

2 X 500 MW NTPC SIPAT FGD System Package

TECHNICAL SPECIFICATION

FOR

RIGID STEEL CONDUITS

SPECIFICATION NO.: *PE-TS- 491-558-E002*

REVISION: 0



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA, UP (INDIA) – 201301**



**TECHNICAL SPECIFICATION FOR
RIGID STEEL CONDUITS**

SPEC NO. PE-TS- 491-558-E002

VOLUME NO.: II-B

SECTION: I

REV NO.: 00 DATE: 22.03.2023

SHEET : 2 OF 12

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COMPLIANCE CERTIFICATE

The bidder shall confirm compliance to the following by signing/ stamping this compliance certificate and furnishing same with the offer.

1. The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusion/ deviation with regard to same
2. There are no deviation with respect to specification other than those furnished in the 'schedule of deviations'
3. Only those technical submittals which are specifically asked for in NIT to be submitted at tender stage shall be considered as part of offer. Any other submission, even if made, shall not be considered as part of offer.
4. Any comments/ clarifications on technical/ inspection requirements furnished as part of bidder's covering letter shall not be considered by BHEL, and bidder's offer shall be construed to be in conformance with the specification.
5. Any changes made by the bidder in the price schedule with respect to the description/ quantities from those given in BOQ-Cum-Price schedule of the specification shall not be considered (i.e., technical description & quantities as per specification shall prevail).

BIDDER'S STAMP & SIGNATURE



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SECTION – I



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STANDARD TECHNICAL REQUIREMENTS

1.0 SCOPE

- 1.1 Manufacture, Inspection and Testing at Manufacturer's works, proper packing and delivery to site of rigid steel conduits conforming to this specification.
- 1.2 Technical requirements of rigid steel conduits are indicated in Data Sheet-A & Section-II.
- 1.3 The stipulation of Data Sheet-A shall prevail in case of any conflict between the stipulations of Data Sheet-A & Section-II.

2.0 BILL OF QUANTITIES

The bidder to quote for items as per price schedule attached with NIT.

3.0 SPECIFIC TECHNICAL REQUIREMENTS

S.No.	Reference Clause No. of Section- II	Specific Requirement/ Change
1	4.0	Clause 4.0 shall be read as: Conduit should be sourced from BIS approved manufacturer of rigid steel conduits as per IS 9537 Part II.

4.0 DRAWINGS & DOCUMENTS TO BE SUBMITTED

- 4.1 Documents shall be submitted after placement of order for BHEL & customer's approval as specified in NIT.
- 4.2 Documents shall be furnished through BHEL's document management system (wrench) portal.

Notes:

1. Vendor shall submit the drawing/document submission/resubmission schedule after approval of documents.
2. In BOM each of the item to be uniquely identified with item code no. or item Sl. No. Supplier to ensure that all the items which will find separate mention in the packing list are covered in detailed BOM. Supplier to give following undertaking in BOM: " The BOM provided here completes the scope (in content and intent) of material supply under PO no. ---- dtd ---- Any additional material which may become necessary for the intended application of supplied



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item/package will be supplied free of cost in most reasonable time."

DATASHEET-A

I. APPLICABLE STANDARDS & CODES

- a) IS:9537 (Part I & II) Conduits for electrical installation.
- b) IS:2629 Recommended practice for hot dip galvanizing on iron and steel.
- c) IS:4759 Specification for hot dip zinc coatings on structural steel and allied products
- d) IS:6745 Methods for determination of mass of zinc coating on zinc coated iron and steel articles.
- e) IS:513 Cold reduced low carbon steel sheet and strip
- f) IS: 10748 Hot rolled Steel strip for welded tubes and pipes
- g) IS: 2633 Method for testing uniformity of coating on zinc coated articles
- h) IS:6005 Code of practice for phosphating iron & steel

II. RIGID STEEL CONDUITS

S.No.	Description	Unit	Parameters value/ type
a	Make	-	BIS approved
b	Material	-	Hot/Cold rolled mild steel
c	Sizes	-	As per BOQ cum price schedule
d	Standard length	meter	3 – 5
e	Classification as per mechanical properties		Heavy
f	Conduit thickness (minimum)	mm	1.6 upto 32 mm dia, 2.0 above 32 mm & upto 50 mm dia
g	Surface treatment	-	Hot dip galvanizing on inside & outside surface

III. SURFACE TREATMENT

a	Pre-treatment	-	As per IS 6005 prior to galvanising
b	Type	-	Hot dip galvanizing as per IS 2629
c	Min. Thickness of zinc coating	microns	48 (upto 32 mm dia), 65 (above 32 mm & upto 50 mm dia)
d	Min. Weight of zinc coating	(gm/m ²)	340 (upto 32 mm dia) 460 (above 32 mm & upto 50 mm dia)
e	Tests for galvanizing	-	a) Weight of zinc coating as per IS : 6745 b) Thickness of zinc coating as per IS : 4759 c) Uniformity of zinc coating as per IS : 2633 d) Adhesion as per IS: 2629



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SECTION-II



TECHNICAL SPECIFICATION FOR RIGID STEEL CONDUITS

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1.0 INTENT OF SPECIFICATION

The intent of specification is not to specify all details of design & construction of material. The material shall, however, conform in all aspects to high standard of design, engineering and workmanship and be capable of performing in continuous operation up to & after bidder's guarantee period in manner acceptable to purchaser who will interpret the drawings & specification and shall have power to reject any work or material which in his judgement is not in full accordance with this specification.

2.0 CODES AND STANDARDS

2.1 The material shall comply with all currently applicable safety codes and statutory regulations of India as well as of the locality where the material is to be installed.

2.2 The material, construction, manufacture, inspection and testing of Rigid steel conduits shall conform to the latest revision of relevant standards as per Data Sheet-A.

2.3 In case of conflict between the applicable reference standard and this specification, the stringent requirement of the two shall govern.

3.0 TECHNICAL REQUIREMENTS

3.1 Rigid conduits shall generally conform to the requirements of IS: 9537 (part I & II).

3.2 The diameter of conduits shall be uniform throughout the length. Each end of conduit length shall be threaded. The ends of conduits shall be sealed with protective caps to prevent damage to threaded portions and entrance of moisture and foreign material.

3.3 The inside surface of all conduits shall be smooth and suitable for pulling insulated cables and wires without damage.

3.4 Technical particulars of rigid conduits are specified in Data Sheet – A.

4.0 QUALITY ASSURANCE, TESTING & INSPECTION

4.1 Bidder shall confirm compliance with the BHEL's Standard Quality Plan (PE-QP-999-558-E001) as attached with the specification without any deviations. At contract stage, the successful bidder shall submit the Quality Plan for BHEL/ ultimate customer's approval. In case bidder has reference Quality Plan agreed with ultimate customer, same can be submitted for specific project after award of contract for BHEL/ ultimate customer's approval. There shall be no commercial implication to BHEL on account of Quality plan approval.

4.2 All materials shall be procured, manufactured, inspected and tested by vendor/ sub-vendor as per approved quality plan.

4.3 The supplier shall perform all tests necessary to ensure that the material and workmanship conform to the relevant standards and comply with the requirements of the specification. Charges for all these tests for all the equipments & components shall be deemed to be included



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in the bid price.

4.4 In case ordered quantities are manufactured and offered for inspection in more than one lot, BHEL reserves the right to witness testing on all lots without any commercial implication to BHEL.

5.0 PACKING

5.1 The material shall be packed to ensure protection against damage during transit, storage for prolonged periods and handling.

5.2 The ends of conduits shall be sealed with protective caps.

5.3 Each conduit shall be wrapped in plastic to prevent dust deposition.

5.4 The conduits should be aligned and stacked in bundles (a maximum of 25 pieces per bundle).

5.5 Each bundle shall be covered with jute fibre / thick plastic wrap for protection against extreme weather. Then, the bundle shall be tied with twin-strand mild steel wire, strong rope or steel strip.

6.0 MARKING


6.1 Rigid conduits shall be marked at least once on each manufacturing length, preferably 50 mm from one end, with the following:

- a) Manufacturer's name or trade mark, if any;
- b) Country of manufacture; and
- c) Nominal size of the conduits.
- d) ISI Certification Mark.

Marking may be applied by moulding, stamping, printing, adhesive label or water slide transfers.

6.2 Marking shall be durable and legible.

6.3 Marking shall be checked by inspection and by rubbing lightly the marking by hand for 15 seconds with a piece of cloth soaked with water and again for 15 seconds with a piece of cloth soaked with petroleum spirit.

		MANUFACTURER/ BIDDER/ SUPPLIER NAME & ADDRESS				STANDARD QUALITY PLAN						SPEC. NO. :		DATE:	
												CUSTOMER :		Q.P NO.: PE-QP-999-558-E001, R04	
		PROJECT:				ITEM: RIGID STEEL CONDUITS						PO NO.:		DATE:	
												SYSTEM: STATION LIGHTING SYSTEM		SECTION: II	


SL NO.	COMPONENT & OPERATIONS	CHARACTERISTIC S	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANC E NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/ N				D	M	C	
1	2	3	4	5	6	7	8	9	*	**			

1.0 RAW MATERIAL/BOUGHT OUT ITEMS


1.1	HOT ROLLED STEEL STRIP	MA	VISUAL, MECH. & CHEMICAL	MFR. STD.	-	IS10748	IS10748	TEST CERT.	✓	P	V	-	AS APPLICABLE
1.2	COLD ROLLED STEEL SHEET	MA	VISUAL, MECH. & CHEMICAL	MFR. STD.	-	IS513	IS513	TEST CERT.	✓	P	V	-	AS APPLICABLE

2.0 ACCEPTANCE TESTS

2.1	RIGID STEEL CONDUITS	DIMENSIONS	MA	MEASUREMENT	IS 9537-II	IS 9537-II	IS:9537/ APPROVED DATA SHEET	APPROVED DATA SHEET	✓	P	W	-	
2.2		MECH. PROPERTIES	MA	TEST	IS 9537-II	IS 9537-II							
2.2A		BENDING TEST	CR	TEST	IS 9537-II	IS 9537-II				✓	P	W	-
2.2B	COMPRESSION TEST	CR	TEST	IS 9537-II	IS 9537-II				✓	P	W	-	
2.3	GALVANISATION TEST												
2.3A	UNIFORMITY OF ZINC COATING	CR	TEST	IS 9537-II	IS 9537-II	IS-2633/ APPD_DS	IS-2633/ APPD_DS	INSP. REPORT	✓	P	W	-	

ENGINEERING				QUALITY			
Sign & Date	Name	Sign & Date	Name	Sign & Date	Name	Sign & Date	Name
Prepared by: MEET SAGAR SINGH RAJPAL/ MUDITI CHOPRA	Checked by: MEET SAGAR SINGH RAJPAL/ MUDITI CHOPRA		KUNAL GANDHI				
Reviewed by: PRAVEEN DUTTA	Reviewed by: PRAVEEN DUTTA	RITESH KUMAR	JAISWAL				

BIDDER/ SUPPLIER				FOR CUSTOMER REVIEW & APPROVAL			
Sign & Date	Seal	Sign & Date	Name	Sign & Date	Name	Sign & Date	Name

		MANUFACTURER/ BIDDER/ SUPPLIER NAME & ADDRESS		STANDARD QUALITY PLAN				SPEC. NO. :		DATE:	
								CUSTOMER :		QP NO.: PE-QP-999-558-E001, R04	
PROJECT:		ITEM: RIGID STEEL CONDUITS		SYSTEM: STATION LIGHTING SYSTEM		PO NO.:		DATE:		REMARKS	
						SECTION: II		SHEET 3 OF 3			
SL NO.	COMPONENT & OPERATIONS	CHARACTERISTIC S	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANC E NORMS	FORMAT OF RECORD	AGENCY		
1	2	3	4	5	6	7	8	9	*	D	
					M	C/ N				**	
										M	
										C	
										N	

5. Latest revision/ year of issue of all the standards (IS/ ASME/ IEC etc.) Indicated in QP shall be referred.
6. BHEL reserves the right for conducting repeat test if required.
7. After packing and prior to issue MDCC, photographs of items to be dispatched shall be sent to BHEL purchase group for review.
8. Thickness of zinc coating shall be the average of the determination made at each end and the middle of the article.

LEGENDS:

*RECORDS, IDENTIFIED WITH "TICK"(✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION,
 ** M: SUPPLIER/ MANUFACTURER/ SUB-SUPPLIER, C: MAIN SUPPLIER/ BHEL/ THIRD PARTY INSPECTION AGENCY, N: CUSTOMER,
 P: PERFORM, W: WITNESS, V: VERIFICATION, AS APPROPRIATE
 MA: MAJOR, MI: MINOR, CR: CRITICAL, D: DOCUMENTATION

ENGINEERING				BHEL				QUALITY							
												Sign & Date		Sign & Date	
Prepared by:	MEET SAGAR SINGH RAJPAL MUDIT CHOPRA	Name	MEET SAGAR SINGH RAJPAL/ MUDIT CHOPRA	Checked by:	KUNAL GANDHI	Name	KUNAL GANDHI	Reviewed by:	PRAVEEN SINGH RAJPAL/ MUDIT CHOPRA	Name	PRAVEEN SINGH RAJPAL/ MUDIT CHOPRA	Approved by:	RITESH KUMAR	Name	RITESH KUMAR
FOR CUSTOMER REVIEW & APPROVAL															
Doc No:		Sign & Date		Name		Seal									
Reviewed by:		Sign & Date		Name		Seal									
Approved by:		Sign & Date		Name		Seal									


Digitally signed by Ritesh Kumar, DN: cn=Ritesh Kumar, o=BHEL, ou=Engineering, email=Ritesh.Kumar@bhel.co.in, c=IN, date=2023.07.25 14:07:39 +05'30'

Digitally signed by Praveen Singh Rajpal, DN: cn=Praveen Singh Rajpal, o=BHEL, ou=Engineering, email=Praveen.Singh.Rajpal@bhel.co.in, c=IN, date=2023.07.25 14:07:39 +05'30'

Digitally signed by Kunal Gandhi, DN: cn=Kunal Gandhi, o=BHEL, ou=Engineering, email=Kunal.Gandhi@bhel.co.in, c=IN, date=2023.07.25 14:07:39 +05'30'

Digitally signed by Praveen Singh Rajpal, DN: cn=Praveen Singh Rajpal, o=BHEL, ou=Engineering, email=Praveen.Singh.Rajpal@bhel.co.in, c=IN, date=2023.07.25 14:07:39 +05'30'



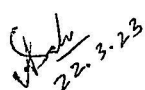
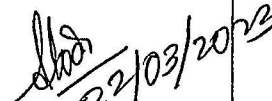

Digitally signed by Ritesh Kumar, DN: cn=Ritesh Kumar, o=BHEL, ou=Engineering, email=Ritesh.Kumar@bhel.co.in, c=IN, date=2023.07.25 14:07:39 +05'30'

	2 X 500 MW NTPC SIPAT FGD System Package	PE-PQ-491-558-E002
	PRE-QUALIFICATION REQUIREMENTS FOR RIGID STEEL CONDUITS	REVISION NO. 0 DATE 22/03/2023
		SHEET NO. 1 OF 1


ITEMS : RIGID STEEL CONDUITS	
SCOPE : Supply : YES; Erection & Commissioning : NO.	
1.0	Vendor should be a BIS approved manufacturer of rigid steel conduits as per IS 9537 Part II. or In case, vendor is not a BIS approved manufacturer of rigid steel conduits as per IS 9537 Part II, then vendor can offer rigid steel conduits of any BIS approved make subject to submission of following documents: a) Undertaking from BIS approved manufacturer (along with its valid BIS certificate) of offered make to get the inspection & testing of conduits carried out at manufacturer's works. b) Credentials of the manufacturer of offered make to meet the PQR requirements of S no 2.0 to 4.0 below. c) Vendor's Credentials to meet S no 5.0 below.
2.0	Availability of test reports of rigid steel conduits to establish in- house capability at manufacturer's works to carry out all routine, type & acceptance tests as per relevant IS.
3.0	Capacity of manufacturing 10 MT of rigid steel conduits per month.
4.0	Manufactured and supplied at least 25 km of rigid steel conduits in one or more orders.
5.0	Minimum two (2) nos. purchase orders for rigid steel conduits shall be submitted which should not be more than five (5) years old from the date of techno- commercial bid opening for establishing continuity in business.

NOTE:

1. Consideration of offer shall be subject to customer's approval of bidders, if applicable.
3. Bidder to submit all supporting documents in English. If documents submitted by bidder are in language other than English, a self-attested English translated document should also be submitted.
4. Notwithstanding anything stated above, BHEL reserves the right to assess the capabilities and capacity of the bidder/collaborators to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL.
5. After satisfactory fulfillment of all the above criteria/ requirement, offer shall be considered for further evaluation as per NIT and all the other terms of the tender.

PREPARED BY  M S S RAJPAL (MANAGER)	CHECKED BY  MEGHA (MANAGER)	REVIEWED BY  AYAN SAHA (DGM)	APPROVED BY  SANDEEP LODH (Sr. DGM)	 DEBASISA RATH AGM (DH-ELECT)
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2 X 500 MW NTPC SIPAT FGD System Package

	<u>Price Variation Formulae</u>	
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Prices shall be variable as per following PVC formulae: -

Rigid Conduit	
$P = (Po/100) (15 + 65 (S/So) + 20 (Zn/Zno))$	Indices to be taken from Cir. No.: IEEMA(PVC)/TLA&H(R-3) --- and JPC for the applicable month.

Wherein,

P = Price payable as adjusted in accordance with the above formula.

Po = Price quoted/confirmed.

So = average JPC steel price of H. R. COILS 2.00 MM
This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

Zno = Price of Electrolytic high-grade zinc (IEEMA)
This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

S= average JPC steel price of H. R. COILS 2.00 MM
This price is as applicable on the 1st working day of the month, two 'months prior to the date of delivery.

Zn = Price of Electrolytic high-grade zinc (IEEMA)
This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

The date of delivery is the date on which materials are notified as being ready for inspection/dispatch (in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

Please note that the PVC ceiling limit shall be positive (+ve) 20% and negative (-ve) unlimited.

2 X 500 MW NTPC SIPAT FGD System Package**RIGID STEEL CONDUITS****GEM Bid no.**

SL. NO.	ITEM CODE	ITEM DESCRIPTION	HSN	UOM	Quantity	Consignee ID	Delivery Period (In number of days)	Quote/Unquote	Freight in terms of total Ex-works price in %	GST rate in %
1	558-15002-A	GI CONDUITS,1.6MM THICK, 20MM DIA	73063090	MTR	10100	CON_PEM_SIPAT	730			
2	558-15003-A	GI CONDUITS,1.6MM THICK, 25MM DIA	73063090	MTR	1200	CON_PEM_SIPAT	730			
3	558-15001-A	GI CONDUITS,1.6MM THK EPOXY 20MM DIA	73063090	MTR	300	CON_PEM_SIPAT	730			
4	558-15004-A	GI CONDUITS,1.6MM THICK, 40MM DIA	73063090	MTR	550	CON_PEM_SIPAT	730			

ANNEXURE 1 - 2X500 MW NTPC SIPAT TPS, STAGE-II - FGD - DELIVERY SCHEDULE - RIGID STEEL CONDUITS

Sl. No.	Package Code	Package name	DEPTT	BHEL Drawing No	Drawing Title	Primary/Secondary	BHEL Inputs	Drg Sch for Vendors	Standard Delivery Terms for Supply Portion
1	558-15000-A	RIGID STEEL CONDUIT	ELECT	PE-V0-491-558-E701	DATA SHEET OF RIGID STEEL CONDUIT	Primary		R-0 within 14 days from PO & subsequent revisions within 10 days of comments received from BHEL.	Delivery completion for PO Quantity shall be "180" days from PO date. Supplier to complete the package engineering in time and get the applicable engineering Drgs. /docs approved from BHEL/End Customer before start of manufacturing and supply. BHEL shall furnish comments / approval on each submission / re-submission of drawing/documents within 18 days from receipt of same. Subsequent Lots, if any (released within validity of contract under Qty. var. clause): Supply within "120" days from the date of Quantity clearance by BHEL.
				PE-V0-491-558-E906	QUALITY PLAN OF RIGID STEEL CONDUIT	Primary			

Notes :-

- The end period specified is for completion of the deliveries. Deliveries to start progressively so as to meet the completion schedule.
- The delivery conditions specified are for contractual LD purposes, however BHEL may ask for early deliveries without any compensation thereof.
- Drawings /documents submission/re-submission schedule shall be as indicated in NIT which shall be used for progress monitoring purpose and required course correction, if any. Wherever schedule of drawings/documents submission / re-submission is stipulated in the Technical Specifications, same shall be superseded by delivery specified in NIT.

4. Delivery Extension:Extension of contractual delivery time

Delivery time mentioned in the NIT includes Engineering completion time (time for drawing/document submission/resubmission by the vendor and review/approval of the same by the BHEL\End customer), manufacturing, inspection, Packing and dispatch time. Due diligence is to be exhibited by the vendor to ensure timely completion of engineering and supply.

During the execution of the contract, time loss occurred owing to the reason attributable to BHEL besides force majeure shall be considered for delivery time extension to the vendor as given below:-

- Delay in providing comments/ approval on Primary drawing/documents beyond 18 days or as specified in drawing/ documents submission/re-submission schedule enclosed with NIT for each iteration.
- Time Loss in approval of the drawing/document as a result of increase in the iteration not attributable to the vendor as certified by BHEL. Time extension equivalent to the resubmission time specified in the NIT and consequential increase in the approval time shall be applicable.
- Delay in providing engineering input/material by BHEL.
- Delay in deputing inspector for inspection and delay in release of MDCC in line with GCC/ GEM ATC terms.
- Any hold put by BHEL for whatever reasons during execution of contract, time extension equivalent to hold period may be admissible.

Note: No delay analysis will be applicable if supply is completed within delivery schedule as specified in Purchase order.

5. Validity of contract:

5.a) Validity of the contract for main supply including subsequent lots:

Contract shall be valid for 730 days from the PO date. However, delay at vendor's end (if any) shall be added to the validity period and contract validity shall get extended by the delay period at vendor's end.

For example: Delivery period: A (in days)

Delay at vendor's end: B (in days)

Contract validity: 730+B (in days)

Note: B is the Vendor delay days beyond contractual delivery period "A" / extended delivery period owing to time taken by BHEL at point no. 3 above.

5.b)Subsequent lots including quantity variation released within contractual validity period, to be supplied by vendor/supplier at PO rates, terms and condition.

5.c)Execution of the contract beyond contract validity period shall be decided on mutual consent basis.

FGD

DEFAULT/ BREACH OF CONTRACT, INSOLVENCY AND RISK PURCHASE

In case of delays (beyond the maximum late delivery period as per LD clause) in supplies, or if there be defective supplies or non-fulfilment of any other terms and conditions of the Contract as enumerated subsequently in this clause, then, without prejudice to its right to recover any expenses, losses or damages to which the Buyer may be put to incur or sustain by reason of the Seller/Contractor's default or breach of Order/Contract or to suspend business dealings with the Seller/Contractor in terms of the Buyers' Guidelines for Suspension of Business Dealings as applicable from time to time, the Buyer shall also be entitled to cancel the Order/ Contract either in whole or portion thereof without compensation to Seller. On the occurrence of any of the acts/omissions mentioned below, the Buyer may if it so desires, procure upon such terms and in such manner as deemed appropriate, plant/ equipment/ stores not so delivered or others of similar description where plant/ equipment/ stores exactly complying with particulars are not, in the opinion of the Buyer (which shall be final), readily procurable, at the risk and cost of the Seller.

The Seller shall be liable to the Buyer for any excess costs incurred thereof and the Seller shall continue the performance of the Order/Contract to the extent not cancelled under the provisions of this clause. The Seller shall on no account be entitled to any gain on such repurchases. If the Bidder does not agree to this Risk Purchase clause, BHEL reserves the right to reject the bid/offer of the Bidder.

The order/contract may be cancelled in whole or part thereof and Risk & Cost Clause in line with terms and conditions of PO/Contract may be invoked by the Buyer in any of the following cases:

- i. If the Seller/Contractor fails to deliver the goods or materials or any installment thereof within the period(s) fixed for such delivery or the Seller's poor progress of the supply/services vis-à-vis delivery/execution timeline as stipulated in the contract, backlog attributable to the Seller including unexecuted portion of supply does not appear to be executable within balance period available;
- ii. delivers goods or materials not of the contracted quality and failing to adhere to the contract specifications/execution methodology;
- iii. withdrawal from or repudiation/abandonment of the supply/services by the Seller before completion as per contract or if the Seller refuses or is unable to supply goods or materials covered by the order/Contract either in whole or in part or otherwise fails to perform the Order/Contract.
- iv. Non supply by the Seller within scheduled completion/delivery period as per contract or as extended from time to time for reasons attributable to the Seller;
- v. Termination of Contract on account of any other reason(s) attributable to the Seller.
- vi. Assignment, transfer, sub-letting of Contract without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.
- vii. If the Seller be an individual or a Sole Proprietorship, in the event of death or insanity of the Seller.
- viii. If the Seller/Contractor being an individual or if a partnership firm thereof, shall at any time be adjudged insolvent or shall have a receiving order for administration of his estate made against him or shall take any proceeding for composition under any Insolvency Act for the time being in force or make any assignment of the order/Contract or enter into any arrangement or composition with his creditors or suspend payment or if the firm dissolved under the Partnership Act;
- ix. If the Seller/Contractor being a Company is wound up voluntarily or by order of a Court or a Receiver, Liquidator or Manager on behalf of the debenture holders and creditors is appointed or circumstances have arisen which entitles the Court of debenture holder and creditors to appoint a receiver, liquidator or manager
- x. Non- Compliance to any contractual condition or any other default attributable to the Seller.

Such defaulting vendor/Seller shall not be eligible to participate in re-tendering conducted on account of risk purchase made due to fault of such vendor/Seller.

BHEL's right to go for Risk and Cost, Calculation of Risk and Cost amount & LD, recovery options to BHEL are given in detail in Annexure-V hereto.

ANNEXURE-V

(RISK AND COST CLAUSE)

1. BHEL reserves the right to terminate the contract or withdraw portion of work and get it done through other agency, at the risk and cost of the contractor *after due notice of a period of 14 days' by BHEL* in any of the following cases:
 - i) If the Seller/Contractor fails to deliver the goods or materials or any instalment thereof within the period(s) fixed for such delivery or the Seller's poor progress of the supply/ services vis-a-vis delivery/execution timeline as stipulated in the Contract, backlog attributable to seller including unexecuted portion of supply does not appear to be executable within balance available period;
 - ii) Delivers goods or materials not of the contracted quality and failing to adhere to the contract specifications;
 - iii) Withdrawal from or repudiation/ abandonment of the supply/ services by Seller before completion as per contract or if the Seller refuses or is unable to supply goods or materials covered by the Order/Contract either in whole or in part or otherwise fails to perform the Order/Contract;
 - iv) Non-supply by the Seller within scheduled completion/delivery period as per Contract or as extended from time to time, for the reasons attributable to the Seller;
 - v) Termination of Contract on account of any other reason (s) attributable to Seller.
 - vi) Assignment, transfer, subletting of Contract without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.
 - vii) If the Seller be an individual or a sole proprietorship Firm, in the event of the death or insanity of the Seller;
 - viii) If the Seller/Contractor being an individual or if a firm on a partnership thereof, shall at any time, be adjudged insolvent or shall have a receiving order for administration of his estate made against him or shall take any proceeding for composition under any Insolvency Act for the time being in force or make any assignment of the Order/Contract or enter into any arrangement or composition with his creditors or suspend payment or if the firm dissolved under the Partnership Act;
 - ix) If the Seller/Contractor being a company is wound up voluntarily or by order of a Court or a Receiver, Liquidator or Manager on behalf of the debenture holders and creditors is appointed or circumstances shall have arisen which entitles the Court of debenture holder and creditors to appoint a receiver, liquidator or manager;
 - x) Non-compliance to any contractual condition or any other default attributable to Seller.

1.1 Risk & Cost Amount against Balance Work:

Risk & Cost amount against balance work shall be calculated as follows:

$$\text{Risk \& Cost Amount} = [(A-B) + (A \times H/100)]$$

Where,

A= Value of Balance scope of Work (*) as per rates of new contract

B= Value of Balance scope of Work (*) as per rates of old contract being paid to the contractor at the time of termination of contract i.e. inclusive of PVC & ORC, if any.

H = Overhead Factor to be taken as 5

In case (A-B) is less than 0 (zero), value of (A-B) shall be taken as 0 (zero).

1.2 * Balance scope of work (in case of termination of contract):

Difference of Contract Quantities and Executed Quantities as on the date of issue of Letter for 'Termination of Contract', shall be taken as balance scope of Work for calculating risk & cost amount.

Contract quantities are the quantities as per original contract. If, Contract has been amended, quantities as per amended Contract shall be considered as Contract Quantities.

Items for which total quantities to be executed have exceeded the Contract Quantities based on drawings issued to contractor from time to time till issue of Termination letter, then for these items total Quantities as per issued drawings would be deemed to be contract quantities.

Substitute/ extra items whose rates have already been approved would form part of contract quantities for this purpose.

Substitute/ extra items which have been executed but rates have not been approved, would also form part of contract quantities for this purpose and rates of such items shall be determined in line with contractual provisions.

However, increase in quantities on account of additional scope in new tender shall not be considered for this purpose.

NOTE: In case portion of work is being withdrawn at risk & cost of contractor instead of termination of contract, contract quantities pertaining to portion of work withdrawn shall be considered as 'Balance scope of work' for calculating Risk & Cost amount.

1.3 LD against delay in executed work in case of Termination of Contract:

LD against delay in executed work shall be calculated in line with LD clause no. 16 of GCC, for the delay attributable to contractor. For limiting the maximum value of LD, contract value shall be taken as Executed Value of work till termination of contract.

Method for calculation of LD against delay in executed work in case of termination of contract" is given below.

- i. Let the time period from scheduled date of start of work till termination of contract excluding the period of Hold (if any) not attributable to contractor = T1
- ii. Let the value of executed work till the time of termination of contract = X
- iii. Let the Total Executable Value of work for which inputs/fronts were made available to contractor and were planned for execution till termination of contract = Y
- iv. Delay in executed work attributable to contractor i.e. T2 = $[1-(X/Y)] \times T1$
- v. LD shall be calculated in line with LD clause (clause 16) of the Contract for the delay attributable to contractor taking "X" as Contract Value and "T2" as period of delay attributable to contractor.

2. Recoveries arising out of Risk & Cost and LD or any other recoveries due from Contractor

Without prejudice to the other means of recovery of such dues from the Seller recoveries from the Seller on whom risk & cost has been invoked shall be made from the following:

- a) Dues available in the form of Bills payable to seller, SD, BGs against the same contract.
- b) Dues payable to seller against other contracts in the same Region/Unit/ Division of BHEL.
- c) Dues payable to seller against other contracts in the different Region/Unit/ division of BHEL.

In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against contractor.

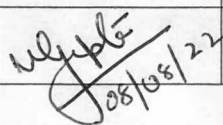
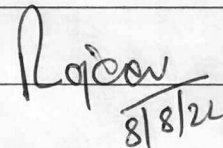
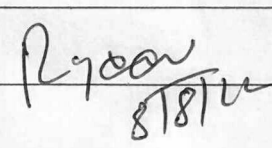
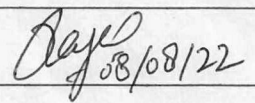
These Conditions shall be read and construed along with General Conditions of Contract (GCC) rev.07 dated 10.01.2020 to be enclosed along with the tender enquiry. In case of any conflict or inconsistency, the conditions given in SCC shall prevail over the GCC.

Sl No.	Title	Description
1.	Project Name	2X500 MW NTPC SIPAT TPS, STAGE-II – FGD
2.	Nature of project & Type of Bidding	Competitive Bidding
3.	Customer Order Ref No	CS-9545-109(6)-9-SCNOA-7037 dated 06.10.2021 for Service Contract CS-9545-109(6)-9-FCNOA-7036 dated 06.10.2021 for Supply Contract
4.	BHEL's Customer	NTPC
5.	NTPC Sipat	22AAACN0255D4Z5
6.	Customer Consultants	No consultant
7.	Consignee Address (Bill To)	For supply package: BHEL, Power Sector-Project Engineering Management, Power Project Engineering Institute, Plot No. 25, Sector-16A, Noida, Uttar Pradesh-201301. GSTIN: 09AAACB4146P2ZC For turnkey packages (where BHEL-PEM will issue only the LOA and Purchase Order shall be issued by BHEL-PSWR): Construction Manager, BHEL site office, 2x500 MW Sipat FGD, STG-II P.O. Ujjwal Nagar, Sipat, Distirct – Bilaspur, Chhatisgarh - 495555 BHEL GSTIN No.- 22AAACB4146P1ZP
8.	Delivery Address (Ship To)	Construction Manager, BHEL site office, 2x500 MW Sipat FGD, STG-II P.O. Ujjwal Nagar, Sipat, Distirct – Bilaspur, Chhatisgarh - 495555
9.	BHEL Site Office Address	Construction Manager, BHEL site office, 2x500 MW Sipat FGD, STG-II P.O. Ujjwal Nagar, Sipat, Distirct – Bilaspur, Chhatisgarh - 495555
10.	Location of Plant	The site is located east of the Kurung left bank canal and is bounded by villages Rank, Kaudia and Janji in the Bilaspur district of Chhattisgarh. It is in between latitudes 22o05' & 22o09' North and longitudes 82o 16' & 82o 18' East. The site is approx. 20 kms. from Bilaspur city and is approachable via the Bilaspur - Sipat state highway which takes off to the North-East from Bilaspur City. The nearest railway station is Jairamnagar on the Nagpur-Raipur-Calcutta mainline. Raipur, which is approximately 140 kms. from the site is the nearest commercial airport.
11.	Mode of Dispatch	For indigenous supplies: By Road on door delivery and freight pre-paid basis. For imported supplies: On C&F basis
12.	BHEL GSTIN Details	For supply packages: BHEL-PEM is registered in the State of Uttar Pradesh with GSTIN 09AAACB4146P2ZC For Turnkey packages: BHEL GSTIN No.- 22AAACB4146P1ZP

13.	Transit Insurance	<p>In BHEL Scope.</p> <p>For each dispatch, vendor shall inform the following to the Underwriter under intimation to BHEL-PEM and BHEL Site office:</p> <ul style="list-style-type: none"> (i) Policy No. (ii) Consignee Name. (iii) Consignment Details (items with their weights and value (in INR)). (iv) Project Name and P.O. No. (v) LR No. and date, Dispatch origin and destination details, Invoice No. <p>Vendors to intimate the underwriters quoting the insurance Policy No. as mentioned in PO.</p>
14.	Dispatch intimation	<p>Yes, in writing, not less than 30 (Thirty) days prior to date of shipment and dispatch details to be sent to:</p> <ul style="list-style-type: none"> BHEL Site office (address as mentioned at Sl. No. 9) BHEL PEM Noida (address as mentioned in NIT for PO issued by PEM) BHEL PSWR Nagpur (For PO Issued by BHEL PSWR)
15.	Document required for Vendor's payment.	<p>For claiming the payment, documents as mentioned in GCC rev 07 shall be submitted by vendor to BHEL.</p> <p>Packing List must comply to Clause No. 19.3 of General Commercial Terms & Conditions of GCC rev.07. Description of items in packing list shall be as per PO such that proper correlation between PO & packing list must be furnished.</p> <p>Soft copy of documents for claiming payment shall be submitted by vendor as advance copy.</p>
16.	Buyer and Paying Authority	<p>For packages where PEM will issue the Purchase Order: BHEL PEM will be the paying authority. For packages where BHEL-PEM will issue only the LOA and Purchase Order shall be issued by BHEL PSWR, 2X500 MW NTPC SIPAT TPS, STAGE-II – FGD (LOT-6). BHEL Site will be the paying Authority.</p>
17.	Demurrage charges	<p>Demurrage charges shall be paid by supplier/ vendor only. No claim shall be acceptable to BHEL in this regard.</p>
18.	Unloading, Storage & Movement of material at site	<ul style="list-style-type: none"> a.) By BHEL site office for supply packages (where only supply is in vendor's scope). b.) By vendors for Turnkey (where Supply and E&C is in vendor scope) <p>Note: The Supplier shall furnish LR wise Gross Wt. of the consignment for the purpose of handling the consignment by BHEL Site Contractor. Please note that unloading of materials at Site shall sometimes may take 3-4 days. As such, transporters to be advised suitably before dispatch of materials in this regards. Also, no claim on a/c of delay in unloading before this period shall be entertained. Prior intimation as mentioned in sl. no. 14 above is solicited</p>
19.	Concessional custom duty against Essentiality certificate (EC)	<p>The project has been qualified through Project Import route. Accordingly, the benefits applicable to PI project would be granted for this project. In this regard applicable documents such as Essentiality certificate will be issued by NTPC (ultimate customer). Under this, Concessional rate of Customs Duty shall be applicable on the Import Contents of the supplier respectively. Based on the above EC, Customs Duty Benefits will be passed on to the vendor. The Bidder to indicate the Import contents i.e. list of the item, Currency of Import and Country of Import including CIF value in their offers. BHEL shall inform, the availability of CIF value for a particular package, if any, at the time of NIT. The benefits availed in Concessional Customs Duty must be passed on to BHEL in their offer.</p> <p>Vendor shall inform BHEL and provide the necessary documents to obtain required certificates from BHEL to avail exemption. Obtaining custom duty benefit in line with the Essentiality Certificate issued shall be in vendor's scope.</p>
20.	Taxes & Duties (For Domestic Vendor)	<p>As per General Conditions of Contract (GCC rev 07)</p>
21.	Taxes & Duties (For Order Directly to Foreign Bidders)	<p>In case of foreign vendors, quoted prices & Dispatches shall be on C & F Indian (Mumbai) port basis and the Taxes & duties in the country of dispatch shall be borne by Foreign vendor. All the Taxes & duties and other charges applicable in India shall be borne by BHEL-PEM for the direct order placed by PEM to the foreign bidder and by BHEL-PSWR for the orders placed by PSWR.</p>
22.	Inspection Agency	<p>Inspection of packages shall be carried out by agency as per below Inspection category of packages:</p> <ul style="list-style-type: none"> 1) Cat-I: Inspection shall be done jointly or separately by NTPC and BHEL or BHEL's TPIA 2) Cat-II: Inspection shall be done by BHEL only.

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		<p>3) Cat-III: Certificate of Compliance shall be furnished by Vendor.</p> <p>Note: Please note, for Cat I & II items BHEL reserve the right to carry inspection by themselves or through nominated third party inspection agency (TPIA). Third party inspection agency, if any, shall be informed after award of contract.</p>
23.	Inspection procedure	<p><u>For Domestic supplies</u></p> <p>Please refer clause no. 14.0 of GCC Rev 07. Vendor to furnish photographs pertaining to packing of materials before despatch. MDCC shall be issued on the basis of clear inspection reports.</p> <p><u>For Foreign supplies</u></p> <p>In case of Foreign supplies, if NTPC approved 3rd party inspection agency does not participate in the inspection, test certificates & inspection reports duly accepted by the agreed Inspection agency shall be submitted in soft copy to BHEL-PEM. The same shall be reviewed by BHEL PEM and then, sent to NTPC for clearance. Vendor to furnish photographs pertaining to packing of materials before despatch. The dispatch clearance (MDCC) by NTPC/ BHEL as applicable shall be given to the foreign supplier or representative in India after acceptance of above test certificates.</p>
24.	Material Dispatch Clearance Certificate (MDCC) Issuing Agency	<p>For Cat-I item, MDCC shall be issued by NTPC and it's the responsibility of vendor to arrange MDCC from them and furnish original MDCC to BHEL.</p> <p>For Cat- II & Cat-III items, MDCC shall be issued by BHEL However, the vendor shall furnish all requisite documents like Material Test Certificates, Inspection Reports etc. required for obtaining of NTPC MDCC by BHEL.</p>
25.	Submission of Final Drgs/Docs alongwith O&M Manual, Type Test Certificates (if any)	<p><u>No. of O&M Manuals</u></p> <p>As per GCC rev.07/ Technical Specification/Kick-off meeting.</p> <p>If not specified anywhere, Vendor to submit final approved O&M Manual in 12 Hard copies and 4 No of CD ROMs/DVDs/Pen drive.</p>

	Prepared by	Checked by	Reviewed by	Approved by
Name	Manisha Gupta	Rajeev Lalwani	Rajeev Lalwani	Rajeev Tiwari
Designation	Manager/ PG III	Sr. Manager/ PG III	Sr. Manager/ PG III	AGM & DH/ PG III
Signature	 08/08/22	 8/8/22	 8/8/22	 08/08/22

Guidelines for Remote Inspection of PEM BOIs

1) OBJECTIVE:

To lay down the procedure for carrying out Remote Inspection of Bought-out Items (BOIs) for PEM suppliers wherever applicable.

2) SCOPE:

It will cover suppliers for packages of PEM BOIs for various project requirements.

Invitation is sent to the suppliers for remote inspection on applications like MS Teams, Webex, etc. by BHEL.

3) MINIMUM REQUIREMENTS AT SUPPLIER'S WORKS:

- i. Uninterrupted internet services
- ii. Good internet bandwidth (Min 100 Mbps)
- iii. Good resolution camera (2 nos) – one preferably CCTV (static at one place) and one hand hold (moving)
- iv. Smart phone with minimum 8MPi camera front and back both with optical zoom facility suitable for using web applications like Webex, MicroSoft (MS) Teams, etc.
- v. Computer and Scanner with good resolution
- vi. Digital signatures of supplier's Quality Engineer
- vii. Availability of web applications like Webex, MicroSoft (MS) Teams, as required.
- viii. All Test certificates, internal test reports, calibration reports, etc. for the items offered for inspection.
- ix. Availability of the above to be submitted to BHEL two days in advance before inspection.
- x. Dedicated team from supplier side for facilitating inspection requirements.
- xi. For ensuring proper visibility, the suggested Portable lighting sources (torch/ electric LED bulb of minimum 15 W) with no glare is to be ensured at offered job, location for remote inspection/testing. This is to be verified before start of the inspection.
- xii. The GPS location co-ordinates or any method to locate inspection location shall be captured indicating the location of the Vendor-Premises of remote inspection/testing.

4) MINIMUM REQUIREMENTS AT BHEL and CUSTOMER LOCATION :

- i. Uninterrupted internet services
- ii. Suitable internet bandwidth
- iii. Digital signatures wherever required.
- iv. Availability of web applications like Webex, MS Teams, etc. as required.
- v. Clearance from customer for conducting remote inspection

5) PROCEDURE:

- i. Supplier will raise the inspection call in BHEL - CQIR portal.
- ii. Supplier shall ensure availability of minimum requirements at supplier's works as mentioned above at point 3.

- iii. Before starting the inspection, the supplier shall submit the documents (TCs, internal test reports and calibration certificates as per approved QAP) two days before the date of inspection for review by BHEL and supplier shall coordinate with BHEL and if found satisfactory, inspection shall be considered for remote.
 - iv. Prior to commencement of remote inspection a pre inspection meeting shall be organised by BHEL inspector with supplier to ascertain the readiness for remote inspection.
- 6) During inspection, supplier shall share the location on Google maps for verifying the address of the manufacturer. Location may be captured by BHEL as screenshot.
- i. Inspection shall be on the basis of approved Quality Plans and associated reference documents mentioned.
 - ii. For witnessing inspection, supplier shall bring the mobile video camera near to the surface of the equipment or as per requirement of the inspector for clarity in viewing the test/ equipment which shall be the responsibility of supplier. Supplier shall ensure that proper lighting is available during live video streaming.
 - iii. Before start of the inspection, inspector shall ensure that all instruments shall have valid calibration report. Supplier shall ensure use of digital instruments preferably for inspection to the extent possible.
 - iv. Details of suppliers's dedicated team handling the remote inspection shall also be incorporated in the CQIR.
 - v. All details of inspection/ testing referred documents shall be mentioned in the CQIR. Recording of remote inspection shall be maintained by the BHEL inspector and this recording (unedited) shall be maintained at BHEL system for a minimum period of 3 years or till the warranty period whichever is later.
 - vi. PEM (Engineering) shall accord final technical clearance, in case of any deviation in inspected item noticed during inspection.
 - vii. Inspection shall be conducted by PEM-Q&BE assigned inspector along with PEM-Engg (if required). CQIR shall be prepared and maintained by PEM-Q&BE.
 - viii. PG will issue MDCC on the basis of acceptance of inspected items along with accepted packing photographs as per contract provisions.
- 7) **UNDERTAKING BY VENDOR:** Material inspected through remote inspections is meeting all technical requirements of BHEL. In case of any discrepancy from the above procedure/ material inspected, if found later, vendor will replace the materials without any cost implication to BHEL.
- 8) Vendor shall provide the signed and stamped of the above guidelines to BHEL as a token of acceptance.