

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

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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	Gas Detector		
Classification code	MIN/Q 0412		
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 3 Employers.		
Occupation(s) to which the qualification gives access	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.	Class X and Possesses Gas Testing Certificate from DGMS, 1-10 years of Experience		
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 0437 (Pre Operation check)	Mandatory	120 hours	4
MIN/ N 0438 (Operation and Running of Gas detecting unit)			
MIN / N 0901 (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: [Gas Detector](#)

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](#) and [RPL Assessment Document](#)

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

Gas Detector

MIN/Q 0412

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 0437 (Pre Operation check)	PC1. Check least count of the gas detecting equipment.	30	6	4	2
	PC2. Inspect physical condition of the gas detecting equipment like flame safety lamp, multi gas detectors, methano meters,		6	3	3

	toximeters etc.				
	PC3. Operate and record readings of the gas detecting equipment in the fresh air. If any extraneous results are obtained in the fresh air in the general atmosphere on the surface, it should be reported to the concerned official.		6	3	3
	PC4. Ensure that testing equipment is in a serviceable condition and has been calibrated correctly.		6	3	3
	PC5. Check threshold limit of the gas detecting equipment.		6	4	2
		Total	30	17	13
2. MIN/ N 0438 (Operation and Running of Gas detecting unit)	PC1. Measure the percentage of oxygen at every place in the mine where persons are require to work or pass. (For eg: at every place in the mine where persons are required to work or pass, the air should not contain less than 19 percent of oxygen or more than 0.5 percent of carbon dioxide or any noxious gas in quantity likely to affect the health of any person).	40	5	2.5	2.5
	PC2. Measure the percentage of inflammable gas in an underground coal mine according to the regulations made for the purpose. (For ex: the percentage of inflammable gas should not exceed 0.75 in the general body of the return air of any ventilating		5	2.5	2.5

	district and 1.25 in any place in the mine).				
	PC3. Measure the percentage of other noxious gases like CO, H2S in the general body of air.		5	2.5	2.5
	PC4. Measure the presence of inflammable gas and other noxious gas in the part of mine which is not in use and have not yet been sealed off , once in 7 days.		5	2.5	2.5
	PC5. Observe and report any variation over the threshold limits for the percentage of different gases as laid down in statute is observed , it should be reported to the manager/concerned official.		4	3	1
	PC6. Conduct air sampling at regular intervals as per the regulation for the detailed laboratory analysis of the concentration of different gases.		4	3	1
	PC7.Maintenance of flame safety lamp like cleaning of inner and outer gauzes and glass, lids and other parts of flame safety lamp.		4	3	1
	PC8.Ensure Regular charging of the digital type gas detectors.		4	2	2
	PC9. Ensure the maintenance and management of the following records: <ul style="list-style-type: none"> • Different gases detected with their concentration. • Places, date and time of inspection for the purpose of detection of gases. 		4	2	2

	<ul style="list-style-type: none"> Places from where the air samples have been collected with date and time of collection. The analysis report obtained from the laboratory shall also be recorded. 				
		Total	40	23	17
3. MIN/ N0901 (Health and Safety)	PC1. Comply with occupational health and safety regulations adopted by the employer.	30	3	2	1
	PC2. Follow mining operations procedures with respect to materials handling and accidents.		3	2	1
	PC3. Follow the correct safety steps in case of accident or major failure.		3	2	1
	PC4. Comply with safety regulations and procedures in case of fire hazard.		3	2	1
	PC5. Operate various grades of fire extinguishers.		3	2	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	1.5	0.5
	PC7. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS.		2	1.5	0.5
	PC8. Deal with misfires as per statutory requirement		2	1	1

	PC9. Identify characteristics of post-blast fumes and take necessary precautions.		3	2	1
	PC10. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection.		3	2	1
	PC11. Follow the manufacturer's instructions for care and safe operation of the equipment.		3	2	1
		Total	30	20	10

SECTION 2

EVIDENCE OF NEED

<p>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.</p>
<p>What is the estimated uptake of this qualification and what is the basis of this estimate?</p> <ul style="list-style-type: none"> • Skills Gap analysis Reports for industry demand • 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 3 validations for the QP from employers in the sector.</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 (from learning outcomes):

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

Gas Detector- MIN/Q 0412					
Process required	Professional Knowledge	Professional Skills	Core Skills	Responsibility	Level
<p>The role requires technical process about different gases and their reactions. The individual need to be physically fit to withstand working in a underground environment and respond to the needs and requirement of the tasks.</p> <p>Gas Detector identifies the rate of emission of the adsorbed gas like CH₄ from the rock being extracted and identifies the percentage/ concentration of different gases like CO, CO₂, etc. which might be present in the general body of air or the sealed off area in an underground mine.</p>	<p>Physical/chemical properties of different types of gases found in an underground mine (Life support gases, harmful gases CO₂, NO_x, SO₂, CO etc and Hazardous & noxious gases – CH₄, C₂H₂ etc).</p> <p>Physiological effects of the gases likely to be present in a mine and different types of techniques and technologies used in gas detecting equipment and calibration of the same.</p>	<p>Examine the least count and physical condition of the gas detecting equipment and physical condition of the gas detecting equipment like flame safety lamp, multi gas detectors, methane meters, toxi-meters etc.</p> <p>Conduct the air sampling in the interval as per the regulation for the detailed laboratory analysis of the concentration of different gases.</p> <p>Measure the percentage of oxygen at every place in the mine where persons are require to work or pass and ensure adherence to the prescribed guidelines (like at every place in the mine where persons are required to work or pass, the air should not contain less than 19% of oxygen or more than 0.5% of carbon dioxide or any noxious gas in quantity likely to affect the health of any person).</p> <p>Measure the percentage of inflammable gas in an underground coal mine according to the regulations made for the purpose.</p>	<p>Different types of techniques and technologies of gas detecting equipment.</p> <p>Skill of preparing testing instrument (lamp, electronic etc.).</p> <p>Use common sense and make judgments during day to day basis</p> <p>Detect problems in day to day tasks.</p>	<p>A Gas detector ensures identification of gases from rock and analysis of their concentration by fetching the relevant equipment/tools and conducting required activities as described in the Work Instructions/ SOP.</p> <p>Follow instructions and work on areas of improvement identified. 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>	4
4	4	4	4	4	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