

What are Occupational Standard (OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standard that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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Introduction

Qualifications Pack-Mining Mate

SECTOR: MINING

SUB-SECTOR: Underground and Open Cast Mines

OCCUPATION: Mining Operations

REFERENCE ID: MIN/Q 0427

ALIGNED TO: NCO-2004/8118.90

A Mining mate ensures end to end management of activities within the allocated mine area

Brief Job Description: Mining mate directly supervises and coordinates the various mine activities and ensures supervising staff, organizing and monitoring work flow for various processes including displaying process understanding, ensuring compliance and team management

Personal Attributes: The individual should have technical knowledge about various mining activities and detailed orientation towards the requisite processes, ensure effective management of the team, sensitivity to problem solving, quick decision making, reading, writing and communication skills and sensitivity towards safety for self and equipment used

Job Details

Qualification Pack Code	MIN/Q 0427		
Job Role	Mining Mate		
Credits(NSQF)	TBD	Version number	1.0
Industry	Mining	Drafted on	15/12/2014
Sub-sector	Underground and Open Cast Mines	Last reviewed on	24/03/2015
Occupation	Mining Operations	Next review date	24/03/2017

Job Role	Mining Mate
Role Description	This role is responsible for supervising the various mining processes such as surface preparation, surveying, drilling, blasting, processing, dumping, over burden removal, tailing, decommissioning and support services etc. and managing operations to fulfil the mining plan by ensuring adherence to work instructions/ standard operating procedures
NSQF level Minimum Educational Qualification Maximum Educational Qualification	5 Class X and Mining Mate Certificate (DGMS) NA
Training (Suggested but not mandatory)	1. Different types of mining activities 2. 5S and Safety 3. Process Documentation
Experience	At least 4- 5 years in the mine
Applicable National Occupational Standards	Compulsory: Click on the hyperlink to read/download the required NOS 1. MIN/ N 0476 (Responsibility for charge and control of the district of the mine) 2. MIN/ N 0477 (Oversee the safety of the mining or quarrying operations & ensures compliance with health and safety regulations) 3. MIN/ N 0478 (Supervise Blasting Operations) 4. MIN/ N0901 (Health and Safety) Optional: Not Applicable
Performance Criteria	As described in the relevant OS units

Definitions

Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Job Role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
OS	OS specify the standard of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standard are applicable both in the Indian and global contexts.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
NOS	NOS are Occupational Standard which apply uniquely in the Indian context.
Qualification Pack Code	Qualification Pack Code is a unique reference code that identifies a qualification pack.
Qualification Pack	Qualification Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualification Pack is assigned a unique qualification pack code.
Unit Code	Unit Code is a unique identifier for an Occupational Standard , which is denoted by an 'N'
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
Organizational Context	Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills or Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.

Acronyms	Keywords /Terms	Description
	SCMS	Skill council for Mining Sector
	NOS	National Occupational Standard
	NSQF	National Skill Qualification Framework
	NVEQF	National Vocational Educational Qualification Framework
	NVQF	National Vocational Qualification Framework
	OS	Occupational Standard
	PC	Performance Criteria
	QP	Qualification Pack
	SSC	Sector Skill Council

National Occupational Standard



Overview

This unit is about a mine supervisor being able to oversee/co-ordinate all activities involved mineral production at point of extraction, in accordance with statutory and company requirements

MIN/ N0476 Responsibility for charge and control of the district of the mine

National Occupational Standard	Unit Code	MIN/ N0476
	Unit Title (Task)	Responsibility for charge and control of the district of the mine
	Description	This OS unit is about being able to oversee/co-ordinate all activities involved mineral production at point of extraction, in accordance with statutory and company requirements. This includes monitoring environmental conditions to ensure that gases, hazardous substances, dusts etc. do not exceed statutory/company limits, ensuring that all associated equipment and plant is inspected/maintained in accordance with manufacturers'/organisational specifications and equipment/plant faults are dealt with, ensuring that the operational cycle is carried out in compliance with statutory/organisational requirements, and protecting staff in the area of responsibility
	Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Protect personnel working on or in vicinity of mineral production faces • Oversee mineral extraction • Oversee inspection and maintenance of mineral production faces and associated equipment
Performance Criteria(PC) w.r.t. the Scope		
Element	Performance Criteria	
Protect personnel working on or in vicinity of mineral production faces	<p>PC1. Oversee end to end mining operations</p> <p>PC2. If he finds any person in a place other than the one assigned to him, may communicate the same to that person, and shall forthwith report the matter</p> <p>PC3. Observe if any inexperienced person is employed on any work except under the supervision of an experienced person and report the same to the superior</p> <p>PC4. Report to superior official any deficiency in timber, appliances and other necessities required for the safe working of the district</p> <p>PC5. Take care that any dangerous operation is carried out with due precaution, and in such cases shall be present throughout whenever any work of clearing falls of ground and setting of supports therein is being carried out</p> <p>PC6. Not leave the district under his charge until the end of the shift or until relieved by a duly appointed substitute</p> <p>PC7. If the mine is worked by a continuous succession of shifts, shall, before leaving his district, confer with the sirdar or competent person succeeding him, and shall acquaint him with all matters requiring personal attention and give such other information as may be necessary for the safety of his district and of the persons employed therein</p> <p>PC8. Monitor, record and control the number of persons in respective area of responsibility</p> <p>PC9. Observe that staff working within the area of responsibility recognizes when a hazardous situation has occurred and know appropriate action to take to inform others without prejudicing safety of self.</p>	

MIN/ N0476 Responsibility for charge and control of the district of the mine

	<p>PC10. Carry out checks on competency of persons employed in mineral extracting</p> <p>PC11. Communicate staff to positions appropriate to prevent contact with moving plant/equipment/machine parts</p> <p>PC12. Observe the usage of appropriate personal protective equipment</p> <p>PC13. Check to ensure personnel are not exposed to excessive work hazards (e.g. vibration, hazardous substances)</p> <p>PC14. Observe that manual handling tasks are minimised by the use of mechanical lifting devices.</p> <p>PC15. Confirm checks on safety devices have been carried out</p> <p>PC16. Identify problems (e.g. obstructions, geological movements, mechanical or service failure) and report to appropriate person/s for advice or repair/remedial action</p>
Oversee mineral extraction	<p>PC17. Monitor the operational cycle and all relevant operations within area of responsibility / specific district</p> <p>PC18. Check if the material needs for the production unit are met using material transport system and report in case of any inconsistencies</p> <p>PC19. Co-ordinate face operations to maintain true line of advance or retreat to prevent excessive face creep.</p> <p>PC20. Oversee the immediate advance and setting of support (temporary/permanent) to combat poor roof conditions/ face conditions and supervise the application of the support rules</p> <p>PC21. Check the dressing of exposed ground</p> <p>PC22. Co-ordinate work operations to ensure that each on going activity does not affect the activities, health and safety of others within your sphere of responsibility.</p> <p>PC23. Complete records/reports according to legislative requirements and organisational procedures</p>
Oversee inspection and maintenance of mineral production faces and associated equipment	<p>PC24. Check that all haulage, storage, purification and distribution work is performed efficiently and in compliance with statutory and other regulations;</p> <p>PC25. Monitor that all travelling roadways to, and working places in, his district are made and kept secure.</p> <p>PC26. Check to ensure fire hydrants and/or other firefighting equipment is correctly sited, installed, undamaged, in date, fit for purpose in accordance with regulatory requirements and organisational procedures and operational requirements</p> <p>PC27. Implement isolation and lock-off procedures for plant/equipment as required for adjustments or routine or forced maintenance</p> <p>PC28. Oversee planned maintenance of respirable / combustible dust suppression equipment</p> <p>PC29. Confirm that all safety devices fitted to mineral extraction and clearance system/s are in place and operational</p> <p>PC30. Confirm that all service pipes, hoses, high tension cables and trailing cables are identified, colour coded, stored correctly and have appropriate safety devices attached</p> <p>PC31. Check that services systems (e.g. cable handling devices) are supported, free moving and have sufficient storage to allow safe face advance/retreat</p>

MIN/ N0476 Responsibility for charge and control of the district of the mine

	<p>PC32. Confirm that girder cradles/integrated working platforms associated with setting supports are available and in good order</p> <p>PC33. Confirm that support installations/extraction systems/materials handling/mineral processing machinery/equipment are serviced/maintained in accordance with manufacturers/company procedures</p> <p>PC34. Check that suitable and sufficient repairs have been carried out safely on damaged/faulty items of mineral extraction equipment</p> <p>PC35. Carry out organisational procedures for defects found that cannot be rectified immediately.</p>
Knowledge and Understanding (K)	
<p>A. Regulatory</p> <p>context (knowledge of safety guidelines specified by Director General of Mine Safety (DGMS))</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. Different types of mines and detail of the mine he is working in</p> <p>KA2. Mine Organisation, time keeping, need for discipline and punctuality</p> <p>KA3. Benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and Hygiene</p> <p>KA4. Standing orders in force at the mine. Safety in the vicinity of machinery</p> <p>KA5. Shot-firing and Safety regulations. How and where to take shelter</p> <p>KA6. Duties of workmen</p> <p>KA7. Provision of wages, working hours and accident compensation as per Mines act</p> <p>KA8. Knowledge of mining safety procedures</p> <p>KA9. Impact of violation of safely procedures</p>
<p>B. Organizational</p> <p>Context (Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. relevant mining standards and procedures followed in the company in detail</p> <p>KB2. statutory requirements and organisational procedures for the operation of mineral production faces</p> <p>KB3. relevant approved codes of practice and guidance for working safely on production faces</p> <p>KB4. organisational procedures in the event of problems/repairs occurring that are not immediately rectifiable</p> <p>KB5. the reporting/recording procedures for inspections carried out on mineral production systems under regulatory requirements or organisational procedures.</p> <p>KB6. 5S and safety norms being practiced in the organization</p>

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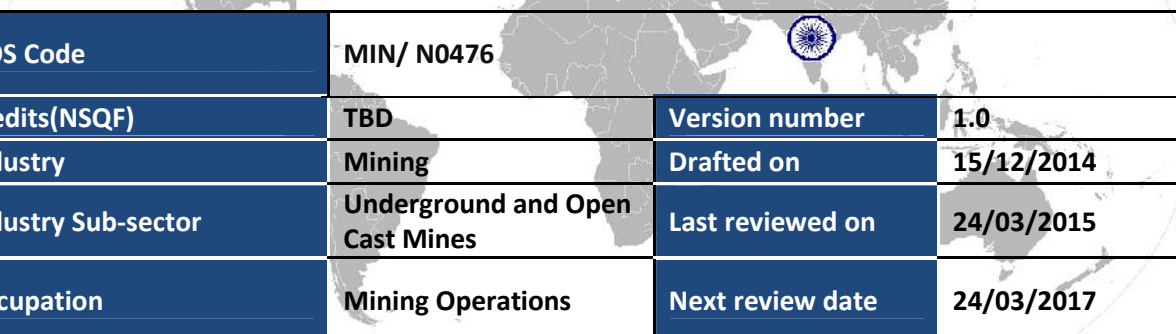
C. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KC1. different types of mining processes used</p> <p>KC2. statutory requirements and operational procedures for strata support</p> <p>KC3. statutory requirements and organisational procedures for the inspection and maintenance of mineral extracting equipment</p> <p>KC4. manufacturers' instructions and operational procedures for the use of plant and equipment in your area of responsibility</p> <p>KC5. an appreciation of the main principles of health and safety and environmental legislation and regulations relevant to mines</p> <p>KC6. Industrial Standards relevant to area of responsibility</p> <p>KC7. the principal activities involved in mineral extraction</p> <p>KC8. types, features, advantages and limitations of mineral extracting systems</p> <p>KC9. principals and methods to keep production faces aligned with the survey/plan</p> <p>KC10. the main functions within the operational cycle</p> <p>KC11.type, size and gauge of support systems used in area of responsibility</p> <p>KC12.physical indications of excessive loads on supports (e.g. when rock bolts are used, checks for tell-tale readings and action to take when trigger points have been reached)</p> <p>KC13.manufacturers' and organisational instructions relating to the use of equipment and tools provided for mineral extraction</p> <p>KC14.manufacturers' and organisational instructions relating to the storage, maintenance and servicing of equipment and tools provided for mineral extraction</p> <p>KC15.plant/equipment isolation/lock-off policies and procedures</p> <p>KC16.maintenance procedures for dust suppression systems</p> <p>KC 17.various SOP followed in the organization</p> <p>KC18. various occupational diseases/ hazards that are likely in the given work set up</p>
Skills (S) [Optional]	
Element	Skills
Element A. Core Skills/ Generic Skills	<p>Writing Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. read equipment manuals and process documents to understand the equipment and processes better</p> <p>SA2. read internal information memos send by internal customers (other functions within the organization)</p> <p>Reading Skills</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. document information from the sketches and engineering drawings</p> <p>SA4. note measurements, equipment panel readings for various process parameters in the required reporting formats</p> <p>SA5. understand and analyse the available data about the site</p> <p>Oral Communication (Listening and Speaking skills)</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. discuss task lists, schedules, and work-loads with the operative co-workers</p>


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	<p>SA7. answer internal customers to clarify the nature of the problem and make a diagnosis</p> <p>SA8. discuss task lists, schedules and activities with the operators and line leaders</p> <p>SA9. effectively communicate with the team members , question the operator/ in order to understand the nature of the problem and to clarify queries</p> <p>SA10. attentively listen with full attention and comprehend the information given by the speaker</p>
B. Professional Skills	Plan and Organize
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. plan and organize the work order and jobs received from the internal customers</p> <p>SB2. plan and organize the design documents received from internal customers</p> <p>SB3. organize all process/ equipment manuals so that sorting out information is fast</p>
	Analytical Thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB4. use common sense and make judgments during day to day basis</p> <p>SB5. use analytical skills to identify and resolve problems or defects in the working of various processes</p> <p>SB6. use intuition to detect any potential problems which could arise</p> <p>SB7. carefully run the mining operations in case of delays</p>
	Problem Solving and Decision making
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB8. detect and resolve the problems occurring on a day to day tasks</p> <p>SB9. consider all the available information, analyse and make effective decisions to ensure smooth running of the mining operations regularly as well as during emergency conditions</p>

MIN/ N0476 Responsibility for charge and control of the district of the mine

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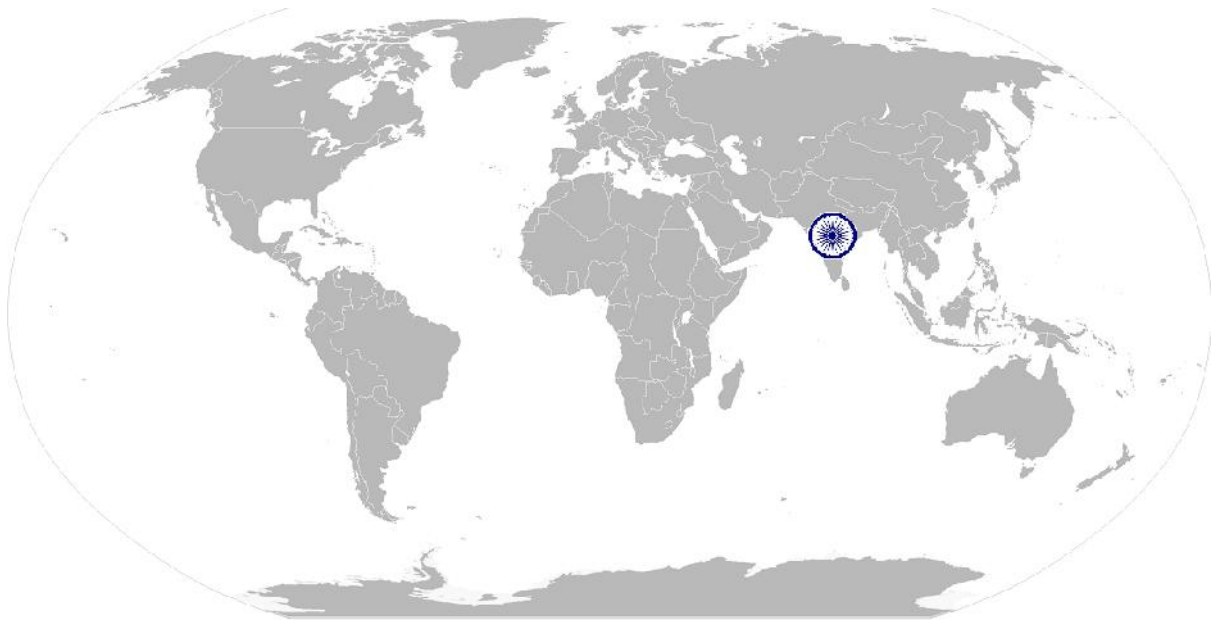


NOS Code	MIN/ N0476 		
Credits(NSQF)	TBD	Version number	1.0
Industry	Mining	Drafted on	15/12/2014
Industry Sub-sector	Underground and Open Cast Mines	Last reviewed on	24/03/2015
Occupation	Mining Operations	Next review date	24/03/2017

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MIN/ N0477 Oversee the safety of the mining or quarrying operations & ensures compliance with health and safety regulations

National Occupational Standard



Overview

This unit is about being able to monitor all the major hazards within the mine and apply control measures according to organisational requirements within the area and limits of their responsibilities. It will include observation and testing, carrying out procedures and subsequently recording/reporting

MIN/ N0477 Oversee the safety of the mining or quarrying operations & ensures compliance with health and safety regulations

National Occupational Standard	Unit Code	MIN/ N0477
	Unit Title (Task)	Oversee the safety of the mining or quarrying operations & ensures compliance with health and safety regulations
	Description	This unit is about being able to monitor all the major hazards within the mine and apply control measures according to organisational requirements within the area and limits of their responsibilities. It will include observation and testing, carrying out procedures and subsequently recording/reporting
	Scope	This unit/task covers the following: <ul style="list-style-type: none"> • Carry out Monitoring and analysis • Protection and sustenance of a safe working environment
	Performance Criteria(PC) w.r.t. the Scope	
	Element	Performance Criteria
	Carry out monitoring and analysis	PC1. Make such inspection and reports as are required by the various applicable regulations, and in making such examination, shall pay particular attention to edges of the goaf, if any, for checking supports PC2. In case, any dangerous place is observed during the course of inspections or if any danger at a place where work persons are employed is reported, shall, if the danger cannot be removed forthwith withdraw all persons from such place and shall not leave the place until the danger has been removed in his presence or all approaches to the place have been fenced off so as to prevent persons from inadvertently entering such place PC3. If any accumulation of inflammable or noxious gases is found, shall carry out the provisions of regulations 141 and shall not remove such accumulation until he has received instructions in that behalf from superior official PC4. On receipt of information of an accident to any person in his district, proceed at once to the place of accident, inspect the place and, if required, supervise the rescue operations, and shall report or send notice of the accident to the mine manager PC5. Complete records/reports according to legislative requirements and organisational procedures
	Protection and Sustenance of a safe working environment	PC6. Check that equipment provided to prevent frictional ignitions / drain gas are in place and working in accordance with statutory, company and manufacturers specifications PC7. Check ventilation system is operational within organisational limits PC8. Check that the gas/smoke monitoring/detection equipment is correctly positioned and operational PC9. Operate and interpret readings from gas detection/monitoring equipment PC10. Check geological conditions are within normal operational parameters PC11. Monitor the operations of dust suppression/neutralisation equipment Implement action to address any shortcomings arising in the ventilation

MIN/ N0477 Oversee the safety of the mining or quarrying operations & ensures compliance with health and safety regulations

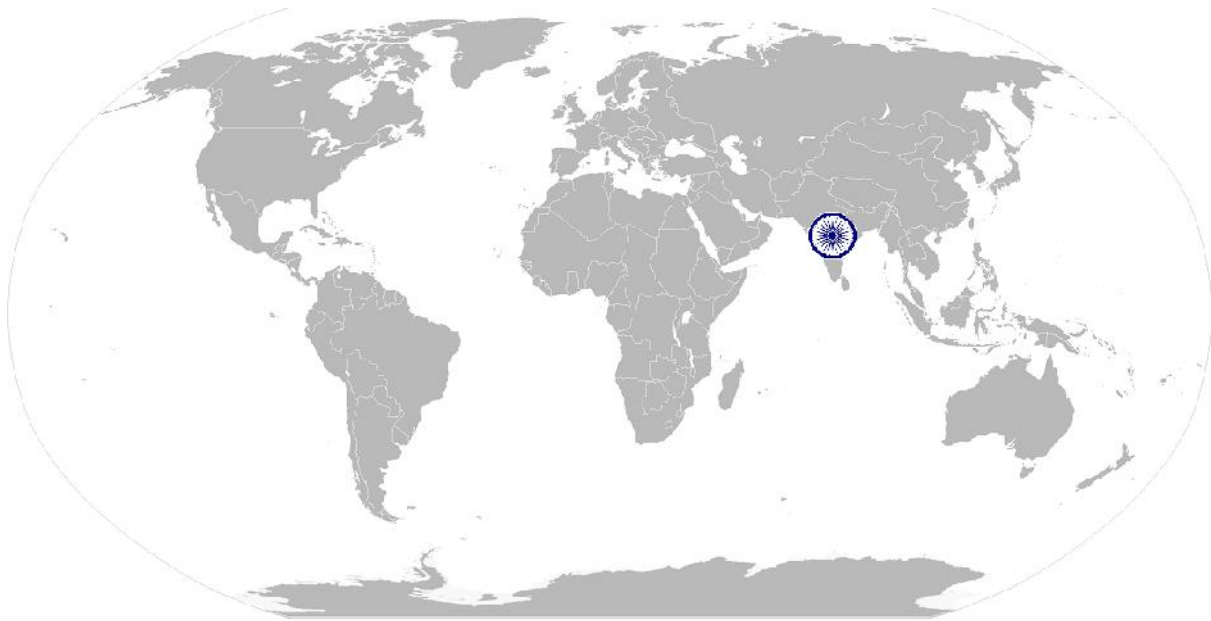
	<p>system which may adversely affect the quality of the mine environment within area of responsibility</p> <p>PC12. Communicate environmental problems/shortfall in quality of the mine environment outside your limits of responsibility to the relevant person/s according to organisational procedures</p>
Knowledge and Understanding (K)	
<p>A. Regulatory</p> <p>context (knowledge of safety guidelines specified by Director General of Mine Safety (DGMS))</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. Different types of mines and detail of the mine he is working in</p> <p>KA2. Mine Organisation, time keeping, need for discipline and punctuality</p> <p>KA3. Benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and Hygiene</p> <p>KA4. Standing orders in force at the mine. Safety in the vicinity of machinery</p> <p>KA5. Shot-firing and Safety regulations. How and where to take shelter</p> <p>KA6. Duties of workmen</p> <p>KA7. Provision of wages, working hours and accident compensation as per Mines act</p> <p>KA8. Knowledge of mining safety procedures</p> <p>KA9. Impact of violation of safely procedures</p>
<p>B. Organizational</p> <p>Context (Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. relevant mining standards and procedures followed in company in detail</p> <p>KB2. knowledge of processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution</p> <p>KB3. quality norms and standards prescribed in the Quality Manual by the organization for painting</p> <p>KB4. 5S and Safety norms practiced in the organization</p>
<p>B. Technical</p> <p>Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KC1. Impact of rises and falls in air temperature on the physical/atmospheric working conditions below ground (heat, humidity, condensation, saturation)</p> <p>KC2. The effect a sharp rise or fall in barometric pressure will have on the behaviour of gases below ground</p> <p>KC3. The gases indigenous/imported to a mine that may have an adverse effect on humans</p> <p>KC4. For such gases encountered whether they are toxic, suffocating and/or explosive</p> <p>KC5. For each gas encountered in your area of responsibility, their physiological effect on humans</p> <p>KC6. The dusts/hazardous substances indigenous/imported to a mine that may have an adverse effect on humans</p> <p>KC7. For such dusts/hazardous substances encountered whether they are explosive, carcinogenic, harmful, irritant, corrosive or toxic</p> <p>KC8. Ground movement/changes in strata conditions that can affect integrity</p>

MIN/ N0477 Oversee the safety of the mining or quarrying operations & ensures compliance with health and safety regulations

	<p>of the mine/area, and corrective/remedial/reporting procedures to be followed</p> <p>KC9. Personal protective equipment for the work area, its correct use and maintenance</p> <p>KC10. Methods used to measure airflow and corrective actions to be taken if below required levels</p> <p>KC11. The monitoring equipment for detecting the inception of spontaneous combustion and/or fire</p> <p>KC12. Action to be taken should personnel be exposed to atmospheric conditions/gases/dusts/hazardous substances in excess of prescribed limits (including reports)</p> <p>KC13. Procedures for installation of additional ventilation equipment to dilute and remove accumulations of gases, including if applicable de-gassing</p>
Skills (S) [Optional]	
Element	Skills
Element A. Core Skills/ Generic Skills	Writing Skills
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. read equipment manuals and process documents to understand the equipment and processes better</p> <p>SA2. read internal information memos send by internal customers (other functions within the organization)</p>
	Reading Skills
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. document information from the sketches and engineering drawings</p> <p>SA4. note measurements, equipment panel readings for various process parameters in the required reporting formats</p> <p>SA5. understand and analyse the available data about the site</p>
	Oral Communication (Listening and Speaking skills)
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. discuss task lists, schedules, and work-loads with the operative co-workers</p> <p>SA7. answer internal customers to clarify the nature of the problem and make a diagnosis</p> <p>SA8. discuss task lists, schedules and activities with the operators and line leaders</p> <p>SA9. effectively communicate with the team members , question the operator/ in order to understand the nature of the problem and to clarify queries</p> <p>SA10. attentively listen with full attention and comprehend the information given by the speaker</p>
B. Professional Skills	Plan and Organize
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. plan and organize the work order and jobs received from the internal customers</p> <p>SB2. plan and organize the design documents received from internal customers</p> <p>SB3. organize all process/ equipment manuals so that sorting out information is fast</p>

MIN/ N0477 Oversee the safety of the mining or quarrying operations & ensures compliance with health and safety regulations

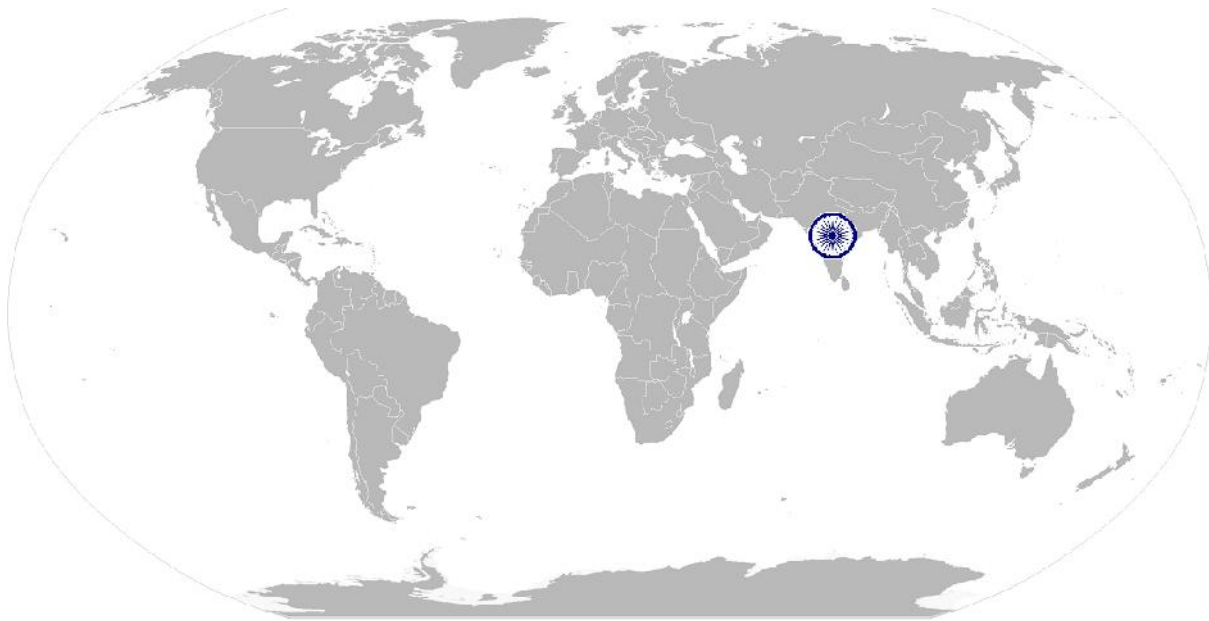
	Analytical Thinking
	The user/individual on the job needs to know and understand how to:
	SB4. use common sense and make judgments during day to day basis
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	SB6. use intuition to detect any potential problems which could arise
	SB7. carefully run the mining operations in case of delays
	Problem Solving and Decision making
	The user/individual on the job needs to know and understand how to:
	SB8. detect and resolve the problems occurring on a day to day tasks
	SB9. consider all the available information, analyse and make effective decisions to ensure smooth running of the mining operations regularly as well as during emergency conditions



MIN/ N0477 Oversee the safety of the mining or quarrying operations & ensures compliance with health and safety regulations

NOS Version Control

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Credits(NSQF)	TBD	Version number	1.0
Industry	Mining	Drafted on	15/12/2014
Industry Sub-sector	Underground and Open Cast Mines	Last reviewed on	24/03/2015
Occupation	Mining Operations	Next review date	24/03/2017



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National Occupational Standard



Overview

This unit is designed for the candidate to demonstrate competence to organise and supervise all work involving the use of explosives. It covers the day-to-day use of explosives, and the activities of those involved in blast design, shotfiring, explosives storage and transportation

MIN/ N0478 Supervise Blasting Operations

National Occupational Standard

Unit Code	MIN/ N0478
Unit Title (Task)	Supervising Blasting Operations
Description	This unit is designed for the candidate to demonstrate competence to organise and supervise all work involving the use of explosives. It covers the day-to-day use of explosives, and the activities of those involved in blast design, shot firing, explosives storage and transportation
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Supervise the preparation for the blast • Supervise firing of the blast • Confirm Conclusion of the blast
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Supervise the preparation for the blast	<p>PC1. Check that the blast specification(s) are according to approved procedures and practices</p> <p>PC2. Check that the changes to the blast specifications are in line with the defined requirements</p> <p>PC3. Make arrangements for the delivery and receipt of sufficient, suitable materials to meet the blast specification.</p> <p>PC4. Maintain the adequate security measures for on-site explosives are and ensure that the records are completed</p> <p>PC5. Monitor the timely issue the explosives to relevant person(s) in accordance to approved practices and procedures</p> <p>PC6. Carry out the checks to ensure activities involving the use, transportation and storage of explosives or explosive substances are carried out by relevant person(s)</p> <p>PC7. Make the arrangements to ensure environmental controls are set up and monitored to meet local requirements</p> <p>PC8. Identify and establish the blast sites according to approved procedures and practices.</p> <p>PC9. Identify the potential risks and appropriate action taken to eliminate or minimise.</p> <p>PC10. Identify and communicate the requirements for safety and security of the blast operations</p>
Supervise firing of the blast	<p>PC11. Monitor the establishment of the checks and their conduct to confirm the blast site conforms to the blast specification.</p> <p>PC12. Check that the Limits of the danger zone are confirmed and approved according to approved procedures and practices</p> <p>PC13. Check that the Tools and equipment are approved as safe and suitable to meet the blast specification</p> <p>PC14. Check that the Arrangements are made to ensure the removal of surplus explosives and the disposal of packaging.</p> <p>PC15. Check that the Position and form of the blast initiation site are confirmed and approved according to site operational procedures</p>

MIN/ N0478 Supervise Blasting Operations

	<p>PC16. Check that the Checks are carried out to confirm warning and security arrangements are in place and operating according to approved procedures and practices</p> <p>PC17. Check that the Procedures are implemented to confirm evacuation of the danger area, and that visitors and contractors are in designated areas.</p> <p>PC18. Review the work of o the Shotfirer to blast at an agreed time is given when operating and environmental conditions are confirmed as suitable, according to approved procedures and practices</p>
Confirm Conclusion of the blast	<p>PC19. Maintain and store records in accordance with operational and organisational rules and procedures</p> <p>PC20. Carry out the post-blast inspection according to approved procedures and practices</p> <p>PC21. Ensure the approval of the post-blast remedial work according to operational procedures</p> <p>PC22. On completion of the blasting operation, ensure the removal of warning and security arrangements, and signal that the area is returned to normal operational status, according to approved procedures and practices</p> <p>PC23. Monitor and record the overpressure and ensure their conformance to local requirements</p> <p>PC24. Monitor the site-specific shot firing rules and procedures and provide the relevant recommendations</p>
Knowledge and Understanding (K)	
A. Regulatory context (knowledge of safety guidelines specified by Director General of Mine Safety (DGMS))	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. Different types of mines and detail of the mine he is working in</p> <p>KA2. Mine Organisation, time keeping, need for discipline and punctuality</p> <p>KA3. Benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and hygiene</p> <p>KA4. Standing orders in force at the mine. Safety in the vicinity of machinery</p> <p>KA5. Shot-firing and Safety regulations. How and where to take shelter</p> <p>KA6. Duties of workmen</p> <p>KA7. Provision of wages, working hours and accident compensation as per Mines act</p> <p>KA8. Knowledge of mining safety procedures</p> <p>KA9. Impact of violation of safely procedures</p>
B. Organizational Context (Knowledge of the company /	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. relevant HR Policies and Processes followed by the organization</p> <p>KB2. knowledge of processes like Procurement, Store management, inventory</p>

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organization and its processes)	management, quality management and key contact points for query resolution KB3. 5S and Safety norms practiced in the organization
C. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KC1. Understanding of controlling, recording and analysis of ground vibration/air over pressure</p> <p>KC2. Understanding of recording aspects of blast performance</p> <p>KC3. Understanding of responsibilities under the Health and Safety Statutory Requirements</p> <p>KC4. Site Shotfiring rules</p> <p>KC5. Relevant legislation and standards</p> <p>KC6. Types and use of communication systems</p> <p>KC7. Approved procedures and practices in the context of the operations, the work activity and the workplace environment (organisational; environmental; regulatory; emergency; operational)</p> <p>KC8. Legislation in relation to blasting in the situation and context (e.g. quarry, mine, tunnel)</p> <p>KC9. Safe and secure storage of explosive substances</p> <p>KC10. Maintenance of Explosive storage facilities</p> <p>KC11. Recording of explosives/explosive materials in storage and use</p> <p>KC12. Transportation methods for explosive substances</p> <p>KC13. Blasting specifications; their purpose content and interpretation</p> <p>KC14. Emergency procedures</p> <p>KC15. External Third party agencies regulations</p> <p>KC16. Practical requirements of HSE and/or Local Authority licences</p> <p>KC17. Recognition, handling and safe disposal of deteriorated, waste, recovered and surplus explosive materials</p> <p>KC18. The duties and responsibilities of the blasting crew</p> <p>KC19. Site security in relation to blasting operations</p> <p>KC20. How to interpret the blast specification</p> <p>KC21. Reasons for post blast slippage of ground and its effects</p> <p>KC22. Effects of adverse environmental and site conditions</p> <p>KC23. Causes of and dangers from flyrock</p> <p>KC24. Public roads and rights of way</p> <p>KC25. The relevant persons, as appropriate to site, associated with the activity</p> <p>KC26. The appropriate environmental controls</p> <p>KC27. Types of detonating devices and explosives used</p> <p>KC28. Types of approved circuit testers for use in surface operations</p> <p>KC29. Blast patterns</p> <p>KC30. Types and uses of shotfiring tools and equipment</p> <p>KC31. Determination of danger zones</p> <p>KC32. Drilling methods and equipment</p> <p>KC33. Methods of production and interpretation of survey information</p> <p>KC34. Setting up, aligning and measuring drill holes</p> <p>KC35. Recognition of relevant information from drill holes and drilling records</p> <p>KC36. Recognition of natural joints, cavities and other geological features</p> <p>KC37. Hazards associated with misfires and unexploded charges</p> <p>KC38. Recognition of misfires</p>

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	<p>KC39.Reasons for post blast slippage of ground and its effects</p> <p>KC40.Dangerous effects of fumes created by blasting</p> <p>KC41.Site examination after firing</p>
Skills (S) [Optional]	
Element	Skills
Element A. Core Skills/ Generic Skills	Writing Skills
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. read equipment manuals and process documents to understand the equipment and processes better</p> <p>SA2. read internal information memos send by internal customers (other functions within the organization)</p>
	Reading Skills
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. document information from the sketches and engineering drawings</p> <p>SA4. note measurements, equipment panel readings for various process parameters in the required reporting formats</p> <p>SA5. understand and analyse the available data about the site</p>
	Oral Communication (Listening and Speaking skills)
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. discuss task lists, schedules, and work-loads with the operative co-workers</p> <p>SA7. answer internal customers to clarify the nature of the problem and make a diagnosis</p> <p>SA8. discuss task lists, schedules and activities with the operators and line leaders</p> <p>SA9. effectively communicate with the team members , question the operator/ in order to understand the nature of the problem and to clarify queries</p> <p>SA10. attentively listen with full attention and comprehend the information given by the speaker</p>
B. Professional Skills	Plan and Organize
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. plan and organize the work order and jobs received from the internal customers</p> <p>SB2. plan and organize the design documents received from internal customers</p> <p>SB3. organize all process/ equipment manuals so that sorting out information is fast</p>
	Analytical Thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB4. use common sense and make judgments during day to day basis</p> <p>SB5. use analytical skills to identify and resolve problems or defects in the working of various processes</p> <p>SB6. use intuition to detect any potential problems which could arise</p> <p>SB7. carefully run the mining operations in case of delays</p>

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Problem Solving and Decision making

The user/individual on the job needs to know and understand how to:

SB8. detect and resolve the problems occurring on a day to day tasks

SB9. consider all the available information, analyse and make effective decisions to ensure smooth running of the mining operations regularly as well as during emergency conditions



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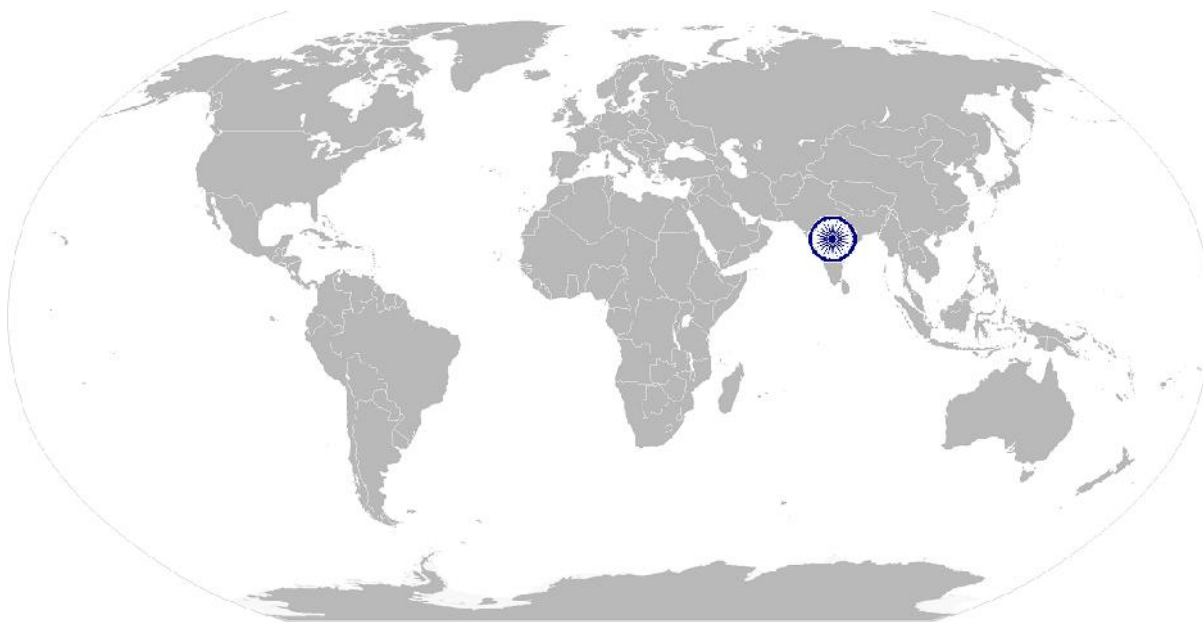
NOS Version Control



NOS Code	MIN/ N0478		
Credits(NSQF)	TBD	Version number	1.0
Industry	Mining	Drafted on	15/12/2014
Industry Sub-sector	Underground and Open Cast Mines	Last reviewed on	24/03/2015
Occupation	Mining Operations	Next review date	24/03/2017

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National Occupational Standard



Overview

This unit is about health and safety measures critical in mines

MIN/N0901 Health and Safety

Unit Code	MIN/N 0901
Unit Title (Task)	Health and Safety
Description	This unit is about health and safety measures critical in mines
Scope	This OS unit/task covers the following: <ul style="list-style-type: none"> Health and safety measures critical in mines
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Safety, Security and Administrative	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Comply with occupational health and safety regulations adopted by the employer.</p> <p>PC2. Follow mining operations procedures with respect to materials handling and accidents</p> <p>PC3. Follow the correct safety steps in case of accident or major failure</p> <p>PC4. Comply with safety regulations and procedures in case of fire hazard.</p> <p>PC5. Operate various grades of fire extinguishers.</p> <p>PC6. Work responsibly and as safe and careful as possible so as not to put the health and safety of self or others at risk, including members of the public</p> <p>PC7. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS.</p> <p>PC8. Deal with misfires as per statutory requirement</p> <p>PC9. Identify characteristics of post-blast fumes and take necessary precautions.</p> <p>PC10. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection</p> <p>PC11. Follow the manufacturer's instructions for care and safe operation of the equipment.</p>

MIN/N0901 Health and Safety

Knowledge and Understanding (K)	
A. Regulatory context (knowledge of safety guidelines specified by Director General of Mine Safety (DGMS))	<p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"> KA1. Benching in quarries, Dressing of overhangs, undercuts, Fencing KA2. First aid and Hygiene KA3. Code of traffic in specific areas of mine. Significance of fences KA4. Standing orders in force at the mine. Safety in the vicinity of machinery KA5. Shot-firing and Safety regulations. How and where to take shelter KA6. Knowledge of mining safety procedures KA7. Impact of violation of safety procedures KA8. Locally prepared Emergency Preparedness / Disaster Management Plan. KA9. Environmental impact of mining KA10. Sources of dust, noise and vibration and measures to minimise KA11. Hazardous material safety and security rules and regulations as prescribed by DGMS KA12. Code of practice for safe handling and transport of dangerous material and heavy equipment.

NOS Version Control

NOS Code	MIN/N 0901		
Credits(NSQF)	TBD	Version number	1.0
Sector	Mining	Drafted on	15/12/2014
Sub-sector	Underground and Open Cast Mines	Last reviewed on	24/03/2015
Occupation	Mining Operations	Next review date	24/03/2017



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CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Mining Mate

Qualification Pack MIN/Q0427

Sector Skill Council Mining

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

				Marks Allocation	
		Total Mark (100)	Out Of	Theory	Skills Practical
1. MIN/ N 0476 (Responsibility for charge and control of the district of the mine)	PC1. Oversee end to end mining operations	25	0.5	0.25	0.25
	PC2. If he finds any person in a place other than the one assigned to him, may communicate the same to that person, and shall forthwith report the matter		0.5	0.25	0.25
	PC3. Observe if any inexperienced person is employed on any work except under the supervision of an experienced person and report the same to the superior		0.5	0.25	0.25
	PC4. Report to superior official any deficiency in timber, appliances and other necessities required for the safe working of the district		0.5	0.25	0.25

	PC5. Take care that any dangerous operation is carried out with due precaution, and in such cases shall be present throughout whenever any work of clearing falls of ground and setting of supports therein is being carried out		0.5	0.25	0.25
	PC6. Not leave the district under his charge until the end of the shift or until relieved by a duly appointed substitute		0.5	0.25	0.25
	PC7. If the mine is worked by a continuous succession of shifts, shall, before leaving his district, confer with the sirdar or competent person succeeding him, and shall acquaint him with all matters requiring personal attention and give such other information as may be necessary for the safety of his district and of the persons employed therein		0.5	0.25	0.25
	PC8. Monitor, record and control the number of persons in respective area of responsibility		0.5	0.25	0.25
	PC9. Observe that staff working within the area of responsibility recognizes when a hazardous situation has occurred and know appropriate action to take to inform others without prejudicing safety of self.		0.5	0.25	0.25
	PC10. Carry out checks on competency of persons employed in mineral extracting		0.5	0.25	0.25
	PC11. Communicate staff to positions appropriate to prevent contact with moving plant/equipment/machine parts		0.5	0.25	0.25
	PC12. Observe the usage of appropriate personal protective equipment		0.5	0.25	0.25
	PC13. Check to ensure personnel are not exposed to excessive work hazards (e.g. vibration, hazardous substances)		0.5	0.25	0.25
	PC14. Observe that manual handling tasks are minimised by the use of mechanical lifting devices.		0.5	0.25	0.25
	PC15. Confirm checks on safety devices have been carried out		0.5	0.25	0.25
	PC16. Identify problems (e.g. obstructions, geological movements, mechanical or service failure) and report to appropriate person/s for		0.5	0.25	0.25

	advice or repair/remedial action
	PC17. Monitor the operational cycle and all relevant operations within area of responsibility / specific district
	PC18. Check if the material needs for the production unit are met using material transport system and report in case of any inconsistencies
	PC19. Co-ordinate face operations to maintain true line of advance or retreat to prevent excessive face creep.
	PC20. Oversee the immediate advance and setting of support (temporary/permanent) to combat poor roof conditions/ face conditions and supervise the application of the support rules
	PC21. Check the dressing of exposed ground
	PC22. Co-ordinate work operations to ensure that each on going activity does not affect the activities, health and safety of others within your sphere of responsibility.
	PC 23 Complete records/reports according to legislative requirements and organisational procedures
	PC24. Check that all haulage, storage, purification and distribution work is performed efficiently and in compliance with statutory and other regulations;
	PC25. Monitor that all travelling roadways to, and working places in, his district are made and kept secure.
	PC26. Check to ensure fire hydrants and/or other fire fighting equipment is correctly sited, installed, undamaged, in date, fit for purpose in accordance with regulatory requirements and organisational procedures and operational requirements
	PC27. Implement isolation and lock-off procedures for plant/equipment as required for adjustments or routine or forced maintenance
	PC28. Oversee planned maintenance of respirable / combustible dust suppression equipment

1	0.75	0.25
1	0.75	0.25
1	0.75	0.25
1	0.75	0.25
1	0.75	0.25
1	0.75	0.25
1	0.75	0.25
1	0.75	0.25
0.5	0.25	0.25
1	0.5	0.5
0.5	0.25	0.25
0.5	0.25	0.25

	PC29. Confirm that all safety devices fitted to mineral extraction and clearance system/s are in place and operational		1	0.75	0.25
	PC30. Confirm that all service pipes, hoses, high tension cables and trailing cables are identified, colour coded, stored correctly and have appropriate safety devices attached		1	0.75	0.25
	PC 31 Check that services systems (e.g. cable handling devices) are supported, free moving and have sufficient storage to allow safe face advance/retreat		1	0.75	0.25
	PC32. Confirm that girder cradles/integrated working platforms associated with setting supports are available and in good order		1	0.75	0.25
	PC33. Confirm that support installations/extraction systems/materials handling/mineral processing machinery/equipment are serviced/maintained in accordance with manufacturers/company procedures		1	0.75	0.25
	PC34. Check that suitable and sufficient repairs have been carried out safely on damaged/faulty items of mineral extraction equipment		1	0.75	0.25
	PC 35 Carry out organisational procedures for defects found that cannot be rectified immediately.		0.5	0.25	0.25
		Total	25	16	9
2. MIN/ N 0477 (Oversee the safety of the mining or quarrying operations & ensures compliance with health and safety regulations)	PC1. Make such inspection and reports as are required by the various applicable regulations, and in making such examination, shall pay particular attention to edges of the goaf, if any, for checking supports	25	2	1	1
	PC2. In case, any dangerous place is observed during the course of inspections or if any danger at a place where work persons are employed is reported, shall, if the danger cannot be removed forthwith withdraw all persons from such place and shall not leave the place until the danger has been removed in his presence or all approaches to the place have been fenced off so as to prevent persons from inadvertently entering such place		3	2	1

	PC3. If any accumulation of inflammable or noxious gases is found, shall carry out the provisions of regulations 141 and shall not remove such accumulation until he has received instructions in that behalf from superior official		2	1	1
	PC4. On receipt of information of an accident to any person in his district, proceed at once to the place of accident, inspect the place and, if required, supervise the rescue operations, and shall report or send notice of the accident to the mine manager		2	1.5	0.5
	PC5. Complete records/reports according to legislative requirements and organisational procedures		2	1.5	0.5
	PC6. Check that equipment provided to prevent frictional ignitions / drain gas are in place and working in accordance with statutory, company and manufacturers specifications		2	1.5	0.5
	PC7. Check ventilation system is operational within organisational limits		2	1.5	0.5
	PC8. Check that the gas/smoke monitoring/detection equipment is correctly positioned and operational		2	1.5	0.5
	PC9. Operate and interpret readings from gas detection/monitoring equipment		2	1.5	0.5
	PC10. Check geological conditions are within normal operational parameters		2	1	1
	PC11. Monitor the operations of dust suppression/neutralisation equipment Implement action to address any shortcomings arising in the ventilation system which may adversely affect the quality of the mine environment within area of responsibility		2	1	1
	PC12. Communicate environmental problems/shortfall in quality of the mine environment outside your limits of responsibility to the relevant person/s according to organisational procedures		2	1	1
		Total	25	16	9

3. MIN/ N 0478 (Supervise Blasting Operations)	PC1. Check that the blast specification(s) are according to approved procedures and practices	25	1	0.5	0.5
	PC2. Check that the changes to the blast specifications are in line with the defined requirements		1	0.5	0.5
	PC3. Make arrangements for the delivery and receipt of sufficient, suitable materials to meet the blast specification.		1	0.5	0.5
	PC4. Maintain the adequate security measures for on-site explosives and ensure that the records are completed		1	0.5	0.5
	PC5. Monitor the timely issue the explosives to relevant person(s) in accordance to approved practices and procedures		1	0.5	0.5
	PC6. Carry out the checks to ensure activities involving the use, transportation and storage of explosives or explosive substances are carried out by relevant person(s)		2	1.5	0.5
	PC7. Make the arrangements to ensure environmental controls are set up and monitored to meet local requirements		1	0.5	0.5
	PC8. Identify and establish the blast sites according to approved procedures and practices.		1	0.5	0.5
	PC9. Identify the potential risks and appropriate action taken to eliminate or minimise.		1	0.5	0.5
	PC10. Identify and communicate the requirements for safety and security of the blast operations		1	0.5	0.5
	PC11. Monitor the establishment of the checks and their conduct to confirm the blast site conforms to the blast specification.		1	0.5	0.5
	PC12. Check that the Limits of the danger zone are confirmed and approved according to approved procedures and practices		1	0.5	0.5
	PC13. Check that the Tools and equipment are approved as safe and suitable to meet the blast specification		1	0.5	0.5
	PC14. Check that the Arrangements are made to ensure the removal of surplus explosives and the disposal of packaging.		1	0.5	0.5

	PC15. Check that the Position and form of the blast initiation site are confirmed and approved according to site operational procedures		1	0.5	0.5
	PC16. Check that the Checks are carried out to confirm warning and security arrangements are in place and operating according to approved procedures and practices		1	0.5	0.5
	PC17. Check that the Procedures are implemented to confirm evacuation of the danger area, and that visitors and contractors are in designated areas.		1	0.5	0.5
	PC18. Review the work of o the Shot firer to blast at an agreed time is given when operating and environmental conditions are confirmed as suitable, according to approved procedures and practices		1	0.5	0.5
	PC19. Maintain and store records in accordance with operational and organisational rules and procedures		1	0.5	0.5
	PC20. Carry out the post-blast inspection according to approved procedures and practices		1	0.5	0.5
	PC21. Ensure the approval of the post-blast remedial work according to operational procedures		1	0.5	0.5
	PC22. On completion of the blasting operation, ensure the removal of warning and security arrangements, and signal that the area is returned to normal operational status, according to approved procedures and practices		1	0.5	0.5
	PC23. Monitor and record the overpressure and ensure their conformance to local requirements		1	0.5	0.5
	PC24. Monitor the site-specific shot firing rules and procedures and provide the relevant recommendations		1	0.5	0.5
		Total	25	13	12
4. MIN/ N0901 (Health and Safety)	PC1. Comply with occupational health and safety regulations adopted by the employer.	25	2	1	1
	PC2. Follow mining operations procedures with respect to materials handling and accidents		3	2	1
	PC3. Follow the correct safety		2	1	1

	steps in case of accident or major failure				
	PC4. Comply with safety regulations and procedures in case of fire hazard.		2	1	1
	PC5. Operate various grades of fire extinguishers.		3	2	1
	PC6. Work responsibly and as safe and careful as possible so as not to put the health and safety of self or others at risk, including members of the public		2	1	1
	PC7. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS.		3	2	1
	PC8. Deal with misfires as per statutory requirement		2	1.5	0.5
	PC9. Identify characteristics of post-blast fumes and take necessary precautions.		2	1.5	0.5
	PC10. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection		2	1	1
	PC11. Follow the manufacturer's instructions for care and safe operation of the equipment.		2	1	1
		Total	25	15	10