



QA QC Contractual Requirements

Document No. IGT_SOP_QA_001 QA QC Contractual Requirements

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Revision History

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00	28-02-2022	First Release	Ashutosh Srivastava	Sateesh Subramaniam	Ramneek Teng
01	15-03-2024	Second Release <ul style="list-style-type: none">5.2 Material/Equipment Quality requirementsAdded Annexure A5.3 Minor modifications6.2.3 Modifications in NCR Handling	Shivendra Singh	Prakash Jena	Prakash Jena

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1. Introduction:

This document defines the requirements of the Employer with regards to Quality Control and Quality Assurance (QCQA) that the Contractor (along with its sub-contractors, vendors, or any other person engaged by the Contractor) must abide by while executing the Works/ Supplies / Services in accordance with the terms of the Contract / Agreement.

2. Scope:

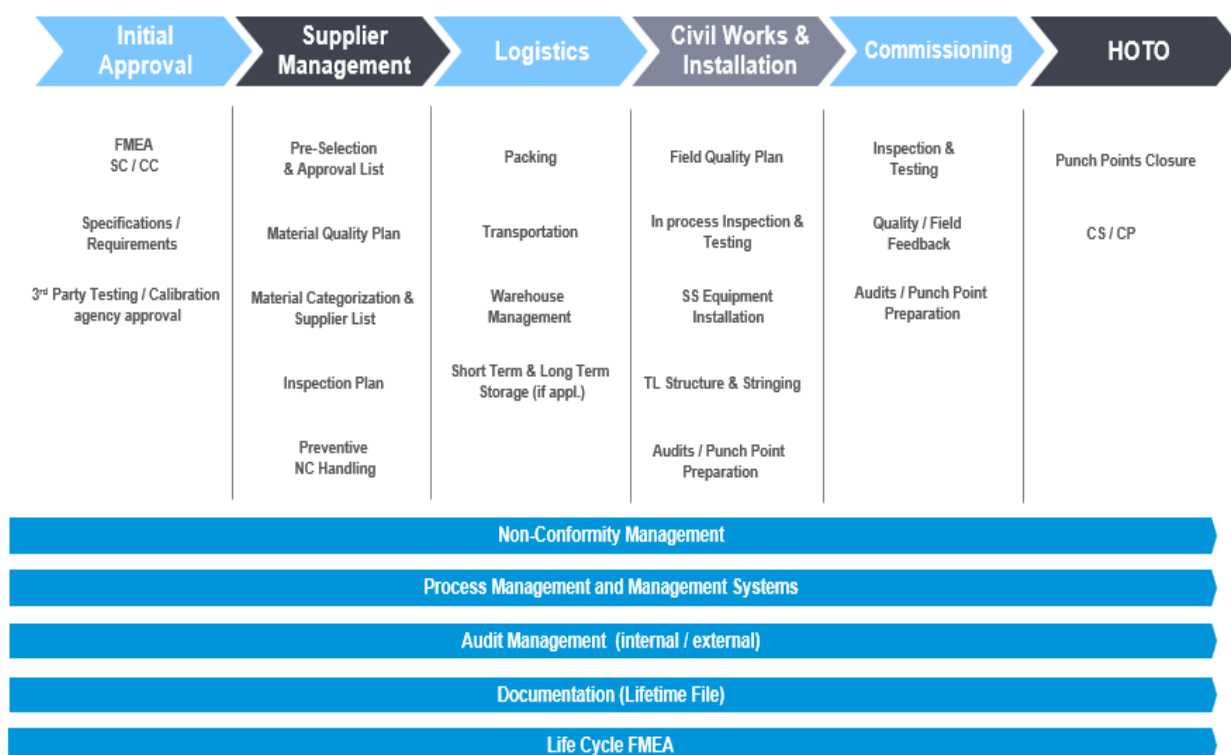
This document forms an integral part of the Contract document executed between the Employer and the Contractor.

The requirements with regards to QCQA as contained in this document are in line with the requirements of the Project.

This document defines the principal requirements of the Employer on Project Quality Assurance and Quality Control associated with the contractor including Sub-contractor and any other agency to be practiced at construction worksites in India.

These requirements shall be read in conjunction with ISO 9001:2015 QMS and Employer approved Quality Assurance Plans, Checklists and SOPs.

2.1 QA QC Approach:



3. Objectives:

- Zero Major Non-Compliance
- Quick closure of non-compliances (Major: within 30 days & Minor: within 15 days)
- Zero Recurrence of NC
- Zero Tower / Zero Equipment Failure
- First Time Right Charging
- Continuous Improvement

4. Abbreviations:

- | | | |
|----------------|---|--|
| • EMPLOYER | - | IndiGrid Ltd or Any other affiliate / subsidiary |
| • TL | - | Transmission Line. |
| • SS | - | Sub-Station. |
| • Contractor | - | Agency appointed for execution of Work. |
| • MQP | - | Manufacturing Quality Plan. |
| • FQP | - | Field Quality Plan. |
| • NCR | - | Non-Conformity Report. |
| • FQA | - | Field Quality Assurance. |
| • QA | - | Quality Assurance. |
| • QC | - | Quality Control. |
| • NDT | - | Non-Destructive Testing. |
| • JMC | - | Joint Measurement Certificate. |
| • PQP | - | Project Quality Plan. |
| • SOP | - | Standard Operating Procedure. |
| • OPC | - | Ordinary Portland Cement. |
| • PPC | - | Portland Pozzolana Cement. |
| • FAT | - | Factory Acceptance Test. |
| • Corp QA Head | - | Employer's Corporate Quality Head. |
| • QA Head | - | Employer's Operation Quality Head. |
| • D&E | - | Design and Engineering. |
| • BOM | - | Bill of Material. |

- MTC – Material Test Certificate.
- QCN – Quality Clearance Note.
- FIFO – First in First Out.
- FMEA - Failure Mode Effect Analysis.
- TPI - Third Party Inspection / Inspector.
- CS - Condition Subsequent.
- CP - Condition Precedent.
- OEM - Original Equipment Manufacturer

5. Contractual requirement:

This contract document defines the minimal specific QCQA requirements but not limited to, from contractor's Quality Assurance /Quality Control. Contractor shall ensure the compliances of the Employer's quality manuals and polices during the contract tenure as per scope.

5.1. General Contractual Requirement:

A. Project Quality Plan:

The contractor shall prepare and submit project specific "Project Quality Plan" within 30 (Thirty) days from the date of award of contract to the Employer's Corp QA Head.

Project Quality Plan shall minimum contains details given below :-

1. Project Details: As detailed in scope of work.
2. Contractor Material Quality and Site Quality Organization Chart defining roles & responsibilities.
3. Equipment wise PFMEA (Manufacturing, Incoming, In-process, Commissioning and HOTO) for Project Activities
4. Project – Civil Work (List of proposed Raw material Sources)
5. Field Quality Plan and Inspection Checklists
6. Construction Activity wise SOPs / Work Instructions
7. Material & Equipment inspection categorization plan

8. List of approved Vendors – for all material & equipment as per pre-bid discussion
9. List & submission schedule of Manufacturing Quality Plans
10. Inspection Schedule (Equipment's / Materials / Site Works)
11. Project specific tools lists (along with Test Certificate & Calibration reports)

B. Contractor Quality Organization:

Contractor shall establish a Quality organization with qualified resources to effectively administer and implement the project quality requirements. Contractor's Quality Organization shall include personnel whose responsibilities, as a minimum, include the activities listed below. Contractor should structure their quality organization, as applicable to Transmission Line & Sub-Station project.

1. Contractor shall have a Quality Leader (Head of Quality) in Head Office who will ensure the implementation of project quality plan and fulfil the QCQA contractual requirement by providing adequate manpower and resources. Perform various audits to check the compliance.
2. The contractor shall perform quarterly ISO 9001 (QMS) internal audit at site and submit the report to EMPLOYER Corp QA Head. If contractor don't have certified lead auditor, then contractor shall engage Employer empaneled TPI agency (like BVIL, TUV, DQS) to perform quarterly internal audit.
3. Contractor shall nominate Project Quality Coordinator (in Office) who shall be single nodal personnel for all communication and coordination for site construction as well material inspections.
4. Below is the minimum requirement of Quality Manpower at site:

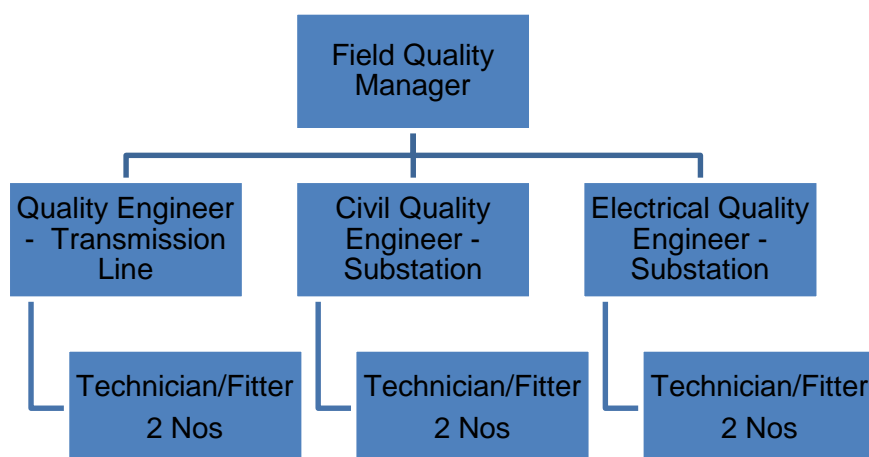
Site Contractor QA Organization

#	Requirement	Qualification	Experience	Remarks
1	Field Quality Manager	B.E / B.Tech	10 to 15 years' experience in Power / Energy Sector in Quality Function	Onsite or Regional Manager

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2	Site Quality Engineer	B.E / B.Tech / Diploma	5 to 8 years' experience in Power / Energy Sector in Quality Function	TL – 1 nos. per 50 KM 2 nos. (1 Civil & 1 Electrical) for Substation
3	Site Quality Fitter/ technician	ITI or Relevant Experience	4 to 8 Year experience in Transmission Line/Substation Quality Inspection work	As per below Organization chart

Organization Chart for Contractor



Note- Above Organizational requirements to be ensured depending on the scope of work.

Site Contractor QA Organization Approval by Employer

- Contractor shall propose Quality organization for project sites and get the formal approval from Employer.
- Contractor shall submit the CVs / Resumes of Site Quality Leader, Site Quality Engineer, and internal quality auditor (including all TPI engineers) detailing the experience of personnel proposed for the position shall be provided to Employer **30 Days** prior to Project Site mobilization. Employer reserves the right to request supplemental information regarding such personnel within 7 Days of receipt of the resume. Employer will approve or disapprove any such personnel within 10 Days after receipt of the resume.
- Technicians / Fitter shall be clearly identifiable at site and dedicatedly used for inspection and checking only. (Contractor site Quality Lead shall maintain the list of Technician / fitter at site)

Note: The above given Contractor QA organizational requirement is minimal, the project specific additional requirement (if any) will be jointly discussed between contractor and

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Employer.

5.2. Material / Equipment Quality Contractual Requirement

- a. Supply of all materials shall be from approved vendor. For any new vendor approval, a request shall be given to Employer along with the requisite documents for evaluation of vendor. List of required documents for new vendor approval is mentioned in **Annexure A**.
- b. Employer can appoint a Third Party for Inspection of Materials at Vendor's Work premises/ Quality Inspection at Project Site, or any other places related to the works/ project.
- c. Contractor shall provide access & support at vendor factory to Employer/Employer's appointed TPI for vendor assessment audit as and when required.
- d. Contractor shall submit Manufacturing Quality Plan (MQP) submission schedule to Employer as per inspection categorization Plan.
- e. Contractor shall submit material manufacturing & delivery plans to Employer to preplan the tentative inspection dates.
- f. Contractor shall submit Manufacturing Quality Plan (MQP) and supporting test procedures (as applicable) for Employers review and approval before commencement of manufacturing process according to MQP submission schedule.
- g. The contractor shall be responsible for all supply materials inspection irrespective of category and the inspection and certification of supply materials shall be by competent internal inspection engineer or from any of the empaneled TPI agencies.
- h. In respect of the inspection / testing stages envisaged as Witness/ Hold point by Employer, the Contractor shall raise inspection call to Employer with advance notice period of 7 working days. In case of overseas inspection 45 days advance notice shall be provided.
- i. Contractor shall generally offer material for inspection as per supply schedule approved by OWNER and not before 30 days from schedule indicated. In case Contractor offers material(s) for inspection prior to 30 days from the scheduled date with necessary approval of OWNER, OWNER shall inspect the material. However, in such an exceptional case, QCN shall be issued only as per provision of original / revised approved supply schedule.
- j. Contractors shall minimize the number of inspection calls by offering optimum quantities in each inspection call at the respective manufacturer's works.
- k. The contractor shall intimate Employer in writing before 48 hours, in case of inspection rescheduled. Failing to do this, the cost of QC inspector visit shall be recovered from the contractor.
- l. Contractor shall ensure that material which has been cleared for dispatch after inspection will be dispatched within 15 days in case of domestic supplies and within 30 days in case of Off-

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shore supplies from the date of issuance of QCN. Material which is not dispatched within stipulated time as above will be reoffered for Employer inspection or specific approval of Employer shall be obtained for delayed dispatch.

- m. The inspection and acceptance by Employer and issue of QCN thereon shall in no way limit the liabilities and responsibilities of the Contractor in respect of the agreed quality assurance program forming a part of the Contract, or if such equipment is found to be defective at a later stage.
- n. The Employer will have the right of having at his own expenses any other test(s) of reasonable nature carried out at Contractor's premises or at site or in any other place in addition of aforesaid type and routine tests, to satisfy that the material complies with the specification.
- o. The Employer reserves the right to get any additional field tests conducted on the completely assembled equipment at site to satisfy that material complies with specifications.
- p. Contractor shall ensure that the contractor supplied items are free from defects, damage, and discrepancies with respect to the requirements under contract. Notwithstanding any inspection or acceptance by Employer, the contractor shall rectify or replace the supplied items if so required, without prejudice to the obligations of contract.
- q. Contractor shall obtain Employer's prior approval of dispositions for any nonconforming conditions that do not result in meeting Job Specification, including but not limited to "repair" or "use as it is" or "damage repair taking place locally at site or agreed premises".
- r. Replacement & Repair Cost: All costs associated with Supplier's services hereunder shall be borne by Supplier which include:
 - i. All parts and labor required to restore full equipment functionality.
 - ii. Travel costs of Supplier's field service personnel necessary to respond to Employer's requests for service.
 - iii. Supplier is solely responsible for all costs associated with shipping of replacement parts to Employer, and for all return shipping costs. Supplier shall ship replacement parts within 15 days regardless of whether Supplier has received the return units from Employer.

5.3. Construction Quality Contractual Requirements

Contractor shall perform the construction activities defined in scope as per the approved Field Quality Plan, Quality Assurance Plans, drawing, Indian / International Standard, SOPs, and industry construction practice to ensure First Time Right Work with highest level of quality.

Before processing the Running Account (RA) payment, all quality compliances should be in order with relevant evidence. Certificates of compliance giving summary of compliances and

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reference of page roof numbered register should accompany the bill.

A. Construction Material Source Approval

1. For Cement and reinforcement

- 1.1 Contractor shall follow the approved list of Employer.
- 1.2 For Foundation Concreting work: OPC and PPC cement shall be used as per the Project Technical specification and approved Foundation Quality Assurance Plan.
- 1.3 Expired cement (cement older than 90 days) shall not be used at work site.

2. For Other Civil Raw material

- 2.1 Contractors identify all the nearby civil raw material sources and offer for joint evaluation with Employer.
- 2.2 Contractor shall submit all required document for source approval.
- 2.3 A joint assessment audit by contractor Project & QA team and Employer's Project and QA Team shall be done, and raw material samples will be taken for NABL accredited lab testing
- 2.4 Based on the Lab test report and assessment audit, Employer will provide the approval or rejection.
- 2.5 In case of repeat NCs/ poor quality from any raw material supply source, the source shall be rejected for the project construction.

B. Sub-Contractor Approval

1. Contractor shall identify the required sub-contractor for project construction and Contractor QA team shall perform evaluation of the sub-contractor.
2. Contractor's QA team approved sub-vendor details (Audit report and required credentials) shall be shared with Employer QA Team for evaluation.
3. Employer Project QA team shall evaluate and provide the written approval or rejection.

Note: No subcontractor shall be engaged without written approval from Employer.

C. Tools & Plants

1. Contractor shall provide the activity wise (Foundation, Tower erection, Equipment erection, Testing and Stringing etc. based on defined scope) detailed tool list for project construction and quality inspection.
2. Contractor shall take written acceptance from Employer's Project Manager prior to start the work.
3. All lifting tools & plants shall be tested & validated by approved external agency in presence of Employer representative at site before putting into operation. Copies of current and valid certification, calibration records, and licenses shall be maintained at the project site for all equipment, devices machinery and tools. This requirement shall also apply to all

subcontractors, vendors, and service providers for this Project.

4. All testing and measuring equipment's / instruments shall be calibrated in approved NABL Lab and the calibration reports shall be submitted to Employer – Field Quality for review and acceptance.

Note:

- Quantity of tools required - as per list approved by Employer Project Manager
- For tower erection: Use Winch machine with Dynamometer, No use of Tractor
- For stringing: Winch Machine with Dynamometer or Tensioner puller machine to be used, No use of Tractor.
- Sufficient Concrete Vibrator to be made available.
- All civil test equipment shall be available at site as per the approved foundation Quality assurance plan.

D. Material Storage Management

1. Store Infrastructure and store organization

- 1.1 Contractor shall submit the store layout and will get written approval from Employer.
- 1.2 Contractor shall ensure that Store is constructed as per approved layout plan in all respect.
- 1.3 Contractor shall ensure availability of security guard, Night watchman, gates, barbed wire fencing, Brick wall fencing (Qty Approved by Project Manager).
- 1.4 The Storage, unloading, Bar bending area should be clearly demarcated
- 1.5 The Store should have a computer with ERP & net connectivity, (this is not applicable for small Civil work, limited scope work contract).
- 1.6 The Drinking water, rest room, first aid box facilities should be available at stores.
- 1.7 The Store should be equipped with required qty of fire extinguishers, sand buckets & water source (Qty Approved by Project Manager)
- 1.8 The Store organization shall be approved by Employer's Project Manager and same shall be displayed at stores.
- 1.9 Approved Store plan should be displayed at entrance.
1. Assembly point should be marked & evacuation route & Emergency contacts should be displayed.

2. Materials receipt, inspection, storage and preservation

- 2.1 The relevant documents (BOM, MTC, MRN, Packing List etc) are verified by store personal on material receipt.
- 2.2 "First Observation Report" should be prepared if any wooden case / box or item is received in open / damaged condition, and same shall be communicated (Through NCR) to Employer's project and Quality Team
- 2.3 Visual inspection & physical verification should be carried out by contractor and Employer for quantity & damages.
- 2.4 In case of any material quality issues or shortage shall be recorded as NCR and

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communicated to Project Manager.

- 2.5 The material received should be recorded in "Material Inward Register" & in computer system.
- 2.6 Stacking of cement bags in a closed and confined areas (FIFO to be strictly followed).
- 2.7 All material should be stored as per approved FQP, OEM guidelines and preserved against the environmental conditions.
- 2.8 Local purchasing of any material shall be prohibited.
- 2.9 Handling of all the materials from manufacturers works and receipt in stores and issue for site construction will be sole responsibility of the contractor and in case of any damage, same shall be arranged by the contractor.
3. Material issue, material return, shortage, reconciliation statement
- 3.1 Material issue, return shortage and reconciliation to be properly documented by contractor and monthly summary report to be shared with Project Manager (This applicable to all construction material including cement, aggregates etc.)

E. Construction Requirements

1. Contractor shall implement the approved quality assurance plans as per the defined scope.
2. For Substation Equipment installation and testing commissioning, contractor shall submit the FQP, Checklist, SOP and testing procedure.
3. All raw material testing shall be done as per the approved quality assurance plans and test reports shall be maintained at work site.
4. All material laboratory test and cube/core/UPV/Slump test shall be witnessed by Employer and Contractor.
5. All Civil Construction activities should be performed as per Approved drawings, FQP, SOP's etc.
6. All quality checklists shall be filed at work site and actual site data shall be recorded; the signed checklist shall be a part of JMC for processing of payments.
7. For all receipts and issue of material, a register with numbered pages to be maintained and made available for checking and verification to Employer as and when required.
8. Contractor shall take Concrete Design Mix Approval from Employer. Concreting works will not be taken up without obtaining prior approval from Employer.
9. Night concrete (Concrete after Sunset) is not allowed. In special cases based on the need of the project, Contractor may perform concrete work at night with prior written approval from Employer. For such instance, concrete work shall be performed in presence of trained supervisors and Field QA leaders with necessary lighting arrangements & agreed safety measures to avoid any mishap. The contractor will ensure that all such works carried during nighttime have been done with all quality measures specified in SOP.
10. Contractor shall provide training to all gangs, contractor supervisors and QC staffs deployed at

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site on field quality requirements for foundation, tower erection, equipment installation and conductor, earth wire & OPGW stringing (as applicable). Training records shall be maintained and submitted to Employer for information and records.

11. All stage of construction is to be certified by the respective Quality Assurance team of the contractor and the report shall be submitted to Employer for review and approval. Employer will verify the same in the field and record the detail in respective filed quality checklists.
12. For Tower Erection, contractor shall follow approved FQP and SOP , these are minimal requirement however contractor shall adhere to approved drawing and relevant Indian Standard.
13. Tower members site fabrication and galvanizing is prohibited.
14. Use of tractor in stringing / Tower Erection activity is prohibited.
15. Adequate specification's tension-puller or winch machine to be used for stringing work and Dynamometer to use and actual load to be recoded.
16. Only one Repair sleeve or one mid-span joint shall be permissible in a span. No mid-span joint is permitted in any crossings (Railway / River / Road).
17. For Each Construction or testing activity Contractor shall submit the SOP and obtain approval from Employer.
18. Contractor shall ensure the revetment / benching (where applicable) is completed before starting of tower erection.

Note: As per Defined Scope (Civil (TL & SS), Tower Erection, Stringing) Contract shall refer the respective FQP, SOP & approved checklists and ensure 100% compliance.

F. Site Quality Assurance Tests

Civil Work

- 1.1 Cube, UPV and Core test shall be performed as per the approved foundation FQP.
- 1.2 In case of Cube Test or UPV test failure, core test to be perform on that foundation.
- 1.3 In case of pile work, Pile foundation manual tests be performed.

Note: In case of core test failure the foundation to be demolished at the risk and cost of contractor.

Tower Erection Work

1. All nut-bolts and fasteners shall be tightened as per the manufacturer torque value, as per the approved drawings by torque wrench.
2. Tower verticality check to be done and values to be recorded in checklists.
3. Earthing to be ensured as per approved specifications/drawings and Resistance value to recorded in the presence of the Employer's Project team.

Stringing Work

1. All electrical clearance to be maintained as per regulatory guidelines and approved drawing.
2. All electrical testing shall be performed as per approved quality manual and regulatory

guidelines (Testing shall be performed by qualified professional and witnessed as per quality manual)

Equipment Installation

1. All equipment's should be installed as per the approved FQP.
2. All the test reports and checklist should be dully filed during the installation process.
3. Any damage in equipment during the installation will be the responsibility of Contractor.
4. Earthing to be ensured as per approved specifications/drawings and Resistance value to recorded in the presence of the Employer's Project team.

6. Quality Governance and Reporting

Contractor shall ensure the rigorous implementation and compliance of Employer QC QA requirement by providing adequate resources, performing QA audits and effective NCR management.

6.1. Quality Audits

- A. Contractor shall facilitate and provide all required evidence to Employer multi-layered audit and close all NCs and Observations with proper evidence.
- B. Contractor shall perform below Quality audit.

#	Audit	By	Frequency	Reporting
1	Quality Process and QAQC Contract Compliance Audit	QA Head (Head Office)	Per Quarter (Report within 7 day of audit)	Audit Report to Employer QA Head & Project Manager
2	QMS audit (ISO 9001)	Certified QMS Lead Auditor	Per Quarter (Report within 7 day of audit)	Audit Report to Employer QA Head & Project Manager

6.2. NCR Management

6.2.1 What is an NCR?

Nonconformity is defined as "Non-fulfilment of a Requirement". Those requirements shall be defined by the customer, a regulatory body or in the internal procedures of the company.

In simple terms: An NCR is a report to be issued when a product or activity not complying the requirement.

Requirement means: FQP, Approved drawings, Specification, Data sheet & set of standards (IS/IEC).

6.2.2 Categories of NCR:

1. Major NCR:

Non-Conformities / Non-Compliances, which ...

- impact on the brand value of the company.
- require a large amount of re-work and cost.
- may lead for serious safety concern.
- impact the huge delay in project.
- is repeat cases of Minor NCR.

Examples ...

- Tower collapse
- Foundation failure (cube & core test failure)
- Tower bend / vertical out
- Conductors snapping
- Jumper clearance not as per drawing
- Serious safety issue because of poor quality

2. Minor NCR:

Non-Conformities / Non-Compliances, which ...

- detect work / product not as per requirement
- can impact timeline and cost of project
- can be corrected with 7 days
- is a repeat observation

Examples:

- Excavation dimension not as per drawing
- Cases of usage of construction material without testing and approval
- Wrong concrete mix.
- Crack / big honeycomb in concrete work.
- Wrong tower member erection / member missing
- Insulator / conductor damage

6.2.3 Standard Process Flow for NCR Handling

Steps	Description	Responsibility
Issue NCR	<ul style="list-style-type: none"> • Collect details, Record only facts • Discuss with the Project Manager, assign action owner • Within 12 H 	Any one from Employer / Contractors

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Containment	<ul style="list-style-type: none"> First Aid for Problem Isolate the problem, Take immediate action Within 24 H 	Contractors Project Manager
Root Cause Analysis (RCA)	<ul style="list-style-type: none"> Identify causes, Group Discussion Conclude the causes Within 4 Days 	<ul style="list-style-type: none"> Contractors Project Manager Contractors QC Manager
Corrective Action	<ul style="list-style-type: none"> As per RCA identify, long term actions Assign to action owner Take action as per specified timelines 	Contractors Project Manager
Preventive Action	<ul style="list-style-type: none"> Develop/improve process Implementation Share the lessons learnt Take action as per specified timelines 	Contractors Project Manager
NCR Closure & Verification	<ul style="list-style-type: none"> Review RCA As per RCA verify the corrective and preventive action Create records for future reference Within 30 days (Major), 15 days(Minor) 	Employers <ul style="list-style-type: none"> Project Director QC Manager Corp QA
CAPA Review	<ul style="list-style-type: none"> Present RCA & CAPA in review forum 	<ul style="list-style-type: none"> Project Director QC Manager Corp QA COO, CEO

6.2.4 NCR Closure and Escalation – Standard Process Flow

NCR	Containment		NCR Closure		Escalation		
	Timeline	Resp.	Timeline	Resp.	1 st	2 nd	3 rd
Major NCR	Within 24 hours	Site Leader	30 days	Project Manager	Project Director Corp QA	COO OpEx Head	CEO
Minor NCR	Within 48 hours	Site Leader	15 Days	Project Manager	Project Director Corp QA	COO OpEx Head	CEO

Note:

- Monthly NCR Review: Project Head shall present the status of all open NCRs with COO & CEO Monthly reviews or as per defined frequency.
- Long pending NCR (Aging >30 days): Employer Project Manager shall correct / rectify the problem and shall deduct the rectification expense from EPC through notifying Finance.
- In case of any NCR open for more than specified timeline for closure of the NCR, the subsequent work related to the NCR shall not be allowed to perform till closure of the NCR.

6.3. Management Reporting

Type	Description	To (EMPLOYER)	Responsibility
Contractor Field Quality Report	Weekly <ul style="list-style-type: none"> • NCR Raised in Week • NCR Summary in Dashboard • Contract violation details • On Job training details 	Employer Project Manager & Team Employer QA Team	Contractor Site Quality Engineer (Reviewed by Quality Manager)
	Monthly <ul style="list-style-type: none"> • All NCR Raised with detailed status • NCR Log sheet & Action Plan • Checklist Scan Copies • Contract violation details • CTQ Compliance • On Job training details • CONTRACTOR Monthly Quality Audit Report 	EMPLOYER Project Manager & Team EMPLOYER QA Head & Team	Contractor Site Quality Engineer (Reviewed by Quality Manager)
Contractor Material Quality Report	Weekly <ul style="list-style-type: none"> • Material inspection plan vs actual • Material inspected report • NCR details 	EMPLOYER Project Manager & Team EMPLOYER QA Team	Contractor Project Quality Coordinator
	Monthly <ul style="list-style-type: none"> • Material inspection plan vs actual • Material inspected report • Supplier wise MQP status • NCR details 	EMPLOYER Project Manager & Team EMPLOYER QA Head & Team	Contractor Project Quality Coordinator

6.4. Penalties

In order to achieve “FIRST TIME RIGHT”, & to maintain the quality workflow at site, following penalty clauses are applicable.

No	Description	Penalty Condition	Penalty	Remark
1	Major Non-Conformance (NCR)	Should be closed within 30 days.	Beyond 30 days, Rs. 50,000/- per week till NCR closure	For both TL & SS
2	Minor Non-Conformance (NCR)	Should be closed within 15 days.	Beyond 15 days, Rs. 10,000/- per week till NCR closure	For both TL & SS
3	Repeated Major Non-Conformity	No Repeated major non-Conformity	Rs. 1,00,000/- per repeated Non-Conformity	For both TL & SS
4	Foundation Cube Test Results	28 Days Cube Test Failure	NDT to be done by Contractor at their own cost	For both TL & SS
5	Foundation NDT Test Result	NDT (UPV/RH/Core) Test Failure	Foundation to be re-casted by Contractor at their own cost and within the project timelines	For both TL & SS
6	Weekly, Monthly & Quarterly, QA Audit Report	<ul style="list-style-type: none"> No Report sharing Delay Reporting more than 7 days 	Rs. 10,000/- per Violation	For both TL & SS
7	Contract Clauses	Contract Violation	Rs. 50,000/- per Violation Per Month till closure of violation	For both TL & SS

7. HOTO

HOTO Process Overview:



7.1 Introduction

One of the most crucial points of a project life cycle is the commissioning of the project and handover to Employer. There will be a set of punch points / incomplete works at the time of commissioning which shall be jointly agreed with the contractor and completion targets shall be defined. It is also important that the contracts are finally closed with proper liabilities defined and accepted.

7.2 Transmission Line

List of mandatory documents to be handed over to EMPLOYER (Required documents list to be finalized between Employer and Contractor based on Project scope):

- As built drawings (Foundation, Erection, Hardware fittings & Accessories)
- BOM & Tower drawings.
- As built Stringing chart and Sag profile.
- As Built Tower Schedule.
- Final KML in Google Earth.
- Specific if any (Special Tower)
- Approach pathways with map and other details (In Hilly Terrain)
- Tower Footings Reports
- NCR closer reports

7.3 Substation

List of mandatory documents to be handed over to EMPLOYER (Required documents list to be finalized between Employer and Contractor based on Project scope):

- As Built Layouts and Equipment drawings.
- As built Control and Relay panel schematics
- As built Cable schedule.
- Relay setting files.
- Factory Acceptance report of Equipment
- FQP of all Equipment.
- Pre commissioning Test Reports of all Equipment and auxiliaries
- Manuals of Equipment and Auxiliaries

- Spares handed over list.
- Software backup of each type used.
- Punch Point closer reports.

8. Documentation

- A. The contractor shall track all Quality submittals and maintain a register of status to ensure that submittals are provided and approved in a timely manner.
- B. The contractor shall submit the Project Quality Assurance document dossier in soft form after project completion to EMPLOYER's Corporate Quality Head. The Project Quality Assurance document dossier shall contain the following documents.
- As built drawing (Both Manufacturing & field drawings)
 - Approved Material categorization plan
 - Approved vendor list – Item wise
 - Approved MQPs
 - Protection Plan & Implementation Checks
 - All inspection reports as per MQP – Item wise & Inspection call wise
 - Quality Clearance Note
 - Approved FQP
 - All Field check list & inspection reports as per FQP
 - Approved source List – Item wise
 - Signature Analysis report
 - Pre-Commissioning & Commissioning check list
 - Copy of MoM
 - NCR Closure Report
 - NCR Log
 - Cube Test Report – foundation wise
 - UPV & Core Test Report – Foundation wise
 - All Approved Deviations
 - All Weekly, Monthly, Quarterly reports

- Warranty Certificate
- Performance Guarantee Certificates
- Regulatory / Statutory Documents

Annexure A: Assessment report from Contractor for proposed sub-vendor along with following enclosures (to the extent available)

- Registration / License of the works
- Organization chart with name and qualification of key persons
- List of Plant and Machinery.
- List of testing equipment with their calibration status.
- List of Raw material bought out items with sourcing details.
- List of out-sourced services with sourcing details.
- List of supply in last three years.
- Third party approval, if any (viz. ISO, BIS),
- Pollution clearance wherever applicable
- Energy Conservation & Efficiency report
 - (Applicable to industries having contract load more than 100 KVA)
- Manufacturer Quality Plan, Formats for RM, in process and acceptance testing
- Type test approvals conducted in last 5 years, if applicable
- Performance Certificates from customers/ Earlier Purchase Orders
- Photographs of factory, plant and machinery & testing facilities