

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 – Person Handling Explosives

SECTOR: MINING

SUB-SECTOR: Industrial Minerals

OCCUPATION: Mining/Quarrying operations

REFERENCE ID: MIN/ Q 0405

ALIGNED TO: NCO-2004/ 7112.90

Brief Job Description: Persons handling explosives, in open cast mines, is a part of the blasters sub-category. The individual performing this role facilitates mining operations by cautiously storing, transporting and handling explosives used for blasting in mines. Controlled blasting techniques are used to remove debris and over-burden in order to make way for coal or other metals.

The nature of this job requires employees to follow extensive safety precautions therefore the individual has to be experienced and trained in safety procedures and guidelines for mining operations prescribed by DGMS.

Personal Attributes: This job requires the individual to be able to work well under pressure. Candidate should be able to feel comfortable working in dangerous situations and be accustomed to handling and being around chemicals and explosives. At the same time the job requires a very diligent attitude towards safety so as to nullify any possibility of an accident on account of careless mishandling or pilferage of explosives.

Job Details	Qualifications Pack Code	MIN / Q 0405		
	Job Role	Persons handling explosives This job role is applicable in both national and international scenarios		
	Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	Level 3	Version number	1.0
	Sector	Mining	Drafted on	01/02/2014
	Sub-sector	Industrial Minerals	Last reviewed on	24/03/2014
	Occupation	Mining/Quarrying operations	Next review date	24/03/2015

Job Role	Persons handling explosives
Role Description	Facilitates mining operations by safely storing, transporting and handling explosives used for blasting in mines.
NVEQF/NVQF level	Level 3
Minimum Educational Qualifications*	Class XII
Training (Mandatory)	<ol style="list-style-type: none"> 1. Technical and gallery training as per first schedule, Mining Vocational Training Rules (MVTR) 1966. 2. Training in handling explosives as per sixth schedule, Mining Vocational Training Rules (MVTR) 1966. 3. Refresher training if he has not handled explosives for a continuous period of six months before re-employment.
Experience	Six months prior association with explosives at an operating mine site is preferred.
Applicable National Occupational Standards (NOS)	Compulsory: <ol style="list-style-type: none"> 1. MIN/N 0416 (handling, examining, and identifying explosives) 2. MIN/ N 0417 (receipt, storage, packing, issue, and transportation of explosives) 3. MIN /N 0418 (carry out documentation and reporting) 4. MIN/ N 0901 (Health and Safety)
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 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.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Qualifications Pack	Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications 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'.
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.

National Occupational Standard



Overview

This unit is about handling, examining, and identifying explosives in open cast mines.

Unit Code		MIN/N 0416
Unit Title (Task)		Handling, Examining, And Identifying Explosives
Description	This unit is about handling, examining, and identifying explosives in open cast mines	
Scope	This OS unit/task covers the following: <ol style="list-style-type: none"> 1. Identifying and examining explosives. 2. Recording details of checking and maintenance 	
Performance Criteria (PC) w.r.t. the Scope		
Element	Performance Criteria	
Identify and examine	To be competent, the user/individual on the job must be able to:	
	PC1. Identify different types of explosives and their use	
	PC2. Identify different types of detonators and their use.	
Record details	PC3. Use a variety of gauges and equipment such as galvanometer, multi-meters, ring gauges etc. to detect defects and deterioration in explosive materials.	
	PC4. Examine shot holes and test firing circuits	
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: <ol style="list-style-type: none"> 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, Fencing, First aid and Hygiene KA4. Code of practice in specific areas of mine. Significance of fences KA5. Standing orders in force at the mine. Safety in the vicinity of machinery KA6. Shot-firing and Safety regulations. How and where to take shelter KA7. Tramways and siding, Haulage rooms, Winding rooms, Boilers, Electrical Gears KA8. Duties of workmen under Mines act KA9. Provision of wages, working hours and accident compensation as per Mines act KA10. Knowledge of mining safety procedures KA11. Outcome of violation of safely procedures KA12. Precautions to be taken when handling explosives KA13. not to use battery operated watches, synthetic cloths, watch strap and socks 	

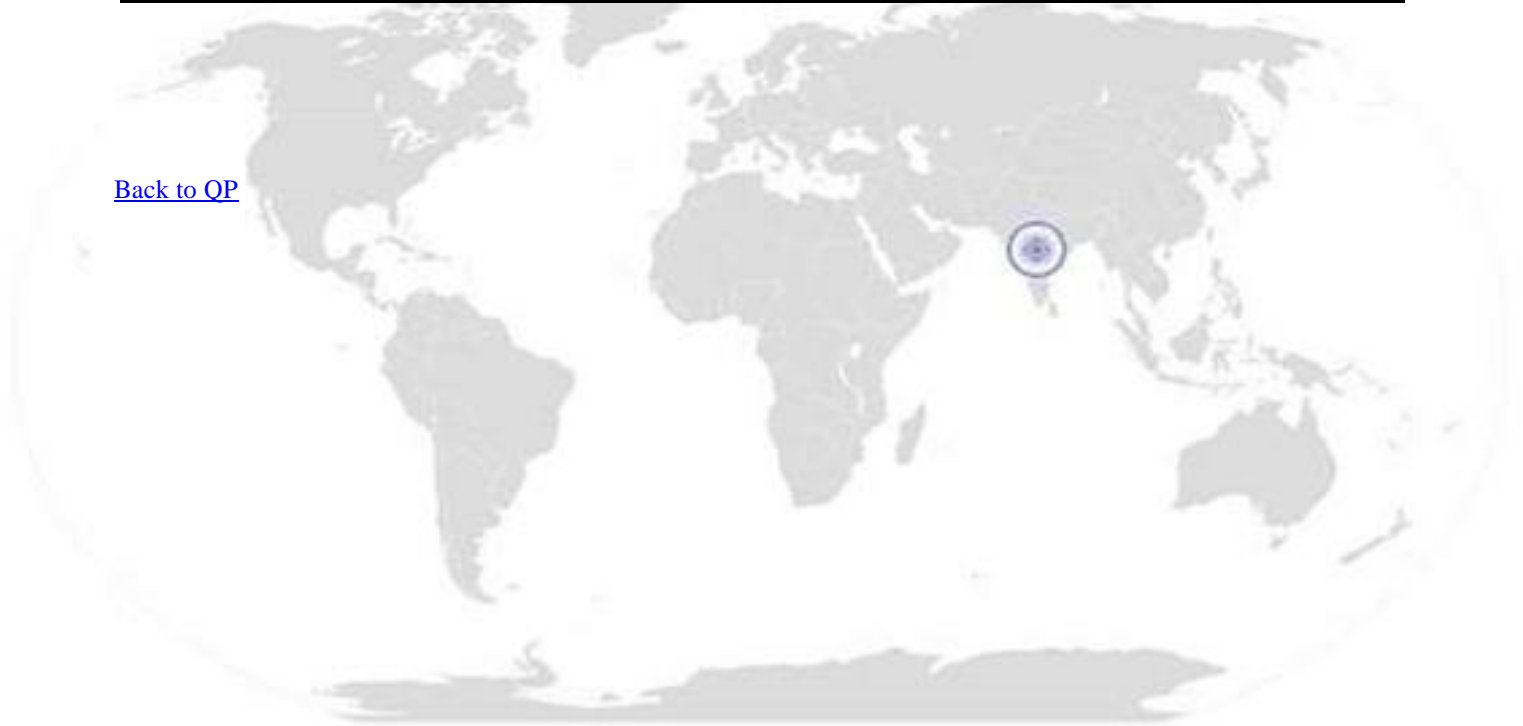
	<p>KA14. importance of using only conducting type of foot-wears; in case of leather shoes or boots, the sole shall also be of leather and without hobnails</p> <p>KA15. Dust, noise and vibration – ‘their sources and measures to minimise</p> <p>KA16. Environmental impact of mining</p> <p>KA17. Refresher training as per fourth schedule MVTR (1966) within one month of joining duties following absence from duties for a period exceeding six months.</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. Detail of the mine he is working in</p> <p>KB2. Job specific documents e.g. daily activity log and importance of the same</p> <p>KB3. Job duties of persons handling explosives.</p> <p>KB4. Risk and impact of not following defined procedures/work instructions</p> <p>KB5. Cost of equipment and loss for the company that results from damage of equipment</p>
<p>C. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KC1. Different types of explosives, their composition and categorization</p> <p>KC2. Difference between low and high explosives. Low explosives and their firing</p> <p>KC3. Safety and its burning speed</p> <p>KC4. High explosives, their detonation. Electric shot-firing.</p> <p>KC5. Various firing techniques and use of safety fuse and detonating fuse.</p> <p>KC6. Different types of detonators and their use</p> <p>KC7. Charging and firing of shots</p> <p>KC8. Different blasting patterns and their applications</p> <p>KC9. Danger from explosive. Clearing of fumes produced during shot-firing.</p> <p>KC10. Danger of blasting in vicinity of villages, roads and other structures.</p> <p>KC11. Case studies and accidents occurred due to improper blasting.</p> <p>KC12. Care in handling explosives. Taking shelter.</p> <p>KC13. Magazine keeping. Storage of explosives on surface and below ground.</p> <p>KC14. Issue of explosives. Return of unused explosives</p> <p>KC15. Permitted explosives.</p> <p>KC16. Knowledge of the techniques and equipment used to examine highly specialized items such as hazardous materials, explosives, toxic chemicals and flammables.</p> <p>KC17. vibration analysis and how to measure vibration.</p> <p>KC18. velocity of detonation and how to measure velocity of detonation.</p>

Skills	
A. Core Skills/ Generic Skills	<p>Writing Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Fill out various issue slips and transit slips legibly and with complete information.</p> <p>SA2. Fill out administrative forms</p>
	<p>Reading Skills</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. Read documentation and manuals</p> <p>SA4. Read and comprehend banners /signage</p>
	<p>Oral Communication (Listening and Speaking skills)</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA5. Communicate with supervisors and peers in a proper manner adhering to the values of respect for individual</p>
	<p>Integrity</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. Maintain integrity with respect to company property and time</p> <p>SA7. Communicate with supervisors and peers in a proper manner adhering to the values of respect for individual</p> <p>SA8. Resolve difficulties in relationships with colleagues amicably</p>
	<p>Motivation</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA9. Take responsibility for completing one's own work assignment</p> <p>SA10. Take initiative to enhance/learn skills in one's area of work</p>
	<p>Reliability</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA11. Avoid absenteeism</p> <p>SA12. Work in a disciplined manner</p> <p>SA13. Be punctual</p>
	<p>B. Professional Skills</p>
	<p>Time Management</p> <p>SB1. The user/individual on the job needs to know and understand how to: Prioritize and execute tasks within the scheduled time limits</p>

NOS Version Control

NOS Code	MIN/N 0416		
Credits(NVEQF/NVQF/NSQF)	TBD	Version number	1.0
Sector	Mining	Drafted on	01/02/2014
Sub-sector	Industrial Minerals	Last reviewed on	24/03/2014
Occupation	Mining/Quarrying operations	Next review date	24/03/2015

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National Occupational Standard



Overview

This unit is about receipt, storage, packing, issue, and transportation of explosives

National Occupational Standard	Unit Code	MIN/N 0417
	Unit Title(Task)	receipt, storage, packing, issue, and transportation of explosives
	Description	This unit is about receipt, storage, packing, issue, and transportation of explosives
	Scope	This OS unit/task covers the following: <ol style="list-style-type: none"> 1. Proper storage of explosives 2. Receipt and Issue of explosive material 3. Safe transport of explosives
	Performance Criteria (PC) w.r.t. the Scope	
	Element	Performance Criteria
	Storage	To be competent, the user/individual on the job must be able to: <ul style="list-style-type: none"> PC1. Test and assign condition codes to stored /received explosives. PC2. Properly packages unserviceable explosives for storage
	Receipt and Issue	<ul style="list-style-type: none"> PC3. Performs damage-in-transit examination of the received explosives PC4. Prepares and maintains transit slips for each issue and return transaction
	Safe Transport	<ul style="list-style-type: none"> PC5. Ensures all explosives are properly packaged, marked and labeled in compliance with directives and regulations PC6. Visually examine vehicles prior to loading to determine if the vehicle is suitable for transportation of hazardous materials PC7. Briefs drivers on proper route plans, fire-fighting procedures and safety concerns prior to release of the vehicle
	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: <ul style="list-style-type: none"> 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, Fencing, First aid and Hygiene KA4. Code of practice in specific areas of mine. Significance of fences KA5. Standing orders in force at the mine. Safety in the vicinity of machinery KA6. Shot-firing and Safety regulations. How and where to take shelter KA7. Tramways and siding, Haulage rooms, Winding rooms, Boilers, Electrical Gears 	

	<p>KA8. Duties of workmen under Mines act</p> <p>KA9. Provision of wages, working hours and accident compensation as per Mines act</p> <p>KA10. Knowledge of mining safety procedures</p> <p>KA11. Outcome of violation of safely procedures</p> <p>KA12. Precautions to be taken when handling heavy equipment</p> <p>KA13. Refresher training as per fourth schedule MVTR (1966) within one month of joining duties following absence from duties for a period exceeding one year.</p> <p>KA14. Hazardous material safety and security rules and regulations as prescribed by DGMS</p> <p>KA15. Code of practice for safe handling and transport of explosives.</p>
<p>B. Organizational</p> <p>Context (Knowledge of the organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. The duties and responsibilities associated with his job role</p> <p>KB2. Types of documentation in organization e.g. daily maintenance checklist and importance of the same</p> <p>KB3. Escalation matrix for reporting identified problems</p>
<p>C. Technical</p> <p>Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KC1. Different types of explosives, their composition and categorization</p> <p>KC2. Difference between low and high explosives</p> <p>KC3. High explosives, their detonation. Electric shot-firing</p> <p>KC4. Various firing techniques and use of safety fuse and detonating fuse</p> <p>KC5. Different types of detonators and their use</p> <p>KC6. Different blasting patterns and their applications</p> <p>KC7. Danger from explosive. Clearing of fumes produced during shot-firing.</p> <p>KC8. Care in handling explosives. Taking shelter.</p> <p>KC9. Magazine keeping. Storage of explosives on surface and below ground.</p> <p>KC10. Issue of explosives. Return of unused explosives</p> <p>KC11. Permitted explosives.</p> <p>KC12. Knowledge of the techniques and equipment used to examine highly specialized items such as hazardous materials, explosives, toxic chemicals and flammables.</p> <p>KC13. Storage physical security requirements to ensure that hazardous material is secured at all times</p> <p>KC14. Dangers of wastage or pilferage</p> <p>KC15. Significance of wearing protective clothing and gear such as hardhats, steel-toed shoes, rubber gloves, masks, and rubber aprons</p>

Skills (S)	
A. Core Skills/ Generic Skills	Reading Skills
	The user/individual on the job needs to know and understand how to: SA1. Read and adhere to signage as per standard mining nomenclature SA2. Read English and/or vernacular language with a constant speed SA3. Read and understand manuals, memos and health and safety instructions SA4. Read from different sources - books, screen displays and signage SA5. Understand various color codes, as per standard mining nomenclature
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA6. Communicate with supervisors and peers using respectful language
	Integrity
	The user/individual on the job needs to know and understand how to: SA7. Maintain integrity with respect to company property and time
	Motivation
	The user/individual on the job needs to know and understand how to: SA9. Take responsibility for completing one's own work assignment SA10. Take initiative to enhance/learn skills in one's area of work. SA11. Reflect and act upon one's learning from experience
B. Professional Skills	Reliability
	The user/individual on the job needs to know and understand how to: SA12. Avoid absenteeism SA13. Work in a disciplined environment
	Time Management
	The user/individual on the job needs to know and understand how to: SB1. Prioritize and execute tasks within the scheduled time limits
B. Professional Skills	Operations
	The user/individual on the job needs to know and understand how to: SB2. Visually examine and judge the condition of received explosives SB3. Select and use the correct combination of tests to check the material SB4. operate various hand tools and forklifts for handling heavy material

NOS Version Control

NOS Code	MIN/N 0417		
Credits(NVEQF/NVQF/NSQF)	TBD	Version number	1.0
Sector	Mining	Drafted on	01/02/14
Sub-sector	Industrial Minerals	Last reviewed on	24/03/2014
Occupation	Mining/Quarrying operations	Next review date	24/03/2015

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National Occupational Standard



Overview

This unit is about reporting and documentation

Unit Code	MIN/N 0418
Unit ID (Task)	Carry out reporting and documentation
Description	This unit is about carrying out reporting and documentation
Scope	This unit/task covers the following: <ol style="list-style-type: none"> 1. Reporting of problem/incidents etc. 2. Routine logging and Documentation
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Reporting	To be competent, the user/individual on the job must be able to: <ul style="list-style-type: none"> PC1. Report problems/incidents in a timely manner PC2. Follow reporting procedures as prescribed by the employer
Recording and Documentation	<ul style="list-style-type: none"> PC3. Identify documentation to be completed in one's role PC4. Record details accurately using the appropriate format PC5. Complete all documentation within stipulated time. PC6. Ensure documents are available to appropriate authorities to inspect
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: <ul style="list-style-type: none"> 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, Fencing, First aid and Hygiene KA4. Code of practice in specific areas of mine. Significance of fences KA5. Standing orders in force at the mine. Safety in the vicinity of machinery KA6. Shot-firing and Safety regulations. How and where to take shelter KA7. Tramways and siding, Haulage rooms, Winding rooms, Electrical Gears KA8. Duties of workmen under Mines act KA9. Provision of wages, working hours and accident compensation as per Mines act KA10. Knowledge of mining safety procedures KA11. Outcome of violation of safety procedures KA12. Precautions to be taken when handling heavy equipment KA13. Refresher training as per fourth schedule MVTR (1966) following absence from duties for a period exceeding one year.

<p>B. Organizational Context (Knowledge of the organization processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Various documents that need to be maintained</p> <p>KB2. Company recommended schedule for filling up the documents</p> <p>KB3. The importance of complete and accurate documentation</p> <p>KB4. Procedures for reporting to the appropriate authority</p> <p>KB5. Guidelines for reporting incidents where standard operating procedures were not followed in specific instances.</p>
<p>Skills (S)</p>	
<p>A. Core Skills/ Generic Skills</p>	<p>Writing Skills</p>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Fill up documentation applicable to one's role</p>
	<p>Reading Skills</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA2. Read and understand manuals, memos and health and safety</p>
	<p>Oral Communication (Listening and Speaking skills)</p>
<p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. Respond appropriately to any queries</p> <p>SA4. Communicate with supervisor</p>	

NOS Version Control

NOS Code	MIN/N 0418		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Sector	Mining	Drafted on	01/02/14
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Occupation	Mining/Quarrying operations	Next review date	24/03/2015

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National Occupation Standards



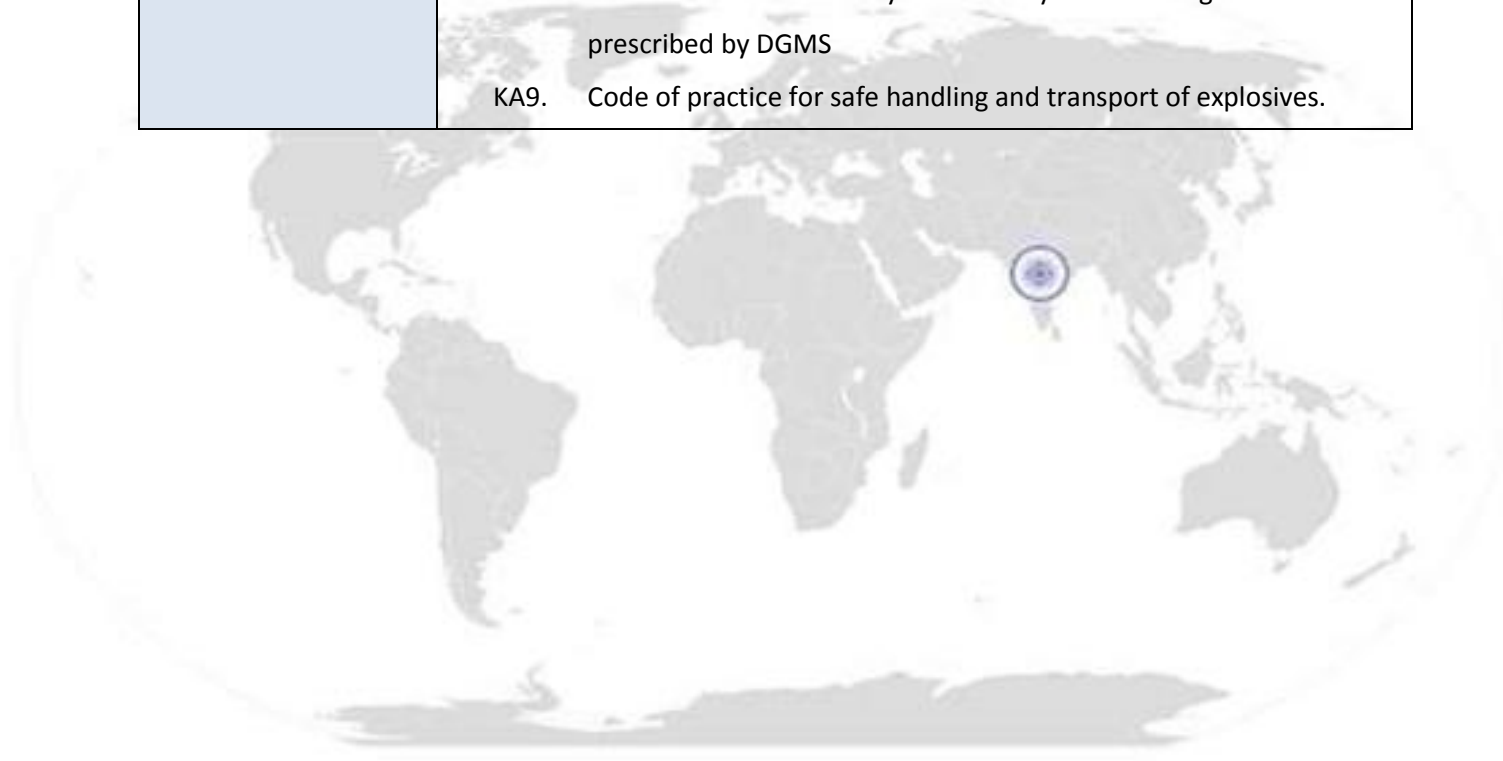
Overview

This unit is about health and safety measures critical in open-cast mines

Unit Code	MIN/N 0901
Unit Title (Task)	Health and Safety
Description	This unit is about health and safety measures critical in open-cast mines
Scope	This OS unit/task covers the following: <ol style="list-style-type: none"> 1. Health and safety measures critical for handling explosives
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. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS.</p> <p>PC2. Deal with misfires as per statutory requirement</p> <p>PC3. Comply with safety regulations and procedures in case of fire hazard.</p> <p>PC4. Operate various grades of fire extinguishers.</p> <p>PC5. 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>PC6. Demonstrate careful practices in handling explosives.</p> <p>PC7. Identify characteristics of post-blast fumes and take necessary precautions.</p> <p>PC8. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection</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> <ul style="list-style-type: none"> KA1. Benching in quarries, Dressing of overhangs, Fencing KA2. First aid and Hygiene KA3. Code of practice 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. Outcome of violation of safety procedures KA8. Hazardous material safety and security rules and regulations as prescribed by DGMS KA9. Code of practice for safe handling and transport of explosives.
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NOS Version Control

NOS Code	MIN / N 0901		
Credits(NVEQF/NVQF/NSQF)	TBD	Version number	1.0
Sector	Mining	Drafted on	01/02/14
Sub-sector	Industrial Minerals	Last reviewed on	24/03/2014
Occupation	Mining/Quarrying operations	Next review date	24/03/2015

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List of Abbreviations

Term	Description
NOS	National occupation standards
QP	Qualification pack
NVEQF	National vocational education qualifications framework
NSQF	National skills qualifications framework
HEMM	Heavy earth moving machinery
NCVT	National council for vocational training
DGMS	Directorate general of mines safety
PC	Performance Criteria
FIMI	Federation of Indian mineral industries