नॉर्थ ईस्टर्न इलेक्ट्रिक पावर कॉर्पोरेशन लिमिटेड
NORTH EASTERN ELECTRIC POWER CORPORATION LIMITED

भारत सरकार का उद्यम A Govt. of India Enterprise
मिनीरत्न : श्रेणी-I Miniratna : Category-I
एनटीपीसी लिमिटेड की पूर्ण स्वामित्व वाली सहायक कंपनी A wholly owned subsidiary of NTPC Ltd

ISO:9001, 14001 & 45001

Website: www.neepco.co.in, E-mail: contract_neepco@yahoo.com

OFFICE OF THE EXECUTIVE DIRECTOR (CONTRACTS & PROCUREMENT)
Brookland Compound :: Lower New Colony
Shillong-793 003 :: Ph: 91-364-2227784
Corporate Identity Number (CIN): U40101ML1976GOI001658

CORRIGENDUM NO. 1 DATED 02-01-2025

TO

NIB NO. 469 DATED 19-12-2024

(DOMESTIC COMPETITIVE BIDDING)

Name of Work: Package-II: Hydro Mechanical & Penstock Steel Liner Works for Tato-I Hydro Electric Project (186 MW), Arunachal Pradesh.

Following corrigendum to the bid document is hereby issued:

Part- 4: Conditions of Contract

1. The **Appendix-V: Model Quality Assurance Plan**, mentioned in clause no. 46 of Part-4: Conditions of Contract of Bid Document is attached herewith and included as a part of the Bid Document.

All others terms and conditions of the Bid Document shall remain unchanged.

2.1.25

Executive Director
Contracts & Procurement

NORTH EASTERN ELECTRIC POWER CORPORATION LTD

(A GOVT. OF INDIA ENTERPRISE)

ISO : 9001- 2015
ISO : 14001-2015
ISO : 27001-2013
ISO : 45001-2018

Package-II Hydro Mechanical & Penstock Steel Liner Works for Tato-I Hydro Electric Project (186 MW) Arunachal Pradesh.

MODEL QAP

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General:

Model QAP of the bidder for tendering / bidding purpose for the work of **"Package-II: Hydro Mechanical & Penstock Steel Liner Works for Tato-I Hydro Electric Project (186 MW), Arunachal Pradesh.**

1.0 The QAP of the bidder shall broadly include the following 2(two) QAPs:

Manufacturing Quality Assurance Plan (MQAP) and Field Quality Assurance Plan (FQAP)

In addition to the above, the bidder has to provide a QA Check List as mentioned below:

2.0 Quality Assurance Checklist

A quality assurance check list indicating the tests/checks to be carried out for various activities is presented below in the table based on which, the contractor shall formulate his quality control plan and got approved by the employer, before adoption during execution.

S. No.	MEASURING PARAMETER	Remarks by QC Engineer
A	**Design**	
1	Design group is qualified and has adequate design experience of all relevant components, including operation of relevant software.	Yes/No
2	The Design office is having adequate software and drafting facilities.	Yes/No
3	Adequate manpower is deployed for design of all Components	Yes/No
4	Work programme for design of various components and preparation of construction drawings, matching with the construction schedule is available.	Yes/No
5	Design and drawings for all components are being approved on time, in line with the approved construction programme.	Yes/No
6	In case of any slippage of schedule for approval of construction drawings, whether corrective measures are being worked out and approved.	Yes/No
7	The contractor's design agency is practicing a quality system for preparation and approval of design documents and construction drawings.	Yes/No
8	The quality system has the following features: a) an unique number assignment system for each document including revision numbers. b) an unique number assignment system for construction drawings for each component including revision numbers. c) The documents /drawings prepared by the dealing engineers/draughtsman are being checked and approved by at least	Yes/No Yes/No

	one higher level officer.	Yes/No
9	The design and drawings prepared by the sub- contractors are being first reviewed by the contractor before forwarding to the employer for approval.	Yes/No
B	**Raw materials**	Yes/No (Compliance as per the MQAP
C	**Welding**	
1	Weld procedure	WPS & PQR and WPQ to be submitted by the bidder Yes/No (Compliance as per the WPS & PQR approved by the employer)
2	Qualification of welders	
3	Quality of welds	
D	**Painting**	
1	Surface preparation	Yes/No (As per approved Drawings / TS)
2	Number of coats	
3	Thickness of paint	

3.0 <u>OK Card</u>

OK card shall be got signed by the owner before starting erection of each component. The proforma of OK Card is indicative only and the contractor can modify the same as per site requirements with the approval of the Engineer-In-Charge.

The details of the OK Card are to be filled by the construction agency (contractor) by preparing each feature including the location and type of work and making it ready for inspection by the Engineer-In-Charge or his authorized representative who will inspect the arrangements at site and if every arrangement and conditions are in order, will okay the card through his signature. In case of any defects/ deficiencies, the same will be recorded by the Engineer-In-Charge or his authorized representative in the Card and the contractor shall arrange for re-inspection after the deficiencies are rectified.

No work shall be executed at site before obtaining clearance from the employer's representative.

4.0 <u>Quality Assurance in Execution of Works (Compliance of FQAP):</u>

The Contractor shall establish staff, equip and operate a comprehensive quality assurance set-up at the site and shall ensure to remain under operation throughout the currency of the contract. The principal responsibility and duty of this set-up shall be to ensure that all work carried out and materials produced or supplied by the

Contractor comply fully with the Specifications.

With his tender, the contractor shall submit his detailed proposal (in terms of experienced supervisory staff, trained workmen, procedures of work, equipment's, obtaining support from outside agencies) for achieving qualityin respect of all works included in the scope of work of thetender.

The contractor's proposal for MQAP & FQAP shall be specific enough to assure that all works are executed in a professional manner and contractor has included in his bid the provision of employment of the best international practices of construction in the implementation of the work, which shall also include the tests/checks specified under Quality Assurance checklist attached as above. Within 28 days of the award of works, the contractor shall prepare and submit **detailed QAP** along with the weld map indicating **WPS (Welding Procedure Specification), and WPQ (Welder Performance Qualification)** in accordance with Section IX of the ASME Code for obtaining approval of the Engineer-In-Charge.

All procedures for weld and non-destructive examination (NDE) must be submitted prior to the start of work in a very transparent manner indicating codal references to the Engineer-In-Charge forapproval.

Immediately after the award of work, during mobilization phase, the Contractor shall take systematic steps to implement all the proposals given by him for achieving the desired quality in construction. In addition, contractor shall have to submit comprehensive QA and QC plan in line with technical specifications and relevant codes referred in the technical specifications for review and approval of Engineer-in-charge.

During course of execution, the quality of the work in progress shall be reviewed at least once in a month in the Quality Assurance meeting specifically called by the Engineer-In-Charge and participated by Contractors Project organization. In case Engineer-In-Charge is not satisfied with the resources employed vis-a-vis the commitments made in the proposal, the contractor shall take additional steps to supplement his efforts.

5.0 Contractor's Quality Control Staff

The personnel connected with quality control assignments must possess the relevant expertise and competence to perform specific tasks connected with quality control works and should be well conversant with testing of construction materials. The objective of quality control should be clearly understood by them in letter and spirit so as to help in quality construction and to achieve high order of quality as laid down in specifications by controlling various factors responsible for deterioration in quality, investigating reasons there for and suggesting ways and means for improvement.

The Contractor shall assign one experienced engineer-in-charge to site for quality control and quality assurance as full-time quality control manager, responsible with complying with all requirements of Technical Specifications. A check list shall be prepared for incorporating all the technical specifications requirements under different works and shall be displayed in the quality control for ready reference.

The experience and qualifications of this engineer shall be given in the contractor's tender and shall be subject to the approval of the Engineer-in- charge.

The positions, qualifications and duties, of the contractor's quality control staff shall be indicated in the QC Organization plan, and shall likewise be subject to approval by the Engineer-in-charge.

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Quality Assurance Plan (Model)

1) Slide/Fixed wheel/Hinged type gates (Intake Gates, Trash racks, Under sluice Gate, Stoplogs, Draft tube gate, etc.)
2) Hoist Support Frame, Hoist Housing
3) Monorail Crane
4) Hydraulic Hoist
5) Hydraulic Power Pack
6) Fixed Rope Drum Hoist
7) Lifting Beam
8) Trash Rack
9) 2nd stage Embedded parts for Slide Type/Wheel type/Hinged type/(Sill beam, Seal Seat, Side Guides, Track, Anchor rod etc.)
10) Penstock Steel Liner

Quality Assurance Plan (Model)

Name of Project : Tato-I HEP (3 x 62 MW)					**Client : NORTH EASTERN ELECTRIC POWER CORPORATION**				
Name of Equipment : 2nd stage Embedded parts for Slide Type/Wheel type/Hinged type/(Sill beam, Seal Seat, Side Guides, Track, Anchor rod etc.)					**Executing Agency :**				
					W.O NO. :				
S. No	**Activity / Operation**	**Nature of Check**	**Quantum of check**	**Reference document / Acceptance Norms**	**Format of Record**	**INSPECTION AGENCY**			**Remarks**
						Perform	**Witness**	**Verify**	
A	**Raw Material**								
1	Structural steel-Steel plates, Steel Section like Angle, Channel, Beam etc.	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant IS std./Approved Drgs.	Test Certificate	3/2	_	1	TC
2	Stainless Steel	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant IS std./Approved Drgs.	Test Certificate				
B	**Bought out Items**								
3	Hardware(Fasteners)	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant IS std./Approved Drgs.	Test Certificate	3/2	_	1	TC
II	**In Process Inspection**								
1	Welding	Visual/Measurement	100%	Tech. Spec/Relevant IS std./Approved Drgs.	IR	3/2	_	1	RR
2	Fillet Welds	D P test	100%	Tech. Spec/Relevant IS std./Approved Drgs.	TC	3/2	_	1	RR
3	Full strength welds-(Butt weld)	RT/UT	100%	Tech. Spec/Relevant IS std./Approved Drgs.	TC	3/2	_	1	RR

4	Machining(Roller track, seal track)	Visual/Measurement	100%	Tech. Spec/Relevant IS std./Approved Drgs.	IR	3/2	_	1	RR
D	**Final Inspection**								
1	Dimensional Check including alignment and tolerances	Visual/Measurement	100%	Tech. Spec/Relevant IS std./Approved Drgs.	JIR	3/2	_	1	CHP
2	**Welding Examination**								
i)	Weld Size	Visual/Measurement	at Random	Tech. Spec/Relevant IS std./Approved Drgs.	IR	3/2	_	1	RR
ii)	Fillet Welds	D P test	10% of fillet welds length	Tech. Spec/Relevant IS std./Approved Drgs.	JIR	3/2	_	1	CHP
3	Surface Finish (Machined Surface)	Visual comparision with Comparator	100%	Tech. Spec/Relevant IS std./Approved Drgs.	JIR	3/2	_	1	CHP
4	Shop Assembly (Frame & Guides)	Visual/Measurement	100%	Tech. Spec/Relevant IS std./Approved Drgs.	JIR	3/2	_	1	CHP
5	Grit Blasting (Surface preparation)	Visual/Measurement	Random	Tech. Spec/Relevant IS std./Approved Drgs.	TC	3/2		1	TC
6	Primer/Paint Coating	Visual/Measurement	Random	Tech. Spec/Relevant IS std./Approved Drgs.	TC	3/2		1	TC

Note : 1. 2 or 3 to be filled, 1- will indicate 'Client', 2- will indicate 'supplier' & 3-will indicate 'Sub-supplier'..

2. In 'Remarks' column abbreviation used shall be as below
IR - Internal Record, RR- Review of Report, TC- Test certificate, CHP - Client Hold Point

Signature (NEEPCO's Representative)

Signature & Seal

(VENDORS Q.C DEPT.OR REPRESENTATIVE)

Quality Assurance Plan (Model)

Name of Project : Tato-I HEP (3x62 MW)					**Client : NORTH EASTERN ELECTRIC POWER CORPORATION**			
Name of Equipment : Slide/Fixed wheel/Hinged type gates (Intake Gates, Trash racks, Undersluice Gate, Stoplogs, Draft tube gate, etc.)					**Executing Agency :**			
					W.O NO. :			
S. No	**Activity / Operation**	**Nature of Check**	**Quantum of check**	**Reference document / Acceptance Norms**	**Format of Record**	**INSPECTION AGENCY**		**Remarks**
						Perform	**Verify**	
A	**Raw Material**							
1	Structural steel-Steel plates, Steel Section like Angle, Channel, Beam etc.	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Stainless steel	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
3	Forged Steel/Cast Steel	UT	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	2	TC
B	**Bought out Items**							
1	Hardware(Fasteners)	Dimension Report, Material Properties	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Rubber Seals	Make, Type, Dimension Report, Material Properties	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC

3	Bushing, Bearing	Make, Type, Dimension Report, Material Properties	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
C	**In Process Inspection**							
1	Structural steel, Stainless steel & Forged steel							
i	Edge Preparation	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
ii	Dimensional Check in Track position	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
2	Welding	Visual/Measurement	At Random	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
I	Fillet welds	DP test	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
ii	Full Strength (Butt Weld)	RT/UT	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
3	Machining Dimensions							
i	Seal Bases, Clamp Bar, Rollers, Wheels , Guide brackets	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
ii	Sub Assembly of Gate Wheels	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
iii	Dimensions (Fits & Tolerences)	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
4	C.G Establishment/Gate Units	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
D	**Final Inspection**							

1	Dimensional Check on assembled gate	Measurment	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
2	Welding Examination	Visual/Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
i	**Fillet welds**	DP test	10% of fillet weld	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
3	Surface Finish	Visual/Comparison with comparator	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
4	Girt Blasting and Painting	Surface finish Visual/Measurement(DFT)	At Random	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	TC

Note : 1. In' Inspection Agency' column figure 1 will indicate' NEEPCO' 2 'Contractor/SubContractor
2. In 'Remarks' column abbreviation used shall be as below
IR - Internal Record, RR- Review of Report & TC- Test certificate , CHP - Client Hold Point.

Signature
(QA & I DEPT.)

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

Quality Assurance Plan (Model)

Name of Project : Tato-I HEP (3x62 MW)					**Client : NORTH EASTERN ELECTRIC POWER CORPORATION**			
Name of Equipment : Hoist Support Frame, Hoist Housing					**Executing Agency :**			
					W.O NO. :			
S. No	**Activity / Operation**	**Nature of Check**	**Quantum of check**	**Reference document / Acceptance Norms**	**Format of Record**	**INSPECTION AGENCY**		**Remarks**
						Perform	**Verify**	
A	**Raw Material**							
1	Structural steel-Channel, Angles etc	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Hardware- Fasteners, Washers etc.	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
B	**In Process Inspection**							
1	Welding							
i	Fillet welds	DP test	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
ii	Full Strength (Butt Weld)	RT/UT	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Dimensional Checks (after machining)	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR

D	**Final Inspection**							
1	Dimensional Check	Visual/Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
2	Welding Examination	Visual/Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
i	Fillet welds	DP test	10% of fillet weld	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
3	Shop Trial Assembly (Fit up of Trunion Bush & Pin into Trunion Hub and Trunion Bracket)	Fits and clearance measurements	100 %	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
4	Surface Finish	Visual/Comparison with comparator	At Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC
5	Girt Blasting and Painting	Surface finish Visual/Measurement(DFT)	At Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC

Note : 1. In' Inspection Agency' column figure 1 will indicate' NEEPCO' 2 'Contractor/SubContractor

2. In 'Remarks' column abbreviation used shall be as below
IR - Internal Record, RR- Review of Report & TC- Test certificate , CHP - Client Hold Point.

Signature
(QA & I DEPT.)

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

Quality Assurance Plan (Model)

Name of Project : Tato-I HEP (3x62 MW)					**Client : NORTH EASTERN ELECTRIC POWER CORPORATION**			
Name of Equipment : Monorail Crane					**Executing Agency :**			
					W.O NO. :			
S. No	**Activity / Operation**	**Nature of Check**	**Quantum of check**	**Reference document / Acceptance Norms**	**Format of Record**	**INSPECTION AGENCY**		**Remarks**
						Perform	**Verify**	
A	**Raw Material**							
1	Structural steel-- Crane Structure, Columns, Rails etc.	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Cast/Forged Steel (Wheel, Shafts, Pins, Gears, Sheaves and Rope Drum)	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
		UT	100 %	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
B	**Bought Out Items**							
1	Electric Motors (Main Hoist & Aux. Hoist CT & LT Drive)	Make, Type, Rating & Routine Test	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Electro Magnetic Brakes/Thruster Brakes	Make, Type, Routine Test and Dim. Check	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
3	Gear Boxes	Make, Type, Gear Ratio	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
4	Misc. Item (Wire Rope, Bearing, Plummer Blocks)	Make, Type, Material Properties & Dim, Routine Test	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
B	**In Process Inspection**							

1	Welding							
I	Fillet welds	DP test	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
ii	Full Strength (Butt Weld)	RT/UT	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Post weld heat treatment (Fabricated Rope Drum, Gear Box Housing)	Heat Tratment	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
3	Machining (Rope Drum, Shaft, Axle, Sheaves, Brake Drums) -Dimensional Checks	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
4	Sub Assembly - Wheel Bogies Assembly, Gear Pinions & Shaft, Plummer Blocks, Gear Boxes & Motors with coupling	Alignment, Noise Level, Vibration, Gear oil leakages	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
D	**Final Inspection and testing with original Control Panel**							
1	BoM Check	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
1	Dimensional Check on assembled crane	Visual/Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
2	Welding Examination	Visual/Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
3	Hoist Speed - Full load	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
4	Lowering Speed - Full load	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
5	Overload Test at 125 % of rated load	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP

6	Brake Test - Raising and Lowering	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
7	LT & CT Speeds	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
8	Control Panel	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
i	Cubicle Dimensions	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
ii	IR Test	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
iii	HV Test	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
iv	Functional Test & Interlocking	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
9	Surface Finish	Visual/Comparison with comparator	At Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC
10	Girt Blasting and Painting	Surface finish Visual/Measurement(DFT)	At Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC

Note : 1. In' Inspection Agency' column figure 1 will indicate' NEEPCO' 2 'Contractor/SubContractor

2. In 'Remarks' column abbreviation used shall be as below

IR - Internal Record, RR- Review of Report & TC- Test certificate , CHP - Client Hold Point.

Signature
(QA & I DEPT.)

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

Quality Assurance Plan (Model)

Name of Project : Tato-I HEP (3x62 MW)					**Client : NORTH EASTERN ELECTRIC POWER CORPORATION**			
Name of Equipment : Hydraulic Hoist					**Executing Agency :**			
					W.O NO. :			
S. No	**Activity / Operation**	**Nature of Check**	**Quantum of check**	**Reference document / Acceptance Norms**	**Format of Record**	**INSPECTION AGENCY**		**Remarks**
						Perform	**Verify**	
A	**Raw Material**							
1	Hydraulic Cylinder, Piston & Allied Parts	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
B	**Bought Out Items**							
1	Seal, Spherical Bearing, Control Valves etc.	Dim Report & Material Properties	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
C	**In Process Inspection**							
1	Welding - if applicable							
I	Fillet welds	DP test	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
ii	Full Strength (Butt Weld)	RT/UT	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Post weld stress relieving	Heat Tratment	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
3	Machining of Major Items : Cylinder, Piston Rod, Piston, End flanges etc	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
4	Hydrostatic Testing	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC

5	Chrome Plating, Polishing (Piston Rod)	Visual & Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
6	Dimensions	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
D	**Final Inspection and testing with original Control Panel**							
1	Welding Examination : Fillet Weld	Visual/Measurement	10%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
2	Shop Assembly	Measurement	100%	-----DO------.	JIR	2	1	CHP
i	Dimension Check	Measurement	ii100%	-----DO------.	JIR	2	1	CHP
ii	Travel of stem at Test Pressure - Stroke Length (Smooth Operation)	Visual/Measurement	100%	-----DO------..	JIR	2	1	CHP
iii	Leakage Test at Working Pressure (Hydrostatic Test)	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
iv	Max & Min Speed							
	Moving in	Measurement	100%	-----DO------..	TC	2	1	TC
	moving out	Measurement	100%	-----DO------..	TC	2	1	TC
v	Functional Tests : Hydraulic Interlocking	Visual	100%	-----DO------.	JIR	2	1	CHP
3	**Painting & Preservation**							
i	Girt Blasting and Painting	Surface finish Visual/Measurement(DFT)	At Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC

Note : 1. In' Inspection Agency' column figure 1 will indicate' NEEPCO' 2 'Contractor/SubContractor

2. In 'Remarks' column abbreviation used shall be as below

IR - Internal Record, RR- Review of Report & TC- Test certificate , CHP - Client Hold Point.

Signature
(QA & I DEPT.)

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

Quality Assurance Plan (Model)

Name of Project : Tato-I HEP (3x62 MW)					**Client : NORTH EASTERN ELECTRIC POWER CORPORATION**			
Name of Equipment : Hydraulic Power Pack					**Executing Agency :**			
					W.O NO. :			
S. No	**Activity / Operation**	**Nature of Check**	**Quantum of check**	**Reference document / Acceptance Norms**	**Format of Record**	**INSPECTION AGENCY**		**Remarks**
						Perform	**Verify**	
A	**Hydraulic Equipment & Accessories**							
1	Pump							
i	Make	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
ii	**Type**	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
iii	**Capacity/Rating**	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	**Oil Filter & Pressure Filter**							
i	Make	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
ii	**Type**	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
iii	**Capacity/Rating**	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC

3	**Pressure gauge, Pressure Switch, Float Switch etc**							
i	Make	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
ii	**Type**	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
iii	**Capacity/Rating**	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
4	**Control Valves**	Pressure Test	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
5	**Electric Motor**							
i	Make, Model & Rating	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
ii	**IR Test**	Electrical	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
iii	**HV Test**	Electrical	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
iv	**Full Load RPM**	Electrical	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
6	**Function of power pack with control cabinet alongwithpiping and pipe fittings for normal and full design pressure**	Functional	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
7	**Oil Tank**							

i	**Dimensions**	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
ii	**Leakage Test/Hydrostatic Test**	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
8	**Pipe and Pipe Fittings**							
i	**Dimensions**	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	Log Sheet	2	1	RR
ii	**Pressure Test**	Visual/Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC
9	**Control Panel**							
i	**Verification of Material, Rating of Components**	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
ii	**Overall dimensions**	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
iii	**IR Test**	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
iv	**HV Test**	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
v	**Electric Operational check**	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
10	**Painting**	Visual	Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC

Note : 1. In' Inspection Agency' column figure 1 will indicate' NEEPCO' 2 'Contractor/SubContractor

2. In 'Remarks' column abbreviation used shall be as below

IR - Internal Record, RR- Review of Report & TC- Test certificate , CHP - Client Hold Point.

Signature
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(VENDORS Q.C DEPT.OR REPRESENTATIVE)

Quality Assurance Plan (Model)

Name of Project : Tato-I HEP (3x62 MW)					**Client : NORTH EASTERN ELECTRIC POWER CORPORATION**			
Name of Equipment : Fixed Rope Drum Hoist					**Executing Agency :**			
					W.O NO. :			
S. No	**Activity / Operation**	**Nature of Check**	**Quantum of check**	**Reference document / Acceptance Norms**	**Format of Record**	**INSPECTION AGENCY**		**Remarks**
						Perform	**Verify**	
A	**Raw Material**							
1	Structural steel-- Base Frame, Girders, Columns	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Cast/Forged Steel (Rope Drum, Shaft, Pulleys, Gear & Pinions)	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
		UT	100 %	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
B	**Bought Out Items**							
1	Wire Rope, Coupling, Plummer Block, EM/Thruster Brake	Make, Type, Size, Dim., Mat. Properties	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Control Panel-Components	Make, Type, Size, Dim., Mat. Properties	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
3	Electric Motor	Make, Type, Routine Test and Dim. Check	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC

4	Gear Boxes	Make, Type, Gear Ratio	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
B	**In Process Inspection**							
1	Welding							
I	Fillet welds	DP test	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
ii	Full Strength (Butt Weld)	RT/UT	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Post weld heat treatment (Fabricated Rope Drum)	Heat Tratment	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
3	Machining (Rope Drum, Shaft, Axle, Sheaves, Brake Drums) -Dimensional Checks	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
4	Sub Assembly - Rope Drum and Drive mechanism on Base Frame	Alignment, Noise Level, Vibration, Gear oil leakages	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
D	**Final Inspection and testing with original Control Panel**							
1	BoM Check	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
2	Dimensional Check on complete assembly	Visual/Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
3	Load Test at SWL	Visual/Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP

6	Overload Test at 125 % of SWL load	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
7	Brake Test - Raising and Lowering	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
8	Lifting Speed at rated load	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
13	Functional Test & Interlocking	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
14	Surface Finish	Visual/Comparison with comparator	At Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC
15	Girt Blasting and Painting	Surface finish Visual/Measurement(DFT)	At Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC

Note : 1. In' Inspection Agency' column figure 1 will indicate' NEEPCO' 2 'Contractor/SubContractor
2. In 'Remarks' column abbreviation used shall be as below
IR - Internal Record, RR- Review of Report & TC- Test certificate , CHP - Client Hold Point.

Signature
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Quality Assurance Plan (Model)

Name of Project : Tato-I HEP (3x62 MW)					**Client : NORTH EASTERN ELECTRIC POWER CORPORATION**			
Name of Equipment : Lifting Beam					**Executing Agency :**			
					W.O NO. :			
S. No	**Activity / Operation**	**Nature of Check**	**Quantum of check**	**Reference document / Acceptance Norms**	**Format of Record**	**INSPECTION AGENCY**		**Remarks**
						Perform	**Verify**	
A	**Raw Material**							
1	Structural steel	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
B	**Bought Out Items**							
1	Lifting Hook, Lifting Pin, Bushes, Side Rollers etc.	Chemical and Mechanical Properties, Dim Report	Test	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
2	Lifting Hook-Proof Load Testing	Test	Test	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
B	**In Process Inspection**							
1	Welding							
I	Fillet welds	DP test	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
ii	Full Strength (Butt Weld)	RT/UT	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC

2	Dimensional Check on complete assembly	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
D	**Final Inspection**							
1	Assembly Dimension	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
2	Welding Examination -Fillet	DP Test	Random	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
3	Vertacilaty of Lifting Beam	Visual/ Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
4	Functional Test - Automatic Engaging & Disengaging of Lifting Hooks	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
5	Surface Finish	Visual/Comparison with comparator	At Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC
6	Girt Blasting and Painting	Surface finish Visual/Measurement(DFT)	At Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC

Note : 1. In' Inspection Agency' column figure 1 will indicate' NEEPCO' 2 'Contractor/SubContractor

2. In 'Remarks' column abbreviation used shall be as below

IR - Internal Record, RR- Review of Report & TC- Test certificate , CHP - Client Hold Point.

Signature
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Quality Assurance Plan (Model)

Name of Project : Tato-I HEP (3 x 62 MW)					**Client : NORTH EASTERN ELECTRIC POWER CORPORATION**			
Name of Equipment : Trash Rack					**Executing Agency :**			
					W.O NO. :			
S. No	**Activity / Operation**	**Nature of Check**	**Quantum of check**	**Reference document / Acceptance Norms**	**Format of Record**	**INSPECTION AGENCY**		**Remarks**
						Perform	**Verify**	
A	**Raw Material**							
1	Structural steel - Plates, Channels, Flats Beams etc	Chemical and Mechanical Properties	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
B	**Bought Out Items**							
1	Hrdwares (Fasteners)	Chemical and Mechanical Properties, Dim Report	Sample	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
C	**In Process Inspection**							
1	Steel Plates							
i.	Edge Preparation	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
ii	Dimensional Check	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
iii	Fillet welds	DP test	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC
iv	Full Strength (Butt Weld)	RT/UT	100%	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2	1	TC

2	Machining	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	IR	2	1	RR
D	**Final Inspection**							
1	Dimensional Check with Template	Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
2	Welding Examination - Fillet	DP Test	Random	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	1	CHP
3	Surface Finish	Visual/Comparison with comparator	At Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC
4	Girt Blasting and Painting	Surface finish Visual/Measurement(DFT)	At Random	Tech. Spec/Relevant std./Approved Drgs.	TC	2	1	TC

Note : 1. In' Inspection Agency' column figure 1 will indicate' NEEPCO' 2 'Contractor/SubContractor

2. In 'Remarks' column abbreviation used shall be as below

IR - Internal Record, RR- Review of Report & TC- Test certificate , CHP - Client Hold Point.

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Quality Assurance Plan (Model)

Name of Project : Tato-I HEP (3 x 62 MW)					**Client : NORTH EASTERN ELECTRIC POWER CORPORATION**				
Name of Equipment: Penstock Steel Liners					**Executing Agency :**				
					W.O No.:				
S. No	**Activity / Operation**	**Nature of Check**	**Quantum of check**	**Reference document / Acceptance Norms**	**Format of Record**	**INSPECTION AGENCY**			**Remarks**
						Perform	**Witness**	**Verify**	
I	**Raw Material**								
1	Plates	Chemical and Mechanical Properties	1/Heat	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2/3	3	1	TC
2	NDT of Steel Plates	UT	1/Heat	Tech. Spec/Relevant std./Approved Drgs.	Test Certificate	2/3	3	1	TC
3	Hardware	Dimensional and Material Properties	100 %	`-do-	Test Certificate	2/3	3	1	TC
II	**In Process Inspection**								
1	Surface defect	Visual	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR/Log Book	2	3 & 1		CHP
2	Plate Rolling & Assembly	Visual/Measurement	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR/Log Book	2	3 & 1		CHP
3	Edge Preparation & Fit Up	Visual/Dimensional	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR/Log Book	2	3 & 1		CHP

4	Welding Examination (Shop Welding)								
(i)	Fillet	D P test	100% of fillet Weld length	Tech. Spec/Relevant std./Approved Drgs.	IR	2	3	1	RR
(ii)	Charpy "V-Notch" impact test at -40 degree	Weld Notch toughness	Sample	Tech. Spec/Relevant std. /Approved Drgs.	TC	2	3	1	TC
5	Pre heat as per WPS	Measurement	100%	Tech. Spec/Relevant std. /Approved Drgs.	IR	2	3	1	RR
6	Post Weld Heat treatment as per WPS	Measurement	100%	Tech. Spec/Relevant std. /Approved Drgs.	IR	2	3	1	RR
III	**Final Inspection (Shop)**								
1	Dimensional Check of individual Liner	Measurement	100%	Tech. Spec/Relevant IS Code/Approved Drgs.	JIR	2	3 & 1		CHP
2	Welding Examination (Site Welding)								
(i)	Fillet	D P test	10%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	3 & 1		CHP
(ii)	Butt Weld								
a.	Circumferential weld	UT	100 %	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	3 & 1	1	CHP
		MPT	100 %	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	3 & 1	1	CHP

b.	Longitudional weld	X-ray	100%	Tech. Spec/Relevant std. /Approved Drgs.	JIR	2	3 & 1	1	CHP
3	Hydro Test	Leakage & Adequacy of liner	100%	Tech. Spec/Relevant std. /Approved Drgs.	JIR/Log Book	2	3 & 1	1	
4	Painting	Visual & Measurement (DFT)	10%	Tech. Spec/Relevant IS Code/Approved Drgs.	JIR	2	3 & 1	1	CHP
IV	**Site Inspection (Field Erection)**								
1	**Site Assembly**								
(i)	Ferrules	Visual & Dimensional Check	100 %	Tech. Spec/Relevant IS Code/Approved Drgs.	JIR	2	3 & 1		CHP
(ii)	Specials		100%	Tech. Spec/Relevant IS Code/Approved Drgs.	JIR	2	3 & 1		CHP
2	**Welding Examination**								
(i)	Fillet	D P test	10 %	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	3 & 1		CHP
(ii)	Butt Weld								
a.	Circumferential weld	UT	100%	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	3 & 1		CHP
		MPT (Outer Side of Surface Penstock)	100 %	Tech. Spec/Relevant std./Approved Drgs.	JIR	2	3 & 1		CHP
b.	Longitudional weld	UT	100%	Tech. Spec/Relevant std. /Approved Drgs.	JIR	2	3 & 1		CHP

C	T-Joints (Covering 100 mm on either side of Junctions)	X-Ray	100 %	Tech. Spec/Relevant std. /Approved Drgs.	JIR	2	3 & 1	1	CHP

Signature
(QA & I DEPT.)

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

Note : 1. In' Inspection Agency' column figure 1 will indicate' NEEPCO' 2will indicate 'Contractor/SubContractor', 3- will indicate 'Third party' of contractor.

2. In 'Remarks' column abbreviation used shall be as below
JIR- Joint Inspection Report, IR - Internal Record, RR- Review of Report, TC- Test certificate and CHP- Client Hold Point.

OK CARD FOR STARTING ERECTION OF HM WORK

NAME OF PROJECT	
NAME OF PACKAGE	
NAME OF COMPONENT	

S. No.	FACTORS TO BE VERIFIED BEFORE ISSUING OK CARD	RESULT OF CHECK
1	Whether all the employer's requirements in the Quality Assurance check list in the bid documents have been fulfilled?	Yes/No

After verifying that all the required formalities have been completed, clearance is hereby issued for carrying out the erection of_____.

Signature of authorized representative of Employer i.e. NEEPCO Date:

OK Card for commencing erection of_____has been received.

Sl. No.	NON-CONFORMITY REPORT FORMAT	
1.	Project Name :	
2.	Description of the requirement or specification	
3.	Description of the non-conformance	
	a. Location	
	b. Date of occurrence	
	c. Affected area	
	d. Marking (CAT – A or B)	
4.	Disposition	☐ Replace ☐ Repair ☐ Rework ☐ Use As-is Approval of disposition required by Engineer-In-Charge? Yes ☐ No ☐ Engineer-In-Charge approval Signature_____ Date_____
5.	Corrective action	☐ Corrective action completed. Name_____ Date _____ Acceptance of corrective action required from Engineer-In-Charge Yes ☐ No ☐ Name_____ Date _____
6.	Preventive action	Preventive action completed. Name_____ Date _____

NOTE:

CAT- A : Non-conformity is a major non-conformity which has a direct or indirect adverse effect on performance, reliability, safety, maintainability of working life of the material, equipment or service.

CAT- B : Non-conformity is a minor non-conformity and not categorized as CAT-A

For Contractor

Authorised Representative

For Engineer-In-Charge
Authorised Representative