

(भारत सरकार का उद्यम) (A Govt. of India Enterprise) तीस्ता ∨ पावर स्टेशन

Teesta V Power Station सिंगतम, पूर्वी सिक्किम - 737134 Singtam, East Sikkim- 737134







आई एम एस प्रमाणित पावर स्टेशन

दूरभाष/Ph: 03592-247349 फ़ैक्स/Fax: 03592-247227/349

IMS certified Power Station

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-994/2024-25/449Dated: 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



(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**

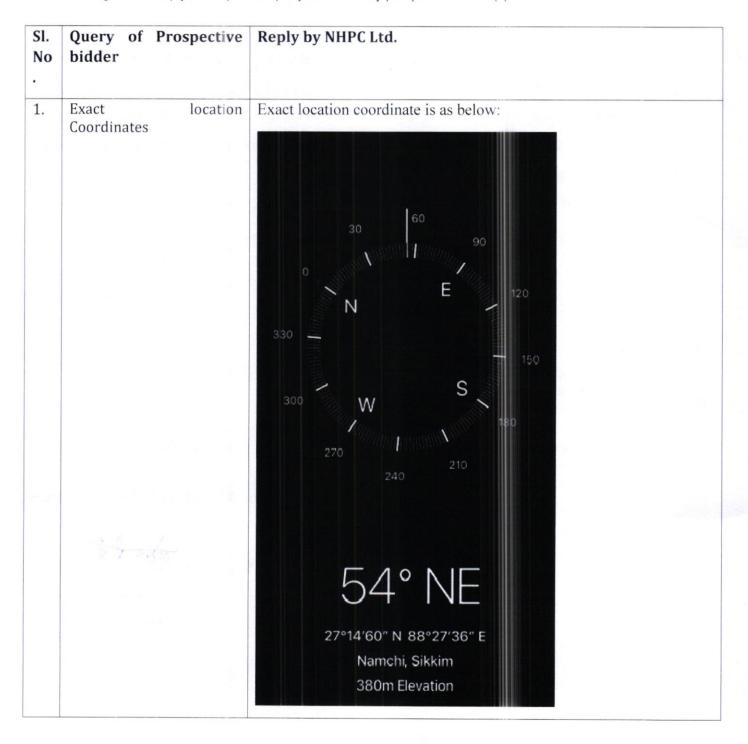


IS/ISO 9001 IS/ISO 14001 IS 18001 आई एम एस प्रमाणित पावर स्टेशन IMS certified Power Station

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Annexure-A

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





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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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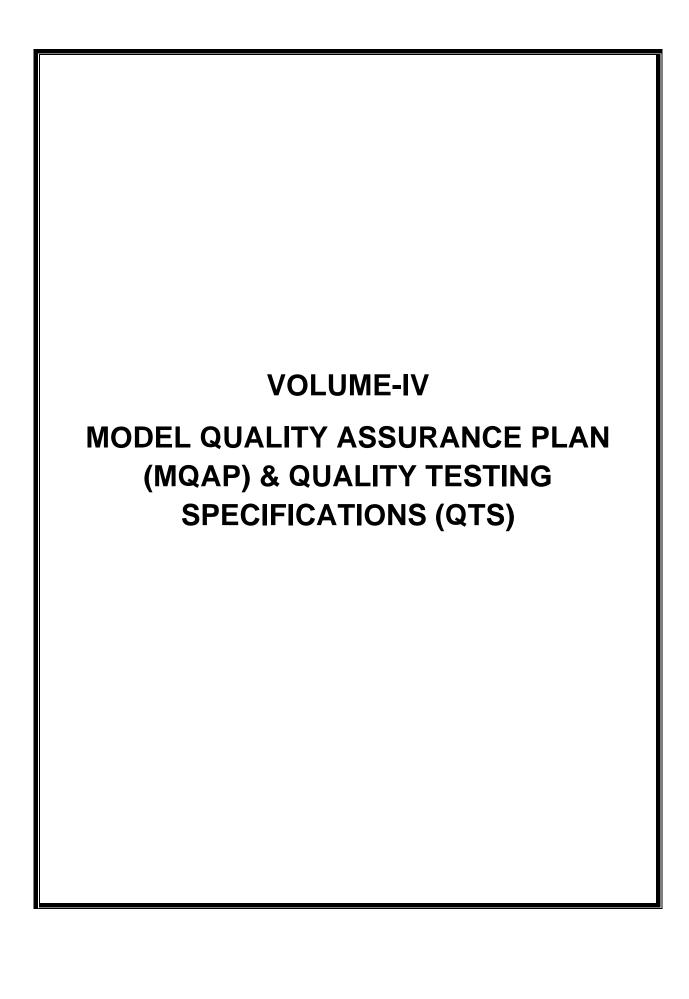


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Annexure-B

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



Teesta-V Power Station

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

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.

natic and hydraulic devices.

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Teesta -V Power Station

- 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.

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.

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 U₀ 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-incharge 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-incharge.

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.

Door

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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Teesta -V Power Station

- · 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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Teesta-V Power Station

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-incharge 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-incharge.

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.

Teesta-V Power Station

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-incharge 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-incharge.

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 9thJuly, 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.

Home

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

Special instructions: -

- their latest manufacturing practice and Indian/ International Standards (with latest amendments, if 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
- 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
- 9

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

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

ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

CHP टेप्पणी Remarks CHP CHD CHP CHP CHP CHP 2 सत्यापन VERIFY Inspecting Agency WITNESS निरक्षिण एजेस PERFORM 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 RECORD PORMAT रकांडे फ़ारमैट 10 JIR JIR E E JIR JIR SER JE S drawings/IEC:62271/Relevant applicable Standard drawings/IEC:62271/Relevant applicable Standard drawings/IEC:62271/Relevant applicable Standard REFERNCE DOCUMENT/ ACCEPTANCE NORMS Tech. Spec. / Approved GTP/Approved Tech. Spec. Approved GTP/Approved Tech. Spec., Approved GTP/Approved -op-00 संदर्भ दस्तावेज़ / स्वीकृति मानदंड OF CHECKS जांच की मात्रा QUANTUM 100% 100% 100% -op--op--0p-00 -op--op-Measurement जांच की प्रकृति NATURE OF Functional Electrical Visual Test -op--op--0p -op-CHECKS 5 Open & 5 Close Operations at Maximum 5 Open & 5 Close Operations at Minimum 5 Close-Open Operating Cycles at Rated Supply Voltage and Maximum Pressure Supply Voltage and Minimum Pressure Supply Voltage and Rated Pressure Measurement of Operating Times. Pressure Test on Enclosure HV Test (2kV for One Minute) Mechanical Operating Test Auxiliary & Control Circuit & CHARACTERISTICS ITEM/ COMPONENT CIRCUIT BREAKER मद/घटक एवं विशेषता Gas Leakage Test IR Measurement Routine Tests Wiring Check. 部. 讯 8 9 3 B 304 g 9 Û ô

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'

Vote:

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/Relevent 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 TOAR! DEPT.)

Effective Date- 09.01.2019

Rev No.- 03

MS\QAI\F01

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

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपष्कर का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear

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

ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

£ 2	क. स. मद/घटक एवं विश्वावता	जांच की प्रकृति जांच की मात्रा संदभ दस्तावेज	जॉच की मात्रा	संदभ दस्तावेज़ / स्वीकृति नानदंड	रेकांड्रे	4	निरक्षिण एजेसी		Hart Remarks	
9.16	& CHARACTERISTICS	CHECKS	QUANTUM REFERNCE OF CHECKS	REFERNCE DOCUMENT/ ACCEPTANCE NORMS	फ़ारमैट RECORD	प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY		
2	Electrical Tests									
a)	Power Frequency Voltage Dry Test on Main Circuit.	Electrical	400%	Tech.Spec./ Approved GTP/Approved drawings/IEC:62:71/Relevant applicable Standard	JIR	2/3	~	· i	CHP	
Q	Measurement of Contact Resistance of Main	Measurement	-op-	-op-	JIR	2/3	~		dHO	
ô	Measurement of Resistance of Circuit Breaker	-op-	-op-	-op-	H.	2/3			5 5	
	Closing and Trip Coils					ì				
P	Partial Discharge Measurement	-op-	-op-	op	all.	2/3	+	-	and a	
(e)	Measuremnet of Power Consumption of Motor	-op-	-op-	-00-	<u>a</u>	2/3	•		2 2 2	
	Operated Mechanism at Rated Supply Voltage				É	27			5	
4	Operational & Interlocks Check.	Functional	-op-	óp	¥	2/3	*		975	
6	Operational Check of Pressure Density Monitoring Switches	-op-	-op-	-op-	当	2/3	-		문	

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 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

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

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

f. This QAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct preducts, 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-12/34/2 20-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP,GOI.

NHPC (QA&LDEPT. Signature

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

IMS\QAI\F01 Rev No.- 03

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपष्कर का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear एनआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference) :

ग्राहक (CLIENT):

एनएचपीसी लिमिटेड (NHPC LTD.)

विकेता (VENDOR):

在型目 Remarks CHP CHP CHP CHP CHP CHP CHP CHP CHP CH	CFD	CHP CHP
(-)		000
संख्यापन 1	rij.	421
मिरोक्षण एजेसी गवाह WITNESS	X.	eee
नि प्रदर्शन 2/3 2/3 2/3 2/3 2/3 2/3 2/3	2/3	2/3 2/3 2/3
रकाड़ फ़रमैट RECORD JIR JIR JIR JIR JIR	JIR	# # # # # #
संदर्भ दस्तावंज / स्वीकृति मानदंड REFERNCE DOCUMENT/ ACCEPTANCE NORMS Tech.Spec./ Approved GTP/Approved drawings/IEC:62271/Relevant applicable Standard do-do-do-do-do-do-do-do-do-do-do-do-do-d	diawings/I-C.0221 (Actevant applicable Statidato	-op-
	-op-	\$ \$ \$
NATURE OF CHECKS CHECKS -dododododododododod	-op-	Visual Electrical -do-
HGNICONPONENT & CHARACTERISTICS BISCONNECTORS & EARTHING SWITCHES Routine Tests Routine Test on Enclosure Gas Leakage Test. Auxiliary & Control Circuit Wiring Check. HV Test (2KV for 01 Minute) IR Measurement Mechanical Operating Test 5 Operating Cycles at Rated Voltage 5 Operating Cycles at Maximum Voltage Coperating Cycle at Maximum Voltage Coperating Cycle at Maximum Voltage Coperating Cycle at Maximum Voltage Coperating Cycles at Maximum Voltage Power Frequency Voltage Test of the Main Circuit and Partial Discharge Measurement	Measurement of the Resistance of Main Circuit	Operation & Interlock Check IR Measurement Measurement of Power Consumption of Motor
8 v G G G G G G G G G G G G G G G G G G	N (q	(c) (d) (d)

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 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

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.

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

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

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.

NHPC (QA&IDEP Signature

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

> IMS\QAI\F01 Rev No.- 03

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपष्कर का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear

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

ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

देषणी Remarks 문문문 문문문 CHP CHP CHP TO TO CHD VERIFY सत्यापन गवाह WITNESS नेरीक्षण एजेसे PERFORM 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 प्रदर्शन RECORD FORMAT SIR 景 등 등 등 TC T फ़ारमैट 景景 음 SER Tech.Spec./Appd. Drg./ IEC:61869-1,2 REFERNCE DOCUMENT/ ACCEPTANCE NORMS Tech.Spec./ Appd. Drg./IEC -0p--op--op--0p--op--op--op--op--op-संदर्भ दस्तावेज़ / स्वीकृति मानदंड OF CHECKS जांच की मात्रा QUANTUM 100% 100% -op--op--0p--0p--op--0p--op--op--op-00-जांच की प्रकृति NATURE OF Electrical Electrical Visual Visual op--op--op -op CHECKS -opop op -op-Terminals and Partial Discharge Measurement Power Frequency Withstand Tests on Primary Test for rated knee point e.m.f. and exciting Power-frequency voltage withstand tests on Earthing Switches and Circuit breaker Routine Tests(IR, HV , Functional etc) Power-frequency voltage withstand tests Driving Mechanism of Disconnector, Secondary Winding Resistance Test Verification of Terminals Markings. Pressure test of the Enclosure CURRENT TRANSFORMER Inter-Turn Overvoltage Test. Accuracy & Polarity Test Enclosure Tightness test & CHARACTERISTICS ITEM/ COMPONENT Composite Error Test secondary terminals between sections Routine Tests 新.讯 0 20 4 100 8 6

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/Relevent 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.

NHPC (QA&I DEPT.

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

> IMS\QAI\F01 Rev No.- 03

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपष्कर का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear एनआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference) :

ग्राहक (CLIENT): विकेता (VENDOR)

एनएचपीसी लिमिटेड (NHPC LTD.)

CHP CHP टेप्पणी Remarks CHP CHP 12년 2 5555 सत्यापन VERIFY गवाह WITNESS निरक्षिण एजेस PERFORM 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 RECORD FORMAT रकांडे फ़ारमैट 등 등 등 3 品 出い 5555 5 Tech.Spec./ Approved GTP/Approved drawings/IEC:60099-Tech.Spec./Appd. Drg./ IEC:61869-1,3 REFERNCE DOCUMENT/ ACCEPTANCE NORMS 4/Relevant applicable Standard -op--op--op--0p -opopop-संदर्भ दस्तावेज़ / स्वीकृति मानदंड OF CHECKS जांच की मात्रा QUANTUM %001 100% -op--op-9 00 op--0pop. -op--op--op-जांच की प्रकृति NATURE OF Electrical Electrical Electrical Visual -do-Test CHECKS -op--0pop--0p--op-Power Frequency Withstand Tests on Primary Terminals and Partial Discharge Measurement Power-frequency voltage withstand tests on Current Distribution Test (For Multi Column Power-frequency voltage withstand tests Measurement of Reference Voltage Verification of Terminals Markings. VOLTAGE TRANSFORMER
Routine Tests Pressure test on Enclosure Accuracy & Polarity Test Enclosure Tightness test & CHARACTERISTICS Residual Voltage Test ITEM/ COMPONENT SURGE ARRESTOR Partial Discharge test मद/घटक एवं विशेषता secondary terminals between sections Routine Tests Leakage Test Arrestor) â - 20 4 2 E 9 1 2045

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 Note:

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)

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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

Effective Date- 09,01,2019 MS/QAI/F01 Rev No.- 03

NHPC (QA&I DEPT.)

(VENDORS Q.C. DEPT. OR REPRESENTATIVE) Signature & Seal 2111

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपष्कर का नाम (NAME OF EQUIPMENT) : Gas Insulated Switchgear एनआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference)

ग्राहक (CLIENT): वेक्रेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

당음 टिप्पणी Remarks CHD 동문동 동동동동 2 555 2 55 सत्यापन VERIFY WITNESS नरक्षिण एज्स PERFORM 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 गदशन RECORD FORMAT 무용목 2 JIR 最景 **RESE** फ़ारमैट 5 555 5 2 TC रकाड Tech. Spec./ Approved.GTP/Approved drawings/IEC:60099-Tech. Spec./Appd. Drg./ IEC/Relevant applicable Standard Tech.Spec./Appd.Drg./ IEC/Relevant applicable Standard REFERNCE DOCUMENT/ ACCEPTANCE NORMS 4/Relevant applicable Standard Tech.Spec./Appd.Drg./ IEC -0p--op-8 8 8 8 -op--opop -op--op--0p -op-संदर्भ दस्तावंज़ / स्वीकृति मानदंड Sample Plan OF CHECKS Sample Plan जांच की मात्रा QUANTUM 100% 100% 100% -doop--opop--op--op--opop--op--op--opop--op op Measurement Measurement Measurement जांच की प्रकृति NATURE OF Mechanical Mechanical Electrical Electrical Electrical Chemical Electrical Visual / Visual Visual -oprest op-000 -op-CHECKS 00 Checking for provision for necessary contacts Measurement of Power Frequency Voltage Lightning Impulse Residual Voltage Test Bending Resistance Test (As Applicable) ports for integration with Plant SCADA IR & Dry Power frquency wthstand test Local Control Cubicle/Terminal box Creepage distance (As Applicable) Closing/Tripping Coils & Heaters Partial Discharge Measurement Measurement of Resistance of Functional Tests by Simulation Checking of BOM and Layout, Verification of Correct Wiring Visual & Dimensional Check. Pressure Test on Enclosure Aluminium for Conductor & CHARACTERISTICS ITEM/ COMPONENT मद/घटक एवं विशेषता Acceptance Tests Epoxy Insulator IR Measurement Mechanical Test Dielectric Tests Chemical Test Conductivity Dimension 部. 班 7 8 4 E + @ -2 m 4 F 2004 9 4 6 5

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 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

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

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

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.

NHPC (QA& DEPT

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

> IMS\QAI\F01 Rev No.- 03

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

ग्राहक (CLIENT): विक्रेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

CHP टेप्पणी Remarks 2 2 2 55555 55 सत्यापन VERIFY गवाह WITNESS निरक्षिण एजेसी PERFORM 2/3 2/3 22/3 2/3 2/3 2/3 2/3 प्रदर्शन RECORD रकांडे फ़ारमैट JIR 2 2 2 55555 20 Tech.Spec./ Approved GTP/Approved drawings/IEC:60099-Tech.Spec./ Approved GTP/Approved drawings/IEC:60099-4/Relevant applicable Standard REFERNCE DOCUMENT/ ACCEPTANCE NORMS 4/Relevant applicable Standard Tech. Spec./Appd.Drg./ IEC -op--op--0p-00--op-00--op-संदर्भ दस्तावेज / स्वीकृति मान्दंड Sample Plan OF CHECKS Sample Plan जांच की मात्रा QUANTUM one unit 4001 %001 000 -op--00op-जॉच की प्रकृति NATURE OF Mechanical (Mechanical Mechanical/ /Pressure /Pressure Chemical Electrical Electrical Test -op-CHECKS rest -op--0p--0p 00 -op-Gas Insulated Busduct (GIB)
Material Test Report (Mechanical & Chemical) Bushings (SF6 to Oil/ SF6 to Air) Routine test Gas Tightness verification, Power frequency Partial discgarge), Proof tests for enclosures Tightness tests, Short-time withstand current and peak withstand current tests, Dilectric test(Lightning impulse, Switching Impulse, Pressure tests of enclosures & Partitions Other Equipments (As applicable) SF6 Gas Filling Station (if applicable) PRD for each Pressurised Section withstand voltage verification etc Online Gas Monitoring System Type Test (As Applicable) & CHARACTERISTICS Cable Trays routine test Routine Test Report ITEM/ COMPONENT मद/घटक एवं विशेषता Cables routine test a 3 37-4845 =-N 9 1

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'

Note:

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

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

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

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.

Effective Date- 09,01.2019

IMS\QAI\F01 Rev No.- 03

NHPC (QA&I, DEPT.

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

Signature & Seal

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).
- Contractors/Manufacturers/Sub-suppliers are required to use properly calibrated instruments /equipments during testing/inspection, for which necessary calibration certificates are required to provided/presented to the Inspecting Officer.
- Contractors/Manufacturers/Sub-suppliers have to make on their own all arrangements for testing facilities at their works for testing of equipments/materials.
- 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.

9

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

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

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

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

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

विकेता (VENDOR):

S.N. ITEM/ COMPONENT & CHARACTERISTICS	NATURE OF CHECKS	QUANTUM OF CHECKS	सदभ दस्तावज्ञ / स्वाकृति मानदंड REFERENCE DOCUMENT/	रेकांडे फ़ारमैट RFCORD	dsul 러	निरक्षिण एजेसी Inspecting Agency	cy	टिप्पणी Remarks
			ACCEPTANCE NORMS	FORMAT		प्रदर्शन गवाह PERFORM WITNESS	सत्यापन VERIFY	
A RAW MATERIAL AND BOUGHT OUT ITEMS								
1 Porcelain Container & Base								
a) Dimension	Measurement	100%	Tech. Spec./Appd. Drg. /	70	2/3	٠		TC
			IS:5621 & IEC:62155					
b) Physical properties	Visual	-90-	-do-	TC	2/3		-	TC
d) Routine Test	-op-	100%	-do-	TC	2/3			2 5
2 Lead/Copper Diaphragm)	1			2
a) Dimension	Measurement	100%	Tech. Spec./Appd.Drg/IS &	TC	2/3.		-	70
b) Pressure Relief Test	Pressure	-op-	5 6	TC	2/3		,-	C.F.
c) Physical properties	Visual	-op-	-op-	7	2/3			22
d) Leakage Test	-op-	-op-	-op-	TC	2/3			O.L
3 Rubber Items (Rubber Gaskets/O Ring)								2
a) Dimension	Measurement	Sampling plan	Tech. Spec./Appd.Drg/IS &	TC	2/3		-	TC
 b) Material Testing Physical (Hardness, Ageing, Compressibility) 	Mechanical	-op-	-op-	TC	2/3	,	-	TC
4 Clamping Ring Casting								
a) Material Testing	Mechanical	-op-	Tech. Spec./Appd.Drg/IS &	10	2/3			TC
b) Dimension	Measurement	-op-	-op-	TC	2/3	*	,	10
c) Galvanising (Weight of Zinc Coating, Uniformity Test,	Chemical	-op-	Tech.Spec./Appd.Drg./IS:263	70	2/3		-	7

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 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'

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

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

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 compiled by the contractor. The above QAP has been made presuming subjetting of work shall be allowed in the tender. In case

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

Signature

NHPC (QA&I DEP'

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

Signature & Seal

Effective Date- 09.01.2019 IMS\QAI\F01 Rev No.- 03

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

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

टेप्पणी Remarks 222 TC 5 25 25 55 5555 VERIFY Inspecting Agency निरीक्षण एजेसी PERFORM WITNESS गवाह 1621 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 FORMAT RECORD रेकांडे फ़ारमैट 5555 2 2 55 555 25 2 55 REFERENCE DOCUMENT/ Tech. Spec./Appd.Drg./IS & Tech Snec / IFC:60099-4 ACCEPTANCE NORMS Tech.Spec./Appd.drg./IS Tech.Spec./Appd.drg./IS संदर्भ दस्तावेज़ / स्वीकृति 00--op-9 -0p op op op -op--op--op--opop-Sampling plan Sampling plan QUANTUM OF Sampling plan Sampling plan जांच की मात्रा CHECKS 100% 100% 1 10 -opope 00--opop. op. Measurement Measurement NATURE OF **Jeasurement Jeasurement** Measurement जांच की प्रकृति CHECKS Chemical Chemical Electrical Chemical Electrical Visual 99 Test Test -do--0p-Residual Voltage Test (for non linear resistance type Current Distribution Test for multi-coloumn Arrester. General Routine Dimension of Surge Arrestor & CHARACTERISTICS ITEM/ COMPONENT मद/घटक एवं विशेषता Measurement of Reference Voltane b) Physical (Galvanising or Tinning) Raw Materials for ZnO Disc IN PROCESS INSPECTION Sealing Test of Arrestors Electrical Routine Test a) Chemical Composition Partial Discharge Test Terminal Assembly a) Dimension / Fitment iii) IP Protection Class g) Ingress Protection Cover Assembly Surge Counters i) Meter Operation ii) Counting Test Routine Test b) Galvanising a) Dimension a) Dimension ZnO Disc 8 0

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

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)

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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.

QA&I DEPT.) Signature

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

रुं देश

IMS/QAI/F01 Rev No.- 03

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपकर का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- Surge Arrestor एनआईटी/ कय आदेश संदर्भ NIT / P.O. Reference) :

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

विकेता (VENDOR):

5 H	ह. सं. । मह/घटक एवं विश्वाषता	जांच की प्रकात	जांच की मात्रा	संदर्भ दस्तावेज / स्वीकृति	रेकांडे	年	निरीक्षण एजेसी		टिप्पणी Remarks
N		NATURE OF	QUANTUM OF	मानदंड	फारमैट	Insp	Inspecting Agency	CV	
	80	CHECKS	CHECKS	REFERENCE DOCUMENT/	RECORD	प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
ô "	Acceptance Test Measurement of Power Frequency Voltage	Electrical	20%	Tech.spec./ IEC;60099-4	AIR	3/2	-		*CHP
-	Lightening Impulse residual Voltage (for non-linear resistance tune) A.	-op	-op-	-op-	JIR	3/2	-		*CHP
0	c) Partial Discharge Test (for non- linear resistance type	-op-	ф	-op-	JIR	3/2	-		*CHP
0	d) Thermal Stability Test.	Test	-op-	-00-	JIR	3/2	-	i	*CHP
w)	e) Galvanising Test on Metal Part	Chemical	-op-	-op-	JIR	3/2	-	5	*CHP
	f) General Routine Dimension of Surge Arrestor.	Measurement	-op-	-op-	JIR	3/2			*CHP
Î	E) Surge Counters								
4	S. Eurotional Toot	Icontrool	40	Took Chor /Appropried dra /	10	2/3	+-		1

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/Relevent standard apart from QAP will be carried out by the firm without any additional financial

*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 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.

Signature NHPC (CA&I DEPT.)

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

ENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMS/QAI/F01 Rev No.- 03 Effective Date- 09.01.2019

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

ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

S.N.		जांच की प्रकृति NATURE OF	जांच की मात्रा QUANTUM OF	R	रकाँड फ़ारमैट	H dsul	निरीक्षण एजेसी inspecting Agency	-	teuroff Remarks
	& CHARACIERISTICS	CHECKS	CHECKS	ACCEPTANCE NORMS	RECORD	идян ревесовм	गवाह	सत्यापन	
۷.	Raw Material & Bought Out Items						NI NESS	VENIFT	
	Visual, Dimension, Foil Purity, TS & Wetability,	Test	One Sample/	Tech. Spec./ Approved drg.	10	2/3		-	70
	Condenser Tissue Paper								
	Visual, Dimensions, PH Value, Density, Dielectric Strength, Mineral Ash Content, Charles Content, & Dielectric Los Aprile	Test	One Sample/ lot	ф	70	2/3		7	70
	Polyproplene Film	Test	One Sample/	· P	4	2,0	1		4
	Visual, Dimensions, TS, Dissipation Factor, Heat Shrinkage, Ash content, Volume Resistivity, Dielectric Constant.			þ	2	213		-	P
	Visual, Dimensions, Accuracy Test, PD Test, Terminal Markings and Delegie Indused	Test	One Sample/	Tech, Spec,/ Approved drg.	7	2/3		-	70
	Over- Voltage Test & HV Test on Secondary.		lot						
10	Epoxy Moulded HV Choke	Test	One Sample/	Tech. Spec./ Approved drg.	51	2/3		-	5
	Visual, Dimensions, HV Test, Induced Over Voltage Test, PD Test, Inductance measurement.		Ĭ						
	Dimensions, Electrical Routine test, Porosity	F	i	Tech, Spec,/ Approved	074				

a in 'Inspection Agency' column figure 1,2,or 3 to be filled. 1-will indicate Employer' NHPC LTD', 2-will indicate 'subplier', & 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)

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

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 QAP has been made presuming subjetting of work shall be allowed in the tender. In case subjetting of work is not allowed in the tender, then 32, 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 & Seal

WENDORS O.C. DEPT OR REPRESENTATIVET

IMS\QAINF01 Rev No.- 03 Effective Date- 09.01,2019

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

ग्राहक (CLIENT): विक्रेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

Page 6 of 18

		Metal Bellow Chemical Cor	Tank & Cover	Galvanis	Visual De Zinc coati	Coating. Spark Gap	Surface d	Sealing E Visual, Di Elongation	Test. Insulating Oil	Appearan Pour Poir Dissipatio Oxidation	IN PROC	Capacitor	Stack Pressing	Drying an	Stack Pre	
ITEM/ COMPONENT	a criminal reviews	Metal Bellow Chemical Composition, Thickness, Finish	Tank & Cover DP Test on welds Dimension Leak Test	ng	Visual Defect, Thickness, Adhesion, Wt. of Zinc coating on sample, Uniformity of Zinc		Surface defects, Leakage Test, Breakdown Voltage	Sealing Element of Nitrile Rubber Visual, Dimension, TS, Hardness, Elondation, Compression & Oil Immersion		Appearance, Density, Kinematic Viscosity, Pour Point, Flash Point, Water Content, Dissipation factor, Electrical strength, Oxidation stability, etc.	IN PROCESS INSPECTION	Capacitor Coil Winding	SSING	Drying and Impregnation	Stack Pressing after drying & Impregnation	
NATURE OF	CHECKS	Test	,	lest	Test		Test	Measurement		Test		Test	-op-	-op-	-op-	
_	CHECKS	100%		100%	One Sample/		100%	100%		Sampling plan		100%	-op-	-op-	-op-	
R	ACCEPTANCE NORMS	Tech, Spec / Approved dra.		Tech. Spec./ Approved drg.	Tech. Spec./ Approved drg.		Tech. Spec./ Approved drg.	Tech, Spec,/ Approved	drg./IEC	Tech, Spec./ Approved drg./ IS:335/ IEC:60296		Tech. Spec./ Approved	-do-	-90-	-00-	
रकाड फारमैट	RECORD	2		70	70		7	70		5		10	10	2 2	12	1
tsul	प्रदर्शन	PERFORM 2/3	1	2/3	2/3		2/3	2/3		2/3		2/3	2/3	272	2/3	
निरीक्षण एजेसी Inspecting Agency	गवाह	WILNESS					,									
'n	सत्यापन	VERIFY		-	97			+		Ť				- +		
टिप्पणी Remarks		Ç	2	70	DT.		70	57		57		4	25	2 1	2 4	2

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 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 'supplier' & 3- will indicate 'sub-supplier'

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/Relevent standard apart from CAP will be carried out by the firm without any additional

1. 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 QAP has been made presuming subletting of work shall be allowed in the tender, then "32" shall be considered as "2" under the column " Perform".

9. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/24/2020-128, dated-24 12.2021(Latest Amendment if any) issued by MOP, GOI.

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMS/QAI/F01 Rev No.- 03 Effective Date- 09.01,2019

उपष्कर का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- CVT एनआईटी। क्रय आदेश संदर्भा NIT / P.O. Reference परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT): वेकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

2 wolf Remarks CHD. CHP. ·CHP CHP CHP CHP SHP. CHP CHD. CHP CHP. CHP CHP CHP CHP 10 25 सत्यापन nspecting Agency WITNESS PERFORM प्रदर्शन 5/3 5/3 2/3 2/3 2/3 5/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 RECORD FORMAT H JIR 품 품 목목 JIR SH. AIR. AH. 2 20 3 5 संदर्भ दस्ता वेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ Tech.Spec./ Appd.drg./IEC:61869 & IS:3156 Tech.Spec./ Apad.drg/IEC:61869/ IEC Ap.3d.drg./IEC:61869/ IEC Appd.drg./IEC:61869/ IEC 60358 & IS:3156 Tech.Spec./ Appd.drg./IEC:61869/ IEC 60358 & IS:3156 ACCEPTANCE NORMS 60358 & IS:3156 60358 & IS:3156 -do-Tech.Spec./ Tech.Spec./ op--op--do--opop. 9 9 QUANTUM OF CHECKS Sampling plan जांच की मात्रा -op--op--00-20% 20% 20% 20% -0p-9 9 -op--doop-000 -00-जॉच की प्रकृति NATURE OF CHECKS Test Test Test Test Test ·op· 00-9 9 9 -op-9 9 -op--op-6 6 -00-Verification of Terminal Markings & Polarity. Chopped impulse voltage withstand test on choke of EMU (150 Hz) (As Applicable) Power Frequency withstand Tests between Accuracy Test (Ratio & Phase Angle Error) Power Frequency withstand Test between LV-E on EMU. Routine tests for voltage limitation devices Measurement of Capacitance & Tan delta Measurement of Capacitance & Tan Delta Power Frequency Voltage withstand Test Power Frequency withstand Test on low voltage terminal of the capacitor voltage sefore one min. Power Frequency Test nduced Overvoltage Test on PT & HV after One min. Power Frequency Test ower Frequency withstand Tests on Enclosure tightness test /Sealing Test & CHARACTERISTICS Routine tests for carrier frequency ITEM/ COMPONENT मद/घटक एवं विश्ववता ilder (Earth terminal of CVD) Pressure Test for Enclosure Routine test for drain coils Ferro-resonance check Partial Discharge Test Routine Tests - EMU Capacitor Assembly FINAL INSPECTION Type Test Temp. Rise Test S.N. 0-5 12 1.3 4 1.5 23 2.4 3 3 3 3 3 3 4 3 4 3.3 a Q + 20

a. In 'Inspection Agency'column figure 1,2,or3 to be filled, 1- will indicate Employer/ "AHPC 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, pile 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 GAP will be carried out by the firm without any additional

*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, theri²³/2" shall be considered as "2" under the column". h. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per crider no-12/34/2020-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GO.

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE) र्में केंद्र

IMSIQAIIF01 Rev No.- 03 Effective Date- 09.01,2019

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

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

ग्राहक (CLIENT): विक्रेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

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

S.N.	ITEM/ COMPONENT & CHARACTERISTICS	NATURE OF CHECKS	QUANTUM OF CHECKS	सदभ दस्तावज्ञ / स्वाकृति मानदङ REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रकांड फ़ारमैट RECORD	lsuj	निरीक्षण एजेंसी Inspecting Agency	ź.	टिप्पणी Remarks
					FORMAT	प्रदर्शन	गवाह	सत्यापन	
F)	WAVE TRAP					LENI ONN	MINESS	VERIFT	
	Raw Materials								
	Electronic Components	Electrical	100%	Tech Spec / Appd dra	CF	CIC		4	-
(q	Mechanical Components	Flect /Mech	-05-	The state of the s	2 6	2/3		-	2
(2)	Plastic Mouldings	-00-	0 0	100	2 0	2/3		-	10
(p	Support structure & Insulator (If Applicable)	9	-Op-	-0p-	2	2/3	•	-	10
()) Dimension	Measurement	100%	Tech. Spec./Appd. Drg./	TC DI	2/3	·	-	7
=	ii) Physical properties	Visual	-do-	-do-	C	6/6			
(iii	iii) Routine Test	-do-	100%	0 0	2 6	2/2			2
	Type Test		200	-00	2	2/3	,		10
a)	Insulation Tests								
-	Impulse Voltage Test	Electrical	Sampling plan	Tech.Spec./IS:8793 &	70	2/3	,	-	TC
13				IEC:60353					1
=	ii) Power Frequency Voltage Test on Tuning Pot	-op-	-op-	-op-	TC	2/3			J.
(q	Measurement of RIV	-op-	-op-	-02-	T	2/3	0.01) C
	Temperature Rise Test	-op-	-00-	-00-	2 -	0/2		- ,	2 (
	Short Time Current Test	-op-	-00-	200	2 2	2/3		- 1	2 ¢
	Measurement of the Inductance of the Main Coil	-op-	-op-	60	1	2/3			2 5
	Measurement of Tapping loss.	-00-	-00-		0 0	0 0		. ,	2 (

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

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevent 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 & Seal

VENDORS Q.C. DEPT. OR REPRESENTATIVE)

Rev No.- 03 Effective Date- 09.01.2019 IMS/QAI/F01

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

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

ग्राहक (CLIENT): विक्रेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

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

	ITEM/ COMPONENT	NATURE OF	QUANTUM OF	सद्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/	रेकार्ड फ़ारमैट	lsul	निरीक्षण एजेंसी Inspecting Agency	'n	टिप्पणी Remarks
		CHECKS	CHECKS	ACCEP! ANCE NORMS	FORMAT	प्रदर्शन	गवाह	सत्यापन	
	Final Inspection					LENLONN	VILINESS	VERIFY	
	Visual & Dimensional	Visual/ Meas.	100%	Tech. Spec./Appd. Drg.	all	5/3	,	4.5	2
_	Electrical Tests					ì			5
_	Measurement of Rated Inductance of the Main Coil	Electrical	-op-	Tech.Spec./Appd.Drg./	JIR	2/3	-	4	CHP
-	Measurement of Power Frequency Inductance of the Main Coil.	Electrical	-op-	IS:8793 & IEC:60353 -do-	JIR	2/3	5		CHP
-	Measurement of Blocking Resistance & Blocking mpedance of Line Trap	Electrical	-op-	-op-	JIR	2/3	-	ì	CHP
	Measurement of the Tapping Loss and Tapping Loss based on the Blocking Resistance.	-op-	-op-	-op-	JIR	2/3	-	Ą	CHP
	Power frequency voltage test on Tuning unit. LINE MATCHING UNIT (LMU)	-op-	-op-	-op-	JIR	2/3	-	0	CHP
	Bought-out Items for Coupling Unit/ LMU								
	(Primary Capacitance, Secondary Capacitance, Drainage Coll, Lightening Arrester, Intermediate Transformer etc.) Acceptance & Routine Test	Electrical	100%	Tech.Spec./Appd. Drg./IS 8998	5	2/3	4	-	5
	Composite Loss	Electrical	100%	Tech.Spec./Appd. Drg./IS 8998	JIR	2/3		,	СНР
	Return Loss	-op-	-op-	-op-	JIR	2/3			CHP
	Lower Frequency Voltage Test	-op-	-00-	-op-	JIR	2/3			CHP

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)

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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.

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

Signature NHPC (QA&I)DEPT

Signature & Seal

IMS\QAI\F01 Rev No.- 03 Effective Date- 09.01.2019

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT):

एनएचपीसी लिमिटेड (NHPC LTD.) विक्रेता (VENDOR): उपष्कर का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment- Conductor एनआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference) :

S.N.	ITEM/ COMPONENT & CHARACTERISTICS	NATURE OF	QUANTUM OF	सदभ दस्तावज़ / स्वीकृति मानदंड REFERENCE DOCUMENT/	रेकाँडे फ़ारमैट	所 Inspe	निरीक्षण एजेसी Inspecting Agency	λ:	टिप्पणी Remarks
					FORMAT	प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन	
	Raw Material and Bought Out Items					1		-	
_	Electrolytic High Gr. Aluminium Rod./								
-	HLTS								
-	Chem. Composition	Chemical	100%	Toch Chan Man IIC. E484	4				
_	Diameter	Monday	207	1601. Opec./Appa.aig./10.0404	2	2/3		-	TC
_	Surface Ciniah	Measurement	-00-	-op-	2	2/3	ī	-	TC
-	onliace Tillsii	Visual	-op-	-QD-	CH	0/0			0 (
_	Breaking Load Test	Mechanical	-00-	0) (2 6	213			2
_	Resistivity	Flactrical	0 0	-00-	2 1	2/3	i	-	7
_	Elongation	Mochanical	0 7	-00-	2	2/3	i	,-	TC
_	In Process Inspection	100000000000000000000000000000000000000	-00-	-00-	2	2/3		-	70
_	Alum. Wire Drawing								
-	Dia of Dia	***************************************	The state of the s		1000	1000			
		Measurement	1sample/ coil	Tech. Spec./Appd.drg.	7	2/3	i	-	TC
_	Dia of Wire	OP.	-						
	loint in Wilso		-00-	lectr. Spec./Appd.drg./IS:398	2	2/3	.,	-	2
_	ווייי ווייייי וויייייייייייייייייייייי	Visual	-op-	-op-	JL DI	2/3	,		O.F.
*	Surface Finish	Visual	-do-	-op-	2	2/3			0 0
_	Breaking Load Test	Mechanical	00	1 1	0 0	0.13			2
-	Decistance Moseument	Bollipinoil	-00-	-00-	2	2/3	· ·	-	OL OL
-	Measure Measurement.	Electrical	-00-	-op-	2	2/3	4	,	CL
+	wrapping rest	Mechanical	-op-	-do-	7	2/3	-) C

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 idicate Employer/ 'NHPC LTD', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier',

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Signature

Signature & Seal

(VENDORS Q.C. DEPT OR REPRESENTATIVE)

Rev No.- 03 Effective Date- 09.01.2019 IMS\QAI\F01

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपष्कर का नाम (NAME OF EQUIPMENT) ; Outdoor Pothead yard equipment- Conductor

प्राहक (CLIENT): वेकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

टिप्पणी Remarks 유 CHD 5555 5555 VERIFY सत्यापन Inspecting Agency WITNESS निरक्षिण एजेसी गवाह PERFORM प्रदर्शन 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 RECORD FORMAT रकार्ड फ़ारमैट 品品 2 5555 555 SIR Tech Spec./Appd.drg./IS:398/IEC 61089 Tech. Specn./IS:1521& IS:398 Tech. Spec./Appd.drg./IS:4826 Tech. Spec./Appd.drg./IS:2633 Tech. Spec./Appd.drg./IS:209 संदर्भ दस्तावेज़ / स्वीकृति मानदंड Tech. Spec./Appd.drg./IS:398 REFERENCE DOCUMENT/ ACCEPTANCE NORMS -op-000 -0p-Each wire/drum QUANTUM OF Sample plan जांच की मात्रा CHECKS 유 9 9 ÷ ÷ op--op--op -0p Measurement Measurement NATURE OF जांच की प्रकृति Mechanical CHECKS Chemical Chemical Visual -op--op-Test -op--op-एनआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference) Uniformity of Zinc Coating (Dip Test) & CHARACTERISTICS ITEM/ COMPONENT Lay ratio for Aluminium & Steel. मद/घटक एवं विशेषता Testing of Stranded Steel Dia of individual wire Wt. of Zinc Coating Galvanising Test Final Inspection: Surface Finishing Elongation Test Wrapping Test **Breaking Load** Purity of Zinc Lay Direction **Torsion Test** Over all Dia Conductor S.N. 9 N 9-10 G C C B 8 G G C C 00

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)

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g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order nc-12/34/2020-T&R, dated-24.12.2021(Latest Amendment If any) issued by MOP, GOI.

Signature

Signature & Seal (C. DEPT. OR REPRESENTATIVE)

Effective Date- 09.01.2019 IMS\QAI\F01 Rev No.- 03

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

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

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

प्राहक (CLIENT):

एनएचपीसी लिमिटेड (NHPC LTD.)

विकेता (VENDOR):

टेप्पणी Remarks 유민 문문문문문 CHP 문 2 2 सत्यापन VERIFY गवाह WITNESS निरक्षिण एजेसी PERFORM प्रदर्शन 2/3 2/3 2/3 2/3 223223 2/3 RECORD FORMAT रकार्ड फ़ारमैट 류류 R JIR 2 Tech. Spec./Appd.drg./IS:398/IEC 61089 Tech. Spec./Appd.drg./IS:398/IEC 61089 Tech. Spec./Appd.drg./IS:1778 भंदभे दस्तावेज़ / स्वीकृति मानदंड Tech. Spec./Appd.drg./IS:398 Tech. Spec./IS:4826 & 6745 REFERENCE DOCUMENT/ ACCEPTANCE NORMS 6 6 6 -op--op--op-QUANTUM OF Sample plan Sample plan जांच की मात्रा 100% -op--op-000 승수 -0p--op--op-Measurement Measurement Measurement Measurement जांच की प्रकृति NATURE OF Mechanical Mechanical Mechanical CHECKS Electrical Chemical Chemical -op--opop-All tests covered under Acceptance test. & CHARACTERISTICS ITEM/ COMPONENT मद/घटक एवं विशेषता Uniformity of Zinc Coating Breaking Load Test Wt. Of Zinc Coating **Aluminium Strand Breaking Load Test** Conductor Drum Wrapping Test Routine Test Steel Strand Resistance Elongation Dimension Wrapping Diameter Diameter Torsion S.N. N (e 9000 E £ 6 € 6 € 6 4 0

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 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

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Signature

LOAS! DEPT.

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

Effective Date- 09,01,2019 IMS\QAI\F01

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

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

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

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

विक्रेता (VENDOR):

Sample plan Tech. Spec./Appd.drg./ -dodododododododododo	S. S.	Haraco ya Idaliani ITEM/ COMPONENT & CHARACTERISTICS	जान की प्रकृति NATURE OF CHECKS	जाब की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तावेज् / स्वीकृति मानदंड REFERENCE	रेकांडे फ़ारमैट RECORD	된 Insp	निरोक्षण एजेसी Inspecting Agency	,	टिप्पणी Remarks
Structural Steel, Angle Sections and Plates Structural Steel, Angle Steel, Angle Steel, Angle Structural Structure of Structural Steel, Angle Structure of Structural Structural Structure of Structure o					DOCUMENT/ ACCEPTANCE NORMS	FORMAT	प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
Structural Steel, Angle Sections and Plates Physical Properties	1	RAW MATERIAL							-	
Test for Ultimate Strength	7. 6	Structural Steel, Angle Sections and Plates								
Test for Yield Stress		Test for Ultimate Strength	Mechanical	Sample plan	Tech. Spec./Appd.drg./	TC	2/3		,) L
1) Test for Yield Stress	-				IS:2062 & 8500					2
We be brighted by the composition -dododododododod	=	Test for Yield Stress	-op-	-op-	-do-	TC.	2/3			C
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Visual checks for Surface Defects, Mild marks Visual 100% John ensional Check Zinc -do- TC 2/3 - 1 Tech. The chord of	(0	Chemical Composition	Chemical	-op-	-op-	10	2/3) C
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Zinc Chemical Composition Chemical Composition Chemical Sample plan Tech. Spec./Appd.drg./IS:209 IN-PROCESS CHECKS Proto Type Test Visual & Dimensional Measurement Measurement One structure of Spec./Appd.drg./IS:209 TC 2/3 1	6	Dimensional Chack	100000000000000000000000000000000000000	1) -	2 1	2/2		-	2
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IN-PROCESS CHECKS Proto Type Test Visual & Dimensional Measurement One structure of Tech. JIR 2/3 1					Spec./Appd.drg./IS:209)
Measurement One structure of Tech.	2.1	IN-PROCESS CHECKS Proto Type Test								
		Visual & Dimensional	Measurement	One structure of	Tech.	JIR	2/3	-		CHP

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Signature

Signature & Seal

VENDORS Q.C. DERT, OR REPRESENTATIVE)

IMS\QAI\F01 Rev No.- 03

Effective Date- 09.01.2019

NHPC (QA&! DEPT.)

उपष्कर का नाम (NAME OF EQUIPMENT) : Outdoor Pothead yard equipment-परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन Gantry/Support Structure

红春季 (CLIENT): बेल्नता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

टेप्पणी Remarks 55555 2 555 55 TC 55 VERIFY सत्यापन Inspecting Agency WITNESS निरक्षिण एजेसी गवाह PERFORM प्रदशन 2/3 22/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 RECORD FORMAT रकाड 225 55555 2 22222 ACCEPTANCE NORMS Tech. Spec./Appd.drg./ Tech. Scec./Appd.drg./ संदर्भ दस्तावेज़ / स्वीकृति Fech. Spec./Appd.drg/ Tech., Sr.ec./ IS:2633 REFERENCE DOCJMENT/ 15:2629 00 op-00 -opope 90 -op--op-QUANTUM OF Sample plan जांच की मात्रा Sample plan CHECKS One daily 100% 100% -op-99 -op--00--opopô op-Chemical Hammer Test Measurement Veasurement Measurement जांच की प्रकृति NATURE OF CHECKS Chemical Chemical Visual Visual Visual op--op--op--op-Prefluxing in Zinc Chloride & Ammonium Chloride एनआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference) & CHARACTERISTICS ITEM/ COMPONENT Galvanising Process Control Uniformity of Zinc Coating Thickness of Zinc Coating i) Zinc Bath Temperature Weight of Zinc Coating Galvanising Checks Dipping in Zinc Bath ii) Quenching in Water Adhesion Test Di-chromating i) Acid Content Visual Check Degreasing ii) Iron Content Pre-heating Pickling Rinsing 2.2 a) 9 G 9 च छ a) ତି ଓ ପ୍ରତି

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Signature

NHPC (QA&I DEPT.)

VENDORS Q.C. DEPT. OR REPRESENTATIVE)

Signature & Seal

Effective Date- 09.01.2019 IMS/QAI/F01 Rev No.- 03

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

ग्राहक (CLIENT):

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

टेप्पणी Remarks CHP TC 2 2 2 TC TC VERIFY सत्यापन Inspecting Agency WITNESS नरिक्षण एजस गवाह PERFORM प्रदर्शन 2/3 2/3 2/3 2/3 2/3 2/3 RECORD FORMAT रकाड JIR 2 5 2 10 2 Tech. Spec./Appd.drg./ IS:12427 /IS:6639 संदर्भ दस्तावेज़ / स्वीकृति Tech. Spec./Appd.drg./ Tech. Spec./Appd.drg./ Tech. Spec./Appd.drg./ REFERENCE DOCUMENT/ IS:Code 15:12427 15:1367 -op--0p-QUANTUM OF जांच की मात्रा CHECKS Sample -op--op-90 op 00 जांच की प्रकृति NATURE OF Measurement Measurement CHECKS Mechanical Visual & Visual & 00 00-00-Visual and Dimensional checks as indicated in SI. & CHARACTERISTICS ITEM/ COMPONENT मद/घटक एवं विशेषता FINAL INSPECTION & TESTING Fabricated Steel Structure Wedge Load (Tensile) Test Visual and Dimensional Head Soundness Test Physical Properties Shear Load Test Proof Load Test no. 1.1 (c) & (d) Nut and Bolts Hardness Test a) 3.2 3.2.1 3.2.2 3.7 3 a P 0 0 6

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Signature

NHPC (QA&I DEPT.)

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

IMS/QAI/F01 Rev No.- 03

Effective Date- 09.01.2019

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

प्राहक (CLIENT): वेकेता (VENDOR)

एनएचपीसी लिमिटेड (NHPC LTD.)

Page 16 of 18

टेप्पणी Remarks CHD CHP CHP 10 CHP 222 555 सत्यापन VERIFY inspecting Agency WITNESS निरक्षिण एजेसी PERFORM प्रदश्न 2/3 2/3 2/3 2/3 2/3 2/3 2/3 RECORD FORMAT रकाड फ़ारमैट 555 2 555 1 K **##** Tech. Spec./Appd. Drg./ IS:10238, 6639 & 12427 Tech.spec./ IS:4759,2629 सदभ दस्तावंज़ / स्वीकृति Tech. Spec.//S: 4759 & Tech. Spec. / IS:2629 Tech. Spec./ IS:2633 Tech. Specn./Appd Drawing/ IS:3063 REFERENCE DOCUMENT/ मानदंड -op--00--opô 9 -00-9 QUANTUM OF Sample plan Sample plan Sample plan जांच की मात्रा Random 2% CHECKS maximum -00-9 9 -op--op-90 00 -op -op Measurement **Measurement** Measurement जांच की प्रकृति NATURE OF Hammer test Mechanical CHECKS Chemical Visual & Visual & Visual Test Lest 00op 00 & CHARACTERISTICS ITEM/ COMPONENT मद/घटक एवं विशेषता Thickness of Zinc Coating Uniformity of Zinc Coating Visual and Dimensional Weight of Zinc Coating Visual & Dimensional Galvanising Tests Compression Test Proof Load Test Spring Washer Cantilever Test Hardness Test Hardness Test Adhesion Test /isual Check Step Bolts **Twist Test** 3.3 8 3 G C E 9 3 G C Q 9 000

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 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 caliber, pie tape, surface roughness tester, dial gauge etc.

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

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 QAP has been made presuming subletting of work shall be allowed in the tender, then "32" 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.

MPC (QA&I DEPT.) Signature

Signature & Seal

Effective Date- 09.01.2019 IMS/QAI/F01 Rev No.- 03

(VENDORS Q.C. DEPT, OR REPRESENTATIVE)

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपष्कर का नाम (NAME OF EQUIPMENT) :Outdoor Pot Yard Equipment -INSULATOR

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

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

ITEM/ COMPONENT	NATURE OF QUANTUM	QUANTUM	RE	रकाड कारमैट	el dsul	निरीक्षण एजेंसी Inspecting Agency	cy	टिप्पणी Remarks
& CHARACTERISTICS	CHECKS	OF CHECKS	ACCEPTANCE NORMS	RECORD	प्रदर्शन PERFORM	TIGIE	सत्यापन	
Routine Tests on Fired Shells					10000	201	VEINE	
a) Visual Examination	Visual	Sampling	Tech. Spec/Appd.drg./ 1S:731	7	2/3	į	÷	CF
b) Porosity	Mechanical	-op-	-op-	TC	2/3	1		2 5
c) Hydraulic Proof Test	-op-	-op-	-00-	-	2/3) (c
d) Temperature Cycle Test	Thermal	-02-	0 0	2 6	2 0			2
Assembly		3		١	2/3	ì	-	21
a) Cement Mix Check (Flow value)	Measurement	-op-	-GD	7	2/3		,	CH
b) Curing Temp, in Hot Water Bath	Visual	-00-	, t	1	2/3	c l) (F
Routine Test on Insulator				2	27	ı		2
a) Mech. Routine Test	Mechanical	100%	Tech.Spec./ Appd.drg. IS:731/13305 & 5350	2	2/3	•	÷.	10
b) Electrical Routine Test	Electrical	-op-	-op-	TC	2/3	3	1	DI.
c) Visual Examination	Visual	-op-	-00-	70	2/3	4	-	TC

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/Relevent 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 QAP stipulates the bare minimum requirements which shall be compiled by the contractor. The above QAP has been made presuming subletting of work shall be allowed in the tender. In case 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. subletting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column " Perform"

Signature & Seal

Signature

(QA&I DEPT.)

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

IMS\QAI\F01

Rev No.- 03 Effective Date- 09.01.2019

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

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

S.N.	S.N. ITEM/ COMPONENT	जांच की प्रकृति जांच की मात्रा NATURE OF QUANTUM	जांच की मात्रा QUANTUM	सद	रेकाँड फ़ारमैट	性 dsul	निरीक्षण एजेंसी Inspecting Agency	ıcy	टिप्पणी Remarks
	& CHARACIERISTICS	CHECKS	OF CHECKS	ACCEPTANCE NORMS	RECORD	प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	
	Acceptance Test on Insulator								
	Verification of Dimensions.	Measurement	Sampling Plan	Tech.Spec./ Approved drg./ IS:731/13305 & 5350	JIR	2/3	*		CHP
	Temperature Cycle Test	Thermal		-op-	JIR	2/3		7	GHD
	24 hrs. Mechanical Strength Test.	Mechanical	-op-	-op-	JIR	2/3		4	a HO
	Electro-Mechanical Failing Load Test	-op-	-op-	-op-	JIR	2/3		i	GH.C.
	Mechanical failing load Test	-op-	-op-	-op-	JIR	2/3	+		dHD.
	Puncture Test	Electrical	-op-	-op-	JIR	2/3	-	G	CHP
	Porosity Test	Mechanical	-op-	-op-	JIR	2/3	-		品:
	Galvanising Test	Chemical	-op-	-op-	JIR	2/3			CHP
	Test on locking devices for ball &		Ü			i			
	socket coupling								
	Visual, dimensions, hardness &	Mechanical	-op-	Tech.Spec./Appd.drg./IEC:6t372	Ç	212		i) y	

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 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 Note:

c. The firm shall obtain acceptance/clearance of finished product for further activities based on Test Ce tificates & 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/Relevent standard apart from QAP will be carried out by the firm without any additional financial

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, 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-12/34/2>20-T&R, dated-24.12.2021(Latest Amendment if any) issued by MOP, GOI.

Signature

(VENDORS Q.C. DEPT. OR REPRESENTATION Signature & Seal

> Effective Date- 09.01.2019 Rev No.- 03

IMS/QAINF01

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 their latest manufacturing practice and Indian/ International Standards (with latest amendments, if after incorporating all tests for bought out items, in process inspection and final inspections as per
- /equipments during testing/inspection, for which necessary calibration certificates are required to 2. Contractors/Manufacturers/Sub-suppliers are required to use properly calibrated instruments 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.
- Field tests are to be carried out as per the requirements of the contract / purchase order. 9

Page 2 of 7

उपष्कर का नाम (NAME OF EQUIPMENT) : 400 kV XLPE cable एनआईटी/ क्रय आवेश संदर्भ(NIT / P.O. Reference) : परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी शिमिटेड (NHPC LTD.)

S.N.	ITEM/ COMPONENT	NATURE OF	जाच की मात्रा QUANTUM OF	सदभ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE	रेकाँड फारमैट	dsul	निरीक्षण एजेसी Inspecting Agency		tewnii Remarks
	a Characteristics	CHECKS	CHECKS	NORMS	RECORD	प्रदर्शन PERECIPM	MITNESS	सत्यापन	
_ +	Raw Material						MINESS	VENIF	
	copper conductor								
6	Diameter	Measurement	100%	Tech.Spec./ IS:8130/IS:613/IEC:60228	2	2/3			1
(q	Surface Condition & Conductivity	Visual/Flectrical	Sample plan	-	-		Ý		2
(3)	Tensile Strength (T.S) and Flounation at hosak	Mechanical	and old into	-00-	٥	2/3		+	5
	(E.B.)	BOIL DO NO.	-00	-00-	10	2/3	ų.	-	2
_	Chemical Composition	Chemical	-05-	100	CF				
1.2	Insulating Paper (As Applicable)			7	١	2/3	11	6	10
-	Thickness	Measurement	Samoling Plan	Tak Shoot Mand Day Hoot	C.F	2		^	4
	Tensile Strenath	Machanical	E OF	Daller Bloomed Coads I so	2	5/13			10
	Flondation	To the same of the	-00-	-00-	0	2/3	i.	+	TC
. 00	Internal & External Semiconductive shield	-00-	-00-	-00-	2	2/3	,	+	TO.
-	Check of Compound Grade	Verification	Sample plan	Tach Spec JS/IEC	O.F	e/c	1		,
	Volume Resistivity	The ships of	Charles and a second	OH OHE NOTE OF	2	5/3			2
100	Committee Commit	Electrical	-00-	-op-	10	2/3	i e	-	
н	Specific Gravity/Density test	Physical	-op-	-cp	TC	212		,	CF

2/3 TC

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & C.H.P. - 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.

f. This GAP 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 GAP as been made presuming subjetting of work shall be allowed in the tender. In case subjetting of work is not allowed in e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevent standard apart from QAP will be camed out by the firm without any additional financial implication. 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

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

IMSIQANF01 Rev No.- 03 Effective Date- 09.01.2019

उपष्कर का नाम (NAME OF EQUIPMENT) : 400 KV XLPE cable एनआईटी। क्रय आदेश संदर्भा NIT / P.O. Reference) परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

Page 3 of 7

टिप्पणी Remarks 555 5555 222 5555 555555 सत्यापन VERIFY WITNESS PERFORM प्रदर्शन 273 2222 2/3 273 273 273 273 273 223 223 23 RECORD रकाड फारमैट 555 5555 555 2222 555555 REFERENCE DOCUMENT/ ACCEPTANCE Tech Spec./Appd.Drg./IEC:62067 Teel Spec./Appd.Drg./IEC:62067 Tech Spec./Appd.Drg./IEC:62067 Tech Spec./Appd.Drg./IEC:62067 Tech Spac./Appd.Drg./IEC:62067 सदम दस्तावेज़ / स्वीकृति मानदङ ę -00 -op--op-जाब की मात्रा QUANTUM OF Sampling Plan Sampling Plan Sampling Plan Sampling Plan Sampling Plan -op--00--opô -00-9 -00 -00--op-90 -opop-जॉच की प्रकृति NATURE OF Measurement Measurement Measurement Mechanical CHECKS Mechanical Mechanical Mechanical Mechanical Electrical Electrical Electrical Visual Visual Physical Physical Physical 6 Semi Conductive /Non Semiconducting Tape ensile Strength & Elongation, Ageing Test & CHARACTERISTICS मद/घटक एवं विश्वषता ITEM/ COMPONENT TS & EB, Annealing Test (Cu Only) Tensile Strength and Elongation ielectric loss angle(Tan Delta) Aluminium Wire(if applicable) fardness Shore (If applicable) Fensile strength & Elongation Oxygen Index and Temp Index Specific Gravity/Density Test Surface ConditionDimension Check for Compound Grade Swellable height and speed Aluminium Tape/Cu Tape Sheathing Compound Mechanical Strength XLPE Compound Chemical Purity Melt Index Test ermittivity =longation Resistivity S.N.

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

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)

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

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g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2024-18R, dated-24.12.2021(Latest Amendment if any) issued by MOP.GOI

Rev No.- 03 Effective Date- 09.01.2019 IMSIGAINF01

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

QAN DEPT Signature

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

ग्राहक (CLIENT): विकेता (VENDOR):

एनएवपीसी विमिटेड (NHPC LTD.)

Page 4 of 7

SN	I ITEM/ COMPONENT	आच की प्रकृति NATHRE OF	जांच की मात्रा	संदर्भ दस्तावंज / स्वीकृति मानदङ	रकांड	4	निरोक्षण एजेसी		ियाणी Remarks
100	& CHARACTERISTICS	CHECKS	CHECKS	NEFERENCE DOCUMENT/ ACCEPTANCE NORMS	RECORD FORMAT	प्रदर्शन PERFORM	TIGHT WITNESS	सत्यापन VERIFY	
	Chille PD Monitoring system	Test	100%	Tech Spec./Appd Drg./IEC	TC	2/3		-	TC
1.1	1.10 Year I me Temperature Monitoring System with Distributed Temperature Sensing System using embedded optical fiber as sensor	Test	100%	Tech Spec./Appd.Drg./IEC	70	2/3	Œ	*	2
1.1	1.11 Cable support system (Cable Trays/ Hangers, Clamps & fixture, hardware etc)	-00-	1 Sample/Lot/Size	Tech Spec./Appd.Drg./IEC.62067/ IEC 60229, 60230, 60270	2	2/3		÷	2
2,12	1.12 Bonding arrangement accessories 2 Electrical Type Test on Complete Cable System	Physical	-op-	+0p-	5	2/3	÷	F	10
<u>a</u>	Bending Test	Physical	1 Sample/Lot/Size	Tech Spec / Appd Drg / IEC 62267/ IEC 60229, 60220	70	2/3		-	7
â	Dielectric Loss Angle Test	Electrical	-do-	-do-	10	5/3	0	*	Ļ
O f	Healing Cycle Voltage Test	Thermal	-op-	÷	1	273			2 4
6	Fartial Discharge Test	Electrical	-op-	-do-	1	2/3			24
6	Switching Impulse Voltage Test	-00-	-do-	5	2 4	2 0		- 1	2
0	Lightning impulse Voltage Test Followed Power	-op-	-op-	-op-	20	2/3	с.,		5 5
6	Tests for outer protections for Jointe	Dhuadani	- 100						

Tests for outer protections for Joints Physical -do.

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 'supplier' & 3-will indicate state supplier & 3-will indicate state 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 of The firm shall obtain acceptance/clearance of finished product for further activities based on Test Certificates & Internal Report (IR)

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

IMSIQARE01 Rev No.- 03 Effective Date- 09.01,2019

उपस्कर का नाम (NAME OF EQUIPMENT) : 400 kV XLPE cable एनआईटी। क्रय आदेश संदर्भ(NIT / P.O. Reference) : परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT): विक्रेता (VENDOR);

एनएचपीसी विमिटेड (NHPC LTD.)

Page 5 of 7

duvil Remarks 555 2 2 20 5555 5555 2 2 2 10 55 100% 100% 96001 WITNESS निरक्षिण एजेसी PERFORM प्रदर्शन 2/3 233 233 233 233 2/3 273 273 273 273 273 273 273 273 273 273 2/3 2/3 2/3 23 23 23 रेकांड फारमैट RECORD 555 20 5555 555 2 2 10 2 10 25 Tech Spec./Appd.Drg./IEC:62067/ IEC 60229, 60230, 60270/ IS 7098-3. संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT, ACCEPTANCE Tech Spec /Appd. Drg //EC:62067/ IEC 60229 Tech Spec./Appd.Drg./IEC;62067/1S 7098-3 Tech Spec./Appd Drg //EC:62067/15 7098-3 Tech Spec./Appd.Drg./IEC:62067/1S 7098-3 60230, 60270/ IS 7098-3 -op--op--op-00 -op--op--op--op -00-9 9 -00--op QUANTUM OF Sample Plan Sample Plan जाब की मात्रा Sample Plan Sample Plan 100% Drum CHECKS -op--00--00-9 -op -op--op-90 -00-9 óp -op-99 유 -op-जाच की प्रकृति NATURE OF Measurement Measurement Measurement Mechanical Mechanical CHECKS Thermal Electrical Electrical Physical Physical Thermal Physical Physical Physical 9 -0p--op-Heat shock test for PVC oversheaths (ST1 and ST2) Loss of mass test on PVC oversheaths of type ST2 Tests on components of cables with a longitudinally Pressure test at high temperature on oversheaths Measurement of carbon black content of black PE fensile & Elongation of XLPE and Outersheath Thickness eccentricity of Insulation and Outer Shrinkage test of Insulation & Outer Sheath & CHARACTERISTICS Semi-conducting Screen resistivity test Non-Electrical Type Test on Cables मद/घटक एवं विशेषता ITEM/ COMPONENT Hot set test for XLPE insulations Hot deformation of Outer sheath Test for concentric copper tape Test for concentric copper wire oversheaths (ST3 and ST7) Conductor Resistance Test before & after ageing) Water penetration test Armouring material ensile & Elongation Partial discharge test High Voltage Test Metallic Screen Wrapping Test Resistivity Test Routine Tests Ageing Test Dimensions m m P 0 9 6 6 62

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0 4 6 9 a In 'Inspection Agency' column figure 1,2,or 3 to be filled. 1- will Indicate Employer/ NHPC LTD', 2- will indicate

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 calibrate, surface roughness tester, dial gauge etc.

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Effective Date- 69.01,2019 IMS/GAINF01 Rev No.- 03

Signature & Seal

उपव्कर का नाम (NAME OF EQUIPMENT) : 400 kV XLPE cable एनआईटी/ क्रम आदेश संदर्भ(NIT / P.O. Reference) : परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी विमिटेड (NHPC LTD.)

टेप्पणी Remarks 물물 ******** 문문문 CHP 문 生 무 S.F. 보 Inspecting Agency WITNESS निरोक्षण एजेसी गवाह PERFORM 2/3 2/3 2/3 2/3 BECORD FORMAT **EEEEEEE** # # # # # 555 Tech Spec./Appd.Drg /EC:62067/1EC 60229, संदर्भ दस्तावेज / खीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE Tech Spec./Appd Drg./EC:62067/ IEC 60229, Tech.Spec./ASTM.D 2843/IEC 61034 Tech.Spec./S:155-/ IEC:60331, 60332 Tech Spec/Appil Drg /IS 7098-3 Tech spec/IEC/ ASTDM 2863 60230, 60270/15 7098-3 Tech Spec //EEE-383 Tech. Spec./ IEC 754 8 8 8 Ó ģ Ò ò Ó Ó जांच की मात्रा QUANTUM OF CHECKS Sample Plan Sample Plan Sample Test * * * * * * è. op--00--opop op--op--00op-Measurement जॉच की प्रकृति NATURE OF Measurement Aeasurement -do--do-Flam. -do-Chem. CHECKS Physical Thermal Electrical Electrical Thermal Electrica Electrica -op--op--00-Acceptance Test Conductor Examination (no of strands, lay direction. applied metal tape or foil, bonded to the oversheath Test on components of cables with a longitudinally Electrical Resistance of Conductor and of Mettalic Hot Set Test and permanent set test for XLPE Measurement of Thickness of Metallic Sheath Measurement of Diameter of core and overall Measurement of Thickness of Insulation and Specific gravity/ density test of Outer Sheath & CHARACTERISTICS मद/घटक एवं विशेषता ITEM/ COMPONENT Additional test (As applicable) ightning impulse Voltage Test Measurement of Capacitance Vold and contamination test Anti Rodent & Termite Test HCL Gas Generation Test emperature Index Test Water Penetration Test lay length, dimension) Partial discharge lest Smoke Density Test Oxygen Index Test lammability Test Cold Impact test IR & HV Test adder Test 50-05--S-E 2526666666 G 22 9 0

b. In 'Remarks' column following, abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Polint, COC - Certificate of Conformance Check for Embossing & Colour Coding etc. Visual -do- do- Tech Spec/Appd. Drg. a. in "inspection Agency" column figure 12,or 3 to be filled. 1-will indicate Employer/ 1'NHPC LTD; 2-will indicate 'supporer' & 3- will indicate 'sub-sur

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

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevent standard apart from QAP will be carried out by the firm without any additional financial implication. d. At the time of Inspection the supplier shall arrange the requisite calibrated measuring instruments, emicrometer, vernier caliper, pie tape, surface roughness tester, dial gauge etc.

f. This CAP does not absolve the Contractor/sub-contractor of his responsibility to supply the correct procucts, strictly in conformity to the specifications given in the purchase arder/contract. The above CAP has been made presuming subletting of work shall be allowed in the tender, in case subletting of work is not allowed in the tender, in case subletting of work is not allowed in the considered as "2" under the column " Perform".

g Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-1787, date 1-24.12.2021(Latest Amendment If any) issued by MOP, GOI

Signature

Signature & Seal (VENDORS Q.C. DEPT. OR REPRESI

IMSIGAINF01 Rev No.- 03 Effective Date- 09.01,2019

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उपायकर का नाम (NAME OF EQUIPMENT) : 400 KV XLPE cable ,नआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference) परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

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

2 555 5555 5555 5555 सत्यापन निरीक्षण एजेसी गवाह WITNESS प्रदर्शन 2/3 2/3 233 233 2222 2232 रकाई फ़ारमैट RECORD 2222 5555 5555 Tech.Spec./Appd Drg / IEEE std.48 / IEC; 62271 Tech.Spec./Appd Drg./IEEE std.48/ IEC: 62271 Tech, Spec./Appd Drg./IEEE std.48/ IEC: 62271 Tech, Spec, /Appd Drg./IEEE std, 48/ IEC; 62271 REFERENCE DOCUMENT/ ACCEPTANCE संदर्भ दस्तावेज़ / स्वीकृति मानदंड Tech.Spec./Appd.drg./IS NORMS -do--op QUANTUM OF जांच की मात्रा Each Drum CHECKS 100% 100% 100% 100% -op--op-00opop. जांच की प्रकृति NATURE OF Weasurement/ Measurement Measurement Measurement CHECKS Electrical Electrical Electrical Electrical Visual Visual opop--op--op--do--00op 00 Oil Immersed Sealing End (If applicable) Appearance & Dimensional Check & CHARACTERISTICS Packing, Marking & End Sealing ITEM/ COMPONENT Appearance & Dimensional Check. Appearance & Dimensional check Pothead Yard Sealing End Appearance & Dimensional check. Marking on Cable Drum Pressure Leak Test. Partial Discharge Test. artial Discharge Test. artial Discharge Test. ressure Leak Test. ressure Leak Test. ressure Leak Test. SF⁶ Sealing End Dielectric Tests. Diefectric Tests. Dielectric Tests. ielectric Tests. End Sealing 9 0 0 0 0 0 6 6 7 6 0 6 6 7 6 0 6 6 7 6 0 6

b. In 'Remarks' column following, abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point, COC - Dertificate of Conformance, 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/Relevent slandard apart from QAP will be carried out by the firm without any additional financial implication

f. This GAP 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 orderfoontract. The above Model GAP as been made presuming subjecting of work shall be allowed in the lender. In case sublecting of work is not allowed in the tender, then "3/2" shall be considered as "2" under the column " Perform".

g. Biddar/Contractors/Suppler/OEM shall ensure compliance of cyber security as per order no-12/34/2020-18/R, dated-24,12,2021(Latest Amendment if any); ssued by MOP, GOI

OABI DEPT. Signature

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE

Rev No.- 03 Effective Date- 09.01.2019.

IMS\CANF01

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

Special instructions: -

- incorporating all tests for bought out items, in process inspection and final inspections as per their latest 1. Contractors/Manufacturers/Sub-suppliers are advised to submit QAP for equipments/ system/ materials after 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.



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

	The second secon	Contract of the Assessment	जीन की माना	सद्भ दस्तावेज / स्वीकृति मानदेड	रिकाइ प्रारूप	ानराक्षण ए	HAIRIN RAIN (INSP. AGENCY)	GENCY)	ilamo!
SR. NO.	मद/घटक एवं विशोषता item /components & characteristics	MATURE OF CHECKS	QUANTUM OF CHECKS	REFERENCE DOCUMENTS / ACCEPTANCE NORMS	RECORD	प्रदर्शन Perform	गवाह Witness	सत्यापन Verify	REMARKS
Raw Material	in i								
Structura	el (Box Girder, End Trucks, Trolly, Rails, Beam etc.)	Chemical Analysis Mech. Properties Ultasonic Test (UT for above 19 mm)	Sample/Batch -do- 100%	Appd. drawings/ Tech. specs./ Relevant Standard	5	3/2	×	-	70
Cast/For	Cast/Forged Steel (Wheels, Shafts, Pulley, Pins,Gears, Pinions, Brake Drum, Couplings, Hook etc.)	Chemical Analysis Mech. Properties Ultasonic Test (UT for above 50 mm)	Sample/Batch -do- 100%	-op-	5	3/2		-	5
Rought (Rought Out Items								
Drive Mc Wire Ro	ig, Gear Box, Plumber Block, EHT Brakes, EM Beakes, cal Cables, Remote Radio Control, Load cell system,	Make, Type &,Ratirg, Routine Test	100%	-op-	10	3/2	i	-	2
Detection device control device Circumferentia	(Anti collision limit switch, Over load detection device,Load tection of Brake Wear, Over speed detection device, ble staggering on drum, Unbalancing detection device etc) -	Make, Type & Rating, Routine Test	100%	-op	5	3/2	•	~	72
In Proce	In Process State Inspection			-	O.F	212			TC
Moldor	Melan postification	Visual	100%	-op-	2 6	200			TC
WEIGH	Julian Cillot Moldo	UT, MPI, DPT	-op-	-op-	2 9	2/0			T
NO I-W	ND I-weigning milet weigs	(as applicable)	100%	-op-	2	3/2	-		2
Post We	ND1-Butt Werds (Box Grider), 130-6 Drums, Gear Box Housing, Post Weld Heat Treatment (Fabricated Rope Drums, Gear Box Housing, Formed Crane hooks)	Heat Treatment Chart	-op-	-op-	10	3/2		-	5
Machining	U.S.			1	J.	312			TC
Surface	Surface Finish (Rope drum shaft, Rope Drum grooves, Brake Drum)	Visual/Measurement	-op-	-507	2 2	3/2		1	RR
Dimensions	ons	Measurement	-Op-						
2.6 Sub-As	Sub-Assembly Stage- Drive Mechanism, Hoist / Trolly arrangements, Brakes				9	319	1		RR
Alianme	Aljanment/Lavout	Visual/Measurement	100%	-op-	<u> </u>	3/2		,	RR
Dimone	Dimensional check	Visual/Measurement	-00-	-00-	1				0
Running	Running Performance (Drive Motors, Gear Boxes)-Noise level, Vibration,	Visual/Measurement	-op-	-op-	TC	3/2	,	-	2
Temp, I	Temp, rise, Leakage Test - Gear Boxes etc	Load Test	-op-	-op-	TC	3/2		-	2
NDT-af	Crane Hook-Proof Load Test NDT-after Proof Load Test Butt Welds (Box Girder, Rope Drums and other full property welds)	UT, MPI, DP ⁻ (as applicable)	-op-	-op-	5	3/2	•	-	1
Finalir	Strength weres. Final inspection Tests on assembled Crane at manufacturer's works				9	CIC	-	1	CHD
	(Aldanlinably Visconias observed (if annihable)	Visual/Measurement	-op-	-OD-	VIII.	200	1		OHD
3.1 Operator's cabii	Operator's cabin- Dim. Check & its accessories crieck in applicable.			-	0	317			

NHPC LTD (QA&! DEPT.) Signature

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

Rev-03 Effective date-09.01,19 IMS/QAI/F-01

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

उपस्कर की नाम (NAME OF EQUIPMENT) : EOT Crane

विकेता (Venbor) : एनआईटी/ क्रप आदेश संदर्भ (NIT/P.O. REFERENCE) : ग्राहक (cuent) : एनएचपीसी लिमिटेड (NHPC Limited)

Page 3 of 3

SR. NO.	ITEM /COMPONENTS & CHARACTERISTICS	जांच की प्रकृति	जांच की मात्रा	संदर्भ दस्तावेज़ / स्वीकृति मानदंड	रिकाँड प्रारूप	निरीक्षण ए	निरीक्षण एजेंसी (INSP. AGENCY)	AGENCY)	Baroff
T	COLLEGE OF THE PROPERTY OF THE	NATURE OF CHECKS	QUANTUM OF CHECKS	REFERENCE DOCUMENTS / ACCEPTANCE NORMS	FORMAT	प्रदर्शन Perform	Witness	सत्यापन	REMARKS
	Dimensional check on assembled crane - bridge structure (Box girders, end trucks) hoisting trolly frame, travelling mechanism	Measurement	100%	Appd. drawings/ Tech.	JIR	3/2	-	-	CHP
3.4	Deflection test at Rated load	- db	op	Special relevant ciandalu	-	1			
3.5	Operational/functional test	1000	-Op-	-OD-	AIIX	3/2	-		SF
a)	Hoisting and LT & CT Speeds - without load	Measurement	-00-	1	0	C, C	,		0
	Hoisting and CT Speeds at rated load	-00-	000	100	200	2/5			E I
()	Hoisting and CT travel test at 125% of rated load	0 0	-00-	-on-	215	3/2			CHB
	Function of brakes for trolly and hoistings	-00-	-00-	-op-	AIL.	3/2	-		CFP
10	Crooning and I was a second of the second of	Visual/ivieasurement	-OD-	-op-	JIR	3/2			CHP
Т	Creeping speed 30g movement with rated load (VVVF Drive)	-op-	-op-	-op-	JIR	3/2	1		CHP
T	Functional Test of Monorall Hoist (if applicable)	-op-	-op-	-op-	JIR	3/2		1	CHD
(6	Radio control test of speed control of bridge travels, trolly travel & Hoist motion, control of master contactor, indication and alarm (if applicable) (Bridge travel motion in idje condition only)	-op-	-op-	-op-	AL N	3/2	-	100	용
	Pendant Control test (If applicable)	-op-	-op-	-00-	all.	CIE	+		OUD
4	Control Panel					210			100
4.1	Resisters, Capacitors, Limit Switches, Master Controllers, Thyresters, VVVF Modules, Transformers, Circuit Breakers, Switches etc. (As applicable)	Electrical Test	-op-	-op-	10	3/2		-	5
		Visual	-op-	-op-	All.	3/2			CHD
4.3		Measurement		-00-	III	312		1	
T	4.4 Functional check including HV and IR tests	Visual/Test	-op-	-60-	All.	3/2			200
4.5	Sequence of operation and interlock tests	Visual/Test	-op-	-do-	JIR	3/2	-		공
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	-op-	-op-	JIR	3/2	-	T T	CHP
10	Surface Preparation & Painting	Visual / Measurement	-op-	-op-	TC	3/2		-	72
	Note: a In Inspection Apparation floring 1.3 or 3 to by filled 1 Ill colleges present on the filled	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							

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.

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

!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/Relevent 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/QAI/F-01

Rev-03 Effective date-09.01.19

NHPC LTD (QA&! DEPT.)

Signature

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

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 compiled 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".

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. R. Standard Stan

उपष्कर का नाम (NAME OF EQUIPMENT) : Cabling System- 11 kV XLPE cable परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NНРС LTD.)

Page 2 of 12

S. S.	HG/NC40 Q4 T4RINGT ITEM/ COMPONENT & CHAPACTEDISTICS	जाच की प्रकृति NATURE OF	जांच की मात्रा QUANTUM OF	संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE	रेकांडे फ़ारमैट	dsul	निरीक्षण एजेसी Inspecting Agency		Remarks.
	O COLONIA DE COLONIA D	CHECKS	CHECKS	NORMS	FORMAT	प्रदर्शन PERFORM	TIGITE	सत्यापन VERIFY	
	Raw Material and Bought Out Items Copper Conductor, Copper Rod /Aluminium Rod (As Applicable)								
â	Diameter	Measurement	Sample Plan	Tech.Spec./ IS:5484/IS:8130/Relevant	72	3/2	×	-	70
	No. of Strands & Lay Direction	Count.	-op-	-69-	O.F.	3/2		,	40
Ĭ.	DC Resistance	Electrical	-op-	9-0-	2 5	2/2			2 6
	Resistivity/Conductivity	Electrical	-op-	3 5	2	3/2			2 6
	T.S. & E.B.	Mechanical	-op-	-60-	2 5	3/2			2 6
	Chemical Composition.	Chemical	-do-	-00-	100	3/2			2 6
	PVC Compound			3	2	210			2
	Specific Gravity	Measurement	Sampling Plan	Tech Spec/IEC/IS	J.	3/2	14	,	4
	T.S. & E.B. before and after Ageing	Mechanical	-op-	Tech. Spec./18:5831	1 2	3/2			2 5
	Loss of mass	Thermal.	-op-	-00-	1	3/2			2 5
	Thermal Stability	-op-	-op-	-op-	100	3/2			2 5
	Oxygen Index	Envi.	-op-	Tech. Spec./ IS:7098-2/ ASTM 2863	100	3/2			2 5
	Temperature Index	Envi.	-op-	-00-	10	3/2		,	100
	Acid Gas Generation Test	Chemical	-op-	Tech, Spec,/IS:7098/IEC754-1	100	3/2	,		2
	Smoke Density Test	Envi.	-op-	Tech. Spec./ ASTM D2843-93	7	3/2		- 5	TO
V	Anti Termite & Anti Rodent Test	Chemical	40	Toch Chec / IC	-	C, C			1

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 caliber, ple tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevent 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 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. In case subletting of work is not allowed in the tender. The above QAP has been made presuming subletting of work shall be considered as "2" under the column." Perform."

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-7&R, dated-24.12,2021(Latest Amendment if any) issued by MOP, GOI.

Hanature

Signature & Seal

(VENDORS Q.C. DEPT, OR REPRESENTATIVE)

IMS/QAI/F01

Rev No.- 03 Effective Date- 09.01,2019

उपष्कर का नाम (NAME OF EQUIPMENT) : Cabling System- 11 kV XLPE cable एनआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference) परियोजना (PROJECT) : तीस्ता-V पावर स्टेथान

ग्राहक (CLIENT): विक्रेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

Page 3 of 12

Remarks 5555 555 सत्यापन VERIFY Inspecting Agency WITNESS निरीक्षण एजेसे PERFORM 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 FORMAT RECORD रकार्ड फ़ारमैट 2222 55555 2222 222 2 22 संदर्भ दस्तावेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE Tech.Spec./GTP / IS:7098-2/Relevant Tech. Spec./ IS 7098-2//Relevant Tech. Spec./ IS:3975//Relevant Tech. Spec./ Relevant standard Tech.Spec./GTP / IS:7098-2 Applicable Standard Applicable Standard Tech. Spec./ IEC/ IS Applicable Standard 00--opopop-00 -opop 00--op--op-QUANTUM OF CHECKS Sampling Plan Sampling Plan Sampling Plan Sampling Plan जांच की मात्रा 9 9 -op--0p-9 9 -opop--op--00--op--op--op--op-00 Electrical Measurement Physical. Measurement Measurement Measurement Measurement जॉच की प्रकृति NATURE OF Mechanical Mechanical Mechanical Mechanical CHECKS Electrical Electrical Thermal Visual op--op--opop-Tensile & Elongation (before & after ageing) Moisture Content Test/ water absorption & CHARACTERISTICS ensile & Elongation, Annealing test मद/घटक एवं विशेषता ITEM/ COMPONENT Dip test & mass of Zinc coating Semi-conducting compound Stripablity test(If Applicable) Armour Wire /Strip XLPE Compound Volume Resistivity Specific, Gravity Shrinkage Test Resistivity Surface Finish Resistivity test Copper Tape Winding Test ID/OD of coil Torsion Test Dimension Sp. Gravity Dimension Hotset test S.& E.B. Resistivity

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

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Tes: 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)

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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

Signature & Seal

(VENDORS Q,C, DEPT, OR REPRESENTATIVE)

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IMSIQAINF01 Rev No.- 03 Effective Date- 09.01,2019

उपष्कर का नाम (NAME OF EQUIPMENT) : Cabling System- 11 kV XLPE cable एनआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference) : परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

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ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

Page 4 of 12

Remarks CHP 문 CHP CHP CHP 2 5 5 5 5 5 5 5 5 55 सत्यापन VERIFY Inspecting Agency WITNESS निरक्षिण एजेसी PERFORM 3/2 3/2 3/2 3/2 3/2 3/2 2/3 3/2 3/2 3/2 3/2 3/2 3/2 FORMAT RECORD रकांड फ़ारमैट 2 222 5 5 5 SIR. SE E E JIR JIR A. 2 10 2 Tech.Spec./Appd.drg./IS:7098-2 / IS:8130 Fech.Spec./Appd.drg./IS:7098-2 / IS:8130 REFERENCE DOCUMENT/ ACCEPTANCE Tech. Spec./ IS/ IEC/Relevant Applicable Tech. Spec./ IS/ IEC/Relevant Applicable Tech.Spec./Appd.drg./IS:7098-2 & 1554 संदर्भ दस्तावेज़ / स्वीकृति मानदंड Tech.Spec./IEC/IS:7098-2 90 유 op-Standard Standard -op-9 op -op op--0p 00-QUANTUM OF Sampling Plan Sampling Plan Sampling Plan Sample Plan -op--00op-100% -00-90 -op-9 -ope 9 जॉब की प्रकृति NATURE OF CHECKS Measurement Mechanical Mechanical Mechanical Mechanical Mechanical Electrical Electrical Electrical Electrical Visual Visual Visual -op-9 Embossing, Colour Coding & End Sealing of Cable In Process Test of Copper/Aluminium conductor Annealing Test (For Solid Copper Conductor) compression type terminal, Button tape, self Termination kit, cable lugs, Cable Glands, All Type Test as per the IS/IEC Standards Annealing Test (For Copper Conductor) & CHARACTERISTICS High Voltage Test (At Room Temp.) ITEM/ COMPONENT Thickness of Insulation & Sheath Wrapping Test (Al conductor) and Drum packing & marking Tensile Test (Al conductor) Conductor Resistance Test Conductor Resistance Test PD Test (screened cables) Hot Set Test for Insulation Adhesive marker etc Acceptance Test DC Resistance (As Applicable) No. of Strands Routine Tests Lay Direction FINAL TEST Accessories

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-supp

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) description 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/Relevent 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 QAP has been made presuming subjetting of work shall be allowed in the tender, in case subjetting of work is not allowed in the tender, then "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.

CARI DEPT. Signature

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

Rev No.- 03 Effective Date- 09.01.2019

उपप्कर का नाम (NAME OF EQUIPMENT) : Cabling System-11 kV XLPE cable एनआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference) : परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

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ग्राहक (CLIENT): विक्रेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

TEM/ COMPONENT	जान का प्रकृति NATURE OF	OUANTUM OF	सदभ दस्तावज्ञ / स्वीकृति मानदंड REFERENCE DOCIMENT/ ACCEPTANCE	रेकाँड		निसीक्षण एजेसी		Raph
	CHECKS	CHECKS	NORMS	RECORD	PERFORM	गवाह WITNESS	सत्यापन VERIFY	Remarks
	Mechanical	Sampling Plan	Tech.Spec./Appd.drg./IS:7098-2	JIR	3/2	+		CFD
Partial Discharge Test (for Screened only)	Electrical	Sampling Plan/ Full drum length	-op-	JIR	3/2	-		CHP
	Electrical	Sampling Plan	-op-	all.	3/2	•	-	070
	Electrical	-op-	-op-	JIR	3/2			3 5
Test for cross linking for extruded semiconducting screen	Physical	-op-	-op-	JIR	3/2	-	,	CH _P
							-	
	Chem.	Sampling Plan	IS 7098-2/ IEC 754(1)	AR.	3/2	•		OH C
	Thermal	-op-	Tech. Spec./ IS:7098-2/ ASTDM 2863	AIN	3/2			H S
	-op-	-op-	-op-	AIL.	3/2			GH _D
	-op-	-op-	Tech.Spec./ASTM D 2843/ IEC 60332-1	SIS.	3/2			문
	Physical	-op-	Tech.Spec.//S:1554//EC 60331 & 60332	JIR	3/2	F		CHP
	-op-	-op-	Tech, Spec./SS-424-14-75	E S	3/2			O H
	-op-	-op-	Tech.Spec,/IEEE-383/IEC:331 & 332	JIR	3/2	-		CHP
	Thermal	-op-	Tech.Spec.//S:1554 & 10810	JIR	3/2	*	,	CHP
	Chemical	-00-	Tech. Spec./ IS	TC	3/2		+	TC
Check for Embossing and Colour Coding, etc.	Visual	-op-	Tech.Spec./Appd.drg./ IS	JIR	3/2	+	-	CHP
	Visual	Each Drum	Tech.Spec./Appd.drg./1S	70	3/2		· *	2
	-op-	Sampling Plan	-op-	AIL.	3/2	,		G E

a. In 'Inspection Agency'column figure 1,2,or 3 to be filled, 1-will indicate Employer' NHPC LTD, 2-will indicate 'supplier' 8.3-will indicate 'sub-supplier

b. In 'Remarks' column following, abbrev/ations 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) and Compared for the firm shall darrange the requisite calibrated measuring instruments te micrometer, vernier caliber, pie tape, surface roughness tester, dial gauge etc.

e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevent 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 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 "32" under the column " Perform".

g. Bidder/Contractors/Supplier/OEM shall ensure compliance of cyber security as per order no-12/34/2020-78.R, dated-24.12.2021(Latest Amendment if any) issued by MOP,GOI.

Signature

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

Rev No.- 03 Effective Date- 09.01.2019 IMS/QAI/F01

Page 5 of 12

उपष्कर का नाम (NAME OF EQUIPMENT) : Cabling System- 1.1 kV Cable परियोजना (PROJECT) : तीस्ता-V पावर स्टेशान

ग्राहेक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

Page 6 of 12

Remarks 5555 555555 555555555 सत्यापन VERIFY Inspecting Agency PERFORM WITNESS निरीक्षण एजेसी गवाह प्रदर्शन 3/2 322222222 कोड़ फारमेट RECORD FORMAT 555555 5 5555 555555 Tech. Spec./ IS:7098-1/ ASTMD 2863 Tech. Spec./ IEC:754-1/1S:7098 Tech. Spec./ IS:5484 & 8130 Tech, Spec./ ASTM D2843 संदर्भ दस्तावेज़ / स्वीकृति मानदंड REFERENCE DOCUMENT/ Tech. Spec./ IS:8130,613 ACCEPTANCE NORMS Tech. Spec./ IEC/IS Tech. Spec./ IS:5831 Tech. Spec./ IS:191 -op--op--op--op-00 Sampling Plan QUANTUM OF Sample Plan Sample Plan जांच की मात्रा CHECKS -op--op--00-9 -op--op--op-00--00--00--op--op--opop--00-जॉच की प्रकृति NATURE OF Weasurement Measurement Measurement Mechanical Mechanical **Jechanical** CHECKS Electrical Chemical Chemical Electrical Electrical Therm. Chem. Visual Count Therm. Envi. Envi. Envi. Copper Conductor/ Rod (As Applicable) एनआईटी*। क्र*य आदेश संदर्भि NIT / P.O. Reference) : क्र. सं. S.N. Raw Material and Bought Out Items & CHARACTERISTICS T.S. & E.B. before and after ageing Aluminium Rod (As Applicable) Anti Termite & Anti Rodent Test No. of Strands & Lay Direction Acid Gas Generation Test Chemical Composition Chemical Composition. Smoke density Test Temperature Index PVC Compound **Thermal Stability** DC Resistance Surface Finish Oxygen Index T.S. and E.B. Loss of Mass .S. & E.B. Sp. Gravity Resistivity Resistivity Diameter Diameter

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-supp Note:

Tech. Spec./ IS

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.

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

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 subjetting of work shall be allowed in the tender. In case subjetting of

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.

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

MARI DEPT.) Signature

Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

Rev No.- 03

Effective Date- 09.01.2019 IMS\QAINF01

उपप्कर का नाम (NAME OF EQUIPMENT) : Cabling System- 1.1 kV Cable परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

Page 7 of 12

B. A.	मद/घटक एवं विश्वावता	जॉच की प्रकृति	जांच की मात्रा	संदर्भ दस्तावेज़ / स्वीकृति मानदंड	रेकांडे फ़ारमेट	华	निरक्षिण एजेसी		रियाणी
	& CHARACTERISTICS	CHECKS	CHECKS	REFERENCE DOCUMENT/ ACCEPTANCE NORMS	FORMAT	प्रदर्शन	गवाह	सत्यापन	Remarks
	XLPE Compound					PENFORM	MINESS	VERSIFY	
_	Sp. Gravity	Measurement	Sampling Dian	Took Sacot IEC/10	C	· ·			
	Tonoile o Elegantion Andrea o con	110110	Daniel Brillian	lecti. Spec./ IEC/ 13	2	3/2			10
	Tensile & Elongation (before & after ageing)	Mechanical	-op-	Tech. Spec./GTP / IS:7098-2	2	3/2	4		TC
	Volume Resistivity	Electrical	-op-	-op-	TC	3/2	,		-
	Moisture Content Test/ water absorption	Thermal	-00-	-) C	100			2 1
	10000			100	2	3/2			2
	100000 1000	-00-	-bp	-op-	2	3/2		,	TC
	Shrinkage lest	-op-	-op-	-op-	70	3/2		-	TC
	Armour Wire /Strip (If applicable)								
	T.S.& E.B.	Mechanical	Sampling Plan	Tech. Spec./ IS:3975	10	3/2	,		CH
	Torsion Test	-op-	-op-	-op-	TC TC	3/2			1
	Dip test & mass of Zinc coating	-op-	-op-	óp	10	3/2	,		1
	Resistivity	Electrical	-op-	-00-	10	3/2	,) C
	Dimension	Measurement	-op-	-00-	10	3/2			2 6
	Winding Test	Physical.	÷		0 0	3/2			2 6
	Type Tests				2	310			2
	All Type Test as per the IS/IEC Standards	Test	Sample Plan	Tech.Spec./Appd.drg./IS:7098	TC	3/2	- 5		J.
	Routine Tests			1					2
	Embossing, Colour Coding & End Sealing of	Visual	100%	Tech. Spec./Appd.drg./IS:7098 & 1554	10	3/2	,		12
(q	Conductor Resistance Test	Electrical	-op-	Tech.Spec./Appd.drg./IS:7098 & 1554	TC	3/2	4	-	70
	c) High Voltage Test (At Room Temp.)	-op-	-op-	Ç	04	2/2	- 1		C

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'

Note:

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 basec 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/Relevent standard apart from QAP will be carried out by the firm without any additional financial

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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

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

Rev No.- 03 Effective Date- 09.01.2019 IMSIQAIIF01

उपष्कर का नाम (NAME OF EQUIPMENT) : Cabling System-1.1 kV Cable एनआईटी/ क्रम आदेश संदर्भ(NIT / P.O. Reference) परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

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ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

Page 8 of 12

Remarks 유유유유유유 유유유 문문문 유민 CHP CHP सत्यापन WITNESS निरक्षिण एजेसी गवाह PERFORM प्रदश्न 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 RECORD SIR JIR F F F F # # H 12 K H 2 H Tech.Spec./Appd.drg.//S:7098 & 1554 Tech. Spec./ASTM D 2843/ IEC 61034 Tech.Spec./IEEE-383/IEC:331 & 332 Tech. Spec./ IS:7098/ ASTDM 2863 Tech. Spec./IS:1554/IEC:331 & 332 Tech.Spec./Appd.drg./IS;7098-2 / Tech. Spec.//S:1554 & 10810 संदर्भ दस्तावेज़ / स्वीकृति मानदंड REFERENCE DOCUMENT/ Tech.Spec./SS-424-14-75 Tech.Spec./Appd.drg./ IS Tech. Spec./Appd.drg./ IS ACCEPTANCE NORMS IS 7098/ IEC 754(1) Tech. Spec./ IS 15:8130 -op--00--op-00--00--op-QUANTUM OF Sample Plan Sample Plan Sample Plan Sample Plan CHECKS Each Drum op--op-00--op--00--op--op--00op -op-9 -0p--op-जाँच की प्रकृति NATURE OF CHECKS Measurement Mechanical Vechanical Mechanical Electrical Chem. Therm. -op-Flam. Ther. Chem. Visual Visual -00op -op--op--00--0p-Visual Check for Embossing and Colour Coding, etc. & CHARACTERISTICS Thickness of Insulation and Sheath High Voltage Test (at Room Temp.) ITEM/ COMPONENT T.S. & E.B. of Insulation & Sheath Packing, Marking & End Sealing मद/घटक एवं विश्वाबता Marking & packing of Cable Drum Wrapping Test (Al conductor) IR (Volume Resistivity) Test (ensile Test (Al conductor) Conductor Resistance Test Anti Rodent & Termite Test HCL Gas Generation Test Hot Set Test for Insulation Annealing Test (For Cu) **Temperature Index Test** Swidish Chimney Test Smoke Density Test Acceptance Tests Oxygen Index Test Flammability Test Heat Shock Test Cable end Sealing FRLSH Tests FINAL TEST Ladder Test 0 â 9

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 Note:

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)

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Signature

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Signature & Seal

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

Rev No.- 03 Effective Date- 09.01.2019 IMS/QAINF01

उपेडकर को नाम (NAME OF EQUIPMENT) : Cabling System- Control and Instrumentation Cable परियोजना (PROJECT) : तीस्ता-v पावर स्टेशन

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

प्राहक (CLIENT):

एनएचपीसी लिमिटेड (NHPC LTD.)

Page 9 of 12

विकेता (VENDOR):

Remarks 555555 55555 5555 5555555 सत्पापन PERFORM WITNESS VERIFY Inspecting Agency निरक्षिण एजेसी गवाह प्रदर्शन 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 55555 5555 555555 Tech. Spec./ IS:7098-1/ ASTDM 2863 Tech. Spec./ IEC:754-1/ IS:7098 Fech. Spec./ ASTM D2843-93 Tech.Spec./ IS:8130 & 613 संदर्भ दस्तावेज़ / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS Tech. Spec./ IS/IEC/BS Tech. Spec./ IS:3975 Fech. Spec./ IS:5831 Tech. Spec./ IEC/IS Tech. Spec. / IS:191 Tech. Spec./ IS 9 -op--0pop--op-जॉच की मात्रा QUANTUM OF Sampling Plan Sampling Plan Sample Plan Sample Plan CHECKS 9 9 9 -00--op--op--op-00 e -opop--op--00-9 - op-00--op-जाब की प्रकृति NATURE OF **Measurement** Measurement **Measurement** Mechanical Mechanical Vechanical CHECKS Electrical Chemical Electrical Electrical Therm. Therm. Envi. Chem. **Physical**. Envi. Count -00-Raw Material and Bought Out Items Sheilding/Screening (If applicable) r.S. & E.B. before and after ageing & CHARACTERISTICS Armour Wire /Strip (If applicable) ITEM/ COMPONENT Anti Termite & Anti Rodent Test Dip test & mass of Zinc coating No. of Strands & Lay Direction Acid Gas Generation Test Copper Conductor/ Rod Chemical Composition. Smoke density Test Temperature Index PVC Compound Thermal Stability DC Resistance Oxygen Index oss of Mass Winding Test **Forsion Test** Sp. Gravity T.S. & E.B. Resistivity L.S.& E.B. Resistivity Dimension

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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 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'

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

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Signature PC (QA&I DEPT.)

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

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Rev No.- 03 Effective Date- 09.01.2019 IMSIQAINF01

उपकर का नाम (NAME OF EQUIPMENT) : Cabiling System- Control and Instrumentation Cable परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

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प्राहक (CLIENT):

एनएचपीसी लिमिटेड (NHPC LTD.)

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Remarks 444444 ####### 555 22 Inspecting Agency न गवाह सत्यापन VERIFY प्रदर्शन गवाह PERFORM WITNESS निर्देशिया एजेसी 2/3 2/3 2/3 2/3 2/3 रकांडे फ़ारमे RECORD # # # # # # # # 2 22 出 554555 3 P विकेता (VENDOR): Tech.Spec./Appd.drg./IS:7098 & 1554 Tech.Sp€c./Appd.drg./IS:7098 & 1554 Fech. Spæc./ASTM D 2843/ IEC 61034 Tech.Spec./IEEE-383/IEC:331 & 332 Tech. Spec./ IS:7098/ ASTDM 2863 Tech.Spec./IS:1554/IEC:331 & 332 Tech Spec./Appd.drg./IS:7098 Tech Spec //S-1554 & 10810 संदर्भ दस्तावेज़ / स्वीकृति मानदंड REFERENCE DOCUMENT/ Tech.Spec./SS-424-14-75 ACCEPTANCE NORMS IS 7098/ IEC 754(1) 9 9 + + + + -op -00-00 9 जॉच की मात्रा QUANTUM OF CHECKS Sample Plan Sample Plan Sample Plan 100% -op--00--00--op--op-9 9 -doop opop op 00--0p--cp-जांच की प्रकृति NATURE OF CHECKS *deasurement* Vechanical Electrical Electrical Visual Visual Therm. Flam. Test -op--op--00--op--00--do-00 op--op--op-Embossing, Colour Coding & End Sealing of Drum packing, marking & Cable end sealing All Type Test as per the IS/IEC Standards एनआईटी/ क्रय आदेश संदर्भ(NIT / P.O. Reference) Embossing & Colour Coding of Cable High Voltage Test (at Room Temp.) Cable and Drum packing & marking High Voltage Test (At Room Temp.) Thickness of Insulation and Sheath & CHARACTERISTICS .S. & E.B. of Insulation & Sheath ITEM/ COMPONENT IR (Volume Resistivity) Test Conductor Resistance Test Conductor Resistance Test Hot Set Test for Insulation HCL Gas Generation Test Annealing Test (For Cu) Temperature Index Test Swidish Chimney Test Smoke Density Test Acceptance Tests Oxygen Index Test Flammability Test Heat Shock Test Routine Tests FINAL TEST FRLS Tests adder Test

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 a. In 'Inspection Agency'column figure 1,2,or 3 to be filled. 1- will indicate Employer/ 'NHPC LTD', 2- will indicate 'supplier' 8.3- will indicate 'sub-supp Tech. Spec./ IS Note:

Anti Rodent & Termite Test

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

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

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

QA&LDEPT.) Signature

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

Signature & Seal

Rev No.- 03 Effective Date- 09,01,2019 IMS/QAINF01

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

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

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S.N.	HQ/4CP (4 IQ4/40) ITEM/ COMPONENT & CHARACTERISTICS	NATURE OF	QUANTUM OF	सदभ दस्तावज्ञ / स्वाकृति मानदङ REFERENCE DOCUMENT/	रकाड फ़ारमेट RECORD	년 dsul	निरीक्षण एजेंसी Inspecting Agency	cy	रिष्मणी Remarks
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	Raw Material & Bought Out Items								
	(MS Sheet/Channel/Angle)								
	Chemical composition	Chem.	Sampling Plan	Tech. Spec./ Appd.drg./IS:1079	TC	2/3	,		
	Physical Properties	Test	-op-	-00-	100	2/3	,		
	Surface Finish	Visual	-op-	-00-	2	2/3			
	Dimensions	Measurement	óþ	Tech Spec / Appd dra /IS:1852	0 0	2/3			
	Fasteners and Hardwares		}	100 Company of the co	2	213			
	Quantity of Zinc Deposit Over Threaded Portion	Visual &	Sampling Plan	Tech.Spec./ Appd.drg./IS:1367	70	2/3		-	
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	Galvanisation, Chemical Composition of Zinc, Surface Defects, Bath Temperature	Chem./Visual	Sampling plan	Tech.Spec./Appd Drg./IEC61537/	70	2/3	· r	-	
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	Surface Defects	Visual	Sampling Plan	Tech. Spec./Appd Dra./IEC 61537	TC	2/3	-	-	
	Uniformity of Zinc Coating	Test	-op-	Tech.Spec./ Appd drg./IS:2633	10	2/3	,		
	Thickness of Zinc Coating	Measurement	-op-	Tech.Spec./Appd Drg./IEC 61537	10	2/3		-	
	Adhesion Test	Physical	-op-	Tech.Spec./ Appd drg./IS:2629	TC	2/3			
	Weight of Zinc Coating	Measurement	-op-	Tech. Spec./ Appd drg./IS:6745	10	2/3			
T	Dicromating	Visual	-00-	Tech Spec / Appl dra /IEC 61537	<u></u>	5/6		*	

in Agency countin rigure 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/Relevent standard apart from QAP will be carried out by the firm without any additional financial 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

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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

CARI DEPT.

(VENDORS Q.C. DEPT. OR REPRESENTATIVE)

Signature & Seal

Effective Date- 09.01.2019 IMS\QAI\F01 Rev No.- 03

उपष्कर की नाम (NAME OF EQUIPMENT) :Cable Tray and Cable Junction Box एनआईटी। क्रय आदेश संदर्भ(NIT / P.O. Reference) परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

प्राहक (CLIENT): विक्रेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

Page 12 of 12

Remarks 동동동동동 CFP CHP 222 VERIFY सत्यापन WITNESS नेरीक्षण एजेस गवाह PERFORM प्रदर्शन 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 2/3 RECORD रकांडे फ़ारमे 黑 J.R **####** 5555 Tech.Spec./ Appd drg./IS:6745 Tech.Spec./ Appd drg./IS:2629 Fech. Spec./ Appd drg./IS:2629 Tech.Spec./Appd Drg./IS:2633/ Tech.Spec./ Appd.drg./GTP Tech.Spec./ Appd.drg./GTP Tech.Spec./ Appd.drg./GTP Tech.Spec./ Appd.drg./GTP संदर्भ दस्तावेज़ / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS IEC 61537 -opop--op--op-Sampling Plan Sampling Plan QUANTUM OF जांच की मात्रा CHECKS -opop--op-- op -opop--00--0p--op-Measurement & Deflection test Measurement Measurement Hammer Test NATURE OF जांच की प्रकृति CHECKS Visual Physical Visual Visual Visual Visual -op--op-Dimension/ Finish of Trays & Covers Make/Type/Rating of terminal blocks & CHARACTERISTICS ITEM/ COMPONENT मद/घटक एवं विश्रोषता Material & Dimensional check Surface defects / Black Spot CABLE JUNCTON BOXES Uniformity of Zinc Coating Thickness of Zinc Coating Weight of Zinc Coating Check for Dicromating Sheet thickness check Gasket arrangement Final Inspection Adhesion Test -oad Capacity 好. 讯. 0 -2 846018

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-suppli

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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)

IMS/QANF01 Rev No.- 03 Effective Date- 09,01,2019

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.
- Contractors /Manufacturers/Sub-suppliers have to make on their own all arrangements for testing facilities at their works for testing of equipments/materials.
- One set of complete test certificates as per the requirement of QAP be made available to the NHPC for acceptance. 4
- 5. All the records, as per the requirement of QAP may be made available for review by the Inspecting Officer during
- Field tests are to be carried out as per the requirements of the contract/purchase order. 9



परियोजना (PROJECT) : तीस्ता-v पावर स्टेशन (Teesta-V Power station) उपस्कर का नाम (NAME OF EQUIPMENT) : Fire Fighting System

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

एनआईटी/ कय आदेश संदर्भ ।

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

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

Signature NHPC LTD (QA&I DEPT.)

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

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

Page 3 of 5

गुणवत्ता आश्वासन योजना (QUALITY ASSURANCE PLAN) ग्राहक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited) विक्रेता (VENDOR) : एनआईटी/ क्रय आदेश संदर्भ (NIT/P.O. REFERENCE) :

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Fire Hose Wake & Rating Visual 100% -do- 1C 3/2 Make & Rating Make & Rating -do- TC 3/2 Cables & Wires Cables & Wires -do- TC 3/2 Make & Rating Visual 100% -do- TC 3/2 Make & Size Physical/Chemical Test Sample/Lot -do- TC 3/2 Make & Model Visual 100% -do- TC 3/2 Fire Protection Door Fire Protection Door -do- TC 3/2 Fire Protection Door Fire Protection Door -do-		Functional Test	-00-	100%	-0p-	2	3/2		-	TC
Make & Rating Wisual National Test 100% -do- do- do- TC 3/2 Hydrostalit Test Test Sample -do- TC 3/2 Cables & Wires Make & Rating -do- TC 3/2 Routine Tests Make & Rating -do- TC 3/2 Routine Tests Headers & Pipings -do- TC 3/2 Make & Size Visual 100% -do- TC 3/2 Hydrostalic Test Trest Sample/Lot -do- TC 3/2 Hydrostalic Test Trest Sample/Lot -do- TC 3/2 Hydrostalic Test Trest Sample/Size -do- TC 3/2 Hydrostalic Test Trest -do- TC 3/2 Hydrostalic Test Trest -do- TC 3/2 Hydrostalic Test -do- TC -do- TC 3/2 Hydrostalic Test -do- TC -do- TC 3/2 Fire Protection Boor -do- TC TC 3/2 Dimentional Check -do- TC TC 3/2 Ma		Fire Hose		0,00	-00-	2	3/2		1	TC
Material Test Physical/Chemical 100% -do- TC 3/2 Hydrostatic Test Cables & Wires Cables & Wires Test Sample -do- TC 3/2 Make & Rating Make & Rating Co- -do- TC 3/2 Headers & Plaing Make & Size -do- -do- TC 3/2 Make & Size Make & Size -do- -do- TC 3/2 Hydrostatic Test -do- -do- TC 3/2 Fire Telephone/ Microprocessor based digital EPABX system (As applicable) -do- -do- TC 3/2 Make & Model -do- -do- TC 3/2 Fire Protection Door -do- TC 3/2 Material Test -do- TC 3/2 Material Test	3	Make & Rating	Vienal	100%	1	CF	Ci c		1	
Hydrostatic Test		Material Test	Physical/Chemical	100%		2 4	3/2		1	0
Cables & Wires Cables & Wires Confige Confige </td <td></td> <td>Hydrostatic Test</td> <td>Test</td> <td>Sample</td> <td>000</td> <td>2 4</td> <td>3/2</td> <td></td> <td>1</td> <td>2</td>		Hydrostatic Test	Test	Sample	000	2 4	3/2		1	2
Make & Rating Wake & Rating Usual 100% -do- TC 3/2 Routine Tests Headers & Pipings -do- -fo- TC 3/2 Make & Size Water & Size -do- TC 3/2 Matorial Test Hydrostalic Test -do- TC 3/2 Hydrostalic Test -do- TC 3/2 Fire Telephonel Microprocessor based digital EPABX system (As applicable) Visual -do- -do- TC 3/2 Make & Model Visual 100% -do- TC 3/2 Fire Protection Door Electrical 100% -do- TC 3/2 Measurement 100% -do- TC 3/2 Material Test -do- -do- TC 3/2		Cables & Wires		and the same		2	3/2	-	-	0
Routine Tests Routine Tests Flectrical 100% -do- TC 3/2 Make & Size Material Test -do- TC 3/2 Mydrostalic Test Hydrostalic Test -do- TC 3/2 Hydrostalic Test Test Sample/Size -do- TC 3/2 Fire Telephone/ Microprocessor based digital EPABX system (As applicable) Visual 100% -do- TC 3/2 Fire Protection Door -do- -do- TC 3/2 Fire Protection Door -do- -do- TC 3/2 Measurement 100% -do- TC 3/2 Material Test -do- -do- TC 3/2		Make & Rating	Visual	100%	-00-	TC	3/2			O.F.
Headers & Pipings		Routine Tests	Electrical	100%	-00-	1	3/2	-	-	2
Make & Size Visual 100% -do- TC 3/2 Material Test Hydrostatic Test -do- TC 3/2 Hydrostatic Test Tiest Sample/Size -do- TC 3/2 Fire Telephone/ Microprocessor based digital EPABX system (As applicable) Visual 100% -do- TC 3/2 Functional Test Electrical 100% -do- TC 3/2 Fire Protection Door Measurement 100% -do- TC 3/2 Material Test Ado- TC 3/2 Ado- TC 3/2		Headers & Pipings		200		2	316	1	-	5
Material Test Physical/Chemical Sample/Lot -do- TC 3/2 Hydrostatic Test Fire Telephone/ Microprocessor based digital EPABX system (As applicable) Test -do- TC 3/2 Make & Model Visual 100% -do- TC 3/2 Fire Protection Door Fire Protection Boor TC 3/2 Measurement 100% -do- TC 3/2 Material Test -do- TC 3/2		Make & Size	Visual	100%	-00	OF	CIC		,	t CF
Hydrostatic Test Test Sample/Size -do- TC 3/2 Fire Telephone/ Microprocessor based digital EPABX system (As applicable) Visual 100% -do- TC 3/2 Functional Test Electrical 100% -do- TC 3/2 Dimentional Check Measurement 100% -do- TC 3/2		Material Test	Physical/Chemical	Sample/I of	the contract of	200	3/2	-	-	2 6
Fire Telephone/ Microprocessor based digital EPABX system (As applicable) Visual 100% -do- TC 3/2 Fire Protection Door Electrical 100% -do- TC 3/2 Manabacial Test Measurement 100% -do- TC 3/2		Hydrostatic Test	Test	Samuel/Size	d d	0	2/0	-	1	2
Make & Model Usual 100% -do- TC 3/2 Functional Test Fire Protection Door -do- TC 3/2 Fire Protection Door -do- TC 3/2 Measurement 100% -do- TC 3/2 Material Test -do- TC 3/2						2	216			2
Functional Test		Make & Model	Visual	100%	-00-	TC	313		,	O.F.
Fire Protection Door Dimentional Check Material Test	=1	Functional Test	Electrical	100%	-cp-	O.F	3/0	1		2
Dimentional Check Hodge God TC 3/2 Material Test		Fire Protection Door		200		2	312		-	2
Material Test		Dimentional Check	Measurement	100%	-00-	TC	312	1	-	O.F
Indiatrial less	(q	Material Test	Physical/Chemical	Sample/I of	0	O CF	2/0	1	1	2 4

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

आहक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited) विक्रेता (VENDOR) : पुन्आईटी/क्रम आवेश संदर्भ (NIT/P.O. REFERENCE) : गुणवंता आक्षासन योजना (QUALITY ASSURANCE PLAN)

> परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन (Teesta-V Power station) उपस्कर का नाम (NAME OF EQUIPMENT) : Fire Fighting System

क.सं.	मद्र/घटक एवं विशेषता	जाँच की पकति	जाँच की मात्रा	संदर्भ दस्तावेज / स्वीकृति मानदंड	- N. C.	निरक्षिण ए	नेरीक्षण एजेसी (INSP. AGENCY)	SENCY)	
o l	_	NATURE OF CHECKS	QUANTUM OF CHECKS	REFERENCE DOCUMENTS/ ACCEPTANCE NORMS	RECORD FORMAT	प्रदर्शन	गवाह	सत्यापन	REMARKS
1	Branch Pipe with Nozzle			Appd. drawings/ Tech			+	Verny	-
1	Make & Kating	Visual	100%	snecs / Relevant Standard	T	010		1	F
	Material Test	Physical/Chemical	Sample/Lot	-05-	O L	210		1	2 0
7	Hydrostatic Test	Test	Samula	0000	0 0	2/6	-	-	2
	Hose Cabinet (Box)		Salingo	-00-	2	3/2		-	TC
	Make & Rating	Visual	100%	00	7	0,0		1	
(a	Material Test	Physical/Chemical	Sample/I of	100	24	3/2		-	TC
(5)	Dimension check	Manager and American	Campion	-00-	3	3/2		-	TC
-	Hose Reel Drum	Measurement	100%	-op-	TC	3/2		-	TC
	Make & Rating	Jones V	4000						
	Dimension check	Moseuromont	100%	-op-	TC	3/2	,	-	TC
21)	Modules, Manual Call Point, Hooter Cum Strobe, Response Indicator, Manual pull stations and notification device (Fire Horns/alarms/bells) etc		10079	-op-	<u> </u>	3/2		,-	2
a)	Make & Rating	Visital	1000%	4	000004	0.0		1	
(9	Performance Test	Visual	4000	-00-	10/00	3/2		-	TC/COC
22)	Pressure Gauge, Pressure Switch, Level Switch, Flow Switch, Differential Pressure Gauge, Differential Pressure Switch, Level Indicator, Solenoid Valve etc.	ipnoi>	000	-op	202/21	3/2			TC/COC
a)	Make & Rating	Visual	1000/		-	0.00		-	
(q	Functional Test	Toot	Sample !! at	-00-	2	3/2		-	2
23)	Installation Control Valve	1691	Sample/Lot	-op-	0	3/2		-	TC
	Make & Rating	Visual	100%	ç	CH	210	1		CH
(9	Functional Test	Test	100%	0 0	2 4	2/0		-)
	Air Release Valve		9/001	-00-)	312		-	2
a)	Make & Rating	Visual	100%	-00-	C.F	210	1	,	CF
19	Material Test	Physical/Chemical	Sample/I of	5 5	2 4	312	1		2
	Hydrostatic Test	Test	Sample/I of	o op-	2	2/0		- ,	2
25)	Y Strainer (If applicable)				2	2/5	-	-	2
	Make & Rating	Visual	100%	-do-	OF	219	1		O.F.
	Material Test	Physical/Chemical	Sample/Lot	-do-	T	3/2	-	-	2 4
\neg	Hydrostatic Test	Test	Sample/Lot	-op-	TC	3/2	1	-	2 (
J	Deluge Valve Local Control Panel & Panel for Pump					40	1	-	2
	Make & Rating	Visual	100%	-op-	III.	312	-	1	OMO
	BOM Check (As applicable)	Visual	100%	-op-	IR	3/2			OH OH
T	Dimensional Check	Measurement	100%	-op-	III.	3/2		1	OHD
1	Functional Test (As applicable)	Test	100%	-op-	JIR	3/2	-		OHO.
	HV & IR Test (As applicable)	Electrical	100%	-op-	JIR	3/2	-	1	GHD
(12	Fire Barrier, penetration seals, Fire Damper, Fireman Suit, Breathing <u>Apparatus, Exit Sign Board etc</u>								
	Make & Rating	Visual	100%	-00-	TOTOT	3/2	-		TOTOTOL
	Tools & Instruments etc.			-op-	000	70.		-	20000
a)	Make & Rating	Visual	100%	-op-	TC/COC	3/2		,	TOUCH

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

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गुणवंता आश्वासन योजना (QUALITY ASSURANCE PLAN)

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

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

ग्रहिक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited) विकेता (VENDOR) : एनआईटी/ कय अतिश संत्र्य (MIT/A)

Page 5 of 5

Microprocessor Visual & Dimensic Checking of BOM HV & IR Test (if at Scheme Check(Inversa.) Provision of neces system for alarm a Battery Charger (Make & Rating for		NATURE OF CHECKS	CHECKS	REFERENCE DOCUMENTS	halk oliett				
fisual & D Shecking IV & IR T cheme C ersa.) Trovision of ystem for ystem for fattery CI fake & Ri	cessor based Main Fire Alarm Control Basel B			ACCEPTANCE NORMS	RECORD FORMAT	प्रदर्शन	गवाह	सत्यापन	PEMARKS
iv & IR T icheme C ersa.) rovision (system for attery CI iake & R;	Visual & Dimensional Chart			Appd. drawings/ Tech.		renorm	Witness	Verify	
IV & IR T. icheme Cersa.) Tovision of ystem for lattery Cl	of BOM	Visual & Measurement	100%	specs, relevant standard	TC/COC	3/2		-	TC/COC
cheme C ersa.) rovision c ystem for attery Cl	HV & IR Test (if applicable)	Visual	100%	-op-	TC/COC	3/2	1.		TOUGH
rovision cystem for sattery Cl	lande over from Primary to Secondar Sur-Li-	Electrical	100%	-op-	TC/COC	3/2	1.		TC/COC
ystem for attery Cl	- econing y applity and vice-	Test	100%	-op-	TC/COC	3/2		-	TC/COC
attery Ch	system for alarm and monitoring of fire fighting system.	Visual	100%	-op-	TC/COC	3/2		-	TC/COC
lake & Re	Battery Charger (with Battery Bank) -If applicable								
	Make & Rating for Battery Bank	Visual	100%	d d	CF	9			
BOM Check	¥			3	2	3/2	,	-	10
		Visual	100%	-op-	TC	3/2	1.	-	O.F.
Dimensional Check	al Check	Mooding							2
Functional Test	Test	iviedsurement	100%	-op-	TC	3/2	,	-	TC
V&IRTE	HV & IR Test (if applicable)	lest	100%	-op-	TC	3/2		-	TC
attery Bac	Battery Back-up Checking	Electrical	100%	-op-	TC	3/2	,	-	TC
re Alarm	Fire Alarm Printing device	Test	Sample Flan	-op-	TC	3/2		-	5
Make & Rating	ling							-	
Functional Test	Test	Test	100%	-op-	TC/COC	3/2		-	TOTOLOT
inton has	Morting Mark	Test	100%	-op-	TC/COC	319	1		2000
Make & Deting	Make & Define					710		-	10/000
and a na	Sim	Test	100%	-op-	TOUCH	010	1	1	
runchonal rest	o) runciional lest	Test	100%	1	2000	316		-	TC/COC

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

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

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 compiled by f. At the time of inspection the supplier shall arrange the requisite calibrated measuring instruments Le. 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.

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NHPC LTD (QA&I DEPT.)

Signature

8. MODEL QUALITY ASSURANCE PLAN (QAP) FOR ILLUMINATION SYSTEM

Special instructions: -

- 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.
- 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.

(2) 2) 21 24 C/20

परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपष्कर का नाम (NAME OF EQUIPMENT) : Illumination System एनआईटी) क्रय आदेश संदर्भ(NIT / P.O. Reference) :

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

विकेता (VENDOR):

i zi	मद/घटक एवं विशेषता ITEM/ COMPONENT	जाब का प्रकृति NATURE OF CHECKS	जॉच की मात्रा QUANTUM OF	सदभ दस्तावेज / स्वीकृति मानवंड REFERENCE DOCUMENT/ ACCEPTANCE NODMS		년 Inspe	निरीक्षण एजेसी Inspecting Agency	ń	Ammile Council
-	& CHARAC IERIS IICS		CHECKS	S S S S S S S S S S S S S S S S S S S	FORMAT	प्रदर्शन PERFORM	MITNESS	सत्यापन	Carl Remarks
_	Luminaries								
-	Raw Material								
•	Aluminium Casting								
_	Dimensional	Measurement	Sample Plan	Tech.Spec./Appd.drg./	70	3/2		F	TC.
				IS:617/IEC/Relevant Standard					
	Surface finish	Visual	-op-	-op-	TC	3/2	i		J.
_	Chemical composition	Chemical test	-op-	-0p-	TC	3/2		-	10
- 4	Weight PVC Wire	Measurement	-op-	Tech.Spec./Appd.drg./IEC/IS	10	3/2	7	-	70
-	Make & Rating	Visual	100%	Tech. Spec./Appd.drg./IEC/IS	TC	3/2	·	7	70
	Dimensional conformity (Conductor/Insulation)	Measurement	Sample	Tech.Spec./Appd.drg./IEC	5	3/2			70
-	HV test	Electrical	-op-	Tech.Spec./IS/IEC	TC	3/2	-		C
43	Surface finsih/colour	Visual	-op-	As per Tech. Specification.	10	3/2) C
	IR Test Paint	Electrical	-op-	-op-	10	3/2	á		50
-	Paint shade	Visual	100%	Tech: Spec./Appd.drg./IEC/IS	TC	3/2	,	5	C
/	Viscosity	Measurement	-op-	-00-	10	3/2	1		2 5
_	LED Driver						-		2
-	Make & Rating	Visual	Sample Plan	Tech. Spec./Appd.drg./IEC/IS	TC	3/2		•	E
-	HV test & IR Test	Electrical	-op-	-op-	10	3/2			2 2
-	Functional test	-op-	-op-	Functional test -dodo- TC 3/2	TC	3/2		. ,) C

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/Relevent standard apart from QAP will be carried out by the firm without any additional financial

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 subjetting of work shall be 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.

NHPC (QA&! DEPT. Signature

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

Rev No.- 03 Effective Date- 09.01.2019 IMS\QAI\F01

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परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

उपष्कर का नाम (NAME OF EQUIPMENT) : Illumination System

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

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

Page 3 of 6

विक्रेता (VENDOR):

S. S.		जाब का प्रकृति NATURE OF CHECKS	जाँच की मात्रा QUANTUM OF	सदमें दस्तावेज़ / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NOBMS	_	中 Inspe	निरीक्षण एजेंसी Inspecting Agency	Α.	
	& CHARACTERISTICS		CHECKS		FORMAT	प्रदर्शन PERFORM	WITNESS	सत्यापन VFRIEY	IC 4 911 Remarks
≘ +	Luminaries (Assembly) Final Inspection - Type facts								
a)	Endurance test	Test	Sample	Tech.Spec./ Appd.Dra./IS/ IEC	1	3/0			,
(q	Heat run test	-op-	-60-	000	2 5	200	9	. ,	2 6
1	IP Class	-op-	ę	6 6	2 5	3/2	,		5 5
_	IR & HV Test	Electrical	-op-	-op-	2	3/2			2 6
e)	Photometric Test Routine Tests	-op-	-op-	-op-	10	3/2		-	75
a)	Dimensional conformity & visual examination	Measurement	100%	-op-	70	3/2		-	TC
(q	IR & HV Test	Electrical	-op-	-op-	72	3/2			TC
0 0	Photometric Test(As Applicable) Acceptance Tests	-op-	-op-	-op-	10	3/2	•	F	10
a)	Make, Model & Rating	Visual	Sample	-op-	JIR	3/2	-		CHP
-	Dimensional conformity & visual examination	Measurement / Visual	Sample	-op-	AIR	3/2	-		CHP
0	Assembly / layout of components	Visual	-op-	-op-	JIR	3/2	-		CHP
6	Provision of earthing	-op-	-op-	-op-	JIR	3/2	-		CHP
(a)	IR & HV Test	Electrical	-op-	-op-	SIL	3/2	-		a H

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

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/Relevent standard apart from QAP will be carried out by the firm without any additional financial

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 compiled 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

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

IMSIQANF01 Rev No.- 03 Effective Date- 09.01.2019

Salai elai Line de Cide)

उपप्कर का नाम (NAME OF EQUIPMENT) : Illumination System एनआईटी) क्रय अदिश संदर्भी NIT / P.O. Reference) : क्र. सं. मद्रश्रदक एवं विशेषता जॉच की प्रकृ S.N. ITEM/ COMPONENT NATHER O परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT): विक्रेता (VENDOR):

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एनएचपीसी लिमिटेड (NHPC LTD.)

S. S.	HG/NGCOMPONENT	जाच की प्रकृति NATURE OF	जाच की मात्रा QUANTUM OF	संदर्भ दस्तावेज / स्टोकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE	रकाउ काश्मैट		निरीक्षण एजेसी		
	& CHARACTERISTICS	CHECKS	CHECKS	NORMS	RECORD	प्रदर्शन PERFORM	गवाह WITNESS	सत्यापन VERIFY	टिप्पणी Remarks
n -	ILLUMINATION SYSTEM - LIGHTING PANELS / DISTRIBUTION BOARDS								
	Raw Materials & Bought Out Items Steel Sheets								
(a)	Dimension (Size of sheet, Uniformity of thickness, surface finish.)	Measurement	Sample Plan	Tech. Spec./Appd.drg.//3:513//EC/Relevant	TC	2/3		-	TC
	Hardness & Bend test	Mechanical	-op-	-p-	TC	2/3	,		J.
	Copper Copper Alloy Flats for Bus-bars & Links								
	Dimension	Measurement	-op-	Tech. Spec./Appd drg./IS:613/IEC	70	2/3		,	F
	Hardness & Bend test	Mechanical	-40-	Tech. Spec./Appd Irg./IS:191/IEC	20	2/3			2 4
	Tensile Strength	-op-	-do-	Tech. Spec./Appd. rg./IS:1897/IEC	10	2/3		. ,	2 4
	Chemical Composition.	Chemical	-op-	Tech Spec /Appd to //S:6160/IEC	0 0	200			2 1
_	Conductivity	Electrical	-op-	Tech Spec / Amplication	2 5	500			2
-	Aluminium/ Aluminium alloys Flats for				2	613		-	2
_	Bus bars, (If applicable)								
	Dimension	Measurement	op	Tech. Spec./Appd.drg.//E:5082/IEC/Relevant	70	2/3	i,	-	70
-	Bend Test	Mechanical	-op-	Diameter - Co-	J.	2/3		•	-
	Tensile Strength	-op-	-qo-	4	0 6	200			2
_	Chemical Composition.	Chemiral	4		200	2/2	,	5	2
_	Conditotivity	Theiring	-00-	de de	2	2/3		-	10
_	PVC Wire	Electrical	-Op-	ф	10	2/3		-	TC
	Make, Type, Rating	Visual	100%	Tech.Spec./Appd.drg./IS/IEC	70	3/2	,	,	TC
_	Dimensions (conductor, insulation) & Colour	Measurement			10	3/2	,	,	10
		100	-op-	ф		i.			2
	Routine lest	Visual	-do-	ę,	TC	3/2		-	TC

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

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)

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

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 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-*2/34/2020 - RR, dated-24.12.2021 (Latest Amendment if any) issued by MOP, GOI.

Signature

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

Esteration Sacuity (18)

Rev No.- 03 Effective Date- 09.01,2019 IMS\QAINF01

उपप्कर का नाम (NAME OF EQUIPMENT) : Illumination System एनआईटी। क्रय आदेश संदम्भ NIT / P.O. Reference) : परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

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8		
टिप्पणी Remarks	5 5	* ** * * * * * * * * * * * * * * * * * *
सत्यापन		
निरीक्षण एजेसी गवाह		
प्रदर्शन	3/2	312 312 312 312 312 313 313 313 313 313
रकाउ फ़ारमैट RECORD	TC TC	
संदर्भ दस्तावेज / स्वीकृति मानवंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	Tech.Spec./Appd.Drg./IS/IEC Code	Tech, Spec./Appd.drg.//S:8623//EC -do-do-do-do-do-do-do-do-do-do-do-do-do-
जाब की मात्रा QUANTUM OF CHECKS	100% -do-	100% do-do-do-do-do-do-do-do-do-do-do-do-do-d
जाब का प्रकृति NATURE OF CHECKS	Visual	Measurement Visual -dodo- Mechanical Electrical -dodo-
HGRACOP GO REVIEW! ITEM/ COMPONENT & CHARACTERISTICS	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 Routine Test Final Inspection - Lightling Panels/	Mechanical checks Checking for Panel Dimensions, Sheet Thickness, Paint Shade & Thickness etc. BOM Verifications General Layout & Name Plate Details Mounting of Components and Accessibility Mechanical Operation of Equipment Electrical Checks Wiring and Continuity Check Checking for Scheme & Interlocking IR Test (before & after HV Test) HV Test Electrical Operation of Equipment
S.N.	e g =	

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-supr

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 caliprer, pie tape, surface roughness tester, dial gauge etc.
 e. Any additional test required as per the requirement of equipment in accordance with Contract Agreement/Relevent standard apart from QAP will be carried out by the firm without any additional financial

f. This QAP does not absolve the Confractor/sub-contractor of his responsibility to supply the correct products, strictly in conformity to the specifications given in the purchase order/contract. The above QAP has been made presuming subletting of work shall be allowed in the tender, then "32" 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

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

> Rev No.- 03 Effective Date- 09.01.2019 IMS/QAI/F01

QUALITY ASSURANCE PLAN (MODEL

उपप्कर का नाम (NAME OF EQUIPMENT) : Illumination System एनआईटी। क्रम आदेश संदम्शे NIT / P.O. Reference) : परियोजना (PROJECT) : तीस्ता-V पावर स्टेशन

ग्राहक (CLIENT): विकेता (VENDOR):

एनएचपीसी लिमिटेड (NHPC LTD.)

Page 6 of 6

S. S.	HG/NCSP (4) IQRINGI ITEM/ COMPONENT & CHARACTERISTICS	जाच की प्रकृति NATURE OF CHECKS	जॉच की मात्रा QUANTUM OF CHECKS	संदर्भ दस्तायेज / स्वीकृति मानदंड REFERENCE DOCUMENT/ ACCEPTANCE NORMS	रेकाँड फारमैट RECORD	년 Inspe	निरीक्षण एजैसी Inspecting Agency	>	टियाणी Remarks
					FORMAT	प्रदर्शन PFRFORM	TATE	सत्यापन	
	ILLUMINATION SYSTEM - OTHER ITEMS(As Applicable)						MINESS	VENIT	
	Lighting Pole and High Masts System	Section Section	0						
	Charlen Charles	Mech./Chem.	Sample	Tech.Spec./Appd.Drg./IS/IEC Code	TC	2/3			7
	CHECKING OF BOIM and SURace Finish	Visual	100%	-do-	all.	3/2			2 0
	Umensional Checking	Measurement	Sample	-op-	E .	3/2			1 2 5
	Routine Test	Test	-op-	-60-	9	3/2	4		7.0
	Galvanization Test	-do-	-00-	0		2/5			土
	Aluminium Ladder& Adjustable Plateform				YII.	3/2	7		CHP
	Raw Material	Mech./Chem.	Sample Plan	Tech.Spec./Appd.Drg./IS/IEC Code	21	2/3		,	Ç
	Dimensional Check	Measurement	-op-	-op-	TC	3/2	,		2 2
	Junction Box, Switchboard & Recentacle	Test	-op-	-op-	70	3/2	,		2
		_		Confidence of the second					
	Kaw Material	Mech./Chem.	Sample Plan	Tech.Spec./Appd.Drg./IS/IEC Code	TC/COC	2/3	,		TOWL
	Dimensional Check, Jayout & Name Plate Details	Measurement	-op-	-op-	TC/COC	3/2		-	70,000
	Routine Test	Test	-do-	Č	000001	c			
	Cables & Wires and Wiring Conduits			100	2000	3/2		-	10/000
	Raw Material	Mech./Chem.	Sample Plan	Tech Spec /Appd Dra //S/IEC Code	TOWAL	0,0		,	
	Dimensional Check	Measurement	do	מייים בייים ביים בייים בייים בייים בייים בייים בייים בייים בייים בייים ב	20000	2/3			10/202
	Routine Test	Tool	-	-00-	2000	3/2		-	TC/COC
	Lighting/ Distribution Transformer	lest	-00-	-op-	TC/COC	3/2			TC/COC
	Raw Material	Mech /Chem	Sample Plan	Took Cook (Appl Des 10 10 Cook	00000				
	Routine Test	Test	100%	de l'apec. Appu. Dig. Novie Code	2000	2/3		-	10/000
	Inverter, UPS & Battery			-00-	10/00	312		•	TC/COC
	Raw Material	Mech./Chem.	Sample Plan	Tech.Spec./Appd.Drg./IS/IEC Code	70	2/3		-	TC
	Counte lest	est	100%	-00-	011	n c			

CHD 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' & 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. 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/Relevent standard apart from QAP will be carried out by the firm without any additional financial

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 QAP has been made presuming subletting of work shall be allowed in the tender. In case subjetting 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.

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

> Rev No.- 03 Effective Date- 09.01,2019 IMS\QAI\F01

Color to Date Local

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.
- One set of complete test certificates as per the requirement of QAP be made available to the NHPC for acceptance. 4
- 5. All the records, as per the requirement of QAP may be made available for review by the Inspecting Officer during inspection.
- Field tests are to be carried out as per the requirements of the contract/purchase order. 9



ग्राहक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited)

विक्रेता (VENDOR) :

Page 2 of 4

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

उपस्कर का नाम (NAME OF EQUIPMENT) : DG SET

TC/COC TC/COC TC/COC TC/COC TC/COC REMARKS TC/COC TC/WC 유민 TC TC 2 सत्यापन Verify निरीक्षण एजेंसी (insp. agency) Witness गवाह एनआईटी/ क्रय आदेश संदर्भ (NIT/P.O. REFERENCE) : प्रदर्शन Perform 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 3/2 TC/COC TC/COC TC/COC TC/WC TC/COC TC/COC TC/COC RECORD FORMAT रिकॉर्ड ग्रारूप H C TC 2 TC 10 SIR Tech.Spec./Appd.Drg./ REFERENCE DOCUMENTS/ ACCEPTANCE NORMS संदर्भ दस्तावेज़ / स्वीकृति Relevant Standard -op-승우 -op--op--op--op--op--op-00 -op--doop--op--op--opsample plan QUANTUM OF जाँच की मात्रा 100% %00. SHECKS 120% 130% 130% %0C1 130% -op-%0C1 400% %00op op -0p-NATURE OF CHECKS Measurement जाँच की प्रकृति Electrical Visual Visual Visual Visual Visual Visual Visual Visual Test Visual / -op-- op--op-Performance Test of Complete Alternator & Dielectric test of Generator ITEM /COMPONENTS & CHARACTERISTICS मद/घटक एवं विशेषता Performance Test of Complete Engine AVR (Automatic Voltage Regulator) Material test (Chem. & Mechanical) Voltage variation at no-load 3 (a) Fuel Tank (If applicable) Alternator with Exciter Make, Model & Capacity Make, model & Capacity Volatage regulation test. Make, Model & Rating 3 (b) Fuel Transfer Pump Electronic governer Capacity & Rating Dimentional check Performance test Battery Charger Functional Check Make & Rating Make & model Leakage test Routine Test Routine test Batteries Engine 新.电. SR. NO. a) 0 2 9 a a 9 a) 9

Signature NHPC LTD , QA&I DEPT.)

Rev-03 Effective date-09.01.19

IMS/QAI/F-01

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

Page 3 of 4

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

उपस्कर का नाम (NAME OF EQUIPMENT) : DG SET

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प्राहक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited)

TC/COC TC/COC TC/COC TC/COC TC/COC TC/COC REMARKS TC/COC टियाणी सत्यापन Verify निरीक्षण एजेंसी (INSP. AGENCY) -Witness गवाह * विक्रता (venbor) : एनआईटी/ क्रय आवेश संदर्भ (NIT/P.O. REFERENCE) : ि स्पर्ध िस्पर्धा विक्रिया एवंस् प्रदर्शन Perform 3/2 3/2 3/2 3/2 3/2 3/2 3/2 TC/COC TC/COC RECORD TC/COC TC/COC TC/COC TC/COC TC/COC प्रारुप Fech. Spec./Appd.Drg./ REFERENCE DOCUMENTS/ ACCEPTANCE NORMS Relevant Standard -opop -opop--op--op-9 जाँच की मात्रा QUANTUM OF CHECKS 100% 100% 100% 100% 100% 100% 100% जॉंच की प्रकृति NATURE OF CHECKS Functional Functional Electrical Electrical Electrical Visual / Electrical Visual / Visual Visual / Visual / Voltage/Current rating, making/breaking capacity, opening limits, functional check & operation at rated voltage of make. Visual check, calibration, voltage/current range, connection arrangement & Numeric Type Protection Relays (Reverse power, Differential Protection, Stator Earth Fault, Under voltage, Under frequency, Instantaneous & parameters such as Oil pressure, Oil Temp & Water Temp , Very Low Control & Selector Switch and Dehumidification arrangements of Microprocessor based Controller with digital indication for engine CT,PT,Meters (Ammeters,Voltmeter, Wattmeter, Energy meter,Running hour meter, Frequency meter, Alarms & Annunciation system) etc. bellows, cladding, Louvers and Outside Air Grilles & Accessories Accoustic Enclosure, Exhaust Chimney & Structure, Flexible Visual checking, current/ voltage setting/ range and make. Visual checking, current/ voltage setting/ range and make Fuel Level and Fail to start (Over crank) situation etc. TEM /COMPONENTS & CHARACTERISTICS Checking of current rating & voltage, operation test etc Fabrication, Operation & Performance (As applicable) Circuit Breaker, Contactors, Neutral Earthing etc. मद/घटक एवं विशेषता Functional Check & operation at rated voltage Functional Check & operation at rated voltage IDMT over current etc.)- As applicable Electrical Equipments Functional check Alternator

NHPC LTD (QA&! DEPT.) Signature

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

TC/COC

3/2

TC/COC

-op-

100%

Visual

Rev-03 Effective date-09.01,19 IMS/QAI/F-01

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

उपस्कर का नाम (NAME OF EQUIPMENT) : DG SET

ग्राहक (CLIENT) : एनएचपीसी लिमिटेड (NHPC Limited)

Page 4 of 4

विकेता (venbor) : एनआईटी/ क्रम आदेश संदर्भ (NIT/P.O. REFERENCE) :

मद/घटक एवं विश्रोपता	जाँच की प्रकृति	जाँच की मात्रा	सदभ दस्तावज्ञ / स्वीकृति मानदंड	रिकार्ड	निरीक्षण र	निरीक्षण एजेंसी (INSP. AGENCY)	AGENCY)	9
ITEM /COMPONENTS & CHARACTERISTICS	NATURE OF CHECKS	QUANTUM OF CHECKS	REFERENCE DOCUMENTS/ ACCEPTANCE NORMS	RECORD	प्रदर्शन Perform	गवाह Witness	सत्यापन Verify	REMARKS
Final Inspection of Control Panels (Auto Mains Failure Starting System Panel, Control and Protection Panel & Auto and Manual Synchronizing Panel)- As applicable			Tech.Spec./Appd.Drg./ Relevant Standard					
Visual	Visual	100%	-do-	all	3/2			CITO
Dimensional	Measurement	-do-	-4-		2/2			100
IR and HV Test	Electrical	-op-	-do-	III.	3/2			200
Functional Check	Test	-00-	-00-	dil	2/2			100
Final Inspection on DG Set			-00-	210	3/2	-		CHP
Checking of BOM	-op-	-op-	-op-	All.	312	,		CHD
Load Test					1			5
up to 100% (1 hr.)	Functional	-op-	-op-	AII.	312			CHD
100% load test for 10 hrs.	-op-	-op-	-op-	JIR	3/2			GHO
110% load test for 1 hr	-op-	-op-	ф	JIR	3/2	-		GHO
Fuel consumption	measurement	-op-	-00-	AII.	312			OH OH
Functional Test of Different Control Mode, functional test on battery charger	Electrical	-op-	-op-	JIR	3/2	-		SE
Verification of Protection (Low lube oil pressure, high cooling water tempover speed & over load temp. rise and Electrical Fault etc.)	Electrical	-op-	-op-	AIR.	3/2	-		CHP CHP
Functional Check of Automatic start & Shutdown	Electrical	-op-	-op-	III	3/2	-	-	OFF
Starting Time Test	Measurement	-op-	-00-	AH.	3/2			and a
Vibration check_	-op-	-op-	-op-	III.	3/2	-	1	OF C
Noise Level measurement	-op-	-op-	-0-	all	3/2			200
Certificate of Type approval & certificate of conformity of production for Noise Limit (If applicable)	Visual	100%	As per CPCB Norms	TC	3/2		-	5
Certificate of Type approval & certificate of conformity of production for Emission Standard (If applicable)	-op-	100%	-op-	10	3/2	2	-	5
Co ordination and Provision of necessary contacts for Integration with Plant SCADA system (if applicable)	Visual	-op-	Tech.Spec./Appd.Drg./ Rel.Std	JIR	3/2		r	CHD
Monorali Hoist (if applicable)								
Functional Check	Test	-op-	-op-	JIR	2/3	1		CHP
Paint & Finish	Visual	-op-	-00-	AII.	3/2	-		

a. In 'Inspection Agency'column figure 1,2, or 3 to be filled. 1- will indicate 'NHPC Ltd', 2- will indicate '8 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.

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 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 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.

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

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

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

NHPC LTD (QA&! DEPT.) Signature