



# Where will mining take you?

A GUIDE TO MINING CAREERS IN NSW







# Considering an exciting career in the mining industry?

NSW  
MINING

## What are your options?

**The NSW mining industry offers a variety of rewarding careers in a diverse range of locations from rural areas, regional centers and in Sydney.**

It takes a lot of different people in a lot of different jobs to keep NSW mines working. While around 40,000 people are directly employed in mining in NSW, thousands more work in mining-related jobs, including in the more than 7,000 businesses, big and small that are part of the mining supply chain. These businesses support mining operations by providing a range of goods and services needed to keep our mines operating. This helps to keep local economies growing and local communities flourishing.

Advances in technology are making mines safer, more competitive, and more sustainable. It is transforming the way mines operate and the way the mining workforce goes about its work. Technology is enabling the forward thinking, solution focused approach to modern mining and makes the mining industry an interesting, challenging, and exciting career option for young people.

The mining industry offers career opportunities that will change with the times. People entering

the industry now can look forward to opportunities to change roles as their career progresses, travel Australia and the world if they choose, or establish rewarding lifestyles in some of the most interesting parts of NSW.

As the name suggests, the Introduction to Mining Industry Careers in NSW is designed to introduce secondary school students to the variety of careers available in the mining industry in NSW. The booklet is organised according to the entry level qualifications required - university, vocational education, and/or certification.

While some of the careers featured in this publication are based on mine sites, others may be based in mining companies' corporate offices in regional and/or metropolitan areas of NSW.

NSW Minerals Council hopes that the Introduction to Mining Industry Careers in NSW provides a stimulus for consideration of the opportunities on offer in this dynamic industry. Further, it is hoped that the information provided in this guide might inform senior school subject selection and post-school work and study options that create a pathway to mining.

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### University Qualified

## Automation Engineer

Automation Engineers design, program, test and simulate automated machines and processes that are intended to complete a specific task.

Automation Engineers also provide detailed documentation, including design specifications, to enable production or the application of their products.

In mining, Automation Engineers tend to work closely with other engineers including mining engineers and environmental engineers.

Automation Engineers usually enjoy working with maths, science and computers and have an interest and ability in mechanical and electrical engineering. They also tend to have a good understanding of computer programming and software development and are able to troubleshoot problems and perform complex system tests.

### Qualifications:

Bachelor's degree in Mechatronics Engineering or Engineering with a major in Mechatronics.







University Qualified

## Chemical Engineer

Chemical Engineers aim to get the best results at the least cost and with as little damage to the environment as possible.

Chemical Engineers also work on issues relating to energy conservation and environmental pollution and contribute to the development of solutions to challenges in these areas

Chemical Engineers usually enjoy working with maths, physics and chemistry and have an ability and interest in embracing new techniques and technologies.

### Qualifications:

Bachelor's degree in Chemical Engineering or Engineering with a major in Chemical Engineering.



University Qualified

## Civil Engineer

Civil Engineers are involved in the design and building of infrastructure for mines, including the entire civil infrastructure and the processing facilities etc.

Civil Engineers also perform engineering duties specific to mining operations including involvement in planning, designing, and overseeing the construction and maintenance of various structures for both open cut and underground mines.

Civil Engineers often have an interest in the environment and technology and how the two can fit together. They also tend to have good problem-solving abilities and communication skills.

### Qualifications:

Bachelor's degree in Civil Engineering or Engineering with a major in Civil Engineering.





### Qualifications:

Bachelor's degree in Journalism, Communication, Marketing or Public Relations.

University Qualified

## Communications or Media Liaison Officer

Communications and/or Media Liaison Officers are responsible for assisting the communications activities of the organisation. This could include devising communications strategies, creating content and organising events.

Some communications staff are located on-site while others might be located in the mine operator's corporate office.

Communications Officers usually have excellent writing and editing skills, are adept at understanding, using and analysing social media platforms, able to work to strict deadlines, work well with other communications specialists including visual designers and video producers and have good interpersonal skills.

University Qualified

## Community Liaison Officer

Community Liaison Officers support the work of mining companies and provide a point of liaison primarily between mine operators and the local communities.

Community Liaison Officers are responsible for effectively managing relationships with stakeholders including the local community, residents, affected landholders, and local businesses and organisations.

An important aspect of the role of Community Liaison Officer is to listen to and understand landholder concerns. Community Liaison Officers work closely with other members of a mine's operational and management team to help deliver the community engagement and stakeholder relations program of work in the community.

Community Liaison Officers usually have good interpersonal and time management skills, enjoy working as part of a team, and are practical and versatile.



### Qualifications:

Bachelor's degree in Marketing, Communications, Environmental Science, or other related discipline.



### Qualifications:

Bachelor's degree in Electrical and/or Electronic Engineering or Engineering with a major in Electrical Engineering.

University Qualified

## Electrical Engineer

Electrical Engineers are responsible for planning and overseeing a mine site's power generating equipment. They also work very closely with other engineers on various projects.

Electrical Engineers may be involved in various subfields of Electrical Engineering including electronics, power engineering, control systems, instrumentation, and microelectronics.

Electrical Engineers usually enjoy working with maths, science, computers, and anything mechanical.

University Qualified

## Environmental Engineer

Environmental Engineers use the principles of engineering, biology, soil science and chemistry to investigate and develop solutions to various mining related environmental problems. They address various issues such as recycling, water and air pollution control and waste disposal.

Environmental Engineers usually enjoy working with Maths, Science and Computers and enjoy technical and engineering activities. They also tend to have an ability to identify, analyse and solve problems and have a passion and love for the environment and conservation.

### Qualifications:

Bachelor's degree in Environmental Engineering or Engineering with major in Environmental Engineering.







University Qualified

## Environmental Planner

Environmental Planners develop and implement environmental policies on mine sites and provide advice to management in respect to compliance with statutory obligations and corporate environmental policies.

Environmental Planners also develop programs for environmental monitoring, reporting and identification of potential issues, develop studies in new areas of operations, develop and implement rehabilitation programs, procure equipment and services to perform audit, monitoring and rehabilitation programs, liaise with relevant government departments, and other external organisations and stakeholders and prepare reports, recommendations and submissions for management and government agencies.

Environmental Planners usually have very good verbal and written communication and interpersonal skills, and good organisational, analytical, and problem-solving skills.

### Qualifications:

Bachelor's degree in Environmental Science or Environmental Engineering.

University Qualified

## Environmental Scientist

Environmental Scientists monitor and evaluate the environmental performance of a mine.

Environmental Scientists often analyse water, soil and air to ensure that the impacts of the mine remain within permitted levels. They also develop, implement and advise on policies and plans for managing and protecting the environment, flora and fauna.

Environmental Scientists usually enjoy science, the outdoors and analysing and solving problems. They tend to have a passion for the environment and conservation and good communication skills.

### Qualifications:

Bachelor's degree in Environmental Science or Bachelor's degree in Science with a major in Environmental Science.







### Qualifications:

Bachelor's degree in Finance, Accounting, or related discipline, or Certification through Vocational Education and Training (VET) eg., Diploma of Accounting, Business Administration, Bookkeeping, or related discipline.

## University Qualified

# Finance Officer

Finance Officers support the financial and administrative functions of a mine including invoice preparation and payment and purchasing of supplies and services.

Mining operations' finance teams are also involved in planning, reviewing, and administering accounting systems and procedures, providing advice on financial planning and risk management, and providing reports to management to assist in decision making.

Finance Officers usually enjoy maths, and have good analytical and problem-solving skills, a keen eye for detail, excellent interpersonal skills and good verbal and written communication skills.

## University Qualified

# Geologist

Geologists study the physical structure and composition of the Earth as well as the tectonic processes that shape our planet.

In mining, geologists study the relationship between geology and ore formation and play a critical role in the discovery and extraction of mineral resources. They are responsible for assessing geological data in order to shape short-term and long-term mine production.

Geologists are involved in the entire life-cycle of mines; from exploration to find the minerals to be mined, during the mining process and extraction of the minerals, to rehabilitation of the mine site once mining is finished.

### Qualifications:

Bachelor's degree in Geology, Science or Applied Science with a major in Geology, Geoscience, Applied Geology, Geophysics or Earth Sciences.







University Qualified

## Geotechnical Engineer

Geotechnical Engineers use the principles of soil mechanics and rock mechanics to investigate the soil and other components of the earth and determine the properties of these materials.

Geotechnical Engineers assist with the determination of whether a particular project site would be suitable for a specific project and are also able to work with the lay of the land to ensure the best result.

Geotechnical Engineers tend to have an interest in the environment and technology and how they can fit together.

### Qualifications:

Bachelor's degree in Environmental Engineering or Engineering with a major in Environmental Engineering.

University Qualified

## Human Resources Officer

Human Resource Officers have broad roles including responsibility for developing and implementing policies and procedures relating to the effective use of people within an organisation.

In the mining industry, this may include temporary staff, contractors, and consultants on short-term contracts. The aim of Human Resource officers is to ensure that the organisation employs the right balance of staff in terms of skills and experience, and that training and development opportunities are available to employees to enhance their performance and enable business objectives to be achieved.

Human Resource Officers are typically part of a Human Resource Team and as a member of the team assist with such tasks as recruitment and selection, employee performance, remuneration and rewards, employee relations, training and inductions and work health and safety.

Human Resources Managers have good planning, organisational, analytical, and decision-making skills; good oral and written communication skills; and confidentiality, tact and discretion when dealing with people.

### Qualifications:

Bachelor's degree in Human Resource Management or other related discipline (eg., Bachelor of Business with a Human Resource major), or Certification through Vocational Education and Training (VET) (eg., Diploma in Human Resource Management or Advanced Diploma in Human Resource Management).







### Qualifications:

Bachelor's degree in Information Technology, or Certification through Vocational Education and Training (VET) eg., Diploma of Information Technology.

### University Qualified

## IT Technician

IT Support Officers and/or Technicians assist with the management of a mine's IT infrastructure and provide general IT advice and support to staff.

They monitor, maintain, and provide technical assistance for the mine's IT system and support system users through remote desktop software, email, and telephone conversations

An IT Support Officer or Technician requires technical expertise and the ability to work closely with network, security, and application teams. They also require good customer service skills.

### University Qualified

## Lawyer

Law graduates are employed in a variety of capacities in the mining industry.

Some larger mining and resource organisation employ lawyers in internal legal positions to provide advice in relation to a range of legal and compliance matters.

Law graduates are also employed by generalist law firms that provide external advice to mining and resource companies and/or law firms that focus on the mining and resource industry alone.

### Qualifications:

Bachelor's degree in Laws







University Qualified

## Mechanical Engineer

Mechanical Engineers are involved in the production and usage of heat and mechanical power for the design, production and operation of tools and materials. They also contribute to areas such as environmental control and pollution abatement, power generation, energy conversion and noise control.

Mechanical Engineers usually enjoy working with maths, science, computers, and anything mechanical. They also tend to have an interest in, and ability to embrace new techniques and technologies.

### Qualifications:

Bachelor's degree in Mechanical Engineering or Engineering with a major in Mechanical Engineering.

University Qualified

## Metallurgist

Metallurgists are mineral experts specialising in the extraction of metals from their ores. They oversee, develop and test processes used in metal extraction and in the alloying and casting of materials to produce commercial metal products.

Metallurgists work in mines or mineral processing sites in collaboration with engineers and geologists, or in laboratories in a research capacity. Their role can include studying and applying physical methods for separating minerals from their ores using various techniques, working with operators of the plant to ensure efficiencies within the processes, develop and control methods of storing and treating waste material and preparing technical reports.

Metallurgists usually enjoy chemistry, physics, and mathematics, and have an interest in engineering. They also tend to be good communicators, verbally and in written form.



### Qualifications:

Bachelor's degree in Science with a major in Metallurgy or Engineering with a major in Metallurgical or Chemical Engineering.





University Qualified

## Mining Engineer

Mining Engineers apply science, geoscience, engineering and technology to the efficient exploration and extraction of minerals from the earth, turning raw materials into valuable products. They also work in the area of mine safety where their knowledge of mine design and practices ensure the safety of workers, efficient extraction of minerals and remediation at the end of a mine's life.

Mining Engineers often work with Geologists and Metallurgical Engineers to find and evaluate new mineral deposits and some Mining Engineers are involved in the development of new equipment or direct mineral processing operations to separate minerals from dirt, rock, and other materials.

Mining Engineers usually have an interest in chemistry, physics and maths and an aptitude for design and computing. They also tend to have good problem-solving skills including the ability to identify, analyse and solve problems.

### Qualifications:

Bachelor's degree in Engineering with a major in Mining Engineering.

University Qualified

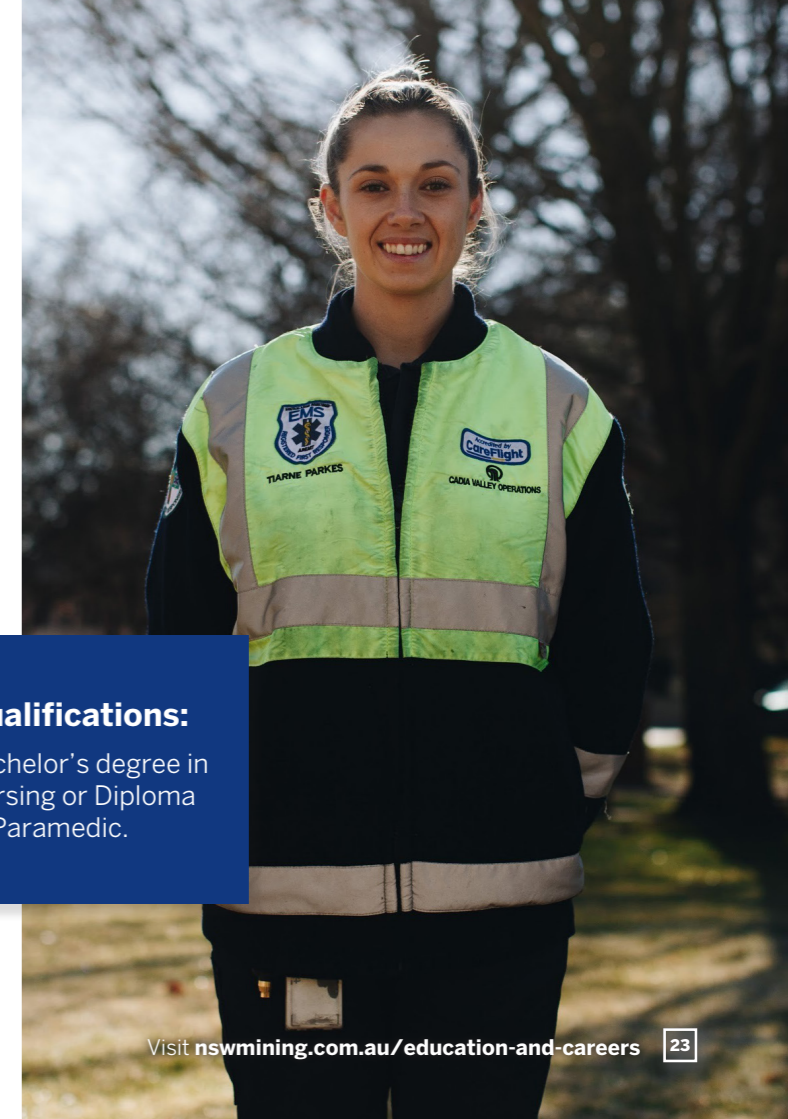
## Registered Nurse or Site Paramedic

Registered nurses are responsible for providing day to day medical and first aid services to mine site personnel as well as emergency response and drug and alcohol testing as required. On-site nurses and/or paramedics are often members of a mine site's Work, Health and Safety Team and may also be involved in planning and overseeing return to work programs for injured employees.

Nurses and/or paramedics usually have excellent interpersonal skills, very good written and verbal communication skills and enjoy applying themselves to a variety of tasks from complex to simple.

### Qualifications:

Bachelor's degree in Nursing or Diploma of Paramedic.







### Qualifications:

Bachelor's degree in Surveying.

## University Qualified

# Surveyor

Mine Surveyors are involved in mining operations from conception to completion.

They assist with the processes of determining the economic viability of potential mine sites, managing and developing sites, and mapping and recording the extent of mineral extraction, and, once a mine has been exhausted, they work with other professionals to restore the land and provide advice as to how waste material should be disposed of.

Throughout the course of their work, Mine Surveyors make a significant contribution to the safety of a mine, and those who work on it, through accurate assessments and careful management of data collection.

Mine Surveyors are usually good at maths and have an interest in geography and the sciences. They also tend to have good organisational and problem-solving skills and enjoy working outdoors as well as indoors.

## University Qualified

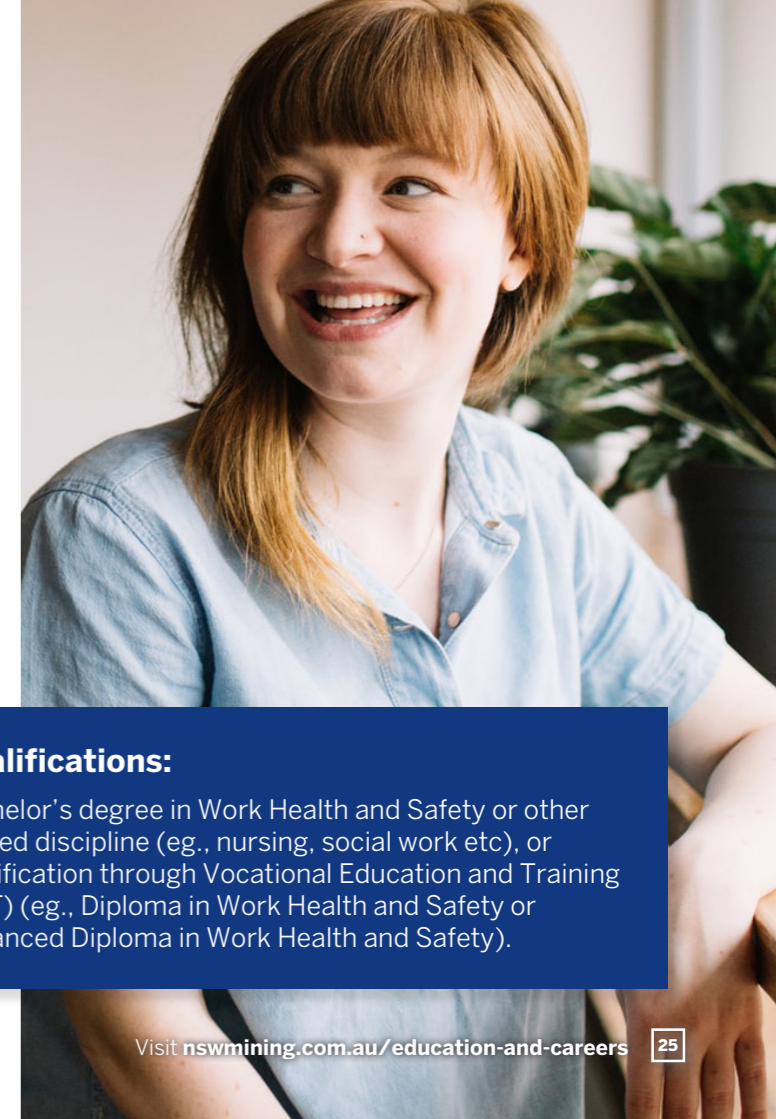
# Work Health and Safety Officer

Work Health and Safety (WHS) Officers are responsible for coordinating health and safety systems in an organisation.

They identify hazards, assess risks to health and safety, and develop and implement appropriate safety strategies and controls and advise on accident prevention and occupational health.

Work Health and Safety Officers often work on-site, providing a go-between from “coal face” to middle management by monitoring WHS compliance and providing technical advice.

Work Health and Safety Officers usually have excellent written and verbal communication skills, excellent interpersonal skills, good administrative skills, high regard for workplace safety and the ability to work well independently as well as in a team.



### Qualifications:

Bachelor's degree in Work Health and Safety or other related discipline (eg., nursing, social work etc), or Certification through Vocational Education and Training (VET) (eg., Diploma in Work Health and Safety or Advanced Diploma in Work Health and Safety).





### Qualifications:

There are a variety of entryways into these roles once you have entered and worked in the mining industry. Depending on the role, required qualifications can range from starting as an equipment operator to various university degrees. Industry experience is required for these important statutory functions and a certificate of competence for the specific role needs to be obtained.

University and/or  
Vocational Education Qualified

## Supervisory and Managerial Roles

Roles including but not limited to general manager, operations manager, mine manager, undermanager, open cut examiner, deputy and crew supervisor have a variety of responsibilities ranging from supervision of a crew through to management of the entire mine and its operations.

The focus of these roles is to ensure the health and safety of the workforce and the efficient operation of the site.

Vocational Education Qualified

## Administration Assistant

Administration Assistants provide administrative and/or secretarial support across a variety of areas of mine's operations and/or to senior managers.

In addition to excellent word processing and IT skills, including knowledge of software applications, Administration Assistants usually have good written and oral communication skills, are well organised and have good time management skills. They also usually pay good attention to detail and have the flexibility and adaptability to manage a number of different tasks at the same time.



### Qualifications:

Certificate IV  
in Business  
Administration





### Qualifications:

Certificate III in Automotive Electrical Technology, completed through an apprenticeship. Pre-vocational training such as Certificate II in Automotive Electrical Technology provides an opportunity to see if being an electrician is a career path of interest.

### Vocational Education Qualified

## Auto Electrician

Automotive Electricians install, maintain and repair electrical wiring and electronic components in motor vehicles and machinery. They dismantle and remove electrical and electronic assemblies and repair, replace, or retrofit new electronic and electrical systems.

With the gradual introduction of digital technologies, sensor technology and automation within the resources sector, the role of automotive electricians will be to install, maintain and diagnose faults on these new or retrofitted electrical systems on vehicles, and provide advice regarding the installation of the items.

Auto Electricians usually have a good eye for detail, an aptitude for maths, good communication skills, and enjoy troubleshooting.

### Vocational Education Qualified

## Boilermaker

Boilermakers, Welders, and other engineering tradespeople build or repair metal products by joining parts using a variety of welding methods either manually or by machine.

These parts are then used to manufacture structures and equipment. These craftsmen may also specialise in certain types of welding such as custom fabrication, pressure vessel welding, pipeline construction welding, structural construction welding, or machinery and equipment repair welding.

Boilermakers usually enjoy doing hands-on, technical tasks and have an interest in computer programmable machinery. They also tend to have a good eye for detail and accuracy.

### Qualifications:

Certificate III in Engineering (Fabrication), preferably through an apprenticeship. A Certificate I in Metals and Engineering may be considered along with existing skills, experience, or other qualifications for qualification through Recognition of Prior Learning (RPL).







### Qualifications:

Technical certification such as Automotive Mechanical Technology (Heavy Vehicle) or Engineering Mechanical Trade (Heavy Plant Mechanic), usually achieved through an apprenticeship of approximately four years.

## Vocational Education Qualified

# Diesel Mechanic

Diesel Mechanics are responsible for testing, diagnosing, repairing, and maintaining diesel motors and the mechanical parts of heavy vehicles such as trucks, buses, plant equipment, tractors, generators, pumps, and drilling rigs.

Diesel mechanics are required to understand the electrical, transmission, fuel injection, suspension, steering and brakes elements of the motors they work with.

Diesel mechanics usually enjoy manual and practical tasks, are able to complete precise and detailed work of high quality, have good hand-eye coordination skills, an eye for detail and good numeracy skills.

## Vocational Education Qualified

# Electrician

Electricians in the mining industry are responsible for installing and maintaining all electrical systems on the mine site. They are also responsible for ensuring that there is a supply of power for all areas at all times including generators, plants and accommodation sites.

Electricians also inspect, isolate, troubleshoot and repair all electrical components related to the successful running of power on the mine site.

Electricians are usually good problem solvers, are able to work independently and as part of a team, and have good communication skills.



### Qualifications:

Technical certification usually through an apprenticeship program.

Most states also require licensing from their state board.





### Qualifications:

Technical certification in Engineering – Mechanical Trade usually through an apprenticeship program.

## Vocational Education Qualified

# Fitter

Fitters, or Fitters and Turners as they are often known as, construct, assemble, manufacture and fit parts of machines. They are also responsible for maintaining and repairing different types of machines.

Fitters interpret diagrams, drawing, specifications and plans to determine suitable material and the correct sequence of work. They operate specialist tools and machinery to cut, grind and shape metal and other materials.

Fitters usually have good concentration skills, strong attention to detail, good hand-eye coordination and an ability to understand and follow safety standards.

## Vocational Education Qualified

# Forklift Operator

Forklift Operators often work in mine site warehouses.

They are responsible for providing materials, equipment, and supplies by managing, receiving, warehousing and distribution services within the mine site.

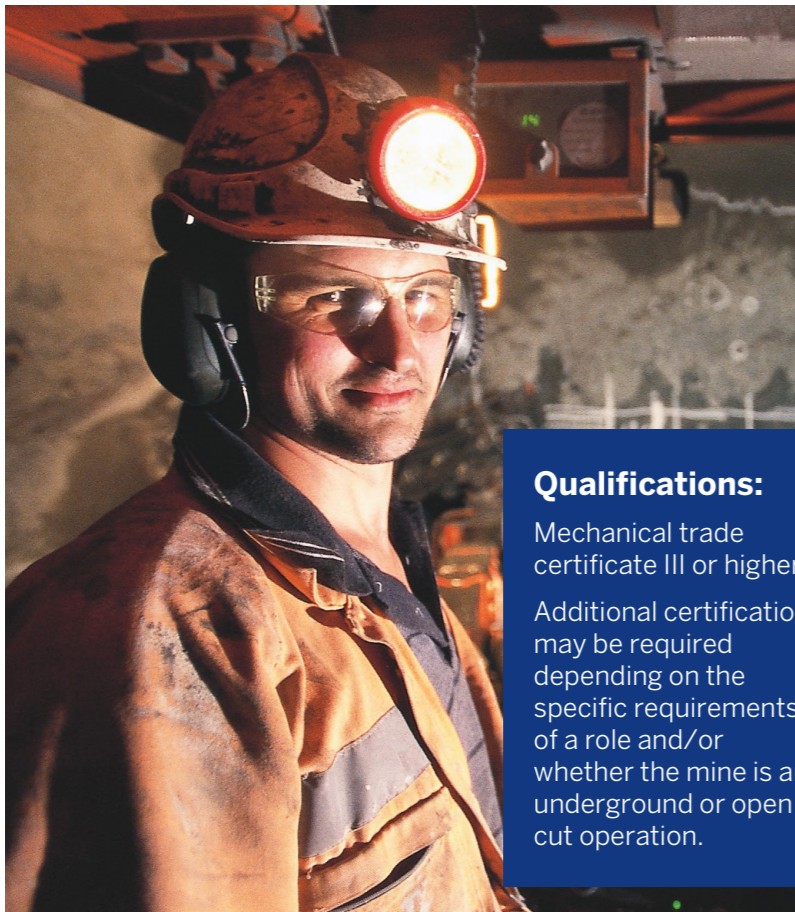
Forklift Operators usually have good hand-eye coordination, good communication skills and a commitment to safe work practices.

### Qualifications:

Forklift license.







### Qualifications:

Mechanical trade certificate III or higher.

Additional certification may be required depending on the specific requirements of a role and/or whether the mine is an underground or open cut operation.

Vocational Education Qualified

## Plant Mechanic

As part of the maintenance team, Plant Mechanics supervise the installation, commissioning, maintenance, and repair of mechanical plant at a mine. They help to achieve the mechanical reliability and safety needed to meet production requirements.

Plant mechanics usually have good analytical and problem-solving skills and are able to work independently and as part of a team. They also have a strong commitment to workplace safety.

Vocational Education Qualified

## Plant Operator

Plant Operators operate plant to excavate earth, ore, and rock; break up pavement, road, rock, and obstructions; move and load earth, rock, and debris; and level, smooth and compact surfaces.

Plant Operators often work in conjunction with other physical and construction labourers to run machinery and carry out designated tasks and duties.

Plant Operators are also sometimes known as backhoe, bulldozer, excavator, grader, or loader operators.

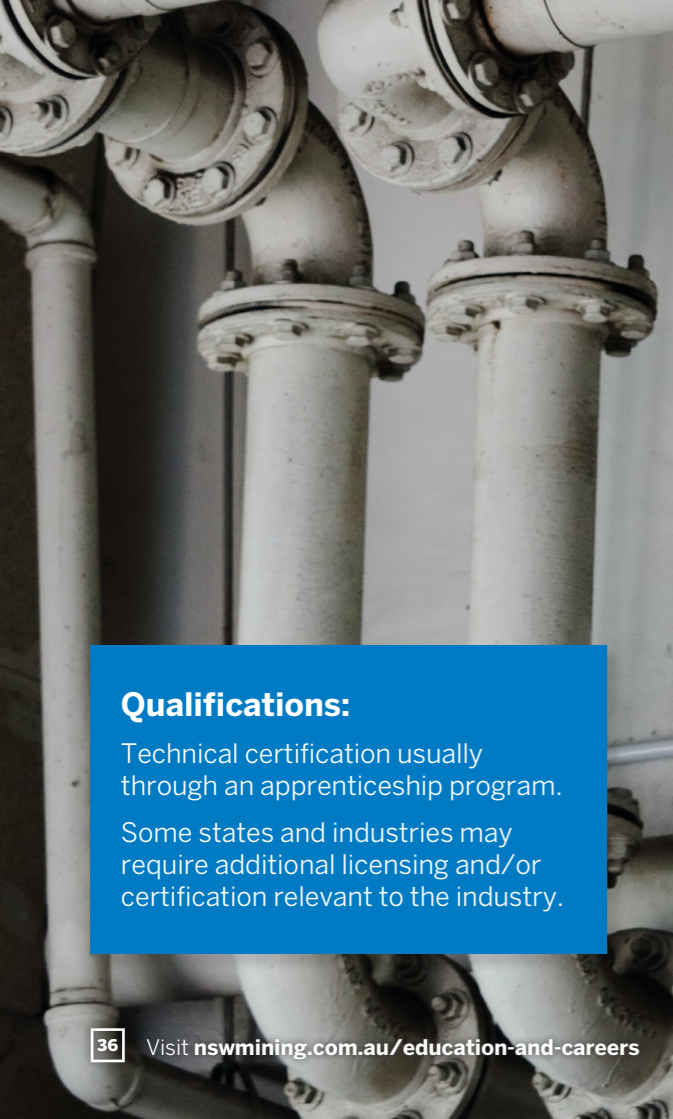
Plant Operators usually have basic mechanical skills to maintain and repair machinery if required, are able to work from drawings, markers, verbal and/or written instructions, have good hand-eye coordination, good communication skills and are able to work with others to complete required tasks.



### Qualifications:

There are a range of qualifications and certifications available through TAFE Institutions and/or Registered Training Organisations that could apply, depending on the specific requirements of the position.





## Vocational Education Qualified

# Plumber

Plumbers install, repair, and maintain pipes, valves, fittings, drainage systems, and fixtures in large scale construction projects, commercial and residential structures. They often work closely with other tradespeople and project management teams.

In addition to supporting mining operations, plumbers also support the mining workforce by providing all the facilities they need. Plumbers play an important role in water management on mine sites, ensure that unwanted water is removed through drainage and that water is distributed to areas where it is needed. They are also responsible for the pipework associated with heating and cooling, carry out repairs on fixtures and pipes, eliminate blockages and service roofs, gutters, and appliances.

Plumbers usually need to be able to read drawings and specifications to determine the layout of plumbing systems and the materials required. They have good mathematics skills, good communication skills and are able to work well with others.

### Qualifications:

Technical certification usually through an apprenticeship program.

Some states and industries may require additional licensing and/or certification relevant to the industry.

## Vocational Education Qualified

# Shotfirer

Shotfirers assemble, position, and detonate explosives to break or dislodge rock and soil.

A quarry and open-cut mining Shotfirer uses larger amounts of explosives to clear masses of earth in open areas. Numerous smaller blasts are often detonated together to create a larger force.

A tunnelling and underground mining Shotfirer uses small amounts of explosives to blast through rock underground. Generally, small blasts are detonated in a sequence to minimise the force and decrease the possibility of unwanted damage.

Shotfirers usually enjoy practical and manual activities, have good basic maths and science knowledge and are willing to adhere to safety requirements.



### Qualifications:

Shotfirers in the mining industry might undertake a Blasting Course offered by a Registered Training Organisation and/or a Certificate II in Resource and Infrastructure Work Preparation.

They are also required to pass a National Police Check.





### Qualifications:

Heavy vehicle license.  
Certificate II in Surface  
Extraction Operations.

## Vocational Education Qualified

# Truck Driver

Truck Drivers are responsible for transporting materials excavated from the mine site, loading, and unloading materials and storage management.

They are also required to keep trucks clean, check tyres, lights, and brakes, check that material has been loaded correctly and securely, and maintain a driver log.

Truck operators usually enjoy the mechanics of operating large vehicles and have a strong commitment to safe practices.

## Vocational Education Qualified

# Warehouse Officer

Warehouse Officers are responsible for providing materials, equipment, and other supplies by directly receiving the goods from suppliers, warehousing or storing them onsite and distributing them as required.

Warehouse Officers usually have good interpersonal skills, are well organised and pay attention to detail.

### Qualifications:

Forklift licence and  
reach truck licence are  
desirable.





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