NTPC Limited
CC-OS, EOC Noida

Subject: **Qualifying requirement & other details for Centralised vendor enlistment –**

<table>
<tr><td>A)</td><td colspan="2">Details of MEG (Material Enlistment Group)</td></tr>
<tr><td></td><td>MEG No</td><td>46MEG-01A</td></tr>
<tr><td></td><td>MEG Description</td><td>Wear Parts (Grinding Rolls & Bull Ring Segment) of Raymond Bowl Type XRP / HP Pulverisers, Grinding Roll size 28/29 inches</td></tr>
<tr><td></td><td>Responsibility Centre</td><td>NTPC Central Procurement Cell, EOC NOIDA</td></tr>
<tr><td>B)</td><td colspan="2">Technical Criteria of QR:

<u>Option-1:</u>
The applicant should be manufacturer of vertical type coal pulverizers and should have supplied such coal pulverizers to at least two coal fired units, each of 200 MW or higher capacity, located at two different power stations and which are in successful operation for at least two years as on the date of application

<u>Option-2:</u>

a) The applicant should be manufacturer of grinding rolls of Raymond Bowl type (XRP/HP) coal pulverizers & they should have supplied at least 75 nos. (Seventy five nos.) of grinding rolls of 36 inch (Thirty six inches) or higher size (& of same type** which applicant wants to be enlisted) with matching bull ring segments, for Raymond Bowl type (XRP/HP) coal pulverizers during the last five years in India.

AND

b) The applicant should have supplied 39 nos. of grinding rolls (Raymond Bowl type XRP/HP) of any type** & any size between 28 inch to 63 inch & they should have performed for 6000 hours and more in India.

AND

c) 12 nos. of grinding rolls supplied by the applicant of size 28 inch or higher and type** for which the applicant wants to get enlisted should have performed for 6000 hours or more in India.

AND

d) Applicant should either himself or through a company/agency in which he has controlling stake, own following manufacturing & testing facility for use by the applicant for manufacturing of the grinding rolls

<u>Manufacturing facilities</u>
i) Capability to manufacture Grinding rolls of size up to 29 inch.</td></tr>
</table>

ii) Bull ring segments Induction / cupola /induction arc furnace for melting iron two Tons or above
iii) Machining facilities for inside bore
iv) Centrifugal Casting machine to accommodate grinding rolls of 2000kg (in case applicant wants to get enlisted for Ni-hard type rolls).

Testing Facilities

i) Testing Chemical composition ii) Magnetic Particle testing machine

Option-3

a) The applicant should be an Indian manufacturer of grinding rolls & they should have supplied at least 24 numbers of Grinding Rolls of any type & any size for vertical type Coal pulverizes as on the date of application.

And

b) The applicant should have ongoing collaboration with a manufacturer who meets all the qualifying requirements as stipulated at clause at option-2 (in India or abroad)

And

c) The applicant shall furnish a deed of joint undertaking (DJU) with his collaborator for successful performance of the grinding rolls to be offered by him. The deed of joint undertaking shall be submitted along with the enlistment application, failing which enlistment application shall not be considered.

And

d) The applicant should have manufacturing and testing facilities in India as given in option 2(d) above

And

e) The applicant shall offer only the type of grinding rolls for which his collaborator is qualified (when tenders are issued to them). A declaration has to be given by the application in this regard with clearly mentioning the "type" of the grinding rolls.

And

f) The applicant should give a certificate that his collaborator is not applying for enlistment. If it is found that his collaborator is already enlisted or the collaborator is also applying for enlistment, then the application of the applicant adopting this option-3 shall not be considered.

	Notes i. **-Type of Grinding Roll means “Sinter Cast” / “Duocast”/ “Xwin”/ “High Performance” (“HP”) / “Ni-hard”/”High chrome”/”Carbide inserts” etc. Type may be broadly defined as per the base constituents of material used for production of grinding elements and process of production such as Ni-hard or Sintercast or Duocast or XWIN or Carbide Inserts or High Performance or High chrome type etc. ii. For consideration of Type of Grinding Roll against qualifying requirement clauses (a) and (c) of option-2, the type of grinding roll should be mentioned at one place anywhere either in the Purchase Order or in invoice or in test certificate or in Quality plan or in Performance certificate related to that PO. Even if the type description is not given in PO or invoice, then also type can be considered from any one of the other documents as mentioned above. iii. The applicant must declare the type of grinding roll for which they want to get enlisted in NTPC in this enlistment group. If they want to get enlisted for more than one type, then they must give separate set of documents for all those types. iv. Last five year as given at clause 2(a) shall be reckoned from the date of final submission of online application in NTPC enlistment portal & supply invoice dates should fall in this period, irrespective of the date of purchase orders. v. To be considered as qualified, an applicant has to meet all the requirements of either of Option-1 or Option-2 or Option-3 .
C)	**Documents to be submitted as proof of meeting the stipulated Qualifying Requirements:** Option-1 :- Self declaration along with documentary evidence like details of manufacturing facilities/ Pulverizers supplied, details of their operation etc. Option-2:- Clause (a) - Details of Manufacturing, ISO certificate etc. along with Purchase orders received from Customers, invoices/ Order completion certificate as applicable etc. Clause (b) & Clause (c):- Purchase orders & related performance certificates issued by the Customer. Performance certificate should show running hours completed Clause (d):- Declaration on manufacturing & testing facilities, proof of ownership of the Facilities etc. Option-3 Clause (a)-Details of manufacturing facilities, Copies of Purchase Orders & related execution proofs like invoices etc. Clause (b) & (c):-

	i) Deed of Joint undertaking as asked ii) copy of Collaboration agreement ii) Proofs of Collaborator meeting the requirements given in option-2 Clause (d) - Declaration on manufacturing & testing facilities, proof of ownership of the facilities etc. Clause (e) & (f) :- Declarations as asked by the applicant in their letter head In addition to above documents Applicant must give declaration about the type of grinding roll for which they want to get enlisted in NTPC in this enlistment group (Notes-iii above). This declaration must be given in their letter head. NTPC can ask more documents if felt necessary. Also all documents/ facilities can be verified/ assessed if required.	
D)	**Other documents to be submitted:** 1. Three POs of highest executed values of similar work during last five years from the date of application (PO date should not be more than five (5) years old as on the date of the application) along with copy of invoice / completion certificate from the concerned buyer/s in support of successful execution of supply against POs. 2. Audited balance sheet including profit and loss statement for the previous three completed financial years reckoned from the date of application. In case the audited results for the preceding financial year is not available, certification of financial statements from a practicing chartered account may be submitted. In case, Applicant is not able to submit the certificate from practicing chartered Account certifying its financial parameters, the audited results of three consecutive financial years preceding the last financial year shall be considered for evaluating the financial parameters. Further a Certificate would be required from the CEO/CFO as per the format enclosed in the application format documents stating that the financial results of the company are under audit as on the date of Application and the Certificate from the practicing Chartered Accountant certifying the financial parameters is not available. 3. Any other document in addition to the above which the applicant wants to submit.	
E)	Other Note-1	Definition of Similar work: Supply of Grinding Elements (Grinding Rolls & Bull Ring Segments, of any type/ any size) or Supply of Vertical type Coal Pulverizers.
	Other Note-2	The executed value means basic value of quantity of similar works executed / supplied against the reference PO (also applicable to partly executed POs as on the date of application). Where PO value is composite (i.e., including taxes etc.) the applicant to give item-wise break up of composite PO mentioning basic value, taxes etc.

NTPC LTD.

TECHNICAL SPECIFICATIONS FOR PROCUREMENT
OF WEAR PARTS FOR RAYMOND (XRP/HP) TYPE
COAL PULVERISERS
Document No.----------(Rev----------)

TECHNICAL SPECIFICATIONS FOR PROCUREMENT OF WEAR PARTS FOR RAYMOND (XRP/HP} TYPE COAL PULVERISERS

1.0.0 Intent of the Specification

The intent of the specification is to procure "wear parts"(Grinding Rolls and Bull Ring Segments) for XRP-(Mill *model to be specified by the Station)* type coal pulverisers of _____ *Make(Mill make to be specified by the Station)* operating at NTPC _____ (Station name to be specified by the Stations).

It is not the intent to specify completely herein, all aspects of material selection and manufacturing process, nevertheless, the wear parts shall conform in all aspects to high standards of material quality, manufacturing process and workmanship and shall be capable of performing in continuous commercial operation, in a manner acceptable to the Owner, who will interpret the meaning of specification, drawings and shall have right to reject or accept any work or material which in his assessment is not complete to meet the requirement of this specification.

Bidder is requested to carefully examine and understand the specification and. seek clarifications, if required, to ensure that they have understood the specification. The Bidder's offer should not carry any sections like clarifications, interpretations and/or assumptions.

2.0.0 Project Information

Name of the Project	*(Name to be specified by the Station)*
No. and size of Units	*(Number and size of Units to be specified by the station))*
Type of Coal Pulverisers	*XRP/HP-(Mill model to be specified by the Station)*
No. of coal Pulverisers per Unit	*(To be specified by the Station)*
Total cumulative pulverizes running hours for which wear parts to be supplied	*(To be specified by the Station)*

3.0.0 Applicable Drawings

The drawings listed below and forming part of the specification are for Bidder's information. All these drawings are indicative of Owner's requirement to enable the Bidder to make a suitable offer. It shall, however, be responsibility of the Contractor to ensure fitment of the supplied material.

i. Drawing No
ii. Drawing No.

Note: (Stations to include relevant drawings)

Any variation/alteration from the listed drawings shall be clearly brought out in the technical deviation schedule with implications, if any. Such variations may be acceptable, after assessment of its implication and shall be subject to Owner's approval.

4.0.0 Scope of the Proposal

The scope of the proposal shall include manufacturing, testing, packaging, transportation, delivery on F.O.R (site) basis of wear parts of XRP/HP-(Mill *model to be specified by the Station)* type coal Pulverisers comprising of following:

i. Grinding Rolls
ii. Bull Ring segments

The scope of proposal shall also include superv1s1on of *installation (supervision of installation of 1st set of wear parts in mill)* of above wear parts.

4.1.0 The scope of supply of Contractor shall include supply of mill wear parts that is set of grinding rolls and set of bull ring segments for cumulative -------- hrs (to be specified by station) of coal pulverisers such that these wear parts are compatible with each other.

Note 2 ;- *Together three nos. grinding rolls required for one pulveriser shall form* "One *set* of *Grinding rolls" and bull ring segment quantity required for one pulveriser shall form* "One *set* of *Bull Ring Segments" .*

4.2.0 The quantity of wear parts shall be such that cumulative pulverizers running hours (to be specified by station) of mills can be achieved with pulveriser capacity not less than 90% of its maximum capacity at rated fineness (Refer Note -3) for the specified range of coals. The Bidder shall guarantee the life of each type of wear part (i.e. grinding roll, bull ring segments) and this guaranteed life of respective wear parts shall be the basis for calculating the quantity of wear parts. The guarantee for wear parts life shall be in line with the guarantee requirement specified in subsequent sections.

Note 3: The rated fineness not less than 70% through 200 mesh and 99% through 50 mesh.

4.3.0 In the bid proposal the Bidder is required to offer the wear parts in such quantities that the cumulative guaranteed wear life for each type of wear part (i.e. grinding rolls

and bull ring segments) is not less than the number of cumulative running hours as specified (to be specified by station). The required quantity/sets of wear parts shall be arrived at by rounding off the fractional part of the set to next higher whole number.

4.4.0 The wear life guarantee for each set and type of wear parts shall be from within the range of 6000 Hrs. to 12000 Hrs. and the quantity of wear parts shall be calculated based on guaranteed wear life from within the above range only. An example for arriving at number of sets of wear parts for the purpose of Bidder's quotation is given below at Table-1:

Example

Table-I

S.No.	Description	Bidder A	Bidder B
1.	Number of coal pulverisers as per specification	8	8
2.	Guaranteed Wear Life of each set of grinding rolls	6000	8000
3.	Guaranteed Wear Life of each set of bull ring segments	6000	18000
4.	Number of sets of grinding rolls required to be quoted for cumulative running hours of 200000	*200000/6000*= 33.33 i.e. 34 sets	*200000/8000*= 25 sets
5.	Total number of sets of bull ring segment required to be quoted.	*200000/6000*= 33.33 i.e. 34 sets	*200000/8000*= 25 sets

5.0.0 Evaluation Criteria

The bids guaranteeing wear life less than 6000 Hrs. will not be considered for evaluation and shall be rejected. Further no evaluation credit will be given for guaranteed wear life in excess of 12000 Hrs.

The evaluation of the bids shall be based on the total price of (a) sets of bull ring segments and (b) sets of grinding rolls quoted by the Bidder in accordance with the clause 4.0.0 "Scope of the Proposal".

6.0.0 Material of Construction

The material of construction of wear parts shall be selected taking into account highly abrasive nature of coal resulting from coal contamination with silica sand and Alpha-quartz. The coal and ash data is specified elsewhere in the specification and same shall be considered for selection of wear part material and offering guarantee for wear life.

Sl. **No.**	Name of Wear Part	Material
1.	Bull Ring Segments	Ni Hard, High Chrome etc.
2.	Grinding Rolls	Ni Hard, High Chrome carbide insert, sinter cast etc.

7.0.0 Coal Characteristics

The range of coal and ash characteristics which is likely to be supplied to the mills is enclosed at Annexure-1. Bidder is requested to familiarize themselves with the detailed coal and ash characteristics, if required.

The material of construction of wear parts shall be selected taking into account highly abrasive nature of coal resulting from coal contamination with silica sand and Alpha-quartz. Bidders shall consider the effect of these shale, sand stone and alpha quartz content for offering guaranteed wear life of Mill wear parts.

8.0.0 Guarantees

The quantity of wear parts shall be such that cumulative running hours operation of mills (station to specify) can be achieved.

The Bidder shall guarantee the wear parts for wear life and fitment of the wear parts in the existing mills and furnish these guarantees in Schedule-I.

8.1.0 ***Guaranteed Wear Life;-*** The *"wear parts", i.e.* each set of grinding rolls and each set of bull ring segments shall be guaranteed for wear life in number of hours of mill operation with mill capacity not less than 90% of its maximum capacity at rated fineness (refer note-3) for the specified range of coals during this period.

8.1.1 The guarantee on wear life shall be provided for each type of wear part separately (i.e. Grinding rolls and bull ring segment). The guaranteed wear life for each set of grinding rolls, each set of bull ring segments shall be within the range of 6000 to 12000 "Operating Hours of mill" (with mill capacity not less than 90% of its maximum capacity at rated fineness (refer note-3) for the specified range of coals). Bidders offering wear life guarantee less than 6000 operating hours shall not be considered for evaluation. Further, Bidder's offering wear life guarantee higher than 12000 Operating Hours shall not be given any evaluation credit beyond 12000 Hrs. The guaranteed wear life of set of bull ring segments shall be 'in multiples of wear life guaranteed for set of grinding rolls(i.e. If wear life of set of grinding rolls is guaranteed as 6000 Hrs, the life of set of bull ring segments shall either 6000 Hrs. or 12000 Hrs.).

8.1.2 The mill wear part guarantee shall be valid for complete range of coal and ash characteristics specified in this specification. **No correction in guaranteed wear life shall be allowed on the basis of YGP index.**

8.2.0 ***Wear Part Warrantee;-*** The Bidder shall guarantee the wear life of wear parts in number of mill operating hours (refer Note4). The guarantee/warrantee on wear life shall be demonstrated on all the pulverisers.

Note 4: *Operating Hours of mill for the purpose of wear part guarantee are defined as hours of mill operation at or near to its Maximum Capacity but not less than 90% of maximum mill output at mill fineness not less than 70% thru 200 mesh and 99% thru 50 mesh.*

8.3.0 Demonstration of Pulverisers Wear Part Guarantee:-

8.3.1 The guarantee/warrantee for the life of mill wear parts shall be demonstrated by the contractor during Guarantee Trial Period (GTP). The GTP shall commence after successful operation of the pulveriser is established continuously for a period of not less than 12 hours at or near to its maximum capacity and fineness not less than 70% thru 200 mesh and 99% thru 50 mesh with the newly installed wear parts. The GTP shall end as soon as first set of grinding rolls and first set of bull ring segments have completed their actual wear life or the guaranteed wear life (whichever is earlier) in first four pulverisers.

8.3.2 Each type of wear parts (i.e. set of grinding rolls and set of bull ring segments) shall be considered to have completed their guaranteed/warranted wear life when during GTP the first set of these parts has successfully demonstrated their capability to achieve at least 90% of the maximum pulveriser grinding capacity (at Pulverised Coal Fineness not less than 70% thru 200 mesh and 99% thru 50 mesh) during the guaranteed wear life of wear parts. In case the capacity of the pulveriser falls by more than 10% and/or pulverized coal fineness falls below 70% thru 200 mesh or 99% thru 50 mesh necessitating replacement of particular type of wear part (i.e. set of grinding rolls and/or set of bull ring segments) to restore the capacity and/or fineness, the wear (set of wear parts) part shall be deemed to have outlived its wear life. The capacity of mill shall be tested on all mills during the GTP at following intervals, viz. (i) at commencement of GTP, (ii) at completion of 25% of guaranteed wear life of grinding rolls, (iii) at completion of 75% of guaranteed wear life of grinding rolls and (iv) at the end of wear life of grinding rolls. In case the wear life of set of bull ring segments is guaranteed more than the guaranteed life of grinding rolls the capacity test on mill shall continue for second set of grinding rolls as per SI. No. (ii), (iii) and (iv) above until the wear life of bull ring segments is achieved.

Note: 5: No allowance will be given for Operation and Maintenance practices, while applying this criteria.

8.3.3 Further, in case any of the wear parts has worn out to such an extent that either the normal or safe operation of the pulveriser is jeopardized if this part is not replaced/repaired or continuous use with this part may lead to exposure or wear of other parts which are not meant for the purpose of checking the shortfall in wear life, even if there is no reduction in pulveriser rated capacity or fineness, then the part shall be deemed to have outlived its wear life.

8.4.0 Liquidated Damage for Shortfall in Guaranteed/Warranted Wear Life:

8.4.1 Liquidated damages shall be levied for shortfall in wear life of wear parts for each set of wear parts separately. For the purpose of ascertaining the wear life achieved following method shall be adopted:

8.4.2 The wear life of set of grinding rolls and bull ring segments shall be recorded for all pulverisers. The average wear life of first sets of grinding rolls and bull ring segments in four pulverisers in which the wear parts have completed their wear life earlier than other pulverisers shall be considered as wear life achieved for that Purchase Order.

Table-II below gives an example where wear life of grinding rolls and bull ring segments for a given Purchase Order is calculated initially for the purpose of establishing Liquidated Damage.

Table- II

Sl. No.	Description	Guaranteed wear life	Life achieved for first set of grinding rolls/bull ring segments				Average life
1.	1st four sets of wear parts whose life has been ascertained	11500	Mill 1	Mill3	Mill5	Mill6	
			12500	12000	10500	11000	=(12000+12000+10500+11000)/4=11375

Table - II Shows life of first four set of grinding rolls achieved in four mills. As per records in Mill Nos. 1 and 3, the first set of grinding rolls have met their guaranteed life, where as in mill 5 and 6, the life achieved by grinding rolls is only 10500 hrs. and 11000 hrs. respectively, against the guaranteed life of 11,500 hrs. While calculating average life, for all those sets who exceeded guaranteed life and achieved life of 12000 hrs. and more, the life shall be taken as 12000 hrs. and for those who have not met the guaranteed life, actual life shall be taken. Therefore for the purpose of establishing the wear life achieved by the first four set of wear parts, average of life achieved in mills # 1,3,5 and 6 shall be considered i.e. (12000 +12000 + 10500 + 11000)/4 = 11375 Hrs.).

8.4.3 In case the wear parts do not fulfill the guaranteed wear life the credit shall be provided after the end of GTP to the Employer at the rate of one and a half times the shortfall worked out for each set of grinding rolls and each set of bull ring segments. For example should a wear part set has a price of Rs 100000 (Rupees One lac) and the wear life guaranteed for the wear part is 11500 Hrs. When the average life as calculated above is 11375 hrs, then a credit of Rs. (1,00,000 x 1.5 x125)/ 11375 = Rs. 1648.35 would apply towards the Employer for each set of wear parts. This credit shall apply to all wear parts by multiplying the credit per set of wear part with total number of wear part sets and shall be considered as Liquidated Damaged for shortfall in wear life. The wear part credit shall be worked

out separately for grinding rolls and separately for bull ring segments. This shall be used for computing additional BG if any, required to be taken from the contractor.

8.4.4 At the end of GTP if it is found that any of the wear part sets have achieved life of 50 % or less than the guaranteed wear life the Contractor shall replace the wear part set free of cost and commence the GTP again till such time the wear parts are able to achieve wear parts life higher than 50% of wear life. For wear life between 50 % and 100% the liquidated damages as described above shall apply.

It must be clearly understood that the calculation of average life during GTP is only for the purpose of estimating the amount BG that is to be taken from the party. Actual L.D shall be calculated for each set separately based on the actual life it has achieved and the amount shall be recovered. In the above case actual L.D shall be (100000x1.5x500)/10500=Rs. 14285.7 for the set of rolls used in Mill 5

8.4.5 In case the wear parts are supplied in more than one lot the liquidated damages as per the above shall be levied for each lot of wear parts.

8.5.0 Fitment Guarantee

8.5.1 Fitment of the supplied material in the identified pulverisers is the responsibility of Contractor and same shall be guaranteed by the Bidder. In case it is found that the supplied material (wear parts) do not fit into the pulveriser and/or the normal and safe operation of the pulveriser cannot be sustained with the supplied wear parts during the GTP the Contractor shall within one week ***(Respective Projects to specify the desired duration)*** supply fresh lot of modified wear parts (not less than 25% of the quantity to replace the wear parts which have failed in fitment and/or have restricted normal/safe operation of pulverisers. The balance sets of such wear parts shall be supplied within one month ***(Respective Projects to specify the desired duration)***. In case the normal/safe operation is jeopardized due to wear of grinding rolls and bull ring segments the same shall be considered under the guarantee for wear life and not under fitment guarantee.

9.0.0 Quality Assurance & Inspection

9.1.0 Bidder shall provide the necessary information on Quality Assurance Program and submit a manufacturing quality plan in line with reference quality plan attached with this technical specification. Reference quality plan has to be followed completely.

Manufacturing quality plan shall be accompanied with reference standards / documents, procedures and specifications.

9.2.0 The approved quality plan shall indicate NTPC witness points (customer hold points) for which the contractor shall give 15 days inspection advance notice for undertaking inspection.

9.3.0 INSPECTION AT SUPPLIERS WORK

Tests and inspection are to be conducted in the presence of NTPC RIO representatives as per approved Quality plan. The representatives shall have free access at all times while the work on the contract is being performed. The supplier shall offer all reasonable facilities without charge to satisfy the Inspection agency that the items are confirming to this specification.

9.4.0 TEST CERTIFICATES:

All the Grinding Rolls shall be identified with a serial number punched on the non-wearing surface of roll. The Bull ring segments set shall be identified by paint for serial number and set number on working face of each casting of the set. Supplier shall supply 3 copies of test certificates with following information for rolls and bull ring segments:

1. NTPC order number
2. Supplier's reference and name
3. Heat no./ Roll no.
4. Drawing no., Material code
5. Consignment/Identification no.

(NOTE FOR STATIONS)

The technical specification includes following form which needs to be duly filled by the bidder and submitted along with bid proposal :
Schedule-I (Guaranteed Declaration) , *Schedule-II (Technical data sheets), Schedule-Ill (Information regarding quality assurance program)* , *Schedule-IV (Schedule of rates and prices)* . *Schedule -V (Delivery schedule), Schedule - VI (Qualifying requirements).*
Stations are requested to include these forms in the bidding documents and ensure that these forms are submitted along with the bid. Stations may like to add additional forms and other term and conditions of contract while preparing the Bidding Documents.

(Annexure-1)

COAL CHARACTERISTICS

Proximate Analysis	Range
Moisture	----------To--------- %
Ash	----------To--------- %
HGI	----------To--------- %
YGP	----------To--------- %

Ash Analysis

Silica	----------To--------- %
Alumina	----------To--------- %

Note : Plant specific range of coal properties to be specified by the respective stations.

एनटीपीसी NTPC	ITEM: GRINDING ROLL AND BULL RING SEGMENT	REFERENCE QUALITY PLAN	QP NO.: QP/46/MEG/01ABC REV. NO: 0 DATE :11.05.17 PAGE- 1 OF 2	REVIEWED BY:	APPROVED BY:

S.N.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD		AGENCY			REMARKS
					M	C/N					M	C	N	
1.	2.	3.	4.	5.	6.		7.	8.	9.	D*	10.			11.
1.0	**RAW MATERIALS**													
1.1	Moulding sand	Physical	Minor	Size Distribution	Each batch		Manufacturer's Standard	Lab record	-		P	-	-	
1.2	Ferro alloys	Chemical	Major	Melting recovery	Each batch		Manufacturer's Standard	Lab record	-		P	-	-	
1.3	Scrap	Chemical	Minor	Melting recovery	Each batch		Manufacturer's Standard	Lab record	-		P	-	-	
2.0	**INPROCESS INSPECTION – INSERTS FOR SINTERCAST GRINDING ROLLS**													
2.1	Melting	Temp. Control	Critical	Measurement	Each melt		Manufacturer's Standard	Log sheet	-		P	-	-	
		Chemical test	Critical	Chemical analysis	Each melt		Manufacturer's Standard	Test report	√		P	V	V	Refer Note 3
		Pouring	Critical	observation	Each melt		Manufacturer's Standard	Log sheet	-		P	-	-	
2.2	Insert casting	visual	Critical	observation	Each insert		Manufacturer's Standard	Test report	-		P	-	-	Refer Note 3
3.0	**INPROCESS INSPECTION – SINTERCAST INSERTED ROLL CASTINGS**													
3.1	Melting	Temp. Control	Critical	Measurement	Each melt		Manufacturer's Standard	Log sheet	-		P	-	-	
		Chemical test	Critical	analysis	Each melt		Manufacturer's Standard	Test report	√		P	V	V	Refer Note 3
		Pouring	Critical	observation	Each melt		Manufacturer's Standard	Log sheet	-		P	-	-	
3.2	Roll Casting	Heart treatment	Critical	observation	Each batch		Manufacturer's Standard	H/T charts	√		P	V	V	
		Visual	critical	Observation	Each Roll		Manufacturer's Standard	Test report	-		P	-	-	
		Microstructure	Critical	Visual inspection	Each roll		Manufacturer's Standard	Test report	-		P	-	-	
		Hardness	Major	Hardness	Each H/T Batch		Manufacturer's Standard	Test report	-		P	-	-	

एनटीपीसी NTPC	ITEM: GRINDING ROLL AND BULL RING SEGMENT	REFERENCE QUALITY PLAN	QP NO.: RQP/MEG- REV. NO: 0 DATE :11.05.17 PAGE 2 OF 2	REVIEWED BY:	APPROVED BY:

S.N.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD		AGENCY			REMARKS
					M	C/N					M	C	N	
1.	2.	3.	4.	5.	6.		7.	8.	9.	D*	10.			11.
4.0	FINAL INSPECTION – FINISHED SINTERCAST INSERTED ROLL													
4.1	Finished rolls	Visual	Major	Visual inspection	Each Roll		Manufacturer's Standard	Inspection report	√	P	W	W		
		Dimensions	-do-	Measurement	Each roll		Approved Drg/Tech Spec	Inspection report	√	P	W	W		Random 10% by NTPC
		Hardness test	-do-	Hardness	Each roll – (One insert/roll)		Manufacturer's Standard	Inspection report	√	P	W	W		To be checked with Equotip Hardness Tester
		Bore surface contact	-do-	Blue match	Each roll		Manufacturer's Standard	Inspection report	√	P	W	W		Random 10% by NTPC Refer Note 4
		Identification & Painting	Major	Verification	Each roll		Manufacturer's Standard	Inspection report	-	P	V	-		Refer Note 2

Note-1: Heat treatment: As per Manufacturer's Standard

Note-2: Roll serial number to be punched on the non-wearing surface of the roll.

Note-3: Since these are proprietary casting and are governed by performance guarantee, NTPC shall only review the Chemical Test Certificates for pre-empting any error overlooked by manufacturer. The correlation / traceability of these chemical test reports shall be as declared by supplier. Further, these are very hard castings & hence surface cracks are inevitable. However, supplier unequivocally guarantees the performance of these items as per NTPC Specification.

Note-4: Not applicable for HP 1103 Mill Grinding rolls as these are straight bore rolls.

LEGEND: *RECORDS IDENTIFIED WITH "Tick"(√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION
**M: MANUFACTURER / SUBCONTRACTOR, C: MAIN SUPPLIER, N: NTPC,

SCHEDULE-I

TECHNICAL SPECIFICATION FOR PROCUREMENT OF
WEAR PARTS FOR RAYMOND TYPE (HP/XRP mills) COAL PULVERISERS
(Name of Project), Stage), (Number and Size of Units)
Tender Document No. (To be specified by respective Projects)
(GUARANTEE DECLARATION)

Bidder's Name & Address

NTPC-Name and Address
(To be indicated by Project)

Dear Sir,

We declare that the wear life of wear parts, their fitment and material specification for wear parts offered in this bid are guaranteed by us. We further declare that in the event of any deficiencies in meeting the guarantees indicated below as established in accordance the bidding documents, you may at your discretion accept the wear parts after assessing the liquidated damages as specified in clause 8.4.0 of bidding documents or reject the wear parts and recover the payments already made.

Sl.No.	Guaranteed Parameter	Guaranteed Figures
1.0	Wear Life of Wear parts	
1.1	Wear life of each set of grinding Rolls in Operating Hours as per clause 8.0.0	
1.2	Wear life of each set of bull ring segments in Operating Hours as per clause 8.0.0	
2.0	Guarantee for Fitment	As per bidding document Clause 8.5.0

Date:
Plate:

(Signature).....
(Printed Name) .....
(Designation) .....
(Common Seal) .....

Note : Any variation to the stipulated conditions under which guarantees are to be met will not be permitted and Bids with such variation are liable to be rejected.

SCHEDULE-II

TECHNICAL SPECIFICATION FOR PROCUREMENT OF WEAR PARTS FOR RAYMOND TYPE (HP/XRP mills) COAL PULVERISERS (Name of Project), Stage), (Number and Size of Units) Tender Document No. (To be specified by respective Projects) (TECHNICAL DATA SHEETS)

Sl. No.	Description	Grinding Rolls	Bull Ring Segments
01	Name of Manufacturer		
02	Location of Manufacturing Unit		
03	Model of Coal Pulveriser		
04	Number of Pulverisers		
05	Number of sets		
06	Wear life of each set		
07	Weight of each item (Bidder to provide item wise list)		
08	Weight of each set		
09	Compliance to specified dimensions		
10	Name of material	Yes	Yes
11	Surface hardness		
12	Physical properties of material		
13	Chemical composition of material (Broadly)		

Date:
Place:

(Signature)……..
(Printed Name) ……
(Designation)…….
(Common Seal)……..

SCHEDULE· lll

TECHNICAL SPECIFICATION FOR PROCUREMENT OF
WEAR PARTS FOR RAYMOND TYPE {HP/XRP mills) COAL PULVERISERS
(Name of Project), Stage), (Number and Size of Units)
Tender Document No. (To be specified by respective Projects)
(Information regarding Quality Assurance Program)

Bidder's Name & Address

NTPC-Name and Address
(To be indicated by Projects)

Dear Sirs,

We hereby provide the necessary information on Quality Assurance Program containing the overall Quality management and Procedures, which we propose to follow during various stages of manufacturing the specified wear parts.

Date:
Place:

(Signature)……
(Printed Name)…….
(Designation)……..
(Common Seal).....

Note: Continuation sheets of like size and format may be used as per Bidder's requirement and shall be annexed to this Attachment.

SCHEDULE- IV

TECHNICAL SPECIFICATION FOR PROCUREMENT OF
WEAR PARTS FOR RAYMOND TYPE (HP/XRP mills) COAL PULVERISERS
(Name of Project), Stage), (Number and Size of Units)
Tender Document No. (To be specified by respective Projects)
(Schedule of Rates and Prices)

Bidder's Name & Address

NTPC-Name and Address
(To be indicated by Projects)

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1. Grinding Rolls
2. Bull Ring Segments

Note: Number of sets shall be quoted as per clause 4.0.0

Date:
Place:

(Signature).....
(Printed Name)……..
(Designation).....
(Common Seal)…….

SCHEDULE-V

TECHNICAL SPECIFICATION FOR PROCUREMENT OF WEAR PARTS FOR RAYMOND TYPE (HP/XRP mills) COAL PULVERISERS (Name of Project), Stage), (Number and Size of Units) Tender Document No. (To be specified by respective Projects) (Delivery Schedule)

Bidder's Name & Address

NTPC-Name and Address (To be indicated by Projects)

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1. Grinding Rolls
2. Bull Ring Segments

Date:
Place:

(Signature).....

(Printed Name).....
(Designation).....
(Common Seal).....