

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR MINING INDUSTRY



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What are Occupational Standards(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- Winding Engine Operator

SECTOR: MINING

SUB-SECTOR: Underground Mines

OCCUPATION: Mining Operations

REFERENCE ID: MIN/Q 0420

ALIGNED TO: NCO-2004/8333.40

A Winding engine operator ensures execution of activities related to winding engine

Brief Job Description: Winding Engine Operator controls a cable, for example to power a mining hoist at a pit head. Electric hoist controllers have replaced proper winding engines in modern mining, but use electric motors that are also traditionally referred to as winding engines.

Personal Attributes: This job requires the individual to concentrate on the job at hand and complete it efficiently and effectively without any accidents so diligence and hard-working are desired attributes for individuals performing this role. He must also demonstrate strong work ethics, an ability to communicate courteously with co-workers, and must be good with following instructions of the supervisor.

Qualifications Pack Code	MIN/ Q 0420		
Job Role	Winding Engine Operator		
Credits(NSQF)	TBD	Version number	1.0
Industry	Mining	Drafted on	15/12/2014
Sub-sector	Underground mines	Last reviewed on	24/03/2015
Occupation	Mining Operations	Next review date	24/03/2017

Job Role	Winding Engine Operator
Role Description	This role is responsible to efficiently control a cable, for example to power a mining hoist at a pit head. (Electric hoist controllers have replaced proper winding engines in modern mining, but electric motors are still used that are also traditionally referred to as winding engines)
NSQF level	4
Minimum Educational Qualification	Class XII
Maximum Educational Qualification	Not Applicable
Training (Suggested but not mandatory)	<ol style="list-style-type: none"> 1. Technical and gallery training as per first schedule, Mining Vocational Training Rules (MVTR) 1966. 2. Refresher training if absent from mines for a period of one year or more before re-employment. 3. Winding Engine systems and operation 4. Safety 5. Quality Management
Experience	1-10 years
Applicable National Occupational Standards	<p>Compulsory:</p> <p>Click on the hyperlink to read/download the required NOS</p> <ol style="list-style-type: none"> 1. MIN/ N0456 (Prepare Winding Engine) 2. MIN/ N0457 (Perform Winding Engine operations) 3. MIN/ N0458 (Perform basic maintenance and troubleshooting on Winding Engine) 4. MIN/ N0901 (Health and Safety) <p>Optional:</p> <p>Not applicable</p>
Performance Criteria	As described in the relevant OS units

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 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.

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 preparing the Winding Engine for activities that need to be carried out during a shift.

MIN/N 0456 Prepare Use of Winding Engine

Unit Code	MIN/N 0456
Unit Title (Task)	Prepare Use of Winding Engine
Description	This unit is about preparing the Winding Engine for activities that need to be carried out during transport of men and material to from surface to underground operations and vice versa
Scope	<p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> • Pre Operation checks • Recording and reporting details
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Pre-operation checks	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Check oil and fluid levels in hydraulic system, transfer gear boxes and any ther associated system</p> <p>PC2. Conduct pre-operation checks to ensure the operation of Winding is proper, smooth and with ease</p> <p>PC3. Conduct proper inspection and check of safety and control devices installed ensure functioning as specified in the relevant equipment manual and operating standards</p> <p>PC4. Check Winder Brakes and Emergency Brakes</p> <p>PC5. Check the Emergency Stop Switch Working condition</p> <p>PC6. Check the controlling system of the winding engine</p> <p>PC7. Check the drum for proper laying of winding rope on the drum pitch</p> <p>PC8. Check the Operating Levers and other associated systems (e.g. Foot Brake, Hand Brake, hoisting/un-hoisting lever etc.)and locking devices</p>
Recording and reporting details	<p>PC9. Maintain winding engine report book to record all activities performed on the Winding Engine and at end of the shift</p> <p>PC10. Immediately inform supervisor/engineer of problems arising in operation of winding engine regarding any defect or malfunction observed</p>
Knowledge and Understanding (K)	

MIN/N 0456 Prepare Use of Winding Engine

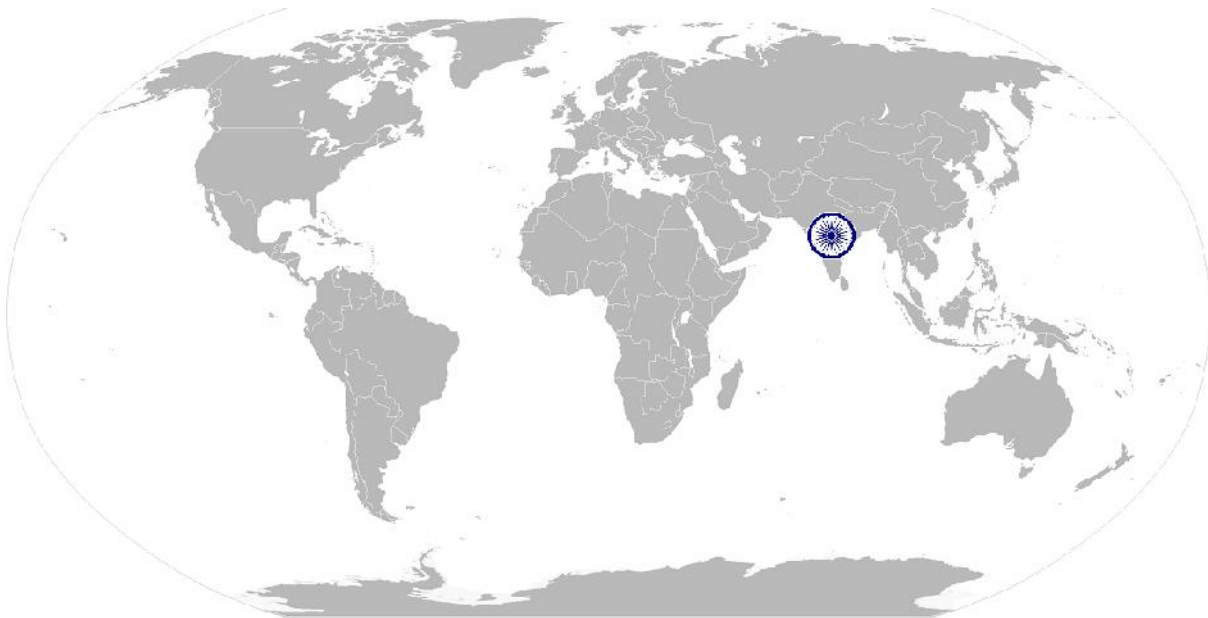
A. Regulatory context (knowledge of safety guidelines specified by Director General of Mine Safety (DGMS))	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. Different types of mines and detail of the mine he is working in</p> <p>KA2. Mine Organisation, time keeping, need for discipline and punctuality</p> <p>KA3. Galleries in underground mine, dressing of roof, stable and unstable strata etc.</p> <p>KA4. Standing orders in force at the mine. Safety in the vicinity of machinery</p> <p>KA5. Duties of workmen</p> <p>KA6. Provision of wages, working hours and accident compensation as per Mines act</p> <p>KA7. Knowledge of mining safety procedures</p> <p>KA8. Impact of violation of safety procedures</p>
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Job specific documents e.g. daily maintenance checklist and importance of the same</p> <p>KB2. Risk and impact of not following defined procedures/work instructions</p> <p>KB3. Escalation matrix for reporting identified problems</p> <p>KB4. Cost of equipment and loss for the company that results from damage of equipment</p> <p>KB5. All direct /indirect cost of accidents to the company</p> <p>KB6. Implications of delays in process to the company</p> <p>KB7. Locally prepared emergency response /disaster management plan.</p>
C. Technical / Domain Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KC1. Layout and functioning of the control levers and their operation (Foot brake, Operating levers, hoisting/un-hoisting, and locking devices)</p> <p>KC2. Mechanism and operation of pre start working device and associated systems (automatic speed recorder, depth indicator, slow banking, over speeding etc.)</p> <p>KC3. Electrical control systems and equipment of operations</p> <p>KC4. Drive motor mechanism for smooth running and operation of the system</p> <p>KC5. Knowledge of common troubles and troubleshooting techniques</p> <p>KC6. Signage, mining area signs and other safety and emergency signals</p> <p>KC 7. Knowledge of code of signalling and signalling systems and relevant SOPs for</p>

MIN/N 0456 Prepare Use of Winding Engine

	<p>safe operation of winding engine</p> <p>KC8. Response to emergencies such as fire, accident, major failure etc.</p>
Skills (S)	
A. Core Skills/ Generic Skills	Writing Skills
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. note down observations (if any)</p> <p>SA2. fill out administrative forms</p>
	Reading Skills
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. Read operators' manual</p> <p>SA4. Understand and analyse the available data about the site</p> <p>SA5. Read and comprehend banners /signage</p>
	Oral Communication (Listening and Speaking skills)
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. Communicate with supervisors and peers in a proper manner adhering to the values of respect for individual</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</p> <p>SB2. Organize all process manuals so that sorting/ accessing information is easy</p>
	Judgment and Critical Thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB3. Use common sense and make judgments during day to day basis</p> <p>SB4. Use reasoning skills to identify and resolve basic problems</p> <p>SB5. Use intuition to detect any potential problems which could arise</p>
	Desire to learn and take initiatives
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB6. Follow instructions and work on areas of improvement identified</p> <p>SB7. Complete the assigned tasks with minimum supervision</p> <p>SB8. Complete the job within timelines and quality norms</p>
	Problem Solving and Decision making

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	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB9.Detect problems in day to day tasks</p> <p>SB10.Discuss possible solution with the supervisor for problem solving</p> <p>SB11.Make decisions in emergency conditions</p>
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MIN/N 0456

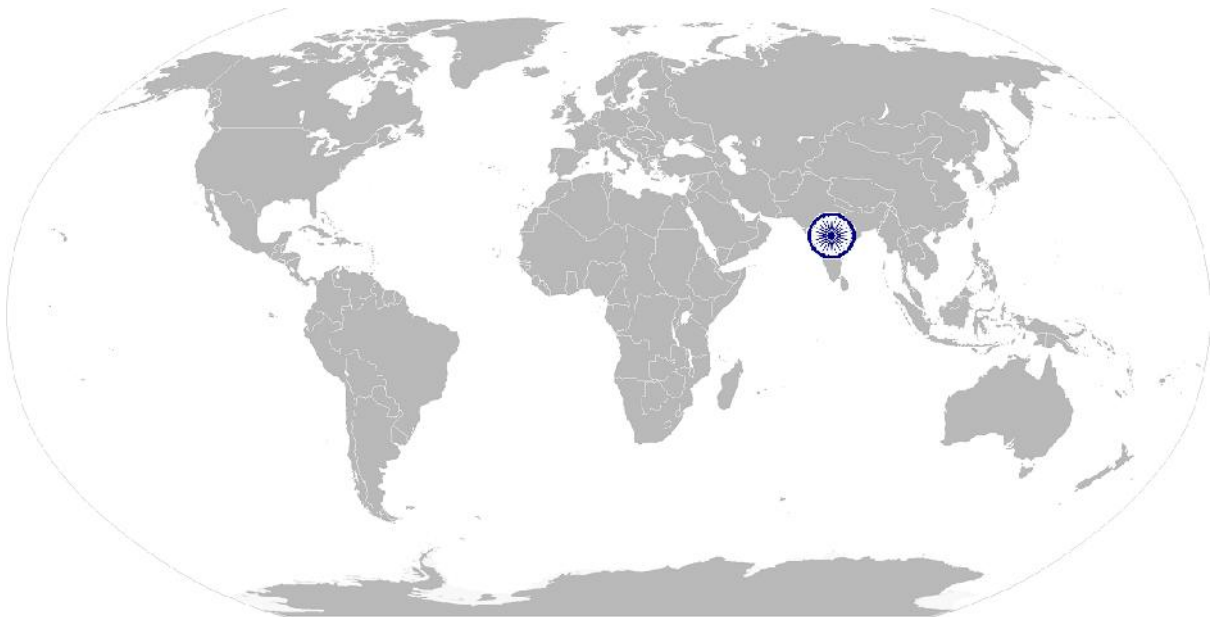
Prepare Use of Winding Engine

NOS Version Control

NOS Code	MIN/N 0456		
Credits(NSQF)	TBD	Version number	1.0
Sector	Mining	Drafted on	15/12/2014
Sub-sector	Underground 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 Performing the Winding Engine Operations for activities that need to be carried out during a shift.

MIN/ N 0457 Perform Winding Engine Operations

Unit Code	MIN/ N0457
Unit Title (Task)	Perform Winding Engine Operations
Description	This unit is about performing Winding Engine operation for activities that need to be carried out during a shift
Scope	<p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> Operation of man/material winding following Code of Signal and safety precaution
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Operation for man/material winding following Code of Signal and safety precaution	<p>PC1. Operate the winding engine only upon being acquainted with the code of signal or clearly understanding the transmission of signal for lowering or raising of men/material</p> <p>PC2. Ensure the functioning of Continuous type alarm bell provided for slow banking zone</p> <p>PC3. Check automatic contrivance to be in working order with respect to slow banking, over speeding and over winding</p> <p>PC4. Avoid jerk to the cage in starting, running and stopping the engine</p> <p>PC5. Lower and raise the person at a speed fixed by the manager for man riding or at a speed approved by the DGMS</p> <p>PC6. Follow all the norms & directives with regard to the operation of the winding engine</p> <p>PC7. Ensure that the station is not left unattended for any reason, the same is either locked over or handed over to successor</p> <p>PC8. Record observations in a mandatory report at end of the shift</p> <p>PC9. Continuously monitor the condition of winding rope being laid on the winding drum for any defects or deformation. If any deformation is noticed, it shall be immediately brought to attention of shift supervisor/engineer/manager</p> <p>PC10. Ensure housekeeping of the winding engine room and it should be kept properly maintained and any oil or grease should be removed immediately to avoid slippage and falling</p> <p>PC11. Check all means of fire extinguishing equipment in proper working order</p>

MIN/ N 0457 Perform Winding Engine Operations

	PC12. Ensure proper Lock out and Tag out scenario to avoid any untoward incident triggered due to unknowingly operation of machine / system under maintenance
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. Galleries in underground mine, dressing of roof, stable/ unstable strata etc</p> <p>KA4. Standing orders in force at the mine. Safety in the vicinity of machinery</p> <p>KA5. Duties of workmen</p> <p>KA6. Provision of wages, working hours and accident compensation as per Mines act</p> <p>KA7. Knowledge of mining safety procedures</p> <p>KA8. Impact of violation of safely procedures</p>
B. Organizational Context (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Types of documentation in organization e.g. daily maintenance checklist and importance of the same</p> <p>KB2. Risk and impact of not following defined procedures/work instructions</p> <p>KB3. Rules and regulations of mine as per standard operating procedure (SOP)</p> <p>KB4. Risk and impact of not following company's SOP</p> <p>KB5. Escalation matrix for reporting identified problems</p> <p>KB6. The duties and responsibilities associated with his job role as per the employer</p> <p>KB7. Cost of delays to the company</p> <p>KB8. Direct /Indirect cost of accidents to the company</p> <p>KB9. Locally prepared emergency response /disaster management plan.</p>
C. Technical/ Domain Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KC1. Different types of winding systems (eg. Steam winder, compressed air winder, electrical winders)</p> <p>KC2. Safety and hazard related knowledge and understanding with different types of winding mechanisms</p>

MIN/ N 0457 Perform Winding Engine Operations

	<p>KC3. Should be conversant with the precautionary measures for hazards of different types for each type of mechanism</p> <p>KC4. Fully conversant with the control systems/devices and associated safety measures/devices of respective type of winding system</p> <p>KC5. Function of different types of levers and brake/clutch mechanism</p> <p>KC6. Knowledge and understanding of code of signal as specified in relevant statutes, organizational processes and guidelines, he should also be conversant with related laws/bylaws provided from time to time</p> <p>KC7. Knowledge of technical systems of winding engine e.g. – size, capacity, power type , power capacity ,depth of shaft, total rope length, etc.</p> <p>KC8. Safety features of the winding engine</p>
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Writing Skills
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Note down observations (if any)</p> <p>SA2. Fill out administrative forms</p>
	Reading Skills
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. Read operators' manual</p> <p>SA4. Understand and analyse the available data about the site</p> <p>SA5. Read and comprehend banners /signage</p>
	Oral Communication (Listening and Speaking skills)
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. Communicate with supervisors and peers in a proper manner adhering to the values of respect for individual</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</p> <p>SB2 organize all process manuals so that sorting/ accessing information is easy</p>
	Judgment and Critical Thinking

MIN/ N 0457 Perform Winding Engine Operations

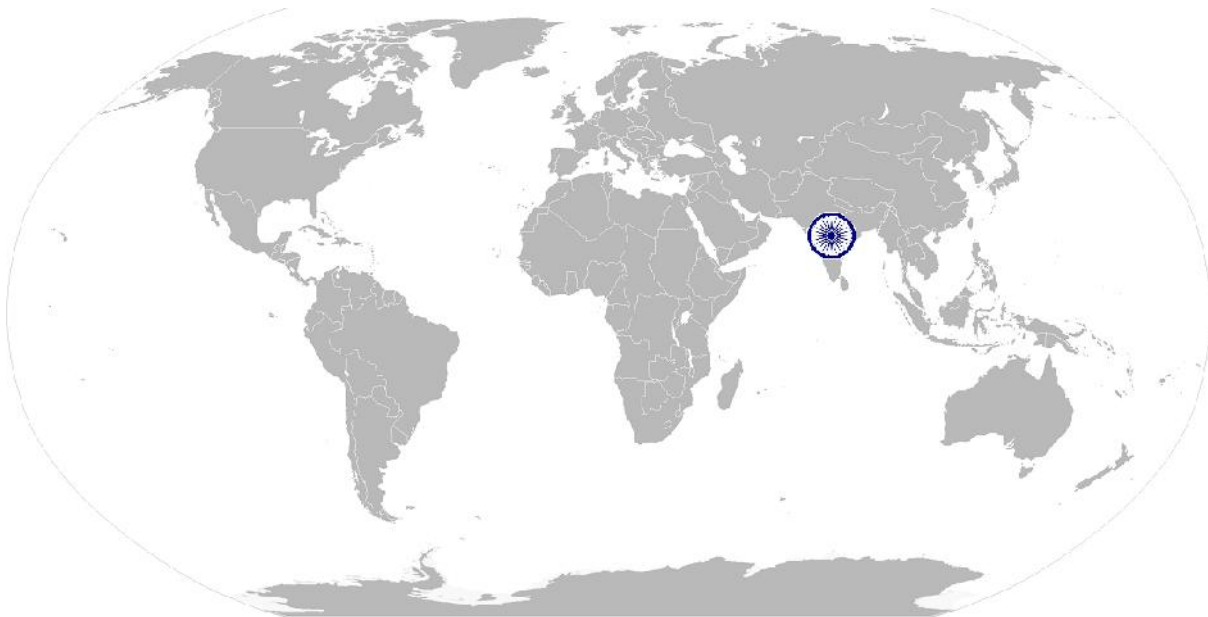
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB3. use common sense and make judgments during day to day basis</p> <p>SB4. use reasoning skills to identify and resolve basic problems</p> <p>SB5. use intuition to detect any potential problems which could arise</p>
	<p>Desire to learn and take initiatives</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB6. follow instructions and work on areas of improvement identified</p> <p>SB7. complete the assigned tasks with minimum supervision</p> <p>SB8. complete the job within timelines and quality norms</p>
	<p>Problem Solving and Decision making</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB9. detect problems in day to day tasks</p> <p>SB10. discuss possible solution with the supervisor for problem solving</p> <p>SB11. make decisions in emergency conditions</p>



MIN/ N 0457 Perform Winding Engine Operations

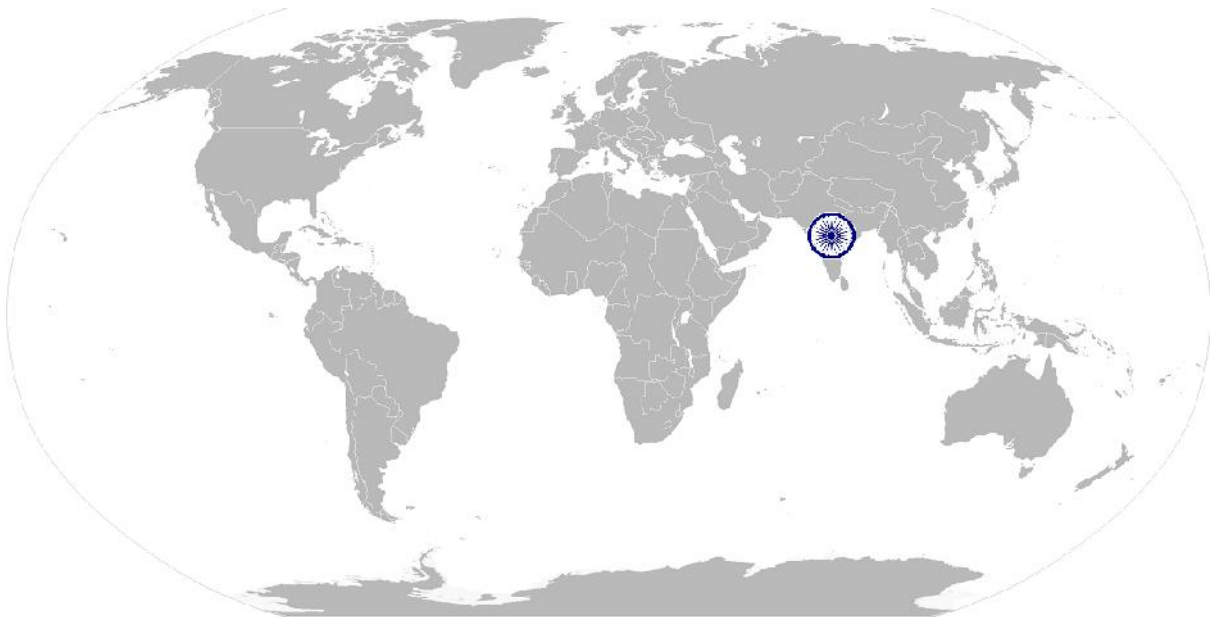
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NOS Code	MIN/N 0457		
Credits(NSQF)	TBD	Version number	1.0
Sector	Mining	Drafted on	15/12/2014
Sub-sector	Underground Mines	Last reviewed on	24/03/2015
Occupation	Mining Operations	Next review date	24/03/2017



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National Occupational Standard



Overview

This unit is about performing routine maintenance and troubleshooting tasks.

MIN/ N00458 Perform routine maintenance and troubleshooting

Unit Code	MIN/ N00458
Unit Title (Task)	Perform routine maintenance and troubleshooting
Description	This unit is about performing routine maintenance and troubleshooting tasks
Scope	<p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> Routine maintenance in accordance with the manufacturer's recommendations and company procedures Basic diagnostics and Troubleshooting
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Routine maintenance	<p>To be a competent operator, the individual on the job must also be able to:</p> <p>PC1. Adhere to maintenance schedule - daily, weekly, monthly, annual maintenance procedures shall be strictly followed and proper records maintained</p> <p>PC2. Pay specific attention to Ropes and Shafts system. Assembling and dismantling of the machine shall be carried out in accordance with manufacturer's instructions</p> <p>PC3. Ensure that a shaft conveyance is not used for the raising or lowering of persons until it has made at least one complete trip up and down the working portion of the shaft following –</p> <ul style="list-style-type: none"> any repairs to the winding installation any replacement of rope, attachments, shaft conveyance or any other equipment any repairs to the shaft any stoppage in winding exceeding one hour duration the occurrence of any seismic event.
Troubleshooting	<p>PC4. Ensure the machine is on firm and level ground before attempting to carry out any maintenance activity.</p> <p>PC5. Ensure that no maintenance task on the engine is performed when running or still hot.</p> <p>PC6. Ensure proper Lock out and Tag out scenario to avoid any untoward</p>

MIN/ N00458 Perform routine maintenance and troubleshooting

	<p>incident triggered due to unknowingly operation of machine / system under maintenance</p> <p>PC7. Assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel</p> <p>PC8. Complete timely and legibly defect sheets as provided by the company</p>
Knowledge and Understanding (K)	
<p>A. Regulatory 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. Galleries in underground mine, dressing of roof, stable and unstable strata etc</p> <p>KA4. Code of practice in specific areas of mine. Significance of fences</p> <p>KA5. Standing orders in force at the mine. Safety in the vicinity of machinery</p> <p>KA6. Duties of workmen</p> <p>KA7. Provision of wages and working hours as per Mines act</p> <p>KA8. Knowledge of mining safety procedures</p> <p>KA9. Impact of violation of safety procedures</p>
<p>B. Organizational 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. Types of documentation in organization e.g. daily maintenance checklist and importance of the same</p> <p>KB2. Risk and impact of not following defined procedures/work instructions</p> <p>KB3. Rules and regulations of mine as per standard operating procedure</p> <p>KB4. Risk and impact of not following company's SOP</p> <p>KB5. Escalation matrix for reporting identified problems</p>
<p>C. Technical/ Domain Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KC1. All equipment including all the control levers and their operation (Foot brake, Operating levers, hoisting/un-hoisting, and locking devices); pre start working device and associated systems (automatic speed recorder, depth indicator, slow banking, over speeding etc.); electrical control systems and equipment of operations</p> <p>KC2. Knowledge of technical systems of winding engine e.g. – size, capacity, power type , power capacity ,depth of shaft, total rope length, etc.</p>

MIN/ N00458 Perform routine maintenance and troubleshooting

	<p>KC3. Basic fault diagnostics and troubleshooting techniques</p> <p>KC4. Gear and transfer gearbox system of winding engine</p> <p>KC5. Basic understanding of power drive units - electrical & Mechanical.</p> <p>KC6. Knowledge and understanding of electrical systems including operation & maintenance of electrical motors, switchgear and connections</p> <p>KC7. Oiling of components and lubricant specifications for different requirements</p>
Skills (S) [Optional]	
C. Core Skills/ Generic Skills	Writing Skills
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Note down observations (if any)</p> <p>SA2. Fill out administrative forms</p>
	Reading Skills
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. Read operators' manual</p> <p>SA4. Understand and analyse the available data about the site</p> <p>SA5. Read and comprehend banners /signage</p>
	Oral Communication (Listening and Speaking skills)
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. Communicate with supervisors and peers in a proper manner adhering to the values of respect for individual</p>
D. 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</p> <p>SB2 Organize all process manuals so that sorting/ accessing information is easy</p>
	Judgment and Critical Thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB3. Use common sense and make judgments during day to day basis</p> <p>SB4. Use reasoning skills to identify and resolve basic problems</p> <p>SB5. Use intuition to detect any potential problems which could arise</p>

MIN/ N00458 Perform routine maintenance and troubleshooting

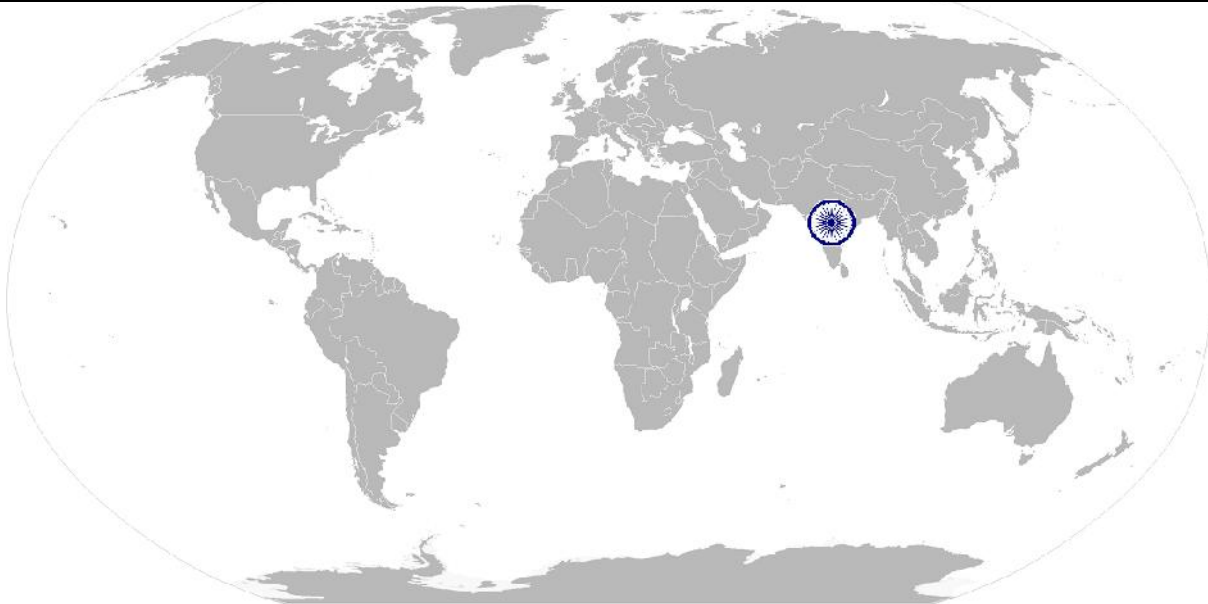
	Desire to learn and take initiatives
	The user/individual on the job needs to know and understand how to: SB6. Follow instructions and work on areas of improvement identified SB7. Complete the assigned tasks with minimum supervision SB8. Complete the job within timelines and quality norms
	Problem Solving and Decision making
	The user/individual on the job needs to know and understand how to: SB9. Detect problems in day to day tasks SB10. Discuss possible solution with the supervisor for problem solving SB11. Make decisions in emergency conditions



MIN/ N00458 Perform routine maintenance and troubleshooting

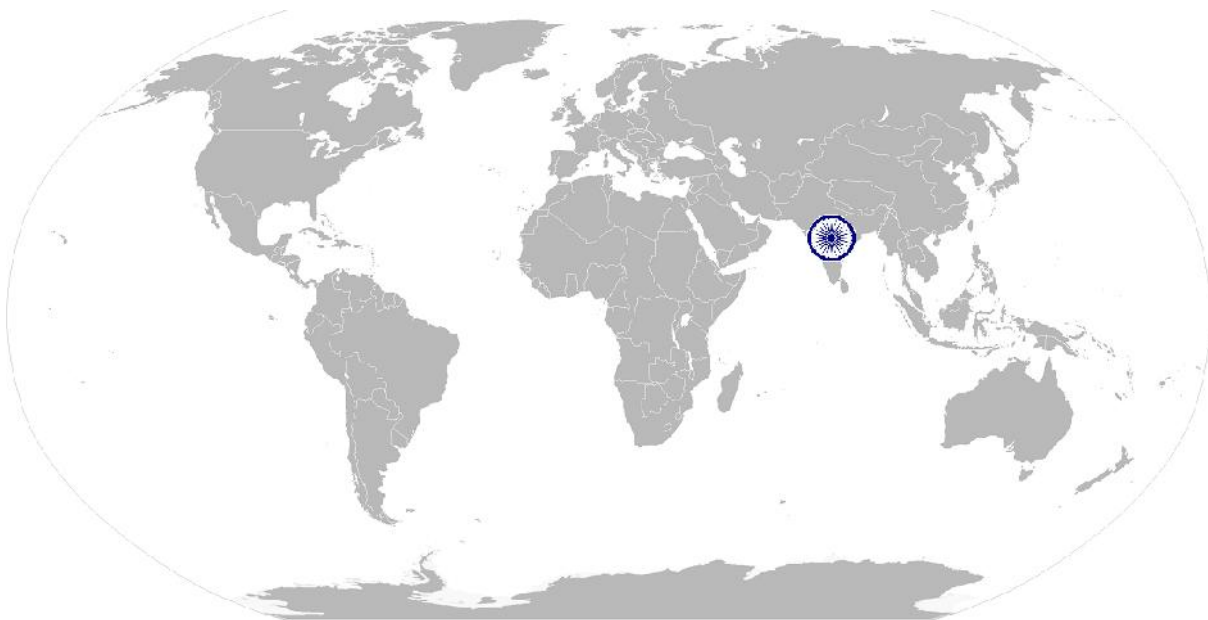
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NOS Code	MIN/N0458		
Credits(NSQF)	TBD	Version number	1.0
Sector	Mining	Drafted on	15/12/2014
Sub-sector	Underground Mines	Last reviewed on	24/03/2015
Occupation	Mining Operations	Next review date	24/03/2017



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National Occupational Standard



Overview

This unit is about health and safety measures critical in mines

MIN/ N 0901 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	<p>This OS unit/task covers the following:</p> <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>
Knowledge and Understanding (K)	

MIN/ N 0901 Health and Safety

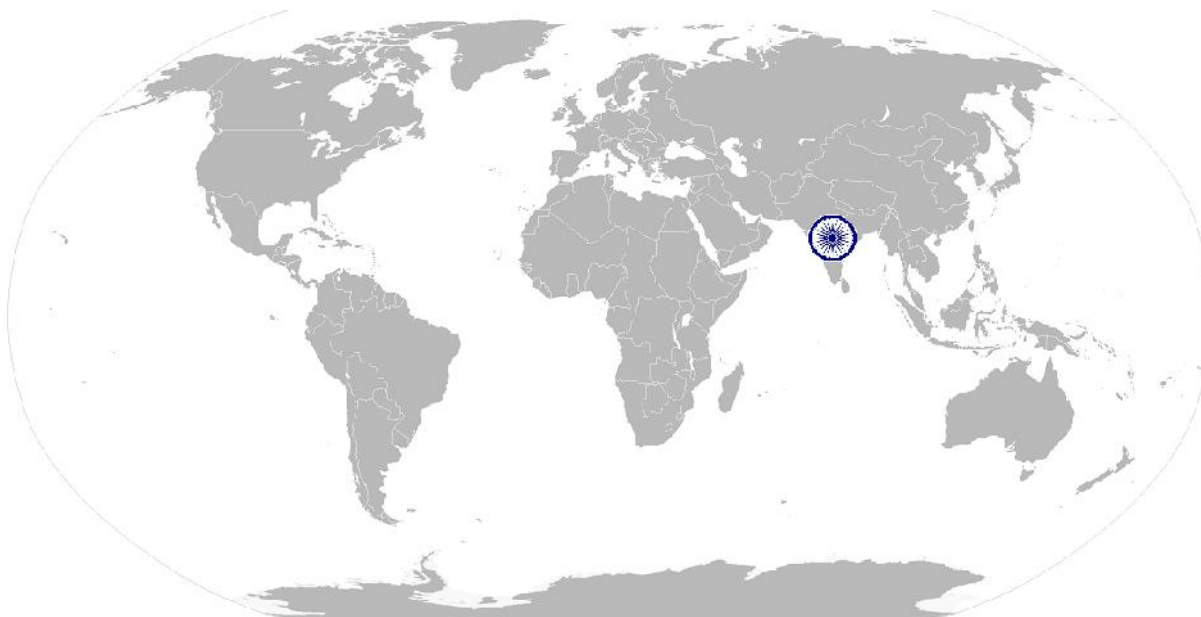
A. Regulatory context (knowledge of safety guidelines specified by Director General of Mine Safety (DGMS))	<p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"> KA1. Benching in quarries, Dressing of overhangs, undercuts, Fencing KA2. First aid and Hygiene 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.
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MIN/ N 0901 Health and Safety

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 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 Winding Engine Operator

Qualification Pack MIN/ Q 0420

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/ N0456 (Prepare Winding Engine)	PC1. Check oil and fluid levels in hydraulic system, transfer gear boxes and any the associated system	25	2.5	1.5	1
	PC2. Conduct pre-operation checks to ensure the operation of Winding is proper, smooth and with ease		2.5	1.5	1
	PC3. Conduct proper inspection and check of safety and control devices installed ensure functioning as specified in the relevant equipment manual and operating standards		2.5	1.5	1
	PC4. Check Winder Brakes and Emergency Brakes		2.5	1.5	1
	PC5. Check the Emergency Stop Switch Working condition		2.5	1.5	1
	PC6. Check the controlling system of the winding engine		2.5	1.5	1

	PC7. Check the drum for proper laying of winding rope on the drum pitch		2.5	1.5	1
	PC8. Check the Operating Levers and other associated systems (e.g. Foot Brake, Hand Brake, hoisting/un-hoisting lever etc.)and locking devices		2.5	1.5	1
	PC9. Maintain winding engine report book to record all activities performed on the Winding Engine and at end of the shift		2.5	1.5	1
	PC10. Immediately inform supervisor/engineer of problems arising in operation of winding engine regarding any defect or malfunction observed		2.5	1.5	1
		Total	25	15	10
2. MIN/ N0457 (Perform Winding Engine operations)	PC1. Operate the winding engine only upon being acquainted with the code of signal or clearly understanding the transmission of signal for lowering or raising of men/material	25	2.5	1.5	1
	PC2. Ensure the functioning of Continuous type alarm bell provided for slow banking zone		2	1	1
	PC3. Check automatic contrivance to be in working order with respect to slow banking, over speeding and over winding		2.5	1.5	1
	PC4. Avoid jerk to the cage in starting , running and stopping the engine		2	1	1
	PC5. Lower and raise the person at a speed fixed by the manager for man riding or at a speed approved by the DGMS		2	1	1
	PC6. Follow all the norms & directives with regard to the operation of the winding engine		2	1	1
	PC7. Ensure that the station is not left unattended for any reason, the same is either locked over or handed over to successor		2	1	1

	PC8. Record observations in a mandatory report at end of the shift		2	1	1
	PC9. Continuously monitor the condition of winding rope being laid on the winding drum for any defects or deformation. If any deformation is noticed, it shall be immediately brought to attention of shift supervisor/engineer/manager		2	1	1
	PC10. Ensure housekeeping of the winding engine room and it should be kept properly maintained and any oil or grease should be removed immediately to avoid slippage and falling		2	1	1
	PC11. Check all means of fire extinguishing equipment in proper working order		2	1	1
	PC12. Ensure proper Lock out and Tag out scenario to avoid any untoward incident triggered due to unknowingly operation of machine / system under maintenance		2	1	1
		Total	25	13	12
3. MIN/ N0458 (Perform basic maintenance and troubleshooting on Winding Engine)	PC1. Adhere to maintenance schedule - daily, weekly, monthly, annual maintenance procedures shall be strictly followed and proper records maintained	25	3	2	1
	PC2. Pay specific attention to Ropes an Shafts system. Assembling and dismantling of the machine shall be carried out in accordance with manufacturer's instructions		3	2	1
	"PC3. Ensure that a shaft conveyance is not used for the raising or lowering of persons until it has made at least one complete trip up and down the working portion of the shaft following – any repairs to the winding installation any replacement of rope, attachments, shaft		4	3	1

	conveyance or any other equipment any repairs to the shaft any stoppage in winding exceeding one hour duration the occurrence of any seismic event."				
	PC4. Ensure the machine is on firm and level ground before attempting to carry out any maintenance activity.		3	2	1
	PC5. Ensure that no maintenance task on the engine is performed when running or still hot.		3	2	1
	PC6. Ensure proper Lock out and Tag out scenario to avoid any untoward incident triggered due to unknowingly operation of machine / system under maintenance		3	2	1
	PC7. Assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel		3	2	1
	PC8. Complete timely and legibly defect sheets as provided by the company		3	2	1
		Total	25	17	8
4. MIN/ N0901 (Health and Safety)	PC1. Comply with occupational health and safety regulations adopted by the employer.	25	2	1.5	0.5
	PC2. Follow mining operations procedures with respect to materials handling and accidents		3	2	1
	PC3. Follow the correct safety steps in case of accident or major failure		2	1.5	0.5
	PC4. Comply with safety regulations and procedures in case of fire hazard.		2	1	1
	PC5. Operate various grades of fire extinguishers.		2	1	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		2	1	1

	transport of hazardous materials compliant with safety guidelines prescribed by DGMS.				
	PC8. Deal with misfires as per statutory requirement		2	1	1
	PC9. Identify characteristics of post-blast fumes and take necessary precautions.		3	2	1
	PC10. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection		3	2	1
	PC11. Follow the manufacturer's instructions for care and safe operation of the equipment.		2	1	1
		Total	25	15	10