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PEM Noida

Event ID

: 47516

RFQ/NIT/Enquiry no.

: E-6526/2020

Description

: 220V DC LEAD ACID / Ni-Cd BATTERY FOR 05 DIFFERENT FGD PROJECTS

Corrigendum / Amendment No :11 (Published) (04/12/2020 15:06:57)

Types of corrigendum :

1) Others

Corrigendum Text :

Standard Quality Plan of Ni-Cd Battery (8 sheets) under Technical Specification (PE-TS-457-508-E001), Section-II, has been revised and enclosed.

Bidders to ensure bid submission on/before due date & time (08/12/2020, 3.00PM).

Documents

Document name	Document brief	Size (in MB)	Date and time	Status	Action
Revised Quality Plan.pdf	Corrigendum to Technical Specification	3.419	04/12/2020 15:03:34	Approved	Download link

Corrigendum / Amendment No :10 (Published) (01/12/2020 15:30:16)

Types of corrigendum :

1) Dates

Corrigendum Text :

The due date for bid submission has been extended till 08/12/2020 (03:00 PM). Part-I shall be opened on 08/12/2020 (4:00 PM).

Field name	Old value	New value
Document downloading end date	01/12/2020 15:00:00	08/12/2020 15:00:00
Bid submission end date	01/12/2020 15:00:00	08/12/2020 15:00:00
Bid opening date	01/12/2020 16:00:00	08/12/2020 16:00:00

Corrigendum / Amendment No :9 (Published) (19/11/2020 15:32:53)

Types of corrigendum :

1) Dates

MANUFACTURER/ BIDDER/ SUPPLIER NAME & ADDRESS		STANDARD QUALITY PLAN				SPEC NO.:-PE-TS-XXX-508-E001		DATE:-		
		CUSTOMER		NTPC		QP NO.:-PE-QP-999-508-E004, REV.02		DATE:-03/11/2020		
		PROJECT				P.O NO.:-		DATE:-		
		ITEM:- DC NI-CD BATTERY		SYSTEM:- DC SYSTEM		SECTION:-		SHEET 1 OF 7		
S/L NO.	COMPONENT & OPERATIONS	CHARACTERISTIC CHECK	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS
1	2	3	4	5	6	7	8	9	10	11
					M				M C N	
1.0	RAW MATERIALS & BOUGHT OUT ITEMS									
1.1	CELL CONTAINER									
a)	Dimensional & Constructional Conformance	Visual	MA	Measurement	-	IS-10918/ Manufacturer's Drg./ Std.	IS-10918/ Manufacturer's Drg./ Std.	Inspection Report	P V -	
b)	Ball Drop Test	Mechanical	MA	Mechanical	-	IS-1146/ Manufacturer's Drg./ Std.	IS-1146/ Manufacturer's Drg./ Std.	Manufacturer's TC	P V -	
c)	Hydraulic Thrust Endurance Test	Physical	MA	Physical	-	-do-	-do-	-do-	P V -	
d)	Resistance to Acid	Chemical	MA	Chemical	-	-do-	-do-	-do-	PV V -	
e)	HV Test	Electrical	MA	Electrical	-	-do-	-do-	-do-	PV V -	
f)	Shade Difference, Straightness of Side Walls, Free from Burrs, Flash lines etc.	Visual	MA	Visual	100%	-	Free From Visual Defects	Inspection Report	P - -	
1.2	TERMINAL POST									
a)	Dimensional Conformance	Visual	MA	Measurement	-	IS-10918/ Manufacturer's Drg./ Std.	IS-10918/ Manufacturer's Drg./ Std.	Inspection Report	P V -	
b)	Material Conformance	Chemical	CR	Chemical	-	As per IS-2062	IS-2062	Manufacturer's TC	P V -	External Report
c)	Thread size depth & chamfer	Physical	MA	Measurement & Visual	-	-do-	-do-	-do-	P V -	
d)	Surface finish & defects	Visual	MA	Visual	100%	Manufacturer's Drg./ Std.	Manufacturer's Drg./ Std.	Inspection Report	P V -	
e)	Plating Quality	Physical/ Visual	CR	Visual & Thickness	-	-do-	-do-	Plating Report	P V -	
1.3	CONNECTOR									
a)	Material Conformance	Chemical	CR	Chemical	-	As per IS-1897/ IS-191	As per IS-1897/ IS-191	Manufacturer's TC	PV V V	External Report
b)	Dimensional Conformance	Visual	MA	Measurement	-	Approved drg/ doc & Manufacturer's Std.	Approved drg/ doc & Manufacturer's Std.	Inspection Report	P V V	
c)	Visual Defects	Visual	MA	Visual	100%	-	Free From Visual Defects & Burrs	-do-	P V V	



 MANUFACTURER/ BIDDER/ SUPPLIER NAME & ADDRESS		STANDARD QUALITY PLAN										SPEC NO.:-PE-TS-XXX-508-E001		DATE:-	
		CUSTOMER		NTPC								QP NO.:-PE-QP-999-508-E004, REV.02		DATE:-03/11/2020	
		PROJECT										P.O NO.:-		DATE:-	
		ITEM:- DC NI-CD BATTERY				SYSTEM:- DC SYSTEM						SECTION:-		SHEET 2 OF 7	
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTIC CHECK	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS				
1	2	3	4	5	6		7	8	9	D *	10	11			
					M	C/N					M	C	N		
d)	Plating Quality (Duplex)	Physical/ Visual	CR	Visual & Thickness	Sampling as per IS-2500(1)-2000, S-3 Level		Manufacturer's Drg./ Std.	Manufacturer's Drg./ Std.	Manufacturer's TC	✓	P	V	V		
1.4	SEPARATOR														
a)	Dimensional Conformance	Visual	MA	Measurement	Sampling as per IS-2500(1)-2000, S-3 Level		IS-10918/ Manufacturer's Drg./ Std.	IS-10918/ Manufacturer's Drg./ Std.	Inspection Report	✓	P	V	-		
b)	Colour shade difference, burrs, flash at the edge	Visual	MA	Visual	Sampling as per IS-2500(1)-2000, S-3 Level		-	Free From Visual Defects	-do-		P	-	-		
1.5	VENT CAPS														
a)	Dimensional Conformance	Visual	MA	Visual & Measurement	Sampling as per IS-2500(1)-2000, S-3 Level		-	Refer Remarks#	Inspection Report	✓	P	V	V		
# Vent cap shall be easily removed for topping up the cells and of such dimensions that the syringe type hydrometer can be inserted into vent to take electrolyte sample.															
1.6	RUBBER COMPONENTS (GASKETS & SEALING RING ETC)														
a)	Material Quality	Physical	CR	Shore Hardness	1 Sample/Lot		Manufacturer's Drg./ Std.	Manufacturer's Drg./ Std.	Inspection Report	✓	P	V	-		
b)	Resistance to alkali & oil	Chemical	MA	Chemical	3 Sample/Lot		-do-	-do-	Manufacturer's TC	✓	P	V	-		
c)	Dimensional Conformance	Visual	MA	Measurement	Sampling as per IS-2500(1)-2000, S-3 Level		-do-	-do-	Inspection Report	✓	P	V	-		
d)	Flash or burrs	Visual	MA	Visual	100%		-	Free from Defects	-do-		P	-	-		
1.7	STRIPS														
a)	Plating Quality including thickness	Dimension	CR	Measurement	1 sample/ coil		Manufacturer's Drg./ Std.	Manufacturer's Drg./ Std.	Inspection Report	✓	P	V	V		
Nickel plating thickness of steel strip will be as per vendor specific design, meeting cell capacity and other technical parameters of the spec															

ENGINEERING				BHEL		BIDDER/SUPPLIER		FOR CUSTOMER REVIEW & APPROVAL			
QUALITY						Sign & Date		Doc No.			
Sign & Date	Name		Sign & Date	Name							
Prepared By	Kanhaiya Kumar		Prepared By	Kunal Gandhi				Reviewed By			
Checked By	Manish Shukla		Checked By	Ritesh K Jaiswal				Checked By			



MANUFACTURER/ BIDDER/
SUPPLIER NAME & ADDRESS

STANDARD QUALITY PLAN

SPEC NO.:PE-TS-XXX-508-E001
DATE:-
QP NO.:PE-QP-999-508-E004, REV.02
DATE:-03/11/2020
P.O NO.:
DATE:-
SECTION:-
SHEET 3 OF 7

CUSTOMER NTPC
PROJECT
ITEM:- DC N-CD BATTERY
SYSTEM:- DC SYSTEM

SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTIC CHECK	CLASS	TYPE OF CHECK	QUANTUM OF CHECK			REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS		
1	2	3	4	5	6			7	8	9	D *	10	11	
					M		C/N				**			
											M	C	N	
2.0	IN-PROCESS													
2.1	BRIQUETTE FORMATION													
a)	Visual Checks for Empty Pockets	Visual	CR	Measurement	100%	-		Manufacturer's Drg./ Std.	Manufacturer's Drg./ Std.	Inspection Report	✓	P	V	V
b)	Weight Check	Visual	CR	Measurement	Sample	-		-do-	-do-	-do-	✓	P	V	V
2.2	PLATE BLANK MANUFACTURING													
a)	Dimensional Conformance	Visual	MA	Measurement	10 Sample/Batch	-		Manufacturer's Drg./ Std.	Manufacturer's Drg./ Std.	Process Quality Report	✓	P	V	V
b)	Absence of Defects	Visual	MA	Measurement	100%	-		-do-	-do-	-do-	✓	P	V	V
2.3	PLATE ASSEMBLY													Empty Pockets not Allowed in any Form
a)	Dimensional Conformance	Visual	MA	Measurement (Thick. & Width)	5 Sample/Batch	-		Manufacturer's Drg./ Std.	Manufacturer's Drg./ Std.	Process Quality Report		P	-	-
b)	Quality of Spot Welding	Visual	MA	Visual Inspection	100%	-		-do-	-do-	-do-		P	-	-
2.4	PLATE BLOCK ASSEMBLY													
a)	Assembly Correctness of +Ve & -Ve Groups	Visual	MA	Visual	100%	-		Manufacturer's Drg./ Std.	Manufacturer's Drg./ Std.	Process Quality Report		P	-	-
b)	Correctness of Insulation grid	Visual	MA	Visual	100%	-		-do-	-do-	-do-		P	-	-
c)	Tightness of Stack	Visual	MA	Visual	100%	-		-do-	-do-	-do-		P	-	-
d)	Plate Block Tightness	Physical	CR	Measurement	100%	-		-do-	-do-	-do-		P	-	-
e)	Position of Terminals	Visual	MA	Gauging	100%	-		-do-	-do-	-do-		P	-	-
f)	Dimensional Conformance	Visual	MA	Measurement	100%	-		-do-	-do-	-do-		P	-	-
2.5	FORMATION ASSEMBLY													
a)	Function/ Capacity	Measurement	CR	Charging & Discharging	100%	-		Manufacturer's Drg./ Std.	Manufacturer's Drg./ Std.	Test Report	✓	P	V	V
2.6	CELL ASSEMBLY													
a)	Correctness of Plate Block	Visual	MA	Visual	100%	-		Manufacturer's Drg./ Std.	Manufacturer's Drg./ Std.	Process Quality Report	✓	P	V	V
b)	Position of Inner Sealing Parts	Visual	MA	Visual	100%	-		-do-	-do-	-do-		P	-	-
c)	Lock Washer Fitment	Visual	MA	Visual	100%	-		-do-	-do-	-do-		P	-	-

BHEL				BIDDER/SUPPLIER		FOR CUSTOMER REVIEW & APPROVAL			
ENGINEERING		QUALITY		Sign & Date		Doc No.		Sign & Date	
Prepared By		Name		Sign & Date		Name		Seal	
Checked By		Prepared By		Seal		Reviewed By			
		Checked By				Checked By			

KANHAYA KUMAR

MANISH

Kunal Gandhi

Ritesh K Jaiswal

Ritesh K Jaiswal

MANUFACTURER/ BIDDER/ SUPPLIER NAME & ADDRESS		STANDARD QUALITY PLAN				SPEC NO.:PE-TS-XXX-508-E001		DATE:-		
		CUSTOMER		NTPC		QP NO.:PE-QP-999-508-E004, REV.02		DATE:-03/11/2020		
		PROJECT				P.O NO.:--		DATE:-		
		ITEM:- DC NI-CD BATTERY		SYSTEM:- DC SYSTEM		SECTION:-		SHEET 5 OF 7		
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTIC CHECK	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS
1	2	3	4	5	6	7	8	9	10	11
					M				M C N	
e)	Aluminium	Chemical	MA	Quantitative Analysis	1 Sample	-	Analysis Report	Manufacturer's TC	P -	- External Report
f)	Calcium, Magnesium	Chemical	MA	Quantitative Analysis	1 Sample	-do-	-do-	-do-	P -	- -do-
g)	Organic Impurities	Chemical	MA	Quantitative Analysis	1 Sample	-do-	-do-	-do-	P -	- -do-
h)	PH	Chemical	MA	Quantitative Analysis	1 Sample/day	-do-	-do-	-do-	P V	V -do-
i)	Conductivity	Chemical	MA	Quantitative Analysis	1 Sample/day	-do-	-do-	-do-	P V	V -do-
3.4	TYPE-B ELECTROLYTE PREPARATION									
a)	Specific Gravity	Chemical	CR	Hydrometric Test	1 Sample/Batch	-	As per Chemical Supplier Instruction	Manufacturer's TC	P V	V External Report
3.5	ELECTROLYTE TYPE B22 HAVING LIOH 55% PURITY (i.e. 40gms/litre) WILL BE USED FOR FIRST FILLING									
a)	Determination of Carbonisation gms/Ltr.	Chemical	CR	Quantitative Analysis	1 Sample/Batch	-	IEC-60993	Manufacturer's TC	P V	V External Report
b)	Determination of Chlorides	Chemical	MA	Quantitative Analysis	1 Sample/Batch	-	-do-	-do-	P V	V -do-
c)	Determination of Sulphates	Chemical	MA	Quantitative Analysis	1 Sample/Batch	-	-do-	-do-	P V	V -do-
c)	Determination of Lithium Hydroxide (LIOH)	Chemical	MA	Quantitative Analysis	1 Sample/Batch	-	-do-	-do-	P V	V -do-
4.0	FINISHED BATTERY									
Note: Before Start of Inspection, Manufacturer Internal Inspection Record(QC) of the offered Batteries to be Verified										
4.1	ROUTINE TEST									
a)	Physical Examination	Visual	MA	Visual	Sampling as per IS-8320	Sampling as per IS-8320	IS:10918 & IS:8320	Inspection Report	P V	V
b)	Dimension, Mass and Layout	Dimension & Visual	MA	Measurement & Visual	-do-	Approved drtg/ doc	-do-	-do-	P V	V
c)	Cell Marking	Visual	MA	Visual	100%	100%	-do-	-do-	P V	V
d)	Polarity & Absence of Short Circuit	Electrical	MA	Electrical	100%	100%	IS:10918	-do-	P V	V By Voltage Meas. according to Polarity

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ENGINEERING		QUALITY		Sign & Date		Doc No.		Sign & Date	
Prepared By	Name	Sign & Date	Name	Seal		Reviewed By		Name	
Checked By	Manish Shukla	Checked By	Ritesh K Jaiswal						

MANUFACTURER/ BIDDER/ SUPPLIER NAME & ADDRESS			STANDARD QUALITY PLAN				SPEC NO.: -PE-TS-XXX-508-E001	DATE:-		
			CUSTOMER		NTPC		QP NO.: -PE-QP-999-508-E004, REV.02	DATE:-03/11/2020		
			PROJECT			P.O NO.: -	DATE:-			
			ITEM:- DC NI-CD BATTERY		SYSTEM:- DC SYSTEM		SECTION:-	SHEET 6 OF 7		
S/L NO.	COMPONENT & OPERATIONS	CHARACTERISTIC CHECK	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS
1	2	3	4	5	6	7	8	9	10	11
					M	C/N			M C N	
4.2	TYPE TEST #									
a)	Physical Examination	Visual	MA	Visual	Sampling as per IS-8320/IS-10918	IS:10918 & Approved drgf/ doc	IS:10918 & Approved drgf/ doc	Type Test Report	✓	P W W
b)	Dimensions, Mass & Layout	Dimension & Visual	MA	Measurement & Visual	-do-	-do-	-do-	-do-	✓	P W W
c)	Cell Marking	Visual	MA	Visual	-do-	-do-	-do-	-do-	✓	P W W
d)	Polarity & absence of short circuit	Electrical	MA	Electrical	-do-	-do-	-do-	-do-	✓	P W W
e)	Air pressure test	Visual	MA	Meas. of Pr. Drop in 15 Sec	-do-	-do-	-do-	-do-	✓	P V V
f)	Insulation Resistance	Electrical	MA	Electrical & Measurement	-do-	-do-	-do-	-do-	✓	P V V
g)	Ampere-hour capacity	Electrical	CR	Electrical & Measurement	-do-	-do-	-do-	-do-	✓	P V V
h)	Retention of Charge	Electrical	CR	Electrical & Measurement	-do-	-do-	-do-	-do-	✓	P V V
i)	Test for discharge performance at low temp.	Electrical	CR	Electrical & Measurement	-do-	-do-	-do-	-do-	✓	P V V
j)	Life Cycle Test	Electrical	CR	Electrical & Measurement	-do-	-do-	-do-	-do-	✓	P V V
k)	Dielectric Test	Electrical	CR	Electrical & Measurement	-do-	-do-	-do-	-do-	✓	P V V
l)	Storage Test	Electrical	CR	Electrical & Measurement	-do-	-do-	-do-	-do-	✓	P V V
4.3	ACCEPTANCE TEST									
a)	Physical Examination	Visual	MA	Visual	Sampling as per IS-8320	IS:10918 & Approved drgf/ doc	IS:10918 & Approved drgf/ doc	Inspection Test Report	✓	P W W
b)	Dimensions, Mass & Layout	Dimension & Visual	MA	Measurement & Visual	-do-	-do-	-do-	-do-	✓	P W W
c)	Cell marking	Visual	MA	Visual	-do-	-do-	-do-	-do-	✓	P W W
d)	Polarity and absence of short circuit	Electrical	MA	Electrical	-do-	-do-	-do-	-do-	✓	P W W
e)	Air pressure test	Visual	MA	Meas. of Pr. Drop in 15 Sec	-do-	-do-	-do-	-do-	✓	P W W

BHEL				BIDDER/SUPPLIER		FOR CUSTOMER REVIEW & APPROVAL			
ENGINEERING				QUALITY					
Prepared By	Sign & Date	Name	Prepared By	Sign & Date	Name	Doc No.	Sign & Date	Name	Seal
Checked By		Kanhaiya Kumar	Checked By		Kunal Gandhi	Reviewed By			
		Manish Shukla			Ritesh K Jaiswal	Checked By			

MANUFACTURER/ BIDDER/ SUPPLIER NAME & ADDRESS			STANDARD QUALITY PLAN					SPEC NO.:PE-TS-XXX-508-E001	DATE:-		

NOTES:-

1. Wherever IS standard is mentioned, equivalent IEC/International standard is also acceptable as per applicability of test. In case of any technical requirement not covered by IEC, technical requirement as per IS shall prevail.
2. BHEL Reserves the right for conducting repeat test, if required.
3. Photographs of complete Battery Package items after packaging to be sent to BHEL-Purchase Group for review before issuing MDCC.
4. In case, any changes in QAP commented by customer at contract stage shall be carried out by bidder without any implication to BHEL/Customer.
5. Project Specific QAP to be developed based on customer requirement .
6. For Export Job, BHEL technical specification for sea worthy packing to be followed.
7. Packing shall be suitable for storage at site in tropical climate conditions.

LEGEND :

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

BHEL			BIDDER/SUPPLIER		FOR CUSTOMER REVIEW & APPROVAL		
ENGINEERING			QUALITY				
Sign & Date	Name	Sign & Date	Name	Sign & Date	Doc No.	Name	Seal
Prepared By	Kanhaya Kumar	Prepared By	Kunal Gandhi	Seal	Reviewed By		
Checked By	Manish Shukla	Checked By	Ritesh K Jaiswal		Checked By		

KANHAYA KUMAR
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Date: 2023.10.17 10:51:45 +05'30'

RITESH KUMAR JAISWAL
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Date: 2023.10.17 10:51:45 +05'30'

ANNEXURE-A

STANDARD QUALITY PLAN
STANDARD QP NO. : PE-QP-999-508-E004, REV. 02

LIST OF TYPE TEST FOR NI-CD BATTERY

S No	Test	Type test description	Referred standard	Type Test to be specifically conducted (Yes/No)	BHEL/Customer's approval/Review Req. on test certificate (Yes/No)
1	Type Test	• Air pressure test	IS:10918	N	*Y
		• Insulation Resistance	IS:10918	N	*Y
		• Ampere-hour capacity	IS:10918	N	*Y
		• Retention of Charge	IS:10918	N	*Y
		• Test for discharge performance at low temp.	IS:10918	N	*Y
		• Life Cycle Test	IS:10918	N	*Y
		• Dielectric Test	IS:10918	N	*Y
		• Storage Test	IS:10918	N	*Y

NOTES: (*)

- 1) Type test reports to be submitted which should be carried out within last 10 years from the date of techno commercial bid opening **(Dates to be considered for different projects are indicated in the specification).**
- 2) 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 indicated date. 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.
- 3) However, if the contractor is not able to submit report of the type test(s) conducted within last ten years from the indicated date, 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.