

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR MINING INDUSTRY

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 standards 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- Reclamation Supervisor

SECTOR: MINING

SUB-SECTOR: Open Cast and Underground Mines

OCCUPATION: Mining Operations

REFERENCE ID: MIN/Q 0436

ALIGNED TO: NCO-2004/NIL

A Reclamation Operator helps in execution of Environment Management Plan according to the various environmental regulations.

Brief Job Description: Reclamation Operator understands, supports in execution of Environment Management (Protection) Plan prepared along with the Mining plan. Reclamation Operator needs to understand Environmental Safety Area/Zone requirement in which the mine is planned and operates and ensures strict compliance to environmental acts, regulations and norms. Reclamation Operator executes reclamation plan with the help of Dumper Operator, Leveller Operator, Shovel Operator, Dozer Operator and botanical experts. Reclamation operator's role can also start with Rehabilitation of existing population, structures or any other entity existing on the mine site.

Personal Attributes: This job requires an individual to possess ability to plan and prioritize, analyse and execute, quality consciousness, safety orientation. reading, writing and communication skills, Physique to sustain strenuous conditions, Dexterity, Ability to read and understand layouts & plans, 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.

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Job Details	Qualification Pack Code	MIN/Q 0436		
	Job Role	Reclamation Supervisor		
	Credits(NSQF)	TBD	Version number	1.0
	Industry	Mining	Drafted on	15/12/2014
	Sub-sector	Open Cast and Underground Mines	Last reviewed on	24/03/2015
	Occupation	Mining Operations	Next review date	24/03/2017

Job Role	Reclamation Supervisor
Role Description	This role understands, plans and executes Reclamation and/or Restoration and/or Rehabilitation plan of mine related to overburden, plantation, structures, population in co-ordination & operational support of Dumper Operator, Leveller Operator, Shovel Operator, Dozer Operator and botanical & plantation experts (or Subject matter expert depending on Reclamation Plan).
NSQF level	5
Minimum Educational Qualification	B.Sc – Agriculture/ Horticulture, B.Sc. – General (with a subject Botany)
Maximum Educational Qualification	NA
Training (Suggested but not mandatory)	<ol style="list-style-type: none"> 1. Knowledge of Environment and Safety related acts: Environment Protection Act, Water (Prevention & Control of Pollution) , Hazardous Waste Handling & Management Act, Wildlife Protection Act, Environmental Impact Assessment Notification etc. 2. Latest Environment Management & best practices applicable to mining zone. 3. Safety and Environment
Experience	3-5 years of experience in similar role or as support to similar role for 2-3 years
Applicable National Occupational Standards	<p>Compulsory: Click on the hyperlink to read/download the required NOS</p> <ol style="list-style-type: none"> 1. MIN/ N 0501 (Understand reclamation aspects of the Mine Environment Protection Plan) 2. MIN/ N 0502 (Execute end to end reclamation activities at the mine site) 3. MIN/ N0901 (Health and Safety) <p>Optional: Not Applicable</p>
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 standards 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 Standards 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 Standards which apply uniquely in the Indian context.
Qualification Pack Code	Qualification Pack Code is a unique reference code that identifies a Qualification
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 Skills 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 demonstrating competency to receive, understand and plan activities around reclamation plan in line with mining plan. Demonstration of competencies to carry out preparatory activities by understanding environment management plan, Rehabilitation Master Plan, Feasibility Report issued time to time, various environment protection acts & legislations, seeking best practices at area/zone level.

MIN/ N0501 Understand reclamation aspects of the Mine Environment Protection Plan

National Occupational Standard	Unit Code	MIN/ N0501
	Unit Title (Task)	Understand reclamation aspects of the Mine Environment Protection Plan
	Description	This unit is about demonstrating competence to receive and handle various plans and reports related to Environment Protection as per Mining Plan. This unit covers creating list of reports and receiving various reports on Environment and related natural parameters.
	Scope	This unit/task covers the following: <ul style="list-style-type: none"> Understand and plan the activities on site as well as determine the EMP requirements
	Performance Criteria(PC) w.r.t. the Scope	
	Element	Performance Criteria
	Understand & Plan activities On-Site	<p>PC1. Understand the scope of Mining Plan and its impact on Environment Management Plan.</p> <p>PC2. Obtain Environment Management Plan and all related reports correctly and check conformity with the requirements of the Mining Plan.</p> <p>PC3. Complete the records accurately and make them available to authorised persons for their recommendations/guidance.</p> <p>PC4. Plan reclamation activities to operationalise and to roll out organisational procedures and relevant legislation requirements for environment protection.</p>
	Determine the EMP requirements	<p>PC5. Identify the overburden and area for reclamation to conform with the overall Environment Management plan of the site.</p> <p>PC6. Understand the Reclamation methodology and process to be adopted through discussions with the supervisor and reading the process manuals/ Work Instructions/Standard Operating Procedures</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>

MIN/ N0501 Understand reclamation aspects of the Mine Environment Protection Plan

	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 standards and procedures followed in the company for EMP KB2. different types of Environmental requirements at the mine KB3. processes like dumping, piling, backfilling, levelling, dozing, shovel
C. Technical Knowledge	The user/individual on the job needs to know and understand: KC1. Understanding of Environment Protection Act, Other Acts like Water Pollution Prevention Act KC2. Knowledge of backfilling, mountain creation, dumping, piling, backfilling, levelling, dozing, etc. KC3. Ability to receive and understand Environmental Impact Analysis done by the committees consisting of experts in the following disciplines : <ul style="list-style-type: none"> • Eco-System Management • Air/Water Pollution Control • Water Resource Management • Flora/Fauna Conservation and Management • Land Use Planning • Social Sciences/Rehabilitation • Project Appraisal • Ecology • Environmental Health • Subject Area Specialists • Representatives of NGOs/Persons Concerned With Environmental Issues.
Skills (S) [Optional]	
Element	Skills
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

MIN/ N0501 Understand reclamation aspects of the Mine Environment Protection Plan

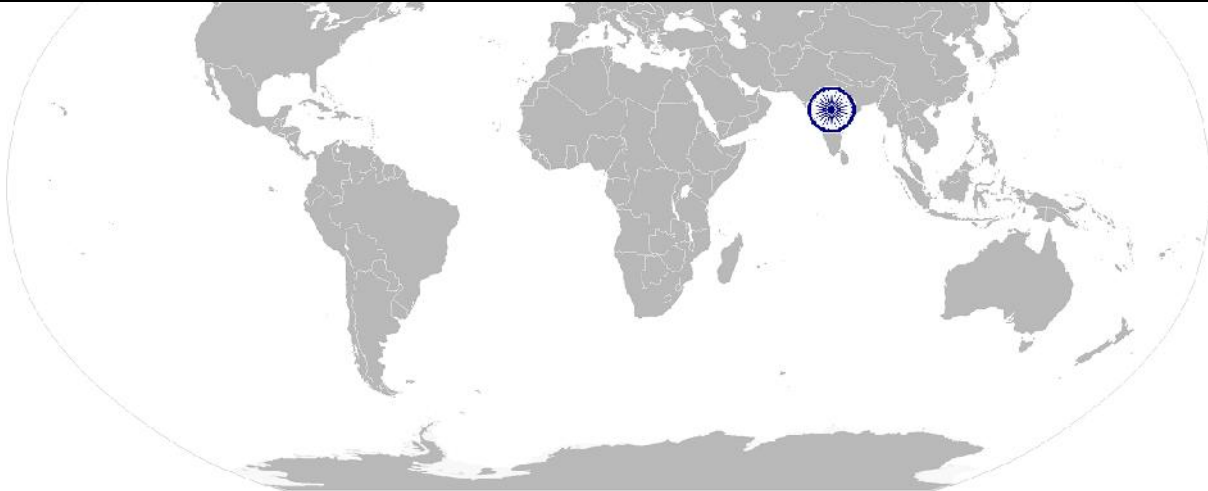
	<p>SA7. effectively communicate</p> <p>SA8. attentively listen with full attention and comprehend the information given by various sources about the site</p>
B. Professional Skills	Plan and Organize
	The user/individual on the job needs to know and understand how to: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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/ N0501 Understand reclamation aspects of the Mine Environment Protection Plan

NOS Version Control

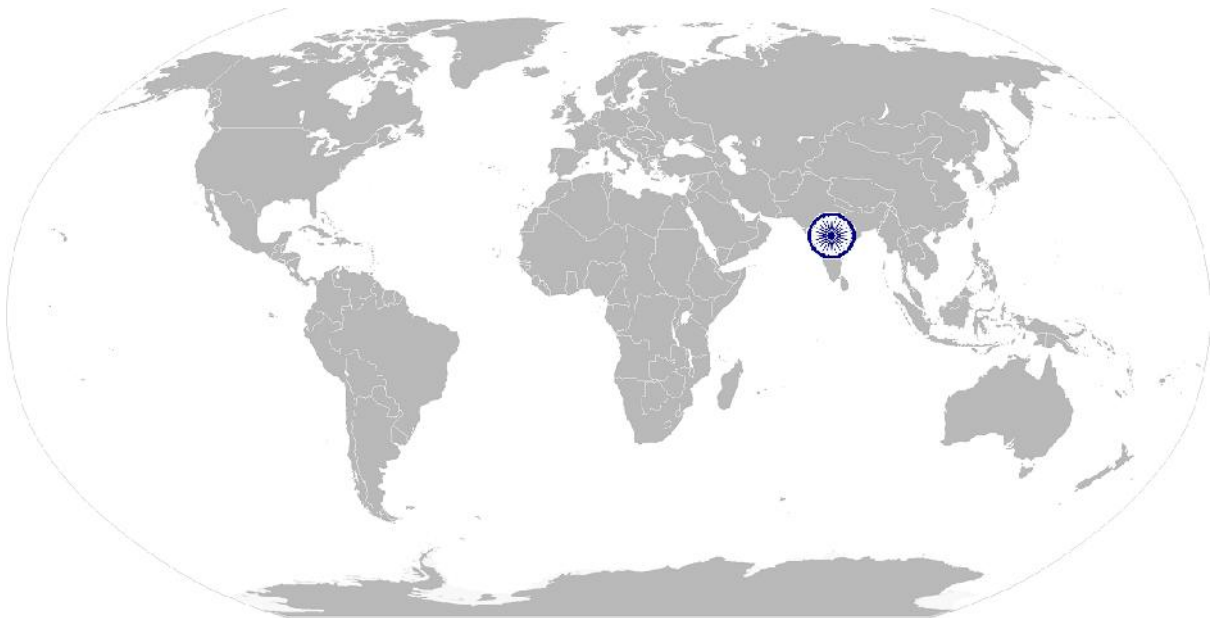
NOS Code	MIN/ N0501		
Credits(NSQF)	TBD	Version number	1.0
Industry	Mining	Drafted on	15/12/2014
Industry Sub-sector	Underground and Open Cast Mines	Last reviewed on	24/03/2015
Occupation	Mining Operations	Next review date	24/03/2017



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MIN/ N0502 Execute end to end reclamation activities at the mine site

National Occupational Standard



Overview

This unit is about executing end to end activities of the reclamation at mine site

MIN/ N0502 Execute end to end reclamation activities at the mine site

National Occupational Standard

Unit Code	MIN/ N0502
Unit Title (Task)	Execute end to end reclamation activities at the mine site
Description	This unit is about executing end to end activities of the reclamation at mine site
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Execution of the reclamation activities • Conduct of environmental audit and maintenance of records
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Executing Reclamation activities	<p>PC1. Collect information at the site on the removal, dumping, levelling, and plantation plan</p> <p>PC2. Oversee duties of Dumper, Dozer, Spreader/leveller machines</p> <p>PC3. To ensure proper operations of sand reclamation using back filing or other suggested methods</p> <p>PC4. Purchase & Maintenance of nursery as per EMP</p> <p>PC5. Water supply to plants, maintenance of pipelines to trees, use requisite machinery for watering small plants</p> <p>PC6. Maintain washouts, maintenance of drainage, sedimentation checks as per process</p>
Environmental Audit Support & Compliance	<p>PC7. Support in Internal & External Audits</p> <p>PC8. Ensure compliance to Audit observations with respect to reclamation aspects</p>
Record Upkeep	<p>PC9. Maintain Activity records</p> <p>PC10. Store reports & make them available for review and planning</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>

MIN/ N0502 Execute end to end reclamation activities at the mine site

	<p>KA9. Impact of violation of safely procedures</p>
<p>B. Organizational Context (Knowledge of organization processes)</p>	<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 Organization that results from damage of equipment</p> <p>KB5. All direct /indirect cost of accidents to the Organization</p> <p>KB6. Implications of delays in process to the Organization</p> <p>KB7. Locally prepared emergency response /disaster management plan.</p>
<p>C. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KC1. Understanding of Environment Protection Act, Other Acts like Water Pollution Prevention Act</p> <p>KC2. Knowledge of backfilling, mountain creation, dumping, piling, levelling, dozing, etc.</p> <p>KC3. Ability to receive and understand Environmental Impact Analysis done by the committees consisting of experts in the following disciplines :</p> <ul style="list-style-type: none"> • Eco-System Management • Air/Water Pollution Control • Water Resource Management • Flora/Fauna Conservation and Management • Land Use Planning • Social Sciences/Rehabilitation • Project Appraisal • Ecology • Environmental Health • Subject Area Specialists • Representatives of NGOs/Persons Concerned With Environmental Issues.

MIN/ N0502 Execute end to end reclamation activities at the mine site

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
B. Professional Skills	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
	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
B. Professional Skills	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
B. Professional Skills	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/ N0502 Execute end to end reclamation activities at the mine site

NOS Version Control

NOS Code	MIN/ N0502		
Credits(NSQF)	TBD	Version number	1.0
Industry	Mining	Drafted on	15/12/2014
Industry Sub-sector	Open Cast and Underground Mines	Last reviewed on	24/03/2015
Occupation	Mining Operations	Next review date	24/03/2017

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National Occupational Standards



Overview

This unit is about health and safety measures critical in mines

MIN/ N0901 Health and Safety

National Occupational Standard	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	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.			

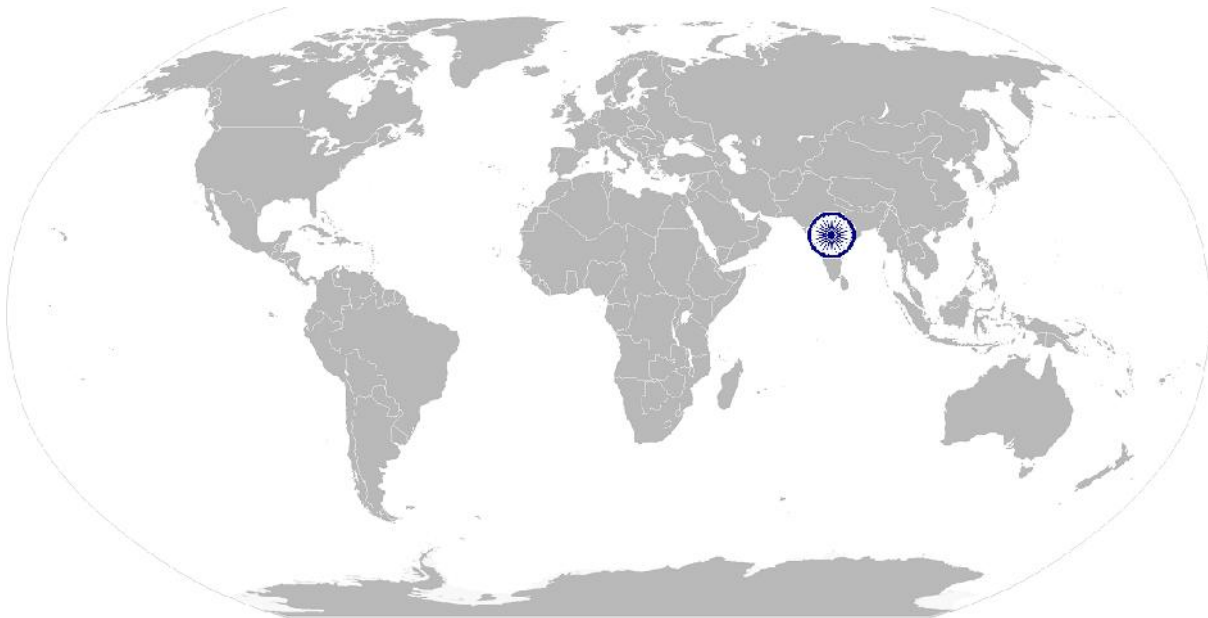
MIN/ N0901 Health and Safety

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> <ul style="list-style-type: none"> KA1. Environmental impact of mining 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. Sources of dust, noise and vibration and measures to minimise KA10. Hazardous material safety and security rules and regulations as prescribed by DGMS KA11. 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	Open Cast and Underground Mines	Last reviewed on	24/03/2015
Occupation	Mining Operations	Next review date	24/03/2017



CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Reclamation Supervisor

Qualification Pack MIN/Q 0436

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

		Total Mark (100)	Out Of	Marks Allocation	
				Theory	Skills Practical
1. MIN/ N 0501 (Understand reclamation aspects of the Mine Environment Protection Plan)	PC1. Understand the scope of Mining Plan and its impact on Environment Management Plan.	35	6	4	2
	PC2. Obtain Environment Management Plan and all related reports correctly and check conformity with the requirements of the Mining Plan.		6	3	3
	PC3. Complete the records accurately and make them available to authorised persons for their recommendations/ guidance.		5	3	2
	PC4. Plan reclamation activities to operationalize and to roll out organisational procedures and relevant legislation requirements for environment protection.		6	4	2

	PC5. Identify the overburden and area for reclamation to conform with the overall Environment Management plan of the site.		6	3	3
	PC6. Understand the Reclamation methodology and process to be adopted through discussions with the supervisor and reading the process manuals/ Work Instructions/Standard Operating Procedures		6	3	3
		Total	35	20	15
2. MIN/ N 0502(Execute end to end reclamation activities at the mine site)	PC1. Collect information at the site on the removal, dumping, levelling, and plantation plan	35	4	2	2
	PC2. Oversee duties of Dumper, Dozer, Spreader/leveller machines		3	2	1
	PC3. To ensure proper operations of sand reclamation using back filing or other suggested methods		4	2	2
	PC4. Purchase & Maintenance of nursery as per EMP		3	2	1
	PC5. Water supply to plants, maintenance of pipelines to trees, use requisite machinery for watering small plants		4	2	2
	PC6. Maintain washouts, maintenance of drainage, sedimentation checks as per process		4	2	2
	PC7. Support in Internal & External Audits		4	2	2
	PC8. Ensure compliance to Audit observations with respect to reclamation aspects		3	2	1
	PC9. Maintain Activity records		3	2	1
	PC10. Store reports& make them available for review and planning		3	2	1
		Total	35	20	15
3. MIN/ N0901 (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

