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What the great mining companies are looking for in their mining engineers

The global mining companies are recruiting in different positions in different geographies and mining of different minerals, and looking for variety of skills, education and experience. There is great opportunity to join a team of passionate and supportive industry leading experts where one can really drive future career. For today's early career executives to be successful one will have to show demonstrated experience in mining areas of her/his choice, a high level of strategic thinking, planning, communication and problem-solving skills which will be instrumental in success in this role.

Mining engineer

Reporting to the technical services superintendent, this key role will see the person:

- Has the capability to undertake or learn the mine planning process (CAD design and Xpac scheduling) as part of the mine planning function
- Administrate the mine's management requirements and implementation
- Assist the management coordinators with the exploration group for new reserve
- Provide inputs to the mine design and planning process
- Undertake the risk management process and document control
- Assist with and if required initiate and execute the mine plan change and authority to mine processes
- Build on technical foundations to become a cross-functional mining engineer

For most of the companies, this is an opportunity to join a team of passionate and supportive industry leading experts where one can really drive the future career. Successful candidates will be required to complete background screening which may include a criminal check and validation of qualifications.

Education, skills, and experience

- Bachelor's degree in mining engineering with basic

electronics, finance and accounting and strategic planning exposure.

- Post graduate qualification desirable but not essential.
- Minimum 2 years onsite mining or heavy industry experience.
- Spatial design skills and awareness.
- Familiar with mine compliance.
- Strong communication skills.
- Strong attention to detail.
- High aptitude towards analytical tasks.

Surface mining: senior/middle positions.

In a new project, employers would be looking for positions that will be to provide and co-ordinate the strategic development of the project. This will lead in to the future operational support for the project. This support will be focused on maintaining and/or delivering the maximum value to the company. The role will be effective in harnessing the resources, systems and practices of the company and channelling them across various external consultancies and internal technical teams. This work will be carried out in the context of providing technical solutions and support that consider the longer-term strategic development of the asset. If there is a JV, the incumbent will have to have proven capability to liaise. This new opportunity is a key role within the team and will encompass a broad range of accountabilities and is responsible for providing high quality representation of the company and general operational advice to 3rd party consultees and JV operators through to senior management. He or she will need to ensure that the fast-evolving technical information is incorporated throughout the study process and includes working with the project's mine engineers, hydrogeologists, geologists, infrastructure geotechnical and tailings specialists. This will be a challenging and fast-paced role, requiring the candidate to confidently navigate through some uncertainties.

Education, skills and experience

To be successfully considered for such role, the candidate will have:

- Tertiary qualified in mining engineering – additional highly desirable qualifications/exposure in the degrees in commerce, finance or an MBA.
- Established experience in a mining or mineral processing operations.
- Extensive mining operational and projects experience.
- Solid strategic planning experience in marketing and payment recovery.
- Demonstrated ability to conduct strategic options (hedging) analysis of projects.
- Demonstrated communication skills, including an ability to build relationships with both internal stakeholders and external constituents/consultancies.
- He or she will show strong demonstrable motivation and team work capabilities with a strong technical aptitude in the field, ideally with significant exposure to mining operations and the metals and mining industry in general.
- He/she must possess a high understanding of project management, project development and engineering work methodology.
- Excellent writing skills, attention to detail and an ability to read between the lines.
- Strong focus on safety and culture.
- Capability in a foreign language (written and or spoken) is considered advantageous.

Underground mining: senior/middle positions

In such a position she/he will be a member of the underground (UG) mining centre of excellence (CoE), to provide technical expertise and leadership in UG mining whilst developing, communicating and implementing UG mining strategies, standards and systems at the product group or group-wide level. The CoE provides standards, guidance and review to Rio Tinto's underground operational and technical teams, to unlock value and reduce group level technical risks from the UG assets.

This opportunity is to make a significant difference to the value that underground mine assets across various geographies.

Reporting to the chief advisor – UG mining productivity, working in a collaborative and exciting environment within the group technical underground team, she/he will be:

- Providing leadership in UG mining operational performance to all underground studies, projects and operations, delivering best for business outcomes. Design for productivity, build for productivity, and operate for productivity.

- Providing coaching and guidance to business unit leadership, supporting the implementation of productivity improvements with a focus on business goals.
- Defining and implementing customized performance metrics and benchmarking across the group, understanding what “good” looks like with respect to business goals, and being part of a team to identify the right suite of projects to support and deliver.
- Championing productivity improvement programmes across UG mines' value chains.
- Identifying value drivers and full potential for each UG asset within the group.
- Assuring asset: annual and life of mine plans for UG assets.

Education, skills and experience

- A commitment to the safety to manpower and assets
- Degree qualified mining engineer, ideally with a Masters
- Bi-lingual, English and local language
- Solid operational experience in mine planning and underground hard rock mining experience
- Ability to analyse for and quantify improvement opportunities, understanding the full potential of a mining process and the main levers to improve it.
- Highly developed short interval control experience deploying PITRAM solutions through SQL and Tableau.
- Highly developed critical thinking skills.
- Ability to work collaboratively in a global, multi-disciplinary environment.
- Effective stakeholder engagement and management skills and the ability to build external networks and relationships with industry experts.

Mine planning engineer

The dynamic mine planning engineers to produce and manage the site's plans in (Alastri) tactical scheduler to a high standard with relevant optionality and flex.

She/he will be either capable or eager to use some of the most exciting data and tools on the planet. The company is a believer and developer in automation and smart mining. The company have technical development programmemes that are industry-leading and recognise the unique nature of this role. These provide opportunities to grow career through a dedicated technical path while being rewarded for unique skills.

Reporting to the senior mining engineer and working in a challenging and exciting environment within mine technical services she/he will deliver mine plans that align with long term strategy and clearly deliver value, address bottlenecks and convert opportunities across the value chain. The person will have a strong focus on continuous improvement, be

passionate about making sustainable improvements and be accountable for grade quality performance.

Education, skills and experience

With tertiary qualifications in engineering or equivalent, the person will have demonstrated mine planning experience within an open cut mining environment. Core mine experience is preferable, but not essential. She/he will also have a strong focus on meeting key milestones, operational constraints and production risk mitigation.

It is essential to have a good understanding of the end-to-end mining process and strong software skills with experience in Alastri products, Expac, Maptek or Vulcan is desirable.

One who can positively influence the behaviours of those around them, and effectively collaborate with a diverse stakeholder group is welcome. She/he will have an ability to verbally present information to a wide variety of stakeholders and effectively sell the quarterly plan to the business.

Principal mining engineer

This is relatively new role. In this role, the candidate will be a part of the mining group which provides value added technical solutions and support based on strategic and operational analysis of opportunities across the company's portfolio. This includes supporting the business units with high value solutions and continuous mine modernization through implementation of new technologies and systems.

As the principal mining engineer she/he will support the mining engineering facet of mine studies across the business by advancing numerous studies from concept through to feasibility in a range of commodities and jurisdictions.

This role will be rewarding and varied and will include the following tasks:

- Oversee and assess opportunities to maximise value to Anglo American while always ensuring safety, health and environmental impacts are considered appropriately to promote sustainable operations.
- Ensure critical design risks are addressed as part of the design (eg. backfill, ground control, ventilation, slope design, etc).
- Deliver consistency in approach using systems, tools and approaches.
- Use appropriate benchmarking and peer review of the mining related aspects of studies.
- Contribute to best practice principles for mine design in mining studies.
- Manage the delivery of mining related scope and resources aligned to the critical investment development model.
- Work closely with study management personnel to ensure clear communication of progress to plan and early

identification of potential variation to plan.

- Regularly engage with core team members to ensure alignment between the disciplines and departments.
- Support the effective collection of field data (drilling, test work and analysis) to improve orebody knowledge and ensure science leads the engineering.
- Understand the permitting requirements for the project and provide timely and fit for purpose updates to the project description.
- Contribute to the life of asset planning (LOAP) and RDP processes to allow mining studies activities to be included at the appropriate point in time.

Education, skills and experience

- Bachelor's degree in a relevant technical discipline (ideally mining engineering).
- Experience working in underground and open pit mining operations globally.
- Experience working as a member of a study team on large and complex mining projects with a strong understanding of level of detail for each stage of study.
- Experience working with an engineering consulting company.

Specialist mine modernisation

The purpose of technical and sustainability (T&S) in a mining company is to drive the future of mining. The development and sustainability of our assets depend on the highest levels of technical advice, based on strategic and operational analysis of mining opportunities across the group's portfolio. It means the company benefits from the latest and most relevant innovations, always making safety the priority. With exposure to a wide range of problems and a real opportunity to help shape the function, she/he will provide local support for implementation of the operational technology projects across the portfolio.

The candidate will also:

- Support local implementation of underground technology systems.
- Execution leader, influencing technology and innovation to develop cutting edge capabilities in the surface/ underground operational practice.
- Analyse operational data to highlight opportunities and make recommendations.
- Identify and develop best practice procedures for steady-state operation of mine operation management systems (Optimine, Mobilaris, Deswik Ops, etc.).
- Support the process of consultation with group operations and relevant disciplines in T&S on best practice, optimisation and appropriate execution of technology systems.

- Liaise with site operations to support installation of hardware; fibre optic backbone, AP, control room, etc.
- Integration management of operational systems with IM infrastructure.

Education, skills and experience

- An undergraduate qualification (bachelors/honours bachelor's degree or equivalent) in a relevant discipline (such as mine, civil or mechanical engineering).
- Proven track record of extensive practical experience in a role and context of similar complexity.
- Advanced application of underground expertise to create value across the mining value chain, is a go to person for advice on heavy machine automation within the mining discipline.
- Drives improvement by challenging current practices and providing advice on the value optimized use of automation technology and processes in mining.
- Applies a systematic, problem-solving approach and structured methodologies (such as root cause analysis and statistical analysis) to investigate risks and opportunities to create effective, value-add heavy mine solutions

- A demonstrated thought leader and considered an accomplished practitioner in the understanding and application of the mine engineering discipline.
- Implementation of automated technology and systems.
- Demonstrated project management capability through successful implementation.

New skills in the mining engineering job domain

These are the new skills, *inter alia*, the global mining majors are looking for in the candidates:

1. System electronics and related design
2. Operational, environment ,health, safety and welfare law
3. Environmental and forest clearance
4. Strategic planning
5. Trade and business
6. Risk assessment and management
7. Community knowledge and social science
8. Internal and external community communications
9. Project management
10. Modern technology transition ideas.

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