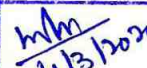
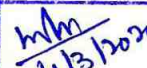
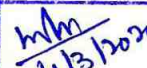
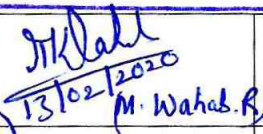
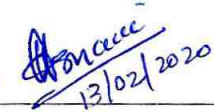


MAIN SUPPLIER'S NAME: BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL (A GOVERNMENT OF INDIA UNDERTAKING)											
NAME OF SUB-VENDOR: N/A											
NPCIL PO NO.: CMM/FTP/10-32-1-1152/e-PO/30447, DTD: 24.01.19											
QA REF. NOs.: MAIN VENDOR: 2190191 SUB VENDOR: N/A											
CUSTOMER: NUCLEAR POWER CORPORATION OF INDIA LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)											
PROJECT: 2x700MW GORAKHPUR HARYANA ANU VIDYUT PARIYOJANA (UNIT 1&2)											
EQUIPMENT: MODERATOR HEAT EXCHANGER											
DOCUMENT NO.: BHEL / NPCIL / 30447 / CS PIPE/ CDE-20-3454											
TITLE:											
TECHNICAL PURCHASE SPECIFICATION FOR CS PIPE (SA 106 GR B)											
 न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड Nuclear Power Corporation of India Limited ☒ अनुमोदित / APPROVED ☐ रिस्पेक्ती के अनुसार अनुमोदित / APPROVED AS NOTED ☐ संशोधन को आगे बढ़ाए / रोके / PROCEED WITH/HOLD FABRICATION ☐ अंतिम ट्रांसपेरेंसी एवं प्रतियाँ भेजें / SEND FINAL TRANSPARENCIES & PRINTS ☐ संशोधन करें एवं अनुमोदन के लिए पुनः प्रस्तुत करें REVISE & RESUBMIT FOR APPROVAL <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">जॉइंटकर्ता / CHECKED BY</td> <td style="width: 33%;">समीक्षाकर्ता/ REVIEWED BY</td> <td style="width: 33%;">अनुमोदन कर्ता / APPROVED BY</td> </tr> <tr> <td style="text-align: center;">  A.K. Sharma 04/03/2020 </td> <td style="text-align: center;">  M.M. 4/3/2020 </td> <td></td> </tr> </table> किर जमाने के लिए अनुमोदन आपूर्तिकर्ता संविदाकार को विनिर्देशनों के अनुसार अनुमोदन के उत्तरदायित्व से मुक्त नहीं करता है। This approval of the work to be done does not relieve the supplier of the responsibility of supply according to specifications.						जॉइंटकर्ता / CHECKED BY	समीक्षाकर्ता/ REVIEWED BY	अनुमोदन कर्ता / APPROVED BY	 A.K. Sharma 04/03/2020	 M.M. 4/3/2020	
जॉइंटकर्ता / CHECKED BY	समीक्षाकर्ता/ REVIEWED BY	अनुमोदन कर्ता / APPROVED BY									
 A.K. Sharma 04/03/2020	 M.M. 4/3/2020										
01	12.02.2020	2+3 = 5	 D.K. Audh 13.02.2020	 M. Wahab R. 13/02/2020	 LALIT ASNANI 13/02/2020						
00	14.01.2020	2+3 = 5	Sd/DKA	Sd/MWR	Sd/LA						
REV NO.	DATE	PAGES	PREPARED BY	CHECKED BY	APPROVED BY						

	CONDENSER & HEAT EXCHANGER ENGG. DIVISION BHEL BHOPAL	Document No.
		BHEL / NPCIL / 30447 / CS PIPE/ CDE-20-3454
TECHNICAL PURCHASE SPECIFICATION FOR CS PIPE (SA 106 GR B)		

REVISION CONTROL SHEET

BHEL					
REV. No Date	PAGES	Description of Revision	Prepared By	Checked By	Approved By
00, 14.01.2020	2+3=5	Original submission.	Sd/DKA	Sd/MWR	Sd/ LA
01, 12.02.2020	2+3 = 5	-REVISED TO INCORPORATE NPCIL COMMENTS DTD 29.01.2020. -CLAUSE 2,3 ,6 & 7 REVISED. -CLAUSE 8 B) DELETED. -ANNEXURE-A DELETED & CLAUSE 11 MODIFIED. -TESTING MATRIX ADDED.	 13.02.2020 (D. K. AUDH)	 13/02/2020 (M. Walekar)	 13/02/2020 (LALIT ASNANI)

	CONDENSER & HEAT EXCHANGER ENGG. DIVISION BHEL BHOPAL	Document No.
		BHEL / NPCIL / 30447 / CS PIPE/ CDE-20-3454
TECHNICAL PURCHASE SPECIFICATION FOR CS PIPE (SA 106 GR B)		

1. Material specification:

- a) Material Specification shall be as per SA 106 Gr.B.
- b) General requirements as per SA 530.
- c) For other requirements, refer purchase Enquiry/PO.

01 2. Quantity/ Size: As per Enquiry / Purchase Order.

01 3. Tolerance: As per material specification of SA 106 Gr. B unless otherwise specified.

4. Manufacture: All Pipe shall be seamless and cold drawn/hot finished.

5. Marking: Pipes shall be properly marked as per specification and must be correlated with the test certificates provided.

01 6. Testing:

- a) Hydrostatic test in accordance with Specification A 530/A 530M.
- b) Chemical Composition: as per table -1 of SA 106 Gr. B
- c) Mechanical Testing: as per table 2 of SA 106 Gr. B
- d) Flattening test: as per clause 11 of SA 106 Gr. B
- e) Bending test: as per clause 12 of SA 106 Gr. B

01 7. Heat treatment: All pipe shall be in heat treated as per material specification SA 106 Gr. B.

01 8. Test certificate required:

Test certificates shall be in accordance with material specification. Material Supplied to this specification shall conform to applicable requirements of specification SA 530 of ASME Sec.II-part A (Edition 2017).

	CONDENSER & HEAT EXCHANGER ENGG. DIVISION BHEL BHOPAL	Document No.
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TECHNICAL PURCHASE SPECIFICATION FOR CS PIPE (SA 106 GR B)		

9. Additional Requirement:

- a) Test certificate shall be provided.
- b) Finished pipe shall be straight with smooth ends. Surface defects like any sign of cracks, lappings, pitting etc. are not acceptable. Repair by welding is not permitted.

10. Vendor List: Material meeting the technical specification requirements shall be procured from BHEL Approved Vendors only.

- 01 11. Testing Matrix:** Vendor to carry out all the tests in NPCIL approved lab in-line with testing matrix attached as Annexure-I, in presence of NPCIL QS.



CONDENSER & HEAT EXCHANGER ENGG. DIVISION
BHEL BHOPAL

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Annexure-I

01

TESTING MATRIX							
PRODUCT	MOC	SUPPLY CONDITION	CHEMICAL (HEAT & PRODUCT)	TENSILE	BENDING TEST	FLATTENING TEST	HYDRO TEST OR NDE
CS PIPE	SA 106 Gr. B	SA 106 Gr. B	AS PER TABLE -1 OF SA 106 GR. B	AS PER TABLE 2 OF SA 106 GR. B	AS PER CLAUSE 12 OF SA 106 GR. B	AS PER CLAUSE 11 OF SA 106 GR. B	AS PER CLAUSE 6 a) OF TPS BHEL/NPCIL/30447/CS PIPE/CDE-20-3454