

## 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-Fireman

**SECTOR:** MINING

**SUB-SECTOR:** Open cast and Underground Mines

**OCCUPATION:** Mine Rescue/ Health

**REFERENCE ID:** MIN/Q 0439

**ALIGNED TO:** NCO-2004/NIL

A Fireman ensures preventive as well rescue related safety of the mine

**Brief Job Description:** This role is responsible for prevention as well as rescue of the mine areas and mine workers from the hazardous fires that can be a potential threat to life and property.

**Personal Attributes:** Technical knowledge of firefighting techniques and tools, ability to plan and prioritize, quality consciousness, sensitivity to problem solving, quick decision making, safety orientation, reading, writing and communication skills, Dexterity and high precision, ability to use internal ERP systems

Job Details	<b>Qualification Pack Code</b>	MIN/Q 0439		
	<b>Job Role</b>	Fireman		
	<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1.0
	<b>Industry</b>	Mining	<b>Drafted on</b>	15/12/2014
	<b>Sub-sector</b>	Open cast and Underground Mines	<b>Last reviewed on</b>	24/03/2015
	<b>Occupation</b>	Mine Rescue/ Health	<b>Next review date</b>	24/03/2017

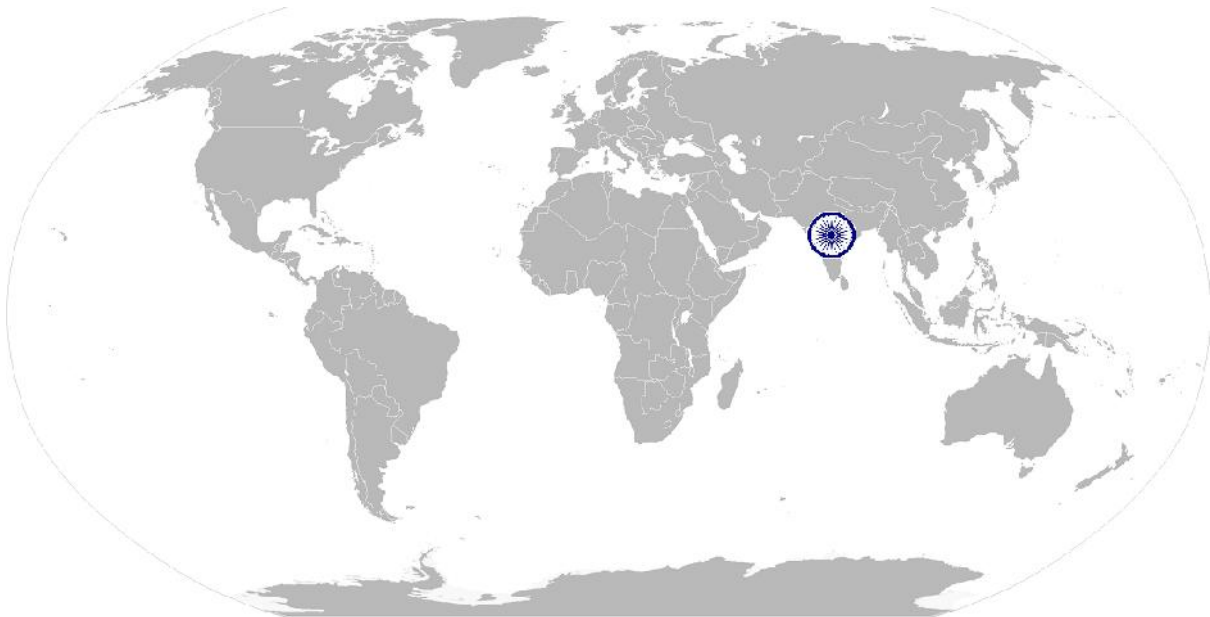
<b>Job Role</b>	<b>Fireman</b>
<b>Role Description</b>	This role is responsible for prevention as well as rescue of the mine areas and mine workers from the hazardous fires that can be a potential threat to life and property.
<b>NSQF level</b>	4
<b>Minimum Educational Qualification</b>	Class XII
<b>Maximum Educational Qualification</b>	NA
<b>Training</b> (Suggested but not mandatory)	<ol style="list-style-type: none"> <li>1. Different firefighting techniques used in organizations</li> <li>2. 5S and Safety aspects</li> <li>3. Problem Solving Techniques</li> <li>4. Quality Management Systems</li> </ol>
<b>Experience</b>	1 year in mining firefighting operations
<b>Applicable National Occupational Standards</b>	<p><b>Compulsory:</b></p> <p>Click on the hyperlink to read/download the required NOS</p> <ol style="list-style-type: none"> <li>1. MIN/ N 0507 (<a href="#">Undertake actions to prevent the fire situations in a mine</a>)</li> <li>2. MIN/ N 0508 (<a href="#">Conduct fire rescue operations</a>)</li> <li>3. MIN/ N 0901 (<a href="#">Health and Safety</a>)</li> </ol> <p><b>Optional:</b></p> <p>Not Applicable</p>
<b>Performance Criteria</b>	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 pack.
Qualification Pack	Qualification Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualification Pack is assigned a unique qualification pack code.
Unit Code	Unit Code is a unique identifier for an Occupational Standard , which is denoted by an 'N'
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
Organizational Context	Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills or Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.

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

# National Occupational Standard

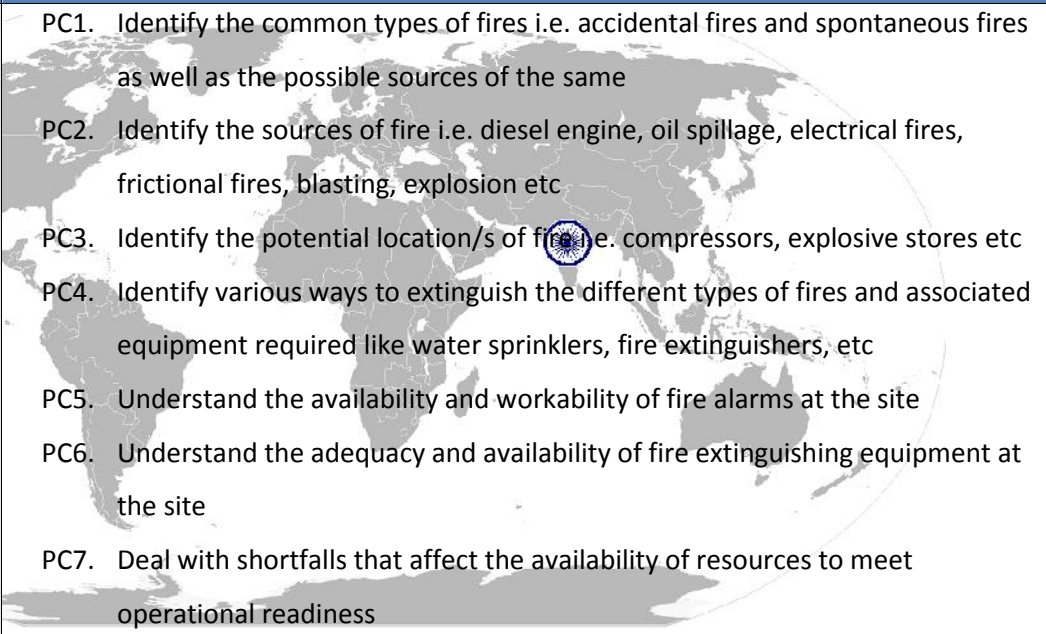


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## Overview

**This unit is about identifying the organizational requirements to ensure safety from fire and undertaking the actions to prevent the fire situations in a mine**

**MIN/ N0507 Undertake actions to prevent the fire situations in a mine**

National Occupational Standard	<b>Unit Code</b>	<b>MIN/ N0507</b>
	<b>Unit Title (Task)</b>	<b>Undertake actions to prevent the fire situations in a mine</b>
	<b>Description</b>	This OS unit is about identifying the organizational requirements to ensure safety from fire and undertaking the actions to prevent the fire situations in a mine
	<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>Identify the organizational requirements to ensure safety from fire</li> <li>Undertake actions to prevent the fire situations in a mine</li> </ul>
	<b>Performance Criteria (PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Identify the requirements to ensure fire safety in the mine</b>	 <p>PC1. Identify the common types of fires i.e. accidental fires and spontaneous fires as well as the possible sources of the same</p> <p>PC2. Identify the sources of fire i.e. diesel engine, oil spillage, electrical fires, frictional fires, blasting, explosion etc</p> <p>PC3. Identify the potential location/s of fire i.e. compressors, explosive stores etc</p> <p>PC4. Identify various ways to extinguish the different types of fires and associated equipment required like water sprinklers, fire extinguishers, etc</p> <p>PC5. Understand the availability and workability of fire alarms at the site</p> <p>PC6. Understand the adequacy and availability of fire extinguishing equipment at the site</p> <p>PC7. Deal with shortfalls that affect the availability of resources to meet operational readiness</p>
	<b>Undertake preventive actions towards fire safety</b>	<p>PC8. Facilitate the awareness of fire safety and associated safety actions that could be taken at the time of fire in the mine</p> <p>PC9. Enter inspection, training and emergency medical service calls into the records</p> <p>PC10. Ensure adherence to the fire safety related policies and guidelines defined for the organization</p> <p>PC11. Ensure periodic checking and maintenance of the fire extinguishing equipment at the site</p>
	<b>Knowledge and Understanding (K) w.r.t. the scope</b>	

**MIN/ N0507 Undertake actions to prevent the fire situations in a mine**

<p><b>A. Regulatory</b></p> <p><b>context</b></p> <p>(knowledge of safety guidelines specified by Director General of Mine Safety (DGMS))</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. Different types of mines and detail of the mine he is working in</p> <p>KA2. Mine Organisation, time keeping, need for discipline and punctuality</p> <p>KA3. Benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and Hygiene</p> <p>KA4. Standing orders in force at the mine. Safety in the vicinity of machinery</p> <p>KA5. Shot-firing and Safety regulations. How and where to take shelter</p> <p>KA6. Duties of workmen</p> <p>KA7. Provision of wages, working hours and accident compensation as per Mines act</p> <p>KA8. Knowledge of mining safety procedures</p> <p>KA9. Impact of violation of safely procedures</p>
<p><b>B. Organizational</b></p> <p><b>Context</b></p> <p>(Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. Relevant standard and procedures followed in the company</p> <p>KA2. Processes like Fire Fighting, Procurement, Store management, inventory management, quality management and key contact points for query resolution</p>
<p><b>C. Technical</b></p> <p><b>Knowledge</b></p>	<p>The user/individual on the job needs to know and understand:</p> <p>KC1. Different types of sources of fire like frictional fires, electrical fires, explosives, oil spills, blasting, etc.</p> <p>KC2. Different types of fire safety equipment like fire extinguishers, water sprinklers, breathing apparatus, fire jackets, fire alarms etc</p> <p>KC3. Hazards and safety aspects involved in fire prevention and rescue activities and usage of relevant PPEs</p> <p>KC4. Knowledge of mines rescue rules 1985</p> <p>KC5. Knowledge of 'K' type of fires</p> <p>KC6. Knowledge of emergency preparedness plan, mock drills etc</p> <p>KC7. Knowledge and usage of fire extinguishing and fire- fighting equipment</p> <p>KC8. Knowledge of mine plan, goaf area, de-pillaring sites etc</p>



**MIN/ N0507 Undertake actions to prevent the fire situations in a mine**

Skills (S) [Optional]	
<b>A. Core Skills/</b>  <b>Generic Skills</b>	<b>Writing Skills</b>
	The user/ individual on the job needs to know and understand how to:  SA1. Note down observations (if any) related to the fire fighting  SA2. Write information documents to internal departments/ internal teams or enter the information in online ERP systems under guidance of the supervisor
	<b>Reading Skills</b>
	The user/individual on the job needs to know and understand how to:  SA3. Read equipment manuals and process documents to understand the equipment and processes better  SA4. Read internal information documents sent by internal teams
	<b>Oral Communication (Listening and Speaking skills)</b>
	The user/individual on the job needs to know and understand how to:  SA5. Discuss task lists, schedules and activities with the supervisor  SA6. Effectively communicate with the team members  SA7. Question the supervisor in order to understand the nature of the problem and to clarify queries  SA8. Attentively listen with full attention and comprehend the information given by the speaker  SA9. Understand the various hand signals used
<b>B. Professional Skills</b>	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand how to:  SB1. Plan and organize the work order and jobs received from the Operator  SB2. Organize all process/ equipment manuals so that sorting/ accessing information is easy  SB3. Support the supervisor in scheduling tasks for helper and assistant supervisor
	<b>Judgment and Critical Thinking</b>
	The user/individual on the job needs to know and understand how to:  SB4. Use common sense and make judgments during day to day basis  SB5. Use reasoning skills to identify and resolve basic problems  SB6. Use intuition to detect any potential problems which could arise during



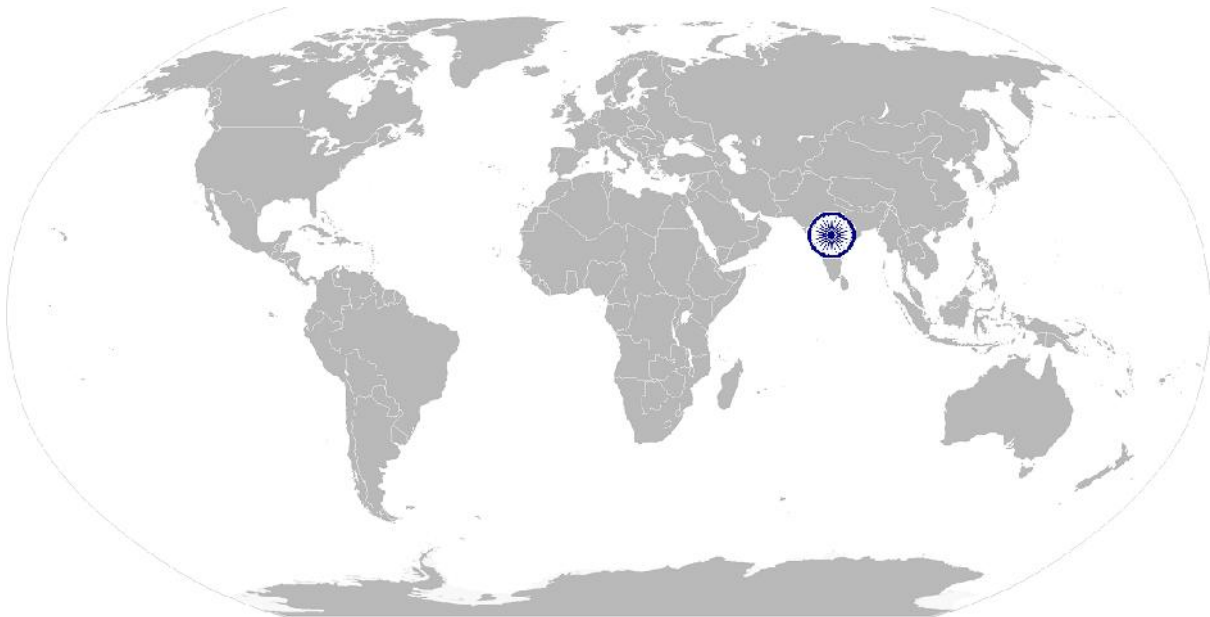
**MIN/ N0507 Undertake actions to prevent the fire situations in a mine**

	operations
	<b>Desire to learn and take initiatives</b>
	The user/individual on the job needs to know and understand how to:
	SB7. Follow instructions and work on areas of improvement identified
	SB8. Complete the assigned tasks with minimum supervision
	SB9. Complete the job defined by the supervisor within timelines and quality norms
	<b>Problem Solving and Decision making</b>
	The user/individual on the job needs to know and understand how to:
	SB10. Detect problems in day to day tasks
	SB11. Support supervisor in using specific problem solving techniques and detailing out the problems
	SB12. Discuss possible solution with the supervisor for problem solving
	SB13. Make decisions in emergency conditions in case the supervisor is not available( as per the authority matrix defined by the organization)



MIN/ N0507 Undertake actions to prevent the fire situations in a mine

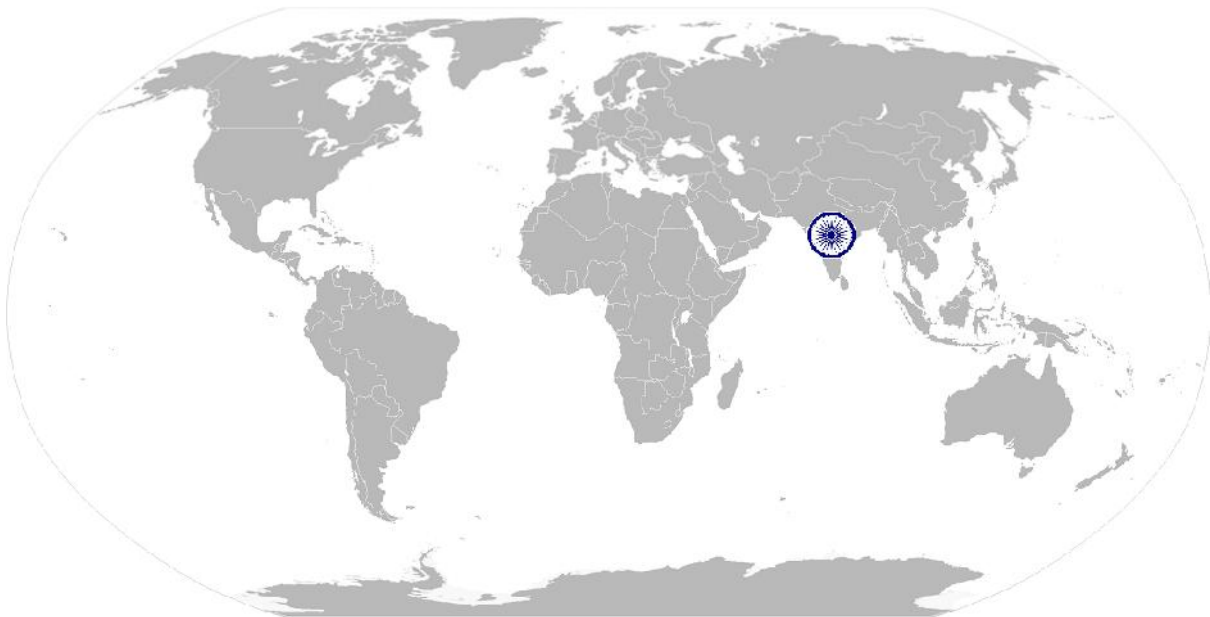
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<b>NOS Code</b>	<b>MIN/ N0507</b>		
<b>Credits(NSQF)</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Industry</b>	<b>Mining</b>	<b>Drafted on</b>	<b>15/12/2014</b>
<b>Industry Sub-sector</b>	<b>Open Cast and Underground Mines</b>	<b>Last reviewed on</b>	<b>24/03/2015</b>
<b>Occupation</b>	<b>Mine Rescue/ Health</b>	<b>Next review date</b>	<b>24/03/2017</b>

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# National Occupational Standards

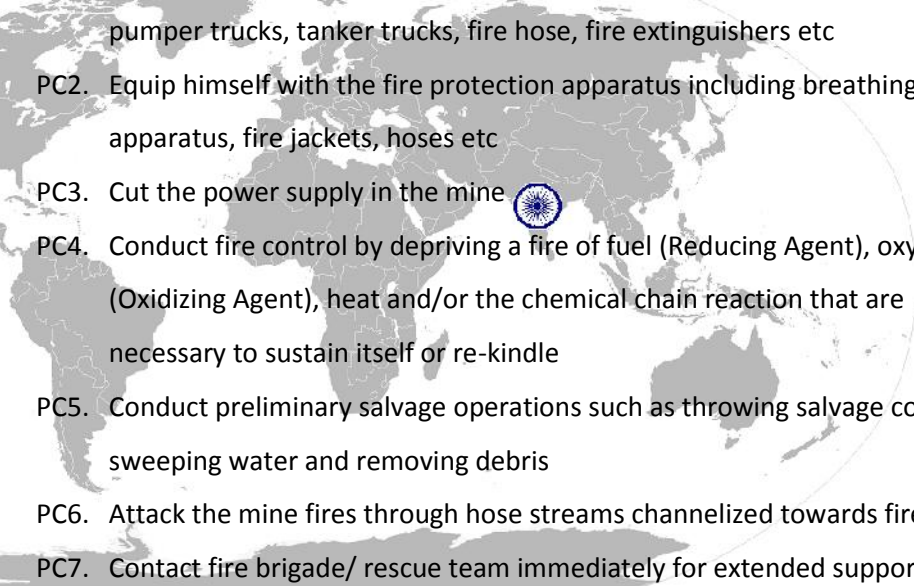


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## Overview

This unit is about conducting firefighting operations which comprise of fire control as well as fire rescue.

**MIN/ N0508 Conduct Fire Rescue Operations**

National Occupational Standard	<b>Unit Code</b>	<b>MIN/ N0508</b>
	<b>Unit Title (Task)</b>	<b>Conduct Fire Rescue Operations</b>
	<b>Description</b>	This OS unit is about conducting firefighting operations which comprise of fire control as well as fire rescue
	<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>Conducting the firefighting operations</li> </ul>
	<b>Performance Criteria (PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Conduct fire control and rescue operations</b>	 <p>PC1. Understand various equipment to control fire including ladder trucks, pumper trucks, tanker trucks, fire hose, fire extinguishers etc</p> <p>PC2. Equip himself with the fire protection apparatus including breathing apparatus, fire jackets, hoses etc</p> <p>PC3. Cut the power supply in the mine</p> <p>PC4. Conduct fire control by depriving a fire of fuel (Reducing Agent), oxygen (Oxidizing Agent), heat and/or the chemical chain reaction that are necessary to sustain itself or re-kindle</p> <p>PC5. Conduct preliminary salvage operations such as throwing salvage covers, sweeping water and removing debris</p> <p>PC6. Attack the mine fires through hose streams channelized towards fire</p> <p>PC7. Contact fire brigade/ rescue team immediately for extended support</p> <p>PC8. Search and remove the trapped occupants out of hazardous conditions</p> <p>PC9. Conduct search that is primarily around movement against room walls (to prevent rescuers from becoming lost or disoriented) and methodical searches of specific areas by designated teams</p> <p>PC10. Check and mobilize the resources from adjoining areas</p> <p>PC11. Inspect and clean the equipment and apparatus after returning from a fire</p> <p>PC12. Make minor repairs to equipment, perform routine preventive maintenance tasks, and keep records of such action</p>
	<b>Knowledge and Understanding (K) w.r.t. the scope</b>	

**MIN/ N0508 Conduct Fire Rescue Operations**

<p><b>A. Regulatory context</b> (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"> <li>KA1. Different types of mines and detail of the mine he is working in</li> <li>KA2. Mine Organisation, time keeping, need for discipline and punctuality</li> <li>KA3. Benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and Hygiene</li> <li>KA4. Standing orders in force at the mine. Safety in the vicinity of machinery</li> <li>KA5. Shot-firing and Safety regulations. How and where to take shelter</li> <li>KA6. Duties of workmen</li> <li>KA7. Provision of wages, working hours and accident compensation as per Mines act</li> <li>KA8. Knowledge of mining safety procedures</li> <li>KA9. Impact of violation of safely procedures</li> </ul>
<p><b>B. Organizational Context</b> (Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"> <li>KB1. Relevant standard and procedures followed in the company</li> <li>KB2. Processes like Firefighting, Procurement, Store management, inventory management, quality management and key contact points for query resolution</li> </ul>
<p><b>C. Technical Knowledge</b></p>	<p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"> <li>KC1. Different types of sources of fire like frictional fires, electrical fires, explosives, oil spills, blasting, etc</li> <li>KC2. Different types of fire safety equipment like fire extinguishers, water sprinklers, breathing apparatus, fire jackets, fire alarms etc</li> <li>KC3. Hazards and safety aspects involved in fire prevention and rescue activities and usage of relevant PPEs</li> <li>KC4. Knowledge of mines rescue rules 1985</li> <li>KC5. Knowledge of 'K' type of fires</li> <li>KC6. Knowledge of emergency preparedness plan, mock drills etc</li> <li>KC7. Knowledge and usage of fire extinguishing and fire- fighting equipment</li> <li>KC8. Knowledge of mine plan, goaf area, de-pillaring sites etc</li> </ul>
<p><b>Skills (S) [Optional]</b></p>	

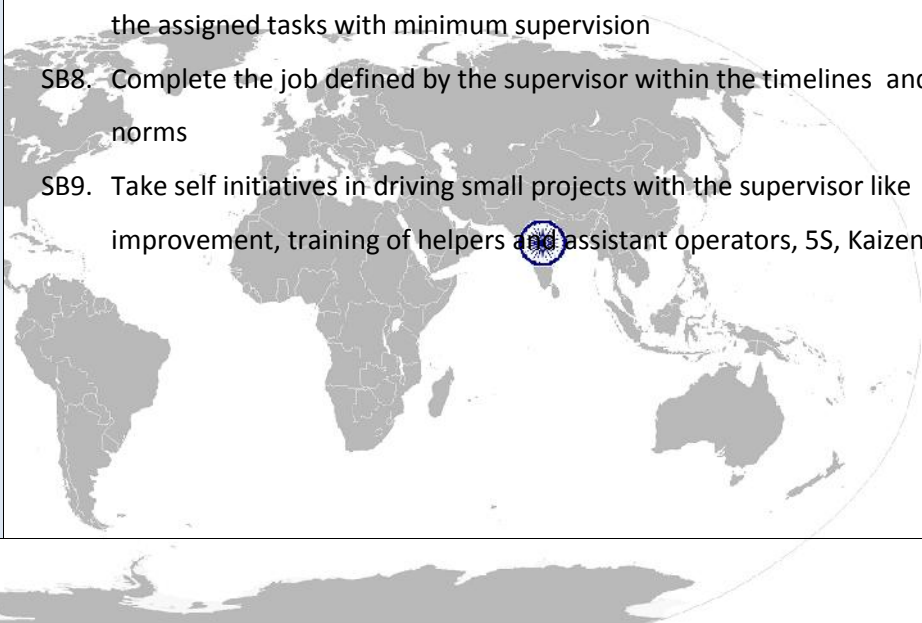
**MIN/ N0508 Conduct Fire Rescue Operations**

<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	The user/ individual on the job needs to know and understand how to:  SA1. Document information from the sketches and engineering drawings SA2. Prepare draft drawings for the final output product SA3. Note down observations (if any) related to the fire fighting process SA4. Write information documents to internal departments/ internal teams or SA5. Enter the information in online ERP systems under guidance of the supervisor
	<b>Reading Skills</b>
	The user/individual on the job needs to know and understand how to:  SA6. Read and interpret engineering drawing and sketches SA7. Read and interpret symbols and measurements used in the drawings SA8. Read equipment manuals and process documents to understand the equipment and processes better SA9. Read internal information documents sent by internal teams
<b>B. Professional Skills</b>	<b>Oral Communication (Listening and Speaking skills)</b>
	The user/individual on the job needs to know and understand how to:  SA10. Discuss task lists, schedules and activities with the supervisor SA11. Effectively communicate with the team members SA12. Question the supervisor in order to understand the nature of the problem and to clarify queries SA13. Attentively listen with full attention and comprehend the information given by the speaker SA14. Understand the various hand signals used
	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand how to:  SB1. Plan and organize the work order and jobs received from the Operator SB2. Organize all process/ equipment manuals so that sorting/ accessing information is easy
	<b>Analytical Thinking</b>
	The user/individual on the job needs to know and understand how to:



**MIN/ N0508 Conduct Fire Rescue Operations**

	<p>SB3. Visualize the final job product after understanding the given drawing/ sketches</p> <p>SB4. Identify the strengths and weakness of various fire fighting process</p>
	<p><b>Judgment and Critical Thinking</b></p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB5. Use common sense and make judgments during day to day basis</p> <p>SB6. Use reasoning skills to identify and resolve basic problems</p>
	<p><b>Desire to learn and take initiatives</b></p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB7. Follow instructions and work on areas of improvement identified complete the assigned tasks with minimum supervision</p> <p>SB8. Complete the job defined by the supervisor within the timelines and quality norms</p> <p>SB9. Take self initiatives in driving small projects with the supervisor like improvement, training of helpers and assistant operators, 5S, Kaizen etc</p>



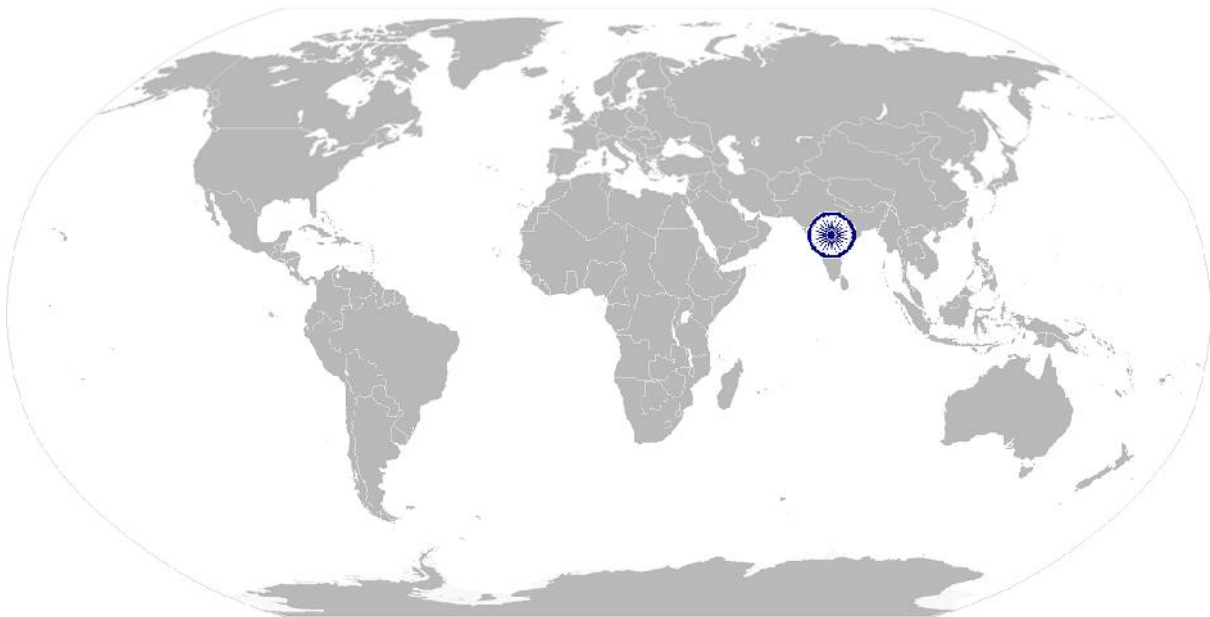


## NOS Version Control

<b>NOS Code</b>	MIN/ N0508		
<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1.0
<b>Industry</b>	Mining	<b>Drafted on</b>	15/12/2014
<b>Industry Sub-sector</b>	Open Cast and Underground Mines	<b>Last reviewed on</b>	24/03/2015
<b>Occupation</b>	Mine Rescue/ Health	<b>Next review date</b>	24/03/2017

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# National Occupational Standards



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## Overview

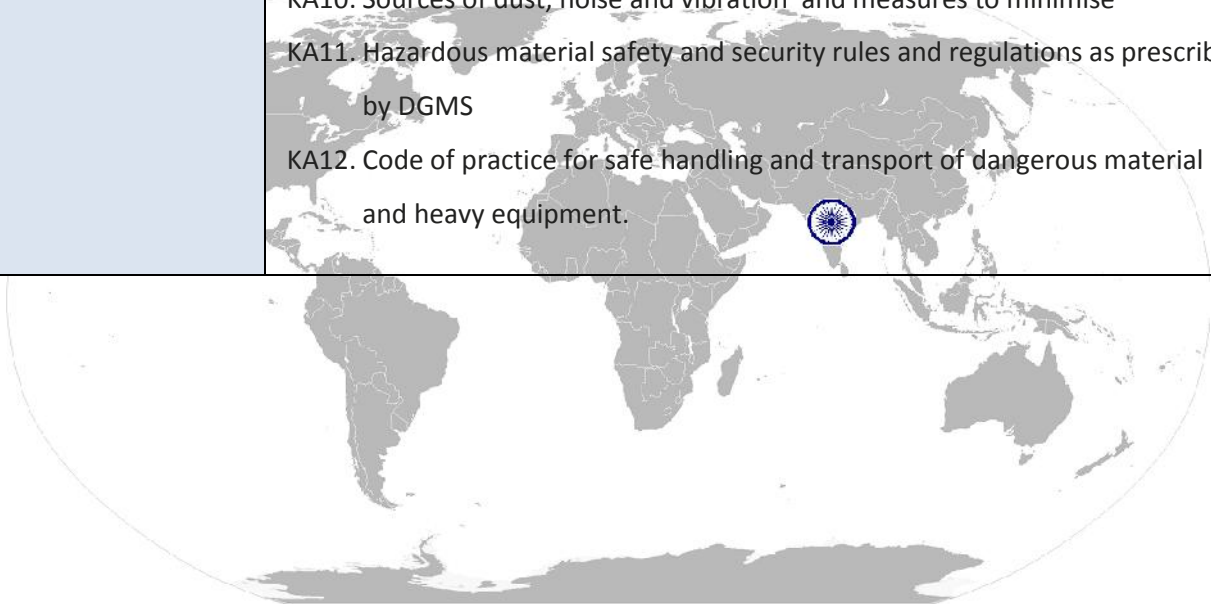
This unit is about health and safety measures critical in mines

**MIN/ N0901 Health and Safety**

National Occupational Standard	<b>Unit Code</b>	MIN/N 0901
	<b>Unit Title (Task)</b>	Health and Safety
	<b>Description</b>	This unit is about health and safety measures critical in mines
	<b>Scope</b>	This OS unit/task covers the following: <ul style="list-style-type: none"> <li>Health and safety measures critical in mines</li> </ul>
	<b>Performance Criteria (PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Safety, Security and Administrative</b>	<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>
	<b>Knowledge and Understanding (K)</b>	

**MIN/ N0901 Health and Safety**

<p><b>A. Regulatory context</b> (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"> <li>KA1. Benching in quarries, Dressing of overhangs, undercuts, Fencing</li> <li>KA2. First aid and Hygiene</li> <li>KA3. Code of traffic in specific areas of mine. Significance of fences</li> <li>KA4. Standing orders in force at the mine. Safety in the vicinity of machinery</li> <li>KA5. Shot-firing and Safety regulations. How and where to take shelter</li> <li>KA6. Knowledge of mining safety procedures</li> <li>KA7. Impact of violation of safety procedures</li> <li>KA8. Locally prepared Emergency Preparedness / Disaster Management Plan.</li> <li>KA9. Environmental impact of mining</li> <li>KA10. Sources of dust, noise and vibration and measures to minimise</li> <li>KA11. Hazardous material safety and security rules and regulations as prescribed by DGMS</li> <li>KA12. Code of practice for safe handling and transport of dangerous material and heavy equipment.</li> </ul>
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## NOS Version Control

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

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