



एनएचपीसी लिमिटेड
NHPC LIMITED
(भारत सरकार का उद्यम)
(A Govt. of India Enterprise)
तीस्ता V पावर स्टेशन
Teesta V Power Station
सिंगतम, पूर्वी सिक्किम - 737134
Singtam, East Sikkim- 737134

IS/ISO 9001 IS/ISO 14001 IS 18001
आई एम एस प्रमाणित पावर स्टेशन
IMS certified Power Station
दूरभाष/Ph: 03592-247349
फैक्स/Fax: 03592-247227/349

Ref No. NH/TSV/Cont/EC-158/NIT-994/2024-25/ 480

Dated: 18-02-2025

Corrigendum-II

Please refer to RFP Tender invited vide NIT No.: NH/TSV/CONT/EC-158/NIT-994/2024-25/449 Dated: 04/02/2025 (Tender ID:2025_NHPC_847485_1) for the work of "Insurance of the work "Supply, Erection, Testing & Commissioning of 420 KV GIS, 400 KV Outdoor Pothead Yard, 400 KV XLPE Cables and associated accessories for Teesta V Power station"" in which following amendments are hereby made in referred NIT:

1. Critical dates of the tender has been extended as under:

1	Date of closing of online e-tender for submission of RFP Bid.	22.02.2025 (17:30 Hrs)
3	Date & time of opening of RFP Bid	25.02.2025 (16:00 Hrs)

2. Further, reply of the pre-bid query submitted by the prospective bidder (s) has been made and attached herewith as Annexure-A.

All other terms & conditions of RFP Tender Documents shall remain unchanged.

For & On behalf of NHPC Limited.

Dy. General Manager (E)
Contract Division
Teesta - V Power Station



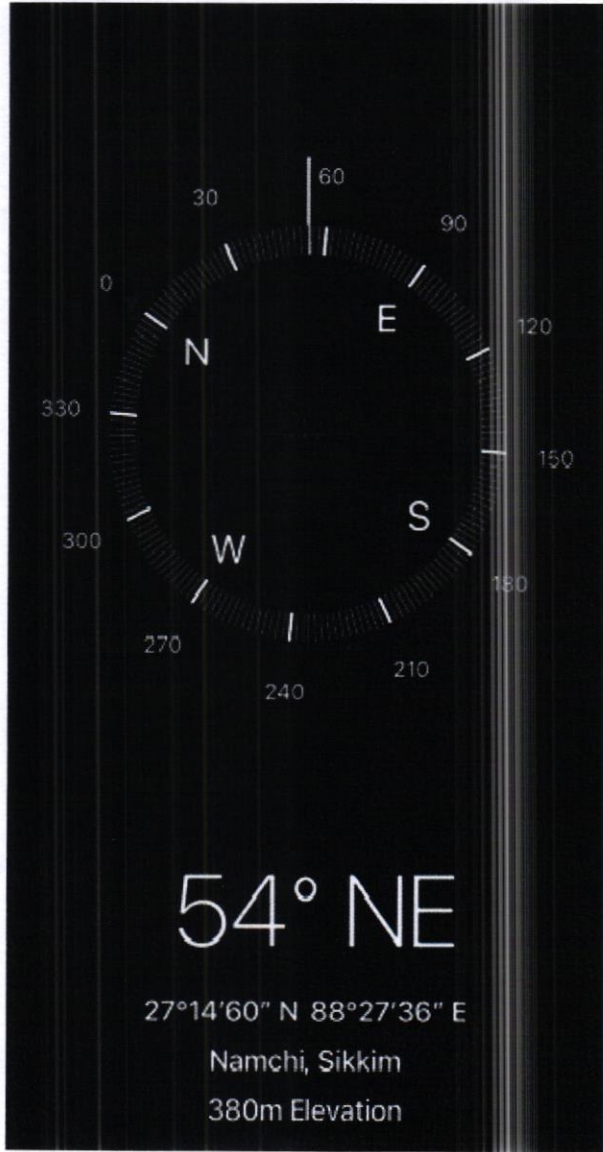
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Annexure-A

The following are the reply of the pre-bid query submitted by prospective bidder(s):

Sl. No	Query of Prospective bidder	Reply by NHPC Ltd.
1.	Exact location Coordinates	<p>Exact location coordinate is as below:</p>  <p>54° NE</p> <p>27°14'60" N 88°27'36" E</p> <p>Namchi, Sikkim</p> <p>380m Elevation</p>



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2.	Distance from existing HEP	The new GIS building is approx.200 Meter from the old GIS Building, which is in the campus of Power House, Teesta V Power Station.
3.	Please confirm if it involves any integration with HEP facility	The new GIS building and associated equipment are part of the Power House, Teesta V Power Station.
4.	Testing methodology	The testing methodology of the GIS system as per Quality Assurance Plan of the of the NHPC. The Quality Assurance Plan is attached (as Annexure-B) for ready reference.
5.	Capacity of Transformer	There is no Power Transformer in the scope of supply of the subject work.
6.	Does project have any 2nd hand equipment erection or any demolition or dismantling activity	There are some dismantling and shifting of items as Bill of Quantity for the said work (Sl. No. (v) of the uploaded RFP Bid Documents i.e. ' BOQ of the work for which insurance is required ')

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तीस्ता V पावर स्टेशन

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Annexure-B

Quality Assurance Plan (Ref: Sl. No. 4 of Employer Reply)

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VOLUME-IV

**MODEL QUALITY ASSURANCE PLAN
(MQAP) & QUALITY TESTING
SPECIFICATIONS (QTS)**

Quality Testing Specifications (QTS)

Chapter No	Description	Pages
2	420KV GIS System	2
3	Outdoor Potheadyard	1
4	400 KV XLPE Cable	2
5	Electric Overhead Travelling (EOT) Crane	2
6	Cabling System	2
7	Fire Fighting System	1
8	Illumination System	2
9	DG Set	1

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QUALITY TEST SPECIFICATION (QTS) CLAUSES

2. Gas Insulated Switchgear (GIS)

2.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC / International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested and test certificate(s) for relevant tests are accepted by the Employer.

2.2 Shop Test

The GIS shall be routine tested as per relevant IEC with latest amendments. All the shop tests shall be carried out by the manufacturers at their works. The details of tests are given in "Model Quality Assurance Plan" of Gas insulated Switchgear.

2.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the Contractor, in presence of Engineer-in-charge or his representative.

Procedure to be adopted for conducting the operational, pre-commissioning, commissioning, performance and field acceptance test shall be submitted well in advance, at least six (6) month before start of relevant testing, for approval by the Engineer-in-charge.

All field tests shall be carried out under the supervision of Manufacturer. Following field tests shall be performed:

- Visual inspection, checks and verifications,
- Mechanical operation tests of circuit breakers, disconnectors and earthing switches and high-speed earthing switches,
- Gas leakage test,
- Insulation resistance measurement,
- DC resistance measurement of the main circuit,
- Gas density monitor check,
- Inter lock test,
- Measurement of moisture content in gas before filling
- Manual operating check of circuit breakers, disconnectors and earthing switches,
- Test of auxiliary electrical, pneumatic and hydraulic devices.

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- CT and PT testing
- High voltage tests on the main circuit on complete assembly.
- Power frequency test of auxiliary and control circuit (2 kV r.m.s for 1 minute),
- Partial discharge measurement test,
- Testing of on line monitoring systems and verification and calibration of various sensors,
- Recording and analysing of base line data of gas density, gas pressure, moisture, CF4 and air in gas (offline),

Other tests not mentioned specifically but required by IEC and as suggested by Contractor and or Engineer-in-charge at site.

Note: Above Field Tests are mentioned for reference. However, Field Tests shall be Applicable as per Contractual Agreement/GTS/PTS/Relevant Standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-charge at site as per Relevant Standard shall also become the part of above Field Tests.

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3. Outdoor Pot Yard Equipment

3.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC / International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested and test certificate(s) for relevant tests are accepted by the Employer.

3.2 Shop Test

The Outdoor Pothead yard equipment such as Capacitance Voltage Transformers, Surge Arrestors, Wave Trap, Isolator, Insulator, Conductor etc. shall be routine tested as per relevant IEC with latest amendments. All the shop tests shall be carried out by the manufacturers at their works. The details of tests are given in "Model Quality Assurance Plan" of Outdoor Pot Yard Equipment.

3.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the Contractor, in presence of Engineer-in-charge or his representative.

Procedure to be adopted for conducting the operational, pre-commissioning, commissioning, performance and field acceptance test shall submitted well in advance, at least six(6) month before start of relevant testing, for approval by the Engineer-in-charge.

Following tests shall be performed after installation:

- Test on CVT:
 - Visual inspection,
 - Ratio test,
 - IR value test,
 - Measurement of secondary voltage at rated voltage.
- Test on LA :
 - Visual inspection,
 - Record of Leakage current and surge counter reading

Other tests not mentioned specifically but required by IEC and as suggested by Contractor and or Engineer-in-charge at site.

Note: Above Field Tests are mentioned for reference. However, Field Tests shall be Applicable as per Contractual Agreement/GTS/PTS/Relevant Standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-charge at site as per Relevant Standard shall also become the part of above Field Tests.

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4. 400 kV XLPE Cable

4.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC / International Standards on 400 kV XLPE Cable & its Accessories of each type of similar rating and shall submit the reports to the employer. The type test may not be mandatory if similar equipment has been type tested and test certificates for relevant tests are accepted by the employer.

Following Type Tests shall be done:

Non- Electrical Type Test

- Mechanical Properties of Insulation (before & after ageing)
- Mechanical Properties of Oversheath (before & after ageing)
- Ageing Test on Complete Cable
- Hot Set Test for XLPE Insulation

Electrical Type Test

- Bending Test
- Tan δ measurement
- Heating Cycle Voltage Test
- HV & Partial Discharge Tests
 - o At Ambient Temperature &
 - o At High Temperature.
- Lightning Impulse Voltage Test
- Power frequency AC voltage withstand test
- IR measurement

4.2 Shop Test

The 400 KV XLPE Cable shall be tested as per relevant IEC with latest amendments. All the Shop Tests shall be carried out by the manufacturer at their works as per IEC: 62067. The details of tests are given in "Model Quality Assurance Plan" of 400 kV XLPE Cable.

4.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or his representative.

Procedure to be adopted for conducting the operational, pre-commissioning, commissioning, performance and field acceptance tests shall be submitted well in advance, at least six (6) months before start of relevant testing, for approval of the Engineer-in-charge.

Before commissioning of complete system, all cabling system shall be checked as per cable schedule and complete report shall be prepared by Contractor and shall be submitted.

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Field Test shall include:

- Cabling check,
- Continuity checking,
- IR Testing in accordance with the applicable codes and standards,
- AC Voltage Test of insulation with voltage of U_0 for 24 hours,
- DC Voltage Test of over-sheath
- Resistance checking.
- Insulation Resistance measurement,
- Verification of phase order,
- HV Test
- Other tests as suggested by Contractor and or Engineer-in-charge at site.

Note: Above Field Tests are mentioned for reference. However, Field Tests shall be Applicable as per Contractual Agreement/GTS/PTS/Relevant Standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-charge at site as per Relevant Standard shall also become the part of above Field Tests.

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5. ELECTRIC OVERHEAD TRAVELLING (EOT) CRANES

5.1 Type Test (As applicable)

The contractor is required to carry out all type tests as per relevant Indian/ International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested and test certificate (s) for relevant tests are accepted by the Employer.

5.2 Shop Tests

The crane shall be shop assembled as completely as possible and then operated and load tested in the shop for adequacy of design and suitability for reliable, safe and proper operation. Shop tests shall be carried out by the manufacturer at their works as per IS 3177 standard / International Standards with latest amendments/approved drawings:-

The Details of the tests are given in "Model Quality Assurance Plan" of EOT Crane.

5.3 Field Tests

All field tests including tests during installation, pre-commissioning, commissioning and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or his representative.

Procedure to be adopted for conducting the operational, pre-commissioning, commissioning, performance and field acceptance tests shall be submitted well in advance as per contractual provision before start of relevant testing, for approval of the Engineer-in-charge.

5.3.1 Tests during installation and pre commissioning

These shall include the following:

- Operational and functional tests of components, sub-assemblies, auxiliaries i.e. lubrication etc.
- Control logic field tests to prove control logic scheme for operation and interlocks of system components and controls, including annunciation and shutdown scheme shall be done in so far as practical.
- Calibration test - All instruments, sensors, switches, relays etc. shall be calibrated and adjusted after installation, wherever practical.
- Operational tests for verification of correct operation of protective relays and safety devices shall be conducted.
- Operational tests for drives for verification of correct operation of each and every component of the drives.
- Operational tests of all the crane motors.
- Deflection Test - The deflection test shall be carried out with test load of 100 % of rated load at rest and with the crab in central position. The measurement shall not be taken on the first application of load. Datum line for measuring the deflection should be obtained by placing the crab on the extreme end of the crane span with smaller hook approach.
- Load tests at 100% and 125% of rated load on each crane.
- Verification of crane clearance and lifts.
- Incremental movement of hoists/travels.

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- Tandem operation, if any.
- Any other checks/tests to ensure that requirements of the specifications are being met.

After installation and prior to putting the equipment into operation at least the following tests shall be made:

- Test to demonstrate operational capabilities of the equipment along with its associated auxiliaries, control and drive system as per the intended requirements.

5.3.2 Commissioning Tests

The following tests shall necessarily be conducted:

- Insulation resistance test & Earthing Test of complete crane.
- Operational test - Operational test with/without rated load in all hoisting/travelling motions to check for any misalignment, improper adjustments, overheating and other possible defects. This shall also include operational test for limit switches correctness of circuits, interlocks, operation of protective devices, brakes etc.

5.3.3 Field Acceptance/Performance Testing

After commissioning of respective cranes, these shall remain in the Contractor's custody for erection activities till commissioning of last generating unit. The Contractor shall be responsible for proper operation and maintenance of EOT cranes during this period.

The Contractor shall make good any damages and do the capital maintenance at the time of commissioning of last unit.

If nothing unusual has been observed after capital maintenance, the test service period of seven (7) days shall follow. During this test service period, the cranes must perform satisfactorily.

The Contractor shall be responsible for the equipment during test service and also for the way it is operated. However, Employer's personnel shall operate the equipment under the Contractor's guidance during test service period.

Note-Above Field tests are mentioned for reference. However field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

6. Cabling System

6.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC / International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested and test certificates for relevant tests are accepted by the Employer.

Type test reports of the following items shall be submitted for acceptance with adequate details/drawings to establish equivalence with the offered type for:

- ◆ All type of cables, termination kits and accessories,
- ◆ Conduits, ducts, channels etc.,
- ◆ Cable trays and supports.

6.2 Shop Test

The Power & Control Cable and Cable Tray shall be acceptance & routine tested as per relevant IEC with latest amendments. Shop tests shall be carried out on Power & Control Cable at the manufacturer works as per IEC: 60502, IS: 7098, IS: 1554 etc

➤ DC cable supplied shall of copper conductor only.

The details of tests are given in "Model Quality Assurance Plan" of Cabling System.

6.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning and field acceptance tests shall be conducted by the Contractor, in the presence of representative of Engineer-in-charge or his representative.

Procedure to be adopted for conducting the operational, pre-commissioning, commissioning, performance and field acceptance tests shall be submitted well in advance, at least six (6) months before start of relevant testing, for approval of Engineer-in-charge.

Before commissioning of complete system, all cabling system shall be checked as per cable schedule and complete report shall be prepared by Contractor and shall be submitted.

Field test shall include:

- Cabling checking,
- Continuity checking,

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- Resistance checking.
- Insulation resistance measurement,
- Verification of phase order,
- HV test.
- Other tests as suggested by Contractor and or Engineer-in-charge at site.

Note: Above Field Tests are mentioned for reference. However, Field Tests shall be Applicable as per Contractual Agreement/GTS/PTS/Relevant Standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-charge at site as per Relevant Standard shall also become the part of above Field Tests.

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7. Fire Fighting System

7.1 Type Test (As applicable)

The contractor is required to carry out all type tests as per relevant National/ International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested and test certificate (s) for relevant tests are accepted by the Employer.

7.2 Shop Test

The equipments / components of Fire Fighting System like Pumps, Motor, Valves, Fire Detectors, Fire Extinguishers, Flow & Pressure Switch, Nozzle, Control & Protection Panel, etc. shall be routine tested as per relevant National/International standard with latest amendments/approved drawings.

The details of test mentioned above are given in Model Quality Assurance Plan of Fire Fighting System.

The details of tests are given in "Model Quality Assurance Plan" of Fire Fighting System.

7.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or his representative.

Procedure to be adopted for conducting the operational, pre-commissioning, commissioning, performance and field acceptance tests shall be submitted well in advance as per contractual provision before start of relevant testing, for approval of the Engineer-in-charge.

The tests at site should include the following:

- Before installation of system components like nozzles etc., the piping system shall be checked for cleanliness and after installation, the systems shall be effectively flushed out with clean water and filled up for testing.
- Hydrostatic pressure tests of the whole piping system.
- Pressure-flow tests on water distribution system and supplies.
- Calibration of the aspirator/ air sampling type smoke detectors and other detectors.
- Verification of performance of suppression system, detectors of all types including aspirator type smoke detectors, notification devices, control system etc. for the specification intended.
- Operation of exit doors and release of fire and smoke dampers.
- Monitoring and initiation of self-contained automatic fire extinguishing systems and equipment.
- Control of powerhouse HVAC equipment to provide smoke control.
- Control of process, data processing and similar equipment as necessary during fire alarm conditions.

The power plant fire alarm system must be in any case, ready for operation prior to the commissioning of the first generating unit.

Note-Above Field tests are mentioned for reference. However field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

8. ILLUMINATION SYSTEM

8.1 Type Tests

The contractor is required to carry out all type tests as per relevant IEC/International Standard on one apparatus of each type of similar rating and shall submit the reports to the employer. The type test may not be mandatory if similar equipment has been type tested and test certificates for relevant tests are accepted by the employer.

Following Test reports shall be submitted for each type of Luminaries

- Test for mechanical strength
- Heating test
- Endurance test
- Protection against electric shock
- Thermal shock proof test for glass (as applicable)
- Wind loading test on street light luminaries
- Power factor measurement test

Following Test reports shall be submitted each type and rating of lamp

- Rating Test
- Life Test

8.2 Shop Tests

The components of illumination system shall be routine tested as per relevant IEC with latest amendments. All shop tests shall be carried out by the manufacturer at their works.

The Details of the tests are given in Model Quality Assurance Plan of Illumination System.

8.3 Field Tests

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the contractor in presence of Engineer-in-charge or his representative.

Procedure to be adopted for conducting the operational, pre-commissioning, commissioning performance and field acceptance test shall be submitted well in advance, at least six (6) months before start of relevant testing for approval of the Engineer-in-charge.

At least following tests shall be performed:

- Distribution boards- IR, functional test including schemes and inter-locks.
- Verification of electrical continuity between exposed conductive parts and the general earth circuit

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- Testing of main and auxiliary circuit insulation
- Complete functional testing of illumination system
- Lux level test in various areas
- Verification of nominal illumination level at all areas shall be done and recorded in site test report.
- Other test as suggested by the Contractor and/or the Engineer-in-charge at site

Note: Above Field Tests are mentioned for reference. However, Field Tests shall be Applicable as per Contractual Agreement/GTS/PTS/Relevant Standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-charge at site as per Relevant Standard shall also become the part of above Field Tests.

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Engineer-in-charge

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9. DG SET

9.1 Type Test (As applicable)

The contractor is required to carry out all type tests as per relevant IEC/ International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested and test certificate (s) for relevant tests are accepted by the Employer.

9.2 Shop Tests

The DG Set Engine, Alternator & Panels shall be tested as per relevant IEC with latest amendments/International Standards/approved drawings.

The Details of the tests are given in "Model Quality Assurance Plan" of DG Set.

9.3 Field Tests

All field tests including tests during installation, pre-commissioning, commissioning and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or his representative.

Procedure to be adopted for conducting the operational, pre-commissioning, commissioning, performance and field acceptance tests shall be submitted well in advance as per contractual provision before start of relevant testing, for approval of the Engineer-in-charge.

The following site tests have to be executed:

- Meggar test of insulation between windings, between each winding and ground, and between control circuit live parts and ground
- Resistance measuring of each winding
- Phase sequence test
- Measurement of temperature rise
- Load test at available load for 2 Hours
- Starting time test
- Different modes of operation
- Functional tests of all control circuits
- Functional test of all safety devices.
- Approval/ clearance of the complete installation shall be obtained by the contractor from CPCB/State pollution control board/ Local bodies/ Chief Controller of Explosives (CCOE)/ CEA/ other licensing authorities etc., as per applicability.

Fulfillment of Emission Standards for Diesel Engines (Engine Rating more than 0.8 MW (800 KW) notified by the Environment (Protection) Third Amendment Rules 2002, vide G.S.R. 489 (E), dated 9th July, 2002 or applicable revision thereof shall be complied.

Note-Above Field tests are mentioned for reference. However field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

2. MODEL QUALITY ASSURANCE PLAN (MQAP) FOR 420KV GIS SYSTEM

Special instructions: -

1. Contractors/Manufacturers/Sub-suppliers are advised to submit QAP for equipments/ materials after incorporating all tests for bought out items, in process inspection and final inspections as per their latest manufacturing practice and Indian/ International Standards (with latest amendments, if any).
2. Contractors/Manufacturers/Sub-suppliers are required to use properly calibrated instruments /equipments during testing/inspection, for which necessary calibration certificates are required to be provided/presented to the Inspecting Officer.
3. Contractors/Manufacturers/Sub-suppliers has to make on their own all arrangements for testing facilities at their works for testing of equipments/materials.
4. One set of complete test certificates as per the requirement of QAP be made available to the Inspecting Officer at the time of inspection/testing.
5. All the records, as per the requirement of QAP are to be made available for review by the Inspecting Officer during inspection.
6. Field tests are to be carried out as per the requirements of the contract / purchase order.

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गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तैस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear
एनआईटी/कॉर्पोरेशन/संस्था (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी/Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
A)	CIRCUIT BREAKER								
1	Routine Tests	Test	100%	Tech.Spec./ Approved GTP/Approved drawings/IEC:62271/Relevant applicable Standard	TC	2/3	-	1	TC
2	Pressure Test on Enclosure	-do-	-do-	-do-	JIR	2/3	1	-	CHP
3	Gas Leakage Test	Visual	100%	Tech.Spec./ Approved GTP/Approved drawings/IEC:62271/Relevant applicable Standard	JIR	2/3	1	-	CHP
a)	Auxiliary & Control Circuit Wiring Check.	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
b)	HV Test (2kV for One Minute)	-do-	-do-	-do-	JIR	2/3	1	-	CHP
c)	IR Measurement	Functional	100%	Tech.Spec./ Approved GTP/Approved drawings/IEC:62271/Relevant applicable Standard	JIR	2/3	1	-	CHP
4	Mechanical Operating Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
a)	5 Open & 5 Close Operations at Minimum Supply Voltage and Minimum Pressure	-do-	-do-	-do-	JIR	2/3	1	-	CHP
b)	5 Open & 5 Close Operations at Maximum Supply Voltage and Maximum Pressure	-do-	-do-	-do-	JIR	2/3	1	-	CHP
c)	5 Close-Open Operating Cycles at Rated Supply Voltage and Rated Pressure	Measurement	-do-	-do-	JIR	2/3	1	-	CHP
d)	Measurement of Operating Times.		-do-	-do-	JIR	2/3	1	-	CHP

Note:

- In 'Inspection Agency' column figure 1,2, or 3 to be filled. 1- will indicate Employer/ 'NHPC LTD'; 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
- The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
- At the time of Inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
- Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

g. For all Routine Tests - CHPs are for 20% random sample and TCs for 100% of lot/offered materials

h. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP,GOI.

Signature
NHPC (QA&I DEPT.)

Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMS/QA/IF01

Rev No.- 03

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गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear
एनआईटी क्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं.	संदर्भ/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति नानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD	प्रदर्शन PERFORM	निरीक्षण एजेंसी गवाह WITNESS	सत्यापन VERIFY	टिप्पणी Remarks
5	Electrical Tests								
a)	Power Frequency Voltage Dry Test on Main Circuit.	Electrical	100%	Tech.Spec./ Approved GTP/Approved drawings/IEC:6271/Relevant applicable Standard	JIR	2/3	1	-	CHP
b)	Measurement of Contact Resistance of Main	Measurement	-do-	-do-	JIR	2/3	1	-	CHP
c)	Measurement of Resistance of Circuit Breaker Closing and Trip Coils	-do-	-do-	-do-	JIR	2/3	1	-	CHP
d)	Partial Discharge Measurement	-do-	-do-	-do-	JIR	2/3	1	-	CHP
e)	Measurement of Power Consumption of Motor Operated Mechanism at Rated Supply Voltage	-do-	-do-	-do-	JIR	2/3	1	-	CHP
f)	Operational & Interlocks Check.	Functional	-do-	-do-	JIR	2/3	1	-	CHP
g)	Operational Check of Pressure Density Monitoring Switches	-do-	-do-	-do-	JIR	2/3	1	-	CHP

Note: a. In 'Inspection Agency' column figure 1,2,or 3 to be filled. 1- will indicate Employer/ NHPC LTD', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

g. For all Routine Tests - CHPs are for 20% random sample and TCs for 100% of lot/offered materials

h. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/20-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP,GOI.

Signature
NHPC (QA&I DEPT.)

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गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

परियोजना (PROJECT) : तीस्ता-V पावर स्टेसन
उपकरण का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear
एनआईटी क्रय आदेश संदर्भ (NIT / P.O. Reference) :
ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

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क्र. सं. S.N.	मध्यक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मैट RECORD FORMAT	निरीक्षण एजेंसी			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
B)	DISCONNECTORS & EARTHING SWITCHES								
1	Routine Tests Pressure Test on Enclosure	Test	100%	Tech.Spec./ Approved GTP/Approved drawings/IEC:62271/Relevant applicable Standard	TC	2/3	-	1	TC
2	Gas Leakage Test.	-do-	-do-	-do-	JIR	2/3	1	-	CHP
3	Auxiliary & Control Circuit Wiring Check.	Visual	100%	Tech.Spec./ Approved GTP/Approved drawings/IEC:62271/Relevant applicable Standard	JIR	2/3	1	-	CHP
a)	HV Test (2KV for 01 Minute)	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
b)	IR Measurement	-do-	-do-	-do-	JIR	2/3	1	-	CHP
4	Mechanical Operating Test								
a)	5 Operating Cycles at Rated Voltage	Electrical	100%	Tech.Spec./ Approved GTP/Approved drawings/IEC:62271/Relevant applicable Standard	JIR	2/3	1	-	CHP
b)	5 Operating Cycle at Minimum Voltage	-do-	-do-	-do-	JIR	2/3	1	-	CHP
c)	5 Operating Cycle at Maximum Voltage	-do-	-do-	-do-	JIR	2/3	1	-	CHP
d)	Opening / Closing Time	Measurement	-do-	-do-	JIR	2/3	1	-	CHP
5	Electrical Tests								
a)	Power Frequency Voltage Test of the Main Circuit and Partial Discharge Measurement	Electrical	100%	Tech.Spec./ Approved GTP/Approved drawings/IEC:62271/Relevant applicable Standard	JIR	2/3	1	-	CHP
b)	Measurement of the Resistance of Main Circuit	-do-	-do-	-do-	JIR	2/3	1	-	CHP
c)	Operation & Interlock Check	Visual	-do-	-do-	JIR	2/3	1	-	CHP
d)	IR Measurement	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
e)	Measurement of Power Consumption of Motor	-do-	-do-	-do-	JIR	2/3	1	-	CHP

Note: a. In 'Inspection Agency' column figure 1,2,or 3 to be filled. 1- will indicate Employer/ NHPC LTD', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

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g. For all Routine Tests - CHPs are for 20% random sample and TCs for 100% of lot/offered materials

h. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP,GOI.

Signature

NHPC (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

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Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear
एनआईटी/कॉप आदेश संदर्भ (NIT / P.O. Reference) :
ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

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क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी			टिप्पणी/Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
6	Driving Mechanism of Disconnecter, Earthing Switches and Circuit breaker Routine Tests (IR, HV, Functional etc)	Electrical	100%	Tech.Spec./ Appd. Drg./IEC	JIR	2/3	1	-	CHP
C)	CURRENT TRANSFORMER								
1	Routine Tests	Visual	100%	Tech.Spec./Appd. Drg./ IEC:61869-1,2	JIR	2/3	1	-	CHP
2	Verification of Terminals Markings.	Visual	-do-	-do-	JIR	2/3	1	-	CHP
3	Accuracy & Polarity Test	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
4	Secondary Winding Resistance Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
5	Test for rated knee point e.m.f. and exciting current	-do-	-do-	-do-	JIR	2/3	1	-	CHP
6	Inter-Turn Overvoltage Test.	-do-	-do-	-do-	JIR	2/3	1	-	CHP
7	Composite Error Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
8	Power Frequency Withstand Tests on Primary Terminals and Partial Discharge Measurement	-do-	-do-	-do-	JIR	2/3	1	-	CHP
9	Power-frequency voltage withstand tests between sections	-do-	-do-	-do-	JIR	2/3	1	-	CHP
10	Power-frequency voltage withstand tests on secondary terminals	-do-	-do-	-do-	JIR	2/3	1	-	CHP
11	Enclosure Tightness test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
	Pressure test of the Enclosure	-do-	-do-	-do-	TC	2/3	-	1	TC

Note: a. In 'Inspection Agency/column figure 1,2,or 3 to be filled. 1- will indicate Employer/ 'NHPC LTD', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

g. For all Routine Tests - CHPs are for 20% random sample and TCs for 100% of lot/offered materials

h. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP,GOI.

Signature

NHPC (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

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गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear
एनआईटी/ क्रय आदेश संदर्भ/ NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मदघटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकार्ड फॉर्मेट RECORD FORMAT	प्रदर्शन PERFORM	निरीक्षण एजेंसी गवाह WITNESS	सत्यापन VERIFY	टिप्पणी Remarks
D)	VOLTAGE TRANSFORMER								
1	Routine Tests								
2	Verification of Terminals Markings.	Visual	100%	Tech.Spec./Appd. Drg./ IEC:61869-1,3	JIR	2/3	1	-	CHP
3	Accuracy & Polarity Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
4	Power Frequency Withstand Tests on Primary Terminals and Partial Discharge Measurement	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
5	Power-frequency voltage withstand tests between sections	-do-	-do-	-do-	JIR	2/3	1	-	CHP
6	Power-frequency voltage withstand tests on secondary terminals	-do-	-do-	-do-	JIR	2/3	1	-	CHP
7	Enclosure Tightness test	Test	-do-	-do-	JIR	2/3	1	-	CHP
8	Pressure test on Enclosure	-do-	-do-	-do-	TC	2/3	-	1	TC
E)	SURGE ARRESTOR								
1	Routine Tests								
2	Measurement of Reference Voltage	Electrical	100%	Tech.Spec./ Approved GTP/Approved drawings/IEC:60099-4/Relevant applicable Standard	TC	2/3	-	1	TC
3	Residual Voltage Test	-do-	-do-	-do-	TC	2/3	-	1	TC
4	Partial Discharge test	-do-	-do-	-do-	TC	2/3	-	1	TC
5	Leakage Test	Test	-do-	-do-	TC	2/3	-	1	TC
6	Current Distribution Test (For Multi Column Arrestor)	Electrical	-do-	-do-	TC	2/3	-	1	TC

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b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of Inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

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g. For all Routine Tests - CHPs are for 20% random sample and TCs for 100% of lot/offered materials

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NHPC (QA&I DEPT.)

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गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

परियोजना (PROJECT) : लीसा-V पावर स्टेसन
उपकरण का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear
एनआईटी क्रय आदेश संदर्भ (NIT / P.O. Reference) :
ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

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क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	प्रदर्शन PERFORM	निरीक्षण एजेंसी गवाह WITNESS	सत्यापन VERIFY	टिप्पणी Remarks
1	Acceptance Tests Pressure Test on Enclosure	Test	100%	Tech.Spec./ Approved.GTP/Approved drawings/IEC:60099-4/Relevant applicable Standard	TC	2/3	-	1	TC
2	Lightning Impulse Residual Voltage Test	Electrical	-do-	-do-	TC	2/3	-	1	TC
3	Measurement of Power Frequency Voltage	-do-	-do-	-do-	JIR	2/3	1	-	CHP
4	Partial Discharge Measurement	-do-	-do-	-do-	JIR	2/3	1	-	CHP
F)	Local Control Cubicle/Terminal box								
1	Visual & Dimensional Check.	Visual / Measurement	100%	Tech.Spec./Appd.Drg./ IEC	JIR	2/3	1	-	CHP
2	Checking of BOM and Layout.	Visual	-do-	-do-	JIR	2/3	1	-	CHP
3	Verification of Correct Wiring	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
4	Measurement of Resistance of Closing/Tripping Coils & Heaters	-do-	-do-	-do-	JIR	2/3	1	-	CHP
5	Dielectric Tests	-do-	-do-	-do-	JIR	2/3	1	-	CHP
6	IR Measurement	-do-	-do-	-do-	JIR	2/3	1	-	CHP
7	Functional Tests by Simulation	-do-	-do-	-do-	JIR	2/3	1	-	CHP
8	Checking for provision for necessary contacts / ports for integration with Plant SCADA System	Visual	-do-	-do-	JIR	2/3	1	-	CHP
G)	Aluminium for Conductor								
1	Dimension	Measurement	100%	Tech.Spec./Appd.Drg./ IEC/Relevant applicable Standard	TC	2/3	-	1	TC
2	Mechanical Test	Mechanical	Sample Plan	-do-	TC	2/3	-	1	TC
3	Chemical Test	Chemical	-do-	-do-	TC	2/3	-	1	TC
4	Conductivity	Electrical	-do-	-do-	TC	2/3	-	1	TC
H)	Epoxy Insulator								
1	Creepage distance (As Applicable)	Measurement	Sample Plan	Tech.Spec./Appd.Drg./ IEC/Relevant applicable Standard	TC	2/3	-	1	TC
2	IR & Dry Power frequency withstand test	Electrical	-do-	-do-	TC	2/3	-	1	TC
3	Bending Resistance Test (As Applicable)	Mechanical	-do-	-do-	TC	2/3	-	1	TC

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h. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP,GOI.

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IMS\QA\IF01

Rev No.- 03

Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear
एनआईटी/क्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मदघटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जाच की प्रकृति NATURE OF CHECKS	जाच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
1)	Gas Insulated Busduct (GIB)	Mechanical/ Chemical	Sample Plan	-do-	TC	2/3	-	1	TC
2)	Type Test (As Applicable) Tightness tests, Short-time withstand current and peak withstand current tests, Dielectric test (Lightning impulse, Switching Impulse, Partial discharge), Proof tests for enclosures	Electrical /Pressure /Mechanical	one unit	Tech. Spec. / Approved GTP/Approved drawings/IEC:60099-4/Relevant applicable Standard	TC	2/3	-	1	TC
3)	Routine Test Report								
a)	Gas Tightness verification, Power frequency withstand voltage verification etc	Electrical /Pressure /Mechanical	Sample Plan	Tech. Spec. / Approved GTP/Approved drawings/IEC:60099-4/Relevant applicable Standard	JIR	2/3	1	-	CHP
b)	Pressure tests of enclosures & Partitions	Test	100%	-do-	TC	2/3	-	1	TC
J)	Other Equipments (As applicable)	Test	100%	Tech. Spec./Appd. Drg. / IEC	TC	2/3	-	1	TC
1	SF6 Gas Filling Station (if applicable)	-do-	-do-	-do-	TC	2/3	-	1	TC
2	Online Gas Monitoring System	-do-	-do-	-do-	TC	2/3	-	1	TC
3	PRD for each Pressurised Section	-do-	-do-	-do-	TC	2/3	-	1	TC
4	Bushings (SF6 to Oil/ SF6 to Air) Routine test	-do-	-do-	-do-	TC	2/3	-	1	TC
5	Cable Trays routine test	-do-	-do-	-do-	TC	2/3	-	1	TC
6	Cables routine test	-do-	-do-	-do-	TC	2/3	-	1	TC

Note: a. In 'Inspection Agency' column figure 1,2, or 3 to be filled. 1- will indicate Employer/ 'NHPC LTD', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

g. For all Routine Tests - CHPs are for 20% random sample and TCs for 100% of lot/offered materials

h. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

Signature

NHPC (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMS/QA/IF01

Rev No.- 03

Effective Date- 09.01.2019

03. MODEL QUALITY ASSURANCE PLAN (QAP) FOR OUTDOOR POT YARD EQUIPMENT

Special instructions: -

1. Contractors/Manufacturers/Sub-suppliers are advised to submit QAP for equipments/ materials after incorporating all tests for bought out items, in process inspection and final inspections as per their latest manufacturing practice and Indian/ International Standards (with latest amendments, if any).
2. Contractors/Manufacturers/Sub-suppliers are required to use properly calibrated instruments /equipments during testing/inspection, for which necessary calibration certificates are required to be provided/presented to the Inspecting Officer.
3. Contractors/Manufacturers/Sub-suppliers have to make on their own all arrangements for testing facilities at their works for testing of equipments/materials.
4. One set of complete test certificates as per the requirement of QAP be made available to the Inspecting Officer at the time of inspection/testing.
5. All the records, as per the requirement of QAP are to be made available for review by the Inspecting Officer during inspection.
6. Field tests are to be carried out as per the requirements of the contract / purchase order.

31/01/2024
25/09/2024
25/09/2024

25/09/2024
25/09/2024
25/09/2024

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- Surge Arrestor

एनआईटी/क्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएसपीसी लिमिटेड (NHPC LTD.)

विक्रेता (VENDOR):

क्र. सं. S.N.	मदघटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रेकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी/Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
A	RAW MATERIAL AND BOUGHT OUT ITEMS								
1	Porcelain Container & Base	Measurement	100%	Tech. Spec./Appd. Drg. / IS:5621 & IEC:62155	TC	2/3	-	1	TC
a)	Dimension	Visual	-do-	-do-	TC	2/3	-	1	TC
b)	Physical properties	-do-	100%	-do-	TC	2/3	-	1	TC
d)	Routine Test	-do-			TC	2/3	-	1	TC
2	Lead/Copper Diaphragm	Measurement	100%	Tech. Spec./Appd. Drg./IS & IFC	TC	2/3	-	1	TC
a)	Dimension	Pressure	-do-	-do-	TC	2/3	-	1	TC
b)	Pressure Relief Test	Visual	-do-	-do-	TC	2/3	-	1	TC
c)	Physical properties	-do-			TC	2/3	-	1	TC
d)	Leakage Test	-do-			TC	2/3	-	1	TC
3	Rubber Items (Rubber Gaskets/O Ring)	Measurement	Sampling plan	Tech. Spec./Appd. Drg./IS & -do-	TC	2/3	-	1	TC
a)	Dimension	Mechanical	-do-	-do-	TC	2/3	-	1	TC
b)	Material Testing Physical (Hardness, Ageing, Compressibility)	Mechanical			TC	2/3	-	1	TC
4	Clamping Ring Casting	Mechanical	-do-	Tech. Spec./Appd. Drg./IS & -do-	TC	2/3	-	1	TC
a)	Material Testing	Measurement	-do-	-do-	TC	2/3	-	1	TC
b)	Dimension	Chemical	-do-	Tech. Spec./Appd. Drg./IS:263	TC	2/3	-	1	TC
c)	Galvanising (Weight of Zinc Coating, Uniformity Test, Adhesion Test)								

Note: a. In 'Inspection Agency' column figure 1,2, or 3 to be filled. 1- will indicate Employer/ 'NHPC LTD', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

IMS/QA/IF01

Rev No. - 03

Effective Date- 09.01.2019

Signature

NHPC (QA& DEPT)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : सीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- Surge Arrestor
एनआईटी/क्रय आदेश संदर्भ NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र.सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी/Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
5	Cover Assembly								
a)	Dimension	Measurement	Sampling plan	Tech. Spec./Appd. Drg./IS & IEC	TC	2/3	-	1	TC
b)	Galvanising	Chemical	-do-	-do-	TC	2/3	-	1	TC
6	Terminal Assembly								
a)	Dimension / Filament	Measurement	-do-	-do-	TC	2/3	-	1	TC
b)	Physical (Galvanising or Tinning)	Chemical	-do-	-do-	TC	2/3	-	1	TC
7	Surge Counters								
i)	Meter Operation	Measurement	Sampling plan	Tech. Spec./Appd. drg./IS	TC	2/3	-	1	TC
ii)	Counting Test	Visual	-do-	-do-	TC	2/3	-	1	TC
iii)	IP Protection Class	Test	1 no.	-do-	TC	2/3	-	1	TC
B.	IN PROCESS INSPECTION								
1	ZnO Disc								
a)	Dimension	Measurement	Sampling plan	Tech. Spec./Appd. drg./IS	TC	2/3	-	1	TC
b)	Electrical Routine Test	Electrical	-do-	-do-	TC	2/3	-	1	TC
2	Raw Materials for ZnO Disc								
a)	Chemical Composition	Chemical	-do-	-do-	TC	2/3	-	1	TC
C)	Routine Test								
a)	Measurement of Reference Voltage	Electrical	100%	Tech. Spec. / IEC: R1099.4	TC	2/3	-	1	TC
b)	Residual Voltage Test (for non linear resistance type L.A.)	-do-	100%	-do-	TC	2/3	-	1	TC
c)	Sealing Test of Arrestors	-do-	100%	-do-	TC	2/3	-	1	TC
d)	Partial Discharge Test	-do-	100%	-do-	TC	2/3	-	1	TC
e)	Current Distribution Test for multi-column Arrestor.	-do-	100%	-do-	TC	2/3	-	1	TC
f)	General Routine Dimension of Surge Arrestor	Measurement	-do-	-do-	TC	2/3	-	1	TC
g)	Ingress Protection	Test	Sampling plan	-do-	TC	2/3	-	1	TC

Note: a. In Inspection Agency column figure 1,2,or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".
g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

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Signature
NHPC (QA&I DEPT.)

Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : सीता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- Surge Arrestor

एनआईटी क्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)

विक्रेता (VENDOR):

क्र. सं. S.N.	मदघटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानक REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspection Agency		टिप्पणी Remarks
						प्रदर्शन PERFORM	सत्यापन VERIFY	
D)	Acceptance Test							
a)	Measurement of Power Frequency Voltage	Electrical	20%	Tech.spec./ IEC:60099-4 /IS 3070 (Part-III)	JIR	3/2	1	*CHP
b)	Lightening Impulse residual Voltage (for non-linear resistance type L.A.)	-do-	-do-	-do-	JIR	3/2	1	*CHP
c)	Partial Discharge Test (for non- linear resistance type L.A.)	-do-	-do-	-do-	JIR	3/2	1	*CHP
d)	Thermal Stability Test.	Test	-do-	-do-	JIR	3/2	1	*CHP
e)	Galvanising Test on Metal Part	Chemical	-do-	-do-	JIR	3/2	1	*CHP
f)	General Routine Dimension of Surge Arrestor.	Measurement	-do-	-do-	JIR	3/2	1	*CHP
E)	Surge Counters							
a)	Functional Test	Electrical	-do-	Tech.Spec./Approved drg./	TC	2/3	1	TC

Note: a. In 'Inspection Agency' column figure 1,2,or 3 to be filled. 1- will indicate Employer/ 'NHPC LTD', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.O. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

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d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

*f. For all routine test-CHP are 20% random sample and TCs for 100 % of LOT/offered materials.

g. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

h. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

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NHPC (QA&I DEPT.)

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परियोजना (PROJECT) : सीसा-व पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Polthead yard equipment- CVT

एनआईटी/ कर आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT):

विक्रेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जोच की प्रकृति NATURE OF CHECKS	जोच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency		टिप्पणी Remarks
						प्रदर्शन PERFORM	सत्यापन VERIFY	
1	Raw Material & Bought Out Items Al foil (Non perforated) Visual, Dimension, Foil Purity, TS & Wetability.	Test	One Sample/ lot	Tech. Spec./ Approved drg.	TC	2/3	1	TC
2	Condenser Tissue Paper Visual, Dimensions, PH Value, Density, Dielectric Strength, Mineral Ash Content, Chloride Content, & Dielectric Loss Angle.	Test	One Sample/ lot	-do-	TC	2/3	1	TC
3	Polypropylene Film Visual, Dimensions, TS, Dissipation Factor, Heat Shrinkage, Ash content, Volume Resistivity, Dielectric Constant.	Test	One Sample/ lot	-do-	TC	2/3	1	TC
4	Epoxy Moulded PT Visual, Dimensions, Accuracy Test, PD Test, Terminal Markings and Polarity, Induced Over- Voltage Test & HV Test on Secondary.	Test	One Sample/ lot	Tech. Spec./ Approved drg.	TC	2/3	1	TC
5	Epoxy Moulded HV Choke Visual, Dimensions, HV Test, Induced Over Voltage Test, PD Test, Inductance measurement.	Test	One Sample/ lot	Tech. Spec./ Approved drg.	TC	2/3	1	TC
6	Insulator Dimensions, Electrical Routine test, Porosity test, Temperature Cycle Test.	Test	Sample Plan	Tech. Spec./ Approved drg./IS-5621 & IEC-62155	TC	2/3	1	TC

Note:

- In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'sub-supplier'.
- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
- The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
- At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
- Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
- This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".
- Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

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Signature
NHPC (QA/MI DEPT)

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VENDORS Q.C. DEPT. QA REPRESENTATIVE

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : बी.सी.ए. पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- CVT
एनआईटी/कॉप अवेरेंस संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मध्यवर्ती एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जोच की प्रकृति NATURE OF CHECKS	जोच की मात्रा QUANTITY OF CHECKS	संदर्भ दस्तावेज/ स्वीकृति मानक REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट FORMAT	निरीक्षण एजेंसी Inspection Agency			टिप्पणी/Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
7	Metal Bellow Chemical Composition, Thickness, Finish	Test	100%	Tech. Spec./ Approved dfg.	TC	2/3	-	1	TC
8	Tank & Cover DP Test on welds, Dimension, Leak Test	Test	100%	Tech. Spec./ Approved dfg.	TC	2/3	-	1	TC
9	Galvanising Visual Defect, Thickness, Adhesion, Wt. of Zinc coating on sample, Uniformity of Zinc Coating.	Test	One Sample/ lot	Tech. Spec./ Approved dfg.	TC	2/3	-	1	TC
10	Spark Gap Surface defects, Leakage Test, Breakdown Voltage	Test	100%	Tech. Spec./ Approved dfg.	TC	2/3	-	1	TC
11	Sealing Element of Nitrile Rubber Visual, Dimension, TS, Hardness, Elongation, Compression & Oil Immersion Test	Measurement	100%	Tech. Spec./ Approved dfg./IEC	TC	2/3	-	1	TC
12	Insulating Oil Appearance, Density, Kinematic Viscosity, Pour Point, Flash Point, Water Content, Dissipation factor, Electrical strength, Oxidation stability, etc.	Test	Sampling plan	Tech. Spec./ Approved dfg./ IS:3359/ IEC 60296	TC	2/3	-	1	TC
B.	IN PROCESS INSPECTION	Test	100%	Tech. Spec./ Approved	TC	2/3	-	1	TC
1	Capacitor Coil Windings	-do-	-do-	-do-	TC	2/3	-	1	TC
2	Stack Pressing	-do-	-do-	-do-	TC	2/3	-	1	TC
3	Drying and Impregnation	-do-	-do-	-do-	TC	2/3	-	1	TC
4	Stack Pressing after drying & Impregnation	-do-	-do-	-do-	TC	2/3	-	1	TC
5	Testing of Stacks	-do-	-do-	-do-	TC	2/3	-	1	TC

Note:

- In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
- The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
- At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
- Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
- This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".
- Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

Signature
NHPC (QAM DEPT.)

Signature & Seal

(VENDOR'S Q.C. DEPT. OR REPRESENTATIVE)

MS/QA/IF01
Rev No.- 03
Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- CVT

एनआईटी/अप आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT):
विद्युत (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

क्र. सं. S.N.	मशीन/उपकरण का विवरण ITEM/COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृत मानक REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspection Agency		टिप्पणी/टिप्पणियाँ Remarks
						प्रदर्शन PERFORM	सत्यापन VERIFY	
C	FINAL INSPECTION							
1	Routine Tests - EMU	Test	20%	Tech Spec/ Appd.drg./IEC-61869 & IS-3156	JIR	2/3	1	*CHP
1.1	Verification of Terminal Markings & Polarity.	-do-	-do-	-do-	JIR	2/3	1	*CHP
1.2	Power Frequency withstand Test between LV-E on EMU.	-do-	-do-	-do-	JIR	2/3	1	*CHP
1.3	Induced Overvoltage Test on PT & HV choke of EMU (150 Hz) (As Applicable)	-do-	-do-	-do-	JIR	2/3	1	*CHP
1.4	Power Frequency withstand Tests between Sections	-do-	-do-	-do-	JIR	2/3	1	*CHP
1.5	Power Frequency withstand Tests on Secondary Terminals	-do-	-do-	-do-	JIR	2/3	1	*CHP
2	Capacitor Assembly							
2.1	Measurement of Capacitance & Tan delta before one min. Power Frequency Test	Test	20%	Tech Spec/ Appd.drg./IEC-61869/ IEC 60358 & IS-3156	JIR	2/3	1	*CHP
2.2	Power Frequency Voltage withstand Test.	-do-	-do-	-do-	JIR	2/3	1	*CHP
2.3	Measurement of Capacitance & Tan Delta after One min. Power Frequency Test	-do-	-do-	-do-	JIR	2/3	1	*CHP
2.4	Power Frequency withstand Test on low voltage terminal of the capacitor voltage divider (Earth terminal of CVD)	-do-	-do-	-do-	JIR	2/3	1	*CHP
2.5	Enclosure tightness test /Sealing Test	-do-	-do-	-do-	JIR	2/3	1	*CHP
2.6	Partial Discharge Test	-do-	-do-	-do-	JIR	2/3	1	*CHP
3	CVT							
3.1	Accuracy Test (Ratio & Phase Angle Error)	Test	20%	Tech Spec/ Appd.drg./IEC-61869/ IEC 60358 & IS-3156	JIR	2/3	1	*CHP
3.2	Ferro-resonance check	-do-	-do-	-do-	JIR	2/3	1	*CHP
3.3	Routine tests for carrier frequency accessories	-do-	-do-	-do-	JIR	2/3	1	*CHP
a)	Routine test for drain coils	Test	20%	Tech Spec/ Appd.drg./IEC-61869/ IEC 60358 & IS-3156	JIR	2/3	1	*CHP
b)	Routine tests for voltage limitation devices	-do-	-do-	-do-	JIR	2/3	1	*CHP
1	Type Test	Temp. Rise Test	Sampling plan	Tech Spec/ Appd.drg./IEC-61869/ IEC 60358 & IS-3156	TC	2/3	1	TC
2	Pressure Test for Enclosure	-do-	-do-	-do-	TC	2/3	1	TC
3	Chopped impulse voltage withstand test on primary terminals	-do-	-do-	-do-	TC	2/3	1	TC

Note:

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- Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

*1. For all routine test-CHP are 20% random sample and TCs for 100 % of LOT/offered materials.

g. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Medial QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then '3/2' shall be considered as '2' under the column "Perform".

h. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

IMSQA/IF01
Rev No.- 03
Effective Date- 09.01.2019

Signature
NHPC (O&M DEPT.)

Signature & Seal
(VENDOR'S O.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- Wave Trap & LMU

एनआईटी/ क्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT):
विक्रेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रैकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
A)	WAVE TRAP								
1	Raw Materials								
a)	Electronic Components	Electrical	100%	Tech. Spec./ Appd. drg.	TC	2/3	-	1	TC
b)	Mechanical Components	Elect./Mech.	-do-	-do-	TC	2/3	-	1	TC
c)	Plastic Mouldings	-do-	-do-	-do-	TC	2/3	-	1	TC
d)	Support structure & Insulator (if Applicable)	Measurement	100%	Tech. Spec./Appd. Drg./ IS:5621 & IEC:62155	TC	2/3	-	1	TC
i)	Dimension								
ii)	Physical properties	Visual	-do-	-do-	TC	2/3	-	1	TC
iii)	Routine Test	-do-	100%	-do-	TC	2/3	-	1	TC
2	Type Test								
a)	Insulation Tests	Electrical	Sampling plan	Tech. Spec./IS:8793 & IEC:60353	TC	2/3	-	1	TC
i)	Impulse Voltage Test								
ii)	Power Frequency Voltage Test on Tuning Pot	-do-	-do-	-do-	TC	2/3	-	1	TC
b)	Measurement of RIV	-do-	-do-	-do-	TC	2/3	-	1	TC
c)	Temperature Rise Test	-do-	-do-	-do-	TC	2/3	-	1	TC
d)	Short Time Current Test	-do-	-do-	-do-	TC	2/3	-	1	TC
e)	Measurement of the Inductance of the Main Coil	-do-	-do-	-do-	TC	2/3	-	1	TC
f)	Measurement of Tapping loss.	-do-	-do-	-do-	TC	2/3	-	1	TC

Note:

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- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
- The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
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- Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
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- Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

MS/QA/IF01
Rev No.- 03
Effective Date- 09.01.2019

Signature
NHPC (QA&DEPT.)

Signature & Seal
(VENDOR'S Q.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 9 of 18

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)

उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- Wave Trap & LMU

विक्रेता (VENDOR):

एनआईटी/ क्राय ऑडिशन संदर्भ NIT / P.O. Reference) :

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रेकार्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
3	Final Inspection								
a)	Visual & Dimensional	Visual/ Meas.	100%	Tech.Spec./Appd.Drg.	JIR	2/3	1	-	CHP
b)	Electrical Tests	Electrical	-do-	Tech.Spec./Appd.Drg./ IS:8793 & IEC:60353	JIR	2/3	1	-	CHP
i)	Measurement of Rated Inductance of the Main Coil	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
ii)	Measurement of Power Frequency Inductance of the Main Coil.	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
iii)	Measurement of Blocking Resistance & Blocking Impedance of Line Trap	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
iv)	Measurement of the Tapping Loss and Tapping Loss based on the Blocking Resistance.	-do-	-do-	-do-	JIR	2/3	1	-	CHP
v)	Power frequency voltage test on Tuning unit.	-do-	-do-	-do-	JIR	2/3	1	-	CHP
B)	LINE MATCHING UNIT (LMU)								
1)	Bought-out Items for Coupling Unit/ LMU (Primary Capacitance, Secondary Capacitance, Drainage Coil, Lightning Arrester, Intermediate Transformer etc.)	Electrical	100%	Tech.Spec./Appd. Drg./IS 8998	TC	2/3	-	1	TC
2)	Acceptance & Routine Test								
a)	Composite Loss	Electrical	100%	Tech.Spec./Appd. Drg./IS 8998	JIR	2/3	1	-	CHP
b)	Return Loss	-do-	-do-	-do-	JIR	2/3	1	-	CHP
c)	Power Frequency Voltage Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP

Note: a. In 'Inspection Agency' column figure 1,2,or 3 to be filled. 1- will indicate Employer/ 'NHPC LTD', 2- will indicate 'sub-supplier'.
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
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IMS/QA/IF01
Rev No.- 03
Effective Date-09.01.2019

Signature
NHPC (QA&DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 10 of 18

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- Conductor

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

एनआईटी/ क्रय आदेश संदर्भ (NIT / P.O. Reference) :

क्र.सं. S.N.	सद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
A	Raw Material and Bought Out Items								
1	Electrolytic High Gr. Aluminium Rod./								
a)	HLTS								
b)	Chem. Composition	Chemical	100%	Tech. Spec./Appd.drg./IS:5484	TC	2/3	-	1	TC
c)	Diameter	Measurement	-do-	-do-	TC	2/3	-	1	TC
d)	Surface Finish	Visual	-do-	-do-	TC	2/3	-	1	TC
e)	Breaking Load Test	Mechanical	-do-	-do-	TC	2/3	-	1	TC
f)	Resistivity	Electrical	-do-	-do-	TC	2/3	-	1	TC
g)	Elongation	Mechanical	-do-	-do-	TC	2/3	-	1	TC
B	In Process Inspection								
1	Alum. Wire Drawing								
a)	Dia of Die	Measurement	1 sample/ coil	Tech. Spec./Appd.drg.	TC	2/3	-	1	TC
b)	Dia of Wire	-do-	-do-	Tech. Spec./Appd.drg./IS:398	TC	2/3	-	1	TC
c)	Joint in Wire	Visual	-do-	-do-	TC	2/3	-	1	TC
d)	Surface Finish	Visual	-do-	-do-	TC	2/3	-	1	TC
e)	Breaking Load Test	Mechanical	-do-	-do-	TC	2/3	-	1	TC
f)	Resistance Measurement.	Electrical	-do-	-do-	TC	2/3	-	1	TC
g)	Wrapping Test	Mechanical	-do-	-do-	TC	2/3	-	1	TC

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IMSQAINF01
Rev No. - 03
Effective Date- 09.01.2019

Signature
NHPC (QA&I DEPT.)

Signature & Seal
(VENDORS Q.C. DEPT FOR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- Conductor

एनआईटी/ क्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

Page 11 of 18

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रेकार्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
2	Testing of Stranded Steel	Measurement	Each wire/drum	Tech. Spec./Appd.drg./IS:398	TC	2/3	-	1	TC
a)	Dia of individual wire	Mechanical	-do-	Tech. Specn./IS:1521 & IS:398	TC	2/3	-	1	TC
b)	Breaking Load	-do-	-do-	-do-	TC	2/3	-	1	TC
c)	Torsion Test	-do-	-do-	-do-	TC	2/3	-	1	TC
d)	Elongation Test	-do-	-do-	-do-	TC	2/3	-	1	TC
e)	Wrapping Test	-do-	-do-	-do-	TC	2/3	-	1	TC
3	Galvanising Test	Chemical	-do-	Tech. Spec./Appd.drg./IS:4826	TC	2/3	-	1	TC
a)	Wt. of Zinc Coating	-do-	-do-	Tech. Spec./Appd.drg./IS:2633	TC	2/3	-	1	TC
b)	Uniformity of Zinc Coating (Dip Test)	Visual	-do-	-do-	TC	2/3	-	1	TC
c)	Surface Finishing	Chemical	-do-	Tech. Spec./Appd.drg./IS:209	TC	2/3	-	1	TC
d)	Purity of Zinc	Measurement	Sample plan	Tech Spec./Appd.drg./IS:398/IEC 61089	JIR	2/3	1	-	CHP
C	Final Inspection:	Test	-do-	-do-	JIR	2/3	1	-	CHP
1	Conductor	Test	-do-	-do-	JIR	2/3	1	-	CHP
a)	Over all Dia								
b)	Lay Direction								
c)	Lay ratio for Aluminium & Steel.								

Note:

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Signature
(QA&I/DEPT.)

Signature & Seal
(VENDOR'S Q.C. DEPT. OR REPRESENTATIVE)

IMS/QA/INF01

Rev No. - 03

Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- Conductor

एनआईटी/क्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी			टिप्पणी/Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
2	Aluminium Strand								
a)	Diameter	Measurement	Sample plan	Tech. Spec./Appd.drg./IS:398/IEC 61089	JIR	2/3	1	-	CHP
b)	Breaking Load Test	Mechanical	-do-	-do-	JIR	2/3	1	-	CHP
c)	Resistance	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
d)	Wrapping	Mechanical	-do-	-do-	JIR	2/3	1	-	CHP
3	Steel Strand								
a)	Diameter	Measurement	-do-	Tech. Spec./Appd.drg./IS:398/IEC 61089	JIR	2/3	1	-	CHP
b)	Breaking Load Test	Mechanical	-do-	-do-	JIR	2/3	1	-	CHP
c)	Elongation	-do-	-do-	-do-	JIR	2/3	1	-	CHP
d)	Torsion	-do-	-do-	-do-	JIR	2/3	1	-	CHP
e)	Wrapping Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
f)	Wt. Of Zinc Coating	Chemical	-do-	Tech. Spec./IS:4826 & 6745	JIR	2/3	1	-	CHP
g)	Uniformity of Zinc Coating	Chemical	-do-	-do-	JIR	2/3	1	-	CHP
4	Conductor Drum								
	Dimension	Measurement	Sample plan	Tech. Spec./Appd.drg./IS:1778	TC	2/3	-	1	TC
D	Routine Test								
	All tests covered under Acceptance test.	Measurement	100%	Tech. Spec./Appd.drg./IS:398	TC	2/3	-	1	TC

Note:

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- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
- The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
- At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier calliper, pie tape, surface roughness tester, dial gauge etc.
- Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
- This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".
- Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP,GOI.

IMS/QA/INF01
Rev No.- 03
Effective Date- 09.01.2019

Signature
NHPC (QA&I DEPT.)

Signature & Seal
VENDOR'S Q.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : लीसा-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment-

Gantry/Support Structure

एनआईटी क्रय आदेश संदर्भ NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)

विक्रेता (VENDOR):

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मैट FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
1	RAW MATERIAL								
1.1	Structural Steel, Angle Sections and Plates								
a)	Physical Properties								
i)	Test for Ultimate Strength	Mechanical	Sample plan	Tech. Spec./Appd.drg./ IS:2062 & 8500	TC	2/3	-	1	TC
ii)	Test for Yield Stress	-do-	-do-	-do-	TC	2/3	-	1	TC
iii)	% Elongation	-do-	-do-	-do-	TC	2/3	-	1	TC
iv)	Bend Test	-do-	-do-	-do-	TC	2/3	-	1	TC
b)	Chemical Composition	Chemical	-do-	-do-	TC	2/3	-	1	TC
c)	Visual checks for Surface Defects, Mild marks	Visual	100%	-do-	TC	2/3	-	1	TC
d)	Dimensional Check	Measurement	-do-	-do-	TC	2/3	-	1	TC
1.2	Zinc								
	Chemical Composition	Chemical	Sample plan	Tech. Spec./Appd.drg./IS:209	TC	2/3	-	1	TC
2	IN-PROCESS CHECKS								
2.1	Proto Type Test								
	Visual & Dimensional	Measurement	One structure of each type.	Tech. Spec./Appd.drg./IS:802	JIR	2/3	1	-	CHP

Note:

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- Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

Signature

NHPC- (QA&I DEPT.)

Signature & Seal

VENDORS Q.C. DEPT. (OR REPRESENTATIVE)

IMS/QA/INF01

Rev No.- 03

Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment-
Gantry/Support Structure
एनआईटी/कृय आदेश संदर्भ (NIT/P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
प्रेक्षता (VENDOR):

क्र. सं. S.N.	सदस्य घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानक REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकार्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी/Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
2.2	Galvanising Process Control	Chemical	Sample plan	Tech. Spec./Appd.drg./ IS:2629	TC	2/3	-	1	TC
a)	Degreasing	-do-	-do-	-do-	TC	2/3	-	1	TC
b)	Pickling	-do-	-do-	-do-	TC	2/3	-	1	TC
i)	Acid Content	-do-	-do-	-do-	TC	2/3	-	1	TC
ii)	Iron Content	-do-	-do-	-do-	TC	2/3	-	1	TC
c)	Rinsing	-do-	-do-	-do-	TC	2/3	-	1	TC
d)	Prefluxing in Zinc Chloride & Ammonium Chloride Sol.	-do-	-do-	-do-	TC	2/3	-	1	TC
e)	Pre-heating	Visual	100%	-do-	TC	2/3	-	1	TC
f)	Dipping in Zinc Bath	Measurement	-do-	-do-	TC	2/3	-	1	TC
ii)	Zinc Bath Temperature	Visual	-do-	-do-	TC	2/3	-	1	TC
iii)	Quenching in Water	Chemical	One daily	-do-	TC	2/3	-	1	TC
2.3	Galvanising Checks	Visual	100%	Tech. Spec./Appd.drg./ IS:2629	TC	2/3	-	1	TC
a)	Visual Check	Measurement	Sample plan	-do-	TC	2/3	-	1	TC
b)	Thickness of Zinc Coating	Measurement	-do-	-do-	TC	2/3	-	1	TC
c)	Weight of Zinc Coating	Measurement	-do-	-do-	TC	2/3	-	1	TC
d)	Uniformity of Zinc Coating	Chemical	-do-	Tech. Spec./IS:2633	TC	2/3	-	1	TC
e)	Adhesion Test	Hammer Test	-do-	Tech. Spec./Appd.drg./ IS:2629	TC	2/3	-	1	TC

Note: a. In 'Inspection Agency' column figure 1,2,or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'sub-supplier'.
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".
g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/54/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP,GOI.

Signature

NHPC (QA& DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment-

Gantry/Support Structure

एनआईटी/क्रेडिट संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)

विक्रेता (VENDOR):

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/	रकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
3	FINAL INSPECTION & TESTING								
3.1	Fabricated Steel Structure	Visual & Measurement	Sample	Tech. Spec./Appd.drg./ IS:Code	JIR	2/3	1	-	CHP
a)	Visual and Dimensional checks as indicated in Sl. no. 1.1 (c) & (d)								
3.2	Nut and Bolts	Visual & Measurement	-do-	Tech. Spec./Appd.drg./ IS:12427 /IS:6639	TC	2/3	-	1	TC
3.2.1	Visual and Dimensional								
3.2.2	Physical Properties								
a)	Wedge Load (Tensile) Test	Mechanical	-do-	Tech. Spec./Appd.drg./ IS:1367	TC	2/3	-	1	TC
b)	Head Soundness Test	-do-	-do-	-do-	TC	2/3	-	1	TC
c)	Proof Load Test	-do-	-do-	-do-	TC	2/3	-	1	TC
d)	Shear Load Test	-do-	-do-	Tech. Spec./Appd.drg./ IS:12427	TC	2/3	-	1	TC
e)	Hardness Test	-do-	-do-	-do-	TC	2/3	-	1	TC

Note:

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- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
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IMS/QA/IF01
Rev No.- 03
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Signature
NHPC (QA&I DEPT.)

Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तौस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment-
एनआईटी/कम्युनिटी/कम्युनिटी संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/	रेकार्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी/Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
3.3	Step Bolts	Visual & Measurement	Sample plan	Tech. Spec./Appd. Drg./ IS:10238, 6639 & 12427	TC	2/3	-	1	TC
a)	Visual and Dimensional								
b)	Caniliver Test	Test	-do-	-do-	TC	2/3	-	1	TC
c)	Proof Load Test	Test	-do-	-do-	TC	2/3	-	1	TC
d)	Hardness Test	Test	-do-	-do-	TC	2/3	-	1	TC
3.4	Spring Washer								
a)	Visual & Dimensional	Visual & Measurement	Sample plan	Tech. Spec./Appd. Drawing/ IS:3063	TC	2/3	-	1	TC
b)	Compression Test	Mechanical	-do-	-do-	TC	2/3	-	1	TC
c)	Twist Test	-do-	-do-	-do-	TC	2/3	-	1	TC
d)	Hardness Test	-do-	-do-	-do-	TC	2/3	-	1	TC
3.5	Galvanising Tests								
a)	Visual Check	Visual	Random 2% maximum	Tech.Spec./ IS:2629	JIR	2/3	1	-	CHP
b)	Weight of Zinc Coating	Measurement	Sample plan	Tech.Spec./IS: 4759 & 6745	JIR	2/3	1	-	CHP
c)	Thickness of Zinc Coating	-do-	-do-	-do-	JIR	2/3	1	-	CHP
d)	Uniformity of Zinc Coating	Chemical	-do-	Tech.Spec./ IS:2633	JIR	2/3	1	-	CHP
e)	Adhesion Test	Hammer test	-do-	Tech.spec./ IS:4759,2629 & 2633	JIR	2/3	1	-	CHP

Note:

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- Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

Signature

NHPC (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMS/QA/IF01

Rev No.- 03

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गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pot Yard Equipment -
INSULATOR

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

एनआईटी/क्रय आदेश संदर्भ (NIT / P.O. Reference) :

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रेकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency		टिप्पणी Remarks
						प्रदर्शन PERFORM	सत्यापन VERIFY	
1	Routine Tests on Fired Shells a) Visual Examination b) Porosity c) Hydraulic Proof Test d) Temperature Cycle Test	Visual Mechanical -do- Thermal	Sampling -do- -do- -do-	Tech. Spec/Appd.drg. / IS:731 -do- -do- -do-	TC TC TC TC	2/3 2/3 2/3 2/3	1 1 1 1	TC TC TC TC
2	Assembly a) Cement Mix Check (Flow value) b) Curing Temp. in Hot Water Bath	Measurement Visual	-do- -do-	-do- -do-	TC TC	2/3 2/3	1 1	TC TC
3	Routine Test on Insulator a) Mech. Routine Test b) Electrical Routine Test c) Visual Examination	Mechanical Electrical Visual	100% -do- -do-	Tech.Spec./ Appd.drg. IS:731/13305 & 5350 -do- -do-	TC TC TC	2/3 2/3 2/3	1 1 1	TC TC TC

Note:

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- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
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- Blidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24, 12.2021(Latest Amendment if any) issued by MOP, GOI.

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

Signature

NHPC (QA&I DEPT.)

IMSQA/INF01

Rev No.- 03

Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : ताँस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Outdoor Pot Yard Equipment -
INSULATOR

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

एनआईटी/ क्रय आदेश संदर्भ (NIT / P.O. Reference) :

क्र. सं. S.N.	मदार्थक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानक REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रेकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी/ Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
4	Acceptance Test on Insulator	Measurement	Sampling Plan	Tech.Spec./ Approved drg./ IS:731/13305 & 5350	JIR	2/3	1	-	CHP
a)	Verification of Dimensions.	Thermal	-do-	-do-	JIR	2/3	1	-	CHP
b)	Temperature Cycle Test	Mechanical	-do-	-do-	JIR	2/3	1	-	CHP
c)	24 hrs. Mechanical Strength Test.	-do-	-do-	-do-	JIR	2/3	1	-	CHP
d)	Electro-Mechanical Failing Load Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
e)	Mechanical failing load Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
f)	Puncture Test	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
g)	Porosity Test	Mechanical	-do-	-do-	JIR	2/3	1	-	CHP
h)	Galvanising Test	Chemical	-do-	-do-	JIR	2/3	1	-	CHP
5	Test on locking devices for ball & socket coupling	Mechanical	-do-	Tech.Spec./Appd.drg./IEC:6EC372	TC	2/3	-	1	TC

Note:

- In 'Inspection Agency' column figure 1, 2, or 3 to be filled. 1- will indicate Employer/ 'NHPC LTD', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
- The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
- At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
- Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

Signature
NHPC (QA&I DEPT.)

Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMS/QA/IF01

Rev No.- 03

Effective Date- 09.01.2019

04. MODEL QUALITY ASSURANCE PLAN (QAP) FOR 400KV XLPE CABLE

Special instructions: -

1. Contractors/Manufacturers/Sub-suppliers are advised to submit QAP for equipments/ materials after incorporating all tests for bought out items, in process inspection and final inspections as per their latest manufacturing practice and Indian/ International Standards (with latest amendments, if any).
2. Contractors/Manufacturers/Sub-suppliers are required to use properly calibrated instruments /equipments during testing/inspection, for which necessary calibration certificates are required to be provided/presented to the Inspecting Officer.
3. Contractors/Manufacturers/Sub-suppliers have to make on their own all arrangements for testing facilities at their works for testing of equipments/materials.
4. One set of complete test certificates as per the requirement of QAP be made available to the Inspecting Officer at the time of inspection/testing.
5. All the records, as per the requirement of QAP are to be made available for review by the Inspecting Officer during inspection.
6. Field tests are to be carried out as per the requirements of the contract / purchase order.


25/05/2024
25/05/2024
18-25-09-2024

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 2 of 7

परियोजना (PROJECT) : सीसा-व पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : 400 KV XLPE cable
एनआईटी/कच अविशय संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
निर्माण (VENDOR):

क्र.सं. S.N.	माल/उपकरण एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानक REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency		टिप्पणी/Remarks
						प्रदर्शन PERFORM	सत्यापन VERIFY	
1	Raw Material							
1.1	Copper conductor							
a)	Diameter	Measurement	100%	Tech Spec / IS 8130/IS 613/IEC 60228	TC	2/3	1	TC
b)	Surface Condition & Conductivity	Visual/Electrical	Sample plan	-do-	TC	2/3	1	TC
c)	Tensile Strength (T.S) and Elongation at break (E.B.)	Mechanical	-do-	-do-	TC	2/3	1	TC
d)	Chemical Composition	Chemical	-do-	IS 191	TC	2/3	1	TC
1.2	Insulating Paper (As Applicable)							
a)	Thickness	Measurement	Sampling Plan	Tech Spec / Appd. Drg / ISI/IEC	TC	2/3	1	TC
b)	Tensile Strength	Mechanical	-do-	-do-	TC	2/3	1	TC
c)	Elongation	-do-	-do-	-do-	TC	2/3	1	TC
1.3	Internal & External Semiconductive shield							
a)	Check of Compound Grade	Verification	Sample plan	Tech Spec / ISI/IEC	TC	2/3	1	TC
b)	Volume Resistivity	Electrical	-do-	-do-	TC	2/3	1	TC
c)	Specific Gravity/Density test	Physical	-do-	-do-	TC	2/3	1	TC

Note: a. In 'Inspection Agency' column figure 1,2, or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".
g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/24/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP,GOI

INSQA/IF01
Rev No - 03
Effective Date- 09.01.2019

Signature
NHPC (QA/DEPT.)

[Handwritten Signature]
25/09/2024

Signature & Seal
(VENDORS O.C. DEPT. OR REPRESENTATIVE)

[Handwritten Signature]
25/09/2024

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 3 of 7

परियोजना (PROJECT) : रीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : 400 KV XLPE cable
एनआईटी/प्रप अदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
सिक्ता (VENDOR):

क्र. सं. S.N.	मदरक एवं विशेषता ITEM/COMPONENT & CHARACTERISTICS	जब की प्रकृति NATURE OF CHECKS	जब की मात्रा QUANTITY OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानक REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	प्रदर्शन PERFORM	निरीक्षण एजेंसी गवाह WITNESS	सत्यापन VERIFY	टिप्पणी Remarks
1.4	XLPE Compound								
a)	Tensile strength & Elongation	Mechanical	Sampling Plan	Tech. Spec./Appd.Drg./IEC-62067	TC	2/3	-	1	TC
b)	Permittivity	Electrical	-do-	-do-	TC	2/3	-	1	TC
c)	Dielectric loss angle (Tan Delta)	Electrical	-do-	-do-	TC	2/3	-	1	TC
1.5	Aluminum Tape/Cu Tape								
a)	Dimension	Measurement	Sampling Plan	Tech. Spec./Appd.Drg./IEC-62067	TC	2/3	-	1	TC
b)	Chemical Purity	Electrical	-do-	-do-	TC	2/3	-	1	TC
c)	TS & EB, Annealing Test (Cu Only)	Chemical	-do-	-do-	TC	2/3	-	1	TC
d)	Resistivity	Mechanical	-do-	-do-	TC	2/3	-	1	TC
1.6	Semi Conductive (Non Semiconducting Tape)								
a)	Dimension	Measurement	Sampling Plan	Tech. Spec./Appd.Drg./IEC-62067	TC	2/3	-	1	TC
b)	Swellable height and speed	-do-	-do-	-do-	TC	2/3	-	1	TC
c)	Tensile Strength and Elongation	Mechanical	-do-	-do-	TC	2/3	-	1	TC
1.7	Aluminum Wire (if applicable)								
a)	Surface Condition/Dimension	Visual	Sampling Plan	Tech. Spec./Appd.Drg./IEC-62067	TC	2/3	-	1	TC
b)	Mechanical Strength	Mechanical	-do-	-do-	TC	2/3	-	1	TC
c)	Elongation	Mechanical	-do-	-do-	TC	2/3	-	1	TC
d)	Diameter	Measurement	-do-	-do-	TC	2/3	-	1	TC
1.8	Sheathing Compound								
a)	Check for Compound Grade	Visual	Sampling Plan	Tech. Spec./Appd.Drg./IEC-62067	TC	2/3	-	1	TC
b)	Hardness Shore (if applicable)	Mechanical	-do-	-do-	TC	2/3	-	1	TC
c)	Tensile Strength & Elongation, Ageing Test	Physical	-do-	-do-	TC	2/3	-	1	TC
d)	Specific Gravity/Density Test	Physical	-do-	-do-	TC	2/3	-	1	TC
e)	Oxygen Index and Temp Index	Physical	-do-	-do-	TC	2/3	-	1	TC
f)	Melt Index Test	Physical	-do-	-do-	TC	2/3	-	1	TC

Note: a. In Inspection Agency column figure 1,2 or 3 to be filled. 1- will indicate Employer/ NHPC LTD. 2- will indicate 'sub-supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments (i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then '3/2' shall be considered as '2' under the column 'Perform'.

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

INSQA/F01
Rev No.- 03
Effective Date- 09.01.2019

Signature
NHPC (QA/DEPT.)

Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 4 of 7

परियोजना (PROJECT) : लीसा-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : 400 KV XLPE cable
एनआईटीई प्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मदयदक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	प्रदर्शन PERFORM	निरीक्षण एजेंसी गवाह WITNESS	सत्यापन VERIFY	टिप्पणी Remarks
1.90	Online PD Monitoring System	Test	100%	Tech Spec./Appd Drg./IEC	TC	2/3	-	1	TC
1.10	Real Time Temperature Monitoring System with Distributed Temperature Sensing System using embedded optical fiber as sensor	Test	100%	Tech Spec./Appd Drg./IEC	TC	2/3	-	1	TC
1.11	Cable support system (Cable Trays/ Hangers, Clamps & fixture, hardware etc)	-do-	1 Sample/Lot/Size	Tech Spec./Appd Drg./IEC:62067/ IEC 60229, 60230, 60270	TC	2/3	-	1	TC
1.12	Bonding arrangement accessories	Physical	-do-	-do-	TC	2/3	-	1	TC
2	Electrical Type Test on Complete Cable System	Physical	1 Sample/Lot/Size	Tech Spec./Appd Drg./IEC:62067/ IEC 60229, 60230, 60270	TC	2/3	-	1	TC
a)	Bending Test	Physical	-do-	-do-	TC	2/3	-	1	TC
b)	Dielectric Loss Angle Test	Electrical	-do-	-do-	TC	2/3	-	1	TC
c)	Heating Cycle Voltage Test	Thermal	-do-	-do-	TC	2/3	-	1	TC
d)	Partial Discharge Test	Electrical	-do-	-do-	TC	2/3	-	1	TC
e)	Switching Impulse Voltage Test	-do-	-do-	-do-	TC	2/3	-	1	TC
f)	Lightning Impulse Voltage Test Followed Power Frequency Voltage Test	-do-	-do-	-do-	TC	2/3	-	1	TC
g)	Tests for outer protections for Joints	Physical	-do-	-do-	TC	2/3	-	1	TC

Note: a. In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate Employer/ NHPC LTD', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

MSIG/INF01
Rev No.- 03
Effective Date- 09.01.2019

Signature
NHPC (QA/DEPT.)

Signature & Seal
(VENDORS Q.C. DEPT./OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 5 of 7

परियोजना (PROJECT) : सीसा-व पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : 400 kV XLPE cable
एनआईटी/क्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
निर्देशक (VENDOR):

क्र.सं. S.N.	मद/उपकरण एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज़ / स्वीकृत मानक REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रैकॉर्ड फॉर्मेट FORMAT	निर्देशक एजेंसी गवाह		टिप्पणी/Remarks
						प्रदर्शन PERFORM	सत्यापन VERIFY	
3	Non-Electrical Type Test on Cables a) Thickness eccentricity of Insulation and Outer sheath b) Tensile & Elongation of XLPE and Outersheath (before & after ageing) c) Loss of mass test on PVC oversheaths of type ST2 d) Pressure test at high temperature on oversheaths e) Aging Test f) Heat shock test for PVC oversheaths (ST1 and ST2) g) Hot set test for XLPE insulations h) Measurement of carbon black content of black PE oversheaths (ST3 and ST7) i) Water penetration test j) Tests on components of cables with a longitudinally k) Shrinkage test of Insulation & Outer Sheath l) Hot deformation of Outer sheath 3.2 Armouring material a) Dimensions b) Tensile & Elongation c) Wrapping Test d) Resistivity Test 3.3 Metallic Screen a) Test for concentric copper wire b) Test for concentric copper tape c) Semi-conducting Screen resistivity test	Measurement Mechanical	Sample Plan -do-	Tech Spec./Appd Drg./IEC:62067/ IEC 60229, 60230, 60270/ IS 7098-3 -do-	TC	2/3	-	TC
		Physical	-do-	-do-	TC	2/3	-	TC
		Physical	-do-	-do-	TC	2/3	-	TC
		Physical	-do-	-do-	TC	2/3	-	TC
		Thermal	-do-	-do-	TC	2/3	-	TC
		Thermal	-do-	-do-	TC	2/3	-	TC
		Physical	-do-	-do-	TC	2/3	-	TC
		-do-	-do-	-do-	TC	2/3	-	TC
		-do-	-do-	-do-	TC	2/3	-	TC
		Thermal	-do-	-do-	TC	2/3	-	TC
4	Routine Tests a) Conductor Resistance Test b) High Voltage Test c) Partial discharge test	Measurement Mechanical	Sample Plan -do-	Tech Spec./Appd Drg./IEC:62067/ IS 7098-3 -do-	TC	2/3	-	TC
		Electrical	-do-	-do-	TC	2/3	-	TC
		Electrical	-do-	-do-	TC	2/3	-	TC
		Electrical	100% Drum	-do-	TC	2/3	-	TC
		-do-	-do-	-do-	TC	2/3	-	TC
		-do-	-do-	-do-	TC	2/3	-	TC
		Electrical	-do-	-do-	TC	2/3	-	TC
		Electrical	-do-	-do-	TC	2/3	-	TC
		Electrical	-do-	-do-	TC	2/3	-	TC
		Electrical	-do-	-do-	TC	2/3	-	TC

Note: a. In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie lapse, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP

specifies the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in

the tender, then "3/2" shall be considered as "2" under the column "Perform"

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

Signature

NHPC (QA/QC DEPT)

INSQAIF01

Rev No. - 03

Effective Date- 03.01.2019

Signature & Seal

(VENDOR'S C. DEPT. OR REPRESENTATIVE)

एन.पी.सी.
कॉन्ट्रोलिंग (कॉन्ट्रोलिंग)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 6 of 7

परियोजना (PROJECT) : सौराष्ट्र पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : 400 KV XLPE cable
एनआईटी क्रम अथवा संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT):
विप्रेता (VENDOR):

एनएसपीसी लिमिटेड (NHPC LTD.)

क्र. सं. S.N.	समस्या एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज़ / स्वीकृति मानक REFERENCE DOCUMENT/ ACCEPTANCE NCE/MS	रजिस्ट्रार RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी/Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
5	Acceptance Test								
a)	Conductor Examination (no. of strands, lay direction, lay length, dimension)	Measurement	Sample Plan	Tech Spec./Appd.Drg./IEC-60267/ IEC 60229, 60230, 60270/IS 7098-3	JIR	2/3	1	-	CHP
b)	Electrical Resistance of Conductor and of Metallic Sheath/Screen	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
c)	Measurement of Thickness of Insulation and Oversheath	Measurement	-do-	-do-	JIR	2/3	1	-	CHP
d)	Measurement of Thickness of Metallic Sheath	-do-	-do-	-do-	JIR	2/3	1	-	CHP
e)	Measurement of Diameter of core and overall	-do-	-do-	-do-	JIR	2/3	1	-	CHP
f)	Hot Set Test and permanent set test for XLPE	Thermal	Sample Plan	Tech Spec./Appd.Drg./IEC-60267/ IEC 60229,	JIR	2/3	1	-	CHP
g)	Measurement of Capacitance	-do-	-do-	-do-	JIR	2/3	1	-	CHP
h)	Specific gravity/ density test of Outer Sheath	Physical	-do-	-do-	JIR	2/3	1	-	CHP
i)	Lighting Impulse Voltage Test	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
j)	Water Penetration Test	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
k)	IR & HV Test	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
l)	Partial discharge test	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
m)	Test on components of cables with a longitudinally applied metal tape or foil, bonded to the oversheath	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
n)	Void and contamination test	Measurement	-do-	-do-	JIR	2/3	1	-	CHP
6	Additional test (As applicable)								
a)	HCL Gas Generation Test	Chem.	Sample Test	Tech. Spec./ IEC 754	JIR	2/3	1	-	CHP
b)	Oxygen Index Test	Thermal	-do-	Tech spec/IEC/ ASTM 2863	JIR	2/3	1	-	CHP
c)	Temperature Index Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
d)	Smoke Density Test	-do-	-do-	Tech Spec./ASTM D 2843/IEC 61034	JIR	2/3	1	-	CHP
e)	Flammability Test	Flam.	-do-	Tech Spec./IS-155-/ IEC-60331, 60332	JIR	2/3	1	-	CHP
f)	Ladder Test	-do-	-do-	Tech Spec./IEEE-383	JIR	2/3	1	-	CHP
g)	Anti Rodent & Termite Test	Chem.	-do-	Tech Spec/Appd. Drg./IS 7098-3	JIR	2/3	1	-	CHP
h)	Cold Impact test	Physical	-do-	-do-	JIR	2/3	1	-	CHP
7	Check for Embossing & Colour Coding etc.	Visual	-do-	Tech Spec/Appd. Drg.	JIR	2/3	1	-	CHP

Note: a. In 'Inspection Agency' column figure 1, 2 or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments, e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform"

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, date-1-24-12-2021 (Latest Amendment if any) issued by MOP (GOI).

Signature
NHPC (QA&DEPT.)

Signature & Seal
(VENDOR'S Q.C. DEPT. OR REPRESENTATIVE)

MS/QA/INF01
Rev No. - 03
Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : सैन्स-व पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : 400 KV XLPE cable
प्रमाणित करने वाले (ENDORSE) : NIT / P.O. Reference)

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
निर्माता (VENDOR):

क्र. सं.	संयोजक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTITY OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानक REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड RECORD	प्रदर्शन PERFORM	निरीक्षण एजेंसी WITNESS	सत्यापन VERIFY	टिप्पणी Remarks
8	Packing, Marking & End Sealing	Visual	Each Drum	Tech. Spec./Appd. drg./IS	JIR	2/3	1	-	CHP
a)	End Sealing	-do-	-do-	-do-	JIR	2/3	1	-	CHP
9	Oil Immersed Sealing End (if applicable)	Measurement/	100%	Tech. Spec./Appd. Drg./IEEE std.48/ IEC: 62271	TC	2/3	-	1	TC
a)	Appearance & Dimensional Check	Visual	-do-	-do-	TC	2/3	-	1	TC
b)	Dielectric Tests.	Electrical	-do-	-do-	TC	2/3	-	1	TC
c)	Pressure Leak Test.	-do-	-do-	-do-	TC	2/3	-	1	TC
d)	Partial Discharge Test.	-do-	-do-	-do-	TC	2/3	-	1	TC
10	Sp ² Sealing End	Measurement	100%	Tech. Spec./Appd. Drg./IEEE std.48/ IEC: 62271	TC	2/3	-	1	TC
a)	Appearance & Dimensional check	Electrical	-do-	-do-	TC	2/3	-	1	TC
b)	Dielectric Tests.	-do-	-do-	-do-	TC	2/3	-	1	TC
c)	Pressure Leak Test.	-do-	-do-	-do-	TC	2/3	-	1	TC
d)	Partial Discharge Test.	-do-	-do-	-do-	TC	2/3	-	1	TC
11	Pothole Yard Sealing End	Measurement	100%	Tech. Spec./Appd. Drg./IEEE std.48/ IEC: 62271	TC	2/3	-	1	TC
a)	Appearance & Dimensional check	Electrical	-do-	-do-	TC	2/3	-	1	TC
b)	Dielectric Tests.	-do-	-do-	-do-	TC	2/3	-	1	TC
c)	Pressure Leak Test.	-do-	-do-	-do-	TC	2/3	-	1	TC
d)	Partial Discharge Test.	-do-	-do-	-do-	TC	2/3	-	1	TC
12	Joints	Measurement	100%	Tech. Spec./Appd. Drg./IEEE std.48/ IEC: 62271	TC	2/3	-	1	TC
a)	Appearance & Dimensional Check.	Electrical	-do-	-do-	TC	2/3	-	1	TC
b)	Dielectric Tests.	-do-	-do-	-do-	TC	2/3	-	1	TC
c)	Pressure Leak Test.	-do-	-do-	-do-	TC	2/3	-	1	TC
d)	Partial Discharge Test.	-do-	-do-	-do-	TC	2/3	-	1	TC

Note: a. In 'Inspection Agency' column figure 1, 2 or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP GOI.

Signature
NHPC (QA DEPT.)

Signature & Seal
VENDORS Q.C. DEPT. OR REPRESENTATIVE

IMSQA/IF01
Rev No. - 03
Effective Date - 09.01.2019

3/2/21 2:00 PM
3/2/21 2:00 PM
3/2/21 2:00 PM

5- MODEL QUALITY ASSURANCE PLAN (MQAP) FOR EOT CRANE

Special instructions: -

1. Contractors/Manufacturers/Sub-suppliers are advised to submit QAP for equipments/ system/ materials after incorporating all tests for bought out items, in process inspection and final inspections as per their latest manufacturing practice and Indian/ International Standards (with latest amendments, if any).
2. Contractors/Manufacturers/Sub-suppliers are required to use properly calibrated instruments / equipments during testing/inspection, for which necessary calibration certificates are required to be provided/presented to the Inspecting Officer.
3. Contractors /Manufacturers/Sub-suppliers have to make on their own all arrangements for testing facilities at their works for testing of equipments/materials.
4. One set of complete test certificates as per the requirement of QAP be made available to the NHPC for acceptance.
5. All the records, as per the requirement of QAP may be made available for review by the Inspecting Officer during inspection.
6. Field tests are to be carried out as per the requirements of the contract/purchase order.



गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन (Teesta-V Power station)

ग्राहक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited)

विक्रेता (VENDOR) :

एनआईटी/कय आदेश संदर्भ (NIT/P.O. REFERENCE) :

उपकरण का नाम (NAME OF EQUIPMENT) : EOT Crane

क्र. सं. SR. NO.	ITEM / COMPONENTS & CHARACTERISTICS	जब की प्रकृति NATURE OF CHECKS	जब की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENTS / ACCEPTANCE NORMS	रिकॉर्ड प्रारूप RECORD FORMAT	निरीक्षण एजेंसी (INSPECTION AGENCY)			टिप्पणी REMARKS
						प्रदर्शन Perform	गवाह Witness	सत्यापन Verify	
1	Raw Material								
1.1	Structural Steel (Box Girder, End Trucks, Trolley, Rails, Beam etc.)	Chemical Analysis Mech. Properties Ultrasonic Test (UT for above 19 mm)	Sample/Batch -do- 100%	Appd. drawings/ Tech. specs./ Relevant Standard	TC	3/2	-	1	TC
1.2	Cast/Forged Steel (Wheels, Shafts, Pulley, Pins, Gears, Pinions, Brake Drum, Couplings, Hook etc.)	Chemical Analysis Mech. Properties Ultrasonic Test (UT for above 50 mm)	Sample/Batch -do- 100%	-do-	TC	3/2	-	1	TC
1.3	Bought Out Items								
a)	Drive Motor, Bearing, Gear Box, Plumber Block, EHT Brakes, EM Beakes, Wire Rope, Electrical Cables, Remote Radio Control, Load cell system, Monorail Hoist etc	Make, Type & Rating, Routine Test	100%	-do-	TC	3/2	-	1	TC
b)	Detection devices (Anti collision limit switch, Over load detection device, Load control device, Detection of Brake Wear, Over speed detection device, Circumferential cable staggering on drum, Unbalancing detection device etc) - As applicable	Make, Type & Rating, Routine Test	100%	-do-	TC	3/2	-	1	TC
2	In Process Stage Inspection								
2.1	Welder certification	Visual	100%	-do-	TC	3/2	-	1	TC
2.2	NDT-Welding Fillet Welds	UT, MPI, DPT (as applicable)	-do-	-do-	TC	3/2	-	1	TC
2.3	NDT-Butt Welds (Box Girder, Rope Drums and other full strength welds)	Heat Treatment Chart	100%	-do-	TC	3/2	-	1	TC
2.4	Post Weld Heat Treatment (Fabricated Rope Drums, Gear Box Housing, Forged Crane hooks)		-do-	-do-	TC	3/2	-	1	TC
2.5	Machining								
a)	Surface Finish (Rope drum shaft, Rope Drum grooves, Brake Drum)	Visual/Measurement	-do-	-do-	TC	3/2	-	1	TC
b)	Dimensions	Measurement	-do-	-do-	IR	3/2	-	1	RR
2.6	Sub-Assembly Stage- Drive Mechanism, Hoist / Trolley arrangements, Brakes								
a)	Alignment/Layout	Visual/Measurement	100%	-do-	IR	3/2	-	1	RR
b)	Dimensional check	Visual/Measurement	-do-	-do-	IR	3/2	-	1	RR
c)	Running Performance (Drive Motors, Gear Boxes)-Noise level, Vibration, Temp. rise, Leakage Test - Gear Boxes etc	Visual/Measurement	-do-	-do-	TC	3/2	-	1	TC
d)	Crane Hook-Proof Load Test	Load Test	-do-	-do-	TC	3/2	-	1	TC
e)	NDT-after Proof Load Test Butt Welds (Box Girder, Rope Drums and other full strength welds)	UT, MPI, DPT (as applicable)	-do-	-do-	TC	3/2	-	1	TC
3	Final Inspection/Tests on assembled Crane at manufacturer's works								
3.1	Operator's cabin- Dim. Check & its accessories check (If applicable)	Visual/Measurement	-do-	-do-	JIR	3/2	1	-	CHP
3.2	BOM Checking	Visual	-do-	-do-	JIR	3/2	1	-	CHP

IMS/QA/F-01

Rev-03 Effective date-09.01.19

Signature

NHPCLD (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन (Teesta-V Power station)

उपकरण का नाम (NAME OF EQUIPMENT) : EOT Crane

ग्राहक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited)

विक्रेता (VENDOR) :

एनआईटी/ कय आदेश संदर्भ (NIT/P.O. REFERENCE) :

क्र.सं. SR. NO.	ITEM / COMPONENTS & CHARACTERISTICS	जोच की प्रकृति NATURE OF CHECKS	जोच की मात्रा QUANTUM OF CHECKS	REFERENCE DOCUMENTS / ACCEPTANCE NORMS	रिकॉर्ड प्रारूप RECORD FORMAT	निरीक्षण एजेंसी (INSPECTION AGENCY)			टिप्पणी REMARKS
						प्रदर्शन Perform	गवाह Witness	सत्यापन Verify	
3.3	Dimensional check on assembled crane - bridge structure (Box girders, end trucks) hoisting trolley frame, travelling mechanism	Measurement	100%	Appd. drawings/ Tech. specs./ Relevant Standard	JIR	3/2	1	-	CHP
3.4	Deflection test at Rated load	-do-	-do-	-do-	JIR	3/2	1	-	CHP
3.5	Operational/functional test								
a)	Hoisting and LT & CT Speeds - without load	Measurement	-do-	-do-	JIR	3/2	1	-	CHP
b)	Hoisting and CT Speeds at rated load	-do-	-do-	-do-	JIR	3/2	1	-	CHP
c)	Hoisting and CT travel test at 125% of rated load	-do-	-do-	-do-	JIR	3/2	1	-	CHP
d)	Function of brakes for trolley and hoistings	Visual/Measurement	-do-	-do-	JIR	3/2	1	-	CHP
e)	Creeping speed/ Jog movement with rated load(VVVF Drive)	-do-	-do-	-do-	JIR	3/2	1	-	CHP
f)	Functional Test of Monorail Hoist (if applicable)	-do-	-do-	-do-	JIR	3/2	1	-	CHP
g)	Radio control test of speed control of bridge travels, trolley travel & Hoist motion, control of master contactor, indication and alarm (if applicable) (Bridge travel motion in idle condition only)	-do-	-do-	-do-	JIR	3/2	1	-	CHP
h)	Pendant Control test (if applicable)	-do-	-do-	-do-	JIR	3/2	1	-	CHP
4	Control Panel								
4.1	Resistors, Capacitors, Limit Switches, Master Controllers, Thyristers, VVVF Modules, Transformers, Circuit Breakers, Switches etc. (As applicable)	Electrical Test	-do-	-do-	TC	3/2	-	1	TC
4.2	BOM, Verification of scheme, make and rating of components	Visual	-do-	-do-	JIR	3/2	1	-	CHP
4.3	Cubicle Dimensions	Measurement	-do-	-do-	JIR	3/2	1	-	CHP
4.4	Functional check including HV and IR tests	Visual/Test	-do-	-do-	JIR	3/2	1	-	CHP
4.5	Sequence of operation and interlock tests	Visual/Test	-do-	-do-	JIR	3/2	1	-	CHP
4.6	Protection Test (Single phase protection, over current protection, thermal over load, under voltage protection etc as per approved scheme.) -As applicable	Visual/Test	-do-	-do-	JIR	3/2	1	-	CHP
5	Surface Preparation & Painting	Visual / Measurement	-do-	-do-	TC	3/2	-	1	TC

Note:

a. In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate 'EMPLOYER', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate, JIR-Joint Inspection Report & CHP - Customer Hold Point.

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier calliper, pie tape, surface roughness tester, dial gauge etc.

e. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

f. Material testing shall be conducted from Govt. Lab, NABL Lab or NABL accredited lab having valid Scope of accreditation of all specified tests mentioned in approved QAP. NDT shall be conducted from NABL accredited lab/Govt. approved lab/Level 2 or level 3 certified person.

g. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

h. Site test shall be conducted in presence of Project's Representative only.

IMS/QA/F-01

Rev-03 Effective date-09.01.19

Signature

NHPC LTD (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

06. MODEL QUALITY ASSURANCE PLAN (QAP) FOR CABLING SYSTEM

Special instructions: -

1. Contractors/Manufacturers/Sub-suppliers are advised to submit QAP for equipments/ materials after incorporating all tests for bought out items, in process inspection and final inspections as per their latest manufacturing practice and Indian/ International Standards (with latest amendments, if any).
2. Contractors/Manufacturers/Sub-suppliers are required to use properly calibrated instruments /equipments during testing/inspection, for which necessary calibration certificates are required to be provided/presented to the Inspecting Officer.
3. Contractors/Manufacturers/Sub-suppliers have to make on their own all arrangements for testing facilities at their works for testing of equipments/materials.
4. One set of complete test certificates as per the requirement of QAP be made available to the Inspecting Officer at the time of inspection/testing.
5. All the records, as per the requirement of QAP are to be made available for review by the Inspecting Officer during inspection.
6. Field tests are to be carried out as per the requirements of the contract / purchase order.

21/11/24
25/10/2024

22/11/24
25-09-2024

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : सीसा-व पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Cabling System- 11 kV XLPE cable
एनआईटी/कम्य आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
निर्माता (VENDOR):

क्र.सं. S.N.	मदरिदक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकार्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency		टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	
A	Raw Material and Bought Out Items	Measurement	Sample Plan	Tech. Spec./ IS:5484/IS:8130/Relevant Applicable Standard	TC	3/2	-	TC
1	Copper Conductor, Copper Rod /Aluminium Rod (As Applicable)	Count. Electrical Electrical Mechanical Chemical	-do- -do- -do- -do-	-do- -do- -do- -do-	TC TC TC TC TC	3/2 3/2 3/2 3/2 3/2	- - - - -	TC TC TC TC TC
2	PVC Compound	Measurement	Sampling Plan	Tech. Spec./ IEC/IS Tech. Spec./ IS:5831	TC	3/2	-	TC
a)	Specific Gravity	Thermal	-do-	-do-	TC	3/2	-	TC
b)	T.S. & E.B. before and after Ageing	-do-	-do-	-do-	TC	3/2	-	TC
c)	Loss of mass	-do-	-do-	-do-	TC	3/2	-	TC
d)	Thermal Stability	-do-	-do-	-do-	TC	3/2	-	TC
e)	Oxygen Index	Envl.	-do-	-do-	TC	3/2	-	TC
f)	Temperature Index	Envl.	-do-	-do-	TC	3/2	-	TC
g)	Acid Gas Generation Test	Chemical	-do-	-do-	TC	3/2	-	TC
h)	Smoke Density Test	Envl.	-do-	-do-	TC	3/2	-	TC
i)	Anti Termite & Anti Rodent Test	Chemical	-do-	-do-	TC	3/2	-	TC

Note: a. In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".
g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

IMSQA/IF01
Rev No.- 03
Effective Date- 03.01.2019

Signature
NHPC (QA&DEPT.)

आम्रिष-गु. 25/09/2024

Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

एन.एच.पी.सी. (गु. वि.)
25/09/2024

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
 विक्रेता (VENDOR):

परियोजना (PROJECT): सीसा-व पावर स्टेशन
 उपकरण का नाम (NAME OF EQUIPMENT): Cabling System- 11 KV XLPE cable
 एनआईटी/ क्रय आदेश संदर्भ (NIT / P.O. Reference):

क्र. सं.	S.N.	मंड/अटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency		टिप्पणी Remarks
							प्रदर्शन PERFORM	सत्यापन VERIFY	
3		Copper Tape	Measurement	Sampling Plan	Tech. Spec./ IS 7098-2/Relevant Applicable Standard	TC	3/2	1	TC
a)		Dimension	Mechanical	-do-	-do-	TC	3/2	1	TC
b)		Tensile & Elongation, Annealing test	Electrical	-do-	-do-	TC	3/2	1	TC
c)		Resistivity	Visual	-do-	-do-	TC	3/2	1	TC
d)		Surface Finish	Measurement	-do-	-do-	TC	3/2	1	TC
e)		ID/OD of coil	Mechanical	Sampling Plan	Tech. Spec./ IS:3975/Relevant Applicable Standard	TC	3/2	1	TC
4		Armour Wire /Strip	Mechanical	-do-	-do-	TC	3/2	1	TC
a)		T.S & E.B.	-do-	-do-	-do-	TC	3/2	1	TC
b)		Torsion Test	Electrical	-do-	-do-	TC	3/2	1	TC
c)		Dip test & mass of Zinc coating	Electrical	-do-	-do-	TC	3/2	1	TC
d)		Resistivity	Measurement	-do-	-do-	TC	3/2	1	TC
e)		Dimension	Physical	-do-	-do-	TC	3/2	1	TC
f)		Winding Test	Measurement	Sampling Plan	Tech. Spec./ IEC/ IS Tech.Spec./GTP / IS:7098-2/Relevant Applicable Standard	TC	3/2	1	TC
5		XLPE Compound	Mechanical	-do-	-do-	TC	3/2	1	TC
a)		Sp. Gravity	Electrical	-do-	-do-	TC	3/2	1	TC
b)		Tensile & Elongation (before & after ageing)	Thermal	-do-	-do-	TC	3/2	1	TC
c)		Volume Resistivity	-do-	-do-	-do-	TC	3/2	1	TC
d)		Moisture Content Test/ water absorption	-do-	-do-	-do-	TC	3/2	1	TC
e)		Holset test	-do-	-do-	-do-	TC	3/2	1	TC
f)		Shrinkage Test	-do-	-do-	-do-	TC	3/2	1	TC
6		Semi-conducting compound	Measurement	Sampling Plan	Tech. Spec./ Relevant standard Tech.Spec./GTP / IS:7098-2	TC	3/2	1	TC
a)		Specific Gravity	Mechanical	-do-	-do-	TC	3/2	1	TC
b)		Stripability test(if Applicable)	Electrical	-do-	-do-	TC	3/2	1	TC
c)		Resistivity test				TC	3/2	1	TC

Note: a. In 'Inspection Agency' column figure 1,2,or 3 to be filled. 1- will indicate Employer/ NHPC LTD., 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RP-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then '3/2' shall be considered as '2' under the column "Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP,GOI.

IMSQA/IF01
 Rev No.- 03
 Effective Date- 05.01.2019

Signature
 NHPC /QA&DEPT

Signature & Seal
 (VENDOR'S Q.C. DEPT. OR REPRESENTATIVE)

92121 2111
 दिनेश कुमार (दिने)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 4 of 12

परियोजना (PROJECT) : सीसा-व पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Cabling System- 11 kv XLPE cable

एनआईटी/कम अदेश संदर्भ NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	संदर्भक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency		टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	
7	Accessories Termination kit, cable lugs, Cable Glands, compression type terminal, Button tape, self Adhesive marker etc	Mechanical	Sampling Plan	Tech. Spec./ IS/ IEC/Relevant Applicable Standard	TC	3/2	-	TC
B	In Process Test of Copper/Aluminium conductor (As Applicable)							
	No. of Strands	Visual	Sampling Plan	Tech. Spec./ IS/ IEC/Relevant Applicable Standard	TC	3/2	-	TC
	DC Resistance	Electrical	-do-	-do-	TC	3/2	-	TC
	Lay Direction	Visual	-do-	-do-	TC	3/2	-	TC
	Annealing Test (For Copper Conductor)	Mechanical	-do-	-do-	TC	3/2	-	TC
C	All Type Test as per the IS/IEC Standards	Electrical	Sampling Plan	Tech.Spec./IEC/IS:7098-2	TC	3/2	-	TC
D	Routine Tests							
a)	Embossing/Colour Coding & End Sealing of Cable and Drum packing & marking	Visual	100%	Tech.Spec./Appd.drg./IS:7098-2 & 1554	TC	2/3	-	TC
b)	Conductor Resistance Test	-do-	-do-	-do-	TC	3/2	-	TC
c)	High Voltage Test (At Room Temp.)	-do-	-do-	-do-	TC	3/2	-	TC
d)	PD Test (screened cables)	Electrical	-do-	-do-	TC	3/2	-	TC
D	FINAL TEST							
1	Acceptance Test							
a)	Tensile Test (Al conductor)	Mechanical	Sample Plan	Tech.Spec./Appd.drg./IS:7098-2 / IS:8130	JIR	3/2	1	CHP
b)	Wrapping Test (Al conductor)	Mechanical	-do-	-do-	JIR	3/2	1	CHP
c)	Annealing Test (For Solid Copper Conductor)	Mechanical	-do-	Tech.Spec./Appd.drg./IS:7098-2 / IS:8130	JIR	3/2	1	CHP
c)	Conductor Resistance Test	Electrical	-do-	-do-	JIR	3/2	1	CHP
d)	Thickness of Insulation & Sheath	Measurement	-do-	-do-	JIR	3/2	1	CHP
e)	Hot Set Test for Insulation	Mechanical	-do-	-do-	JIR	3/2	1	CHP

Note: a. In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of 'Inspection' the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform"

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

Signature

NHPC (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

INSQA/IF01

Rev No.- 03

Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

परियोजना (PROJECT) : सीता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Cabling System- 11 kv XLPE cable
एनआईटी का आदेश संदर्भ NIT / P.O. (Reference) :
ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / सोकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी विवाह WITNESS		टिप्पणी Remarks
						प्रदर्शन PERFORM	सत्यापन VERIFY	
f)	T.S. & E.B. of Insulation & Sheath	Mechanical Electrical	Sampling Plan Full drum length	Tech.Spec./Appd.drg./IS:7098-2 -do-	JIR	3/2	1	CHP
g)	Partial Discharge Test (for Screened only)	Electrical	Sampling Plan Full drum length	-do-	JIR	3/2	1	CHP
h)	High Voltage Test (At Room Temp.)	Electrical	Sampling Plan -do-	-do-	JIR	3/2	1	CHP
i)	IR (Volume Resistivity) Test	Electrical	-do-	-do-	JIR	3/2	1	CHP
j)	Test for cross linking for extruded semiconducting screen	Physical	-do-	-do-	JIR	3/2	1	CHP
2	FRLSH Tests							
a)	HCL Gas Generation Test	Chem. Thermal	Sampling Plan	IS 7098-2/ IEC 754(1)	JIR	3/2	1	CHP
b)	Oxygen Index Test	-do-	-do-	Tech. Spec./ IS:7098-2/ ASTM D 2863	JIR	3/2	1	CHP
c)	Temperature Index Test	-do-	-do-	-do-	JIR	3/2	1	CHP
d)	Smoke Density Test	-do-	-do-	Tech.Spec./ASTM D 2843/ IEC 60332-1	JIR	3/2	1	CHP
e)	Flammability Test	Physical	-do-	Tech.Spec./IS:1554/IEC 60331 & 60332	JIR	3/2	1	CHP
f)	Swedish chimney Test	-do-	-do-	Tech.Spec./SS-424-14-75	JIR	3/2	1	CHP
g)	Ladder Test	-do-	-do-	Tech.Spec./IEEE-383/IEC:331 & 332	JIR	3/2	1	CHP
h)	Heat Shock Test	Thermal	-do-	Tech.Spec./IS:1554 & 10810	JIR	3/2	1	CHP
i)	Anti Rodent & Termite Test	Chemical	-do-	Tech. Spec./ IS	TC	3/2	1	TC
3	Check for Embossing and Colour Coding, etc.	Visual	-do-	Tech.Spec./Appd.drg./ IS	JIR	3/2	1	CHP
4	Packing, Marking & End Sealing							
a)	Marking & packing of Cable Drum	Visual	Each Drum	Tech.Spec./Appd.drg./ IS	TC	3/2	1	TC
b)	Cable end Sealing	-do-	Sampling Plan	-do-	JIR	3/2	1	CHP

Note: a. In 'Inspection Agency' column figure 1,2,or 3 to be filled. 1- will indicate Employer/ NHPC LTD., 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then '3/2' shall be considered as '2' under the column "Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP GOI.

Signature
NHPC (QA&I DEPT.)

Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMSQA/IF01
Rev No.- 03
Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-व पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Cabling System- 1.1 kV Cable
प्रदाता (VENDOR) : एनएचपीसी लिमिटेड (NHPC LTD.)

ग्राहक (CLIENT):
सिस्टम (VENDOR):

क्र. सं. S.N.	सद्वस्तु एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानक REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकार्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency	टिप्पणी Remarks
						प्रदर्शन PERFORM	सत्यापन VERIFY
A	Raw Material and Bought Out Items						
1	Aluminium Rod (As Applicable)						
a)	Diameter	Measurement	Sampling Plan	Tech. Spec./ IS:5484 & 8130	TC	3/2	1
b)	Resistivity	Electrical	-do-	-do-	TC	3/2	1
c)	T.S. and E.B.	Mechanical	-do-	-do-	TC	3/2	1
d)	Chemical Composition	Chemical	-do-	-do-	TC	3/2	1
e)	Surface Finish	Visual	-do-	-do-	TC	3/2	1
2	Copper Conductor/ Rod (As Applicable)						
a)	Diameter	Measurement	Sample Plan	Tech. Spec./ IS:8130,613	TC	3/2	1
b)	No. of Strands & Lay Direction	Count.	-do-	-do-	TC	3/2	1
c)	DC Resistance	Electrical	-do-	-do-	TC	3/2	1
d)	Resistivity	Electrical	-do-	-do-	TC	3/2	1
e)	T.S. & E.B.	Mechanical	-do-	-do-	TC	3/2	1
f)	Chemical Composition.	Chemical	-do-	-do-	TC	3/2	1
3	PVC Compound						
a)	Sp. Gravity	Measurement	Sample Plan	Tech. Spec./ IS:191	TC	3/2	1
b)	T.S. & E.B. before and after ageing	Mechanical	-do-	-do-	TC	3/2	1
c)	Loss of Mass	Therm.	-do-	-do-	TC	3/2	1
d)	Thermal Stability	Therm.	-do-	-do-	TC	3/2	1
e)	Oxygen Index	Envi.	-do-	-do-	TC	3/2	1
f)	Temperature Index	Envi.	-do-	-do-	TC	3/2	1
g)	Acid Gas Generation Test	Chem.	-do-	-do-	TC	3/2	1
h)	Smoke density Test	Envi.	-do-	-do-	TC	3/2	1
i)	Anti Termite & Anti Rodent Test	Chem.	-do-	-do-	TC	3/2	1

Note:

- In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'sub-supplier'.
- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
- The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
- At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
- Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
- This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".
- Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP,GOI.

Signature
NHPC (QA&I DEPT)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMSQA/INF01
Rev No.- 03
Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 7 of 12

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Cabling System- 1.1 KV Cable
ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
एनआईटी/ क्रय आदेश संदर्भ (NIT / P.O. Reference) :
सिक्केता (VENDOR):

क्र. सं. S.N.	मद/अटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानक REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकार्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी		टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	
4	XLPE Compound							
a)	Sp. Gravity	Measurement	Sampling Plan	Tech. Spec./ IEC/ IS	TC	3/2	-	TC
b)	Tensile & Elongation (before & after ageing)	Mechanical	-do-	Tech. Spec./GTP / IS:7098-2	TC	3/2	-	TC
c)	Volume Resistivity	Electrical	-do-	-do-	TC	3/2	-	TC
d)	Moisture Content Test/ water absorption	Thermal	-do-	-do-	TC	3/2	-	TC
e)	Hotset test	-do-	-do-	-do-	TC	3/2	-	TC
f)	Shrinkage Test	-do-	-do-	-do-	TC	3/2	-	TC
5	Armour Wire /Strip (if applicable)							
a)	T.S. & E.B.	Mechanical	Sampling Plan	Tech. Spec./ IS:3975	TC	3/2	-	TC
b)	Torsion Test	-do-	-do-	-do-	TC	3/2	-	TC
c)	Dip test & mass of Zinc coating	-do-	-do-	-do-	TC	3/2	-	TC
d)	Resistivity	Electrical	-do-	-do-	TC	3/2	-	TC
e)	Dimension	Measurement	-do-	-do-	TC	3/2	-	TC
f)	Winding Test	Physical	-do-	-do-	TC	3/2	-	TC
B	Type Tests							
	All Type Test as per the IS/IEC Standards	Test	Sample Plan	Tech. Spec./Appd.drg./IS:7098	TC	3/2	-	TC
C	Routine Tests							
a)	Embossing/Colour Coding & End Sealing of	Visual	100%	Tech. Spec./Appd.drg./IS:7098 & 1554	TC	3/2	-	TC
b)	Conductor Resistance Test	Electrical	-do-	Tech. Spec./Appd.drg./IS:7098 & 1554	TC	3/2	-	TC
c)	High Voltage Test (At Room Temp.)	-do-	-do-	-do-	TC	3/2	-	TC

Note: a. In 'Inspection Agency/column figure 1,2,or 3 to be filled. 1- will indicate Employer/ NHPC LTD'. 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COG - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then '3/2' shall be considered as '2' under the column "Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

Signature

NHPC (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMSQA/IF01

Rev No.- 03

Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 8 of 12

परियोजना (PROJECT) : सीता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Cabling System- 1.1 KV Cable
एनआईटी क्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मदवारक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जोच की प्रकृति NATURE OF CHECKS	जोच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृत मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	टिप्पणी Remarks
D	FINAL TEST								
1	Acceptance Tests								
a)	Annealing Test (For Cu)	Mechanical	Sample Plan	Tech. Spec./Appd.drg./IS:7098 & 1554	JIR	3/2	1	-	CHP
b)	Tensile Test (Al conductor)	Mechanical	Sample Plan	Tech. Spec./Appd.drg./IS:7098-2 / IS:8130	JIR	3/2	1	-	CHP
c)	Wrapping Test (Al conductor)	Mechanical	-do-	-do-	JIR	3/2	1	-	CHP
d)	T.S. & E.B. of Insulation & Sheath	-do-	-do-	-do-	JIR	3/2	1	-	CHP
e)	Thickness of Insulation and Sheath	Measurement	-do-	-do-	JIR	3/2	1	-	CHP
f)	Conductor Resistance Test	Electrical	-do-	-do-	JIR	3/2	1	-	CHP
g)	IR (Volume Resistivity) Test	-do-	-do-	-do-	JIR	3/2	1	-	CHP
h)	High Voltage Test (at Room Temp.)	-do-	-do-	-do-	JIR	3/2	1	-	CHP
i)	Hot Set Test for Insulation	Visual	-do-	-do-	JIR	3/2	1	-	CHP
2	FRLSH Tests								
a)	HCL Gas Generation Test	Chem.	Sample Plan	IS 7098/ IEC 754(1)	JIR	3/2	1	-	CHP
b)	Oxygen Index Test	Therm.	-do-	Tech. Spec./ IS:7098/ ASTM 2863	JIR	3/2	1	-	CHP
c)	Temperature Index Test	-do-	-do-	-do-	JIR	3/2	1	-	CHP
d)	Smoke Density Test	-do-	-do-	Tech. Spec./ASTM D 2843/ IEC 61034	JIR	3/2	1	-	CHP
e)	Flammability Test	Flam.	-do-	Tech. Spec./IS:1554/IEC:331 & 332	JIR	3/2	1	-	CHP
f)	Swedish Chimney Test	-do-	-do-	Tech. Spec./SS-424-14-75	JIR	3/2	1	-	CHP
g)	Ladder Test	-do-	-do-	Tech. Spec./IEEE-383/IEC:331 & 332	JIR	3/2	1	-	CHP
h)	Heat Shock Test	Ther.	-do-	Tech. Spec./IS:1554 & 10810	JIR	3/2	1	-	CHP
i)	Anti Rodent & Termite Test	Chem.	-do-	Tech. Spec./ IS	TC	3/2	-	1	TC
3	Check for Embossing and Colour Coding, etc.	Visual	-do-	Tech. Spec./Appd.drg./ IS	JIR	3/2	1	-	CHP
4	Packing, Marking & End Sealing								
a)	Marking & packing of Cable Drum	Visual	Each Drum	Tech. Spec./Appd.drg./ IS	TC	3/2	-	1	TC
b)	Cable end Sealing	-do-	Sample Plan	-do-	JIR	3/2	1	-	CHP

Note: a. In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate Employer/ NHPC LTD; 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier calliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model

QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of

work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP,GOI.

Signature

NHPC (QA&S DEPT.)

(Handwritten Signature)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

(Handwritten Signature and Stamp)

IMSQA/IF01

Rev No. - 03

Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : C

उपकरण का नाम (NAME OF EQUIPMENT) : Cabling System- Control and Instrumentation Cable

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)

विक्रेता (VENDOR):

एनआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference) :

क्र. सं. S.N.	मदिरक एव विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जाच को प्रकृति NATURE OF CHECKS	जाच को मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
A	Raw Material and Bought Out Items								
1	Copper Conductor/ Rod								
a)	Diameter	Measurement	Sample Plan	Tech. Spec./ IS:8130 & 613	TC	3/2	-	1	TC
b)	No. of Strands & Lay Direction	Count.	-do-	-do-	TC	3/2	-	1	TC
c)	DC Resistance	Electrical	-do-	-do-	TC	3/2	-	1	TC
d)	Resistivity	Electrical	-do-	-do-	TC	3/2	-	1	TC
e)	T.S. & E.B.	Mechanical	-do-	-do-	TC	3/2	-	1	TC
f)	Chemical Composition.	Chemical	-do-	Tech. Spec./ IS:191	TC	3/2	-	1	TC
2	PVC Compound								
a)	Sp. Gravity	Measurement	Sample Plan	Tech. Spec./ IEC/IS	TC	3/2	-	1	TC
b)	T.S. & E.B. before and after ageing	Mechanical	-do-	Tech. Spec./ IS:5831	TC	3/2	-	1	TC
c)	Loss of Mass	Therm.	-do-	-do-	TC	3/2	-	1	TC
d)	Thermal Stability	Therm.	-do-	-do-	TC	3/2	-	1	TC
e)	Oxygen Index	Envi.	-do-	-do-	TC	3/2	-	1	TC
f)	Temperature Index	Envi.	-do-	-do-	TC	3/2	-	1	TC
g)	Acid Gas Generation Test	Chem.	-do-	Tech. Spec./ IEC:754-1/ IS:7098	TC	3/2	-	1	TC
h)	Smoke density Test	Envi.	-do-	Tech. Spec./ ASTM D2843-93	TC	3/2	-	1	TC
i)	Anti Termite & Anti Rodent Test	Chem.	-do-	Tech. Spec./ IS	TC	3/2	-	1	TC
3	Armour Wire /Strip (If applicable)								
a)	T.S. & E.B.	Mechanical	Sampling Plan	Tech. Spec./ IS:3975	TC	3/2	-	1	TC
b)	Torsion Test	-do-	-do-	-do-	TC	3/2	-	1	TC
c)	Dip test & mass of Zinc coating	-do-	-do-	-do-	TC	3/2	-	1	TC
d)	Resistivity	Electrical	-do-	-do-	TC	3/2	-	1	TC
e)	Dimension	Measurement	-do-	-do-	TC	3/2	-	1	TC
f)	Winding Test	Physical.	-do-	-do-	TC	3/2	-	1	TC
4	Shielding/Screening (If applicable)	Test	Sampling Plan	Tech. Spec./ IS/IEC/BS	TC	3/2	-	1	TC

3. a. Employer/	3. b. Cost	3. c. Sampling Plan	3. d. Tech. Spec./ S/EC/BS	3. e. C
<p>Note: a. In 'Inspection Agency' column figure 1, 2, or 3 to be filled. 1- will indicate Employer/ 'NHPC LTD', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'</p>				

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e micrometer, vernier caliper, ple tape, surface roughness tester, dial gauge etc. Any additional test required as per the specification shall be carried out.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

... This OAD

7. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above

subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24, 12 2021(Latest Amendment if any) issued by MOP,GOI.

Signature
NHPC (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

MSICAF01

Rev No.- 03

Effective Date- 09.01.2019

$$\frac{220 \text{ m}}{250000 \text{ m}^2} (10)$$

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 10 of 12

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Cabling System- Control and Instrumentation Cable

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)

विक्रेता (VENDOR):

एनआईटी/ क्रय आदेश संदर्भ (NIT / P.O. Reference) :

क्र. सं. S.N.	मद/वटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रकार्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
B	Type Tests	Test	Sample Plan	Tech. Spec./Appd.drg./IS:7098	TC	2/3	-	1	TC
C	Routine Tests	Visual	100%	Tech.Spec./Appd.drg./IS:7098 & 1554	TC	2/3	-	1	TC
a)	Embossing, Colour Coding & End Sealing of Cable and Drum packing & marking	Electrical	-do-	-do-	TC	2/3	-	1	TC
b)	Conductor Resistance Test	-do-	-do-	-do-	TC	2/3	-	1	TC
c)	High Voltage Test (At Room Temp.)	-do-	-do-	-do-	TC	2/3	-	1	TC
D	FINAL TEST	-do-	-do-	-do-	TC	2/3	-	1	TC
1	Acceptance Tests	-do-	-do-	-do-	TC	2/3	-	1	TC
a)	Annealing Test (For Cu)	Mechanical	Sample Plan	Tech.Spec./Appd.drg./IS:7098 & 1554	JIR	2/3	1	-	CHP
b)	T.S. & E.B. of Insulation & Sheath	-do-	-do-	-do-	JIR	2/3	1	-	CHP
c)	Thickness of Insulation and Sheath	Measurement	-do-	-do-	JIR	2/3	1	-	CHP
d)	Conductor Resistance Test	Electrical	-do-	-do-	JIR	2/3	1	-	CHP
e)	IR (Volume Resistivity) Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
f)	High Voltage Test (at Room Temp.)	-do-	-do-	-do-	JIR	2/3	1	-	CHP
g)	Hot Set Test for Insulation	Visual	-do-	-do-	JIR	2/3	1	-	CHP
h)	Embossing & Colour Coding of Cable	-do-	-do-	-do-	JIR	2/3	1	-	CHP
i)	Drum packing, marking & Cable end sealing	-do-	-do-	-do-	JIR	2/3	1	-	CHP
3	FRLS Tests	-do-	-do-	-do-	JIR	2/3	1	-	CHP
a)	HCL Gas Generation Test	Chem.	Sample Plan	IS 7098/ IEC 754(1)	JIR	2/3	1	-	CHP
b)	Oxygen Index Test	Therm.	-do-	Tech. Spec./IS:7098/ ASTM 2863	JIR	2/3	1	-	CHP
c)	Temperature Index Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
d)	Smoke Density Test	-do-	-do-	-do-	JIR	2/3	1	-	CHP
e)	Flammability Test	Flam.	-do-	Tech.Spec./ASTM D 2843/ IEC 61034	JIR	2/3	1	-	CHP
f)	Swidish Chimney Test	-do-	-do-	Tech.Spec./IS:1554/IEC:331 & 332	JIR	2/3	1	-	CHP
g)	Ladder Test	-do-	-do-	Tech.Spec./IEEE-383/IEC:331 & 332	JIR	2/3	1	-	CHP
h)	Heat Shock Test	Ther	-do-	Tech.Spec./IS:1554 & 10910	JIR	2/3	1	-	CHP
i)	Anti Rodent & Termite Test	Chem.	-do-	Tech. Spec./IS	TC	2/3	-	1	TC

Note: a. In Inspection Agency/column figure 1,2,or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above

Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case

subletting of work is not allowed in the tender, then "3/2" shall be considered as "2", under the column "Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/24/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

Signature (QA&DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

Signature

Signature

Signature

Signature

Signature

Signature

Signature

Signature

Signature

IMS/QA/INF01

Rev No. - 03

Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Cable Tray
एनआईटी/क्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मंद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency		टिप्पणी Remarks
						प्रदर्शन PERFORM	सत्यापन VERIFY	
CABLE TRAY								
A	Raw Material & Bought Out Items							
1	(MS Sheet/Channel/Angle)							
a)	Chemical composition	Chem.	Sampling Plan	Tech.Spec./ Appd.drg./IS:1079	TC	2/3	-	1
b)	Physical Properties	Test	-do-	-do-	TC	2/3	-	1
c)	Surface Finish	Visual	-do-	-do-	TC	2/3	-	1
d)	Dimensions	Measurement	-do-	Tech.Spec./ Appd.drg./IS:1852	TC	2/3	-	1
2	Fasteners and Hardware							
a)	Quantity of Zinc Deposit Over Threaded Portion	Visual & Measurement	Sampling Plan	Tech.Spec./ Appd.drg./IS:1367	TC	2/3	-	1
b)	Visual and Dimensional	-do-	-do-	-do-	TC	2/3	-	1
B	In Process Inspection							
1	Galvanising							
	Galvanisation, Chemical Composition of Zinc, Surface Defects, Bath Temperature	Chem./Visual	Sampling plan	Tech.Spec./Appd Drg./IEC61537/IS2629	TC	2/3	-	1
2	Galvanished Trays							
a)	Surface Defects	Visual	Sampling Plan	Tech.Spec./Appd Drg./IEC 61537	TC	2/3	-	1
b)	Uniformity of Zinc Coating	Test	-do-	Tech.Spec./ Appd.drg./IS:2633	TC	2/3	-	1
c)	Thickness of Zinc Coating	Measurement	-do-	Tech.Spec./Appd Drg./IEC 61537	TC	2/3	-	1
d)	Adhesion Test	Physical	-do-	Tech.Spec./ Appd.drg./IS:2629	TC	2/3	-	1
e)	Weight of Zinc Coating	Measurement	-do-	Tech.Spec./ Appd.drg./IS:6745	TC	2/3	-	1
3	Dicromating	Visual	-do-	Tech.Spec./ Appd.drg./IEC 61537	TC	2/3	-	1

Note: a. In 'Inspection Agency' column figure 1, 2, or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of Inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

Signature

NHPC, QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMSQA/INF01

Rev No. - 03

Effective Date- 09.01.2019

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Cable Tray and Cable Junction Box

एनआईटी/क्रय आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)

विक्रेता (VENDOR):

क्र. सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	टिप्पणी Remarks
C	Final Inspection								
1	Dimension/ Finish of Trays & Covers	Measurement & Visual	Sampling Plan	Tech.Spec./Appd Drg./IS:2633/ IEC 61537	JIR	2/3	1	-	CHP
2	Load Capacity	Deflection test	-do-	-do-	JIR	2/3	1	-	CHP
3	Surface defects / Black Spot	Visual	-do-	-do-	JIR	2/3	1	-	CHP
4	Uniformity of Zinc Coating	Measurement	-do-	-do-	JIR	2/3	1	-	CHP
5	Thickness of Zinc Coating	-do-	-do-	-do-	JIR	2/3	1	-	CHP
6	Weight of Zinc Coating	-do-	-do-	-do-	JIR	2/3	1	-	CHP
7	Check for Dicroinating	Visual	-do-	Tech.Spec./ Appd drg./IS:6745	JIR	2/3	1	-	CHP
8	Adhesion Test	Hammer Test	-do-	Tech.Spec./ Appd drg./IS:2629	JIR	2/3	1	-	CHP
	CABLE JUNCTION BOXES								
1	Material & Dimensional check	Physical	Sampling Plan	Tech.Spec./ Appd.drg./GTP	TC	2/3	-	1	TC
2	Sheet thickness check	Measurement	-do-	Tech.Spec./ Appd.drg./GTP	TC	2/3	-	1	TC
3	Make/Type/Rating of terminal blocks	Visual	-do-	Tech.Spec./ Appd.drg./GTP	TC	2/3	-	1	TC
4	Gasket arrangement	Visual	-do-	Tech.Spec./ Appd.drg./GTP	TC	2/3	-	1	TC

Note: a. In 'Inspection Agency/column figure 1,2, or 3 to be filled. 1- will indicate Employer/ NHPC LTD; 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of Inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform"

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

IMSQAINF01

Rev No.- 03

Effective Date- 09.01.2019

Signature

NHPC (QA& DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

7- MODEL QUALITY ASSURANCE PLAN (MQAP) FOR FIRE FIGHTING SYSTEM

Special instructions: -

1. Contractors/Manufacturers/Sub-suppliers are advised to submit QAP for equipments/ system/ materials after incorporating all tests for bought out items, in process inspection and final inspections as per their latest manufacturing practice and Indian/ International Standards (with latest amendments, if any).
2. Contractors/Manufacturers/Sub-suppliers are required to use properly calibrated instruments / equipments during testing/inspection, for which necessary calibration certificates are required to be provided/presented to the Inspecting Officer.
3. Contractors /Manufacturers/Sub-suppliers have to make on their own all arrangements for testing facilities at their works for testing of equipments/materials.
4. One set of complete test certificates as per the requirement of QAP be made available to the NHPC for acceptance.
5. All the records, as per the requirement of QAP may be made available for review by the Inspecting Officer during inspection.
6. Field tests are to be carried out as per the requirements of the contract/purchase order.



उपस्कर का नाम (NAME OF EQUIPMENT) : Fire Fighting System

उपकरण का नाम (NAME OF EQUIPMENT) : Fire Fighting System

क्र. सं. SR. NO.	मद/इटम एवं विशेषता ITEM / COMPONENTS & CHARACTERISTICS	जब की प्रकृति NATURE OF CHECKS	जब की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENTS/ ACCEPTANCE NORMS	रिकॉर्ड प्रारूप RECORD FORMAT	निरीक्षण एजेंसी (INSP. AGENCY)	गवाह Witness	सत्यापन Verify	टिप्पणी REMARKS
A	BOUGHT OUT ITEMS								
1	Deluge Valve								
a)	Make & Rating	Visual	100%	Appd. drawings/ Tech. specs./ Relevant Standard	TC	3/2	-	1	TC
b)	Material Test	Physical/Chemical	Sample/lot	-do-	TC	3/2	-	1	TC
c)	Performance Test	Test	Sample/lot	-do-	JIR	3/2	1	-	CHP
d)	Dimension Check	Measurement	Sample/lot	-do-	JIR	3/2	1	-	CHP
e)	Hydrostatic Body & Seat Test	Test	Sample/lot	-do-	JIR	3/2	1	-	CHP
f)	Painting / Preservation	Visual & Measurement	100%	-do-	TC	3/2	-	1	TC
2	Sprinkler System								
a)	Make & Rating	Visual	100%	-do-	TC	3/2	-	1	TC
b)	Hydrostatic Test	Test	100%	-do-	TC	3/2	-	1	TC
3	Projectors / Sprayers Nozzle								
a)	Make & Rating	Visual	100%	-do-	TC	3/2	-	1	TC
b)	Material Test	Physical/Chemical	Sample/Lot	-do-	TC	3/2	-	1	TC
c)	Performance Tests	Test	100%	-do-	TC	3/2	-	1	TC
4	Fire Detector [Automatic Fire Detector, Aspirator type Smoke Detector, DLHS Cable, Multi sensors (Smoke & Heat), Optical Beam detector, Photo-electric detector, Thermal Detector, Flame Detector etc.]								
a)	Make & Rating	Visual	100%	-do-	TC/COC	3/2	-	1	TC/COC
b)	Performance Test	Visual	100%	-do-	TC/COC	3/2	-	1	TC/COC
5	Centrifugal Pump/Submersible Pump								
a)	Make & Rating	Visual	100%	-do-	JIR	3/2	1	-	CHP
b)	Performance Test	Test	1/Type	-do-	JIR	3/2	1	-	CHP
c)	Material Test for Impeller, Casing & Shaft	Physical/Chemical	-do-	-do-	TC	3/2	-	1	TC
6	Booster Pump (Electric/Diesel)								
a)	Make & Rating	Visual	100%	-do-	TC	3/2	-	1	TC
b)	Performance Test	Test	1/Type	-do-	TC	3/2	-	1	TC
c)	Material Test for Impeller, Casing & Shaft	Physical/Chemical	-do-	-do-	TC	3/2	-	1	TC
7	Electrical Motor								
a)	Make & Rating	Visual	100%	-do-	TC	3/2	-	1	TC
b)	Routine Test	Electrical	1/Type	-do-	TC	3/2	-	1	TC
8	Non Returning Valve, Gate/Sluice Valve, Hydrant/Landing Valve etc								
a)	Dimension Test	Measurement	100%	-do-	JIR	3/2	1	-	CHP
b)	Make & Rating	Visual	100%	-do-	JIR	3/2	1	-	CHP
c)	Hydrostatic Body & Seat Test	Test	-do-	-do-	JIR	3/2	1	-	CHP
d)	Water Tightness Test (As applicable)	Test	-do-	-do-	JIR	3/2	1	-	CHP
e)	Flaw Detection Test for Stems(As applicable)	Test	-do-	-do-	TC	3/2	-	1	TC
f)	Material Test	Physical/Chemical	Sample/Lot	-do-	TC	3/2	-	1	TC

MS/QAI/F-01
Rev-03 Effective date-09.01.19

Signature
NHPC LTD (QA&I DEPT.)

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VENDORS Q.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN)

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन (Teesta-V Power station)

ग्राहक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited)

विक्रेता (VENDOR) :

एनआईटी/कंपनी/संदर्भ (NIT/P.O. REFERENCE) :

उपकरण का नाम (NAME OF EQUIPMENT) : Fire Fighting System

क्र. सं. SRL NO.	मद/अटक एवं विशेषता ITEM / COMPONENTS & CHARACTERISTICS	जाँच की प्रकृति NATURE OF CHECKS	जाँच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENTS / ACCEPTANCE NORMS	रिकॉर्ड प्रारूप RECORD FORMAT	निरीक्षण एजेंसी (INSPECTION AGENCY) प्रदर्शन Perform	गवाह Witness	सत्यापन Verify	टिप्पणी REMARKS
9)	Over Head Fire Tank/Metallic Tank								
a)	Visual & Dimensional Check	Visual & Measurement	100%	Appd. drawings/ Tech. specs./ Relevant Standard	TC	3/2	-	1	TC
b)	Leakage Test (Water filling)	Test	100%	-do-	TC	3/2	-	1	TC
c)	Material Test	Chem & Mech	Sample Plan	-do-	TC	3/2	-	1	TC
d)	Paint Shade & Surface Finish	Visual & Measurement	100%	-do-	TC	3/2	-	1	TC
10)	Fire Extinguishers Foam Type , DCP Type ,CO ₂ Type etc								
a)	Make & Rating	Visual	100%	-do-	TC	3/2	-	1	TC
b)	Material Test	Physical/Chemical	Sample/Lot	-do-	TC	3/2	-	1	TC
c)	Fire Test	Test	Type Test	-do-	TC	3/2	-	1	TC
d)	Discharge Performance Test	Test	Sample Plan	-do-	TC	3/2	-	1	TC
e)	Leakage Test/Hydrostatic Pressure Test	Test	Sample Plan	-do-	TC	3/2	-	1	TC
f)	Burst Pressure Test	Test	Sample Plan	-do-	TC	3/2	-	1	TC
11)	Twin Basket Strainers/ Line Filter/Automatic self cleaning Filter etc								
a)	Make & Rating	Visual	100%	-do-	JIR	3/2	1	-	CHP
b)	Functional Check (As applicable)	Test	Sample Plan	-do-	JIR	3/2	1	-	CHP
c)	Material Test	Physical/Chemical	Sample/Lot	-do-	TC	3/2	-	1	TC
d)	Hydrostatic Test	Test	100%	-do-	JIR	3/2	1	-	CHP
12)	Pressure Gauge								
a)	Make & Rating	Visual	100%	-do-	TC	3/2	-	1	TC
b)	Calibration Check	Test	100%	-do-	TC	3/2	-	1	TC
c)	Functional Test	-do-	100%	-do-	TC	3/2	-	1	TC
13)	Fire Hose								
a)	Make & Rating	Visual	100%	-do-	TC	3/2	-	1	TC
b)	Material Test	Physical/Chemical	100%	-do-	TC	3/2	-	1	TC
c)	Hydrostatic Test	Test	Sample	-do-	TC	3/2	-	1	TC
14)	Cables & Wires								
a)	Make & Rating	Visual	100%	-do-	TC	3/2	-	1	TC
b)	Routine Tests	Electrical	100%	-do-	TC	3/2	-	1	TC
15)	Headers & Pipings								
a)	Make & Size	Visual	100%	-do-	TC	3/2	-	1	TC
b)	Material Test	Physical/Chemical	Sample/Lot	-do-	TC	3/2	-	1	TC
c)	Hydrostatic Test	Test	Sample/Size	-do-	TC	3/2	-	1	TC
16)	Fire Telephone/ Microprocessor based digital EPABX system (As applicable)								
a)	Make & Model	Visual	100%	-do-	TC	3/2	-	1	TC
b)	Functional Test	Electrical	100%	-do-	TC	3/2	-	1	TC
17)	Fire Protection Door								
a)	Dimensional Check	Measurement	100%	-do-	TC	3/2	-	1	TC
b)	Material Test	Physical/Chemical	Sample/Lot	-do-	TC	3/2	-	1	TC

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Rev-03 Effective date-09.01.19

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क्र. सं. SR. NO.	मंडल/उपकरण एवं विशेषता ITEM /COMPONENTS & CHARACTERISTICS	जाँच की प्रकृति NATURE OF CHECKS	जाँच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानक REFERENCE DOCUMENTS/ ACCEPTANCE NORMS	रिकॉर्ड प्रारूप RECORD FORMAT	प्रदर्शन Perform	गवाह Witness	निरीक्षण एजेंसी (INSP.AGENCY) सत्यापन Verify	टिप्पणी REMARKS
18)	Branch Pipe with Nozzle	Visual	100%	Appd. drawings/ Tech. specs. / Relevant Standard	TC	3/2	-	1	TC
a)	Make & Rating	Physical/Chemical	Sample/Lot	-do-	TC	3/2	-	1	TC
b)	Material Test	Test	Sample	-do-	TC	3/2	-	1	TC
c)	Hydrostatic Test								
19)	Hose Cabinet (Box)	Visual	100%	-do-	TC	3/2	-	1	TC
a)	Make & Rating	Physical/Chemical	Sample/Lot	-do-	TC	3/2	-	1	TC
b)	Material Test	Measurement	100%	-do-	TC	3/2	-	1	TC
c)	Dimension check								
20)	Hose Reel Drum	Visual	100%	-do-	TC	3/2	-	1	TC
a)	Make & Rating	Physical/Chemical	Sample/Lot	-do-	TC	3/2	-	1	TC
b)	Material Test	Measurement	100%	-do-	TC	3/2	-	1	TC
21)	Modules, Manual Call Point, Hooter Cum Strobe, Response Indicator, Manual pull stations and notification device (Fire Horns/alarms/bells) etc	Visual	100%	-do-	TC	3/2	-	1	TC
a)	Make & Rating	Visual	100%	-do-	TC/COC	3/2	-	1	TC/COC
b)	Performance Test	Visual	100%	-do-	TC/COC	3/2	-	1	TC/COC
22)	Pressure Gauge, Pressure Switch, Level Switch, Flow Switch, Differential Pressure Gauge, Differential Pressure Switch, Level Indicator, Solenoid Valve etc	Visual	100%	-do-	TC	3/2	-	1	TC
a)	Make & Rating	Visual	Sample/Lot	-do-	TC	3/2	-	1	TC
b)	Functional Test	Test		-do-	TC	3/2	-	1	TC
23)	Installation Control Valve	Visual	100%	-do-	TC	3/2	-	1	TC
a)	Make & Rating	Visual	100%	-do-	TC	3/2	-	1	TC
b)	Functional Test	Test		-do-	TC	3/2	-	1	TC
24)	Air Release Valve	Visual	100%	-do-	TC	3/2	-	1	TC
a)	Make & Rating	Physical/Chemical	Sample/Lot	-do-	TC	3/2	-	1	TC
b)	Material Test	Test	Sample/Lot	-do-	TC	3/2	-	1	TC
c)	Hydrostatic Test								
25)	Y Strainer (If applicable)	Visual	100%	-do-	TC	3/2	-	1	TC
a)	Make & Rating	Physical/Chemical	Sample/Lot	-do-	TC	3/2	-	1	TC
b)	Material Test	Test	Sample/Lot	-do-	TC	3/2	-	1	TC
c)	Hydrostatic Test								
26)	Deluge Valve Local Control Panel & Panel for Pump	Visual	100%	-do-	JIR	3/2	1	-	CHP
a)	Make & Rating	Visual	100%	-do-	JIR	3/2	1	-	CHP
b)	BOM Check (As applicable)	Visual	100%	-do-	JIR	3/2	1	-	CHP
c)	Dimensional Check	Measurement	100%	-do-	JIR	3/2	1	-	CHP
d)	Functional Test (As applicable)	Test	100%	-do-	JIR	3/2	1	-	CHP
e)	HV & IR Test (As applicable)	Electrical	100%	-do-	JIR	3/2	1	-	CHP
27)	Fire Barrier, penetration seals, Fire Damper, Fireman Suit, Breathing Apparatus, Exit Sign Board etc								
a)	Make & Rating	Visual	100%	-do-	TC/COC	3/2	-	1	TC/COC
28)	Tools & Instruments etc.	Visual	100%	-do-	TC/COC	3/2	-	1	TC/COC
a)	Make & Rating	Visual	100%	-do-	TC/COC	3/2	-	1	TC/COC

ग्राहक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited)
विक्रेता (VENDOR) :

क्र.सं. SR. NO.	वस्तु/घटक एवं विशेषता ITEM /COMPONENTS & CHARACTERISTICS	जाँच की प्रकृति NATURE OF CHECKS	जाँच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENTS/ ACCEPTANCE NORMS	रिकॉर्ड प्रारूप RECORD FORMAT	निरीक्षण एजेंसी (INSPECTION AGENCY)			टिप्पणी REMARKS
						प्रदर्शन Perform	गवाह Witness	सत्यापन Verify	
29)	Microprocessor based Main Fire Alarm Control Panel, Repeater Panel etc			Appd. drawings/ Tech. specs./ Relevant Standard	TC/COC	3/2	-	1	TC/COC
a)	Visual & Dimensional Check.	Visual & Measurement	100%		TC/COC	3/2	-	1	TC/COC
b)	Checking of BOM	Visual	100%	-do-	TC/COC	3/2	-	1	TC/COC
c)	HV & IR Test (if applicable)	Electrical	100%	-do-	TC/COC	3/2	-	1	TC/COC
d)	Scheme Check(Including change over from Primary to Secondary Supply and vice-versa.)	Test	100%	-do-	TC/COC	3/2	-	1	TC/COC
e)	Provision of necessary contacts and/or ports for integration with plant SCADA system for alarm and monitoring of fire fighting system.	Visual	100%	-do-	TC/COC	3/2	-	1	TC/COC
30)	Battery Charger (with Battery Bank) -If applicable								
a)	Make & Rating for Battery Bank	Visual	100%	-do-	TC	3/2	-	1	TC
b)	BOM Check	Visual	100%	-do-	TC	3/2	-	1	TC
c)	Dimensional Check	Measurement	100%	-do-	TC	3/2	-	1	TC
d)	Functional Test	Test	100%	-do-	TC	3/2	-	1	TC
e)	HV & IR Test (if applicable)	Electrical	100%	-do-	TC	3/2	-	1	TC
f)	Battery Back-up Checking	Test	100%	-do-	TC	3/2	-	1	TC
31)	Fire Alarm Printing device								
a)	Make & Rating	Test	100%	-do-	TC/COC	3/2	-	1	TC/COC
b)	Functional Test	Test	100%	-do-	TC/COC	3/2	-	1	TC/COC
32)	Laptop based Work station and Video display units with LED monitors								
a)	Make & Rating	Test	100%	-do-	TC/COC	3/2	-	1	TC/COC
b)	Functional Test	Test	100%	-do-	TC/COC	3/2	-	1	TC/COC

Note: a. In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate, COC- Certificate of conformity, CHP - Customer Hold Point & JIR-Joint Inspection Report.

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
d. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

e. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by
f. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

g. Material testing shall be conducted from Govt. Lab, NABL Lab or NABL accredited lab having valid Scope of accreditation of all specified tests mentioned in approved QAP. NDT shall be conducted from NABL accredited lab/Govt. approved lab/Level 2 or level 3 certified person.



Signature
NHPCL LTD (QA&I DEPT.)

Signature & seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

1. Contractors/Manufacturers/Sub-suppliers are advised to submit QAP for equipment/ materials after incorporating all tests for bought out items, in process inspection and final inspections as per their latest manufacturing practice and Indian/ International Standards (with latest amendments, if any).

2. Contractors/Manufacturers/Sub-suppliers are required to use properly calibrated instruments/equipment during testing/inspection, for which necessary calibration certificates are required to be provided/presented to the Inspecting Officer.
3. Contractors/Manufacturers/Sub-suppliers has to make on their own all arrangements for testing facilities at their works for testing of equipment/materials.
4. One set of complete test certificates as per the requirement of QAP be made available to the Inspecting Officer at the time of inspection/testing.
5. All the records, as per the requirement of QAP are to be made available for review by the Inspecting Officer during inspection.

6. Field tests are to be carried out as per the requirements of the contract / purchase order.

$\frac{212}{218} \times \frac{7}{9} = 0.97$

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Illumination System

एनआईटी/कम्युनिकेशन संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)

विक्रेता (VENDOR):

क्र.सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज़ / स्वीकृत मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी/Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
A	Luminaries								
1	Raw Material								
1	Aluminium Casting								
a)	Dimensional	Measurement	Sample Plan	Tech. Spec./Appd. drg./ IS-617/IEC/Relevant Standard	TC	3/2	-	1	TC
b)	Surface finish	Visual	-do-	-do-	TC	3/2	-	1	TC
c)	Chemical composition	Chemical test	-do-	-do-	TC	3/2	-	1	TC
d)	Weight	Measurement	-do-	Tech. Spec./Appd. drg./IEC/IS	TC	3/2	-	1	TC
2	PVC Wire								
a)	Make & Rating	Visual	100%	Tech. Spec./Appd. drg./IEC/IS	TC	3/2	-	1	TC
b)	Dimensional conformity (Conductor/Insulation)	Measurement	Sample	Tech. Spec./Appd. drg./IEC	TC	3/2	-	1	TC
c)	HV test	Electrical	-do-	Tech. Spec./IS / IEC	TC	3/2	-	1	TC
d)	Surface finish/colour	Visual	-do-	As per Tech.Specification.	TC	3/2	-	1	TC
e)	IR Test	Electrical	-do-	-do-	TC	3/2	-	1	TC
3	Paint								
a)	Paint shade	Visual	100%	Tech. Spec./Appd. drg./IEC/IS	TC	3/2	-	1	TC
b)	Viscosity	Measurement	-do-	-do-	TC	3/2	-	1	TC
4	LED Driver								
a)	Make & Rating	Visual	Sample Plan	Tech. Spec./Appd. drg./IEC/IS	TC	3/2	-	1	TC
b)	HV test & IR Test	Electrical	-do-	-do-	TC	3/2	-	1	TC
c)	Functional test	-do-	-do-	-do-	TC	3/2	-	1	TC

Note:

a. In 'Inspection Agency' column figure 1, 2, or 3 to be filled. 1- will indicate Employer/ NHPC LTD, 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model

QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of

work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform"

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

Signature

NHPC (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMS/QA/IF01

Rev No. - 03

Effective Date- 09.01.2019

डिप्टी-मैनेजर
किसी 25/09/2024

एनएचपीसी
निरीक्षण एजेंसी

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 3 of 6

परियोजना (PROJECT) : तीस्ता-IV पावर स्टेशन

उपकरण का नाम (NAME OF EQUIPMENT) : Illumination System

एनआईटी क्रम आदेश संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)

निर्देश (VENDOR):

क्र.सं. S.N.	मद/घटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
II)	Luminaries (Assembly)								
1	Final Inspection - Type tests								
a)	Endurance test	Test	Sample	Tech.Spec./ Appd.Drg./IS/ IEC	TC	3/2	-	1	TC
b)	Heat run test	-do-	-do-	-do-	TC	3/2	-	1	TC
c)	IP Class	-do-	-do-	-do-	TC	3/2	-	1	TC
d)	IR & HV Test	Electrical	-do-	-do-	TC	3/2	-	1	TC
e)	Photometric Test	-do-	-do-	-do-	TC	3/2	-	1	TC
2	Routine Tests								
a)	Dimensional conformity & visual examination	Measurement	100%	-do-	TC	3/2	-	1	TC
b)	IR & HV Test	Electrical	-do-	-do-	TC	3/2	-	1	TC
c)	Photometric Test(As Applicable)	-do-	-do-	-do-	TC	3/2	-	1	TC
3	Acceptance Tests								
a)	Make, Model & Rating	Visual	Sample	-do-	JIR	3/2	1	-	CHP
b)	Dimensional conformity & visual examination	Measurement / Visual	Sample	-do-	JIR	3/2	1	-	CHP
c)	Assembly / layout of components	Visual	-do-	-do-	JIR	3/2	1	-	CHP
d)	Provision of earthing	-do-	-do-	-do-	JIR	3/2	1	-	CHP
e)	IR & HV Test	Electrical	-do-	-do-	JIR	3/2	1	-	CHP

Note:

- In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate Employer/ 'NHPC LTD', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
- The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
- At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
- Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender, in case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

IMS/QA/INF01
Rev No.- 03
Effective Date- 09.01.2019

Signature

NHPC (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

दिनांक 21/11/2021
Dr. Jyoti Chakraborty (DR)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 4 of 6

परियोजना (PROJECT) : रोस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Illumination System
एनआईटी क्रय अदेशा संदर्भ (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	सद/घटक एवं विशेषता ITEM/COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	सिरोलिण एजेंसी		टिप्पणी Remarks
						प्रदर्शन PERFORM	सत्यापन VERIFY	
B	ILLUMINATION SYSTEM - LIGHTING							
1	PANELS / DISTRIBUTION BOARDS							
a)	Raw Materials & Bought Out Items							
b)	Dimension (Size of sheet, Uniformity of thickness, surface finish,)	Measurement	Sample Plan	Tech. Spec./Appd.drg./IS:513/IEC/Relevant Standard	TC	2/3	1	TC
2	Hardness & Bend test	Mechanical	-do-	-do-	TC	2/3	1	TC
a)	Copper/ Copper Alloy Flats for Bus-bars & Links							
b)	Dimension	Measurement	-do-	Tech. Spec./Appd.drg./IS:613/IEC	TC	2/3	1	TC
c)	Hardness & Bend test	Mechanical	-do-	Tech. Spec./Appd.drg./IS:191/IEC	TC	2/3	1	TC
d)	Tensile Strength	-do-	-do-	Tech. Spec./Appd.drg./IS:1897/IEC	TC	2/3	1	TC
e)	Chemical Composition.	Chemical	-do-	Tech. Spec./Appd.drg./IS:6160/IEC	TC	2/3	1	TC
3	Conductivity	Electrical	-do-	Tech. Spec./Appd.drg./IEC	TC	2/3	1	TC
a)	Aluminium/ Aluminium alloys Flats for Bus bars. (If applicable)							
b)	Dimension	Measurement	-do-	Tech. Spec./Appd.drg./IS:5082/IEC/Relevant Standard	TC	2/3	1	TC
c)	Bend Test	Mechanical	-do-	-do-	TC	2/3	1	TC
d)	Tensile Strength	-do-	-do-	-do-	TC	2/3	1	TC
e)	Chemical Composition.	Chemical	-do-	-do-	TC	2/3	1	TC
4	Conductivity	Electrical	-do-	-do-	TC	2/3	1	TC
a)	PVC Wire							
b)	Make, Type, Rating	Visual	100%	Tech. Spec./Appd.drg./IS/IEC	TC	3/2	1	TC
c)	Dimensions (conductor, insulation) & Colour	Measurement	-do-	-do-	TC	3/2	1	TC
	Routine Test	Visual	-do-	-do-	TC	3/2	1	TC

Note:

- In 'Inspection Agency' column figure 1,2,or 3 to be filled. 1- will indicate Employer/ NHPC LTD.; 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Certificate of Conformance
- The firm shall obtain acceptance/clearance of finished product for further activities based on "Test Certificates & Internal Report (IR)
- At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
- Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
- This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".
- Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no.-23/24/2020 -&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

Signature

NHPC (QA&I DEPT.)

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

MSQA/INF01
Rev No.- 03
Effective Date- 09.01.2019

21/12/2021
21/12/2021 (18)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 5 of 6

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Illumination System
एनआईटी/कॉम अदरस सद्धमे (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मदयच्छक एवं विशेषता ITEM/COMPONENT & CHARACTERISTICS	जांच की प्रकृति NATURE OF CHECKS	जांच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकॉर्ड फॉर्मेट RECORD FORMAT	प्रदर्शन PERFORM	निरीक्षण एजेंसी गवाह WITNESS	सत्यापन VERIFY	टिप्पणी Remarks
5	MCCB, MCB, ELCB, Power & Auxiliary Contactors, Timer, Annunciater, Receptacle, Switches, Control Switches, Transducer, Current Transformer, Potential Transformer, Electrical Meters (Ammeter, Voltmeter, Energy meter), Indicator lamp, TB, Fuse, Space Heater, Thermostat etc. (As Applicable) Make, Model & Rating	Visual Test	100% -do-	Tech. Spec./Appd.Drg./IS/IEC Code -do-	TC TC	3/2 2/3	- -	1 1	TC TC
a)	Routine Test	Visual	100%	Tech. Spec./Appd.Drg./IS/IEC Code	TC	3/2	-	1	TC
b)	Final Inspection - Lighting Panels/ Distribution Boards	Test	-do-	-do-	TC	2/3	-	1	TC
II	Mechanical checks	Measurement	100%	Tech. Spec./Appd.Drg./IS.8623/IEC	JIR	3/2	1	-	CHP
1	Checking for Panel Dimensions, Sheet Thickness, Paint Shade & Thickness etc.	Visual	-do-	-do-	JIR	3/2	1	-	CHP
a)	BOM Verifications	-do-	-do-	-do-	JIR	3/2	1	-	CHP
b)	General Layout & Name Plate Details	-do-	-do-	-do-	JIR	3/2	1	-	CHP
c)	Mounting of Components and Accessibility	-do-	-do-	-do-	JIR	3/2	1	-	CHP
d)	Mechanical Operation of Equipment	Mechanical	-do-	-do-	JIR	3/2	1	-	CHP
e)	Electrical Checks	Electrical	100%	-do-	JIR	3/2	1	-	CHP
2	Wiring and Continuity Check	-do-	-do-	-do-	JIR	3/2	1	-	CHP
a)	Checking for Scheme & Interlocking	-do-	-do-	-do-	JIR	3/2	1	-	CHP
b)	IR Test (before & after HV Test)	-do-	-do-	-do-	JIR	3/2	1	-	CHP
c)	HV Test	-do-	-do-	-do-	JIR	3/2	1	-	CHP
d)	Electrical Operation of Equipment	-do-	-do-	-do-	JIR	3/2	1	-	CHP

Note: a. In 'Inspection Agency' column figure 1,2,or 3 to be filled. 1- will indicate Employer/ NHPC LTD., 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Certificate of Conformance
c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)
d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.
e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform".
g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

Signature
NHPC (QA&DEPT.)

Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

INSQA/INF01
Rev No.- 03
Effective Date- 09.01.2019

एडिशनल सील
Date 21/11/2021

QUALITY ASSURANCE PLAN (MODEL)

Page 6 of 6

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन
उपकरण का नाम (NAME OF EQUIPMENT) : Illumination System
एनआईटी/ क्रम अदिश सदस्य (NIT / P.O. Reference) :

ग्राहक (CLIENT): एनएचपीसी लिमिटेड (NHPC LTD.)
विक्रेता (VENDOR):

क्र. सं. S.N.	मदभटक एवं विशेषता ITEM/ COMPONENT & CHARACTERISTICS	जोच की प्रकृति NATURE OF CHECKS	जोच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रिकार्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी Inspecting Agency			टिप्पणी Remarks
						प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
C	ILLUMINATION SYSTEM - OTHER								
1	Lighting Pole and High Masts System								
a)	Raw Material	Mech./Chem. Visual	Sample 100%	Tech.Spec./Appd.Drg./IS/IEC Code	TC	2/3	-	1	TC
b)	Checking of BOM and Surface Finish	Visual	Sample	-do-	JIR	3/2	1	-	CHP
c)	Dimensional Checking	Test	-do-	-do-	JIR	3/2	1	-	CHP
d)	Routine Test	-do-	-do-	-do-	JIR	3/2	1	-	CHP
2	Aluminium Ladder & Adjustable Platform								
a)	Raw Material	Mech./Chem. Measurement	Sample Plan	Tech.Spec./Appd.Drg./IS/IEC Code	TC	2/3	-	1	TC
b)	Dimensional Check	Test	-do-	-do-	TC	3/2	-	1	TC
c)	Routine Test	-do-	-do-	-do-	TC	3/2	-	1	TC
3	Junction Box, Switchboard & Receptacle								
a)	Raw Material	Mech./Chem. Measurement	Sample Plan	Tech.Spec./Appd.Drg./IS/IEC Code	TC/COC	2/3	-	1	TC/COC
b)	Dimensional Check, layout & Name Plate	Test	-do-	-do-	TC/COC	3/2	-	1	TC/COC
c)	Routine Test	-do-	-do-	-do-	TC/COC	3/2	-	1	TC/COC
4	Cables & Wires and Wiring Conduits								
a)	Raw Material	Mech./Chem. Measurement	Sample Plan	Tech.Spec./Appd.Drg./IS/IEC Code	TC/COC	2/3	-	1	TC/COC
b)	Dimensional Check	Test	-do-	-do-	TC/COC	3/2	-	1	TC/COC
c)	Routine Test	-do-	-do-	-do-	TC/COC	3/2	-	1	TC/COC
5	Lighting/ Distribution Transformer								
a)	Raw Material	Mech./Chem. Test	Sample Plan	Tech.Spec./Appd.Drg./IS/IEC Code	TC/COC	2/3	-	1	TC/COC
b)	Routine Test	-do-	-do-	-do-	TC/COC	3/2	1	-	TC/COC
6	Inverter, UPS & Battery								
a)	Raw Material	Mech./Chem. Test	Sample Plan	Tech.Spec./Appd.Drg./IS/IEC Code	TC	2/3	-	1	TC
b)	Routine Test	-do-	-do-	-do-	JIR	3/2	1	-	CHP

Note:

- In 'Inspection Agency' column figure 1, 2 or 3 to be filled. 1- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
- In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Certificate of Conformance
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- Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.
- This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column "Perform"
- Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

Signature
NHPC (QA&I DEPT.)

Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMS/QA/IF01
Rev No. - 03
Effective Date- 09.01.2019

ए.पी.सी. लि.
निरीक्षण एजेंसी

9- MODEL QUALITY ASSURANCE PLAN (MQAP) FOR DG SET

Special instructions: -

1. Contractors/Manufacturers/Sub-suppliers are advised to submit QAP for equipments/ system/ materials after incorporating all tests for bought out items, in process inspection and final inspections as per their latest manufacturing practice and Indian/ International Standards (with latest amendments, if any).
2. Contractors/Manufacturers/Sub-suppliers are required to use properly calibrated instruments / equipments during testing/inspection, for which necessary calibration certificates are required to be provided/presented to the Inspecting Officer.
3. Contractors /Manufacturers/Sub-suppliers have to make on their own all arrangements for testing facilities at their works for testing of equipments/materials.
4. One set of complete test certificates as per the requirement of QAP be made available to the NHPC for acceptance.
5. All the records, as per the requirement of QAP may be made available for review by the Inspecting Officer during inspection.
6. Field tests are to be carried out as per the requirements of the contract/purchase order.



गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 2 of 4

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन (Teesta-V Power station)
ग्राहक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited)
विक्रेता (VENDOR) :

उपकरण का नाम (NAME OF EQUIPMENT) : DG SET

एनआईटी/क्रय आदेश संदर्भ (NIT/P.O. REFERENCE) :

क्र. सं. SR. NO.	मद/घटक एवं विशेषता ITEM /COMPONENTS & CHARACTERISTICS	जाँच की प्रकृति NATURE OF CHECKS	जाँच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानक REFERENCE DOCUMENTS/ ACCEPTANCE NORMS	रिकॉर्ड प्रारूप FORMAT	निरीक्षण एजेंसी (NSP- AGENCY)		टिप्पणी REMARKS
						प्रदर्शन Perform	गवाह Witness	
1	Engine				TC			
a)	Make,model & Capacity	Visual	100%	Tech.Spec./Appd.Drg./ Relevant Standard	TC	3/2	-	TC
b)	Performance Test of Complete Engine	Visual	100%	-do-	TC	3/2	-	TC
2	Electronic governor							
a)	Make & model	Visual	100%	-do-	TC/COC	3/2	-	TC/COC
b)	Performance test	-do-	-do-	-do-	TC	3/2	-	TC
3(a)	Fuel Tank (If applicable)							
i)	Dimensional check	Measurement	100%	-do-	JIR	3/2	1	CHP
ii)	Material test (Chem. & Mechanical)	Test	sample plan	-do-	TC	3/2	-	TC
iii)	Leakage test	Test	100%	-do-	JIR	3/2	1	CHP
3(b)	Fuel Transfer Pump							
i)	Capacity & Rating	Visual	100%	-do-	TC	3/2	-	TC
ii)	Routine test	Visual	100%	-do-	TC/COC	3/2	-	TC/COC
4	Alternator with Exciter							
a)	Make, Model & Capacity	Visual	100%	-do-	TC	3/2	-	TC
b)	Performance Test of Complete Alternator & Dielectric test of Generator	Visual	100%	-do-	TC/COC	3/2	-	TC/COC
5	AVR (Automatic Voltage Regulator)							
a)	Routine Test	-do-	-do-	-do-	TC/COC	3/2	-	TC/COC
b)	Voltage variation at no-load	-do-	-do-	-do-	TC/COC	3/2	-	TC/COC
c)	Voltage regulation test.	-do-	-do-	-do-	TC/COC	3/2	-	TC/COC
6	Batteries							
a)	Make & Rating	Visual /	100%	-do-	TC/WC	3/2	-	TC/WC
7	Battery Charger							
a)	Make, Model & Rating	Visual	100%	-do-	TC/COC	3/2	-	TC/COC
b)	Functional Check	Electrical	100%	-do-	TC/COC	3/2	-	TC/COC

IMS/QA/F-01
Rev-03 Effective date-09.01.19

Signature
NHPC LTD. QA&I DEPT.,

Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) : MODEL

Page 3 of 4

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन (Teesta-V Power station)

ग्राहक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited)


उपस्कर का नाम (NAME OF EQUIPMENT) : DG SET

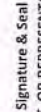
विक्रेता (VENDOR) :

एनआईटी/कम्यु आदेश संदर्भ (NIT/P.O. REFERENCE) :

क्र. सं. SR. NO.	मद/घटक एवं विशेषता ITEM /COMPONENTS & CHARACTERISTICS	जाँच की प्रकृति NATURE OF CHECKS	जाँच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENTS/ ACCEPTANCE NORMS Tech.Spec./Appd.Drg./ Relevant Standard	रिकॉर्ड फॉर्मेट RECORD FORMAT	निरीक्षण एजेंसी (INSP. AGENCY)			टिप्पणी REMARKS
						प्रदर्शन Perform	गवाह Witness	सत्यापन Verify	
8	Electrical Equipments								
a)	Circuit Breaker, Contactors, Neutral Earthing etc.								
i)	Voltage/Current rating, making/breaking capacity, opening limits, functional check & operation at rated voltage of make.	Visual / Electrical	100%	-do-	TC/COC	3/2	-	1	TC/COC
b)	Numeric Type Protection Relays (Reverse power, Differential Protection, Stator Earth Fault, Under voltage, Under frequency, Instantaneous & IDMT over current etc.)- As applicable								
i)	Visual checking, current/ voltage setting/ range and make.	Visual	100%	-do-	TC/COC	3/2	-	1	TC/COC
ii)	Functional Check & operation at rated voltage	Electrical	100%	-do-	TC/COC	3/2	-	1	TC/COC
c)	CT,PT,Meters (Ammeters,Voltmeter, Wattmeter, Energy meter,Running hour meter,Frequency meter, Alarms & Annunciation system) etc.								
i)	Visual check, calibration, voltage/current range, connection arrangement & Functional check	Visual / Functional	100%	-do-	TC/COC	3/2	-	1	TC/COC
d)	Control & Selector Switch and Dehumidification arrangements of Alternator								
i)	Checking of current rating & voltage, operation test etc	Visual / Functional	100%	-do-	TC/COC	3/2	-	1	TC/COC
e)	Microprocessor based Controller with digital indication for engine parameters such as Oil pressure, Oil Temp & Water Temp , Very Low Fuel Level and Fail to start (Over crank) situation etc.								
i)	Visual checking, current/ voltage setting/ range and make	Visual / Electrical	100%	-do-	TC/COC	3/2	-	1	TC/COC
ii)	Functional Check & operation at rated voltage	Electrical	100%	-do-	TC/COC	3/2	-	1	TC/COC
9	Acoustic Enclosure, Exhaust Chimney & Structure, Flexible bellows,cladding, Louvers and Outside Air Grilles & Accessories								
i)	Fabrication, Operation & Performance (As applicable)	Visual	100%	-do-	TC/COC	3/2	-	1	TC/COC

IMS/QA/F-01
Rev-03 Effective date-09.01.19


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Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

क्र. सं. SR. NO.	मद/घटक एवं विशेषता ITEM /COMPONENTS & CHARACTERISTICS	जाँच की प्रकृति NATURE OF CHECKS	जाँच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENTS/ ACCEPTANCE NORMS	रिकॉर्ड प्रारूप RECORD FORMAT	निरीक्षण एजेंसी (INSP. AGENCY)	टिप्पणी REMARKS
				Tech.Spec./Appd.Drg./ Relevant Standard	प्रदर्शन Perform	गवाह Witness	सत्यापन Verify
10	Final Inspection of Control Panels (Auto Mains Failure Starting System Panel, Control and Protection Panel & Auto and Manual Synchronizing Panel)- As applicable						
a)	Visual	Visual	100%	-do-	JIR	3/2	1
b)	Dimensional	Measurement	-do-	-do-	JIR	3/2	1
c)	IR and HV Test	Electrical	-do-	-do-	JIR	3/2	1
d)	Functional Check	Test	-do-	-do-	JIR	3/2	1
11	Final Inspection on DG Set						
a)	Checking of BOM	-do-	-do-	-do-	JIR	3/2	1
b)	Load Test	-do-	-do-	-do-	JIR	3/2	1
i)	up to 100% (1 hr.)	Functional	-do-	-do-	JIR	3/2	1
ii)	100% load test for 10 hrs.	-do-	-do-	-do-	JIR	3/2	1
iii)	110% load test for 1 hr	-do-	-do-	-do-	JIR	3/2	1
c)	Fuel consumption	measurement	-do-	-do-	JIR	3/2	1
d)	Functional Test of Different Control Mode, functional test on battery charger	Electrical	-do-	-do-	JIR	3/2	1
e)	Verification of Protection (Low tube oil pressure, high cooling water temp.,over speed & over load temp. rise and Electrical Fault etc.)	Electrical	-do-	-do-	JIR	3/2	1
f)	Functional Check of Automatic start & Shutdown	Electrical	-do-	-do-	JIR	3/2	1
g)	Starting Time Test	Measurement	-do-	-do-	JIR	3/2	1
h)	Vibration check	-do-	-do-	-do-	JIR	3/2	1
i)	Noise Level measurement	-do-	-do-	-do-	JIR	3/2	1
j)	Certificate of Type approval & certificate of conformity of production for Noise Limit (If applicable)	Visual	100%	As per CPCB Norms	TC	3/2	1
k)	Certificate of Type approval & certificate of conformity of production for Emission Standard (If applicable)	-do-	100%	-do-	TC	3/2	1
12	Co ordination and Provision of necessary contacts for integration with Plant SCADA system (If applicable)	Visual	-do-	Tech.Spec./Appd.Drg./ Rel.Std	JIR	3/2	1
13	Monorail Hoist (If applicable)						
13.1	Functional Check	Test	-do-	-do-	JIR	2/3	1
14	Paint & Finish	Visual	-do-	-do-	JIR	3/2	1

Note: a. In 'Inspection Agency' column figure 1,2 or 3 to be filled. 1- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - COC-Certificate of conformity, WC-Warranty Certificate,RR-Review of Records, T.C. - Test Certificate & CHP - Customer Hold Point.

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

d. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments i.e. micrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

e. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above Model QAP stipulates the bare minimum requirements which shall be complied by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case subletting of work is not allowed in the tender, then "3/2" shall be considered as "2/2" under the column "Perform".

f. Material testing shall be conducted from Govt. Lab, NABL Lab or NABL accredited lab having valid Scope of accreditation of all specified tests mentioned in approved QAP.

g. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevant standard apart from QAP will be carried out by the firm without any additional financial implication.