N·S·D·C
National
Skill Development
Corporation

Contents

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

Introduction

Qualifications Pack- Safety Operator

SECTOR: MINING

SUB-SECTOR: Underground and Open Cast Mines

OCCUPATION: Mine Rescue/ Health

REFERENCE ID: MIN/Q 0437

ALIGNED TO: NCO-2004/NIL

A Safety Operator monitors hazardous situations and is responsible for adherence to safety regulations

Brief Job Description: Safety Operator is responsible for monitoring and assessing hazardous and unsafe situations and developing measures to assure personnel safety. Safety Operator needs to be aware of applicable safety rules and situations arising in mines. Safety Operator needs to organize safety training sessions for new employees and refreshers & advanced training for existing workers on Safety Equipment and practices. Safety Officer is required to organize periodic meetings of Safety Council and involve in Safety Week initiatives. Safety Officer needs to act as Rescue/Emergency operator and also conduct mock rehearsal

Personal Attributes: This job requires an individual to possess ability to plan and prioritize, quality consciousness, safety orientation, reading, writing and communication skills, Physique to sustain strenuous conditions, Dexterity, Ability to use fingers, hands and feet with ease to complete the assigned task (Dexterity), high precision and sensitivity to problem solving and sensitivity towards safety for self and equipment.

Job Details

Qualification Pack Code	MIN/Q 0437		
Job Role	**Safety Operator**		
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	**Mine Rescue/ Health**	**Next review date**	**24/03/2017**

| Job Role	Safety Operator
Role Description	Safety Operator is responsible for monitoring and assessing hazardous and unsafe situations and developing measures to assure personnel safety. Safety Operator needs to be aware of applicable safety rules and situations arising in mines. Safety Operator needs to organize safety training sessions for new employees and refreshers & advanced training for existing workers on Safety Equipment and practices. SO is required to organize periodic meetings of Safety Council and involve in Safety Week initiatives. Safety Officer needs to act as Rescue/Emergency operator.
NSQF level **Minimum Educational Qualification** **Maximum Educational Qualification**	**4** Class X NA
Training (Suggested but not mandatory)	1. Awareness of DGMS Rules & its applications 2. Understanding of Mine from Safety Perspective 3. Safety and 5S
Experience	2-3 years of experience as safety operator or as support
Applicable National Occupational Standards	**Compulsory:** **Click on the hyperlink to read/download the required NOS** 1. MIN/ N0503 (Awareness & execution of applicable safety rules, Safety Equipment, dangerous situations , safety locations in mine and Rescue Plan) 2. MIN/ N0504 (Organize Safety Trainings and organize Safety Council Meetings) 3. MIN/ N0901 (Health and Safety) **Optional:** Not Applicable
Performance Criteria	As described in the relevant NOS 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 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.

Definitions

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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

Acronyms

NOS

National Occupational Standard

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MIN/ N0503 Awareness & execution of applicable safety rules, Safety Equipment, dangerous situations , safety locations in mine and Rescue Plan

National Occupational Standard
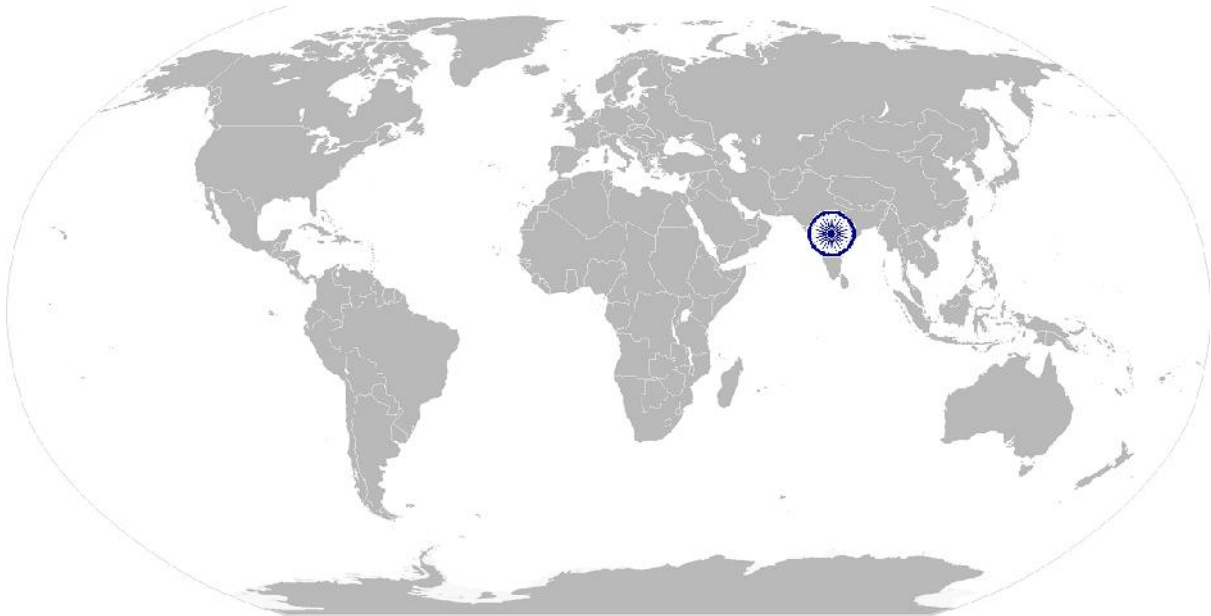
Overview

This unit is about to demonstrate competence to display awareness of applicable safety rules, Safety Equipment, Dangerous Situations, Safety Locations in mine and Rescue Plan.

MIN/ N0503 Awareness & execution of applicable safety rules, Safety Equipment, dangerous situations , safety locations in mine and Rescue Plan

National Occupational Standard

Unit Code	MIN/ N0503
Unit Title (Task)	Awareness & execution of applicable safety rules, Safety Equipment, dangerous situations , safety locations in mine and Rescue Plan
Description	This unit is about to demonstrate competence to display awareness of applicable safety rules, Safety Equipment, Dangerous Situations, Safety Locations in mine and Rescue Plan.
Scope	This unit/task covers the following: - Understand Safety rules & compliances - Understanding of Safety Equipment - Clear understanding of Dangerous Situations & Safety locations along with execution of Rescue Plan

Performance Criteria(PC) w.r.t. the Scope

Element	Performance Criteria
Understand Safety Rules & Compliance	PC1. Understand the DGMS Guidelines on Safety & related compliances PC2. Understand the Electric, Sound Safety standard PC3. Maintain the DGMS reports PC4. Understand the utility and importance of Safety Equipment like Shoes, Belt, Tight fit clothing, Safety Belt, Hand gloves, safety goggles, Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, Gum Boots, Ear Muffers, Face Mask etc PC5. Understand the Dangerous Situations arising out of Flooding, Fire, Roof Fall, Explosion, Mechanical fault, Electrical Faults, Human Mistake, Signalling Errors PC6. Be familiar with the roles of Pump Khalasi, timber Khalasi etc for rescue management purpose PC7. Rehearse Rescue drill periodically PC8. Display awareness of siren or messages used for safety / emergency situation PC9. In case of emergency, set up Rescue Office PC10. Support rescue operations after the arrival of Mine Manager/Safety Officer/Operations In-Charge

Knowledge and Understanding (K)

A. **Regulatory context (knowledge of safety guidelines specified by**	The user/individual on the job needs to know and understand: KA1. Different types of mines and detail of the mine he is working in KA2. Mine Organisation, time keeping, need for discipline and punctuality KA3. Benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and Hygiene KA4. Standing orders in force at the mine. Safety in the vicinity of machinery

NOS
National Occupational Standard

MIN/ N0503 Awareness & execution of applicable safety rules, Safety Equipment, dangerous situations , safety locations in mine and Rescue Plan

Director General of Mine Safety (DGMS))	KA5. Shot-firing and Safety regulations. How and where to take shelter KA6. Duties of workmen KA7. Provision of wages, working hours and accident compensation as per Mines act KA8. Knowledge of mining safety procedures KA9. Impact of violation of safely procedures
B. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KB1. relevant standard and procedures followed in the company KB2. different types of electrical requirements at the mine KB3. processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution
C. Technical Knowledge	The user/individual on the job needs to know and understand: KC1. DGMS Guidelines KC2. Mine safety standard including noise levels, pollutants, etc KC3. Safety Equipment like Shoes, Belt, Tight fit clothing, Safety Belt, Hand gloves, safety goggles, Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, Gum Boots, Ear Muffers, Face Mask etc

Skills (S) [Optional]

Element	Skills
Element **A. Core Skills/ Generic Skills**	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. note down observations (if any) SA2. write information documents or enter the information in online ERP systems under guidance of the supervisor
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA3. read and interpret symbols and measurements SA4. read information documents SA5. understand and analyse the available data about the site
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA6. discuss task lists, schedules and activities SA7. effectively communicate SA8. attentively listen with full attention and comprehend the information given by various sources about the site
B. Professional Skills	**Plan and Organize**
	The user/individual on the job needs to know and understand how to: SB1. plan and organize the work order and jobs SB2. organize all process manuals so that sorting/ accessing information is easy

MIN/ N0503 Awareness & execution of applicable safety rules, Safety Equipment, dangerous situations , safety locations in mine and Rescue Plan

	Judgment and Critical Thinking
	The user/individual on the job needs to know and understand how to: SB3. use common sense and make judgments during day to day basis SB4. use reasoning skills to identify and resolve basic problems SB5. use intuition to detect any potential problems which could arise
	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

NOS Version Control

NOS Code	MIN/ N0503		
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	Mine Rescue/ Health	Next review date	24/03/2017

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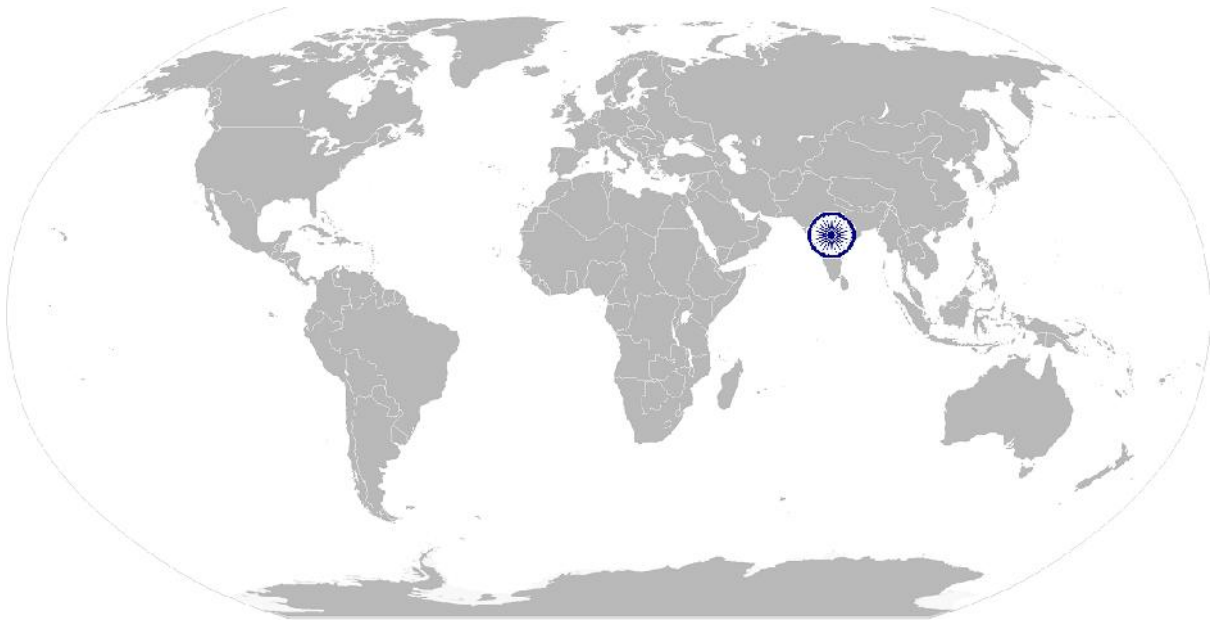
Overview

The unit covers organizing Safety Trainings and plan & organize meetings of Safety council

MIN/ N0504 Organize Safety Trainings and organize Safety Council Meetings

National Occupational Standard

Unit Code	MIN/ N0504
Unit Title (Task)	Organize Safety trainings, meetings of Safety Council and support vocational training related to safety
Description	Organizing and training new workers on Safety Rules, Regulations, Equipment, usage of safety Equipment and organizing Safety Council Meetings
Scope	This unit/task covers the following: • Trainings on Safety rules and regulations • Trainings on Safety Equipment Usage & importance

Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Trainings on Safety	PC1. Create awareness on Safety Regulations and & Compliances in new workers PC2. Plan and organize refresher training courses on Safety for existing workers PC3. Create awareness on Safety Equipment in new workers PC4. Plan and organize refresher training courses on Safety equipment for existing workers PC5. Organize periodic meetings of Safety Council PC6. Support Vocational Training Officer in conducting regular trainings to ensure safety norms are communicated and understood

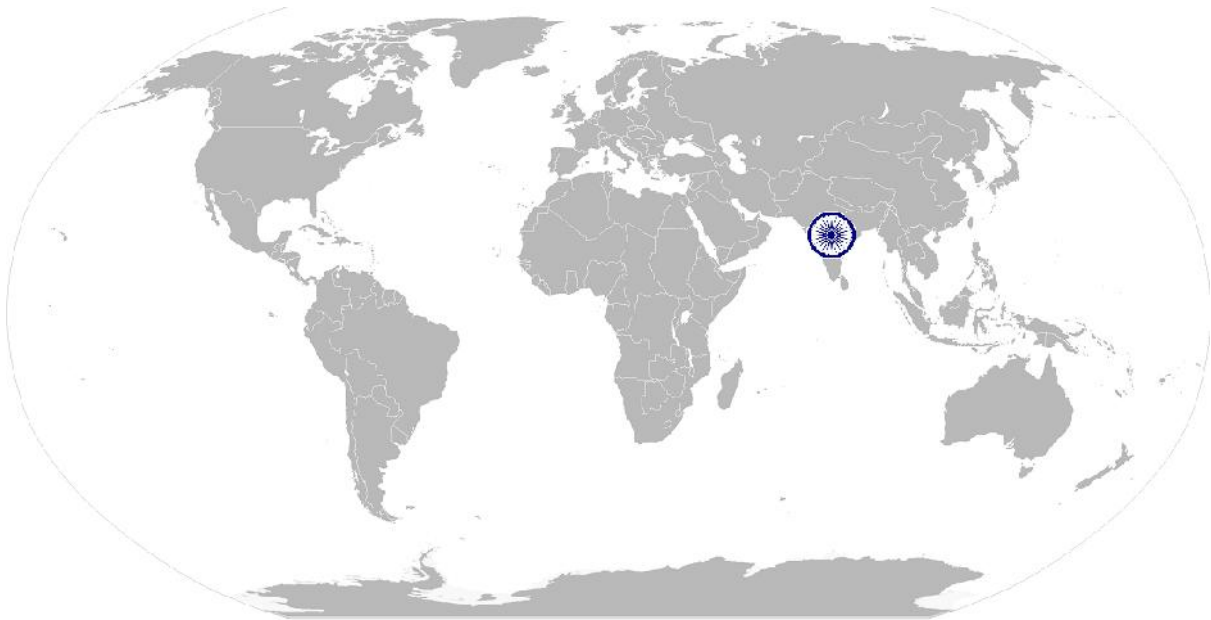|	
A. **Regulatory context (knowledge of safety guidelines specified by Director General of Mine Safety (DGMS))**	The user/individual on the job needs to know and understand: KA1. Different types of mines and detail of the mine he is working in KA2. Mine Organisation, time keeping, need for discipline and punctuality KA3. Benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and Hygiene 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. Duties of workmen KA7. Provision of wages, working hours and accident compensation as per Mines act KA8. Knowledge of mining safety procedures KA9. Impact of violation of safely procedures
B. **Organizational Context (Knowledge of the company / organization and its processes)**	The user/individual on the job needs to know and understand: KB1. relevant standard and procedures followed in the company KB2. different types of electrical requirements at the mine KB3. processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution

C. Technical Knowledge	The user/individual on the job needs to know and understand:
	KC1. DGMS Guidelines
	KC2. Mine safety standard including noise levels, pollutants, etc
	KC3. Safety Equipment like Shoes, Belt, Tight fit clothing, Safety Belt, Hand gloves, safety goggles, Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, Gum Boots, Ear Muffers, Face Mask etc

Skills (S) [Optional]	
Element	**Skills**
Element A. **Core Skills/ Generic Skills**	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. note down observations (if any) SA2. write information documents or enter the information in online ERP systems under guidance of the supervisor
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA3. read and interpret symbols and measurements SA4. read information documents SA5. understand and analyse the available data about the site
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA6. discuss task lists, schedules and activities SA7. effectively communicate SA8. attentively listen with full attention and comprehend the information given by various sources about the site
B. **Professional Skills**	**Plan and Organize**
	The user/individual on the job needs to know and understand how to: SB1. plan and organize the work order and jobs SB2. organize all process manuals so that sorting/ accessing information is easy
	Judgment and Critical Thinking
	The user/individual on the job needs to know and understand how to: SB3. use common sense and make judgments during day to day basis SB4. use reasoning skills to identify and resolve basic problems SB5. use intuition to detect any potential problems which could arise
	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

NOS Version Control

NOS Code	MIN/ N0504		
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	Mine Rescue/ Health	Next review date	24/03/2017

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National Occupational Standard

<u>**Overview**</u>

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: • Health and safety measures critical in mines

Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Safety, Security and Administrative	To be competent, the user/individual on the job must be able to: PC1. Comply with occupational health and safety regulations adopted by the employer. PC2. Follow mining operations procedures with respect to materials handling and accidents PC3. Follow the correct safety steps in case of accident or major failure PC4. Comply with safety regulations and procedures in case of fire hazard. PC5. Operate various grades of fire extinguishers. 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 PC7. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS. PC8. Deal with misfires as per statutory requirement PC9. Identify characteristics of post-blast fumes and take necessary precautions. PC10. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection PC11. Follow the manufacturer's instructions for care and safe operation of the equipment.

National Occupational Standard

Knowledge and Understanding (K)	
A. **Regulatory context** (knowledge of safety guidelines specified by Director General of Mine Safety (DGMS))	The user/individual on the job needs to know and understand: 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	Mine Rescue/ Health	Next review date	24/03/2017

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CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role   Safety Operator

Qualification Pack   MIN/Q 0437

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

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		Total Mark (100)	Out Of	Marks Allocation	
				Theory	Skills Practical
1.MIN/ N0503 (Awareness & execution of applicable safety rules, Safety Equipment, dangerous situations , safety locations in mine and Rescue Plan)	PC1. Understand the DGMS Guidelines on Safety & related compliances	**35**	3	2	1
	PC2. Understand the Electric, Sound Safety standard		3	2	1
	PC3. Maintain the DGMS reports		3	2	1
	PC4. Understand the utility and importance of Safety Equipment like Shoes, Belt, Tight fit clothing, Safety Belt, Hand gloves, safety goggles, Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, Gum Boots, Ear Muffers, Face Mask etc		4	2	2

	PC5. Understand the Dangerous Situations arising out of Flooding, Fire, Roof Fall, Explosion, Mechanical fault, Electrical Faults, Human Mistake, Signalling Errors		4	2	2
	PC6. Be familiar with the roles of Pump Khalasi, timber Khalasi etc for rescue management purpose		4	2	2
	PC7. Rehearse Rescue drill periodically		4	2	2
	PC8. Display awareness of siren or messages used for safety / emergency situation		3	2	1
	PC9. In case of emergency, set up Rescue Office		3	2	1
	PC10. Support rescue operations after the arrival of Mine Manager/Safety Officer/Operations In-Charge		4	2	2
		Total	**35**	**20**	**15**
2. MIN/ N0504 (Organize Safety Trainings and organize Safety Council Meetings)	PC1. Create awareness on Safety Regulations and & Compliances in new workers	**35**	6	3	3
	PC2. Plan and organize refresher training courses on Safety for existing workers		6	4	2
	PC3. Create awareness on Safety Equipment in new workers		6	4	2
	PC4. Plan and organize refresher training courses on Safety equipment for existing workers		6	3	3
	PC5. Organize periodic meetings of Safety Council		6	3	3
	PC6. Support Vocational Training Officer in conducting regular trainings to ensure safety norms are communicated and understood		5	3	2
		Total	**35**	**20**	**15**

3. MIN / N 0901 (Health and Safety)	PC1. Comply with occupational health and safety regulations adopted by the employer.	30	3	2	1
	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		3	2	1
	PC4. Comply with safety regulations and procedures in case of fire hazard.		3	2	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	1.5	0.5
	PC7. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS.		2	1.5	0.5
	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.		3	2	1
		Total	**30**	**20**	**10**