

Revision made by NSDA\_25 May, 2015

### QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY

Name and address of submitting body:

Indian Iron and Steel Sector Skill Council

Address:- Royal Exchange, 6 N.S. Road, Kolkata- 700 001

Tel: 09831052652

### Name and contact details of individual dealing with the submission

Name: Parimal Biswas

Position in the organisation: Chairman of NOS Committee & Director IISSSC

Address if different from above

*Same as above*

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### List of documents submitted in support of the Qualifications File

1. Qualification Pack
2. RFP for development of Occupational Standards
3. IISSSC Protocol for Accreditation of Assessment Agencies and Assessment Framework.
4. Sample of assessors guide
5. Occupational Map & Progression matrix
6. List of companies and Industry associations participated in the development of this qualification.
7. List of QP/NOS validating companies.

## 8. QUALIFICATION FILE SUMMARY

Qualification Title	Control Room Operator for Agglomeration		
Body/bodies which will assess candidates	Affiliated Assessment Agencies		
Body/bodies which will award the certificate for the qualification.	Indian Iron & Steel Sector Skill Council		
Body which will accredit providers to offer the qualification.	Indian Iron & Steel Sector Skill Council		
Occupation(s) to which the qualification gives access	Control Room Operator for Agglomeration		
Proposed level of the qualification in the NSQF.	5		
Anticipated volume of training/learning required to complete the qualification.	250 hrs		
Entry requirements / recommendations.	Diploma (Metallurgical / Mechanical) Pass, BE (Metallurgical / Mechanical) Pass and 18 years of age		
Progression from the qualification.	Shift in charge-Agglomeration		
Planned arrangements for RPL.	RPL arrangements and policies are under development. The guidelines should be ready in 2-3 months.		
International Comparability	While writing the NOSs the European, Australian and Canadian NOSs were also referred to and an effort was taken to maintain comparability in the technical part of the NOSs. However Numeracy, literacy and basic science levels are lower in order to match with the existing Indian conditions.		
Formal structure of the qualification			
Title of unit or other component (include any identification code used)	Mandatory/ Optional	Estimated size (learning hours)	Level
ISC/N0301: Carry out control room operation	Mandatory	250	5
ISC/N0302: Problem identification & reporting	Mandatory		
ISC/N0008: Use basic health and safety practices at workplace	Mandatory		
ISC/N0096: Work effectively with others and manage team members	Mandatory		

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: Qualification pack is sent with the Qualification file

## SECTION 1

### ASSESSMENT

Name of assessment body:

Prima Competencies Pvt. Ltd.

Will the assessment body be responsible for RPL assessment?

YES

Selection and due diligence of applicants are done as per IISSSC Protocol for Assessment Bodies and Assessment Framework.

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 'learning-by-doing' and 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 sets are then reviewed by IISSSC official for consistency. The assessments are designed so as to assess maximum parts during the practical hands on work. Duties and responsibility of a welder are also assessed. The technical limitations at the training centres are taken care in theory and viva. Criteria such as use of lift to pick heavy objects or selection of fire extinguisher during a fire, first aid are also assessed under theory/viva.

Different NDT as well as Destructive Testing carried out on the job as per welding standard.

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. The assessment agencies are instructed to Ideally have assessor with minimum 15 years industry experience as an ITI graduate / minimum 10 years' industry experience as diploma engineer and minimum 5 years' industry experience as Graduate Engineer / Master Degree holder.

The assessors selected by Assessment Agencies are scrutinized and made to undergo training and introduction to IISSSC Assessment Framework, competency based assessments, assessors guide etc.

The assessors are provided with assessors guide developed by the Subject Matter Expert of the assessment agency as per the assessment framework. The assessment guides are developed to ensure the maximum possible consistency / transparency in the assessment by different assessors and elaborate on the following

1 Qualification Pack Structure

2 Guidance for the assessor to conduct theory, practical and viva assessments

3 Guidance for trainees to be given by assessor before the start of the assessments.

4 Guidance on assessments process, practical brief with steps of operations practical observation checklist Attendance Sheet and mark sheet

5 Viva guidance for uniformity and consistency across the batch

6 Guidance on assessment evidence collection

A sample format of Assessment Guide for Fitter-Fabrication is attached. Similar Assessor Guides are developed and shared with the assessors before the start of the assessments as standard practices for all assessments by IISSSC. The Sample of Assessor Guide is attached as Annexure.

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. Different sections can have alpha numbering. For example a student roll number is ABC then the three pieces can be numbered and punched as ABC1, ABC2 and ABC3.

4 The assessor needs to take a photograph of all the students along with the centre name/banner at the back as evidence.

5 The assessor needs to carry a camera to click photograph of the trainees working on the job and giving theory exam as evidence.

6 The assessor also needs to carry a photo ID card.

7 The assessor also needs to take the photographs as evidence from appropriate angles/sides of the final work piece/job submitted by the trainee.

8 The assessor needs to indicate the parts for different Destructive testing as per standards mentioned in the assessment guide.

The details on assessment framework are elaborated in IIS SSC Protocol for Accreditation of Assessment Agencies and Assessment Framework.

All IIS SSC accredited Assessment Agency follow the "IIS SSC Protocol for Accreditation of Assessment Agencies and Assessment Framework". The assessment by assessment agency will be completely based on the assessment criteria as mentioned in the Qualification Pack. Each NOS in the Qualification Pack (QP) will be assigned a relative weightage for assessment based on the criticality of the NOS. Therein each Performance Criteria in the NOS will be assigned marks for or practical based on relative importance, criticality of function and training infrastructure.

The following tools are proposed to be used for final assessment:

1 Practical Assessment: This will comprise of a test hands on job to be prepared as per figure/engineering drawing by following appropriate working steps, using necessary tools, equipment and instruments.

Candidate's aptitude, safety consciousness, quality consciousness etc. will be ascertained by observation and will be marked in observation checklist.

The end product will be measured against the specified dimensions and standards (like tolerance, finish, accuracy, time etc.) to gauge the level of his skill achievements

2 Viva/Structured Interview: This tool will be used to assess the conceptual understanding and the behavioural aspects as regards the job role and the specific task at hand. It will also include questions on safety, quality, environment, tools and equipment's etc.

3 Written Test: Under this test few key items which cannot be assessed practically will be assessed. The written assessment will comprise of

- i. True / False Statements
- ii Multiple Choice Questions
- iii Matching Type Questions.

Optical Mark Recognition (OMR)/ Online System for this will be preferred on place of written test subject to available required infrastructure.

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

Give details of the document(s) here:

**ASSESSMENT EVIDENCE**

Complete the following grid for each grouping of NOS, assessment unit or other component as per the assessment criteria. Insert the required number of rows.

CRITERIA FOR ASSESSMENT OF TRAINEES

Control Room Operator for Agglomeration

ISC/Q0301

Indian Iron & Steel Sector 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 further each trainee must also score a minimum of 40% in each element assessed within 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	Marks Allocated			
		Total Marks 1000	Out Of	Theory	Practical
ISC/N0301: Carry out control room operation	PC 1. Understand DCS architecture, key facilities like trends, graphs, alarms, face plate reading	550	15	5	10
	PC 2. Understand the quality requirements of iron ore slurry, filter cake, additives & pellets		20	5	15
	PC 3. Understand the characteristics of raw material, additives analysis and effect of change in production & quality		20	5	15
	PC 4. Understand Control of process parameters and capable handling process deviations		20	5	15
	PC 5. Understand Product knowledge , environment standards		20	5	15

PC 6. Understand Importance of close monitoring and control of furnace parameters	20	5	15
PC 7. Adjust temperatures, process fan flows to get good quality of pellets / sinter	15	0	15
PC 8. Ensure Proper control of balling feed to maximum production	15	0	15
PC 9. Ensure proper control & nodulizing to maximise sinter production	15	0	15
PC 10. Maintain documentation of process parameters, run hours, production totalizers	20	5	15
PC 11. Alert operators for proper inspection of equipment, machinery.	15	0	15
PC 12. Understand functioning of equipment involved in AGP, Filtration, slurry handling & storage, mixing and balling units.	20	5	15
PC 13. Understand slurry pumping system & receiving station / storage & feeding of pressure filters	20	5	15
PC 14. Ensure Control of grinding parameters to get desired fineness of additives	20	5	15
PC 15. Maintain Log sheets	10	5	5
PC 16. Maintain de dusting systems , ESPs, recovery of fines to process scrubber system and thickener	20	5	15
PC 17. Inspect critical equipment, monitoring of alarms and taking corrective measures	20	5	15
PC 18. Understand functioning of equipment involved in addition, crushing raw material, bedding and blending of all heterogeneous raw materials and convert a single raw material (base mix) for Sinter	20	5	15



making			
PC 19. Reclamation of base mix, its dispatch to sinter making unit and its storage	20	5	15
PC 20. Ensure control of accurate proportioning and micro pellet formation	20	5	15
PC 21. Understand implication of quality deviation of base material and other additives on sinter making process w.r.t production rate and quality	20	5	15
PC 22. Monitor all dispatches and communicate with Bedding Blending plant	20	5	15
PC 23. Ensure required ignition for temperature and pressure control from DCS / control desk	20	5	15
PC 24. Understand start, progress and completion of sintering process and how to take care of any process parameters deviations as and when it arises	20	5	15
PC 25. Understand all de-dusting system (Process and plant de-dusting ESP and Bag filters) and re-circulation of micro fine dust	20	5	15
PC 26. Inspect critical equipment, monitoring of alarms, its analysis and taking corrective measures	20	5	15
PC 27. Regular acknowledgement of process alarms and cautioning field operators	15	5	10
PC 28. Document of process parameters, quality figures, log sheets	15	5	10
PC 29. Generate of daily production report & special reports	15	5	10
PC 30. Develop important logics for higher operation efficiency and process safety	20	5	15

		Total	550	130	420
ISC/N0302: Problem identification & reporting	PC1. Identify defects/indicators of problems	200	8	3	5
	PC2. Identify any wrong practices that may lead to problems		8	3	5
	PC3. Identify practices that may impact the final product quality		8	3	5
	PC4. Identify if the problem has occurred before		8	3	5
	PC5. Identify other operations that might be impacted by the problem		8	3	5
	PC6. Ensure that no delays are caused as a result of failure to escalate problems		8	3	5
	PC7. Take appropriate materials and sample to conduct tests		8	3	5
	PC8. Evaluate results to confirm suspected reasons for non-conformance (where required)		10	3	7
	PC9. Consider possible reasons for identification of problems		8	3	5
	PC10. Consider applicable corrections and formulate corrective action		8	3	5
	PC11. Formulate action in a timely manner		8	3	5
	PC12. Communicate problem/remedial action to appropriate authorities		8	3	5
	PC13. Take corrective action in a timely manner		10	3	7
	PC14. Monitor corrective action		10	3	7
	PC15. Evaluate implementation of corrective action taken to determine if the problem has been resolved		8	3	5
	PC16. Ensure that corrective action selected is viable and practical		8	3	5

	PC17. Ensure that correct solution is identified to an identified problem		8	3	5
	PC18. Take corrective action for problems identified according to the company procedures		8	3	5
	PC19. Ensure that no delays are caused as a result of failure to take necessary action		8	3	5
	PC20. Report/document problem and corrective action in an appropriate manner		10	5	5
	PC21. Escalate problem as per laid down escalation matrix		8	3	5
	PC22. Escalate the problem within stipulated time		8	3	5
	PC23. Escalate the problem in an appropriate manner		8	3	5
	PC24. Ensure that no delays are caused as a result of failure to escalate problems		8	3	5
		Total	200	74	126
ISC/N0008: Use basic health and safety practices at the workplace	PC1. Use protective clothing/equipment for specific tasks and work conditions	150	10	5	5
	PC2. State the name and location of people responsible for health and safety in the workplace		5	0	5
	PC3. State the names and location of documents that refer to health and safety in the workplace		1	0	1
	PC4. Identify job-site hazardous work and state possible causes of risk or accident in the workplace		9	5	4
	PC5. Carry out safe working practices while dealing with hazards to ensure the safety of self and others state methods of accident prevention in the work environment of the job role		10	5	5

PC6. State location of general health and safety equipment in the workplace	5	0	5
PC7. Inspect for faults, set up and safely use steps and ladders in general use	5	0	5
PC8. Work safely in and around trenches, elevated places and confined areas	5	0	5
PC9. Lift heavy objects safely using correct procedures	5	0	5
PC10. Apply good housekeeping practices at all times	1	0	1
PC11. Identify common hazard signs displayed in various areas	6	5	1
PC12. Retrieve and/or point out documents that refer to health and safety in the workplace	4	0	4
PC13. Use the various appropriate fire extinguishers on different types of fires correctly	9	5	4
PC14. Demonstrate rescue techniques applied during fire hazard	10	5	5
PC15. Demonstrate good housekeeping in order to prevent fire hazards	1	0	1
PC16. Demonstrate the correct use of a fire extinguisher	4	0	4
PC17. Demonstrate how to free a person from electrocution	5	0	5
PC18. Administer appropriate first aid to victims as required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.	10	5	5
PC19. Demonstrate basic techniques of bandaging	5	0	5
PC20. Respond promptly and appropriately to an accident situation or medical emergency in real or simulated	10	5	5

	environments				
	PC21. Perform and organize loss minimization or rescue activity during an accident in real or simulated environments		5	0	5
	PC22. Administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases		5	0	5
	PC23. Demonstrate the artificial respiration and the CPR Process		5	0	5
	PC24. Participate in emergency procedures		5	0	5
	PC25. Complete a written accident/incident report or dictate a report to another person, and send report to person responsible		9	5	4
	PC26. Demonstrate correct method to move injured people and others during an emergency		1	0	1
		Total	150	45	105
ISC/N0096: Work effectively with others and manage team members	PC1. Accurately receive, absorb and share information and instructions from the supervisor and fellow workers, getting clarification where required	100	5	0	5
	PC2. Display appropriate communication etiquette while working		10	0	10
	PC3. Display active listening skills while interacting with others at work		10	0	10
	PC4. Use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism		5	0	5
	PC5. Display helpful behaviour by assisting others in performing tasks in effective manner		10	0	10

	PC6. Consult with and assist others to maximize effectiveness and efficiency in carrying out tasks		10	0	10
	PC7. Demonstrate responsible and disciplined behaviours at the workplace		5	0	5
	PC8. Escalate grievances and problems to superiors		5	0	5
	PC9. Communicate day-to-day objectives, instructions etc. to team members		15	5	10
	PC10. Guide the team members to manage day-to-day issues at work		5	0	5
	PC11. Gather concerns, feedback from team members and convey them to appropriate authorities		15	5	10
	PC12. Escalate grievances and problems to superiors		5	0	5
		Total	100	10	90

## SECTION 2

### EVIDENCE OF NEED

What evidence is there that the qualification is needed?

While collecting data from the companies for the occupational map, we also took feedback from industry, which was collected with respect to roles for which qualification packs development, was to be prioritized. This was largely based on volume of people required, quantitative and qualitative shortfall which the Industry feels they face. Governing council of IISSSC gave final approval and endorsement for the same.

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

Skills Gap analysis Reports for industry demand and secondary research data, though these do not lend to accurate demand projection. The link to NSDC Human Resource & Skills Requirement in IISSSC

- Feedback from industry for demand though again sample size may not lend to accurate figures
- Training duration, and current and potential training capacity envisaged
- An LMIS development initiative is being put in place to be more precise regarding the demand and supply

What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?

NSDC list of Approved and Under-Development QPs was checked prior to commissioning the work

NSDC QRC team also confirmed the same

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?

Agencies have been appointed by the SSC to interact with training providers to gather feedback in implementation.

Employer feedback will be sought post- placement.

A formal review is scheduled after two year time.

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:

- Understand all operating parameters, all equipment in pellet / Sinter plant and DCS operation, logics and Interlocks
- Produce pellet / sinter with good quality and low cost & power consumption
- Operate Grinding plant, Filtration plant, Mixing & balling units and controlling process parameters
- Operate Raw material Bedding & Blending, Homogenous mixing and Micro pelletizing and controlling Process parameters
- Communicate with operators and carry out documentation
- Identify problems across:
  - Materials
  - Products
  - Equipment
  - Others
- Identify solutions to problems,& take corrective action
- Report / escalate unresolved identified problems

- Use Health and safety procedures, Fire safety procedures & Emergencies, rescue and first-aid procedures at workplace
- Communicate effectively with co-workers and supervisors
- Demonstrate effective behaviours for team work
- Ensure engagement of team members through on-the job handholding & support

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.

Control Room Operator for Agglomeration (ISC/Q0301)					
Process required	Professional Knowledge	Professional Skills	Core Skills	Responsibility	Level
The job deals with understanding and operating all control parameters related to induration furnace, additives grinding plant, filtration plant, mixing & balling unit. The activities involved understanding of DCS systems related to entire pellet plant operations, identification of problems across materials, products,	The job holder should be aware of pelletization process and straight grate furnace operation, parameters involved in achieving set quality targets, calculations involved in calculating fixed carbon addition, procedures to handle power failure, power dip & accretion of pellets, steps required for shutting	The job holder should be able to understand the behavior of the induration furnace, understand the concentrate size distribution, moisture & LOI, carry out simple corrections / additions, in consultation with his superiors, carry out proper planning of slurry volume to run pellet plant continuously without production loss, feed timely raw material to	The job holder should be able to maintain Log Sheets and Log Books and express clearly through written communication, carry out various calculations involved in pelletization process / units of measurement, read & understand SOPs, manuals, specific standards, health & safety instructions, memos, reports etc. ,read &	The job holder is responsible for operating the plant from DCS to control different sub processes. The activities involved are raw material receiving, preparation, mixing & nodulizing, charging of green mix on bed, ignition & sintering, crushing & cooling, and final screening, storage & dispatch, sampling, palletizing operations e.g. raw material storage and additive	5



equipment, taking corrective action & reporting unresolved problem. The job holder is expected to have well developed skill with clear choice of procedures in familiar context.	down the pellet plant, material flow sheet and the equipment involved in the process. The job holder is expected to have knowledge of facts, principles & processes	furnace. The job holder is expected to possess range of cognitive & practical skills& solve problems by selecting & applying basic methods & tools.	interpret instruction received. The job holder is expected to have skill of collecting and organising information & has desired mathematical skill	crushing, drying & grinding etc. The job holder is responsible for own work & learning and some responsibility of others work & learning	
Level 5	Level 5	Level 5	Level 5	Level 5	

**OTHER EVIDENCE OF LEVEL** [This need only be filled in where evidence other than primary outcomes was used to allocate a level] (Optional)

Summary of other evidence (if used):

Accepted by QRC and validated by industry

## SECTION 4

### EVIDENCE OF RECOGNITION OR PROGRESSION

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 have been articulated

Please attach any documents giving further information about any of the topics above.  
Give details of the document(s) here: