

	Project :	2 x 800 MW LARA SUPER THERMAL POWER PROJECT (STAGE-II)	Document No.	
			BHEL	PY-AZ-4-M213-8316-03
	Customer :	NTPC Limited	Customer	9587-001-151-PVM-G-002
	Package :	Fire Protection & Detection System	REV. 00	
			Date: 31.12.2024	Page 1 of 2

Standard Note:

We confirm that this document meets all the contract requirements including safety and statutory requirements and facilitate ease of operation and maintenance. In case any deviation is found, the Contractor shall carry out all required changes/ modifications without any cost implications to NTPC. In addition, Penalty on account of noncompliance of contract specification as deemed fit by the Employer shall be recovered.

	
BHEL - PROJECT ENGINEERING & SYSTEM DIVISION	
THIS DRAWING MARKED(✓) IS RELEASED FOR	
☐	COMMENTS/APPROVAL
☐	PLANNING/INFORMATION
☒	CONSTRUCTION
STAMP ALL PREVIOUS REVISION AS SUPERSEDED	
ISSUED BY	
NAME	AVIRAL VERMA
SIGNATURE	
DATE	09.01.26

31.12.24	00	First Submission	Aviral	Kamaluddin	PCS
Date	Rev	Description of Revision	PREP.	CHD	APPD
CUSTOMER:  A Maharatna Company		NTPC LIMITED			
CONTRACTOR: 		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD			
		BHEL Doc. No: PY-AZ-4-M213-8316-03			Rev: 00
PACKAGE		FIRE PROTECTION & DETECTION SYSTEM			
TITLE		PAINT SCHEDULE - FIRE PROTECTION SYSTEM			
PREPARED BY		AVIRAL		31-12-24	
CHECKED BY		KAMALUDDIN		31-12-24	
APPROVED BY		PCS		31-12-24	

		BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD-32			
PAINTING SCHEDULE FOR FIRE PROTECTION SYSTEM (FPS)					
1. Paint requirement FOR Over-ground (GI Pipe) pipes normally empty but periodically charged with water .					
SL No	Name of the item	Type	Number of coat	DFT of each layer in micron	Remark
1	Primer	Etch Primer: micaceous iron oxide (MIO)	2	6	
2	Final Paint	Synthetic Enamel paint (Long Oil Alkyd) to IS2932.	3	25	Shade : RAL3000 PO RED
		Total DFT in micron		87	
Note: Surface preparation shall be done either by manually or by any other approved method.					
2. Paints for external surfaces protection of piping / fittings/ Structural steel for piping, and other FPS items (Carbon steel /Mild Steel) to be installed indoor and outdoor.					
SL No	Name of the item	Type	Number of coat	DFT of each layer in micron	Remark
1	Primer	Red Oxide Zinc Phosphate primer to IS 12744 (Alkyd base)	1	30	
2	Final Paint	Synthetic Enamel paint (Long Oil Alkyd) to IS2932.	3	25	Shade : RAL3000 PO RED shade for structural steel: Dark Admiralty Grey colour shade 632
		Total DFT in micron		105	
Note: 1. Surface preparation shall be done by means of Degreasing and Mech. Cleaning with wire brushing/hand tool (SP6 as applicable).					
3. Paints for external surfaces protection of Deluge valve, water monitor etc. to be installed indoor and outdoor.					
SL No	Name of the item	Type	Number of coat	DFT of each layer in micron	Remark
1	Primer	Zinc filled epoxy Primer	1	35	
2	Final Paint	Aliphatic Polyurethane	3	30	Shade : RAL3000 PO RED
		Total DFT in micron		125	
Note: 1. Surface preparation shall be done by means of Degreasing and Mech. Cleaning with wire brushing/hand tool (SP6 as applicable).					
Note:					
1	Paint shall be as per IS 2932.				
2	Painting not required on a. Uninsulated austenitic stainless steel, b. Plastic and/or plastic coated materials and c. Non-ferrous materials like aluminum.				

TECHNICAL DATA SHEET OF WRAPPING & COATING MATERIAL		
1.0	Design Code	: IS:15337-2003
2.0	Type	: Coal Tar Tape as per IS - 15337
3.0	Base Material	: Plasticized Coal Tar Pitch
4.0	MOC	: The tape shall comprise of coal tar component supported on fabric. The tape shall be thoroughly coated and completely covered on both sides with coal tar. MOC shall be as indicated in IS: 15337
5.0	Thickness of Tape	: 4mm (2 mm x 2 nos)
6.0	Width Of Tape	: 200mm/250mm/330mm/500mm/1000mm
7.0	Overlap	: 12.5-20mm
8.0	Characteristics of Coal tar Tape	
8.1	Softening Point	: 65 Deg.C to 121 Deg C
8.2	Reinforcement	: Fibre Glass Tissue
8.3	Penetration @ 25 Deg.C / 100g/5Sec	: Between 1 to 20
8.4	Fibre Content	: 20 to 30%
8.5	Weight Average	: 1.5 Kg +/- 10%
8.6	Adhesion	: Passes as per IS:15337-2003
8.7	Insoluble content % by wt in petroleum ether	: 95% minimum
8.8	Pliability	: The tape shall have sufficient pliability (Flexibility) at 35 Deg C so as to unwind from the roll without disbonding the coal tar component from the fabric
8.9	Service Temperature	: 50 Deg C
9.0	Characteristics of Synthetic Primer (Tape Primer)	
9.1	Viscosity at 23 Deg C	: 35-60 seconds
9.2	Drying time in minutes	: 5-15 minutes
9.3	Flash point	: 23 Deg C minimum
9.4	Volatile matter	: 75% by mass as per IS- 15337
9.5	Coverage	: 8 to 10 Sq.mtr Per Ltr/per Coat



A Maharatna Company

एन टी पी सी लिमिटेड

(भारत सरकार का उद्यम)

NTPC Limited

(A Govt. of India Enterprise)

(Formerly National Thermal Power Corporation Ltd.)

(केंद्रीय कार्यालय नोएडा)

Corporate Center NOIDA

Reference : CC-ENGG-9587-001-110-QVM-Q-251

Date : 03/12/2024

From : NAMRATA ZANAKRAJ NAYEK
ENGINEER

To : BHARAT HEAVY ELECTRICALS LTD
NEW DELHI
110049
IN

Cc : pmgvijay@bhel.in
dipakbag@bhel.in

Subject : EPC Package

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : PP-QBE-2401-P-QA-503

Orgn. Drg. No. : 9587-001-110-QVM-Q-251

Revision No. : 00

Drg. Title : FQP for Station Piping (Receipt, Storage & Erection)

App. Category : CAT-I

Release Date : 03/12/2024



Scan to verify

Comments : Approved in Cat-I



Engineering Division
ISO 9001:2008 Certified



अभियंत्रिकी कार्यालय परिसर, प्लॉट नं.- ए 8ए, सेक्टर-24, पोस्ट बॉक्स नं.- 13, नोएडा (उ.प्र.) पिन-201 307

टेलिफोन नं.- 0120-2410333, 2410116 फैक्स-0120-2410136, 2410137

पंजीकृत कार्यालय: एनटीपीसी भवन, स्कोप कॉम्प्लेक्स, 7 इंस्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली-110 003

टेलिफोन नं.- 011-24361018 फैक्स-011-24361018, वेबसाइट: www.ntpc.co.in

ENGINEERING OFFICE COMPLEX, Plot No: A-8A, Sector-24, Post Box No: 13, Noida (UP), Pin-201 307

Telephone No: 0120-2410333, 2410116 Fax-0120-2410136, 2410137

Registered Office: NTPC Bhawan, Scope Complex, 7 Institutional Area, Lodhi Road, New Delhi-110 003

Telephone No: 011 24360100 Fax: 011 24361018, Website: www.ntpc.co.in

Nagrat

स्टेशन पाइपिंग के लिए
निर्माण गुणवत्ता योजना
FIELD QUALITY PLAN
FOR STATION PIPING



Scan the QR code for
checking the latest revision



एनटीपीसी - लारा सुपर थर्मल पावर प्रोजेक्ट
चरण-II (2x800 MW)
NTPC-LARA SUPER THERMAL POWER PROJECT
STAGE-II (2x800 MW)

एनटीपीसी दस्तावेज़ संख्या / NTPC DOC. NO. : 9587-001-110-QVM-Q-251
संशोधन संख्या / REVISION NO.: 00



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
पावर सेक्टर - पूर्वी क्षेत्र, कोलकाता – 700091

BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR - EASTERN REGION, KOLKATA – 700091

दस्तावेज़ संख्या / BHEL DOC. NO. : PP-QBE-2401-P-QA-503

संशोधन संख्या / REV. NO.: 00

Namrata

ENDORSEMENT SHEET FOR QP/ क्यूपी हेतु पुष्टि शीट
REFERENCE / STANDARD / FIELD QUALITY PLAN (RQP / SQP/RFQP/SFQP)
संदर्भ / मानक / क्षेत्र क्वालिटी प्लान (आरक्यूपी / एसक्यूपी / आरएफक्यूपी / एसएफक्यूपी)

TO BE FILLED IN BY SUPPLIER AT TIME OF SUBMISSION/ जमा करते समय आपूर्तिकर्ता द्वारा भरा जाएगा		एनटीपीसी NTPC	To be filled in by NTPC/ एनटीपीसी द्वारा भरा जाएगा
PROJECT NAME/ परियोजना का नाम	LARA STPP STAGE-II (2 X 800 MW)	REVIEW & ENDORSEMENT BY NTPC PROJECT SPECIFIC QP NUMBER ALLOTTED / एनटीपीसी	
CONTRACT NO / संविदा सं.	CS-9587-001	परियोजना की आवंटित विशिष्ट क्यूपी संख्या द्वारा समीक्षा तथा पुष्टि	
PACKAGE/ पैकेज	EPC	QP NO क्यूपी सं.: 9587-001-110-QVM-Q-251	
MAIN SUPPLIER/ मुख्य आपूर्तिकर्ता	BHEL-PSER	REV.NO/संशोधन: 00 DATE/ दिनांक: 26/11/2024	
MANUFACTURER WORKS & ADDRESS निर्माता का कार्य और पता	M/S BHEL	** The RQP/SQP/RFQP/SFQP once endorsed for a particular contract shall remain valid even though the original QP may have expired or revised, unless / otherwise mutually agreed with the supplier. ① ** आरक्यूपी / एसक्यूपी / आरएफक्यूपी / एसएफक्यूपी एक बार किसी विशेष संविदा (अनुबंध) का समर्थन करता है, तो चाहे मूल क्यूपी भले ही समाप्त या संशोधित हो गयी हो, वह मान्य होगा, जब तक कि / अन्यथा आपूर्तिकर्ता से पारस्परिक सहमत न हो।①	
ITEM /EQUIPMENT / SYSTEM/ SUB-SYSTEM DETAILS i.e. MODEL TYPE / SIZE /RATING etc. मद / उपकरण / प्रणाली / उप-प्रणाली का विवरण अर्थात माडल का प्रकार / आकृति / रेटिंग आदि।	STATION PIPING (CW System, ECW System, ACW System, Service Water System, Compressed Air System, Air Pre-Heater Water Wash System, Make Up Water Piping, Potable Water System, Condensate System, Raw Water System, Pre-Water Treatment, DM Water System, Fuel Oil System, Any Other Piping System Required to Make the Low-Pressure Piping Systems for Boiler & Auxiliaries System & TG, Miscellaneous Piping System)		
APPROVED QP NO.: RQP/SQP/RFQP/SFQP अनुमोदित क्यूपी सं.: आरक्यूपी/ एसक्यूपी/ आरएफक्यूपी/ एसएफक्यूपी	1. 0000-999-QOM-T-023 / R-00, Dt. 23/03/2016 (For Storage & Preservation) 2. 0000-999-QOM-I-023 / R-00 Dt. 31/03/2011(Erection of Station Piping)		
NTPC Approved drawing/Data Sheet No: एनटीपीसी द्वारा स्वीकृत ड्राइंग/ डाटाशीट सं:		(TICK APPLICABLE)/ (मान्य पर टिक करें)	
☒ The Project Specific technical specification requirements have been incorporated. परियोजना से संबंधित विशिष्ट तकनीकी विशेषताओं को शामिल किया गया है		The QP is endorsed for this project without any change/क्यूपी बिना किसी बदलाव के इस परियोजना के लिए समर्थित है	
Confirmation by Main Supplier (TICK WHICHEVER APPLICABLE) मुख्य आपूर्तिकर्ता द्वारा पुष्टि (टिक करें जो मान्य हो)		The QP is endorsed for this project Package with changes as indicated/ क्यूपी निम्नलिखित बदलाव के साथ इस परियोजना / पैकेज के लिए समर्थित है, जैसा कि नीचे वर्णित है-	
I. That the item/ component is identical to that considered for QP approval. OR. यह कि मद / अवयव क्यूपी अनुमोदन के लिए एक समान हो, जिस पर विचार किया जा सके। अथवा		DISTRIBUTION OF ENDORSEMENT OF/ निम्नलिखित की पुष्टि -	

Namrata

ENDORSEMENT SHEET FOR QP/ क्यूपी हेतु पुष्टि शीट
REFERENCE / STANDARD / FIELD QUALITY PLAN (RQP / SQP/RFQP/SFQP)
संदर्भ / मानक / क्षेत्र क्वालिटी प्लान (आरक्यूपी / एसक्यूपी / आरएफक्यूपी / एसएफक्यूपी)

TO BE FILLED IN BY SUPPLIER AT TIME OF SUBMISSION/ जमा करते समय आपूर्तिकर्ता द्वारा भरा जाएगा



To be filled in by NTPC/ एनटीपीसी द्वारा भरा जाएगा

II. That there are minor changes in the item/ component with respect to that considered for QP approval, however the same do not affect the contents of QP. OR

यह कि क्यूपी अनुमोदन के लिए सुविचारित मद / अवयव में मामूली परिवर्तन हो, हालांकि वही क्यूपी की विषय-सूची को प्रभावित नहीं करता हो। अथवा,

III. That there are minor changes in the item/ component with respect to that considered for QP approval, however the same affect the QP slightly, as indicated below / in attached sheet.

यह कि क्यूपी अनुमोदन के लिए सुविचारित मद / अवयव में मामूली परिवर्तन हो, हालांकि वही क्यूपी को थोड़ा प्रभावित करता है, जैसा कि नीचे / संलग्न पत्रक में दर्शाया गया है।

NOTE: Following Changes are effected:

1. Storage Instructions in Annex-I shall be followed. For Electrical/ C&I Items, separate FQP for Storage shall be referred
2. For Erection Part:
 - a. check in Sl. No. 1.0: BHEL-Trichy approved WPS shall be used
 - b. check in Sl. No. 2.4, 4.5 & 7.0: If hydrotest not feasible, based on site condition, 100% RT or PAUT may be done in lieu of hydrotest. In that case no separate 5% RT of the joint shall be required.
 - c. Additional check in Sl. No. 2.2: ACW Pipe-100% DPT on root run without back gouging. CW Pipe- 100% DPT on root run after back gouging.
 - d. For Concrete Volute Pump erection separate FQP to be referred.
 - e. Checks for concreting encasing work shall be conducted as per approved FQP no. 9587-001-315-QVC-G-001
 - f. Painting check of above ground pipe shall be as follows

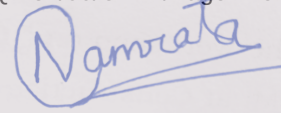
Sl. No	Activity and operation	Type of Check	Class of check	Quantum of check	Reference Document & Acceptance Norms	Format of Record
12a	For items dispatched in Shop painted condition : Touch-up paintings, making good any damaged shop painting (if required), Marking / Labelling	V	B	100%	Painting Schedule & NTPC Tech. Spec.	Joint Protocol ✓
12b	For items received in unpainted condition: DFT check for Primer; DFT & Colour shed of finish coat; Marking / Labelling	V & M	B	100%	Painting Schedule & NTPC Tech. Spec.	Joint Protocol ✓

Digitally signed by ARUP RATAN PAUL
 DN: c=IN, o=BHARAT HEAVY ELECTRICALS LIMITED, ou=GOVERNMENT, 2.5.4.20=b6355c0e40c2ad6bdcd8bf4ead57f, c91a7d353fa98669896bf74b6a564865593, postalCode=700091, st=WEST BENGAL, serialNumber=C8B448BF8F320E7DE8C1F8B72DAD924764DAA0E46680985AE7403E3A8F0AE, cn=ARUP RATAN PAUL
 Date: 2024.11.28 11:58:30 +05'30'

SIGN.: (Manufacturer)
 हस्ताक्षर.: (निर्माता)

DATE:
 तिथि

NTPC (Reviewed /Approved by/ Date & Seal)
 एनटीपीसी (द्वारा समीक्षा /अनुमोदित/ मुहर सहित तिथि)



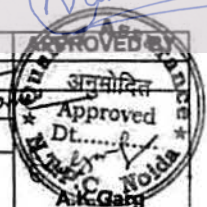
	ITEM : MATERIAL RECEIPT, STORAGE & PRESERVATION		STANDARD FIELD QUALITY PLAN				QP NO.: 0000-999-QOM-T-023 REV. NO: 00 DATE : 22.03.2016 PAGE 1 OF 2		REVIEWED BY: N. H. S. SHRIVASTAVA SOMNATH DAS		APPROVED BY: RAJEEV K. JAIN K. K. OJHA	
							VALID UPTO : 21.03.2019					
SI No	Activity & Operation	Characteristics	Class of Check	Type of Check	Quantum of Check	Reference Document	Acceptance Norms	Format of Record	D*	Remarks		
1.	2.	3.	4.	5.	6.	7.	8.	9.	D*	10		

Storage: Instructions & Facilities										
1	Availability of Storage/ Preservation Instructions/ Procedure for Material at site.	Verification	A	Verify	100%	Storage & Preservation Instruction/ Procedure/ Recommendation of Manufacturer/ NTPC	Site Register/Log Book			
2	Site Preparation for Storage e.g. Leveling, Raised platform/ availability of wooden planks/ suitable supports, preparation of Covered Shed/ Storage	Visual	A	Physical	100%	Storage & Preservation Instruction/ Procedure/ Recommendation of Manufacturer/ NTPC	Site Register/Log Book			Refer Note 1
Material Receipt:										
3	Check for the availability of documents :- Shipping List/ Packing list / Loading Advice Slip / Delivery Challan/ LR/ RR / MDCC/ CHP	Record Verification	B	Review of Records	100%	Packing Slip, Delivery Challan, Approved BBU/ CHP/ MDCC/ LR/ RR	Site Register/Log Book			Refer Note 2
4	Verify the Packing & Material received against the following:- a) Project/ Package No. b) Work order no. / BBU No. c) Item no./ Part No./DU No. etc. d) Identification of Material	Visual/ Record Verification	B	Visual, Review of Records	100%	Packing Slip, Delivery Challan, Approved BBU/ CHP/ MDCC/ LR/ RR	Should be properly correlated	Site Register/Log Book		
5	Check the Material / Item on receipt for the following - a) Packing condition b) Physical damage c) Quantity of components/ Any Shortage or Excess of quantity d) Correlation with identification as per CHP/ MDCC, if any e) Painting condition (as applicable)	Visual/ Record Verification	B	Visual, Review of Records	100%	Packing Slip, Delivery Challan, Approved BBU, CHP/MDCC/ LR/ RR	No Damage & Shortage of Quantity as per challan / CHP report/ MDCC	Site Register/Log Book	√	Refer Note 3

LEGEND: D* RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.
CLASS OF CHECK 'A' SHALL BE WITNESSED BY NTPC FQA ENGINEER IN ASSOCIATION WITH EXECUTING ENGINEER & SURVEILLANCE BY HEAD FQA. CLASS 'B' SHALL BE WITNESSED BY NTPC ERECTION ENGINEER & SURVEILLANCE BY FQA.

ITEM : MATERIAL RECEIPT, STORAGE & PRESERVATION		STANDARD FIELD QUALITY PLAN					QP NO.: 0000-999-QOM-T-023 REV. NO: 00 DATE : 22.03.2016 PAGE 2 OF 2		REVIEWED BY: N. H.S. SHARAD SOMNATH DAS RAJEEV KR JAIN		APPROVED BY: K. K. OJHA	
							VALID UPTO : 21.03.2019					
Sl No	Activity & Operation	Characteristics	Class of Check	Type of Check	Quantum of Check	Reference Document	Acceptance Norms	Format of Record	D*	Remarks		
1.	2.	3.	4.	5.	6.	7.	8.	9.	D*	10		
6	Ensure non-conforming/ Damaged & rejected components are identified & stored separately and reported to Main Contractor/ Manufacturer.	Visual/ Record Verification	A	Visual, Review of Records	100%	Storage & Preservation Instruction/ Procedure, CHP/MDCC	Storage & Preservation Instruction/ Procedure,	Site Register/Log Book	√	Refer Note 4		
7	Issuing of Material Receipt Certificate (MRC)	Record Verification	B	Review of Records	100%	Packing Slip, Delivery challan, Approved BBU,CHP/MDCC/ SL/ RR/ LR	Packing Slip, Delivery challan, Approved BBU/CHP/MDCC	MRC	√	Refer Note 5		
Storage												
8	Material storage & Preservation: Check for proper Storage, Shelf life, Preservation etc.	Visual/ Record Verification	A	Verify	100%	As per storage instructions Point No. 1 above		Site Register/Log Book		Refer to supplier's recommendation for long storage.		
9	Periodic Inspection of Stored Items for their condition & Preservation	Visual	B	Verify	100%	As per storage instructions Point No. 1 above		Site Register/Log Book	√	Surveillance by NTPC FQA		
Notes: 1. Prior to despatch of first lot of Materials, confirmation regarding availability of storage facility as per Storage Instruction/ Procedure shall be obtained through NTPC site FQA. 2. All items identified in Contract shall be received with proper dispatch clearance i.e. either with MDCC, in case of BBU or with CHP clearing despatch. 3. Correlation will be established between received Materials & MDCC/ CHP/ MTC/ HEAT No etc., as applicable. 4. Dispositioning of Non-conforming /Rejected materials shall be done with intimation to NTPC FQA. 5. Before release of any Material Receipt Certificate (MRC), FQA clearance shall be obtained w.r.t. proper Storage & Preservation of Materials as per Manufacturer recommendations.												

LEGEND: D* RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.
CLASS OF CHECK 'A' SHALL BE WITNESSED BY NTPC FQA ENGINEER IN ASSOCIATION WITH EXECUTING ENGINEER & SURVEILLANCE BY HEAD FQA. CLASS 'B' SHALL BE WITNESSED BY NTPC ERECTION ENGINEER & SURVEILLANCE BY FQA.

		STANDARD FIELD QUALITY PLAN					QP NO.	0000-999-QOM-I-004	REVIEWED BY		
		SYSTEM / EQUIPMENT		ERECTION OF STATION PIPING			REV.NO.	00	H S Maurya Hm		
		PACKAGE		STATION PIPING			DATE	31/03/2011	M.K. Asthana Hm		
		SUB SYSTEM					PAGE	1 of 5	O P Niranjan		
					VALID UP TO			30/03/2014			
SL NO.	ACTIVITY AND OPERATION/CHARACTERISTICS	CLASS OF CHECK	INSTRUMENT	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		REMARKS	
1	2	3	4	5	6	7	8	9	D*	10	
ERECTION CHECKS											
1.0	WELDING										
	Welding – Procedure and Performance Qualification Tests	A		Visual & Mech. Tests	100%	Approved WPS, ASME Section IX	QW 482, 483 & 484 AS PER ASME SEC - IX	✓		NTPC approved WPS & NTPC Site FQA Qualified Welder to be utilized	
2.0	ERECTION OF MS BLACK & SS ERW WELDED AND SEAMLESS PIPES & FITTINGS										
2.1	Weld Joints (Pipe to Pipe, Pipe to Fittings/Flanges) – Check for Layout, Elevation, Fit-up & Edge Preparation	B	Tape/ Scale	Visual & Measure	100%	Approved Drawing/ Layout WPS/ASME Section IX	Erection Protocol				
2.2	NDT on welds – On Root Run of butt welds and final run of all welds	A	DP Kit	DPT	10% / 100%**	ASTM E-165	No Relevant Indication	NDT Report	✓	**DPT shall be 100% on butt joints in case of compressed air line and boiler/ deserator fill line & 10% for others)	
		A		RT	5%/ 100%	ASME sec V	ASME sec VIII Division – I, UW 52	RT report & Film	✓	1. Random 5 % RT for accessible joints. 2. 100% RT to be done on Joints which is inaccessible for Hydro test.	
2.3	Cleaning of Pipes	C		Visual	100%	Drawing / Technical Specification	Erection Protocol	✓			

LEGEND: * RECORDS, IDENTIFIED WITH 'TICK' (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

LEGEND TO BE USED: CLASS #: A = CRITICAL, B=MAJOR, C=MINOR; 'A' SHALL BE WITNESSED BY NTPC FQA & SURVEILLANCE BY FQA HEAD; 'B' SHALL BE WITNESSED BY NTPC ERECTION & SURVEILLANCE BY FQA AND 'C' SHALL BE WITNESSED BY NTPC ERECTION / CONSTRUCTION DEPTT. & SURVEILLANCE BY ANOTHER NTPC ERECTION PERSON (A&B CHECK SHALL BE NTPC 'CHP' STAGE)

FORMAT NO.: QS-01-QAI-P-10/F2-R1

ENGG.DIV./QA&I

Nagendra

SL NO.		ACTIVITY AND OPERATION/CHARACTERISTICS	CLASS OF CHECK	INSTRUMENT	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	REMARKS	
1	2	3	4	5	6	7	8	9	D*	10	
2.4	Hydro test of Section	B			Visual & measure		Appd Data sheet / tech Spec.	No leakage	Hydro test report	√	
3.0	WRAPING & COATING OF PIPES (BEFORE AND AFTER LAYING OF PIPES)										
3.1	Wrapping & coating Material	B			Review of MTC	100%	NTPC Tech Specs / AWWA C 203	I.R.	√	Check for Acceptable TC of Sample taken during receipt of Tape by Site FQA & Main Contractor at site for Petrol Solubility test.	
3.2	Surface Preparation	B			Visual	100%	NTPC Tech Specs / AWWA C 203	I.R.			
3.3	Coating Inspection for overlap, air pockets, thickness	A			Visual Measure ment	100% Random	NTPC Tech Specs / AWWA C 203	No surface defect	I.R.		√
3.4	Holiday Test	A			Visual	100%	NTPC Tech Specs / AWWA C 203	I.R.	√		
3.5	Adhesion Test	A			Measure ment	IS:10221	NTPC Tech Specs / AWWA C 203	I.R.	√		
3.6	EXCAVATION & FILLING OF TRENCH BEFORE LAYING										
3.6.1	Check for nature , type of soil rock	C			Visual	Random	NTPC Technical specifications and construction Drawings		I.R.		
3.6.2	Check for Initial ground level before start of excavations ,shape, Side slope & dimension of excavations and Compacting, Leveling course, final excavation level, Side slope, dimension	C			Measure ment	100%	-do-	-do-	I.R.		
3.6.3	Property Laying of pipes in trenches	B				100%	NTPC Technical specifications and construction Drawings				
3.6.4	Welding of Erection joint & fitting						REFER 2.1 AND 2.2				
LEGEND: * RECORDS, IDENTIFIED WITH 'TICK' (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. LEGEND TO BE USED: CLASS # : A = CRITICAL, B=MAJOR, C=MINOR; 'A' SHALL BE WITNESSED BY NTPC FQA & SURVEILLANCE BY FQA HEAD; 'B' SHALL BE WITNESSED BY NTPC ERECTION & SURVEILLANCE BY FQA AND 'C' SHALL BE WITNESSED BY NTPC ERECTION / CONSTRUCTION DEPTT. & SURVEILLANCE BY ANOTHER NTPC ERECTION PERSON (A&B CHECK SHALL BE NTPC 'CHP' STAGE)											
FORMAT NO.: QS-01-QAI-P-10/F2-R1 ENGG.DIV/QA&I											

		STANDARD FIELD QUALITY PLAN				QP NO.	0000-999-QOM-I-004	REVIEWED BY		
SYSTEM / EQUIPMENT		ERECTION OF STATION PIPING				REV.NO.	00	H S Maurya		
PACKAGE		STATION PIPING				DATE	31/03/2011	M.K. Asthana		
SUB SYSTEM						PAGE	3 of 5	O P Niranjan		
						VALID UP TO	30/03/2014			
SL NO.	ACTIVITY AND OPERATION/CHARACTERISTICS	CLASS OF CHECK	INSTRUMENT	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		REMARKS
1	2	3	4	5	6	7	8	9	D*	10
3.6.5	Wrapping and coating of erection joint after laying and hydro test		REFER 3.0 and 7.0							
4.6.5	Check for Filling, Compacting of Final course	C		Measure ment	100%	- NTPC Technical specifications and construction Drawings		I.R.		
4.0	ERECTION OF MS GALVANIZED PIPES AND FITTINGS									
4.1	Pipe Jointing (Screwed and socket Joints; Check for Layout, Elevation, Joint Preparation)	C		Tape/ Scale	Visual, threading (for cut pipes)	100%	NTPC Specification	NTPC Specification	Erection Protocol	The exposed threaded portion on the outside of pipe shall be coated with zinc silicate.
4.2	Welding of GI Pipes to pipe (if applicable as per specification), Socket welding of pipe, pipe to flanges, pipe to fitting (socket welding), Check for Layout, Elevation, joint Preparation etc.	B			Visual	100%	Approved Drawing/Approved ASME Section IX	WPS/	Erection Protocol	1. Matching pipes and fittings have sufficient access to apply zinc silicate. 2. NTPC approved WPS shall only be used. Welding electrode shall be Zinc rich electrode
4.3	Weld Quality NDT on welds – final run	A		DP Kit	DPT	10% on final welds	ASTM E-165	No relevant Defect	NDT Report	✓
4.4	Application of Zinc Silicate on Welding	B			Measure ment	10%	Approved Data Sheet/ Technical specification		Inspection report	After welding, suitable application of Zinc silicate paste shall be applied adequately at the weld surface both inside and outside.
4.5	Hydro test of section	A			Visual & measure	100%	Appd Data sheet/ tech Spec.	No leakage	No leakage	✓

LEGEND: * RECORDS, IDENTIFIED WITH 'TICK' (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

LEGEND TO BE USED: CLASS #: A = CRITICAL, B=MAJOR, C=MINOR; 'A' SHALL BE WITNESSED BY NTPC FQA & SURVEILLANCE BY FQA HEAD; 'B' SHALL BE WITNESSED BY NTPC ERECTION & SURVEILLANCE BY FQA AND 'C' SHALL BE WITNESSED BY NTPC ERECTION / CONSTRUCTION DEPTT. & SURVEILLANCE BY ANOTHER NTPC ERECTION PERSON (A&B CHECK SHALL BE NTPC 'CHP' STAGE)

FORMAT NO.: QS-01-QAI-P-10/F2-R1

ENGG.DIV./QA&I

Namrata

STANDARD FIELD QUALITY PLAN		QP NO.	0000-999-QOM-I-004	REVIEWED BY	APPROVED BY				
SYSTEM / EQUIPMENT		REV.NO.	00	H S Maurya					
ERECTION OF STATION PIPING		DATE	31/03/2011	M.K. Asthana					
PACKAGE	STATION PIPING	PAGE	4 of 5	O P Niranjan					
SUB SYSTEM		VALID UP TO	30/03/2014						
SL NO.	ACTIVITY AND OPERATION/CHARACTERISTICS	CLASS OF CHECK	INSTRUMENT	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	REMARKS
1	2	3	4	5	6	7	8	9	10
5.0	OTHER LINING MATERIAL AND CATHOLIC PROTECTION — REFER SEPARATE FQP, IF APPLICABLE FOR THE CONTRACT.								
6.0	VALVES								
6.1	Identification of the vales for location	C		Verification	100%	Approved Drawings		I.R.	
6.2	Check for Availability of Supports	C		-do-	100%	Approved Drawings		I.R.	
6.3	Check for Tightness of Bolt/Nuts	C		-do-	100%	-do-		I.R.	
6.4	Check for Direction of Flow	C		Physical Check	100%	-do-	-do-	I.R.	
6.5	Check for Matching of Valve End & Flanges	C		Visual	100%	-do-	-do-	I.R.	
6.6	Opening/Closing of Valves (Gate/Globe, Butter Fly, Ball, Plug etc)	B		Functional	100%	-do-	-do-	I.R.	
7.0	Hydrostatic Test of Pipes including Flanges, Fittings, Valves, etc) before wrapping & coating of erection joints wherever as applicable	A		Visual & Measure	100%	Approved Drawing	No leakage	I.R.	100% RT TO BE CARRIED OUT OF UNACCESSABLE JOINTS.
8.0	ERECTION OF PUMPS, MOTORS								
8.1	Check for Foundation	B		Measure	100%	Manufacturer's Manual & Approved Drawing		I.R.	
8.2	Erection of Base Frame	C		Measure	100%	-do-	-do-	I.R.	
8.3	Alignment & Grouting of Base Frame,	B	Spirit Level	Measure	100%	-do-	-do-	I.R.	

LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

LEGEND TO BE USED: CLASS #: A = CRITICAL, B=MAJOR, C=MINOR; 'A' SHALL BE WITNESSED BY NTPC FQA & SURVEILLANCE BY FQA HEAD; 'B' SHALL BE WITNESSED BY NTPC ERECTION & SURVEILLANCE BY FQA AND 'C' SHALL BE WITNESSED BY NTPC ERECTION / CONSTRUCTION DEPTT. & SURVEILLANCE BY ANOTHER NTPC ERECTION PERSON (A&B CHECK SHALL BE NTPC 'CHP' STAGE)

FORMAT NO.: QS-01-QAI-P-10/F2-R1

ENGG.DIV./QA&I

NTPC		STANDARD FIELD QUALITY PLAN					QP NO.	0000-999-QOM-I-004	REVIEWED BY	
SYSTEM / EQUIPMENT		ERECTION OF STATION PIPING					REV.NO.	00	H S Maurya	
PACKAGE		STATION PIPING					DATE	31/03/2011	M.K. Asthana	
SUB SYSTEM							PAGE	5 of 5	O P Niranjan	
							VALID UP TO	30/03/2014	A.K.Garg	
SL NO.	ACTIVITY AND OPERATION/CHARACTERISTICS	CLASS OF CHECK	INSTRUMENT	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		REMARKS
1	2	3	4	5	6	7	8	9	D*	10
	Leveling									
8.4	Erection of Pumps & Motors along with Drives-Alignment, Leveling	C		Measure	100%	-do-	-do-	I.R.		
8.5	Pump Coupling with Motor and Alignment/eccentricity	B	Dial Indicator	Measure	100%	-do-	-do-	I.R.		
8.6	Cable Connection, Insulation Resistance for Motor	B	Megger	Visual & Measure	100%	IS:900-	IS:900	I.R.		
8.7.	Direction of Rotation, Free Run for Rotating Equipments	B		Operation	100%	-do-	-do-	I.R.		
9.0	Painting (Type, Shade & DFT)	B		Visual Measure	100% Random	Technical Specification / Approved Painting Procedure		I.R.	✓	
10.0	INSTALLATION OF INSTRUMENT LIKE PRESSURE GAUGE, PRESSURE SWITCH, LEVEL GAUGE, FLOW SWITCH, LIMIT SWITCH, SOL. VALVE, BATTERY, FIRE ALARM & CONTROL PANELS									
10.1	Verification of Location, Tag No.	C		Visual	100%	Approved Drawing/ Specification/ TC		I.R.		
10.2	Check for Calibration	B		Test	100%	Approved Drawings/ Specification		I.R.		
11	Tank Fabrication and erection	REFER SEPARATE SFQP/ FQP								

LEGEND: * RECORDS, IDENTIFIED WITH 'TICK' (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

LEGEND TO BE USED: CLASS #: A = CRITICAL, B=MAJOR, C=MINOR; 'A' SHALL BE WITNESSED BY NTPC FQA & SURVEILLANCE BY FQA HEAD; 'B' SHALL BE WITNESSED BY NTPC ERECTION & SURVEILLANCE BY FQA AND 'C' SHALL BE WITNESSED BY NTPC ERECTION / CONSTRUCTION DEPTT. & SURVEILLANCE BY ANOTHER NTPC ERECTION PERSON (A&B CHECK SHALL BE NTPC 'CHP' STAGE)

FORMAT NO.: QS-01-QAI-P-10/F2-R1

ENGG.DIV/QA&I

बीएस ई एम  PSER	STORAGE AND PRESERVATION OF COMPONENTS				Sheet 01 of 01
Sl. No.	Description of Items	Type of Storage	Periodicity of Checking	Check for	Remarks
1	Steel plate/ pipes/ structural steel (angle/ beams/ channels/ flats etc)	R	Three Months	Damage, Painting (as applicable)	
2	Shop-fabricated items (foundation bolt, tanks, etc.)	RT	Monthly	Damage, Painting	
3	Pump components (including hardwares etc.)	Q	Three Months	Damage, Painting	
4	Valves. strainers, hoses, RE Joint	Q	Three Months	Damage, Painting	
5	Wrapping-Coating Material, Paints	P	Three Months	Damage, Shelf Life	Keep materials in their original packaging to maintain product integrity and prevent contamination. Implement a FIFO system to ensure that older materials are used first, minimizing the risk of degradation.

LEGENDS USED FOR “STORAGE LEVEL”	
STORAGE LEVEL “P”	Indoor clean conditions (stored in pucca shed, in store. The storage area shall be dry and free from dust and there shall not be acid/ chemicals in vicinity)
STORAGE LEVEL “Q”	Items stored in pucca shed (Semi Covered / Top Covered)
STORAGE LEVEL “R”	Outside with no protective cover (open space / yard on raised surface, properly stacked and free from water logging and loading / undue weight)
STORAGE LEVEL “RT”	Outside with protective cover/ canopy (on raised surface, properly stacked and free from water logging and loading / undue weight, covered with PVC/Tarpaulin)
STORAGE LEVEL “PT”	Indoor temperature and humidity controlled (stored in pucca shed, in store with controlled temperature)



A Maharatna Company

एन टी पी सी लिमिटेड

(भारत सरकार का उद्यम)

NTPC Limited

(A Govt. of India Enterprise)

(Formerly National Thermal Power Corporation Ltd.)

(केंद्रीय कार्यालय नोएडा)

Corporate Center NOIDA

Reference : CC-ENGG-9587-001-102-PVM-B-001B

Date : 27/07/2024

From : RAMESH CHANDRA SHIAL
ENGINEER

To : BHARAT HEAVY ELECTRICALS LTD
NEW DELHI
110049
IN

Cc : sudipt@bhel.in
dipakbag@bhel.in

Subject : EPC Package

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : HPBP-00-9587-315
Orgn. Drg. No. : 9587-001-102-PVM-B-001B
Revision No. : 01
Drg. Title : PAINTING SCHEME FOR LP PIPING
App. Category : CAT-I
Release Date : 27/07/2024



Scan to verify

Comments : No comments



Engineering Division
ISO 9001:2008 Certified



अभियंत्रिकी कार्यालय परिसर, प्लॉट नं.- ए 8ए, सेक्टर-24, पोस्ट बॉक्स नं.- 13, नोएडा (उ.प्र.) पिन-201 307

टेलिफोन नं.- 0120-2410333, 2410116 फैक्स-0120-2410136, 2410137

पंजीकृत कार्यालय: एनटीपीसी भवन, स्कोप कॉम्प्लेक्स, 7 इंस्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली-110 003

टेलिफोन नं.- 011-24361018 फैक्स-011-24361018, वेबसाइट: www.ntpc.co.in

ENGINEERING OFFICE COMPLEX, Plot No: A-8A, Sector-24, Post Box No: 13, Noida (UP), Pin-201 307

Telephone No: 0120-2410333, 2410116 Fax-0120-2410136, 2410137

Registered Office: NTPC Bhawan, Scope Complex, 7 Institutional Area, Lodhi Road, New Delhi-110 003

Telephone No: 011 24360100 Fax: 011 24361018, Website: www.ntpc.co.in



COMMENT RESOLUTION SHEET

Dt : 19-07-2024

PROJECT : NTPC LARA SUPER THERMAL POWER PLANT - STAGE II (2X800 MW)

BHEL Doc No : 1834:QPC:12 Rev 01

NTPC Doc No : 9587-001-102-PVM-B-001B

Document Description : PAINTING SCHEME FOR LP PIPING

Sl. No.	NTPC COMMENT	BHEL's REPLY
1	Pl. add Colour shade shall be as per NTPC colour coding scheme	Noted and updated in Note No: 4 of the Painting scheme for LP Piping.

Based on the above clarifications, NTPC is requested to approve the quality plan.



For BHEL



 BHARAT HEAVY ELECTRICALS LIMITED PIPING QUALITY ASSURANCE & CONTROL DEPT, TRICHY			PAINTING SCHEME FOR LP PIPING (ACW / ECW / Plant water, Air Piping, etc...,) PROJECT : NTPC LARA SUPER THERMAL POWER PLANT - STAGE II (2X800MW) BHEL CUSTOMER Nos : 1834, 1835								QPNo: 1834:QPC:12 REV.NO: 01 Dt : 19.07.2024		
Sl. NO	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat			Finish coat			Total DFT Microns (Min.)	REMARKS	
			Primer	No of coats	Paint	No of coats	Shade	Paint	No of coats	Shade			
1	2	3	4	5	6	7	8	9	10	11	12	13	
1	(a) Internal Surface - ACW Pipe (for pipe - dia - 1000 mm and above)	Blast Cleaning SSPC SP-10 SA 2½ (Refer Note 1)	Epoxy based Zinc rich Primer (Refer Note 2)	1 (50 Microns Min. per coat)	----	----	----	Coal tar epoxy (Refer Note 2)	2 (75 Microns Min. per coat)	----	200 Microns (Refer Note 3)	(Refer Note 3)	
	(b) Holiday test (Refer Note 3)	Holiday testing by low voltage (75 Volts Min.) wet sponge Holiday detector or by High voltage (Voltage per micron of DFT is as recommended by Paint Manufacturer subjected to minimum of 5V / Micron). Holiday test Equipment to be calibrated before testing.											
2	External Surface of ACW --Buried Piping / Encased in concrete (Temporary Protection for transportation from works to site). **Further protection to be done by BHEL Erection Group as per Contract requirement.	SSPC-SP3 / Power Tool Cleaning	Red Oxide Zinc Phosphate (Alkyd base to IS 12744)	1 (30 Microns per coat)	----	----	----	----	----	----	30 Microns		
3	External Surface a) Over ground piping of ACW.(For all diameters) b) External Surface of ECW, Plant water (For all diameters)	SSPC-SP3 / Power Tool Cleaning	Red Oxide - Zinc Phosphate (Alkyd base to IS: 12744)	2 (25 Microns per coat)	----	----	----	Synthetic enamel Long oil Alkyd to IS: 2932	3 ** (35 microns per coat)	Smoke Grey (Shade No. 692 of IS: 5)	120 at shop + 35 at site	** (2 coat at shop + 1 coat at site)	
4	Galvanised and Stainless steel Piping	No painting											
Notes: 1. Blast cleaning to near white metal to obtain roughness as per epoxy paint data sheet. 2. Application of Epoxy based Zinc rich Primer, Coal Tar Epoxy shall be done as per manufacturer's data sheet / recommendation, meeting the thickness requirements as per this document. 3. Testing requirements like DFT, holiday test shall be as per BHEL approved QP with Witness by BHEL / BHEL nominated inspection agency. 4. Colour shade shall be as per NTPC colour coding scheme.													
				For NTPC use MDL No : 9587-001-102-PVM-B-001B								Page 1/1	
PREPARED BY :		APPROVED BY:											
K. SARANYA MGR/QA		S JEGAN SR.MGR/Q											