ▶ Conceptual, pre-feasibility and bankable feasibility studies
- ▶ JORC resource and reserve reporting
- ▶ Mine and stope economic cost modelling and optimisation
- ▶ Extraction sequence and cut-off grade optimisation
- ▶ Contract and tender evaluation
- ▶ Mining method and equipment selection
- ▶ Trade-off studies
- ▶ Capital and operating costs estimation
- ▶ Project review and project optimisation
- ▶ Assessment of ground control best practice
- ▶ Caving - Fragmentation analysis and cavability assessment
- ▶ Caving - Subsidence analysis and draw control

SOFTWARE

- ▶ Surpac
- ▶ Minescape
- ▶ XERAS, XPAC and XACT
- ▶ Deswik
- ▶ Ventsim
- ▶ Mine2-4D and EP
- ▶ Vulcan
- ▶ Minesight
- ▶ Datamine

ONSITE OPERATIONAL SUPPORT

- ▶ Coverage from technical services engineers, through to management positions
- ▶ Project management and Operational readiness
- ▶ Short to medium term design, planning and scheduling including supply of software where necessary
- ▶ Drill and blast design, guidelines and reporting systems
- ▶ Operational review, cost modelling and operational improvement
- ▶ Ventilation engineering
- ▶ Technical department gap analysis, process mapping and RACI analysis
- ▶ Technical procedures and industry best practice standards and policies

COMMODITIES

- ▶ Copper
- ▶ Nickel
- ▶ Lead
- ▶ Silver
- ▶ Diamonds
- ▶ Uranium
- ▶ Zinc
- ▶ Gold

UNDERGROUND METALS CAPABILITY

BARRICK GOLD | LOCATION: DEMOCRATIC REPUBLIC OF CONGO

Barrick Gold engaged MEC Mining for life of mine planning support for the Kibali project in Congo. The project consisted of longitudinal and transverse long-hole open stoping / in massive, disseminated mineralisation.

WESTERN AREAS LIMITED | LOCATION: WESTERN AUSTRALIA

MEC Mining was approached by Western Areas Limited to provide life of mine scheduling support for the Flying Fox project which is one of the highest-grade nickel mines in the world. The project and deposit style is long-hole benching (Avoca) in massive sulphide lenses.

SOUTH32 | LOCATION: NORTH QUEENSLAND

MEC Mining was engaged by South32 to provide continuous support at its Cannington mine in North Queensland. The mine produces silver, lead and zinc and consists of transverse, long-hole open stoping in silver-rich massive sulphide lenses. MEC Mining was proud to support our client with their production planning process in the form of design and scheduling as well as underground project engineering.

RED 5 LIMITED | LOCATION: WESTERN AUSTRALIA

The King of Hills gold project located in Leonora, Western Australia consists of Long-hole open stoping and mechanised cut and fill-in narrow vein mineralisation. MEC Mining was engaged by the client to provide short term to medium term planning, life of mine planning & scheduling, deputy mine management.

BHP | LOCATION: SOUTH AUSTRALIA

BHP engaged MEC Mining to provide support to its Olympic Dam Mine in South Australia. Works included medium term planning, life of asset planning & scheduling, life-of-asset projects, identification, phase planning, scheduling and assistance. The mining method is sublevel open stoping with the deposit occurring in a massive sulphide orebody. Commodities extracted include Copper, Uranium, Silver and Gold.

PERILYA | LOCATION: NEW SOUTH WALES

MEC Mining was engaged by Perilya to provide support to its Broken Hill Assets, and Rasp, Potosi & North Mine (Northern Ops) Projects. Commodities produced at these sites include lead, zinc and silver with mining methodology being long-hole open stoping and remnant pillar mining in massive sulphides and sub-vertical lenses. MEC Mining provided a range of underground mining services which included: Drill and Blast, production planning, scheduling, ventilation, mine supervision and study project management.


UNDISCLOSED CLIENT

A junior mining company with a copper, cobalt deposit in South Australia engaged MEC Mining to conduct an underground scoping study using the room and pillar mining methodology with continuous miners. The scope of works included the mining method selection, initial mine design and scheduling, and the estimation of CAPEX and OPEX requirements of the operation.

GLOBAL EXPERIENCE



GENERAL ENQUIRIES

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