

Application Documentation: Version 2 /16 May, 2015

QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY

Name and address of submitting body:

**Skill Council for Mining Sector (SCMS)
FIMI House, B-311, Okhla Industrial, Phase-1
New Delhi-110020**

Name and contact details of individual dealing with the submission

Name: A. K. Bhandari

Position in the organisation: Chief Executive Officer

Address if different from above

Same as above

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List of documents submitted in support of the Qualifications File

1. Sector Profiling
2. Occupational Map & Progression matrix
3. Protocol for Affiliation of Assessment Bodies and Assessment Framework
4. List of Companies which participated in the NOS development process including validation
5. Validation of Occupational Standards by Industry
6. Putting up the Occupational Standards in public view and declaration of Standard as NOS
7. Recommendation from QRC

1. QUALIFICATION FILE SUMMARY

Qualification Type			
Qualification Title	Excavator Operator		
Classification code	MIN/Q 0404		
Body/bodies which will assess candidates	SCMS affiliated Assessment Agency		
Body/bodies which will award the certificate for the qualification.	SCMS		
Body which will accredit providers to offer the qualification.	SCMS		
Occupation(s) to which the qualification gives access	Has been developed following all guidelines laid down by NSDC for NOS and Qualification Pack development. Has been validated by 30 Employers.		
Occupation(s) to which the qualification gives access	Open Cast and Underground		
Proposed level of the qualification in the NSQF.	Level 4		
Anticipated volume of training/learning required to complete the qualification.	120 hours		
Entry requirements / recommendations.	10 th class		
Progression from the qualification.	Level 6		
Planned arrangements for RPL.	RPL arrangements and policies are in process		
International recognitions.	In progress		
Formal structure of the qualification			
Title of unit or other component (include any identification code used)	Mandatory/ Optional	Estimated size (learning hours)	Level
MIN/N 0412(Prepare Excavator)	Mandatory	120 hours	4
MIN/N 0413 (Perform Excavator Operations)			
MIN/N 0414 (Perform basic maintenance and troubleshooting on Excavator)			
MIN/N 0415 (Carry Out Reporting and Logging)			
MIN/ N0901 (Health and Safety)			

Please attach any document giving further detail about the structure of the qualification – eg a Curriculum or Qualification Pack.

Give details of the document here: [Excavator Operator](#)

SECTION 1

ASSESSMENT

Name of assessment body:

If there will be more than one assessment body for this qualification, give details.

1. **Anant Learning and Development, New Delhi**
2. **Navriti Technologies Private limited, Bangalore**
3. **Aspiring minds, New Delhi**
4. **Trendsetters Skill Assessors Pvt. Ltd.**

Will the assessment body be responsible for RPL assessment?

Give details of how RPL assessment for the qualification will be carried out and quality assured.

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF:

Please attach any documents giving further information about assessment and/or RPL.

Give details of the document(s) here: [Protocol Document](#) , [RPL Assessment Document](#), and

ASSESSMENT POLICY

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF:

The emphasis is on practical demonstration of skills and knowledge based on the performance criteria. The assessment papers are developed by Subject Matter Experts (SME) available with the Assessment Agency as per the performance and assessment criteria mentioned in the Qualification Pack. The assessments papers are also checked for the various outcome based parameters such as quality, time taken, precision, tools & equipment requirement etc.

The assessment results are backed by evidences collected by assessors.

1. The assessor needs to collect a copy of the attendance for the training done under the scheme. The attendance sheets are signed and stamped by the In-charge / Head of the Training Centre.
2. The assessor needs to verify the authenticity of the candidate by checking the photo ID card issued by the institute as well as any one Photo ID card issued by the Central/Government. The same needs to be mentioned in the attendance sheet. In case of suspicion, the assessor should authenticate and cross verify trainee's credentials in the enrolment form.
3. The assessor needs to punch the trainee's roll number on all the test pieces.
4. The assessor can take a photograph of all the students along with the assessor standing in the middle and with the centre name/banner at the back as evidence.
5. The assessor also needs to carry a photo ID card.

The assessment agencies are instructed to hire assessors with integrity, reliability and fairness. Each assessor shall sign a document with its assessment agency by which they commit themselves to comply with the rules of confidentiality and conflict of interest, independence from commercial and other interests that would compromise impartiality of the assessments.

Detail any particular arrangements relating to candidates with disabilities or other special needs:

Based on the requirement, the candidates with disabilities or other special needs can be exempted from written/viva test and the same will be facilitated by assessor through best possible alternative means.

ASSESSMENT EVIDENCE

Complete the following grid for each grouping of NOS, assessment unit or other component as listed in the entry on the structure of the qualification on page 1.

Title of NOS/Unit/Component:

CRITERIA FOR ASSESSMENT OF TRAINEES

Excavator Operator

MIN/Q 0404

Skill Council for Mining Sector

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 centre (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre 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

Assessable Outcome	Assessment criteria	Total Mark (100)	Out Of	Marks Allocation	
				Theory	Skills Practical
1. MIN/N 0412(Prepare Excavator)	PC1. Adhere to time limits given by supervisor.	20	1	1	0
	PC2. Check radiator coolant level monitor.		1	0	1
	PC3. Check engine oil level monitor.		1	0	1
	PC4. Check differential and hydraulic oil levels.		1	0	1

	PC5. Check condition of parking brake, main horn, reverse horn, and head light.		1	0	1
	PC6. Check and if required, adjust the seat height , tilt and distance from pedals.		1	0	1
	PC7. Check the various controls, gauges, warning lamp and other safety devices.		1	0	1
	PC8. Check fan belt tension, electrolyte level and terminal tightness.		1	0	1
	PC9. Clean air filter dust bowls.		1	0	1
	PC10. Drain water and sediment from the fuel tank.		1	0	1
	PC11. Top up coolant and oil in engine, transmission, etc. if necessary.		2	1	1
	PC12. Apply grease to all greasing pins and pivot points.		2	1	1
	PC13. Ensure the locking bar is in position to prevent the booms moving and creating a crushing zone (articulated machines only).		2	1	1
	PC14. Keep footplates and steps clean and free from mud, dirt and oil.		1	1	0
	PC15. Maintain a checking/maintenance logbook to record all activities performed before starting the excavator.		2	1	1
	PC16. Inform supervisor of problems that are beyond scope of his role.		1	1	0
		Total	20	7	13

2. MIN/N 0413 (Perform Excavator Operations)	PC1. Plan and organize the job according to given instructions.	20	1	0.5	0.5
	PC2. Inspect the worksite to identify any loose soil, hidden deep trenches or marshy patches where Excavator could get stuck.		1	0.5	0.5
	PC3. Start the engine using the pushbutton switch and key switch together.		1	0.5	0.5
	PC4. Use the priming pump and pre-heater to start the engine in cold weather conditions.		1	0.5	0.5
	PC5. Operate the shifting quadrant device for selecting the correct gear range.		1	0.5	0.5
	PC6. Ensure Excavator load and operating speed is within limits specified by the manufacturer.		1	0.5	0.5
	PC7. Look out for people working and hazards such as trenches, potholes and cables.		1	0.5	0.5
	PC8. Adhere to time limits given by supervisor.		1	0.5	0.5
	PC9. Perform in-operation visual checks on critical temperature and pressure gauges.		1	0.5	0.5
	PC10. Select and use the right type of brake in different situations and conditions.		1	0.5	0.5
	PC11. Ensure that walkway rules e.g. operating the Excavator within the permissible/allocated areas		1	0.5	0.5

	are followed.				
	PC12. Utilize judiciously various signalling devices available in the Excavator such as turn signal, parking indicator, air horn etc.		1	0.5	0.5
	PC13. Keep a safe distance from a tip edge and use an approved stop block before tipping over an edge.		1	0.5	0.5
	PC14. Keep a safe distance from other plant or vehicles.		1	0.5	0.5
	PC15. Ensure that Excavator is always parked on firm, level ground; with handbrake applied and drive and controls disengaged.		1	0.5	0.5
	PC16. Operate the body hoist control handle to maneuver the hydraulic ram that tips the dump.		2	1	1
	PC17. Discharge the load safely at the position and in the manner designated by the supervisor.		1	0.5	0.5
	PC18. Ensure that no other operators travel on or stand near the Excavator.		1	0.5	0.5
	PC19. Inform supervisor of any problems while operating the Excavator.		1	0.5	0.5
		Total	20	10	10
3. MIN/N 0414 (Perform basic maintenance and troubleshooting on Excavator)	PC1. Track machine operating hours to assess the right service schedule.	20	1	1	0
	PC2. Clean air filter dust bowls.		1	0.5	0.5

	PC3. Clean footplates, pedals and steps free from mud, dirt, ice and snow.		1	0	1
	PC4. Drain water and sediment /fuel separators.		1	0	1
	PC5. Replenish coolants, lubricants and fluids.		2	1	1
	PC6. Grease all greasing pins and pivot points.		2	1	1
	PC7. Check battery levels and condition of the terminals and carrying out minor adjustments if required.		1	0	1
	PC8. Check and maintain the tyre rims, air pressure, wheel nuts and treads.		1	0	1
	PC9. Complete timely and legibly daily/weekly maintenance sheets as provided by the company.		2	1	1
	PC10. Ensure the machine is on firm and level ground before attempting to carry out any maintenance activity.		1	0	1
	PC11. Ensure the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only).		2	1	1
	PC12. Ensure that suitable props/support devices are used and the bucket is not raised while performing maintenance.		2	1	1
	PC13. Ensure that no maintenance task on the engine is performed when running or still hot.		1	0	1

	PC14. Assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel.		1	1	0
	PC15. Complete timely and legibly daily/weekly defect sheets.		1	1	0
		Total	20	8.5	11.5
4. MIN/N 0415 (Carry Out Reporting and Logging)	PC1. Report problems/incidents as applicable in a timely manner.	20	2	0.5	1.5
	PC2. Report to the appropriate authority as laid down by the employer.		3	0.5	2.5
	PC3. Follow reporting procedures as prescribed by the employer.		3	0.5	2.5
	PC4. Identify documentation to be completed relating to one's role.		3	0.5	2.5
	PC5. Record details accurately using the appropriate format.		3	0.5	2.5
	PC6. Complete all documentation within stipulated time.		3	0.5	2.5
	PC7. Make sure documents are available to all appropriate authorities to inspect.		3	1	2
			Total	20	4
5. MIN/N 0901 (Health and Safety)	PC1. Comply with occupational health and safety regulations adopted by the employer.	20	2	1	1
	PC2. Follow mining operations procedures with respect to materials		2	1	1

	handling and accidents.				
	PC3. Follow the correct safety steps in case of accident or major failure.		2	1	1
	PC4. Comply with safety regulations and procedures in case of fire hazard.		2	1	1
	PC5. Operate various grades of fire extinguishers.		2	1	1
	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	1	1
	PC7. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS.		2	1	1
	PC8. Deal with misfires as per statutory requirement.		2	1	1
	PC9. Identify characteristics of post-blast fumes and take necessary precautions.		2	1	1
	PC10. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection.		1	0.5	0.5
	PC11. Follow the manufacturer's instructions for care and safe operation of the equipment.		1	1	0
		Total	20	10.5	9.5

EVIDENCE OF NEED

What evidence is there that the qualification is needed?

Feedback from industry was collected with respect to roles for which qualification packs development was to be prioritized.

What is the estimated uptake of this qualification and what is the basis of this estimate?

- Skills Gap analysis Reports for industry demand

<ul style="list-style-type: none"> • Training duration and current and potential capacity envisaged for potential supply
<p>What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?</p> <ul style="list-style-type: none"> • NSDC list of Approved and Under-Development QPs was checked prior to commissioning the work • NSDC QRC team also confirmed the same
<p>What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?</p> <ul style="list-style-type: none"> • In depth understand of minimum requisites to perform in a Job role • Companies included in the research represents pan India. • Language of the QP is gender neutral, and no religion or such terminology is referred to in the entire documentation and development process.
<p>Has the qualification been through a formal approval procedure(s)? (If so, explain the process and the outcome.)</p> <p>Yes, NSDC QRC process was adhered to. This included minimum 30 validations for the QP from employers in the sector. This was across small, medium and large companies.</p>
<p>What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?</p> <ul style="list-style-type: none"> • Feedback from the Industry and Industry Association • Recommendation and suggestions from the Industry Player and Industry Association
<p>What arrangements are in place to inform people about the qualification(s) and the advantages it offers?</p> <ul style="list-style-type: none"> • Employer workshops for buy-in and recognition • Training centres are being enrolled and informed of the potential • Counselling sessions by training provider for potential recruits are being encouraged

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

SECTION 3

SUMMARY EVIDENCE OF LEVEL

Summary of Direct Evidence:

Justify the NSQF level allocated to the QP by building upon the five descriptors of NSQF. Explain the reasons for allocating the level to the QP.

Generic NOS is/are linked to the overall authority attached to the job role.

Excavator Operator - MIN/Q 0404					
Process required	Professional Knowledge	Professional Skills	Core Skills	Responsibility	Level
An Excavator operator drives and controls an excavator which is a self-propelled machine used to dig and dump above the base level of the machine. It is often used to excavate coal, rock, ore, overburden in mines. In addition to an operator cabin that has all control-systems, it has a fixed boom, a movable dipper stick and a forward opening bucket. Using an excavator is a specialized task that can be safely performed only with adequate training and experience. Safety is extremely critical to avoid property damage and personal injury. Excavator operators are also responsible for performing basic maintenance on the excavator.	Knowledge of different types of excavators and their specific use, about engine, transmission, their use and function. Different types of hydraulic mechanisms, principles of friction, steering mechanisms and correct way of steering on slopes. Significance of greasing and oiling, parts of Excavator that need routine lubrication, Instrument panel, their location and operation, controls, levers and switches in order to operate the excavator properly, optimal working condition of Excavator components e.g. hoist, propel system, power train and other attachments.	Ensure Excavator load and operating speed is within limits specified by the manufacturer. Ensure that walkway rules e.g. operating the Excavator within the permissible/allocated areas are followed. Operate the body hoist control handle to manoeuvre the hydraulic ram that tips the dump. Ensure that Excavator is always parked on firm, level ground; with handbrake applied and drive and controls disengaged	Operate the shifting quadrant device for selecting the correct gear range Discharging the load in correct way by tipping the dump with careful manoeuvring of hoist lever. Loading and hauling the load to the designated destination. Discharge the load safely at the position and in the manner designated by the supervisor.	This job responsibility involves the individual to concentrate on the job at hand and complete it efficiently and effectively without any accidents so diligence and hard-working are desired attributes for individuals in this role. He must also demonstrate strong work ethics, courteously with co-workers, and must be good with following instructions of the supervisor.	4
4	4	4	4	4	4

Summary of Direct Evidence (from learning outcomes):

Skills required to fulfilling roles and responsibilities along with activities matched with NSQF Level 4

Summary of other evidence (if used):

Accepted by QRC, vetted by Industry

QUALIFICATION FILE SECTION 5

EVIDENCE OF RECOGNITION AND PROGRESSION

In the course of the research and/or development was there any direct evidence that the qualification(s) will be recognised by particular bodies – eg for entry to work or further study?

- Endorsed and accepted by the Industry players
- Formal recognition from the Industry players

List any agreements which have been reached with regulatory bodies on recognition.

Benchmarked and moderated skill recognition based on DGMS guidelines and international best practices.

What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?

Horizontal and vertical mobility options are available.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

QUALIFICATION FILE SECTION 6

EVIDENCE OF INTERNATIONAL COMPARABILITY

List any comparisons which have been established.

Under process