

Qualification Pack



Grader Operator

QP Code: IES/MIN/Q0430

Version: 1.0

NSQF Level: 4

Infrastructure Equipment Skill Council || Infrastructure Equipment Skill Council, Avik Royale-First Floor
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Bengaluru 560026

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Borrowed Qualification Pack (QP) Parameters

Originating SSC	Mining
Borrowing SSC	Infrastructure Equipment
Borrowing Request Validity	01/07/2018 to 31/03/2020
Assessment and Certification to be conducted by	Infrastructure Equipment
Certification Logos to be included	Infrastructure Equipment

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IES/MIN/Q0430: Grader Operator

Brief Job Description

The Grader Operator operates the grader and other heavy equipment in a safe and effective manner in order to ensure the roadways are accessible, safe and in good operating condition.

Personal Attributes

This job requires the individual to concentrate on the job at hand and complete it efficiently and effectively without any accidents so diligence and hard-work are desired attributes for individuals performing this role. He must also demonstrate strong work ethics, an ability to communicate courteously with co workers and must be good with following instructions of the supervisor.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [MIN/N0483: Prepare Grader for operations and conduct routine maintenance](#)
2. [MIN/N0484: Perform Grader Operations](#)
3. [MIN/N0485: Transport Grader](#)
4. [MIN/N0901: Health and Safety](#)

Qualification Pack (QP) Parameters

Sector	Infrastructure Equipment
Sub-Sector	
Occupation	Loading & Hauling - Opencast Mines
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2004/8332.16
Minimum Educational Qualification & Experience	10th Class (NA) with 1-2 Years of experience in relevent field
Minimum Level of Education for Training in School	

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Pre-Requisite License or Training	Mandatory:1. Technical and gallery training as per first schedule, Mining Vocational Training Rules (MVTR) 1966.2. Heavy Commercial Vehicle Driving LicenseSuggested1. Refresher training if absent from mines for a period of one year or more before re-employment.2. 5S and Safety Management
Minimum Job Entry Age	18 Years
Last Reviewed On	24/03/2015
Next Review Date	31/03/2020
NSQC Approval Date	20/07/2015
Version	1.0

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MIN/N0483: Prepare Grader for operations and conduct routine maintenance

Description

This unit is about preparing the grader for activities that need to be carried out during a Shift

Scope

This OS unit/task covers the following:

- Understanding of Grader Machine and its operation
- Conducting pre-operation checks to ensure safety and efficiency
- Complies with scheduled maintenance requirements

Elements and Performance Criteria

Understanding of Grader Machine and its operation

To be competent, the user/individual on the job must be able to:

- PC1.** understand the different types and sizes of graders, e.g. rigid articulating etc., and relevant manufacturers specifications as required
- PC2.** understand the function of major components, such as circle, mould board, ripper, scarifier, drive train and their importance
- PC3.** understand common types of ground engaging tools, such as mould board cutting edges (e.g., carbide, standard etc.), ripper tooth
- PC4.** identify different types of attachments and accessories: and such as v-blades, one-way blades, push-blades, ripper, scarifier, grade control system [e.g., global positioning system (gps), laser], shouldering boot etc.
- PC5.** understand the purpose of attachments and accessories such as shouldering boot is used to prevent spillage etc.
- PC6.** understand the basic tools and supplies associated with grader, such as hammer, screwdrivers, pliers, self-locking pliers, adjustable wrench, assorted other wrenches, grease gun etc.
- PC7.** understand tyre conditions and inflation pressure
- PC8.** identify the regulatory documents required for the vehicle

Conducting preoperation checks to ensure safety and efficiency

To be competent, the user/individual on the job must be able to:

- PC9.** inspect and service lubrication system to:1. identify service needs, defects, and hazardous conditions through visual inspection, such as low oil levels, dirty filler cap2. perform basic service, such as adjust oil levels3. perform or arrange for repair or replacement of defective components, such as seals, gaskets, lines.
- PC10.** inspect and service electrical system to:1. identify service needs, defects, and hazardous conditions through visual inspection, and brief operation in idle condition2. perform or arrange for repair or replacement of defective components, such as batteries.

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- PC11.** inspect and service hydraulic systems & suspension systems to:1. inspect and service hydraulic system and suspension systems through visual inspection and brief operation if required2. perform basic maintenance, such as grease pivot points, check hydraulic oil levels, use spill kit,3. perform or arrange for repair or replacement of defective components, such as grease fittings and hoses.
- PC12.** inspect and service engine & transmission system to:1. locate components to be inspected, select and use appropriate tools2. identify service needs, defects, and hazardous conditions through visual inspection and brief period of idle running3. perform basic service, such as add coolant, use spill kit4. perform or arrange for repair or replacement of5. defective components, such as hoses, belts.
- PC13.** inspect and service fuel system & air intake system to:1. locate components to be inspected, select and use appropriate tools2. identify service needs, defects, and hazardous conditions through visual inspection and brief period of idle running3. perform basic service, such as fill fuel, clean air filter4.perform or arrange for repair or replacement of fuel/air filter if required

Complies with scheduled maintenance Requirement

To be competent, the user/individual on the job must be able to:

- PC14.** maintain a checking/maintenance logbook to record all activities to be performed before starting the grader
- PC15.** read indicators that signal need for replacement
- PC16.** read maintenance records and documentation relating to service, such as log books and equipment manual
- PC17.** arrange for or perform scheduled maintenance

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different types of mines and detail of the mine he is working in
- KU2.** mine organisation, time keeping, need for discipline and punctuality
- KU3.** benching in quarries, dressing of overhangs, undercuts, fencing, first aid and hygiene
- KU4.** standing orders in force at the mine. safety in the vicinity of machinery
- KU5.** shot-firing and safety regulations. how and where to take shelter
- KU6.** duties of workmen
- KU7.** provision of wages, working hours and accident compensation as per mines
- KU8.** knowledge of mining safety procedures
- KU9.** impact of violation of safely procedures
- KU10.** job specific documents e.g. daily maintenance checklist and importance of the same
- KU11.** risk and impact of not following defined procedures/work instructions
- KU12.** escalation matrix for reporting identified problems
- KU13.** cost of equipment and loss for the organization that results from damage of equipment
- KU14.** all direct /indirect cost of accidents to the organization
- KU15.** implications of delays in process to the organization
- KU16.** locally prepared emergency response /disaster management plan.
- KU17.** normal operating conditions

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- KU18.** correct engine oil, lubrication system, components, and functions
- KU19.** electrical system, components, and functions
- KU20.** hydraulic systems, components, and functions
- KU21.** cooling system, components, and functions, such as that fan belts are used to turn fan for cooling
- KU22.** load bearing structure of the machine
- KU23.** operator station and components, such as seat, instrument panel and control systems, operating levers, communication devices etc.
- KU24.** monitoring and warning systems and components
- KU25.** impact of weather and seasonal conditions on start-up procedures
- KU26.** common troubles and remedies.
- KU27.** signage, mining area signs and other safety and emergency signals
- KU28.** response to emergencies such as fire, accident, major failure etc.
- KU29.** various brake mechanisms/ systems
- KU30.** various technical; aspects like road gradient, turning angle, road geometry etc.

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** note down observations (if any)
- GS2.** write information documents or enter the information in online erp systems under guidance of the supervisor
- GS3.** read and interpret symbols and measurements
- GS4.** read information documents
- GS5.** understand and analyse the available data about the site
- GS6.** discuss task lists, schedules and activities
- GS7.** effectively communicate
- GS8.** attentively listen with full attention and comprehend the information given by various sources about the site
- GS9.** plan and organize the work order and jobs
- GS10.** organize all process manuals so that sorting/ accessing information is easy
- GS11.** use common sense and make judgments during day to day basis
- GS12.** use reasoning skills to identify and resolve basic problems
- GS13.** use intuition to detect any potential problems which could arise
- GS14.** follow instructions and work on areas of improvement identified
- GS15.** complete the assigned tasks with minimum supervision
- GS16.** complete the job within timelines and quality norms
- GS17.** detect problems in day to day tasks
- GS18.** discuss possible solution with the supervisor for problem solving
- GS19.** make decisions in emergency conditions

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Understanding of Grader Machine and its operation</i>	32	24	-	-
PC1. understand the different types and sizes of graders, e.g. rigid articulating etc., and relevant manufacturers specifications as required	4	4	-	-
PC2. understand the function of major components, such as circle, mould board, ripper, scarifier, drive train and their importance	4	4	-	-
PC3. understand common types of ground engaging tools, such as mould board cutting edges (e.g., carbide, standard etc.), ripper tooth	4	4	-	-
PC4. identify different types of attachments and accessories: and such as v-blades, one-way blades, push-blades, ripper, scarifier, grade control system [e.g., global positioning system (gps), laser], shouldering boot etc.	4	-	-	-
PC5. understand the purpose of attachments and accessories such as shouldering boot is used to prevent spillage etc.	4	4	-	-
PC6. understand the basic tools and supplies associated with grader, such as hammer, screwdrivers, pliers, self-locking pliers, adjustable wrench, assorted other wrenches, grease gun etc.	4	-	-	-
PC7. understand tyre conditions and inflation pressure	4	4	-	-
PC8. identify the regulatory documents required for the vehicle	4	4	-	-
<i>Conducting preoperation checks to ensure safety and efficiency</i>	20	20	-	-
PC9. inspect and service lubrication system to:1. identify service needs, defects, and hazardous conditions through visual inspection, such as low oil levels, dirty filler cap2. perform basic service, such as adjust oil levels3. perform or arrange for repair or replacement of defective components, such as seals, gaskets, lines.	4	4	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. inspect and service electrical system to:1. identify service needs, defects, and hazardous conditions through visual inspection, and brief operation in idle condition2. perform or arrange for repair or replacement of defective components, such as batteries.	4	4	-	-
PC11. inspect and service hydraulic systems & suspension systems to:1. inspect and service hydraulic system and suspension systems through visual inspection and brief operation if required2. perform basic maintenance, such as grease pivot points, check hydraulic oil levels, use spill kit,3. perform or arrange for repair or replacement of defective components, such as grease fittings and hoses.	4	4	-	-
PC12. inspect and service engine & transmission system to:1. locate components to be inspected, select and use appropriate tools2. identify service needs, defects, and hazardous conditions through visual inspection and brief period of idle running3. perform basic service, such as add coolant, use spill kit4. perform or arrange for repair or replacement of5. defective components, such as hoses, belts.	4	4	-	-
PC13. inspect and service fuel system & air intake system to:1. locate components to be inspected, select and use appropriate tools2. identify service needs, defects, and hazardous conditions through visual inspection and brief period of idle running3. perform basic service, such as fill fuel, clean air filter4. perform or arrange for repair or replacement of fuel/air filter if required	4	4	-	-
<i>Complies with scheduled maintenance Requirement</i>	16	8	-	-
PC14. maintain a checking/maintenance logbook to record all activities to be performed before starting the grader	4	4	-	-
PC15. read indicators that signal need for replacement	4	4	-	-
PC16. read maintenance records and documentation relating to service, such as log books and equipment manual	4	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC17. arrange for or perform scheduled maintenance	4	-	-	-
NOS Total	68	52	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	MIN/N0483
NOS Name	Prepare Grader for operations and conduct routine maintenance
Sector	Mining
Sub-Sector	Mining Operation
Occupation	Loading & Hauling - Opencast Mines
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	24/03/2014
Next Review Date	24/03/2017
NSQC Clearance Date	

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MIN/N0484: Perform Grader Operations

Description

This unit is about performing Grader operation

Scope

This OS unit/task covers the following:

- Complies with grades and stakes
- Operates Grader
- Follows shutdown procedure

Elements and Performance Criteria

Complies with grades and stakes

To be competent, the user/individual on the job must be able to:

- PC1.** recognize symbols and markings used on job site
- PC2.** interpret survey markers, construction grades, and stakes to differentiate between types of survey markers, construction grades, and stakes identify what is indicated by different types of survey markers, construction grades, and stakes
- PC3.** mark stakes/surface with appropriate symbols or markings, such as coloured paint, ribbons
- PC4.** demonstrate use of grade-checking devices such as laser levels, line levels, sight levels and check grades using information on stakes and plans.

Operate grader

To be competent, the user/individual on the job must be able to:

- PC5.** set up equipment correctly to adjust to factors affecting safe operation of equipment, maintain stability of equipment, position equipment correctly communicate with traffic control person/signaller
- PC6.** install attachments to the equipment following correct procedures and mechanisms specified by the equipment manufacturer
- PC7.** use tools effectively to for installing attachments, positions equipment and attachments for installation and installs attachments safely
- PC8.** use operating controls safely and smoothly, use different operating controls simultaneously and react to changing conditions/situations
- PC9.** monitor performance of equipment from gauges and symbols, and using own senses and judgment to monitor/ adjust performance and identify equipment problems
- PC10.** identify and troubleshoot equipment problems and possible solutions, communicate problems accurately to others, such as maintenance personnel if required
- PC11.** observe and respond to movement of others (people, vehicles, and other equipment in work area while performing tasks
- PC12.** communicate with others, such as site personnel, signaller, traffic control person use and respond to hand and audible signals

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- PC13.** optimize equipment capabilities by position equipment correctly by adjusting operation to accommodate weather conditions, materials being handled, limitations of equipment, ground conditions, seasonal conditions, and stability characteristics adjust work procedures as necessary
- PC14.** scarify and rip surface materials, such as reclaiming road surface materials to maintain road within the capabilities and limitations of equipment and site obstructions and hazards, such as underground utilities
- PC15.** strip/windrow surface materials according to job specifications while avoiding site obstructions and hazards
- PC16.** work surface materials, such as combine, separate, windrow and spread materials as per the job specifications
- PC17.** create rough/finish grade ditches in accordance with job specifications
- PC18.** create slopes (also known as inclines) by cutting or filling and blending materials in accordance with job specifications
- PC19.** establish grade profiles by reading site plans and positioning attachments of the equipment correctly to generate rough/finish grades to job specifications, such as correct elevation

Follows shutdown procedure

To be competent, the user/individual on the job must be able to:

- PC20.** clean wheels and attachments according to manufacturers specifications and company policies and procedures
- PC21.** identify appropriate parking location and park equipment according to company policies and procedures, lower attachments before shutting down
- PC22.** shut down and secures equipment as per company policy and procedures and manufacturers specification to protect against movement, theft and vandalism
- PC23.** perform housekeeping of the equipment as per the manufacturers specification and cleans items such as windshields, rails, steps, instrument panel
- PC24.** perform visual inspection, identify existing or potential problems communicate concerns to appropriate personnel, such as supervisor, mechanic

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different types of mines and detail of the mine he is working in
- KU2.** mine organisation, time keeping, need for discipline and punctuality
- KU3.** benching in quarries, dressing of overhangs, undercuts, fencing, first aid and hygiene
- KU4.** standing orders in force at the mine. safety in the vicinity of machinery
- KU5.** shot-firing and safety regulations. how and where to take shelter
- KU6.** duties of workmen
- KU7.** provision of wages, working hours and accident compensation as per mines
- KU8.** knowledge of mining safety procedures
- KU9.** impact of violation of safely procedures
- KU10.** types of documentation in organization e.g. daily maintenance check list and importance of the same

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- KU11.** risk and impact of not following defined procedures/work instructions
- KU12.** rules and regulations of mine as per standard operating procedure (sop).
- KU13.** risk and impact of not following organizations sop.
- KU14.** escalation matrix for reporting identified problems
- KU15.** the duties and responsibilities associated with his job role as per the employer
- KU16.** cost of delays to the organization
- KU17.** direct /indirect cost of accidents to the organization
- KU18.** locally prepared emergency response /disaster management plan.
- KU19.** symbols and markings, such as colour-coded ribbons, surface paint marks
- KU20.** job site colour coding for utility grades and stakes
- KU21.** types and uses of survey markers, construction grades, and stakes
- KU22.** site plan and grade templates
- KU23.** equipment manufacturers specifications for operation of the equipment
- KU24.** safety controls and equipment, such as travel alarms, seat belt caution, warning, and hazard decals, lights and symbols
- KU25.** job specifications and activities
- KU26.** factors affecting safe operation, such as weather, ground conditions, utilities
- KU27.** correct positioning of equipment and stability characteristics of equipment
- KU28.** attachments and specifications
- KU29.** procedures and mechanisms for installation of attachments
- KU30.** operating controls, instrument panel, such as gauges, symbols and functions of the equipment
- KU31.** general understanding of normal operating charecterstics
- KU32.** site traffic patterns
- KU33.** equipment blind spots
- KU34.** understanding of code of signals (hand/audible and any other signal)
- KU35.** stability characteristics, such as centre of gravity, leverage, tipping axis and correct positioning of equipment
- KU36.** grades and stakes
- KU37.** surface materials and their characteristics, such as sand, gravel and their characteristics e.g. density, moisture content and related phenomenon
- KU38.** using scarifier and ripper
- KU39.** identifying site obstructions and hazards, such as underground utilities
- KU40.** grade profiles and definition of rough and finish grades

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** note down observations (if any)
- GS2.** write information documents or enter the information in online erp systems under guidance of the supervisor

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- GS3.** read and interpret symbols and measurements
- GS4.** read information documents
- GS5.** understand and analyse the available data about the site
- GS6.** discuss task lists, schedules and activities
- GS7.** effectively communicate
- GS8.** attentively listen with full attention and comprehend the information given by various sources about the site
- GS9.** plan and organize the work order and jobs
- GS10.** organize all process manuals so that sorting/ accessing information is easy
- GS11.** use common sense and make judgments during day to day basis
- GS12.** use reasoning skills to identify and resolve basic problems
- GS13.** use intuition to detect any potential problems which could arise
- GS14.** follow instructions and work on areas of improvement identified
- GS15.** complete the assigned tasks with minimum supervision
- GS16.** complete the job within timelines and quality norms
- GS17.** detect problems in day to day tasks
- GS18.** discuss possible solution with the supervisor for problem solving
- GS19.** make decisions in emergency conditions

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Complies with grades and stakes</i>	16	12	-	-
PC1. recognize symbols and markings used on job site	4	4	-	-
PC2. interpret survey markers, construction grades, and stakes to differentiate between types of survey markers, construction grades, and stakes identify what is indicated by different types of survey markers, construction grades, and stakes	4	4	-	-
PC3. mark stakes/surface with appropriate symbols or markings, such as coloured paint, ribbons	4	-	-	-
PC4. demonstrate use of grade-checking devices such as laser levels, line levels, sight levels and check grades using information on stakes and plans.	4	4	-	-
<i>Operate grader</i>	44	28	-	-
PC5. set up equipment correctly to adjust to factors affecting safe operation of equipment, maintain stability of equipment, position equipment correctly communicate with traffic control person/signaller	4	-	-	-
PC6. install attachments to the equipment following correct procedures and mechanisms specified by the equipment manufacturer	4	-	-	-
PC7. use tools effectively to for installing attachments, positions equipment and attachments for installation and installs attachments safely	4	-	-	-
PC8. use operating controls safely and smoothly, use different operating controls simultaneously and react to changing conditions/situations	4	-	-	-
PC9. monitor performance of equipment from gauges and symbols, and using own senses and judgment to monitor/ adjust performance and identify equipment problems	4	-	-	-
PC10. identify and troubleshoot equipment problems and possible solutions, communicate problems accurately to others, such as maintenance personnel if required	-	4	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. observe and respond to movement of others (people, vehicles, and other equipment in work area while performing tasks	4	-	-	-
PC12. communicate with others, such as site personnel, signaller, traffic control person use and respond to hand and audible signals	4	-	-	-
PC13. optimize equipment capabilities by position equipment correctly by adjusting operation to accommodate weather conditions, materials being handled, limitations of equipment, ground conditions, seasonal conditions, and stability characteristics adjust work procedures as necessary	4	4	-	-
PC14. scarify and rip surface materials, such as reclaiming road surface materials to maintain road within the capabilities and limitations of equipment and site obstructions and hazards, such as underground utilities	4	4	-	-
PC15. strip/windrow surface materials according to job specifications while avoiding site obstructions and hazards	4	4	-	-
PC16. work surface materials, such as combine, separate, windrow and spread materials as per the job specifications	4	-	-	-
PC17. create rough/finish grade ditches in accordance with job specifications	-	4	-	-
PC18. create slopes (also known as inclines) by cutting or filling and blending materials in accordance with job specifications	-	4	-	-
PC19. establish grade profiles by reading site plans and positioning attachments of the equipment correctly to generate rough/finish grades to job specifications, such as correct elevation	-	4	-	-
<i>Follows shutdown procedure</i>	12	8	-	-
PC20. clean wheels and attachments according to manufacturers specifications and company policies and procedures	-	4	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. identify appropriate parking location and park equipment according to company policies and procedures, lower attachments before shutting down	4	-	-	-
PC22. shut down and secures equipment as per company policy and procedures and manufacturers specification to protect against movement, theft and vandalism	-	4	-	-
PC23. perform housekeeping of the equipment as per the manufacturers specification and cleans items such as windshields, rails, steps, instrument panel	4	-	-	-
PC24. perform visual inspection, identify existing or potential problems communicate concerns to appropriate personnel, such as supervisor, mechanic	4	-	-	-
NOS Total	72	48	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	MIN/N0484
NOS Name	Perform Grader Operations
Sector	Mining
Sub-Sector	Mining Operation
Occupation	Loading & Hauling - Opencast Mines
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	24/03/2014
Next Review Date	24/03/2017
NSQC Clearance Date	

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MIN/N0485: Transport Grader

Description

This unit is about transporting Grader Machine from one location to another as per the requirement, while ensuring public safety, equipment safety and efficiency and comply with relevant transport legislations, processes and procedures

Scope

This OS unit/task covers the following:

- Prepare Grader for transportation
- Driving Grader on public roads

Elements and Performance Criteria

Prepare Grader for Transportation

To be competent, the user/individual on the job must be able to:

- PC1.** prepare to load grader and attachments for transport such as clean blades and wheels
- PC2.** load or assist with loading grader and attachments while avoiding hazards such as uneven ground, utility lines etc.
- PC3.** use and respond to code of signals (hand/audible sounds etc.)
- PC4.** protect equipment from damage, such as cover exhaust pipe etc.
- PC5.** assist with securing grader and attachment to transport vehicle driver as required, such as attach warning flags and reflectors
- PC6.** unload or assist with unloading grader and attachments and assist transport driver as required
- PC7.** assess and adjust to hazards, such as overhead obstructions, narrow landing areas
- PC8.** understand the working of visual attachments, rear view camera etc

Driving grader on public roads

To be competent, the user/individual on the job must be able to:

- PC9.** prepare grader for road travel: 1. secure attachments in proper positions for road travel 2. complete inspection, such as check brakes, steering, lights, tires, and back-up warnings 3. clean equipment
- PC10.** drive grader on public road: 1. comply with applicable legislation, such as possess appropriate and valid drivers licence 2. follow route to destination 3. adjust to road and weather conditions, such as adjust speed 4. recognize and avoid potential hazards

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different types of mines and detail of the mine he is working in
- KU2.** mine organisation, time keeping, need for discipline and punctuality

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- KU3.** benching in quarries, dressing of overhangs, undercuts, fencing, first aid and hygiene
- KU4.** code of practice in specific areas of mine. significance of fences
- KU5.** standing orders in force at the mine. safety in the vicinity of machinery
- KU6.** shot-firing and safety regulations. how and where to take shelter
- KU7.** duties of workmen
- KU8.** provision of wages, working hours and accident compensation as per mines
- KU9.** knowledge of mining safety procedures
- KU10.** impact of violation of safely procedures
- KU11.** types of documentation in organization e.g. daily maintenance checklist and importance of the same
- KU12.** risk and impact of not following defined procedures/work instructions
- KU13.** rules and regulations of mine as per standard operating procedure (sop)
- KU14.** risk and impact of not following organizations sop
- KU15.** escalation matrix for reporting identified problems
- KU16.** manufacturers specifications of grader and attachments
- KU17.** company policies and procedures
- KU18.** how to load grader onto different types of transport vehicles, such as beavertail, folding gooseneck
- KU19.** impact of weather conditions
- KU20.** code of signals (hand/ audible signals etc.)
- KU21.** tie down points of grader
- KU22.** loading unloading technique using proper rigging techniques
- KU23.** applicable legislation, such as traffic laws
- KU24.** understanding of route and destination
- KU25.** proper positioning of attachments for road travel
- KU26.** equipments limitations on public roads, such as speed, blind spots

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** note down observations (if any)
- GS2.** write information documents or enter the information in online erp systems under guidance of the supervisor
- GS3.** read and interpret symbols and measurements
- GS4.** read information documents
- GS5.** understand and analyse the available data about the site
- GS6.** discuss task lists, schedules and activities
- GS7.** effectively communicate
- GS8.** attentively listen with full attention and comprehend the information given by various sources about the site
- GS9.** plan and organize the work order and jobs

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- GS10.** organize all process manuals so that sorting/ accessing information is easy
- GS11.** use common sense and make judgments during day to day basis
- GS12.** use reasoning skills to identify and resolve basic problems
- GS13.** use intuition to detect any potential problems which could arise
- GS14.** follow instructions and work on areas of improvement identified
- GS15.** complete the assigned tasks with minimum supervision
- GS16.** complete the job within timelines and quality norms
- GS17.** detect problems in day to day tasks
- GS18.** discuss possible solution with the supervisor for problem solving
- GS19.** make decisions in emergency conditions

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare Grader for Transportation</i>	32	12	-	-
PC1. prepare to load grader and attachments for transport such as clean blades and wheels	4	4	-	-
PC2. load or assist with loading grader and attachments while avoiding hazards such as uneven ground, utility lines etc.	4	4	-	-
PC3. use and respond to code of signals (hand/audible sounds etc.)	4	4	-	-
PC4. protect equipment from damage, such as cover exhaust pipe etc.	4	-	-	-
PC5. assist with securing grader and attachment to transport vehicle driver as required, such as attach warning flags and reflectors	4	-	-	-
PC6. unload or assist with unloading grader and attachments and assist transport driver as required	4	-	-	-
PC7. assess and adjust to hazards, such as overhead obstructions, narrow landing areas	4	-	-	-
PC8. understand the working of visual attachments, rear view camera etc	4	-	-	-
<i>Driving grader on public roads</i>	8	-	-	-
PC9. prepare grader for road travel: 1. secure attachments in proper positions for road travel 2. complete inspection, such as check brakes, steering, lights, tires, and back-up warnings 3. clean equipment	4	-	-	-
PC10. drive grader on public road: 1. comply with applicable legislation, such as possess appropriate and valid drivers licence 2. follow route to destination 3. adjust to road and weather conditions, such as adjust speed 4. recognize and avoid potential hazards	4	-	-	-
NOS Total	40	12	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MIN/N0485
NOS Name	Transport Grader
Sector	Mining
Sub-Sector	Mining Operation
Occupation	Loading & Hauling - Opencast Mines
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	24/03/2014
Next Review Date	24/03/2017
NSQC Clearance Date	

Qualification Pack

MIN/N0901: Health and Safety

Description

This unit is about health and safety measures critical in mines

Elements and Performance Criteria

Safety, Security and Administrative

To be competent, the user/individual on the job must be able to:

- PC1.** comply with occupational health and safety regulations adopted by the employer.
- PC2.** follow mining operations procedures with respect to materials handling and accidents
- PC3.** follow the correct safety steps in case of accident or major failure
- PC4.** comply with safety regulations and procedures in case of fire hazard.
- PC5.** operate various grades of fire extinguishers.
- PC6.** work responsibly and as safe and careful as possible so as not to put the health and safety of self or others at risk, including members of the public
- PC7.** perform storage and transport of hazardous materials compliant with safety guidelines prescribed by dgms.
- PC8.** deal with misfires as per statutory requirement
- PC9.** identify characteristics of post-blast fumes and take necessary precautions.
- PC10.** wears safety gear such as hard hat, respiratory protection, eye protection, ear protection.

To be competent, the user/individual on the job must be able to:

- PC11.** follow the manufacturers instructions for care and safe operation of the equipment

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** benching in quarries, dressing of overhangs, undercuts, fencing
- KU2.** first aid and hygiene
- KU3.** code of traffic in specific areas of mine. significance of fences
- KU4.** standing orders in force at the mine. safety in the vicinity of machinery
- KU5.** shot-firing and safety regulations. how and where to take shelter
- KU6.** knowledge of mining safety procedures
- KU7.** impact of violation of safety procedures
- KU8.** locally prepared emergency preparedness / disaster management plan.
- KU9.** environmental impact of mining
- KU10.** sources of dust, noise and vibration and measures to minimise
- KU11.** hazardous material safety and security rules and regulations as prescribed by dgms
- KU12.** code of practice for safe handling and transport of dangerous material and heavy equipment.

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Safety, Security and Administrative</i>	27	64	-	-
PC1. comply with occupational health and safety regulations adopted by the employer.	3	6	-	-
PC2. follow mining operations procedures with respect to materials handling and accidents	2	6	-	-
PC3. follow the correct safety steps in case of accident or major failure	3	8	-	-
PC4. comply with safety regulations and procedures in case of fire hazard.	3	6	-	-
PC5. operate various grades of fire extinguishers.	2	6	-	-
PC6. work responsibly and as safe and careful as possible so as not to put the health and safety of self or others at risk, including members of the public	2	8	-	-
PC7. perform storage and transport of hazardous materials compliant with safety guidelines prescribed by dgms.	3	6	-	-
PC8. deal with misfires as per statutory requirement	3	6	-	-
PC9. identify characteristics of post-blast fumes and take necessary precautions.	3	6	-	-
PC10. wears safety gear such as hard hat, respiratory protection, eye protection, ear protection.	3	6	-	-
	3	6	-	-
PC11. follow the manufacturers instructions for care and safe operation of the equipment	3	6	-	-
NOS Total	30	70	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MIN/N0901
NOS Name	Health and Safety
Sector	Mining
Sub-Sector	Mining Operation
Occupation	
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2015
Next Review Date	31/03/2017
NSQC Clearance Date	31/03/2015

Qualification Pack

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (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 these criteria.
5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Minimum Aggregate Passing % at QP Level : 70

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
MIN/N0483.Prepare Grader for operations and conduct routine maintenance	68	52	-	-	120	25
MIN/N0484.Perform Grader Operations	72	48	-	-	120	25
MIN/N0485.Transport Grader	40	20	-	-	60	25
MIN/N0901.Health and Safety	30	70	-	-	100	25
Total	210	190	-	-	400	100

Qualification Pack

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Qualification Pack

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
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 (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) 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 (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a 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 quality of performance required.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.

Qualification Pack

Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.