

# QUALIFICATION PACK – OCCUPATIONAL STANDARD FOR INFRASTRUCTURE EQUIPMENT 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

### Qualification Pack - Junior Backhoe Operator

<b>SECTOR:</b>	INFRASTRUCTURE EQUIPMENT
<b>SUB SECTOR:</b>	Equipment Operations
<b>OCCUPATION:</b>	Operator
<b>REFERENCE ID:</b>	IES/Q0102
<b>ALIGNED TO:</b>	NCO-2004/ NIL

**Brief Job Description:** A junior backhoe operator assists the operator in driving and controlling the backhoe operations; safely and efficiently. He assists the operator in backhoe operations and is responsible for conducting pre check operations and regular machine maintenance.

**Personal Attributes:** The job requires the individual to be extremely diligent and careful and have good hand eye coordination. Hard work and strong work ethics, courteous behavior with co – workers are equally desirable. He should also be physically agile, strong, have good eye sight and not suffer from colour-blindness.

Qualifications Pack Code	IES/Q0102		
Job Role	Junior Backhoe Operator		
Credits(NSQF)	TBD	Version number	1.0
Sector	Infrastructure Equipment	Drafted on	16/02/2015
Sub-sector	Equipment Operations	Last reviewed on	31/03/2015
Occupation	Operator	Next review date	31/03/2017
NSQC Clearance on	31/03/15		

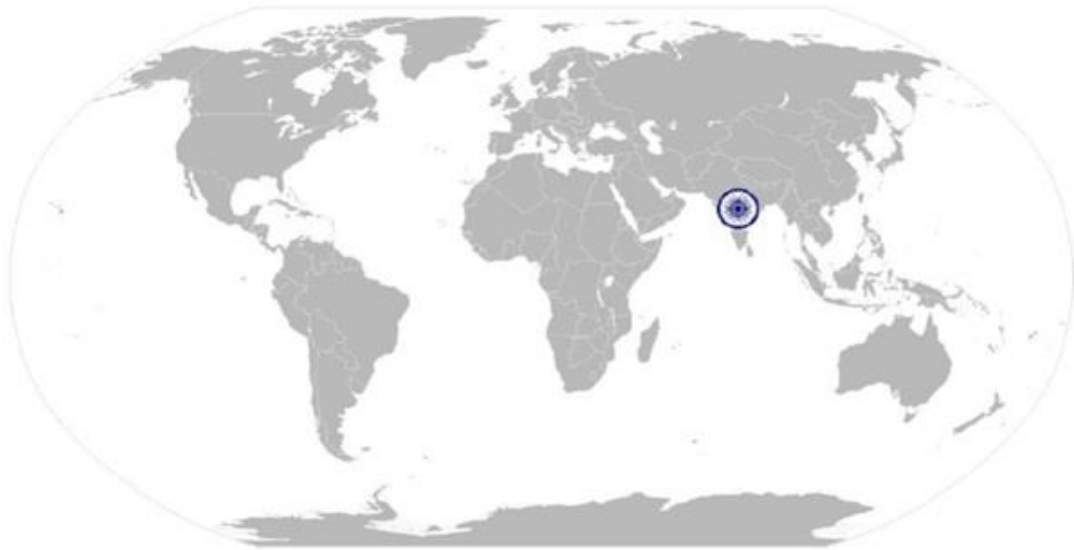
Job Role	Junior Backhoe Operator
Role Description	A junior backhoe operator assists the operator in driving and controlling the backhoe operations; safely and as per schedule. He assists the operator in smooth functioning of the operations along with performing pre checks of the machine. He is also responsible for cleaning and basic maintenance of backhoe loader.
NSQF level	3
Minimum Educational Qualifications*	Preferably Class VIII
Maximum Educational Qualifications*	NA
Training (Suggested but not mandatory)	NA
Minimum Job Entry Age	Preferably 18 years
Experience	NA
Applicable National Occupational Standards (NOS)	<p><b>Compulsory</b></p> <ol style="list-style-type: none"> <li>1. <a href="#">IES/N0104Assist in Carrying out pre – checks of backhoe loader</a></li> <li>2. <a href="#">IES/N0105Assist in backhoe operations</a></li> <li>3. <a href="#">IES/N0106Assist in regular maintenance of the backhoe loader</a></li> <li>4. <a href="#">IES/N7601Comply with worksite health and safety guidelines</a></li> </ol> <p><b>Optional:</b> N.A.</p>
Performance Criteria	As described in the relevant OS units

Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
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.
Sub-functions	Sub-functions are sub-activities essential to fulfil achieving the objectives of the function.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
Occupational Standards (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; he/she needs 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.
National Occupational Standards (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(QP)	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'.
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 find the required one.
Scope	Scope is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of required performance.
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 up to the required standard.

**Acronyms**

Keywords /Terms	Description
OS	Occupational Standard(s)
NOS	National Occupational Standard(s)
QP	Qualifications Pack
NSQF	National Skill Qualifications Framework
ITI	Industrial Training Institute
HCV	Heavy Commercial Vehicle
SHE	Safety Health and Environment
SOP	Standard Operating Procedure
TBD	To Be Determined

# National Occupational Standard



## Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that need to be carried out to prepare the backhoe loader for a shift.

## Assist in Carrying out pre – checks of backhoe loader

<b>Unit Code</b>	<b>IES/N0104</b>
<b>Unit Title (Task)</b>	<b>Assist in Carrying out pre – checks of backhoe loader</b>
<b>Description</b>	This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that need to be carried out to prepare the backhoe loader for a shift.
<b>Scope</b>	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Assist in conducting pre-operation checks</li> <li>Assist in maintaining documentation and records</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Assist in conducting pre operation checks</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Visually inspect the body components for cracks and bearing wear</p> <p>PC2. Assist in inspecting the boom and the stick for dents and cracked welds</p> <p>PC3. Assist in inspecting all ground engaging tools to ensure stability</p> <p>PC4. Check that oil levels of engine, transmission, radiant coolant and brake are as per manufacturer's indicators</p> <p>PC5. Assist in checking differential and hydraulic oil levels</p> <p>PC6. Assist in checking that oil levels of engine, transmission, radiant coolant and brake are as per manufacturer's indicators</p> <p>PC7. Check fan belt tension, electrolyte level and terminal tightness</p> <p>PC8. Assist in conduct visual inspection to check the various controls, gauges, warning lamp and other safety devices</p> <p>PC9. Check load chart is displayed in cabin</p> <p>PC10. Clean air filter dust bowls and check the gasket and inner filter</p> <p>PC11. Drain water and sediment from the fuel tank</p> <p>PC12. Top up coolant and oil in engine, transmission, etc. if necessary, in consultation with operator, as per manufacturer's indicators</p> <p>PC13. Grease all greasing pins and pivots points well</p> <p>PC14. Examine the compressor unit and all fittings and air lines</p> <p>PC15. Check clearance of the drawbar ball and socket, look for excessive free-play, and adjust if necessary</p> <p>PC16. Check that the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only)</p> <p>PC17. Keep footplates and steps clean and free from mud, dirt and oil</p> <p>PC18. Walk completely around the backhoe loader to check that no one is under or on the machine before operating</p> <p>PC19. Get the log book of activities performed approved by the operator</p>
<b>Assist in maintaining documentation and records</b>	<p>PC20. Assist in maintaining logbook to record all activities performed before starting the backhoe loader</p> <p>PC21. Report defects precisely to the operator if beyond scope of role</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the company /	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. The organization's procedures and guidelines related to backhoe loader operations</p> <p>KA2. The performance standards &amp; procedures followed in the company</p>

## Assist in Carrying out pre – checks of backhoe loader

organization and its processes)	<p>KA3. Reporting structure in the company</p> <p>KA4. Escalation matrix for reporting unresolved problems</p> <p>KA5. Timeframe in which the complaint/problem should be resolved</p> <p>KA6. Work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process</p> <p>KA7. Location of tools</p> <p>KA8. Contact person in case of queries on procedure or products</p> <p>KA9. Location and process for storage and disposal of waste material</p> <p>KA10. Safety Policy of the company</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Responsibilities of the assigned job role</p> <p>KB2. Different types of backhoes and their use and function</p> <p>KB3. Working of engine, transmission, their use and function</p> <p>KB4. Principles of friction</p> <p>KB5. Steering mechanisms and correct way of steering on slopes</p> <p>KB6. Common types of signals and warning indicators</p> <p>KB7. Significance of greasing and oiling parts of a backhoe loader that need routine lubrication</p> <p>KB8. Procedure of filling diesel, coolant in the machine</p> <p>KB9. Method of greasing and lubrication</p> <p>KB10. Method to identify the grade and quality of oil to be used</p> <p>KB11. Instrument panel, their location and operation</p> <p>KB12. The various types of hand signals used on the site</p> <p>KB13. Controls, levers and switches in order to operate the backhoe loader properly</p> <p>KB14. Optimal working condition of compactor components</p> <p>KB15. Optimal engine oil pressure, radiator coolant temperature</p> <p>KB16. Visual checks to identify damage, defects, cracks or leaks beforehand</p>
<b>Skills (S)</b>	
<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. Record any deviations/ incidents as per prescribed norms
	<b>Reading Skills</b>
	The user/ individual on the job needs to know and understand how to:
<b>B. Professional Skills</b>	SA2. Read and comprehend basic English to read manuals of operations
	SA3. Read instructions, guidelines/procedures/rules related to the worksite and equipment operations
	<b>Oral Communication (Listening and Speaking Skills)</b>
	The user/ individual on the job needs to know and understand how to:
	SA4. Interact effectively with operators in order to clarify instructions and other issues
<b>B. Professional Skills</b>	SA5. Use correct technical terms while interacting with operator and other personnel
	<b>Decision Making</b>
<b>B. Professional Skills</b>	The user/ individual on the job needs to know and understand how to:
	SB1. Decide when to conduct maintenance checks



## Assist in Carrying out pre – checks of backhoe loader

	<b>Plan and Organize</b>
	The user/ individual on the job needs to know and understand how to:
	SB2. Carry out work tasks in line with instructions of the operator/ other supervisors and as per timelines
	SB3. Plan work according to the required schedule and location
	SB4. Plan for cleaning and lubricating the backhoe loader every day
	<b>Customer Centricity</b>
	The user/ individual on the job needs to know and understand how to:
	SB5. Provide service of the highest order to ensure customer satisfaction
	<b>Problem Solving</b>
	The user/ individual on the job needs to know and understand how to:
	SB6. Report problems that you cannot resolve to appropriate authority
	SB7. Identify sources of support that can be availed for problem solving for various kinds of problems
	<b>Analytical Thinking</b>
	The user/ individual on the job needs to know and understand how to:
	SB8. Identify 'cause and effect' relations in own area of work
	<b>Critical Thinking</b>
	The user/ individual on the job needs to know and understand how to:
	SB1. Apply balanced judgment to different situations

## NOS Version Control

NOS Code	IES/N0104		
Credits(NSQF)	TBD	Version number	1.0
Sector	Infrastructure Equipment	Drafted on	16/02/2015
Industry Sub-sector	Equipment Operations	Last reviewed on	31/03/2015
Occupation	Operator	Next review date	31/03/15

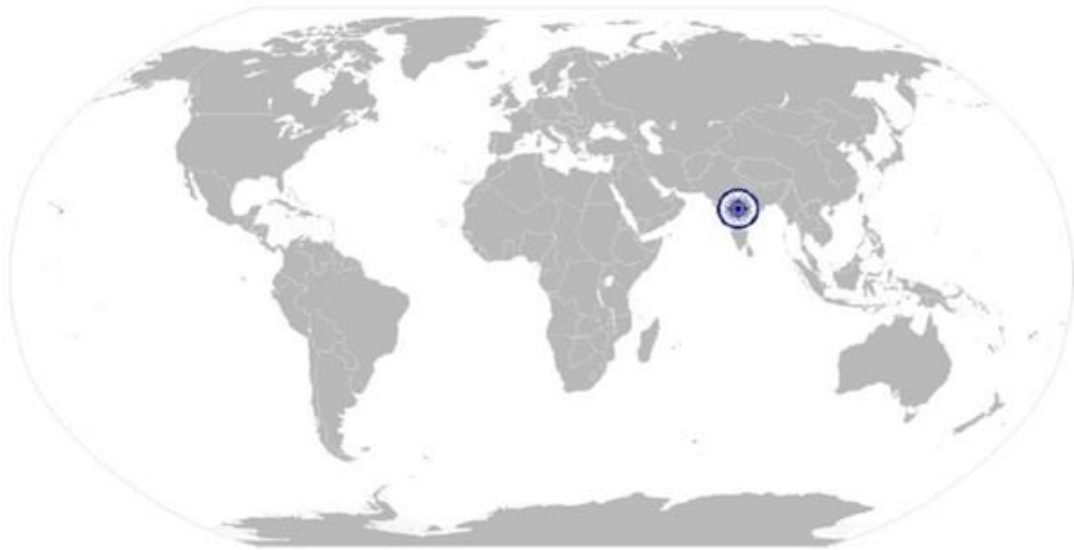
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## Assist in backhoe operations

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# National Occupational Standard



### Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for assisting in backhoe operations.

**Assist in backhoe operations**

National Occupational Standard	<b>Unit Code</b>	<b>IES/N0105</b>
	<b>Unit Title (Task)</b>	<b>Assist in backhoe operations</b>
	<b>Description</b>	This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for assisting in backhoe operations.
	<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>Assist in earth digging</li> <li>Assist in load lifting and dumping</li> </ul>
	<b>Performance Criteria(PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Assist in earth digging</b>	To be competent, the user/individual on the job must be able to: <ul style="list-style-type: none"> <li>PC1. Assist in inspection of the worksite to identify and loose soil, hidden deep trenches or marshy patches where a compactor could get stuck</li> <li>PC2. Carry out and assist in all pre-use and running checks</li> <li>PC3. Assist in determining speed and direction of machine, as per the specified function</li> <li>PC4. Assist in ascertaining the right location to begin operations</li> <li>PC5. Continuously monitor hazards and risks, and ensure safety of self, other personnel, plant and equipment</li> <li>PC6. Remove the obstacles if any during the digging process</li> <li>PC7. Assist in modifying the operating technique to meet changing work conditions</li> <li>PC8. Assist in using stabilizers to ensure the machinery is completely immobile while digging</li> </ul>
	<b>Assist in load lifting and dumping</b>	<ul style="list-style-type: none"> <li>PC9. Assist the operator to select, attach and apply slings and lifting gear in accordance with safe working load requirements</li> <li>PC10. Assist in positioning and locating machinery to ensure stability to effectively shift materials according to job specifications</li> <li>PC11. Assist the operator in shifting load safely and effectively</li> <li>PC12. Assist in moving load using hand/audible/communication signals</li> <li>PC13. Assist in removing attachments after use</li> <li>PC14. Clean and store removed attachments</li> </ul>
	<b>Knowledge and Understanding (K)</b>	
	<b>A. Organizational Context</b> (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> <li>KA1. Responsibilities of the assigned job role</li> <li>KA2. Job specific documents e.g. daily maintenance checklist and importance of the same</li> <li>KA3. Common hazards in the work area and workplace procedures to deal with them</li> <li>KA4. Safety policy of the company</li> <li>KA5. Emergency organization of the specific work site</li> <li>KA6. Risk and impact of not following defined procedures/ work instructions</li> <li>KA7. The performance standards &amp; procedures followed in the company</li> <li>KA8. Reporting structure in the company</li> <li>KA9. Escalation matrix for reporting unresolved problems</li> <li>KA10. Timeframe in which the complaint/problem should be resolved</li> </ul>

**Assist in backhoe operations**

	KA11. Implications of delays in process to the company KA12. Cost of equipment and loss for the company that result from damage of equipment and direct/ indirect cost of accidents KA13. Work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process KA14. Location of tools KA15. Contact person in case of queries on procedure or products KA16. Location and process for storage and disposal of waste material
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: KB1. Different types of backhoe loaders and their specific use KB2. Working of engine, transmission, their use and function KB3. Principles of friction KB4. Steering mechanisms and correct way of steering on slopes KB5. Significance of greasing and oiling parts of the compactor KB6. Instruments panel, their location and operation KB7. Controls, levers and switches in order to operate the compactor properly KB8. Optimal working condition of backhoe loaders KB9. Optimal engine oil pressure, radiator coolant temperature KB10. Significance of stabilizers while digging KB11. The different attachments, their usage and functions (grappler fork, buckets, side shift forks, sweepers, crane hooks, rock breaker etc.) KB12. Visual checks to identify damage, defects or leaks beforehand KB13. General safety rules for operating a compactor KB14. All signage, safety signs and other emergency signals KB15. Correct maintenance procedures for backhoe loader KB16. The procedure and requirement of using the emergency button
<b>Skills (S)</b>	
<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. Record any deviations/ incidents as per prescribed norms
	<b>Reading Skills</b>
	The user/ individual on the job needs to know and understand how to: SA2. Read and comprehend basic English to read and interpret decals/indicators in the machine/operator's manual SA3. Interpret stakes and signage on the road and during worksite operations SA4. Read instructions, guidelines/procedures/rules related to the worksite and equipment operations
	<b>Oral Communication (Listening and Speaking Skills)</b>
	The user/ individual on the job needs to know and understand how to: SA5. Interact effectively with operators in order to clarify instructions and other issues SA6. Use correct technical terms while interacting with operator and other personnel
<b>B. Professional Skills</b>	<b>Decision Making</b>
	The user/ individual on the job needs to know and understand how to:

**Assist in backhoe operations**

	SB1. Assess for any damage/faulty component in the backhoe loader and report to the operator
	<b>Plan and Organize</b>
	The user/ individual on the job needs to know and understand how to:
	SB2. Carry out work tasks in line with instructions of the operator/ other supervisors and as per timelines
	SB3. Plan work according to the required schedule and location
	<b>Customer Centricity</b>
	The user/ individual on the job needs to know and understand how to:
	SB4. Provide service of the highest order to ensure customer satisfaction
	<b>Problem Solving</b>
	The user/ individual on the job needs to know and understand how to:
	SB5. Report problems that you cannot resolve to appropriate authority
	SB6. Identify sources of support that can be availed for problem solving for various kinds of problems
	<b>Analytical Thinking</b>
	The user/ individual on the job needs to know and understand how to:
	SB7. Evaluate the complexity of the tasks to determine if he/she needs any assistance from the senior
	SB8. Assess the situation and support the operator with navigation during driving operations
	<b>Critical Thinking</b>
	The user/ individual on the job needs to know and understand how to:
	SB2. Apply balanced judgment to different situations

**NOS Version Control**

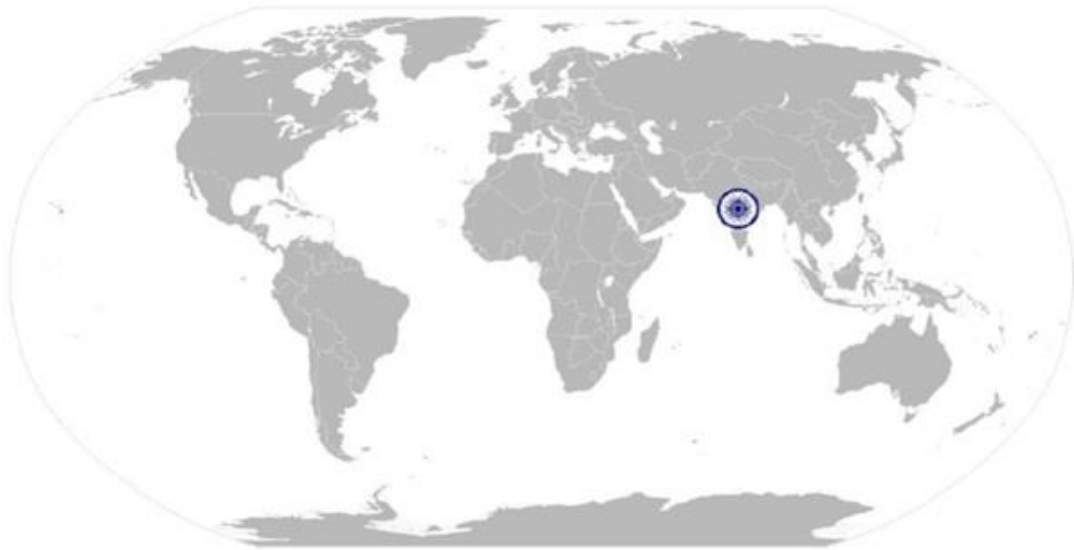
NOS Code	IES/N0105		
Credits(NSQF)	TBD	Version number	1.0
Sector	Infrastructure Equipment	Drafted on	16/02/2015
Industry Sub-sector	Equipment Operations	Last reviewed on	31/03/2015
Occupation	Operator	Next review date	31/03/15

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**Assist in regular maintenance of the backhoe loader**

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# National Occupational Standard



## Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for assisting the operator in routine maintenance of the backhoe loader.

**Assist in regular maintenance of the backhoe loader**

	IES/N0106
<b>Unit Title (Task)</b>	<b>Assist in regular maintenance of the backhoe loader</b>
<b>Description</b>	This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for assisting the operator in routine maintenance of the backhoe loader.
<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>• Assist in routine maintenance</li> <li>• Documentation and Reporting</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Assist in routine maintenance</b>	To be competent, the user/individual on the job must be able to: <p>PC1. Clean air filter dust bowls at regular intervals</p> <p>PC2. Clean footplates, pedals and steps free from mud, dirt, ice and snow at regular intervals</p> <p>PC3. Replenish coolants, lubricants and fluids everyday</p> <p>PC4. Grease all greasing pins and pivot points everyday</p> <p>PC5. Check battery levels and condition of the terminals and carry out minor adjustments if required</p> <p>PC6. Check and maintain the tyre rims, air pressure, wheel nits and treads as per manufacturer's indicators</p> <p>PC7. Ensure the machine is on firm and level ground before attempting to carry out any maintenance; track machine operating hours to assess the right service schedule</p> <p>PC8. Ensure that no maintenance task on the engine is performed when running or still hot</p> <p>PC9. Assess when the problem is beyond his competence and report the problem to the operator</p> <p>PC10. Handle and dispose waste based on environmental guidelines at the work place</p>
<b>Documentation and Reporting</b>	<p>PC11. Follow reporting procedures as laid down by the employer</p> <p>PC12. Report defects precisely to the operator if beyond scope of his role</p> <p>PC13. Report defects precisely to the operator and supervisor if beyond scope of his role</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: <p>KA1. Job specific documents e.g. daily maintenance checklist and importance of the same</p> <p>KA2. Common hazards in the work area and workplace procedures to deal with them</p> <p>KA3. Safety policy of the company</p> <p>KA4. Emergency organization of the specific work site</p> <p>KA5. Risk and impact of not following defined procedures/ work instructions</p> <p>KA6. The performance standards &amp; procedures followed in the company</p> <p>KA7. Reporting structure in the company</p> <p>KA8. Escalation matrix for reporting unresolved problems</p>



## Assist in regular maintenance of the backhoe loader

	<p>KA9. Timeframe in which the complaint/problem should be resolved</p> <p>KA10. Implications of delays in process to the company</p> <p>KA11. Cost of equipment and loss for the company that result from damage of equipment and direct/ indirect cost of accidents</p> <p>KA12. Work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process</p> <p>KA13. Location of tools</p> <p>KA14. Contact person in case of queries on procedure or products</p> <p>KA15. Location and process for storage and disposal of waste material</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Responsibilities of the assigned job role</p> <p>KB2. Control and switches needed to operate the compactor properly</p> <p>KB3. Basic physics and mechanics involved in various functions of the backhoe loader</p> <p>KB4. Common defects and general causes of breakdown</p> <p>KB5. Response to emergency situations</p> <p>KB6. The optimal levels of control indicators e.g. fuel gauge, engine oil pressure and temperature</p> <p>KB7. Possible sources of any unusual sound emanating from the engine</p>
<b>Skills (S)</b>	
<b>A. Core Skills / Generic Skills</b>	<b>Writing Skills</b>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Record any deviations/ incidents as per prescribed norms</p>
	<b>Reading Skills</b>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA2. Read and comprehend basic English to read and interpret decals/indicators in the machine/operator's manual</p> <p>SA3. Read instructions, guidelines/procedures/rules related to the worksite and equipment operations</p>
	<b>Oral Communication (Listening and Speaking Skills)</b>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA4. Interact effectively with operators in order to clarify instructions and other issues</p> <p>SA5. Use correct technical terms while interacting with operator and other personnel</p>
<b>B. Professional Skills</b>	<b>Decision Making</b>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SB1. Decide when to conduct maintenance checks</p> <p>SB2. Evaluate the decision and conduct basic trouble shooting</p>
	<b>Plan and Organize</b>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SB3. Carry out work tasks in line with instructions of the operator/ other supervisors and as per timelines</p> <p>SB4. Plan work according to the required schedule and location</p> <p>SB5. Plan for regular maintenance on a daily basis before machine operations</p>



**Assist in regular maintenance of the backhoe loader**

	<b>Customer Centricity</b>
	The user/ individual on the job needs to know and understand how to: SB6. Provide service of the highest order to ensure customer satisfaction
	<b>Problem Solving</b>
	The user/ individual on the job needs to know and understand how to: SB7. Report problems that you cannot resolve to appropriate authority SB8. Identify sources of support that can be availed for problem solving for various kinds of problems
	<b>Analytical Thinking</b>
	The user/ individual on the job needs to know and understand how to: SB9. Evaluate the complexity of the tasks to determine if he/she needs any assistance from the senior SB10. Check for damages and diagnose common problems in the backhoe loader and report to appropriate authority
	<b>Critical Thinking</b>
	The user/ individual on the job needs to know and understand how to: SB3. Apply balanced judgment to different situations

**NOS Version Control**

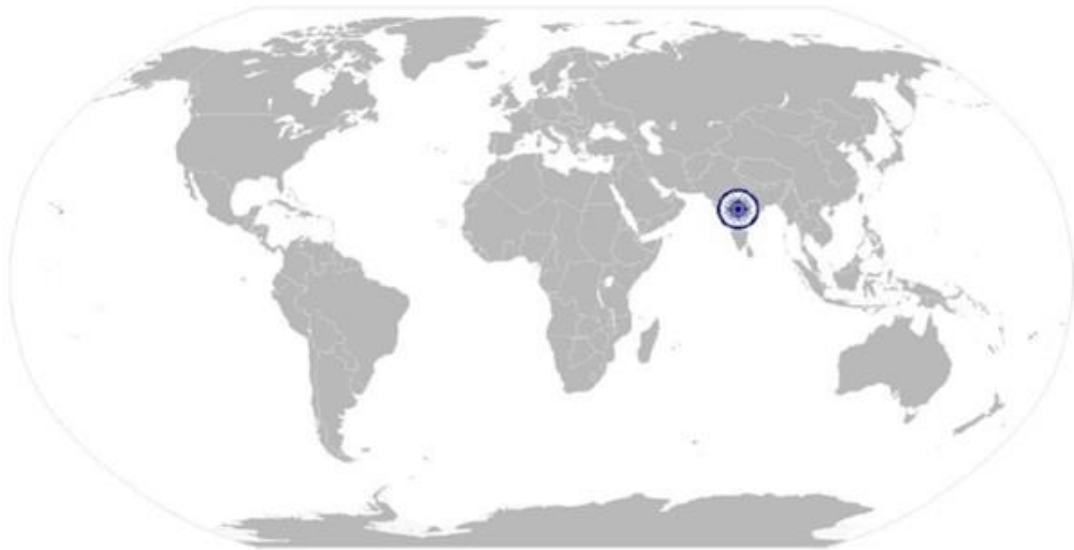
<b>NOS Code</b>	<b>IES/N0106</b>		
<b>Credits(NSQF)</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Sector</b>	<b>Infrastructure Equipment</b>	<b>Drafted on</b>	<b>16/02/2015</b>
<b>Industry Sub-sector</b>	<b>Equipment Operations</b>	<b>Last reviewed on</b>	<b>31/03/2015</b>
<b>Occupation</b>	<b>Operator</b>	<b>Next review date</b>	<b>31/03/15</b>

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Comply with worksite health and safety guidelines

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# National Occupational Standard



## Overview

This unit is about adhering to health and safety requirements at the worksite during equipment operations.

**Comply with worksite health and safety guidelines**

National Occupational Standard	<b>Unit Code</b>	<b>IES/N7601</b>
	<b>Unit Title (Task)</b>	<b>Comply with worksite health and safety guidelines</b>
	<b>Description</b>	This unit is about adhering to health and safety requirements at the worksite during equipment operations.
	<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>• Worksite health and safety</li> </ul>
	<b>Performance Criteria(PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Worksite health and safety</b>	To be competent, the user/individual on the job must be able to: <ul style="list-style-type: none"> <li>PC1. Comply with safety, health, security and environment related regulations/ guidelines at the work site</li> <li>PC2. Use Personal Protective Equipment (PPE) and other safety gear such as seat belt, body protection, respiratory protection, eye protection, ear protection and hand protection</li> <li>PC3. Follow safety measures during operations to ensure that the health and safety of self or others (including members of the public) is not at risk</li> <li>PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines</li> <li>PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines</li> <li>PC6. Follow safety regulations and procedures with regard to worksite hazards and risks</li> <li>PC7. Operate various grades of fire extinguishers, as applicable</li> <li>PC8. Support in administering basic first aid and report to concerned team members, as required, in case of an accident</li> <li>PC9. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility</li> <li>PC10. Record and report details related to operations, incidents or accidents, as applicable</li> </ul>
	<b>Knowledge and Understanding (K)</b>	
	<b>A. Organizational Context</b> (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> <li>KA1. Health, safety, environmental(HSE) and security related policies/ guidelines of the organization and the worksite</li> <li>KA2. The importance of complying with health, safety, environmental and security guidelines at the worksite and during operations</li> <li>KA3. Contact details of personnel responsible for Health, Safety and environment (HSE) related matters</li> <li>KA4. Location of worksite storage, SHE team and safe assembly points</li> <li>KA5. Concerned personnel to reach out in case of emergencies and accidents/ incidents</li> <li>KA6. Reporting and documentation procedures for HSE and security matters</li> </ul>
	<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> <li>KB1. Manufacturer's guidelines related to health and safety requirements</li> </ul>

**Comply with worksite health and safety guidelines**

	<p>KB2. Common types of health, safety, environment and security risks related to the worksite and operations</p> <p>KB3. Types, use and importance of Personal Protective Equipment (PPE) and other safety gear</p> <p>KB4. Safe working practices to avoid common hazards and risks</p> <p>KB5. Guidelines for transport, storage and disposal of hazardous materials and waste</p> <p>KB6. Types of common hazards and risks at the worksite including fire, electrical, gas emergencies, accidents, incidents, structure collapse, machine breakdown</p> <p>KB7. Knowledge of safe lockdown/ stop of machinery use in case of emergencies and incidents/ accidents</p> <p>KB8. Types of fire extinguishers and their use</p> <p>KB9. Common injuries and appropriate basic first aid treatment eg. electrical shock, bleeding, wounds, fractures, minor burns, eye injuries</p>
<b>Skills (S)</b>	
<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 and report any health and safety related incidents/ accidents
	<b>Reading Skills</b>
	The user/ individual on the job needs to know and understand how to:
	SA2. Read and comprehend basic English to read and interpret decals/indicators in the machine/operator's manual
<b>B. Professional Skills</b>	SA3. Read all organizational and equipment related health and safety manuals and documents
	SA4. Read instructions, guidelines/procedures/rules related to the worksite and equipment operations
	<b>Oral Communication (Listening and Speaking Skills)</b>
	The user/ individual on the job needs to know and understand how to:
	SA5. Interact effectively with operators in order to clarify instructions and other issues
	SA6. Use correct technical terms while interacting with operator and other personnel
<b>B. Professional Skills</b>	<b>Decision Making</b>
	The user/ individual on the job needs to know and understand how to:
	SB4. Make an appropriate timely decision in responding to emergencies/accidents in line with organizational/ worksite guidelines
	SB5. Use correct PPE and other safety gear while at the worksite
	<b>Plan and Organize</b>
	The user/ individual on the job needs to know and understand how to:
<b>B. Professional Skills</b>	SB6. Carry out work tasks in line with instructions of the operator/ other supervisors and as per timelines
	SB7. Plan work according to the required schedule and location
	<b>Customer Centricity</b>
<b>B. Professional Skills</b>	The user/ individual on the job needs to know and understand how to:

**Comply with worksite health and safety guidelines**

	SB8. Build and maintain positive and effective relationships with colleagues and customers
	<b>Problem Solving</b>
	The user/ individual on the job needs to know and understand how to: SB9. Identify immediate or temporary solutions to resolve delays SB10. Seek appropriate assistance from other sources to resolve problems
	<b>Analytical Thinking</b>
	The user/ individual on the job needs to know and understand how to: SB11. Assess the intensity of the fire accident and operate fire extinguishers
	<b>Critical Thinking</b>
	The user/ individual on the job needs to know and understand how to: SB12. Apply balanced judgment to different situations SB13. Carry out operations at the worksite in line with health, safety, environmental (HSE) and security guidelines

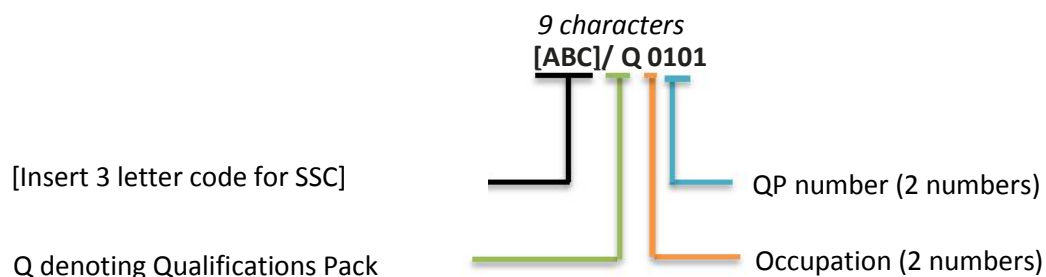
**NOS Version Control**

NOS Code	IES/N7601		
Credits(NSQF)	TBD	Version number	1.0
Sector	Infrastructure Equipment	Drafted on	16/02/2015
Industry Sub-sector	Equipment Operations	Last reviewed on	31/03/2015
Occupation	Operator	Next review date	31/03/15

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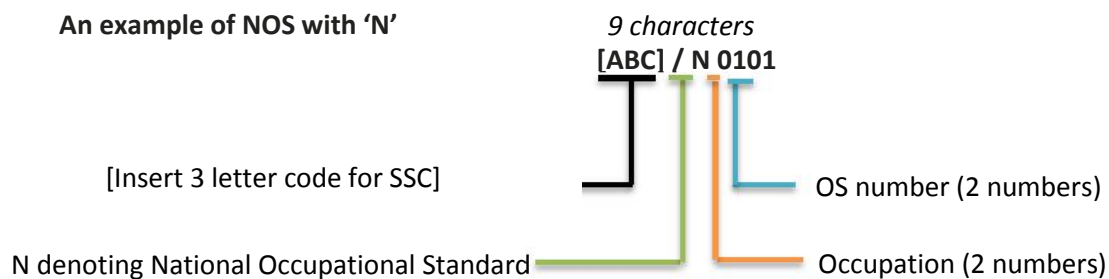
## Nomenclature for QP and NOS units

### Qualifications Pack



### Occupational Standard

An example of NOS with 'N'



## Nomenclature for QP and NOS units

The following acronyms/codes have been used in the nomenclature above:

Sub-sector	Range of Occupation numbers
Equipment Operations	1 to 10
Equipment Service and spares	11 to 20
Equipment Production	21 to 40
Equipment Sales	41 to 50
Equipment Financing	51 to 55
Core Enablers	56 to 65
Other Enablers	66 to 75
Common Occupations	76 to 85

Sequence	Description	Example
Three letters	Industry name	IES
Slash	/	/
Next letter	Whether QP or NOS	N
Next two numbers	Occupation code	01
Next two numbers	OS number	01



## CRITERIA FOR ASSESSMENT OF TRAINEES

**Job Role** Junior Backhoe Operator

**Qualification Pack** IES/Q0102

**Sector Skill Council** Infrastructure Equipment

### 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 center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 70% aggregate
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

NOS	PC	Total Mark	Out Of	Marks Allocation	
				Theory	Skills Practical
IES/N0104 Assist in Carrying out pre – checks of backhoe loader	PC1. Visually inspect the body components for cracks and bearing wear	55	3	0	3
	PC2. Assist in inspecting the boom and the stick for dents and cracked welds		3	0	3
	PC3. Assist in inspecting all ground engaging tools to ensure stability		4	1	3
	PC4. Check that oil levels of engine, transmission, radiant coolant and brake are as per manufacturer's indicators		4	1	3
	PC5. Assist in checking differential and hydraulic oil levels		3	0	3

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	PC6. Assist in checking that oil levels of engine, transmission, radiant coolant and brake are as per manufacturer's indicators	4	1	3
	PC7. Check fan belt tension, electrolyte level and terminal tightness	3	0	3
	PC8. Assist in conduct visual inspection to check the various controls, gauges, warning lamp and other safety devices	3	0	3
	PC9. Check load chart is displayed in cabin	1	0	1
	PC10. Clean air filter dust bowls and check the gasket and inner filter	3	0	3
	PC11. Drain water and sediment from the fuel tank	3	0	3
	PC12. Top up coolant and oil in engine, transmission, etc. if necessary, in consultation with operator, as per manufacturer's indicators	2	1	1
	PC13. Grease all greasing pins and pivots points well	3	0	3
	PC14. Examine the compressor unit and all fittings and air lines	3	0	3
	PC15. Check clearance of the drawbar ball and socket, look for excessive freeplay, and adjust if necessary	1	0	1
	PC16. Check that the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only)	4	1	3
	PC17. Keep footplates and steps clean and free from mud, dirt and oil	2	1	1
	PC18. Walk completely around the backhoe loader to check that no one is under or on the machine before operating	3	0	3

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	PC19. Get the log book of activities performed approved by the operator		1	0	1
	PC20. Assist in maintaining logbook to record all activities performed before starting the backhoe loader		1	0	1
	PC21. Report defects precisely to the operator if beyond scope of role		1	0	1
		<b>Total</b>	<b>55</b>	<b>6</b>	<b>49</b>
IES/N0105 Assist in backhoe operations	PC1. Assist in inspection of the worksite to identify and loose soil, hidden deep trenches or marshy patches where a compactor could get stuck	<b>44</b>	3	0	3
	PC2. Carry out and assist in all pre-use and running checks		3	0	3
	PC3. Assist in determining speed and direction of machine, as per the specified function		4	1	3
	PC4. Assist in ascertaining the right location to begin operations		3	0	3
	PC5. Continuously monitor hazards and risks , and ensure safety of self, other personnel, plant and equipment		4	1	3
	PC6. Remove the obstacles if any during the digging process		3	0	3
	PC7. Assist in modifying the operating technique to meet changing work conditions		1	0	1
	PC8. Assist in using stabilizers to ensure the machinery is completely immobile while digging		1	0	1
	PC9. Assist the operator to select, attach and apply slings and lifting gear in accordance with safe working load requirements		4	1	3

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	PC10. Assist in positioning and locating machinery to ensure stability to effectively shift materials according to job specifications		4	1	3
	PC11. Assist the operator in shifting load safely and effectively		3	0	3
	PC12. Assist in moving load using hand/audible/communication signals		4	1	3
	PC13. Assist in removing attachments after use		4	1	3
	PC14. Clean and store removed attachments		3	0	3
		<b>Total</b>	<b>44</b>	<b>6</b>	<b>38</b>
IES/N0106 Assist in regular maintenance of the backhoe loader	PC1. Clean air filter dust bowls at regular intervals	<b>28</b>	4	1	3
	PC2. Clean footplates, pedals and steps free from mud, dirt, ice and snow at regular intervals		4	1	3
	PC3. Replenish coolants, lubricants and fluids everyday		3	0	3
	PC4. Grease all greasing pins and pivot points everyday		4	1	3
	PC5. Check battery levels and condition of the terminals and carry out minor adjustments if required		2	1	1
	PC6. Check and maintain the tyre rims, air pressure, wheel nits and treads as per manufacturer's indicators		2	1	1
	PC7. Ensure the machine is on firm and level ground before attempting to carry out any maintenance; track machine operating hours to assess the right service schedule		4	1	3
	PC8. Ensure that no maintenance task on the engine is performed when running or still hot		2	1	1

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	PC9. Assess when the problem is beyond his competence and report the problem to the operator		1	0	1
	PC10. Handle and dispose waste based on environmental guidelines at the work place		1	0	1
	PC11. Follow reporting procedures as laid down by the employer		2	1	1
	PC12. Report defects precisely to the operator if beyond scope of his role		1	0	1
	PC13. Report defects precisely to the operator and supervisor if beyond scope of his role		1	0	1
		<b>Total</b>	<b>31</b>	<b>8</b>	<b>23</b>
4.IES/N7601 Comply with worksite health and safety guidelines	PC1. Comply with safety, health, security and environment related regulations/ guidelines at the work site	<b>23</b>	2	1	1
	PC2. Use Personal Protective Equipment (PPE) and other safety gear such as seat belt, body protection, respiratory protection, eye protection, ear protection and hand protection		3	0	3
	PC3. Follow safety measures during operations to ensure that the health and safety of self or others (including members of the public) is not at risk		4	1	3
	PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines		3	0	3
	PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines		4	1	3
	PC6. Follow safety regulations and procedures with regard to worksite hazards and risks		2	1	1

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	PC7. Operate various grades of fire extinguishers, as applicable		3	0	3
	PC8. Support in administering basic first aid and report to concerned team members, as required, in case of an accident		1	0	1
	PC9. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility		2	1	1
	PC10. Record and report details related to operations, incidents or accidents, as applicable		1	0	1
		<b>Total</b>	<b>25</b>	<b>5</b>	<b>20</b>