

## QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR IRON & STEEL 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



### Contents

1. Introduction and Contacts.....P.1
2. Qualifications Pack.....P.2
3. Glossary of Key Terms .....P.4
4. NOS Units.....P.6

### Introduction

## Qualifications Pack – Iron & Steel - Dumper Operator

SECTOR: Iron & Steel

SUB-SECTOR: Steel, Sponge Iron, Ferro Alloys, Re-Rollers, Refractory

REFERENCE ID: ISC/Q0403

ALIGNED TO: NCO-2004/8332.32

Title of Job: The Dumper/Tipper operator drives a heavy specialized truck used to haul large volumes of over burden, rock or ore over short distances. The dumper operator then uses the body hoist control lever to tip the rear part of the truck in order to discharge its load to rear, bottom or one side of the truck. Dumper operators are responsible to check that their safety systems are working properly and for performing basic maintenance on the Dumper.

Personal Attributes: This job requires the individual to concentrate on the job at hand and complete it without any accidents so diligence and hardworking is a desired attribute for individuals in this role. The individual should also be skilled in performing various driving and manoeuvring operations with the Dumper. He / she must be able to follow instructions provided by supervisor.



|             |                          |  |                  |            |
|-------------|--------------------------|--|------------------|------------|
| Job Details | Qualifications Pack Code | ISC/Q0403  |                  |            |
|             | Job Role                 | Iron & Steel - Dumper Operator                           |                  |            |
|             | Credits(NSQF)            | TBD  | Version number   | 1.0        |
|             | Industry                 | Iron & Steel   | Drafted on       | 21/07/2014 |
|             | Sub-sector               | Steel, Sponge Iron, Ferro Alloys, Re-Rollers, Refractory | Last reviewed on | 30/12/2014 |
|             | Occupation               | Iron Making  | Next review date | 30/12/2015 |
|             | NSQC Clearance on        | 18/06/2015   |                  |            |



| Job Role                                  | Iron & Steel - Dumper Operator  |
|---|---|
| Role Description                          | This role holder is responsible for transporting material using dumper  |
| NSQF level                                | 3   |
| Minimum Educational Qualifications        | 8th standard or literate with 3 years of experience in driving heavy vehicles<br>Driving license compulsory   |
| Maximum Educational Qualifications        | N.A.  |
| Training<br>(Suggested but not mandatory) | <ul style="list-style-type: none"> <li>• Technical and gallery training</li> <li>• Refresher training if absent from work site for a period of one year or more before re-employment</li> </ul>   |
| Minimum Job Entry Age                     | 18 years  |
| Experience                                | In lieu of minimum qualification, the incumbent should have 5 years' experience of driving heavy vehicles. Must have driving license and no previous history of accidents.  |
| Occupational Standards (OS)               | <p>Compulsory:</p> <p><a href="#">ISC/N0407: Prepare dumper for operations</a><br/> <a href="#">ISC/N0408: Perform dumper operations</a><br/> <a href="#">ISC/N0409: Perform basic maintenance and troubleshooting on dumper</a><br/> <a href="#">ISC/N0410: Carry out reporting and logging</a><br/> <a href="#">ISC/N0434: Health and Safety</a></p> <p>Optional:<br/>N/A</p> |
| Performance Criteria                      | As described in the relevant NOS units  |



Definitions

| Keywords /Terms                       | Description  |
|---------------------------------------|--|
| Core Skills/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 NOS, these include communication related skills that are applicable to most job roles. |
| 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 NOS.                            |
| Job role                              | Job role defines a unique set of functions that together form a unique employment opportunity in an organization.  |
| 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.  |
| National Occupational Standards (NOS) | NOS are Occupational Standards which apply uniquely in the Indian context  |
| Occupation                            | Occupation is a set of job roles, which perform similar/related set of functions in an industry.   |
| Organisational Context                | Organisational 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.   |
| Performance Criteria                  | Performance Criteria are statements that together specify the standard of performance required when carrying out a task.   |
| Qualifications Pack(QP)               | Qualifications Pack comprises the set of NOS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.   |
| Qualifications Pack Code              | Qualifications Pack Code is a unique reference code that identifies a qualifications pack.   |
| 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 performance required.  |
| 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.                |
| Sub-functions       | Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.                          |
| Technical Knowledge | Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.                    |
| Unit Code           | Unit Code is a unique identifier for a NOS unit, which can be denoted with an 'N'.  |
| Unit Title          | Unit Title gives a clear overall statement about what the incumbent should be able to do.                                   |
| Vertical            | Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry. |
| Keywords /Terms     | Description   |
| NOS                 | National Occupational Standard(s)   |
| NSQF                | National Skills Qualifications Framework  |
| OEM                 | Original Equipment Manufacturer   |
| OS                  | Occupational Standard(s)  |
| QP                  | Qualifications Pack   |
| 5 S                 | Technique of maintaining orderliness –Japanese terminology  |
| CP                  | Control Plan  |
| WI                  | Work Instructions   |

Acronyms



ISC/N0407: Prepare Dumper for operations

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## Overview

This unit is about preparing the Dumper for activities that need to be carried out during a shift prior to starting of operations



|   |   |
|---|---|
| Unit Code   | ISC/N0407   |
| Unit Title (Task)   | Prepare Dumper for operations   |
| Description   | This unit is about preparing the Dumper for activities that need to be carried out during a shift prior to starting of operations   |
| Scope   | <p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Conduct pre-operation checks to ensure the Dumper is safe to use</li> <li>Conduct pre-operation routine maintenance of Dumper</li> </ul>  |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>                                   |   |
| <b>Element</b>  | <b>Performance Criteria</b>   |
| Conduct pre-operation checks to ensure the Dumper is safe to use                    | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Adhere to time limits given by supervisor<br/>           PC2. Check oil levels of engine, transmission, radiator coolant and brake<br/>           PC3. Check differential and hydraulic oil levels<br/>           PC4. Check the hydraulic hose and ram for leakages<br/>           PC5. Check condition of parking brake, main horn, reverse horn, and head light.<br/>           PC6. Check the various controls, gauges, warning lamp and other safety devices<br/>           PC7. Check fan belt tension, electrolyte level and terminal tightness<br/>           PC8. Check and adjust driving position, rear and side mirrors, seat belts<br/>           PC9. Clean air filter dust bowls<br/>           PC10. Drain water and sediment from the fuel tank.<br/>           PC11. Top up coolant and oil in engine, transmission, etc. if necessary<br/>           PC12. Apply grease to all greasing pins and pivot points<br/>           PC13. Ensure the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only)</p> |
| Conduct pre-operation routine maintenance of Dumper                                 | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC14. Keep footplates and steps clean and free from mud, dirt and oil.<br/>           PC15. Maintain a checking/maintenance logbook to record all activities performed before starting the Dumper<br/>           PC16. Report defects precisely to the supervisor if beyond scope of his role</p>  |
| <b>Element</b>  | <b>Knowledge and Understanding</b>  |
| A. Organisational Context (Knowledge of the Company/Organisation and its processes) | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Job specific documents e.g. daily maintenance checklist and importance of the same<br/>           KA2. Safety policy of the company<br/>           KA3. Emergency organisation of the specific work site<br/>           KA4. Risk and impact of not following defined procedures/work instructions<br/>           KA5. Escalation matrix for reporting identified problems</p>  |





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|                                    | <p>KA6. Cost of equipment and loss for the company that result from damage of equipment and direct / indirect cost of accidents</p> <p>KA7. Implications of delays in process to the company</p>  |
| B. Technical Knowledge             | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. Different types of heavy earth moving machines (H.E.M.M) and their use</p> <p>KB2. Introduction to diesel and petrol engines, their sub-components and function</p> <p>KB3. Different gears and their power transmission mechanism</p> <p>KB4. Different types of steering mechanisms</p> <p>KB5. Functioning of hydraulic systems in dumpers</p> <p>KB6. Service brakes and parking brakes</p> <p>KB7. Instrument panel, their location and operation</p> <p>KB8. Controls, levers and switches in order to operate the Dumper properly</p> <p>KB9. General safety rules vis-à-vis loading, hauling, dumping, stocking and parking</p> <p>KB10. Signage, mining area signs and other safety and emergency signals</p> <p>KB11. Traffic rules to be followed inside the steel plant</p> <p>KB12. Correct maintenance procedures for Dumper</p> <p>KB13. Response to emergencies e.g. correct way to use fire extinguisher</p> |
| <b>Skills (S) w.r.t. the scope</b> |   |
| <b>Element</b>                     | <b>Skills</b>   |
| A. Core Skills/<br>Generic Skills  | Writing skills and reading Skills   |
|                                    | <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Create first level process manuals, Control Plans, Work Instructions in an manner that the operators can easily understand the process requirements and process steps</p> <p>SA2. Create small notes/ work documents/ diagrams for supervisors ,operators and helpers to help them understand the process</p> <p>SA3. Use emails and other business correspondence methods (internal memos, circular etc.) for communicating with other team members/ vendors/ suppliers etc.</p> <p>SA4. Read equipment manuals and process documents given by the equipment supplier to understand the equipment and processes better</p>   |
|                                    | Oral Communication (Listening and Speaking skills)  |
|                                    | <p>The user/individual on the job needs to know and understand how to:</p> <p>SA5. Effectively explain supervisors, operators and helpers about equipment operations, process steps and other operational requirements</p> <p>SA6. Answer the queries raised by the operative team as well as intercompany departments</p> <p>SA7. Effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.</p> <p>SA8. Discuss task lists, schedules, and work-loads with the operative team members</p> <p>SA9. Attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker</p>  |
|                                    | Integrity   |



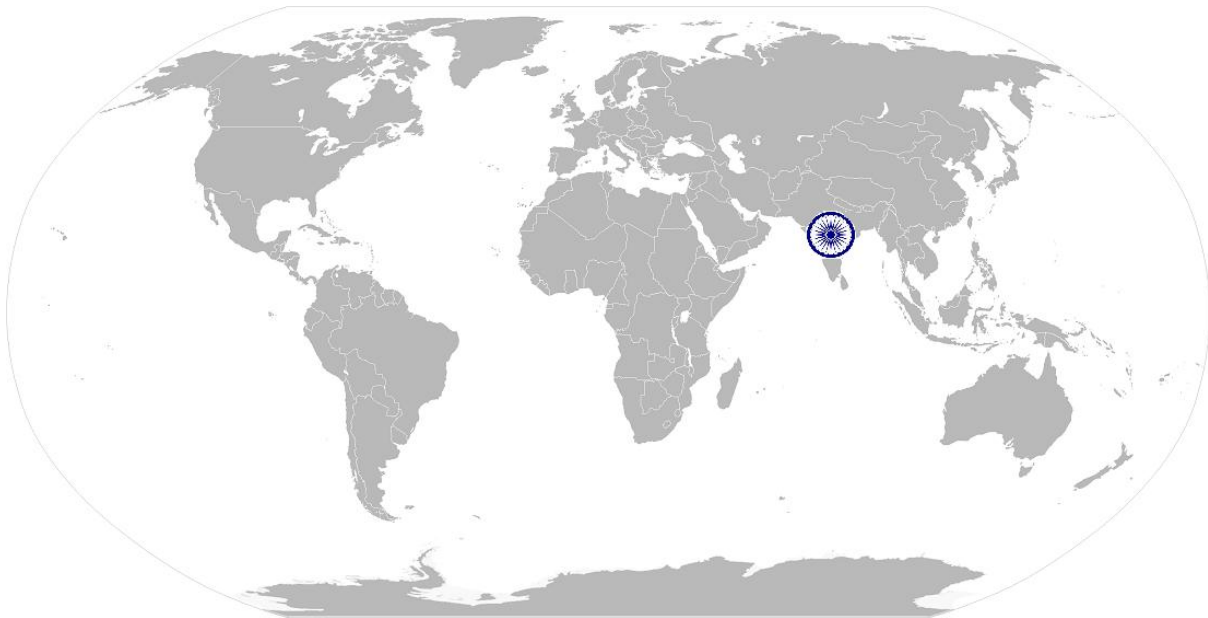


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|                        | The user/individual on the job needs to know and understand how to:<br>SA10. Maintain integrity with respect to company property and time<br>SA11. Communicate with people in a polite manner using respectful language<br>SA12. Resolve difficulties in relationships with colleagues amicably |
|                        | <b>Motivation</b>   |
|                        | The user/individual on the job needs to know and understand how to:<br>SA13. Take responsibility for completing one's own work assignment<br>SA14. Take initiative to enhance/learn skills in one's area of work<br>SA15. Reflect and act upon one's learning from experience                   |
|                        | <b>Reliability</b>  |
| B. Professional Skills | The user/individual on the job needs to know and understand how to:<br>SA16. Avoid absenteeism<br>SA17. Work in a disciplined environment<br>SA18. Be punctual  |
|                        | <b>Time Management</b>  |
|                        | The user/individual on the job needs to know and understand how to:<br>SB1. Prioritize and execute tasks within the scheduled time limits   |
|                        | <b>Fault Diagnostic and Maintenance</b>   |
|                        | The user/individual on the job needs to know and understand how to:<br>SB2. Check for damage in Dumper components e.g. engine components, tracks, hydraulic ram, brakes, horn, etc.<br>SB3. Conduct maintenance tasks e.g. checking and topping up engine oil levels                            |



## NOS Version Control

|                     |  |                  |            |
|---------------------|--|------------------|------------|
| NOS Code            | ISC/N0407  |                  |            |
| Credits(NSQF)       | TBD  | Version number   | 1.0        |
| Industry            | Iron and steel   | Drafted on       | 21/07/2014 |
| Industry Sub-sector | Steel, Sponge Iron, Ferro Alloys, Re-Rollers, Refractory | Last reviewed on | 30/12/2014 |
| Occupation          | Iron Making  | Next review date | 30/12/2015 |





ISC/N0408: Perform Dumper operations

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## Overview

This unit is about performing operations while using the Dumper



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| Unit Code                                  | ISC/N0408   |
| Unit Title (Task)                          | Perform dumper operations   |
| Description                                | This unit is about operating the Dumper   |
| Scope                                      | <p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Starting and driving the Dumper safely to the operations area</li> <li>Loading and hauling the load to the designated destination</li> <li>Discharging the load in correct way by tipping the dump with careful manoeuvring of hoist lever</li> </ul>   |
| Performance Criteria (PC) w.r.t. the Scope |   |
| Element                                    | Performance Criteria  |
| Operations                                 | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Plan and organize the job according to given instructions</p> <p>PC2. Inspect the worksite to identify any loose soil, hidden deep trenches or marshy patches where dumper could get stuck</p> <p>PC3. Start the engine using the pushbutton switch and key switch together</p> <p>PC4. Check the priming pump and pre-heater to start the engine in cold weather conditions</p> <p>PC5. Always wear safety belt while driving </p> <p>PC6. Ensure proper functioning of rear view camera and audio visual alarm</p> <p>PC7. Not use mobile phones while driving</p> <p>PC8. Look out for people working and hazards such as trenches, potholes and cables</p> <p>PC9. Operate the shifting quadrant device for selecting the correct gear range</p>   |
| Loading                                    | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC10. Ensure dumper load and operating speed is within limits specified by the manufacturer.</p> <p>PC11. Adhere to time limits given by supervisor</p> <p>PC12. Follow the traffic rule / codes developed locally</p> <p>PC13. Perform in-operation visual checks on critical temperature and pressure gauges.</p> <p>PC14. Ensure that walkway rules e.g. operating the Dumper within the permissible/allocated areas are followed</p> <p>PC15. Utilize judiciously various signalling devices available in the dumper such as turn signal, parking indicator, air horn etc.</p> <p>PC16. Keep a safe distance from a tip edge and use an approved stop block before tipping over an edge</p> <p>PC17. Select and use the right type of brake in different situations and conditions.</p> <p>PC18. Inform supervisor of any problems while operating the Dumper</p> <p>PC19. Ensure that dumper is always parked on firm, level ground; with handbrake applied and drive and controls disengaged</p> <p>PC20. Operate the body hoist control handle to maneuver the hydraulic ram that tips the dumper</p> |



|  |  |
|--|--|
| Discharging  | To be competent, the user/individual on the job must be able to:<br><br>PC21. Discharge the load safely at the position and in the manner designated by the supervisor<br>PC22. Ensure that no other operators travel on or stand near the Dumper  |
| <b>Element</b>   | <b>Knowledge and Understanding</b>   |
| A. Organisational Context<br>(Knowledge of the Company/<br>Organisation and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Job specific documents e.g. daily maintenance checklist and importance of the same<br>KA2. Safety policy of the company<br>KA3. Emergency organisation of the specific work site<br>KA4. Risk and impact of not following defined procedures/work instructions<br>KA5. Escalation matrix for reporting identified problems<br>KA6. Cost of equipment and loss for the company that result from damage of equipment and direct / indirect cost of accidents<br>KA7. Implications of delays in process to the company   |
| B. Technical Knowledge   | The user/individual on the job needs to know and understand:<br>KB1. Different types of heavy earth moving machines (H.E.M.M) and their use<br>KB2. Introduction to diesel and petrol engines, their sub-components and function<br>KB3. Different gears and their power transmission mechanism<br>KB4. Different types of steering mechanisms<br>KB5. Functioning of hydraulic systems in dumpers<br>KB6. Service brakes and parking brakes<br>KB7. Instrument panel, their location and operation<br>KB8. Controls, levers and switches in order to operate the Dumper properly<br>KB9. General safety rules vis-à-vis loading, hauling, dumping, stocking and parking<br>KB10. Signage, mining area signs and other safety and emergency signals<br>KB11. Traffic rules to be followed inside the steel plant<br>KB12. Correct maintenance procedures for Dumper<br>KB13. Response to emergencies e.g. correct way to use fire extinguisher |
| <b>Skills (S) w.r.t. the scope</b>   |  |
| <b>Element</b>   | <b>Skills</b>  |
| A. Core Skills/<br>Generic Skills  | Writing skills and reading Skills<br><br>The user/ individual on the job needs to know and understand how to:<br>SA1. Create first level process manuals, Control Plans, Work Instructions in an manner that the operators can easily understand the process requirements and process steps<br>SA2. Create small notes/ work documents/ diagrams for supervisors ,operators and helpers to help them understand the process<br>SA3. Use emails and other business correspondence methods (internal memos, circular etc.) for communicating with other team members/ vendors/ suppliers etc.<br>SA4. Read equipment manuals and process documents given by the equipment  |



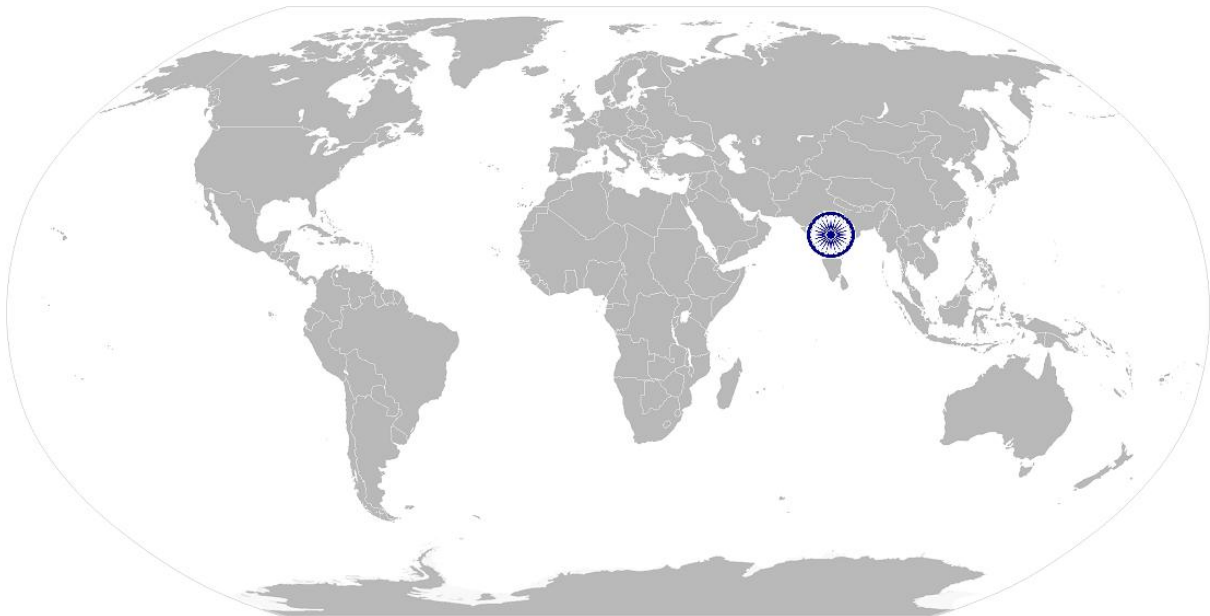


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|------------------------|---|
|                        | supplier to understand the equipment and processes better   |
|                        | Oral Communication (Listening and Speaking skills)  |
|                        | The user/individual on the job needs to know and understand how to:<br><br>SA5. Effectively explain supervisors, operators and helpers about equipment operations, process steps and other operational requirements<br>SA6. Answer the queries raised by the operative team as well as intercompany departments<br>SA7. Effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.<br>SA8. Discuss task lists, schedules, and work-loads with the operative team members<br>SA9. Attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker |
|                        | Integrity   |
|                        | The user/individual on the job needs to know and understand how to:<br>SA10. Maintain integrity with respect to company property and time<br>SA11. Communicate with people in a polite manner using respectful language<br>SA12. Resolve difficulties in relationships with colleagues amicably   |
|                        | Motivation  |
|                        | The user/individual on the job needs to know and understand how to:<br>SA13. Take responsibility for completing one's own work assignment<br>SA14. Take initiative to enhance/learn skills in one's area of work<br>SA15. Reflect and act upon one's learning from experience   |
|                        | Reliability   |
|                        | The user/individual on the job needs to know and understand how to:<br>SA16. Avoid absenteeism<br>SA17. Work in a disciplined environment<br>SA18. Be punctual  |
| B. Professional Skills | Time Management   |
|                        | The user/individual on the job needs to know and understand how to:<br>SB1. Prioritize and execute tasks within the scheduled time limits   |
|                        | Analytical Thinking   |
|                        | The user/individual on the job needs to know and understand how to:<br>SB2. Suggest methods to avoid accidents/errors while operating Dumper<br>SB3. Identify possible ways to improve operational efficiency   |
|                        | Operations  |
|                        | The user/individual on the job needs to know and understand how to:<br>SB4. Perform driving operations such as forward, reverse, 'U' turn, tight spot maneuvering, etc.   |





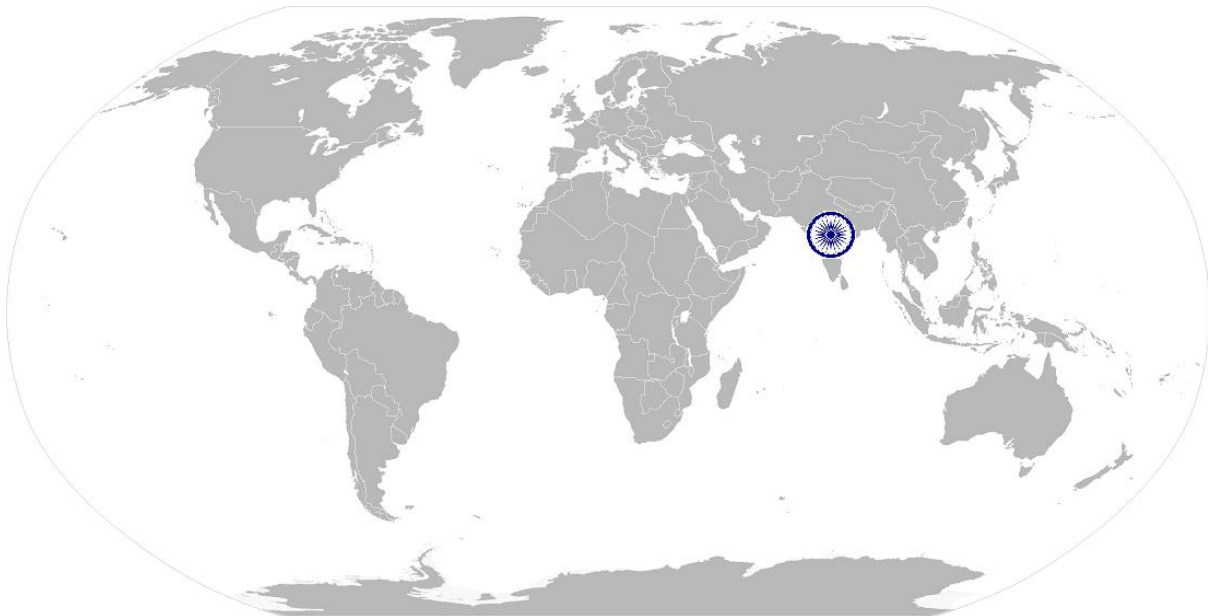
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|--|---|
|  | <p>SB5. Select and use the correct combination of levers to operate the Dumper.<br/>SB6. Maneuver the blade and rear attachments to achieve various tasks</p> |
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## NOS Version Control

|                     |  |                  |            |
|---------------------|--|------------------|------------|
| NOS Code            | ISC/N0408  |                  |            |
| Credits(NSQF)       | TBD  | Version number   | 1.0        |
| Industry            | Iron and steel   | Drafted on       | 21/07/2014 |
| Industry Sub-sector | Steel, Sponge Iron, Ferro Alloys, Re-Rollers, Refractory | Last reviewed on | 30/12/2014 |
| Occupation          | Iron Making  | Next review date | 30/12/2015 |





ISC/N0409: Perform basic maintenance and troubleshooting on dumper

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# National Occupational Standards

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## Overview

This unit is about performing routine maintenance and troubleshooting on the Dumper.



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| Unit Code  | ISC/N0409   |
| Unit Title (Task)  | Perform basic maintenance and troubleshooting on dumper   |
| Description  | This unit is about performing routine maintenance and troubleshooting tasks on the Dumper.  |
| Scope  | This OS unit/task covers the following: <ul style="list-style-type: none"> <li>Routine maintenance in accordance with the manufacturer's recommendations and company procedures</li> <li>Basic diagnostics and Troubleshooting</li> </ul>   |
| Performance Criteria (PC) w.r.t. the Scope   |   |
| Element  | Performance Criteria  |
| Routine maintenance  | To be a competent, the individual on the job must also be able to:<br>PC1. Track machine operating hours to assess the right service schedule.<br>PC2. Clean air filter dust bowls<br>PC3. Clean footplates, pedals and steps free from mud, dirt, ice and snow<br>PC4. Drain water and sediment /fuel separator<br>PC5. Replenish coolants, lubricants and fluids<br>PC6. Grease all greasing pins and pivot points<br>PC7. Check battery levels and condition of the terminals and carrying out minor adjustments if required.<br>PC8. Check and maintain the tyre rims, air pressure, wheel nuts and treads. |
| Diagnostics  | To be a competent, the individual on the job must also be able to:<br>PC9. Assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel<br>PC10. Ensure the machine is on firm and level ground before attempting to carry out any maintenance activity.<br>PC11. Ensure the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only)<br>PC12. Ensure that no maintenance task on the engine is performed when running or still hot  |
| Element  | Knowledge and Understanding   |
| A. Organisational Context (Knowledge of the Company/ Organisation and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Types of documentation in organization e.g. daily maintenance checklist and importance of the same<br>KA2. Risk and impact of not following defined procedures/work instructions<br>KA3. Rules and regulations of steel plant as per standard operating procedure (SOP)<br>KA4. Risk and impact of not following company's SOP<br>KA5. Escalation matrix for reporting identified problems   |



|   |   |
|---|---|
| <p>B. Technical Knowledge</p>             | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. Controls and switches needed to operate the Dumper properly<br/>         KB2. Basic physics and mechanics involved in various functions of the dumper<br/>         KB3. Response to emergencies e.g. fire<br/>         KB4. Safety regulations while handling the Dumper<br/>         KB5. The optimal levels of control indicators e.g. fuel gauge, engine oil pressure and temperature<br/>         KB6. Detection of faults in running engine<br/>         KB7. Use of Lifting jacks<br/>         KB8. Need for lubrication and its proper way and knowledge of all points where it is required</p>  |
| <p>Skills (S) w.r.t. the scope</p>        |   |
| <p>Element</p>                            | <p>Skills</p>   |
| <p>A. Core Skills/<br/>Generic Skills</p> | <p>Writing skills and reading Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Create first level process manuals, Control Plans, Work Instructions in an manner that the operators can easily understand the process requirements and process steps<br/>         SA2. Create small notes/ work documents/ diagrams for supervisors ,operators and helpers to help them understand the process<br/>         SA3. Use emails and other business correspondence methods (internal memos, circular etc.) for communicating with other team members/ vendors/ suppliers etc.<br/>         SA4. Read equipment manuals and process documents given by the equipment supplier to understand the equipment and processes better</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. Effectively explain supervisors, operators and helpers about equipment operations, process steps and other operational requirements<br/>         SA6. Answer the queries raised by the operative team as well as intercompany departments<br/>         SA7. Effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.<br/>         SA8. Discuss task lists, schedules, and work-loads with the operative team members<br/>         SA9. Attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker</p> <p>Integrity</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA10. Maintain integrity with respect to company property and time<br/>         SA11. Communicate with people in a polite manner using respectful language<br/>         SA12. Resolve difficulties in relationships with colleagues amicably</p> |



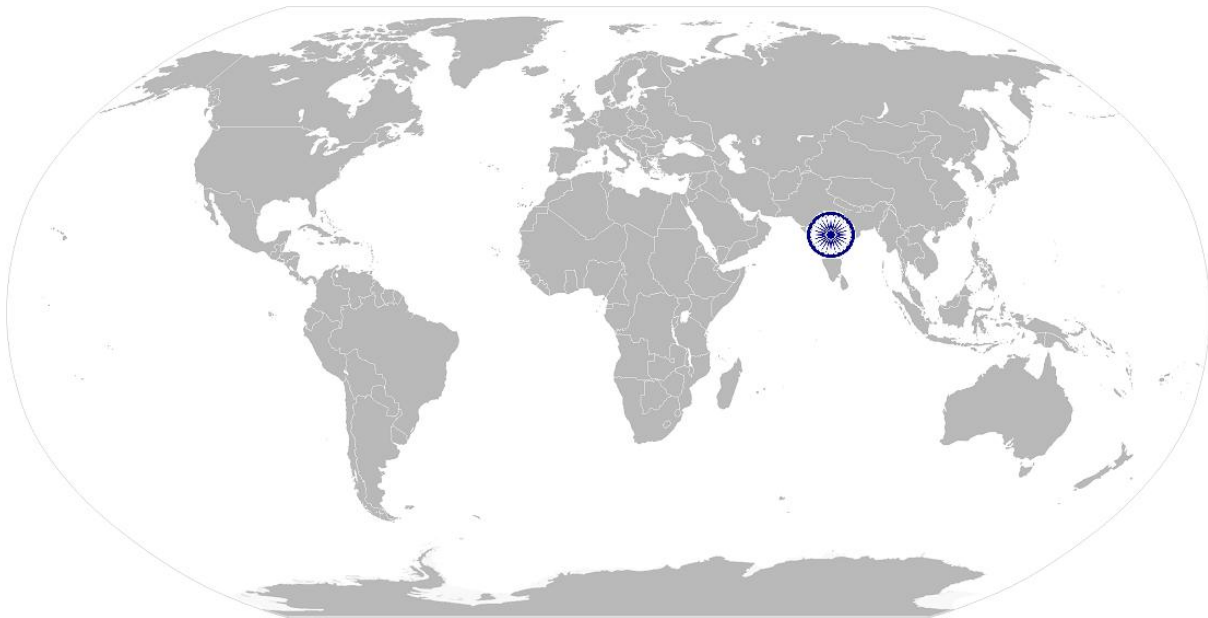
|                        |   |
|------------------------|---|
|                        | <p><b>Motivation</b></p> <p>The user/individual on the job needs to know and understand how to:<br/>SA13. Take responsibility for completing one's own work assignment<br/>SA14 Take initiative to enhance/learn skills in one's area of work<br/>SA15. Reflect and act upon one's learning from experience</p>   |
|                        | <p><b>Reliability</b></p> <p>The user/individual on the job needs to know and understand how to:<br/>SA16. Avoid absenteeism<br/>SA17 Work in a disciplined environment<br/>SA18. Be punctual</p>   |
| B. Professional Skills | <p><b>Time Management</b></p> <p>The user/individual on the job needs to know and understand how to:<br/>SB1. Prioritize and execute tasks within the scheduled time limits</p>   |
|                        | <p><b>Analytical Thinking</b></p> <p>The user/individual on the job needs to know and understand how to:<br/>SB2. Suggest methods to avoid accidents/errors while operating Dumper<br/>SB3. Identify possible ways to improve operational efficiency</p>  |
|                        | <p><b>Operations</b></p> <p>The user/individual on the job needs to know and understand how to:<br/>SB4. Perform driving operations such as forward, reverse, /U' turn, tight spot maneuvering, etc.<br/>SB5. Select and use the correct combination of levers to operate the Dumper<br/>SB6. Maneuver the blade and rear attachments to achieve various tasks</p>  |
|                        | <p><b>Organizational Skills</b></p> <p>The user/individual on the job needs to know and understand how to:<br/>SB7. Adjust according to capacity and manpower needs during peak and non-peak hours<br/>SB8. Be a team player and achieve collective goals<br/>SB9. Concentrate on task at hand and complete it without errors<br/>SB10. Ensure adequate knowledge sharing with supervisors and subordinates</p> |





## NOS Version Control

|                     |  |                  |            |
|---------------------|--|------------------|------------|
| NOS Code            | ISC/N0409  |                  |            |
| Credits(NSQF)       | TBD  | Version number   | 1.0        |
| Industry            | Iron and steel   | Drafted on       | 21/07/2014 |
| Industry Sub-sector | Steel, Sponge Iron,<br>Ferro Alloys, Re-Rollers,<br>Refractory | Last reviewed on | 30/12/2014 |
| Occupation          | Iron Making  | Next review date | 30/12/2015 |





ISC/N0410: Carry out reporting and logging

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# National Occupational Standards

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## Overview

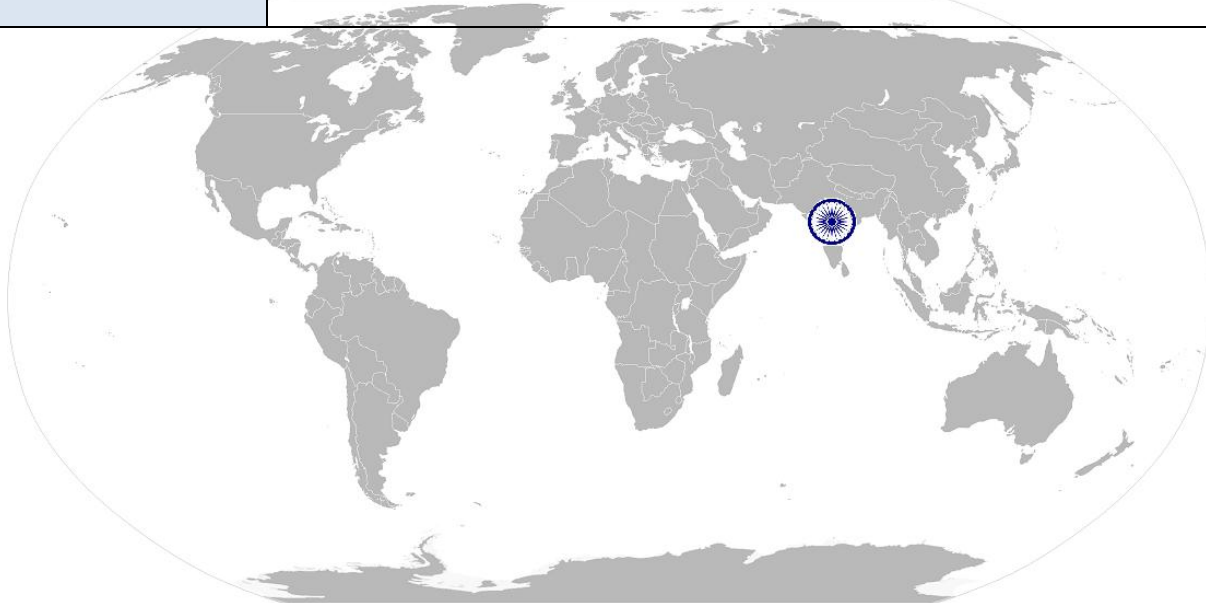
This unit is about reporting and documentation



|  |   |
|--|---|
| Unit Code  | ISC/N0410   |
| Unit Title (Task)  | Carry out reporting and logging   |
| Description  | This unit is about carrying out reporting and documentation   |
| Scope  | This unit/task covers the following: <ul style="list-style-type: none"> <li>• Reporting of problem/incidents</li> <li>• Reporting and Documentation</li> </ul>  |
| 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:<br>PC1. Report problems/incidents as applicable in a timely manner<br>PC2. Report to the appropriate authority as laid down by the employer<br>PC3. Follow reporting procedures as prescribed by the employer  |
| Recording and Documentation  | To be competent, the user/individual on the job must be able to:<br>PC4. Identify documentation to be completed relating to one's role<br>PC5. Record details accurately using the appropriate format<br>PC6. Complete all documentation within stipulated time.<br>PC7. Ensure documents are available to appropriate authorities to inspect   |
| Element  | Knowledge and Understanding   |
| A. Organisational Context (Knowledge of the Company/ Organisation and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Job specific documents e.g. daily maintenance checklist and importance of the same<br>KA2. Safety policy of the company<br>KA3. Risk and impact of not following defined procedures/work instructions<br>KA4. Escalation matrix for reporting identified problems<br>KA5. Cost of equipment and loss for the company that results from damage of equipment<br>KA6. Direct/indirect cost of accidents to the company<br>KA7. Implications of delays in process to the company                                       |
| Skills (S) w.r.t. the scope  |   |
| Element  | Skills  |
| A. Core Skills/ Generic Skills   | Writing skills and reading Skills<br>The user/ individual on the job needs to know and understand how to:<br>SA1. Create first level process manuals, Control Plans, Work Instructions in an manner that the operators can easily understand the process requirements and process steps<br>SA2. Create small notes/ work documents/ diagrams for supervisors ,operators and helpers to help them understand the process<br>SA3. Use emails and other business correspondence methods (internal memos, circular etc.) for communicating with other team members/ vendors/ suppliers etc. |



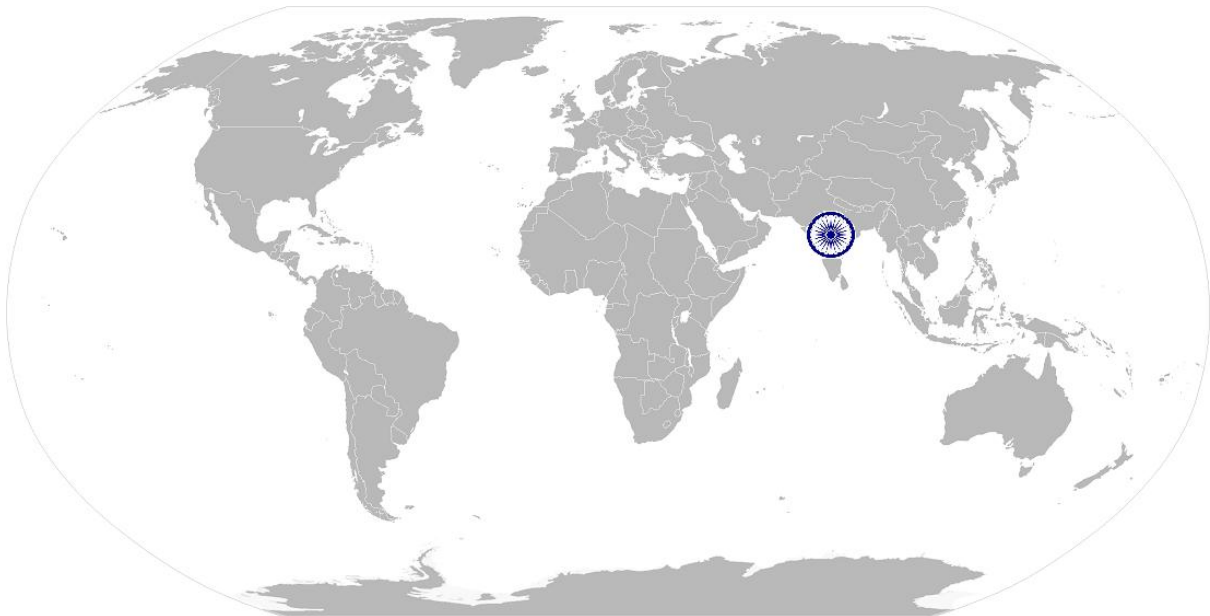
|  |  |
|--|--|
|  | SA4. Read equipment manuals and process documents given by the equipment supplier to understand the equipment and processes better   |
|  | Oral Communication (Listening and Speaking skills)   |
|  | <p>The user/individual on the job needs to know and understand how to:</p> <p>SA5. Effectively explain supervisors, operators and helpers about equipment operations, process steps and other operational requirements</p> <p>SA6. Answer the queries raised by the operative team as well as intercompany departments</p> <p>SA7. Effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.</p> <p>SA8. Discuss task lists, schedules, and work-loads with the operative team members</p> <p>SA9. Attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker</p> |





## NOS Version Control

|                     |  |                  |            |
|---------------------|--|------------------|------------|
| NOS Code            | ISC/N0410  |                  |            |
| Credits(NSQF)       | TBD  | Version number   | 1.0        |
| Industry            | Iron and steel   | Drafted on       | 21/07/2014 |
| Industry Sub-sector | Steel, Sponge Iron,<br>Ferro Alloys, Re-Rollers,<br>Refractory | Last reviewed on | 30/12/2014 |
| Occupation          | Iron Making  | Next review date | 30/12/2015 |





ISC/N0434: Health and Safety

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## Overview

This unit is about health and safety measures critical for hazardous activities in the steel plant





|  |   |
|--|---|
| Unit Code  | ISC/N0434   |
| Unit Title (Task)  | Health and safety   |
| Description  | This unit is about health and safety measures across operations in the plant  |
| Scope  | This OS unit/task covers the following: <ul style="list-style-type: none"> <li>Health and safety measures critical for workers in a steel plant</li> </ul>  |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>                                    |   |
| Element  | Performance Criteria  |
| Safety, Security and Administrative  | To be competent, the user/individual on the job must be able to: <p>PC1. Perform storage and transport of hazardous materials compliant with safety guidelines</p> <p>PC2. Deal with misfires as per statutory requirement</p> <p>PC3. Comply with safety regulations and procedures in case of fire hazard and re-fuelling</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. Emergency organisation of the specific work site.</p> <p>PC7. Identify characteristics of liquid metal, liquid slag, fumes, gas pipelines, etc. and take necessary precautions</p> <p>PC8. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection</p> |
| Element  | Knowledge and Understanding   |
| A. Organisational Context (Knowledge of the Company/ Organisation and its processes) | The user/individual on the job needs to know and understand: <p>KA1. Various documents that need to be maintained</p> <p>KA2. Company recommended schedule for filling up the documents</p> <p>KA3. The importance of complete and accurate documentation</p> <p>KA4. Procedures for reporting to the appropriate authority</p> <p>KA5. Procedures for recording damage, breakages etc.</p> <p>KA6. Guidelines for reporting incidents where standard operating procedures were not followed in specific instances</p>  |
| <b>Skills (S) w.r.t. the scope</b>   |   |
| Element  | Skills  |
| A. Core Skills/ Generic Skills   | Writing skills and reading Skills <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Create first level process manuals, Control Plans, Work Instructions in a manner that the operators can easily understand the process requirements and process steps</p>  |



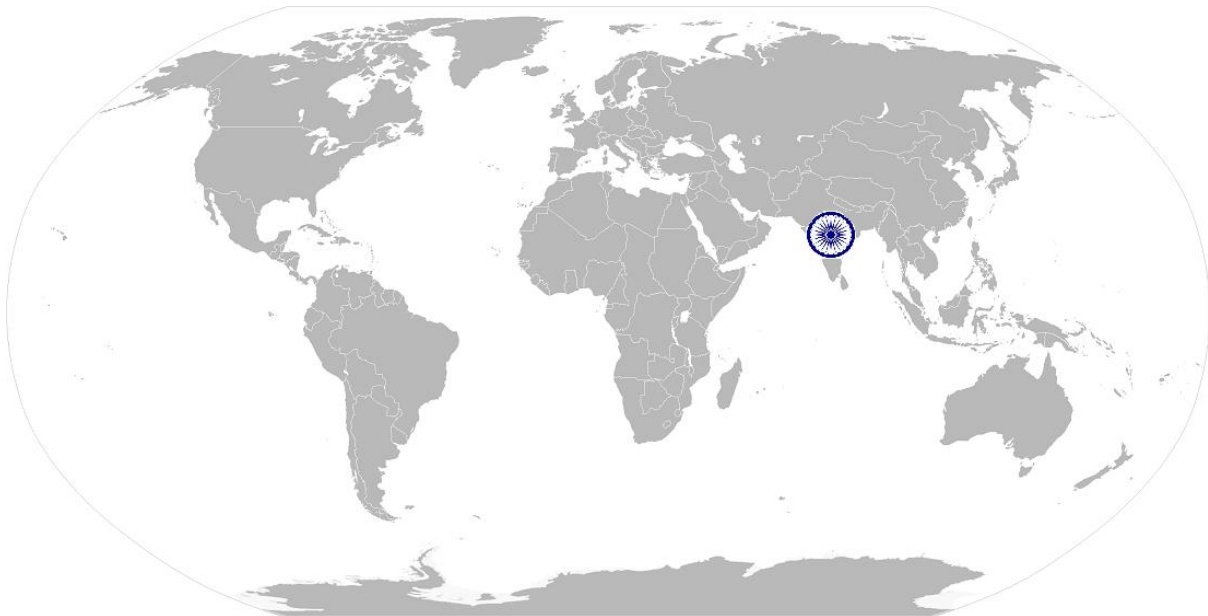
|  |  |
|--|--|
|  | <p>SA2. Create small notes/ work documents/ diagrams for supervisors ,operators and helpers to help them understand the process</p> <p>SA3. Use emails and other business correspondence methods (internal memos, circular etc.) for communicating with other team members/ vendors/ suppliers etc.</p> <p>SA4. Read equipment manuals and process documents given by the equipment supplier to understand the equipment and processes better</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. Effectively explain supervisors, operators and helpers about equipment operations, process steps and other operational requirements</p> <p>SA6. Answer the queries raised by the operative team as well as intercompany departments</p> <p>SA7. Effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.</p> <p>SA8. Discuss task lists, schedules, and work-loads with the operative team members</p> <p>SA9. Attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker</p> |





## NOS Version Control

|                     |  |                  |            |
|---------------------|--|------------------|------------|
| NOS Code            | ISC/N0434  |                  |            |
| Credits(NSQF)       | TBD  | Version number   | 1.0        |
| Industry            | Iron and steel   | Drafted on       | 21/07/2014 |
| Industry Sub-sector | Steel, Sponge Iron,<br>Ferro Alloys, Re-Rollers,<br>Refractory | Last reviewed on | 30/12/2014 |
| Occupation          | Iron Making  | Next review date | 30/12/2015 |





CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role: Iron & Steel – Dumper Operator

Qualification Pack: ISC/Q0403

Sector Skill Council: Indian Iron & Steel Sector Skill Council

**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% in every NOS.
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

| NOSs  | PCs   | Marks Allocated     |        |        |           |
|---|---|---------------------|--------|--------|-----------|
|   |   | Total Marks<br>1000 | Out Of | Theory | Practical |
| ISC/N0407:<br>Prepare<br>dumper for<br>operations | PC1. Adhere to time limits given by supervisor                                  | 250                 | 5      | 0      | 5         |
|   | PC2. Check oil levels of engine, transmission, radiator coolant and brake       |                     | 15     | 5      | 10        |
|   | PC3. Check differential and hydraulic oil levels                                |                     | 20     | 5      | 15        |
|   | PC4. Check the hydraulic hose and ram for leakages                              |                     | 15     | 5      | 10        |
|   | PC5. Check condition of parking brake, main horn, reverse horn, and head light. |                     | 15     | 5      | 10        |
|   | PC6. Check the various controls, gauges, warning lamp and other safety devices  |                     | 15     | 5      | 10        |
|   | PC7. Check fan belt tension, electrolyte level and terminal tightness           |                     | 20     | 5      | 15        |



|   |   |       |     |    |     |
|---|---|-------|-----|----|-----|
|   | PC8. Check and adjust driving position, rear and side mirrors, seat belts   |       | 15  | 5  | 10  |
|   | PC9. Clean air filter dust bowls  |       | 15  | 5  | 10  |
|   | PC10. Drain water and sediment from the fuel tank.  |       | 15  | 5  | 10  |
|   | PC11. Top up coolant and oil in engine, transmission, etc. if necessary   |       | 15  | 5  | 10  |
|   | PC12. Apply grease to all greasing pins and pivot points  |       | 20  | 5  | 15  |
|   | PC13. Ensure the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only) |       | 15  | 5  | 10  |
|   | PC14. Keep footplates and steps clean and free from mud, dirt and oil.  |       | 15  | 5  | 10  |
|   | PC15. Maintain a checking/maintenance logbook to record all activities performed before starting the Dumper                                       |       | 20  | 5  | 15  |
|   | PC16. Report defects precisely to the supervisor if beyond scope of his role  |       | 15  | 5  | 10  |
|   |   | Total | 250 | 75 | 175 |
| ISC/N0408:<br>Perform<br>dumper<br>operations | PC1. Plan and organize the job according to given instructions  | 300   | 10  | 5  | 5   |
|   | PC2. Inspect the worksite to identify any loose soil, hidden deep trenches or marshy patches where dumper could get stuck                         |       | 10  | 5  | 5   |
|   | PC3. Start the engine using the pushbutton switch and key switch together   |       | 10  | 5  | 5   |
|   | PC4. Check the priming pump and pre-heater to start the engine in cold weather conditions   |       | 10  | 5  | 5   |
|   | PC5. Always wear safety belt while driving  |       | 10  | 5  | 5   |
|   | PC6. Ensure proper functioning of rear view camera and audio visual alarm   |       | 15  | 5  | 10  |
|   | PC7. Not use mobile phones while driving  |       | 15  | 5  | 10  |
|   | PC8. Look out for people working and hazards such as trenches, potholes and cables  |       | 15  | 5  | 10  |



|                             |  |       |     |     |     |
|-----------------------------|--|-------|-----|-----|-----|
|                             | PC9. Operate the shifting quadrant device for selecting the correct gear range   |       | 15  | 5   | 10  |
|                             | PC10. Ensure dumper load and operating speed is within limits specified by the manufacturer.                                     |       | 15  | 5   | 10  |
|                             | PC11. Adhere to time limits given by supervisor  |       | 5   | 0   | 5   |
|                             | PC12. Follow the traffic rule / codes developed locally  |       | 15  | 5   | 10  |
|                             | PC13. Perform in-operation visual checks on critical temperature and pressure gauges.  |       | 15  | 5   | 10  |
|                             | PC14. Ensure that walkway rules e.g. operating the Dumper within the permissible/allocated areas are followed                    |       | 15  | 5   | 10  |
|                             | PC15. Utilize judiciously various signaling devices available in the dumper such as turn signal, parking indicator, air horn etc |       | 20  | 5   | 15  |
|                             | PC16. Keep a safe distance from a tip edge and use an approved stop block before tipping over an edge                            |       | 15  | 5   | 10  |
|                             | PC17. Select and use the right type of brake in different situations and conditions.   |       | 20  | 5   | 15  |
|                             | PC18. Inform supervisor of any problems while operating the Dumper   |       | 5   | 0   | 5   |
|                             | PC19. Ensure that dumper is always parked on firm, level ground; with handbrake applied and drive and controls disengaged        |       | 15  | 5   | 10  |
|                             | PC20. Operate the body hoist control handle to maneuver the hydraulic ram that tips the dumper                                   |       | 15  | 5   | 10  |
|                             | PC21. Discharge the load safely at the position and in the manner designated by the supervisor                                   |       | 20  | 5   | 15  |
|                             | PC22. Ensure that no other operators travel on or stand near the Dumper  |       | 15  | 5   | 10  |
|                             |  | Total | 300 | 100 | 200 |
| ISC/N0409:<br>Perform basic | PC1. Track machine operating hours to assess the right service schedule.   | 200   | 15  | 5   | 10  |





|  |   |     |              |            |           |
|--|---|-----|--------------|------------|-----------|
| maintenance and troubleshooting on dumper  | PC2. Clean air filter dust bowls  |     | 15           | 5          | 10        |
|  | PC3. Clean footplates, pedals and steps free from mud, dirt, ice and snow   |     | 15           | 5          | 10        |
|  | PC4. Drain water and sediment /fuel separators  |     | 15           | 5          | 10        |
|  | PC5. Replenish coolants, lubricants and fluids  |     | 20           | 5          | 15        |
|  | PC6. Grease all greasing pins and pivot points  |     | 20           | 5          | 15        |
|  | PC7. Check battery levels and condition of the terminals and carrying out minor adjustments if required.  |     | 20           | 5          | 15        |
|  | PC8. Check and maintain the tyre rims, air pressure, wheel nuts and treads.   |     | 20           | 5          | 15        |
|  | PC9. Assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel                        |     | 15           | 5          | 10        |
|  | PC10. Ensure the machine is on firm and level ground before attempting to carry out any maintenance activity.                                     |     | 15           | 5          | 10        |
|  | PC11. Ensure the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only) |     | 20           | 5          | 15        |
|  | PC12. Ensure that no maintenance task on the engine is performed when running or still hot  |     | 10           | 5          | 5         |
|  |   |     | <b>Total</b> | <b>200</b> | <b>60</b> |
| ISC/N0410: Carry out reporting and logging | PC1. Report problems/incidents as applicable in a timely manner   | 100 | 15           | 5          | 10        |
|  | PC2. Report to the appropriate authority as laid down by the employer   |     | 15           | 5          | 10        |
|  | PC3. Follow reporting procedures as prescribed by the employer  |     | 10           | 5          | 5         |
|  | PC4. Identify documentation to be completed relating to one's role  |     | 15           | 5          | 10        |
|  | PC5. Record details accurately using the appropriate format   |     | 15           | 5          | 10        |
|  | PC6. Complete all documentation within stipulated time  |     | 15           | 5          | 10        |



|                               |   |       |     |    |     |
|-------------------------------|---|-------|-----|----|-----|
|                               | PC7. Ensure documents are available to appropriate authorities to inspect   |       | 15  | 5  | 10  |
|                               |   | Total | 100 | 35 | 65  |
| ISC/N0434:<br>Health & Safety | PC1. Perform storage and transport of hazardous materials compliant with safety guidelines  | 150   | 20  | 5  | 15  |
|                               | PC2. Deal with misfires as per statutory requirement  |       | 15  | 5  | 10  |
|                               | PC3. Comply with safety regulations and procedures in case of fire hazard and re-fuelling   |       | 20  | 5  | 15  |
|                               | PC4. Operate various grades of fire extinguishers   |       | 20  | 5  | 15  |
|                               | 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 |       | 20  | 5  | 15  |
|                               | PC6. Emergency organisation of the specific work site   |       | 20  | 5  | 15  |
|                               | PC7. Identify characteristics of liquid metal, liquid slag, fumes, gas pipelines, etc. and take necessary precautions                                       |       | 20  | 10 | 10  |
|                               | PC8. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection   |       | 15  | 5  | 10  |
|                               |   | Total | 150 | 45 | 105 |