

3X660MW NORTH KARANPURA STPP											
BOQ CUM PRICE SCHEDULE FOR FIRE SEALING SYSTEM											
S.NO	MAIN ITEM DESCRIPTION	UNIT	ORDERED QTY.	LOT-I qty.	LOT-II qty.	LOT-III qty.	Unit Price (Rs/sqm) (V)	DESCRIPTION OF MATERIAL REQUIRED FOR COMPLETION OF MAIN ITEM	HSN/SAC Code	% Breakup of Unit price	QTY.
I)	SUPPLY										
1	FSS-TYPE A FLOOR OPENINGS BELOW PANELS-1hrs	SQM	432.00	144.00	144.00	144.00		Board		% of V (Refer Note 6)	1 LOT
								Slab		% of V (Refer Note 6)	1 LOT
								Silicone Foam		% of V (Refer Note 6)	1 LOT
								Anchor Bolts		% of V (Refer Note 6)	1 LOT
								Cavity Fill		% of V (Refer Note 6)	1 LOT
								Any other material,if required		-	-
								a)		% of V (Refer Note 6)	1 LOT
							b)		% of V (Refer Note 6)	1 LOT	
							subtotal		V (Rs/sqm)		
II)	E & C	UNIT	ORDERED QTY.	LOT-I qty.	LOT-II qty.	LOT-III qty.	Unit Price (Rs/sqm)				
1	FSS-TYPE A FLOOR OPENINGS BELOW PANELS-1hrs	SQM	432.00	144.00	144.00	144.00					
	Notes:										
	1. The fire sealing area indicated under Column "Ordered Quantity" above shall be considered for ordering purposes. Bidder shall indicate during detailed engineering, the quantity of material required to be supplied on per unit basis for each of the items mentioned above , which shall be used for billing purposes of the supply portion after review and acceptance. However, the vendor shall supply the actual material necessary for meeting the specified area requirements as per type-tested arrangement without any commercial implication.										
	2. Successful bidder is responsible for estimation of additional quantities based on site conditions and work progress. The estimates shall be used by BHEL as inputs for clearing further quantities. These activities shall be completed within the overall contractual period.										
	3. Total price quoted for items I & II above shall be used for price comparison purpose.										
	4. Unit prices for supply and installation shall be quoted in line with Sl. No. 2 of Section-I & Sl. No. 7.0 of section II of specification.										
	5. If the contractor is not able to submit report of the type test(s) conducted within last ten years from the date of bid opening, or in the case of type test report(s) are not found to be meeting the specification requirements, the bidder shall conduct all such tests under this contract at no additional cost to the BHEL either at third party lab or in presence of BHEL/Customer representative and submit the reports for approval.										
	6. Materialwise breakup of unit price (in % of main item unit price) to be indicated by bidder against each of the materials required for completion of main items. Materialwise percentage break up indicated shall add to 100% of the unit price quoted for main item. If any of the material mentioned above is not applicable for the system offered by bidder, NIL may be indicated against the same.										

1340921/2023/PS-PEM-Qualification Requirements for

PE-PQ-405-507-E006



FIRE SEALING SYSTEM-TYPE-A

REV. NO. 00 DATE 23/01/2023

NORTH KARANPURA TPS

SHEET NO. 1 OF 2

**ITEMS:** Fire sealing system

Vendor may be considered for evaluation for one or more of the following types of Fire sealing system:

Type 1 RTV Silicone Foam/ Equivalent Foam

Type 2 Individual blocks for each cable

**SCOPE:** Supply: YES; Erection & Commissioning: YES;

1	Availability of type test certificates conducted at independent Lab or witnessed by third party for the applicable type of fire sealing system and fire-retardant cable coating as per IS/ International standards.
2	Bidder should be OEM for the applicable type of fire sealing system. In case bidder is not OEM, offer shall be evaluated as per point no. 1 of Notes.
3	Repeat order received from at least one end user/ purchaser for supply and E&C of applicable type of fire sealing system during last Ten (10) years provided the gap between award of two POs is minimum two (2) years.  OR Completion certificate from at least one end user/ BHEL for successful execution of supply and E&C for applicable type of fire sealing system. Completion certificates should not be more than ten (10) years old from the date of techno-commercial bid opening.
4	Minimum two (2) nos. purchase orders for fire sealing system of applicable type 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.

**NOTES:**

1. Offers of the JV companies/ Joint Bidders/ bidders having collaboration/ licensing agreement/ MOU/Indian subsidiaries shall be evaluated as follows: -

a. If bidder happens to be an Indian subsidiary of foreign OEM, then the credentials of the foreign OEM can also, be considered for meeting PQR.

b. If bidder happens to be the Joint Venture Company, then the credentials of any of JV partners can be also considered for meeting PQR.

c. If bidder happens to bid jointly with their partner, then credentials of both the partners will be considered for meeting PQR as per distribution of the work. In all such cases, lead bidder as specified in bid documents shall be responsible for overall execution of the contract and all guarantee/ warranty.

d. If bidder happens to be the having valid collaboration agreement/ MOU/ licensing agreement with some other company, then the credentials of collaborator/ MOU partner/ licensing company can also be considered for meeting PQR.

Note: If bidder(s) qualifies on the basis of credentials of his principal/ JV partner/ Collaborator/ joint bidder etc., then the principal/ JV partner/ Collaborator/ MOU partner/ joint bidder shall be responsible for overall design vetting and warranty/ guarantee of the package. The scope matrix clearly defining their respective roles including design vetting, manufacturing of critical component, E&C etc. etc. and warranty/ guarantee shall be submitted along with the offer.

2. Bidder to note that the arrangement of bidding (joint bid partners/ collaborator/ MOU partner/ licensing

PREPARED BY  23.1.23 ABHINAV BANSHIWALA MANAGER	CHECKED BY  23.01.2023 N.N. JAJWARE SR. MANAGER	REVIEWED BY  24/1/2023 PRAVEEN DUTTA A.G.M.	APPROVED BY  23.1.23 DEBASISA RATH A.G.M. (DH-ELEC)
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1340921/2023/PS-PEM-EL



FIRE SEALING SYSTEM-TYPE-A

NORTH KARANPURA TPS

PE-PQ-405-507-E006

REV. NO. 00 DATE 23/01/2023

SHEET NO. 2 OF 2

company etc.) once offered to BHEL as a part of bidding documents cannot be changed till the execution of the project.

3. Consideration of offer shall be subject to customer's approval of bidders, if applicable.
4. 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.
5. Notwithstanding anything stated above, BHEL reserves the right to assess the capabilities and capacity of the bidder to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL.

PREPARED BY  23.1.23 ABHINAV BANSHIWALA MANAGER	CHECKED BY  23.9.2023 N.N. JAJWARE SR. MANAGER	REVIEWED BY  24/1/2023 PRAVEEN DUTTA A.G.M.	APPROVED BY  24/1/23 DEBASIS RATH A.G.M. (DH-ELEC)
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# ANNEXURE 1 - 3x660 MW NTPC NORTH KARANPURA STPP - DELIVERY SCHEDULE - FIRE SEALING SYSTEM (TYPE-A)

ANNEXURE 2 – CROSS-WITHIN CONTRACT DELIVERY SCHEDULE – FIRE SEALING SYSTEM (TYPE A)									
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	507-26000-A	FIRE SEALING SYSTEM	ELECT	PE-V0-XXX-507-E905	QUALITY PLAN FOR CABLE FIRE SEALING SYSTEM	Primary		R-0 within 14 days from PO & subsequent revisions within 10 days of comments received from BHEL. BHEL shall furnish comments / approval on each submission within 18 days from receipt.	Delivery completion for PO Quantity shall be “120” 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 "90" days from the date of Quantity clearance by BHEL.
				PE-V0-XXX-507-E042	INSTALLATION DRGS. OF CABLE FIRE SEALING SYSTEM	Primary			
				PE-V0-XXX-507-E041	TECHNICAL DATA SHEET OF CABLE FIRE SEALING SYSTEM	Primary			
				PE-V0-XXX-507-E043	TYPE TEST REPORT / CERTIFICATES	Primary		R-0 within 03 months of approval of other primary drawing/documents & subsequent revisions within 10 d ays of comments received from BHEL. BHEL shall furnish comments / approval on each submission within 18 days from receipt.	
				PE-V0-434-558-E906	FIELD QUALITY PLAN FOR CABLE FIRE SEALING SYSTEM	Secondary		R-0 within 14 days from PO & subsequent revisions within 10 days of comments received from BHEL. BHEL shall furnish comments / approval on each submission within 18 days from receipt.	
				PE-V0-XXX-507-E044	Bill of material	Secondary			

## 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.
- 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.

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 or PO delivery date whichever is later shall be decided on mutual consent basis.


	<b>CORPORATE QUALITY ASSURANCE/ कॉर्पोरेट गुणवत्ता आश्वासन</b> <b>MAIN CONTRACTOR'S PROPOSAL CUM EVALUATION REPORT</b> <b>मुख्य संविदाकार प्रस्ताव सह मुल्यांकन रिपोर्ट</b>		

<b>Ref No:</b> संदर्भ सं.:		<b>Date:</b> तिथि:	
i.	<b>Main Contractor</b> मुख्य संविदाकार		
ii.	<b>Project</b> परियोजना		
iii.	<b>Package Name</b> पैकेज का नाम	<b>Package No</b> पैकेज सं.	
iv.	<b>Proposed Item/Scope of Sub-contracting</b> उप-संविदा(अनुबंध) का प्रस्तावित मद/ दायरा		
v.	<b>Item covered under</b> निम्नलिखित के अंतर्गत शामिल मद	<b>Schedule-1</b> /अनुसूची- 1	<b>As per contract clause No-</b> अनुबंध के अनुसार खंड सं.- -
		<b>Schedule-2 अनुसूची- -2</b>	
vi.	If item is Schedule-1 and proposed sub-vendor is indigenous, Main Contractor to explain how the contractual provisions will be fulfilled /यदि मद अनुसूची -1 है और प्रस्तावित उप-विक्रेता स्वदेशी है, तो मुख्य संविदाकार को स्पष्ट करना होगा कि संविदा/अनुबंध के प्रावधान कैसे पूरे किए जाएंगे		
vii.	<b>Name and Address of the proposed Sub-vendor's works</b> /प्रस्तावित सब-वेंडर का नाम तथा पता		
viii.	<b>PO placement date/ Start of manufacturing (if self-manufactured) as per L2 network</b> पीओ नियोजन की तिथि / एल- 2 नेटवर्क के अनुसार विनिर्माण (यदि स्व-निर्मित है) की शुरुआत		
ix.	<b>Item Description</b> (Type/Size/Rating/Scope of Sub-Contracting) मद का विवरण (प्रकार / आकार / रेटिंग / उप-अनुबंध का दायरा)	<b>Total quantity of proposed item envisaged in this package (Nos/ Running Meters/ Kgs/ Tons etc)</b> इस पैकेज में परिकल्पित प्रस्तावित मद की कुल मात्रा (संख्या / क्रियाशील मीटर / किलोग्राम / टन आदि)	<b>Quantity proposed to be procured from proposed sub-vendor (Nos/ Running Meters /Kgs /Tons etc)</b> प्रस्तावित उप-विक्रेता (संख्या / क्रियाशील मीटर / किलोग्राम / टन आदि) से खरीदी जाने वाली मात्रा
			<b>Timeline for quantity requirements as per project schedule &amp; whether the proposed Sub-vendor equipped with adequate capacity to supply proposed order quantity in time</b> / परियोजना समय सूची के अनुसार मात्रा आवश्यकताओं के लिए समय-सीमा और क्या प्रस्तावित उप-विक्रेता समय पर प्रस्तावित मांग की मात्रा की आपूर्ति करने में पूरी तरह से सक्षम है


	<b>CORPORATE QUALITY ASSURANCE/ कॉर्पोरेट गुणवत्ता आश्वासन</b> <b>MAIN CONTRACTOR'S PROPOSAL CUM EVALUATION REPORT</b> <b>मुख्य संविदाकार प्रस्ताव सह मुल्यांकन रिपोर्ट</b>

x.	<i>Supply experience of the proposed sub-vendor (including supplies to Main Contractor, if any) for similar item/scope of sub-contracting, for last 3 years (Note:- Only relevant experience details w.r.t. proposed item/scope of subcontracting to be brought out here)</i> पिछले 3 वर्षों के लिए उप-अनुबंध के समान मद / दायरे के लिए प्रस्तावित सब-वेंडर (मुख्य संविदाकार हेतु आपूर्ति, यदि कोई हो, सहित) का आपूर्ति अनुभव (नोट: - उप-अनुबंध के प्रस्तावित मद / दायरे के संबंध में केवल प्रासंगिक अनुभव के विवरण का उल्लेख हो)								
	<b>Project/Package</b> परियोजना/पैकेज	<b>Customer Name</b> ग्राहक का नाम	<b>Supplied Item</b> (Type/Rating/Model /Capacity/Size etc) आपूर्ति मद (प्रकार/रेटिंग /मॉडल /क्षमता/आकार आदि)	<b>PO ref no/date</b> पीओ संदर्भ सं. /तिथि	<b>Supplied Quantity</b> आपूर्ति की मात्रा	<b>Date of Supply</b> आपूर्ति की तिथि			
<i>We confirm that as per our assessment, the proposed sub-vendor has requisite capabilities &amp; supply experience and is suitable for supplying the proposed item/scope of sub-contracting/हम अपने आकलन के अनुसार इस बात की पुष्टि करते हैं कि, प्रस्तावित उप-विक्रेता के पास अपेक्षित क्षमता और आपूर्ति करने का अनुभव है और उप-अनुबंध के दायरे /प्रस्तावित मद की आपूर्ति के लिए उपयुक्त है।</i>									
<b>Name:</b> नाम:		<b>Desig:</b> पद:		<b>Contact No:</b> दूरभाष सं.:		<b>Sign:</b> हस्ताक्षर:		<b>Date:</b> तिथि:	

**Company's Seal/Stamp:-** कंपनी का मुहर:-


	<p align="center"><b>CORPORATE QUALITY ASSURANCE/ कॉर्पोरेट गुणवत्ता आश्वासन</b></p> <p align="center"><b>SUB-VENDOR QUESTIONNAIRE/ सब-वेंडर प्रश्नावली</b></p>
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	संख्या, उनकी योग्यता, मशीन और उपलब्ध उपकरण आदि)	(if applicable) लागू / लागू नहीं, अगर विनिर्माण मुख्य संविदाकार / खरीददार के डिजाइन के अनुसार है) विवरण अनुलग्नक -एफ 2.2 पर संलग्न है। (यदि लागू हो)
7.	<b>Overall organization Chart with Manpower Details (Design/Manufacturing/Quality etc)</b> मैनपावर विवरण के साथ समग्र संगठन का चार्ट( डिजाइन / विनिर्माण / गुणवत्ता आदि )	<b>Details attached at Annexure – F2.3</b> विवरण अनुलग्नक – F2.3 में संलग्न है।
8.	<b>After sales service set up in India, in case of foreign sub-vendor(Location, Contact Person, Contact details etc.)</b> भारत में बिक्री सेवा की स्थापना के बाद, विदेशी उप-विक्रेता के मामले में( स्थल, संपर्क व्यक्ति, संपर्क विवरण आदि)	<b>Applicable / Not applicable</b> लागू / लागू नहीं <b>Details attached at Annexure – F2.4</b> विवरण अनुलग्नक -2.4 पर संलग्न है।
9.	<b>Manufacturing process execution plan with flow chart indicating various stages of manufacturing from raw material to finished product including outsourced process, if any</b> फ्लोचार्ट सहित विनिर्माण प्रक्रिया निष्पादन योजना, जिसमें आउटसोर्स प्रक्रिया, यदि कोई हो, सहित कच्चे माल से तैयार उत्पाद तक विनिर्माण के विभिन्न चरणों को दर्शाया गया हो,	<b>Details attached at Annexure – F2.5</b> विवरण अनुलग्नक - F2.5में संलग्न है।
10.	<b>Sources of Raw Material/Major Bought Out Item</b> कच्चे माल के स्रोत / खरीदे हुए मुख्य मद	<b>Details attached at Annexure – F2.6</b> विवरण अनुलग्नक - F2.6में संलग्न है।
11.	<b>Quality Control exercised during receipt of raw material/BOI, in-process , Final Testing, packing</b> कच्चे माल / खरीदे हुए मद, प्रक्रियाबद्ध, अंतिम परीक्षण, पैकिंग करते समय गुणवत्ता नियंत्रण	<b>Details attached at Annexure – F2.7</b> विवरण अनुलग्नक - F2.7 पर संलग्न है
12.	<b>Manufacturing facilities (List of machines, special process facilities, material handling etc.)</b> विनिर्माण सुविधा(मशीनों की सूची, विशेष प्रक्रिया सुविधाएं, सामग्री रख-रखाव आदि)	<b>Details attached at Annexure – F2.8</b> विवरण अनुलग्नक - F2.8में संलग्न है।
13.	<b>Testing facilities (List of testing equipment)</b> परीक्षण सुविधाएं( परीक्षण उपकरण की सूची )	<b>Details attached at Annexure – F2.9</b> विवरण अनुलग्नक – F2. 9 में संलग्न है।
14.	<b>If manufacturing process involves fabrication then-</b> यदि निर्माण प्रक्रिया में फेब्रिकेशन की गई है तो- <b>List of qualified Welders</b> पात्र वेल्डर की सूची	<b>Applicable / Not applicable</b> लागू / लागू नहीं <b>Details attached at Annexure – F2.10</b> विवरण अनुलग्नक - F2.10में संलग्न है।


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<b>i.</b>	<b>Item/Scope of Sub-contracting</b> उप-संविदा(अनुबंध) का मद/ दायरा			
<b>ii.</b>	<b>Address of the registered office</b> पंजीकृत कार्यालय का पता  	<b>Details of Contact Person</b> संपर्क व्यक्ति का विवरण  (Name, Designation, Mobile, Email) (नाम, पदनाम, मोबाइल, ईमेल)		
<b>iii.</b>	<b>Name and Address of the proposed Sub-vendor's works where item is being manufactured</b> प्रस्तावित उप-विक्रेता के कार्यों का नाम और पता, जहां मद का निर्माण किया जा रहा है  	<b>Details of Contact Person:</b> संपर्क व्यक्ति का विवरण  (Name, Designation, Mobile, Email) (नाम, पदनाम, मोबाइल, ईमेल)		
<b>iv.</b>	<b>Annual Production Capacity for proposed item/scope of sub-contracting</b> उप-संविदा(अनुबंध) के प्रस्तावित मद / दायरे के लिए वार्षिक उत्पादन क्षमता			
<b>v.</b>	<b>Annual production for last 3 years for proposed item/scope of sub-contracting</b> उप-संविदा(अनुबंध) के प्रस्तावित मद / दायरे के लिए पिछले 3 वर्षों का वार्षिक उत्पादन			
<b>vi.</b>	<b>Details of proposed works</b> प्रस्तावित कार्यों का विवरण			
<b>1.</b>	<b>Year of establishment of present works</b> वर्तमान फैक्टरी की स्थापना का वर्ष			
<b>2.</b>	<b>Year of commencement of manufacturing at above works</b> उपरोक्त फैक्टरी में निर्माण कार्य शुरू होने का वर्ष			
<b>3.</b>	<b>Details of change in Works address in past (if any</b> पूर्व में फैक्टरी स्थल में परिवर्तन का विवरण (यदि कोई हो))			
<b>4.</b>	<b>Total Area</b> कुल क्षेत्र			
	<b>Covered Area</b> शामिल क्षेत्र			
<b>5.</b>	<b>Factory Registration Certificate</b> फैक्टरी पंजीकरण प्रमाण पत्र	<b>Details attached at Annexure – F2.1</b> विवरण अनुलग्नक- एफ 2.1 पर संलग्न है		
<b>6.</b>	<b>Design/ Research &amp; development set-up</b> डिजाइन / अनुसंधान और विकास सेटअप (No. of manpower, their qualification, machines & tools employed etc.) (श्रमिकों की	<b>Applicable / Not applicable if manufacturing is as per Main Contractor/purchaser design)</b> <b>Details attached at Annexure – F2.2</b>		



	<b>CORPORATE QUALITY ASSURANCE/ कॉर्पोरेट गुणवत्ता आश्वासन</b> <b>SUB-VENDOR QUESTIONNAIRE/ सब-वेंडर प्रश्नावली</b>
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	<i>List of qualified NDT personnel with area of specialization</i> विशेषज्ञता के क्षेत्र सहित पात्र एनडीटी कार्मिकों की सूची	(if applicable) लागू / लागू नहीं			
15.	<i>List of out-sourced manufacturing processes with Sub-Vendors' names &amp; addresses</i> सब-वेंडर द्वारा बाह्य स्रोतों (उनके नाम और पते सहित) से करवाएं गए निर्माण प्रक्रियाओं की सूची	Applicable / Not applicable लागू / लागू नहीं  Details attached at Annexure. – F2.11 विवरण अनुलग्नक - F2.10 में संलग्न है। (if applicable) (यदि लागू हो)			
16.	<i>Supply reference list including recent supplies</i> नवीनतम आपूर्ति सहित आपूर्ति संदर्भ सूची	Details attached at Annexure – F2.12 विवरण अनुलग्नक - F2.12 में संलग्न है। (as per format given below) (नीचे दिए गए प्रारूप के अनुसार)			
Project/ package परियोजना / पैकेज	Customer Name ग्राहक का नाम	Supplied Item (Type/Rating/Model /Capacity/Size etc) आपूर्ति की गई वस्तु (प्रकार / रेटिंग / मॉडल / क्षमता / आकार आदि)	PO ref no/date पीओ संदर्भ सं. / तिथि	Supplied Quantity आपूर्ति की मात्रा	Date of Supply आपूर्ति की तारीख
17.	<i>Product satisfactory performance feedback letter/certificates/End User Feedback</i> उत्पाद के संतोषजनक प्रदर्शन संबंधी फीडबैक पत्र / प्रमाण पत्र / अंतिम उपयोगकर्ता फीडबैक			Attached at annexure - F2.13 अनुलग्नक F2.13 पर संलग्न है	
18.	<i>Summary of Type Test Report (Type Test Details, Report No, Agency, Date of testing) for the proposed product (similar or higher rating)</i> प्रस्तावित उत्पाद (एक समान या उच्च रेटिंग वाले) के लिए टाइप टेस्ट रिपोर्ट (टाइप टेस्ट विवरण, रिपोर्ट संख्या, एजेंसी, जांच की तारीख) का सारांश नोट: - रिपोर्ट प्रस्तुत करने की आवश्यकता नहीं है Note:- Reports need not to be submitted			Applicable / Not applicable लागू / लागू नहीं  Details attached at Annexure – F2.14 विवरण अनुलग्नक - F2.14 में संलग्न है (if applicable) (यदि लागू हो)	
19.	<i>Statutory / mandatory certification for the proposed product</i> प्रस्तावित उत्पाद के लिए वैधानिक / अनिवार्य प्रमाणीकरण			Applicable / Not applicable लागू / लागू नहीं  Details attached at Annexure – F2.15 (if applicable) (यदि लागू हो)	
20.	<i>Copy of ISO 9001 certificate</i> आईएसओ 9001 प्रमाण पत्र की प्रति (if available) (यदि उपलब्ध हो)			Attached at Annexure – F2.16 अनुलग्नक में संलग्न - F2.16 है	
21.	<i>Product technical catalogues for proposed item (if available)</i> प्रस्तावित मद के लिए उत्पाद तकनीकी कैटलॉग (यदि उपलब्ध हो)			Details attached at Annexure – F2.17 विवरण अनुलग्नक - F2.17 में संलग्न है	

	<b>CORPORATE QUALITY ASSURANCE/ कॉर्पोरेट गुणवत्ता आश्वासन</b>		
	<b>SUB-VENDOR QUESTIONNAIRE/ सब-वेंडर प्रश्नावली</b>		

<i>Name:</i>		<i>Desig:</i>		<i>Sign:</i>		<i>Date:</i>	
<i>नाम:</i>		<i>पद:</i>		<i>हस्ताक्षर:</i>		<i>तिथि</i>	

*Company's Seal/Stamp:- कंपनी की मुहर / मोहर: -*



## PRE - QUALIFYING REQUIREMENTS

ENQUIRY NO:

PROJECT:

3x660 MW NTPC NORTH KARANPURA STPP

PACKAGE:

FIRE SEALING SYSTEM (TYPE-A)

### CRITERIA FOR EVALUATION - FINANCIAL :

	Amount (in Rs.)
Average annual financial turnover during the last Three Financial Years should not be less than	86,00,000.00
Rs.Eighty Six Lakh only	

#### Notes:-

a) The bidder has to submit financial accounts (audited, if applicable comprising of Audit report, Balance Sheet, Profit & Loss A/c Statement and Notes/Schedules pertaining to Turnover/Sales/Revenue), for last three years (or from the date of incorporation, whichever is less) as on tender due date to review the above criteria. In case the incorporation of vendor is less than 3 years, average annual financial turnover shall be calculated based on available information as below:-

i) If the accounts are available for  $\leq 1$  Financial Year, the Average Annual Turnover shall be calculated based on available information divided by 1 (One).

ii) If the accounts are available for  $>1$  but  $\leq 2$  Financial Years, the Average Annual Turnover shall be calculated based on available information divided by 2 (Two).

iii) If the accounts are available for  $>2$  but  $\leq 3$  Financial Years, the Average Annual Turnover shall be calculated based on available information divided by 3 (Three).

b) Foreign bidder is to submit a latest report from reputed third party business rating agency like Dun & Bradstreet, Credit reform etc. in addition to the documents mentioned at point (a) above for review of above criteria.

c) Other Income shall not be considered for arriving at Annual Turnover/Sales. For evaluation purpose, turnover figure excluding taxes shall be considered.

d) For evaluation of foreign bidder, exchange rate (TT selling rate of SBI) as on scheduled date of tender opening (Part-I bid in case of two part bid) shall be considered.

**NORTH KARANPURA SUPER  
THERMAL POWER PROJECT  
3X660MW**

**VOLUME-II**

**TECHNICAL SPECIFICATION**

**FOR**

***FIRE SEALING SYSTEM  
SUPPLY & INSTALLATION***

**SPECIFICATION NO: *PE-TS-405-507-E016***

***REVISION: 0***



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



**TECHNICAL SPECIFICATION FOR  
FIRE SEALING SYSTEM  
SUPPLY & INSTALLATION**

**NORTH KARANPURA STPS (3X660MW)**

SPECIFICATION NO. PE-TS-405-507-E016

VOLUME II

SECTION

REVISION 0

DATE: 04.08.2022

SHEET 1 OF 1

**CONTENTS**

<b>Sl. No.</b>	<b>DESCRIPTION</b>	<b>NO. OF SHEETS</b>
1.0	SECTION- I	
	COMPLIANCE CERTIFICATE	01
	SPECIFIC TECHNICAL REQUIREMENTS	09
	DATA SHEET	02
2.0	SECTION- II	
	STANDARD TECHNICAL REQUIREMENTS	10
	FORMAT OF QUALITY PLAN	02

*Total nos. of sheets including cover, content & separator sheets = 28 sheets*





**TECHNICAL SPECIFICATION FOR  
FIRE SEALING SYSTEM  
SUPPLY & INSTALLATION**

**NORTH KARANPURA STPS (3X660MW)**

SPECIFICATION NO. PE-TS-405-507-E016

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SECTION I

REVISION 0

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**SECTION – I**

**STANDARD TECHNICAL REQUIREMENTS**



**TECHNICAL SPECIFICATION FOR  
FIRE SEALING SYSTEM  
SUPPLY & INSTALLATION**

**NORTH KARANPURA STPS (3X660MW)**

SPECIFICATION NO. PE-TS-405-507-E016

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SECTION I

REVISION 0

DATE: 04.08.2022

SHEET 1 of 1

**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 deviations 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



**TECHNICAL SPECIFICATION FOR  
FIRE SEALING SYSTEM  
SUPPLY & INSTALLATION**

**NORTH KARANPURA STPS (3X660MW)**

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SHEET 1 OF 2

**1.0 SCOPE OF ENQUIRY**

- 1.1 This enquiry covers the Design, manufacturing, inspection & testing at manufacturer's works, proper packing, delivery to site, handling and erection & commissioning of **Type A [Silicone Foam/ Equivalent Foam/ individual blocks for each cable] based Fire Sealing** for cable openings below panels conforming to this specification.
- 1.2 It is not the intent to specify herein all the details of design & manufacture of material. However, the material shall, conform in all respects to high standard of design, engineering and workmanship and shall be capable of performing in continuous commercial operation at site conditions.
- 1.3 Technical requirements of the FIRE SEALING SYSTEM are indicated in Datasheet and Section-II. If the contractor is not able to submit report of the type test(s) conducted within last ten years from the date of bid opening, or in the case of type test report(s) are not found to be meeting the specification requirements, the bidder shall conduct all such tests under this contract at no additional cost to the BHEL either at third party lab or in presence of BHEL/Customer representative and submit the reports for approval.
- 1.4 The stipulation of Data Sheet shall prevail in case of any conflict between the stipulations of Data Sheet, Section I & Section-II. However, in case of conflict between Section I & Section-II stipulation of Section I shall prevail

S.No.	Reference clause No. of Section II (if any)	Specific Requirement/ Change
1	2.1, 2.3, 4.2, 5.2, 6.2	Fire retardant cable coating not applicable.
2	4.4(a)	Charges shall not be paid to vendor for conduction of Type Test.

**2.0 BILL OF QUANTITIES:**

- 2.1 The bidder to quote for items as per 'BOQ-cum-Price Schedule' attached with NIT. The BOQ excludes civil works done in the opening and includes cross section area of cables and cable support materials within the area to be fire sealed.

**The quantity as mentioned in the BOQ is only for evaluation purpose.** However actual ordered quantity may vary in project throughout the contract.

- 2.2 Successful bidder shall submit calculations for supply of material based on area to be provided with fire sealing, cured density (based on type test certificate accepted by BHEL/ CUSTOMER) & thickness as applicable for the project, wastage, space occupied by cables, etc. for approval during contract stage.

For the first lot cleared by BHEL, the calculations shall be made based on the average of the minimum & maximum cured density (wherever a range is specified for the cured density by the manufacturer) & minimum thickness. For subsequent lots cleared by BHEL, the calculation shall be based on the cured density & thickness as per accepted type test results, duly adjusting the quantities cleared in earlier lot.



**TECHNICAL SPECIFICATION FOR  
FIRE SEALING SYSTEM  
SUPPLY & INSTALLATION**

**NORTH KARANPURA STPS (3X660MW)**

SPECIFICATION NO. PE-TS-405-507-E016

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SECTION I

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SHEET 2 OF 2

**3.0 DRAWINGS & DOCUMENTS TO BE SUBMITTED**

3.1 The following information shall be furnished with the bid:

- a) Data Sheet
- b) Sign & stamped copy of "Schedule of BOQ cum price schedule. (Unpriced)".
- c) Sign & stamped copy of "Compliance Certificate".
- d) Sign & stamped copy of "Deviation Schedule" with "NO Deviations" sheet.

3.2 Drawings/ documents shall be submitted through Document Management System (DMS).

3.3 Supplier to submit detailed 'bill of material' (BoM) at the time of drawing/document submission after placement of PO. Each item of the BoM is to be uniquely identified with item code no. or item serial no.

3.4 Supplier to ensure that all items which will find separate mention in the packing list are covered in this detailed BoM.


3.5 Supplier to also give the following undertaking in the BOM:

*"The BoM provided herewith completes the scope (in content and intent) of material supply under PO No. -----, dated -----."*


*Any additional material which may become necessary for the intended application of the supplied item(s)/package will be supplied free of cost in most reasonable time."*

CLAUSE NO.	TECHNICAL REQUIREMENTS			<div>एनटीपीसी NTPC</div>
1.00.00	<b>CODES AND STANDARDS</b>			
1.01.00	The fire proof cable penetration (FPCP) sealing system shall conform to the requirement of latest edition including amendments of BS:476 Part-20 Fire tests on Building materials and structures.			
1.02.00	Fire penetration seal complying with any other international standards will also be considered if it ensures performance equivalent or superior to standard listed above.			
1.03.00	The Bidder shall clearly indicate the standards adopted and furnish a copy of the English version of the latest editions of standards along with the bid, and shall clearly bring out the salient features for comparison.			
2.00.00	<b>SYSTEM DESCRIPTION</b>			
2.01.00	The fire proof cable penetration sealing system shall be of the following types;  i)       Type - A  Type A fire sealing system is either Silicone foam or equivalent foam system or using individual blocks for each cable along with suitable frame work rated for one hour. Type A is to be implemented at floor openings below C&I panels, control panels/Boards etc. in CER & CCR.			
2.02.00	The penetration system, shall be installed immediately after the completion of cable termination in a particular switchboard/control panel/area after clearance from the Project Manager.			
3.00.00	<b>GENERAL INFORMATION</b>			
3.01.00	The cables shall generally be laid in cable trays/racks, conduits, ducts. The fire proof cable penetration system shall be designed in such a way that the existing supporting structure/cable is not disturbed.			
3.02.00	The penetration system shall be suitable for site condition at 50 <sup>0</sup> C ambient temperature and relative humidity of 100%.			
3.03.00	The penetration system of each wall/floor crossing shall be adequately designed/sized such that 20% addition of cables is possible at any later date without disturbance/wastage of material in the penetration system.			
3.04.00	Contractor shall plan the schedule of supply of the materials in consultation with Project Manager and use the material within stipulated shelf life of material. After award of work, drawings for each penetration seal shall be prepared by the contractor after verifying the			
NORTH KARANPURA STPP (3 X 660 MW) EPC PACKAGE		TECHNICAL SPECIFICATIONS SECTION VI, PART-B BID DOC. NO.:CS-4410-001-2	SUB SECTION B-11 FIRE PROOF CABLE PENETRATION SEALING	Page 1 of 7




CLAUSE NO.	TECHNICAL REQUIREMENTS			
	<p>actual installation of cables at site and approval shall be taken from the Project Manager's representative before proceeding with the actual work. The requirement of fire sealing material shall be quantified accordingly.</p> <p>Fire sealing material to be supplied shall be based on the net area to be sealed, wastage, thickness, density and other parameters as per the type test report approved under this contract.</p>			
4.00.00	TECHNICAL REQUIREMENTS			
4.01.00	The fire proof cable penetration system shall fully comply with the requirements of BS:476 Part-20 and also to the requirements specified in this specification.			
4.02.00	The penetration system shall prevent spreading of fire in cable beyond the seal system in case of fire and shall have minimum 1 hour fire resistance rating.			
4.03.00	The penetration system shall be physically, chemically, thermally stable and shall be mechanically secure to the masonry/concrete/structural members. The system shall be mechanically robust and capable of giving satisfactory performance under vibrations encountered in power stations.			
4.04.00	The penetration system shall be capable of withstanding mechanical loads, foot traffic drop loads, vibrations, wind pressure, etc.			
4.05.00	The penetration system shall be completely gas and smoke tight.			
4.06.00	The penetration system shall retain integrity and perform satisfactorily even after remaining in water for long period.			
4.07.00	The materials used in FPCP sealing system shall be non-toxic and harmless to the working personnel.			
4.08.00	The penetration materials shall have no reaction with cable sheath/galvanising/painting of structural steel.			
4.09.00	The penetration materials shall have anti-rodent and anti-termite properties.			
4.10.00	The penetration materials shall have no shrinkage or cracking after the setting for the complete life of the power Plant.			
4.11.00	Under normal load, short circuit and fire conditions, cables may be subjected to movement and vibration. The FPCP sealing system shall be designed to withstand and perform satisfactorily under these conditions.			
4.12.00	The penetration system shall not affect the current carrying capacity of cables passing through it.			
4.13.00	Asbestos shall not be used in the construction of fire penetration seal system.			
4.14.00	The penetration system shall have life expectancy of 40 years.			
NORTH KARANPURA STPP (3 X 660 MW) EPC PACKAGE		TECHNICAL SPECIFICATIONS SECTION VI, PART-B BID DOC. NO.:CS-4410-001-2	SUB SECTION B-11 FIRE PROOF CABLE PENETRATION SEALING	Page 2 of 7

CLAUSE NO.	TECHNICAL REQUIREMENTS			
4.15.00	The penetration system shall not emit any corrosive or toxic fumes or smoke on the unexposed face of the barrier.			
4.16.00	Any wastage of the compound during the process of mixing for preparing the FPCP sealing compound shall be to Contractor's account.			
4.17.00	For foam type of systems, only the foam shall form the penetration seal of specified rating having the damming board removed after curing of the foam.			
5.00.00	<b>PACKING AND STORAGE</b>			
5.01.00	All materials and components of penetration system shall be supplied in packing to avoid contamination of materials due to dust/moisture and temperature during transit and storage. All packing shall be of durable quality and the date of expiry and the date of manufacture shall be printed on it.			
6.00.00	<b>INSTALLATION</b>			
6.01.00	The contractor shall take adequate care to ensure that cables are not damaged in any manner during penetration system installation.			
6.02.00	Wherever the floor/wall opening provided in the vicinity of penetration seals larger or smaller than that required for the cable fire penetration, these opening size can be reduced or increased in an approved manner by the contractor using the same materials as provided around the opening and of the same thickness. Generally the walls in the power station comprises of brickwork and the floors are made of RCC/steel work.			
6.03.00	The work to be carried out under this specification shall be done under the supervision of Project Manager's representative.			
6.04.00	All work shall be carried out in accordance with the agreed "field quality plan" and approved drawings. The "field quality plan" shall additionally specify the fire sealing material thickness, minimum cured density and other related parameters achieved in the approved type tests for the contract. The work shall be done to the satisfaction of the Project Manager and the same shall be subject to Project Manager's approval for acceptance.			
6.05.00	The installation shall be carried out in a neat workmen like manner by the skilled, experienced and competent workmen.			
6.06.00	Installation work at site shall be properly coordinated with other services.			
6.07.00	All materials being supplied or consumed during installation by the Contractor in the process of installation shall be of the best quality and according to relevant standards. All materials shall be inspected and approved by the Project Manager before the same is used for installation work. Also regarding inspection of work, the engineer shall have the right to inspect at any stage during installation, testing and commissioning.			
6.08.00	The drilling and welding of building-steel or fixing supports etc. shall be carried out by contractor after taking prior approval of Project Manager.			
NORTH KARANPURA STPP (3 X 660 MW) EPC PACKAGE		TECHNICAL SPECIFICATIONS SECTION VI, PART-B BID DOC. NO.:CS-4410-001-2	SUB SECTION B-11 FIRE PROOF CABLE PENETRATION SEALING	Page 3 of 7

CLAUSE NO.	TECHNICAL REQUIREMENTS			
7.00.00	TYPE TESTS, ROUTINE & ACCEPTANCE TESTS			
7.01.00	All equipment to be supplied shall be of type tested design. During detail engineering, the contractor shall submit for Owner's approval the reports of all the type tests as listed in this specification and carried out within last ten years from the date of bid opening. These reports should be for the test conducted on the equipment similar to those proposed to be supplied under this contract and the test(s) should have been either conducted at an independent laboratory or should have been witnessed by a client.			
7.02.00	However if the contractor is not able to submit report of the type test(s) conducted within last ten years from the date of bid opening, or in the case of type test report(s) are not found to be meeting the specification requirements, the contractor shall conduct all such tests under this contract at no additional cost to the owner either at third party lab or in presence of client/owners representative and submit the reports for approval.			
7.03.00	All acceptance and routine tests as per the specification and relevant standards shall be carried out. Charges for these shall be deemed to be included in the equipment price.			
7.04.00	The type test reports once approved for any projects shall be treated as reference. For subsequent projects of NTPC, an endorsement sheet will be furnished by the manufacturer confirming similarity and “No design change”. Minor changes if any shall be highlighted on the endorsement sheet.			
7.05.00	Following Type test reports as per the setup and procedures given in subsequent clauses for the Fire proof cable penetration sealing system shall be submitted:  a) The accelerated ageing test b) Water absorption test c) Fire rating test d) Hose stream test e) Vibration test followed by fire rating test			
7.05.01	Tests a, b, c and d should have been carried out on same test sample subsequently one after the other without any touching up/repair/modifications in the same sequence and in accordance with the clause 9.00.00. The test sample shall be assembled as per clause 8.00.00.			
7.05.02	Test indicated in clause 7.05.00 (e) above should have been carried out on a separate sample and as per the procedure indicated under clause 9.05.00.			
7.05.03	Physical, chemical and mechanical properties of various components/ingredients used should have been also be tested as a part of type tests.			
7.05.04	Test reports shall contain the following information:  1. Type of penetration material tested			
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CLAUSE NO.	TECHNICAL REQUIREMENTS			<div>एनटीपीसी NTPC</div>
7.06.00	2.	Details of various components/ingredients used alongwith their catalogue.		
	3.	Physical, chemical and mechanical properties of various components/ ingredients used.		
	4.	Description of the various test assemblies tested.		
	5.	Details of method of conditioning.		
	6.	The observations as called for in BS:476 Part-20 and technical specification.		
	<b>ROUTINE &amp; ACCEPTANCE TESTS</b>			
	Routine and acceptance tests to be carried out on Type-A cable fire sealing system shall be mutually agreed based on the type of fire sealing material offered before placement of award.			
	8.00.00	<b>TEST SPECIMEN ASSEMBLY</b>		
	8.01.00	The test specimen shall be assembled as per enclosed drawing and shall resemble typical floor crossing cable penetration system.		
	8.02.00	The test specimen shall be designed to seal an opening of adequate size in a concrete slab of 200 mm thickness. Two lengths of 300/600 mm wide ladder type cable tray shall be assembled with required layer of XLPE/PVC insulated, PVC sheathed unarmoured cables in touching formation. Type and number of cables in the cable tray shall be as per enclosed drawing. Cables shall be adequately clamped with tray at both the sides of the penetration as shown in the drawings. However, for penetration system with blocks which require staggered arrangement, cables can be clamped at an adequate distance from the penetration and the tray need not pass through the penetration seal.		
8.03.00	The opening in the test specimen then shall be sealed with fire proof cable penetration sealing materials.			
9.00.00	<b>TEST PROCEDURES</b>			
9.01.00	<b>ACCELERATED AGEING TEST</b>			
	The test specimen assembled as per clause 8.01.00 with damming board removed shall be subjected to accelerated ageing test by storing in air furnace where the temperature of the inside air shall be maintained at 85 degree centigrade for 168 hours. The temperature controlled furnace should have 7 air changes per hour approx.			
9.02.00	<b>WATER ABSORPTION TEST</b>			
9.02.01	The test specimen shall be immersed in fresh clean water at a temperature of 20 deg. C $\pm$ 2 deg C. The test specimen must be separated from the bottom and sides of the soak tank by at least 10 mm and it shall be covered by approximately 25 mm of water. At the end of the 24 hour soak period the specimen shall be removed from water and mopped up with a damp cloth.			
NORTH KARANPURA STPP (3 X 660 MW) EPC PACKAGE		TECHNICAL SPECIFICATIONS SECTION VI, PART-B BID DOC. NO.:CS-4410-001-2	SUB SECTION B-11 FIRE PROOF CABLE PENETRATION SEALING	Page 5 of 7

CLAUSE NO.	TECHNICAL REQUIREMENTS			
9.03.00	<b>FIRE RATING TEST</b>			
9.03.01	The test specimen after withstanding water absorption test shall be subjected to fire rating test as per BS: 476 part-20.			
9.03.02	Oil/Gas fired furnace shall be used for heating. The furnace shall have achieved standard time/temperature characteristics for fire tests as per BS:476 part-20.			
9.03.03	The pressure inside the furnace at the time of test shall be within $1.5 \pm 0.5$ mm water gauge.			
9.03.04	Cables in the test specimen shall be anchored on the hot side to a structure independent of the barrier and its penetrations. This is to ensure that any differential movement between the penetration and the cable that could occur during a fire, is produced in the type tests and the reliability of the integrity of the penetration is checked.			
9.03.05	Cables shall be protruding between 1 to 2 metre, from the penetration face on the unexposed side and protruding into the furnace as far as it is practicable with a minimum length 750 mm. The ends of the cables shall be capped on the unexposed face to prevent gases and fumes to escape from the furnace during the fire.			
9.03.06	The test specimen shall be subjected to fire test with surface exposed to controlled fire in the furnace confirming to time/temperature characteristics specified in BS:476(20).			
9.03.07	During the test the temperature of both the faces of the fire stop i.e. one which is exposed to fire and other unexposed shall be measured by calibrated thermo couples after regular interval of 5 minutes.			
9.03.08	Atleast 3 thermo couples shall be provided for temperature measurement of each face. The results at the end of the test shall be interpreted for failure criteria as under.  1. The system is deemed to have failed to maintain stability if there is a total collapse of the fire proof seal.  2. In case cracks are seen on the face of the fire stop or cracks through which the flame/ hot gas can pass the systems deemed to have failed to maintain integrity.  The development of crack is characterised by appearance of black soot on cotton wool held near the penetration on the unexposed surface at a distance of about 100mm.  3. Failure shall be deemed to have occurred when the mean temperature of the unexposed surface of the specimen assembly increases by more than 140 <sup>0</sup> C above the initial temperature or if the temperature of the unexposed surface is increased at any point by more than 180 <sup>0</sup> C above the initial temperature.  During the test the specimen shall meet all the three criteria simultaneously.			
9.03.09	Temperature measurement on the unexposed side of penetration seal shall be measured by thermocouples at a distance of 25 mm from unexposed side of fire stop.			
NORTH KARANPURA STPP (3 X 660 MW) EPC PACKAGE		TECHNICAL SPECIFICATIONS SECTION VI, PART-B BID DOC. NO.:CS-4410-001-2	SUB SECTION B-11 FIRE PROOF CABLE PENETRATION SEALING	Page 6 of 7



CLAUSE NO.	TECHNICAL REQUIREMENTS			<div>एनटीपीसी NTPC</div>
9.04.00	<b>HOSE STREAM TEST</b>			
9.04.01	A hose stream test shall be conducted on the test specimen immediately following a fire resistance test on that assembly. The specimen must first be removed from the furnace since the hose stream is to be applied to the exposed face. This must be done quickly since it is the intention of the test that the stream be applied to the specimen whilst it is hot.			
9.04.02	The hose stream shall be long range narrow angle, (20 <sup>0</sup> - 90 <sup>0</sup> set at 30 <sup>0</sup> included angle). High velocity water spray provided from a 28 mm hose discharging through an appropriate nozzle. The water pressure shall be 5 bar calculated at the base of the nozzle and the minimum flow rate shall be 4.7 litres/second. The stream shall be supplied perpendicularly to the exposed face of the test specimen with nozzle 3 m away from the exposed face.			
9.04.03	Application shall be for minimum of two and a half minutes per 9 sq.m. of the test specimen including the barrier.			
9.05.00	<b>VIBRATION TEST</b>			
9.05.01	The test assembly is to comprise a single ladder rack penetration in 1 m x 1m high normal section of fire barrier which is securely supported. The penetration seal shall be formed in the middle of the barrier around 1 m length of 600 mm ladder rack. The tray shall be fully loaded with cables in touching formation. The penetration assembly shall be formed symmetrically through the fire barrier as in service. The penetration sealant material shall then be allowed to cure for atleast as long as the time required for conditioning to constant mass. A vibration test shall then be conducted on the sample as set out below.			
9.05.02	The vibration shall be of 100 Hz frequency and of 0.5 mm amplitude (1.0 mm peak to peak) and this shall be applied to one rail of the ladder rack or the centre of a cross member secured to the two rails at 250 mm from the centre line of the penetration. This vibration shall be applied to the sample for the minimum period of 3 hrs. Immediately following this vibration test the barrier/ penetration assembly shall be successfully subjected to a fire test in accordance with clause no. 9.03.00.			
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**TECHNICAL SPECIFICATION FOR  
FIRE SEALING SYSTEM  
SUPPLY & INSTALLATION**

**NORTH KARANPURA STPS (3X660MW)**

SPECIFICATION NO. PE-TS-405-507-E016

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**DATASHEET**

**(Guaranteed technical Particulars to be submitted along with the bid)**  
**(Parameters filled in bold are technical specification requirement, hence prefilled)**

**1.0 GENERAL**

1.1 Name of vendor : .....

1.2 Address : .....

**2.0 APPLICABLE STANDARDS**

2.1 ASTM-E-814 & ASTM-E-119 For fire rating test and hose Stream test : YES / NO

2.2 IS-12458: Method of fire resistance test of fire stop : YES / NO

2.3 UL-1479: Standard test methods for Fire resistance rating : YES / NO

2.4 BS-476: Standard test methods for Fire resistance rating : YES / NO

**3.0 TECHNICAL DETAILS**

3.1 Type of Fire stop system : .....

**Type A [ Silicone Foam/ Equivalent Foam  
/ individual blocks for each cable]**

3.2 Fire rating : **Minimum One (1) hour**

3.3 Pressure withstand capacity of Fire stop : ..... kg/mm<sup>2</sup>

3.4 Weight of fire stop assembly (without cables) : ..... kg/mm<sup>2</sup>

3.5 Shelf life of most perishable Material : **Minimum 12 months**

3.6 Life of total assembly : **Greater than 40 years**



**TECHNICAL SPECIFICATION FOR  
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3.7 Suitability of fixing arrangement : **In masonry work/ In concrete work**

3.8 Surface Treatment of Steel Material  
(for frame work as applicable)

- a) Surface protection : **Galvanization conforming to IS:2629 (If Applicable)**
- b) Mass of Zinc : **Minimum 460 g/m<sup>2</sup> (If Applicable)**



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**SECTION – II**

**STANDARD TECHNICAL REQUIREMENTS**



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**1.0 CODES AND STANDARDS**

- 1.1 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.
- 1.2 The design, material, construction, manufacture, inspection, testing and performance of Fire Sealing System shall conform to the latest revision of relevant standards as per Data Sheet. Any other international standards will also be considered if it ensures performance equivalent or superior to standards listed.
- 1.3 In case of conflict between the applicable reference standard and this specification, this specification shall govern.

**2.0 TECHNICAL REQUIREMENTS**

- 2.1 Fire sealing system shall be supplied as per technical particulars specified in Data Sheet and Section-II.

**2.2 DESIGN REQUIREMENTS FOR FIRE STOP SYSTEM**

**2.2.1 FIRE STOP SYSTEM**

- a) **Type-A:** Silicon foam based or equivalent foam system or using individual blocks for each cable along with suitable frame work rated for ONE hour. This is to be implemented at floor openings below C&I panels, control panels/ boards etc. in CER & UCR/main control room.
- 2.2.2 The fire stop system, in case of fire, shall prevent spreading of fire in cables/systems beyond the fire stops.
- 2.2.3 Cables shall be generally laid in cable trays and fire stop system shall be designed in such a way that the basic supporting structure of cables is not disturbed.
- 2.2.4 The system shall be retrofit design, physically and chemically stable.
- 2.2.5 The system shall be mechanically secured to the masonry work/concrete work to resist dislocation.



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2.2.6 The system shall remain unaffected due to any vibrations or expansion in cables. The system must also remain unaffected due to adverse temperature and humidity variations in the atmosphere. The system shall be suitable for ambient temperature of 50°C and relative humidity of 100%.

2.2.7 The system should be equally effective in horizontal & vertical formations.

2.2.8 The system should not affect the current carrying capacity of cables passing through the fire stop.

2.2.9 The system should provide firm grip on the outer surface of the cable in the event of fire.

2.2.10 The system shall be capable of withstanding mechanical loads, foot traffic, drop loads and wind pressure etc.

2.2.11 The fire stop system shall be completely gas & smoke tight.

2.2.12 Materials used for fire stop system shall meet the following requirements:

- a) Should not get affected over a period of time due to humidity, moisture, ozone and variation in ambient temperature.
- b) Should not contain volatile solvents after the setting period of system.
- c) Should be able to withstand stresses due to expansion/ vibrations.
- d) Should be free from shrinkage and cracking and should maintain smoke and gas tightness during fire.
- e) Should not react with cable sheaths, galvanized and painted steel material etc.
- f) Should be easy to apply/ install using conventional methods.
- g) Should be non-toxic and harmless to the working personnel
- h) Should have anti –rodent properties and should be repellent to pest & termites.
- i) Should not produce any acid or alkali during gas generation.
- j) Should not produce suffocating/ corrosive gas.



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- k) Should have a very low Expansion co-efficient, which is to be comparable with masonry concrete.
- l) Should not be soluble and reactive to acid and alkali water.
- m) Should have a low thermal conductivity.
- n) The material in contact with the cables in the fire-proof sealing system shall be compatible with the material used for outer sheath of cables.
- o) For foam type systems, only the foam shall form the penetration seal of specified rating, having the damming board removed after curing of foam.

2.2.13 The system shall have a fire resistance rating of duration as per Data Sheet-A. Fire resistance rating shall be in accordance with ASTM E-119, ASTM E-814, BS-476, UL-1479 and integrity & stability shall be maintained by the system after application of water jet on the exposed side in order to extinguish fire.

### 2.3 WELDING

- a) All welded connections if applicable shall be made by electric arc welding. All welding work shall be carried out by qualified and experienced welders and adequately protecting the already laid cables.
- b) All arc welding shall be carried out with low hydrogen content electrode.
- a) All welded connection shall be allowed to cool down gradually to atmospheric temperature before putting any load on them. No artificial cooling should be adopted to cool welded joints.

### 2.4 SURFACE TREATMENT

#### 2.4.1 Supply items:

Surface treatment of all material supplied shall be done as applicable in an approved manner and as per the specific requirements given in the Data Sheet-A. Surface treatment shall include following steps:





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- a) Pretreatment: Pretreatment shall conform to the requirements of IS: 6005. The clean and dry pretreated surface shall be given a coat of red oxide primer paint and shall be left for natural drying.
- b) Galvanizing: Articles shall be hot dip galvanized after pretreatment. The galvanizing shall be done in accordance with IS: 2629. The galvanizing shall be uniform, clean, smooth, continuous and free from free acid spots. The amount of zinc deposit shall not be less than the value specified in Data Sheet-

**2.4.2 After erection:**

- a) Galvanized items shall be given a surface treatment only at the welded joints and at the places where the galvanization has been damaged. Welded joints shall be applied with two coats of cold zinc paint whereas damaged portions of galvanizing shall be applied with single coat of zinc paint.
- b) In addition to the above, the vendor shall ensure after completion of fire stop system that the final finish of all surfaces of materials is in good condition and wherever needed a touch up of cold zinc paint shall be given.
- c) The final finish of all erected materials shall be uniform, clean, smooth and free from spots.

**3.0 QUALITY ASSURANCE REQUIREMENTS**

- 3.1 At contract stage, the successful bidder shall submit the Quality Plan in attached BHEL format 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 minor changes in Quality Plan during contract stage.
- 3.2 Stages of quality control shall include but not be limited to the following:
  - a) Verification of test certificates for materials before dispatch.
  - b) Visual inspection of materials before dispatch (as applicable).
  - c) Testing of materials before dispatch.
  - d) Inspection of packing before dispatch.
  - e) Quality checks during erection.
  - f) Inspection & testing of fire stops after erection.





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- 3.3 All materials shall be procured, manufactured, inspected and tested by vendor/ sub-vendor as per approved Quality Plan.
- 3.4 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.
- 3.5 In addition to meeting the type test requirements, material/ batch test certificates conducted at the premises of the bidder's principals for the supplies to be made for the project shall be submitted for BHEL/ CUSTOMER review and clearance.
- 3.6 All acceptance & routine tests as per relevant standards & specification shall be carried out. Charges for these shall be deemed to be included in the bid price.
- 3.7 Installation at site shall be as per parameters (i.e. minimum cured density & minimum thickness) achieved during type testing. In case type test waiver is given based on past type test certificates, installation shall be carried out as per the type test certificates accepted.
- 3.8 The successful bidder shall submit Field Quality Plan for storage, preservation, handling and erection work at site for fire-sealing system. The same shall subject to CUSTOMER/ BHEL approval without any commercial implications. Fire sealing shall be as per approved installation drawings.

#### **4.0 TESTING**


##### **4.1 FIRE STOP SYSTEM**

- 4.1.1 The system offered shall comply with the following type tests and test reports shall be submitted along with offer:

- a) Accelerated aging test
- b) Water absorption test
- c) Fire rating test
- d) Hose stream test
- e) Vibration test followed by fire rating test

Tests at Sl. No. a), b), c) & d) should have been carried out on the same test sample, subsequently one after the other without any touching up / modification/ repair in the same sequence and in accordance with clause 5.

- 4.1.2 System shall be subjected to structural stability test, which shall be conducted at site.

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4.1.3 Test reports shall contain the following information: -

- a) Type of penetration material tested.
- b) Details of various components/ ingredients used along with their catalogue.
- c) Physical, chemical and mechanical properties of various components/ ingredients used.
- d) Description of the various test assemblies tested.
- e) Details of method of conditioning.
- f) The observations as called for in BS 476 part-20 & technical specification.

4.2 Test details are listed under clause 5.0.

4.3 System offered shall be **type tested** at CBRI, Roorkee or by government approved Independent agency.

- a) The bidder shall furnish the reports of all the type tests for fire sealing system materials. These reports should be for the tests conducted on identical materials to those offered/ proposed to be supplied under the contract
- b) In case bidder is not able to submit report of type test(s) conducted or in case type test report(s) are not found to be meeting the specification/ relevant standard requirements, then all such tests under the contract shall be conducted free of cost to the owner, and reports shall be submitted for approval. No charges shall be paid under this contract.

4.4 Type Test charges:

- a) In case type test certificates are available with vendor & acceptable to BHEL/ CUSTOMER and still vendor being asked to conduct type testing and type tests successfully conducted, the type test charges shall be payable to vendor at actual against Original money receipt of CBRI Roorkee/ Govt approved lab.
- b) In case type test certificates are not available with the vendor or available with the vendor but not acceptable to BHEL/ CUSTOMER and vendor being asked to carry out type testing, and type testing successfully conducted, the type test charges by the vendor shall not be payable.

4.5 BHEL/ CUSTOMER reserve the right to witness type testing on any one lot for the project without any commercial implications.

## 5 TEST DETAILS



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**5.1 FIRE STOP SYSTEM****5.1.1 Accelerated aging test:**

The fire stop system specimen shall be subjected to accelerated ageing test for 168 hours. During the test, the system/ components shall be placed in air furnace where the temperature of inside air shall be maintained at 85 deg. C. The specimen shall be taken out of the furnace after 168 hours for water absorption test. The temperature controlled furnace should have 7 air changes per hour appx.

In case the mechanical properties before and after the accelerate aging do not indicate substantial change, the system shall be deemed to have passed the accelerated aging test. Similarly the variation in the form of the system/ component at the end of the test shall not indicate permanent deformation which is likely to affect the sealing properties of the system.

**5.1.2 Water absorption test:**

The test specimen shall be immersed in fresh clean water at a temperature of  $20 \pm 2$  deg. C for a period of minimum 24 hrs. At the end of 24 hour soak period, the specimen shall be removed from water and mopped with a damp cloth. The specimen shall thereafter be subjected to the live fire test as per clause 5.1.3 below.

5.1.3 Fire rating test: shall be done as per ASTM E 814/BS:476/UL:1479/IS:12458.


5.1.4 Hose stream test: Test shall be conducted on the test specimen immediately after fire resistance test as per ASTM E 119

5.1.5 Vibration test: The test specimen shall be subjected to vibration of 100Hz frequency and 0.5 mm amplitude for a minimum period of 3 hours.

**6.0 APPLICATION OF FIRE SEALING SYSTEM SHALL BE AS UNDER:****6.1. FIRE SEALING SYSTEM**

- a) The various openings below Control Equipment room shall be provided with fire stop systems. Cables passing through the openings at various locations are laid on various tiers of the cable trays/racks in the bunch formation. In case, for the purpose of installation of seal system, steel frames are required to be fabricated and fixed in the openings, the fabrication of frame and fixing of the same shall have to be done by the Contractor. The necessary steel section for fabrication of frames shall be supplied by the Contractor without any extra cost. Any, civil works required to be done in the openings shall be



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carried out by the Contractor. Bidder shall also include one set of tools and accessories required for addition or removal of cables after the seal is made. This shall include special tools, compound injection guns, spray guns, etc.

- b) All openings in the floor for cable access shall be sealed after installation of the cable system with non-inflammable materials, as follows:
  - i) Fire stop/ Penetration seal shall be installed in the cable spreaders and cable raceways.
  - ii) For all relay and control panels, Control desk, instrumentation panels and other miscellaneous panels, fire stops should be provided below base plate. The non-inflammable type sealing material shall be supplied by the contractor.

## 7.0 **PRICES**

7.1 Unit prices listed out in this clause shall be applicable for payment to the vendor for activities covered under this specification. The Unit prices shall be inclusive of:

- a) Design, manufacture, testing at works, packing, supply, transportation to site, handling at site of the fire stop system materials.
- b) Visual inspection & transportation of materials from vendor's/owner's storage yard to work site, handling, testing including supply and installation of all associated materials and consumables, carrying out of all associated minor civil works and furnishing of all skilled/unskilled labour and supervisory staff.
- c) Provision of fasteners like nuts, bolts, washers, spring washers, rawl plugs, anchoring bolts and lugs etc.
- d) Provision of all sealing compounds for floor openings below panel.
- e) Consumables like enamels, cold zinc paint, electrodes for welding etc.
- f) Minor civil works like chipping/breaking of floors and masonry work for reducing/closing of openings on floor including supply of materials like cement, sand, bricks etc. as required. Any work as described above to the extent of 200 mm on all sides of openings on floors for the purpose of fitting the actual fire stop assembly shall be deemed to have been included in the unit prices of fire stop assembly.
- g) Provision of all facilities/equipment for all site fabrication such as cutting, bending and drilling equipment.



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- h) Provision of welding sets.
- i) Provision of special tools and tackles for erection.
- j) Provision of all testing equipment and conducting the specified test after erection at site.
- k) Wherever the floor opening provided in the vicinity of penetration seals larger or smaller than that required for cable fire penetration, these opening size can be reduced or increased in an approved manner by the bidder using the same materials as provided around the opening and of the same thickness.

7.2 Requirement of Quality Plan and Field Quality Plan shall be considered in the quoted prices.

**8.0 MEASUREMENT & WASTAGES**

- 8.1 Quantity measurement: For all payment purpose, measurement shall be made on the basis of the execution drawings/physical measurements. Physical measurements shall be made by vendor in the presence of Site Engineer.
- 8.2 Wastage Allowance: No wastage allowance is permissible. All wastages shall be to the account of vendor.

**9.0 ADDITIONAL POINTS OF CONSIDERATION**

- 9.1 Bidder shall be deemed to have confirmed to the specification in toto.
- 9.2 All work shall be carried out in accordance with the agreed field quality plan and approved drawings. The field quality plan shall additionally specify the fire sealing material thickness, minimum cured density and other related parameters achieved in the approved type tests for the contract. The work shall be done to the satisfaction of purchaser and acceptance of the work shall be subject to the purchaser's approval.
- 9.3 The work to be carried out under this specification shall be done under the supervision of purchaser's/owner's representative.
- 9.4 The installation work at site shall be properly coordinated with other services.
- 9.5 All materials, equipment, instrument, hardware, tools, consumables, fasteners, accessories whether specifically mentioned or not in offer required for complete installation and testing in



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all respect and to the satisfaction of Engineers will be in the scope of vendor and no extra payment will be made for the same.

- 9.6 All materials being supplied or consumed during erection by the vendor in the process of erection work shall be of best quality and according to the relevant standard. All materials shall be got inspected and got approved by the Engineer before the same is used for erection. Also, purchaser reserves the right to carry out inspection of installation work at any stage during erection, testing and commissioning.
- 9.7 Any drilling and welding on building structural steel for fixing supports etc. will not be done without the prior written approval of Engineer.
- 9.8 Any work like chipping, or breaking of existing structure like floors, fabrication etc. shall be done after taking prior approval of Engineer.
- a) After installation of fire stops through a structure, the vendor shall repair/ refabricate the affected portion of structure.
  - b) Any wrong erection shall be removed and re-erected promptly to comply with requirement at no extra cost.
- 9.9 After completion of work the contractor shall remove all debris and Take back all erection implements, left - overs, surplus materials over and above the ordered quantity without any financial implications to either party.

**10.0 PERFORMANCE GUARANTEE**

Bidder shall guarantee that the system offered shall meet the requirements as indicated in this specification and as confirmed through various clauses of datasheets. If it is proved that the system doesn't conform to performance guarantee, the bidder should be ready to replace the faulty components/ equipment without any loss or extra cost to the purchaser.

**11.0 PACKING & STORAGE**

All material/ components of fire stop shall be supplied in proper packing to avoid contamination of material due to dust/ moisture and temperature during transit & storage. All packing shall be of durable quality and date of expiry & date of manufacture shall be printed on it. Space shall be provided by BHEL. Packing containers shall be suitable for storing on dry surface.







**PROJECT  
ENGINEERING  
MANAGEMENT**

**GENERAL CONDITIONS  
OF CONTRACT (GCC)**

**Revision no. 07**

**ANNEXURES**

**ANNEXURE– VIII**

**INTEGRITY PACT**

**Between**

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at “BHEL House”, Siri Fort, New Delhi – 110049 (India) hereinafter referred to as “The Principal”, which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

**and**

\_\_\_\_\_, (description of the party along with address), hereinafter referred to as “The Bidder/ Contractor” which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

**Preamble**

The Principal intends to award, under laid-down organizational procedures, contract/s for

\_\_\_\_\_. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

**Section 1 – Commitments of the Principal**

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.


1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

**Section 2 – Commitments of the Bidder(s)/ Contractor(s)**

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits



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himself to observe the following principles during his participation in the tender process and during the contract execution.

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/ PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and will await their decision in the matter.

### **Section 3 – Disqualification from tender process & exclusion from future contracts**

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors". framed by the Principal.


### **Section 4 – Compensation for Damages**

4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/Bid Security.

4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

### **Section 5 – Previous Transgression**

5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

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5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

#### **Section 6 – Equal treatment of all Bidders/ Contractors/ Sub-contractors**

6.1 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain

responsible for any default by his sub-contractors.

6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

#### **Section 7 – Criminal Charges against violating Bidders / Contractors / Sub-contractors**

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

#### **Section 8 –Independent External Monitor(s)**

8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.

8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality in line with Non-disclosure agreement.

8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.

8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.

8.7 The IEMs would examine all complaints received by them and give their recommendations! views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious



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irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.

8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.

8.9 IEM should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organization.

8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.11 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

8.12 The word 'Monitor' would include both singular and plural.

### Section 9 – Pact Duration

9.1 This Pact shall be operative from the date IP is signed by both the parties till the final completion of contract for successful bidder and for all other bidders 6 months after the contract has been awarded. Issues like warranty/ guarantee etc. should be outside the purview of IEMs.

9.2 If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as above, unless it is discharged/ determined by the CMD, BHEL.

### Section 10 – Other Provisions

10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders/ contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

\_\_\_\_\_  
For & On behalf of the Principal  
(Office Seal)

\_\_\_\_\_  
For & On behalf of the Bidder/ Contractor  
(Office Seal)

Place-----

Date-----

Witness: \_\_\_\_\_  
(Name & Address) \_\_\_\_\_

Witness: \_\_\_\_\_  
(Name & Address) \_\_\_\_\_

## **ANNEXURE-1**

### **INSTRUCTIONS FOR QUALITY PLAN**

The Quality Plan shall include all the Quality Control Measures and Checks adopted by the Vendor to ensure that the material/component/assembly/services supplied by him meet/will meet the requirements as per specifications and good practices. They shall include all stages of operation such as materials, processes, manufacture, assembly, packing and despatch. The following guide lines may be noted:

Column 1-	Serial Number
Column 2-	Component/Operation- The component and/or operation being checked shall be given here.
Column 3-	Characteristics check- The characteristics being checked shall be given here, e.g., chemical composition, mechanical properties, leak tightness, surface defects etc..
Column 4-	Category - 'CR' stands for critical characteristic - affecting safety of equipment and personnel 'MA' stands for major Characteristic - affecting safety of equipment and personnel 'MI' stands for minor characteristic - affecting appearance etc.
Column 5-	Type/Method of check e.g. chemical analysis tensile testing, hydraulic test, visual examination radiography etc.
Column 6-	Extent of check, such as, 100, 10, 1 percent etc.
Column 7-	Reference Documents - Documents, such as technical specification, drawings, standard specifications (IS, BS ETC.) procedure, etc. according to which check is done.
Column 8-	Acceptance Norms - Standards etc. according to which acceptability or otherwise of the characteristics being checked is decided.
Column 9-	Format of Record - Formats, log shets, reports, etc. in which the observations are recorded. Standard log sheets, reports, formats etc. of the Vendors shall be numbered and such reference numbers shall be included here.
Column 10-	Agency - The agency which performs the test/instruction shall be written in sub-column 'W' The agency which verifies test certificates/inspection records and carries out audit check of the components/operation shall be written in sub-column 'V' The agencies are codified as 1,2 & 3 '1' stands for (BHEL) '1' * means the operation shall be cleared by BHEL before the start of the next operation. '2' Stands for Vendor '3' stands for sub-Vendor of the Vendor and so on.
Example :	
Entry	'3' in column 'P' means test./inspection to be performed by sub-Vendor's QC
Entry	'2' in column 'W' means test./inspection to be witnessed by Vendor's QC
Entry	'1' in column 'V' means verification shall be done by BHEL and next stage to be started only after the hold point is cleared by BHEL
Column 11-	Remarks - Any special remarks shall be given here.

#### **NOTES :**

1. In absence of correlation with the test certificate(s) (e.g. material identification) samples shall be drawn bgy BHEL and all tests as per relevant specifications shall be carried out in their presence or in recognized Government Laboratory.
2. When materials and components are initially identified and stamped by BHEL QS engineer, the identification marks shall be preserved till despatch. Wherever this is not possible, the identification mark shall be transferred to the components in the presence of BHEL QS Engineer unless other wise agreed.
3. For castings and forgings integral test specimens shall be provided, When this is not possible for casting, they shall be poured in the presence of BHEL QS Engineer unless otherwise, if witnessing of test by BHEL is called for.
4. When welders qualified by reputed inspection agencies or statutory bodies are not available, qualification tests shall be conducted in the presence of BHEL QS Engineer.
5. This Quality Plan is liable to be modified as per the requirements of approved drawings and changes in technical specifications/drawings. If there are contradictions in respect of column 7 & 8 between this Quality Plan and the approved drawings specifications, the latter shall prevail.
6. Wherever inspection by BHELs Purchaser/Third Party/Statutory authorities are mandatory, this shall be compiled with.
7. Inspection reports, log sheets, test reports/certificate. etc. shall be furnished to BHEL at the appropriate stages or at the time of final inspection, as required.
8. This Quality Plan is also applicable to spares, if any, under scope of supply of Vendor.
9. The quality plan shall be submitted in minimum 4 copies with a soft copy of the same or in line with contract requirements.