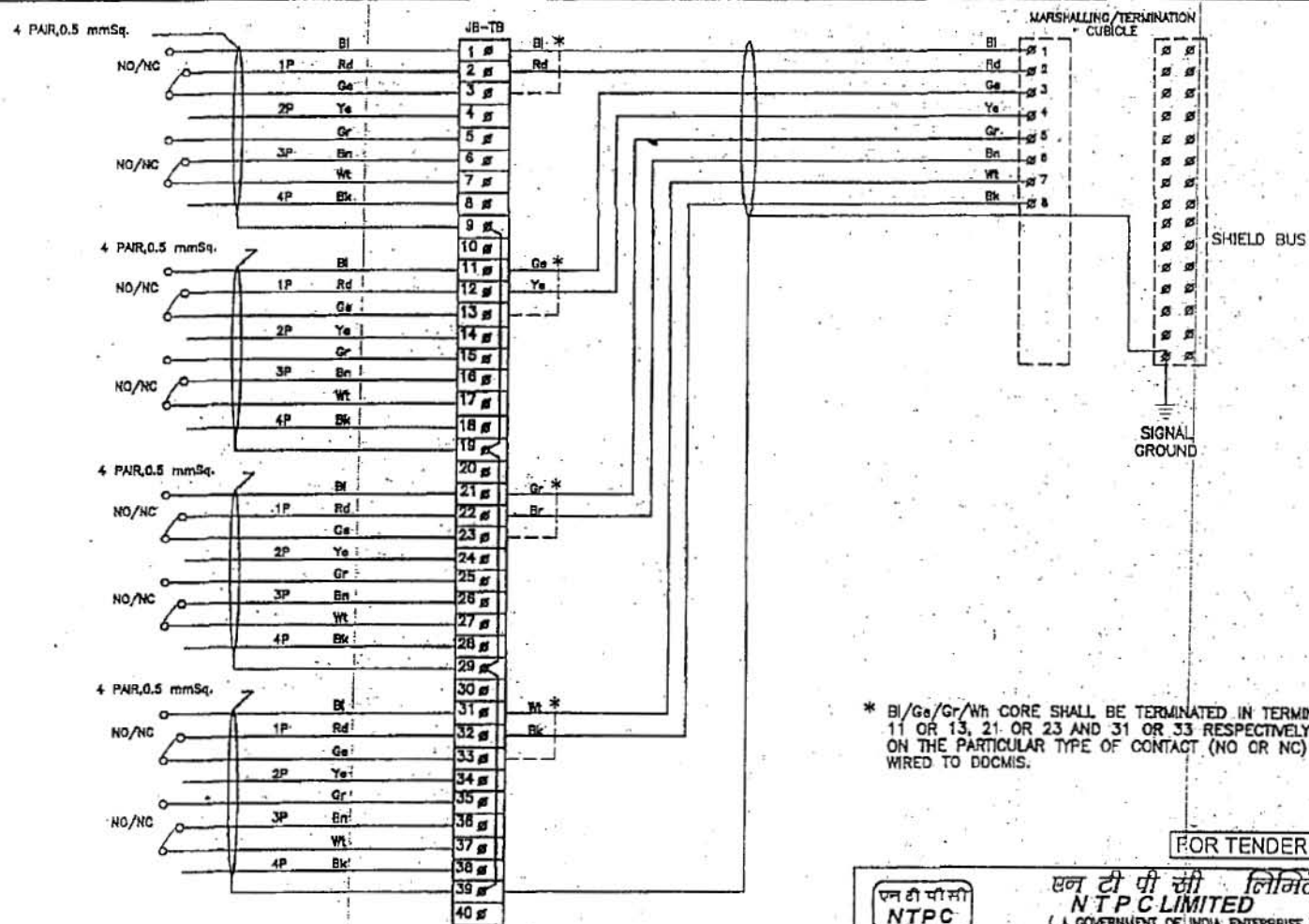


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* BI/Gr/Gr/Wh CORE SHALL BE TERMINATED IN TERMINAL 1 OR 3, 11 OR 13, 21 OR 23 AND 31 OR 33 RESPECTIVELY DEPENDING ON THE PARTICULAR TYPE OF CONTACT (NO OR NC) IS TO BE WIRED TO DDCMIS.

FOR TENDER PURPOSE ONLY

एन टी पी सी लिमिटेड
NTPC

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NTPC LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT TYPICAL THERMAL POWER PROJECT

TITLE INTERFACING OF FIELD INSTRUMENTS
SWITCH TERMINATION DETAILS
NO/NC

A FIRST ISSUE

REV. NO

DESCRIPTION

DRAWN DESIGN CHKD.

M

E

C

C&I

ARCH.

APPD

DATE

29.04.06

SIZE

SCALE

DRG. NO.

0000-999-POI-A-065

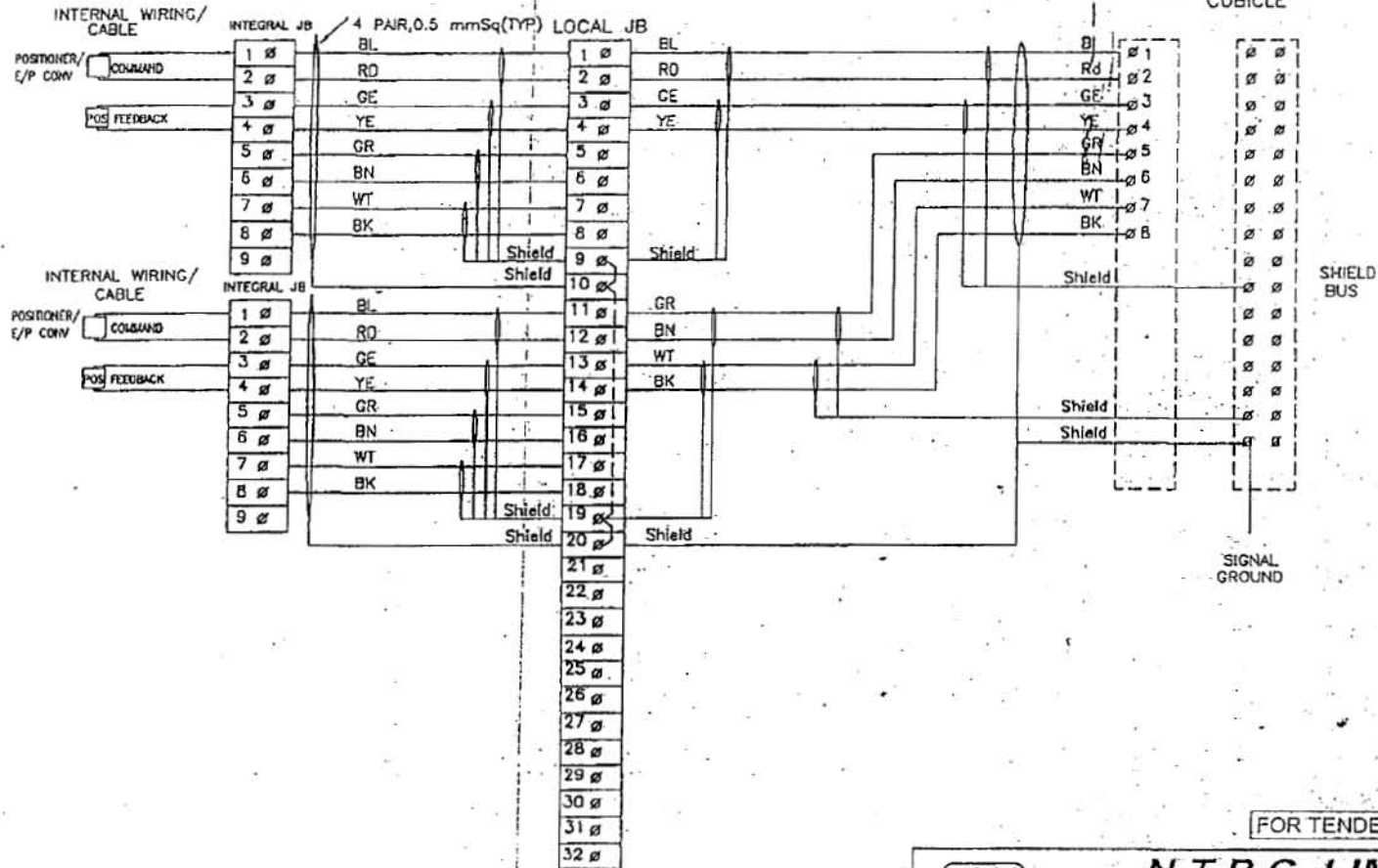
REV. NC

A

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SH 02 OF 14

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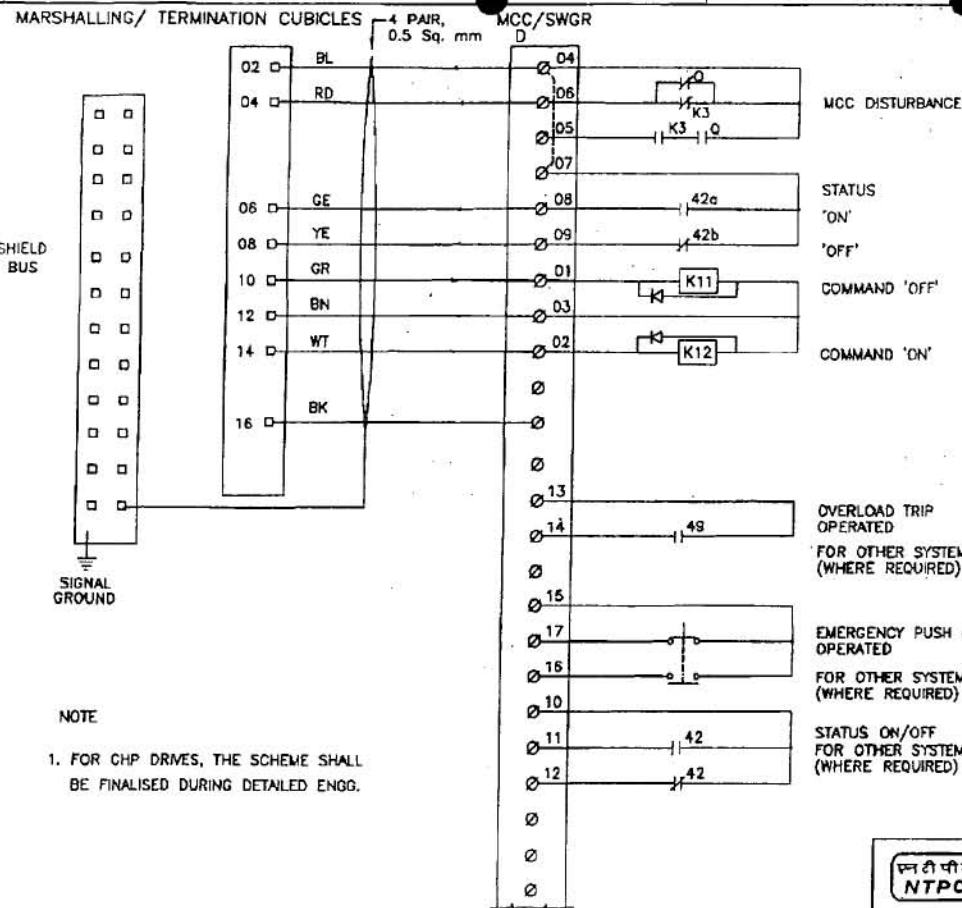
NTPC LIMITED

(A GOVERNMENT OF INDIA ENTERPRISE)
ENGINEERING DIVISION

												PROJECT TYPICAL THERMAL POWER PROJECT			
B	INTERNAL WIRING/INTEGRAL JB INDICATED	MA	MA								29.08.08	TITLE INTERFACING OF FIELD INSTRUMENTS CONTROL VALVE			
A	FIRST ISSUE	MA	MA								29.04.08				
REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ARCH.	APPD	DATE	SIZE A3	SCALE NTS	DRG. NO. 0000-999-POI-A-065	REV. NO. B
					CLEARED BY										
															SH 03 OF 14

SH 03 OF 14

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NTPC LIMITED
 (A GOVERNMENT OF INDIA ENTERPRISE)
 ENGINEERING DIVISION

PROJECT TYPICAL THERMAL POWER PROJECT

TITLE INTERFACING OF FIELD INSTRUMENTS
 INTERFACE OF DDCMIS WITH MCC/SWGR/ACTUATOR
 (LT MOTORS)

A FIRST ISSUE

REV. NO.

DESCRIPTION

DRAWN DESIGN CHKO.

M

E

C

C&J

ARCH.

APPD

DATE

28.04.06

SIZE

AS

SCALE

NTS

DRG. NO.

0000-999-POI-A-065

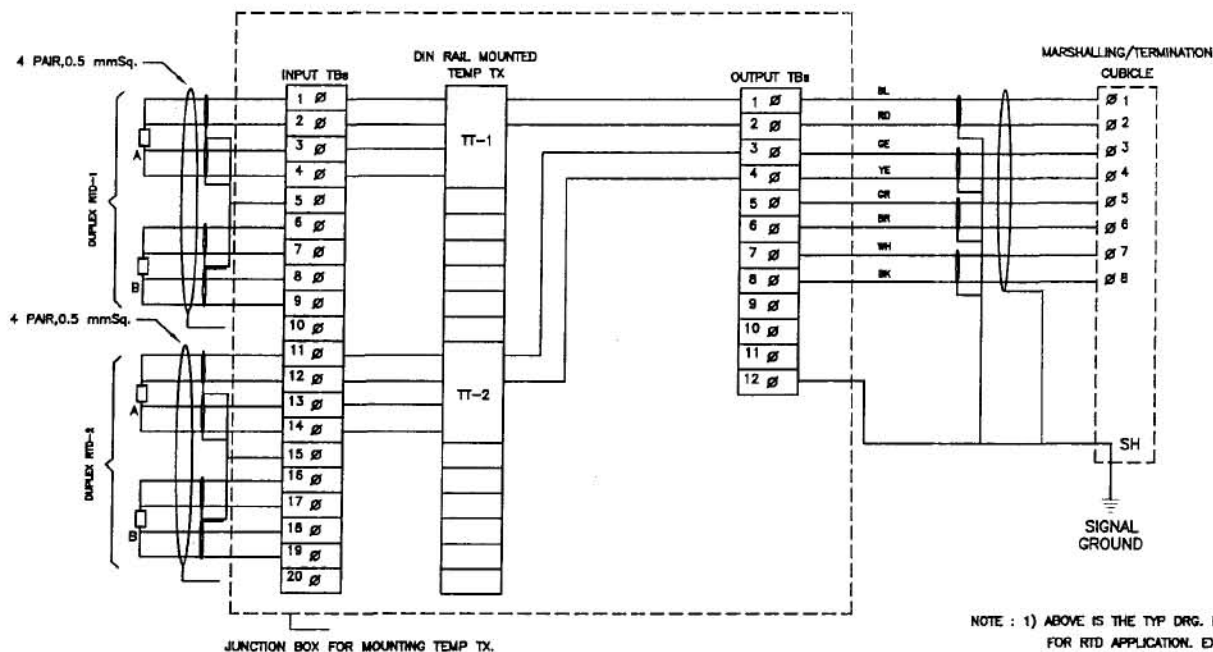
REV. NO.

A

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SH 05 OF 14

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- NOTE : 1) ABOVE IS THE TYP DRG. FOR DIN RAIL MOUNTED TEMP TRANSMITTERS FOR RTD APPLICATION. EXACT TYPE OF TEMP TRANSMITTER SHALL BE AS PER PART-A OF SPECIFICATION.
2) THE EXACT GROUPING OF TEMP TXs SHALL BE FINALISED DURING DETAILED ENGG. STAGE.

FOR TENDER PURPOSE ONLY

एन टी पी सी
NTPC

NTPC LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT TYPICAL THERMAL POWER PROJECT

TITLE INTERFACING OF FIELD INSTRUMENTS
TYPICAL RTD CONNECTION WITH TEMP TRANSMITTERS INJBs

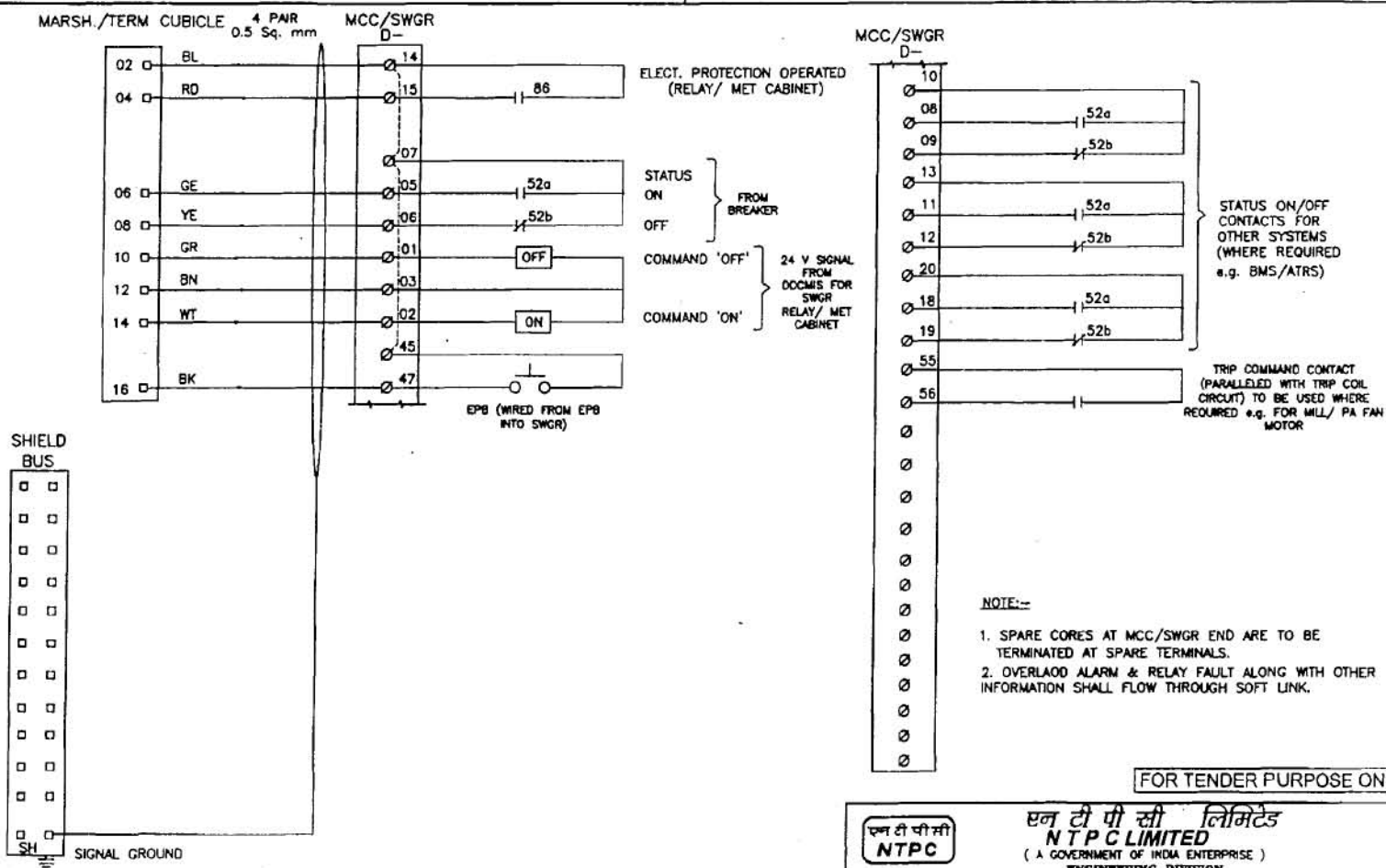
A	FIRST ISSUE										28.04.06
REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ARCH.	APPD	DATE

CLEARED BY

SIZE	SCALE	DRG. NO.	REV. NO.
A3	NTS	0000-999-POI-A-065	B

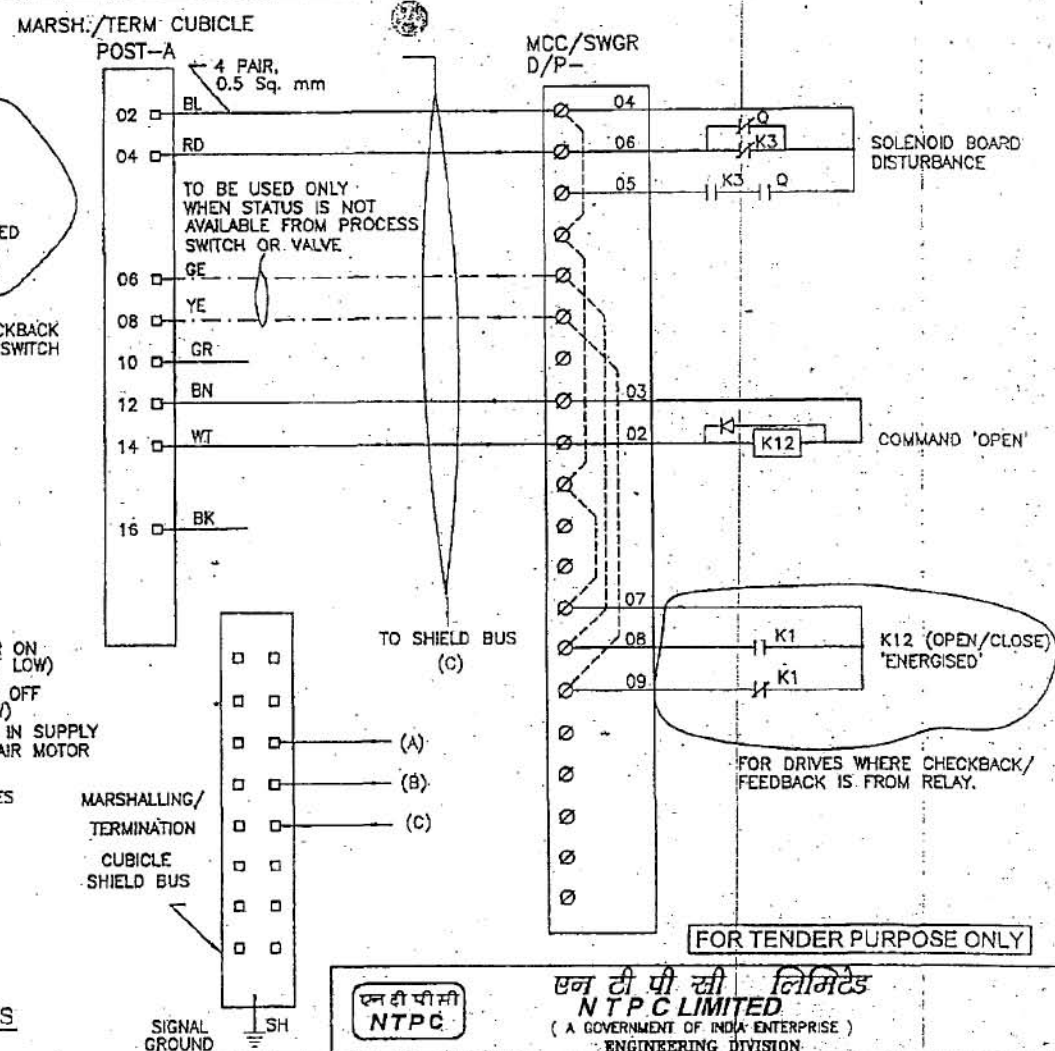
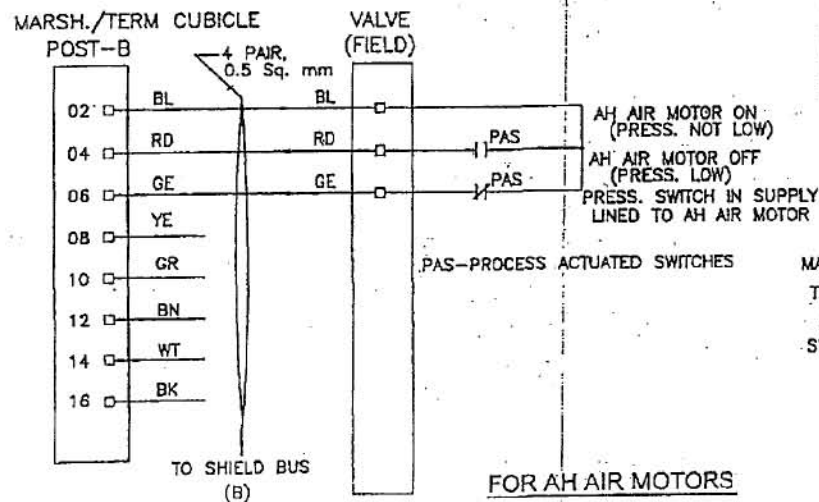
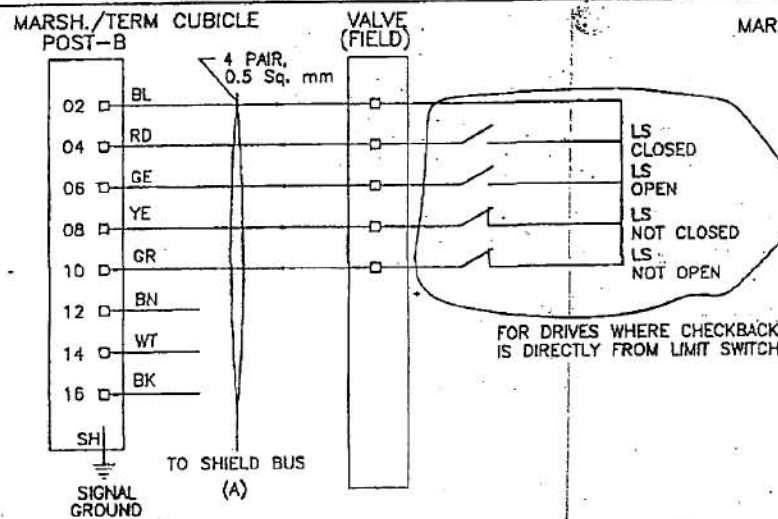
SH 06 OF 14

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		एन टी पी सी लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION	
PROJECT		TYPICAL THERMAL POWER PROJECT	
TITLE		INTERFACING OF FIELD INSTRUMENTS INTERFACE OF DDCMIS WITH MCC/SWGR/ACTUATOR (HT MOTORS)	
REV. NO.	DESCRIPTION	DATE	REV. NO.
6	Revised for Numerical relay based SWGR	14.02.08	B
DRAWN DESIGN CHKD. M C C&I ARCH. APPD.		SIZE A3	SCALE NTS
CLEARED BY		DRG. NO. 0000-999-POI-A-065	SH 07 OF 14



<p>एन टी पी सी लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION</p>																	
<p>PROJECT: TYPICAL THERMAL POWER PROJECT</p>																	
<p>TITLE: INTERFACING OF FIELD INSTRUMENTS INTERFACE OF DDCMIS WITH MCC/SWGR/ACTUATOR (SINGLE COIL SOLENOID)</p>																	
REV. NO.	A	FIRST ISSUE	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ARCH.	APPD	DATE	SIZE	SCALE	DRG. NO.	REV. NO.	
DESCRIPTION												A3	NTS	0000-999-POI-A-065	A		
CLEARED BY																	

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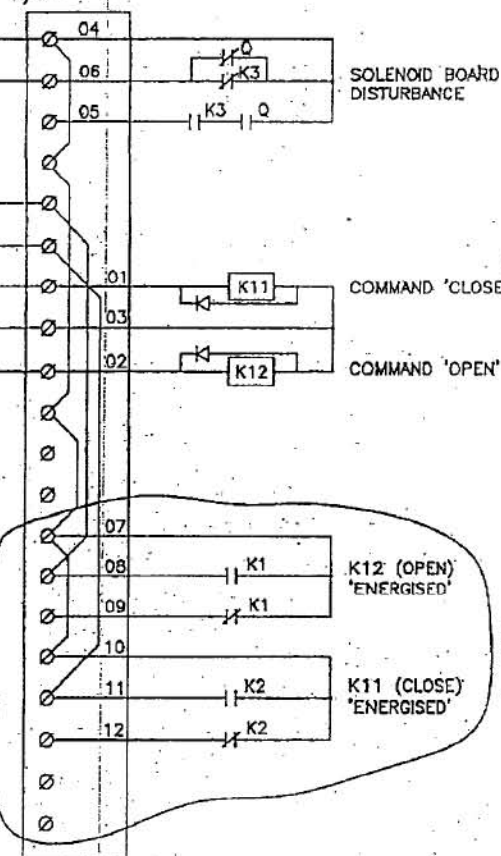
MARSHALLING/ TERMINATION CUBICLE

POST-A

02	BL
04	RD
06	GE
08	YE
10	GR
12	BN
14	WT
16	BK
SH	

4 PAIR, 0.5 Sq. mm

MCC/SWGR
D/P-



MARSHALLING/ TERMINATION CUBICLE

POST-B

02	BLUE
04	RED
06	GRAY
08	YELLOW
10	GREEN
12	BROWN
14	WHITE
16	BLACK

4 PAIR,
0.5 Sq. mm

VALVE
(FIELD)

TO SHIELD BUS
(B)

MARSHALLING/
TERMINATION CUBICLE
SHIELD BUS

02	
04	
06	
08	
10	
12	
14	
16	
SH	

SIGNAL

FOR TENDER PURPOSE ONLY

एन टी पी सी
NTPC

एन टी पी सी लिमिटेड
NTPC LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT

TYPICAL THERMAL POWER PROJECT

TITLE

INTERFACING OF FIELD INSTRUMENTS
INTERFACE OF DDCMIS/PLC WITH MCC/SWGR/ACTUATOR
(DOUBLE COIL SOLENOIDS)

REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ARCH.	APPD	DATE
A	FIRST ISSUE										29.04.06
CLEARED BY											

SIZE

A3

SCALE

NTS

ORG. NO.

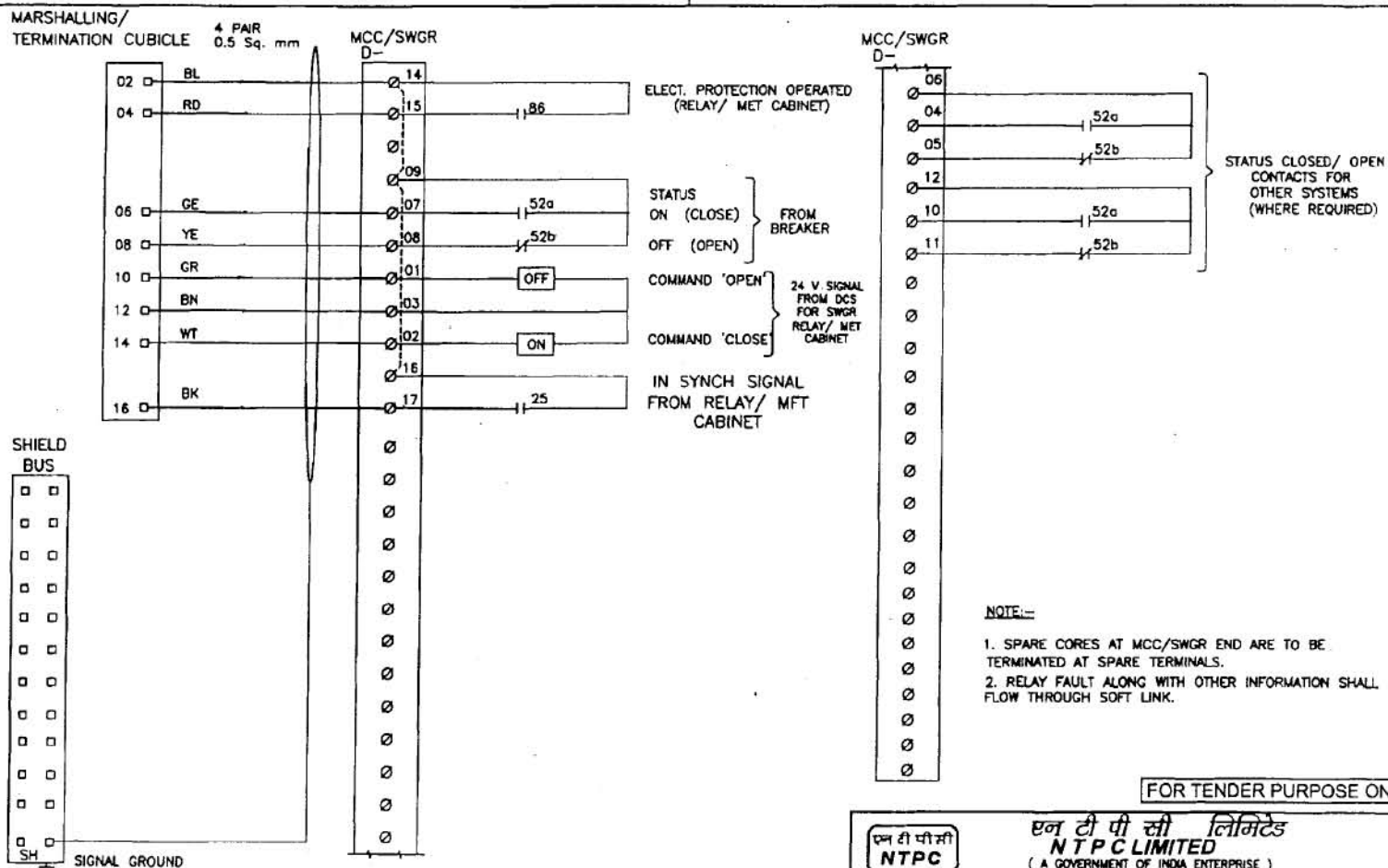
0000-999-POI-A-065

REV. NO.

A

SH 09 OF 14

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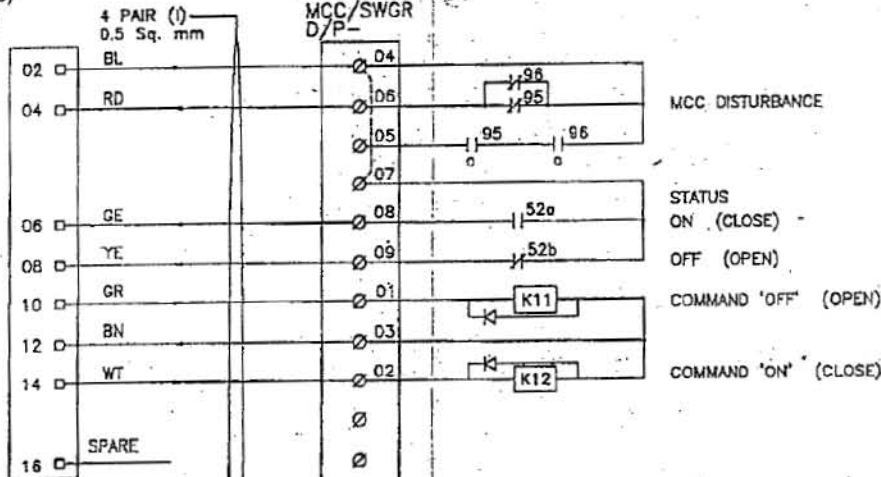


FOR TENDER PURPOSE ONLY

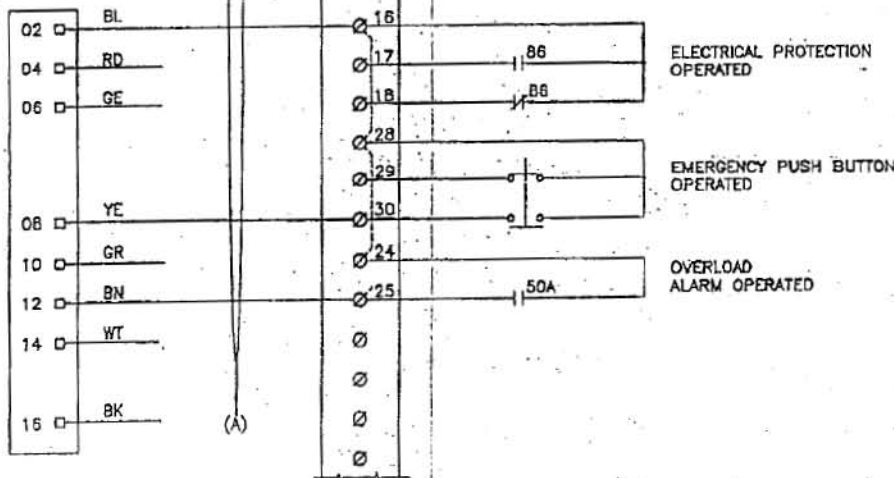
<p>एन टी पी सी लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION</p>	
<p>PROJECT: TYPICAL THERMAL POWER PROJECT</p>	
<p>TITLE: INTERFACING OF FIELD INSTRUMENTS INTERFACE OF DDCMIS WITH MCC/SWGR/ACTUATOR (Elect. Bkr. - Sync.-LT)</p>	
REV. NO.	REV. NO.
B	B
DESCRIPTION	DESCRIPTION
REVISED FOR NUMERICAL RELAY BASED SWGR.	REVISED FOR NUMERICAL RELAY BASED SWGR.
DATE	DATE
14.02.08	14.02.08
SIZE	SIZE
A3	A3
SCALE	SCALE
NTS	NTS
DRG. NO.	DRG. NO.
0000-999-POI-A-065	0000-999-POI-A-065
SH 10 OF 14	SH 10 OF 14

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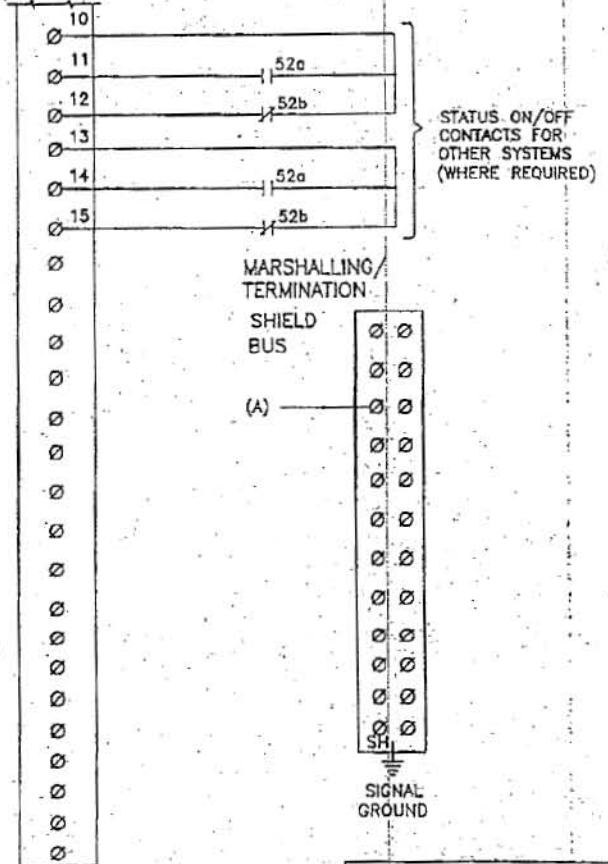
**MARSHALLING/
TERMINATION
CUBICLE
POST-A**



**MARSHALLING/
TERMINATION
CUBICLE
POST-B**



**MCC/SWGR
D/P-**



FOR TENDER PURPOSE ONLY

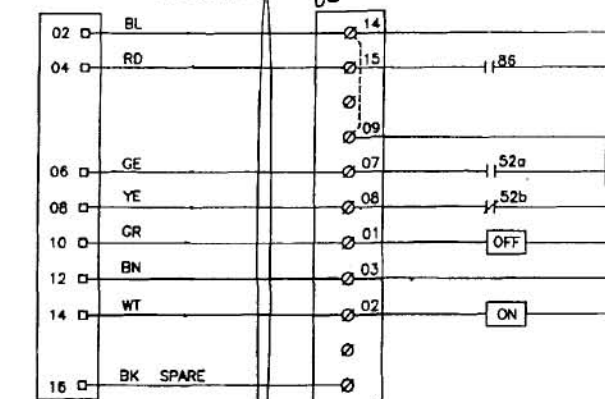
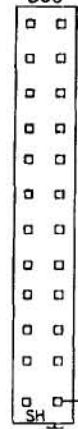
 एन टी पी सी लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION	
PROJECT	TYPICAL THERMAL POWER PROJECT
TITLE	INTERFACING OF FIELD INSTRUMENTS INTERFACE OF DDCMIS WITH MCC/SWGR/ACTUATOR (LT-A)
REV. NO.	REV. NO.
DESCRIPTION	DESCRIPTION
DRAWN	DESIGN
CHKD.	DATE
M	E
C	C&I
ARCH.	APPD
CLEARED BY	DATE
SIZE	SCALE
A3	NTS
DRG. NO.	0000-999-POI-A-065
SH 11 OF 14	A

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MARSHALLING/
TERMINATION CUBICLE 4 PAIR
0.5 Sq. mm

MCC/SWGR
D-

SHIELD
BUS



ELECT. PROTECTION OPERATED
(RELAY/ MET CABINET)

STATUS
ON (CLOSE)
OFF (OPEN)

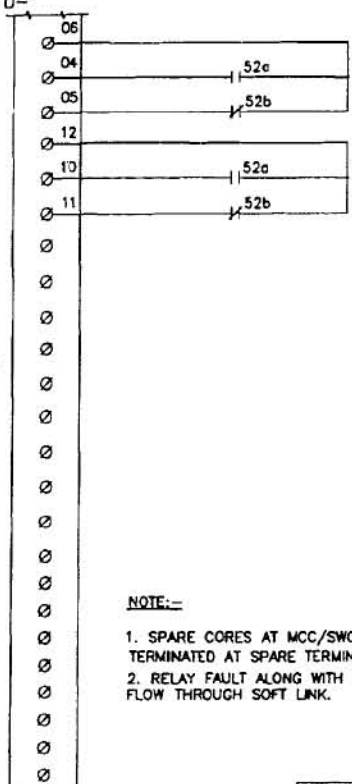
COMMAND 'OPEN'

COMMAND 'CLOSE'

FROM
BREAKER

24 V SIGNAL
FROM DCS
FOR SWGR
RELAY/ MET
CABINET

MCC/SWGR
D-



STATUS CLOSED/ OPEN
CONTACTS FOR
OTHER SYSTEMS
(WHERE REQUIRED)

NOTE:-

1. SPARE CORES AT MCC/SWGR END ARE TO BE TERMINATED AT SPARE TERMINALS.
2. RELAY FAULT ALONG WITH OTHER INFORMATION SHALL FLOW THROUGH SOFT LINK.

FOR TENDER PURPOSE ONLY

 एन टी पी सी लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION	
PROJECT	
TYPICAL THERMAL POWER PROJECT	
TITLE	
INTERFACING OF FIELD INSTRUMENTS INTERFACE OF DDCMIS WITH MCC/SWGR/ACTUATOR (Elect. Bkr. - Non. Sync.-LT)	
SIZE	SCALE
A3	NTS
DRG. NO.	REV. NO.
0000-999-POI-A-065	B
SH 12 OF 14	

REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	C	C&I	ARCH.	APPD	DATE
B	Revised for Numerical Relay based SWGR.									14.02.08
CLEARED BY										

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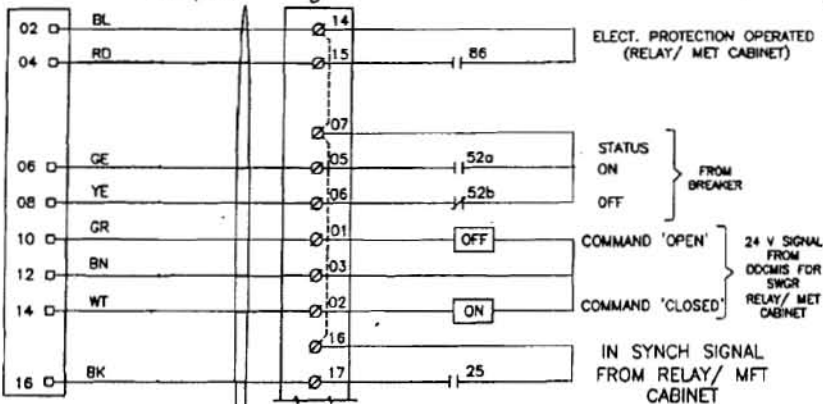
MARSH./TERM CUBICLE 4 PAIR
0.5 Sq. mm

MCC/SWGR D-

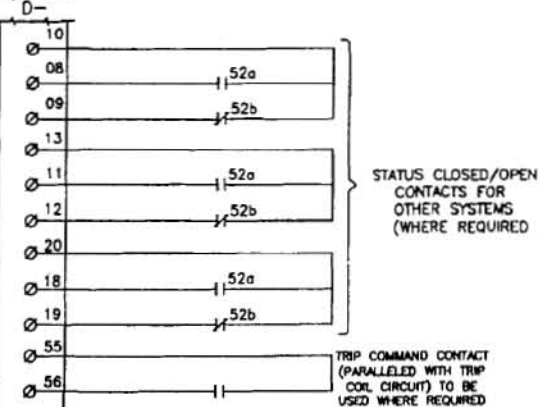
SHIELD
BUS



SH SIGNAL GROUND



MCC/SWGR D-



NOTE:-

1. SPARE CORES AT MCC/SWGR END ARE TO BE TERMINATED AT SPARE TERMINALS.
2. RELAY FAULT ALONG WITH OTHER INFORMATION SHALL FLOW THROUGH SOFT LINK.

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NTPC

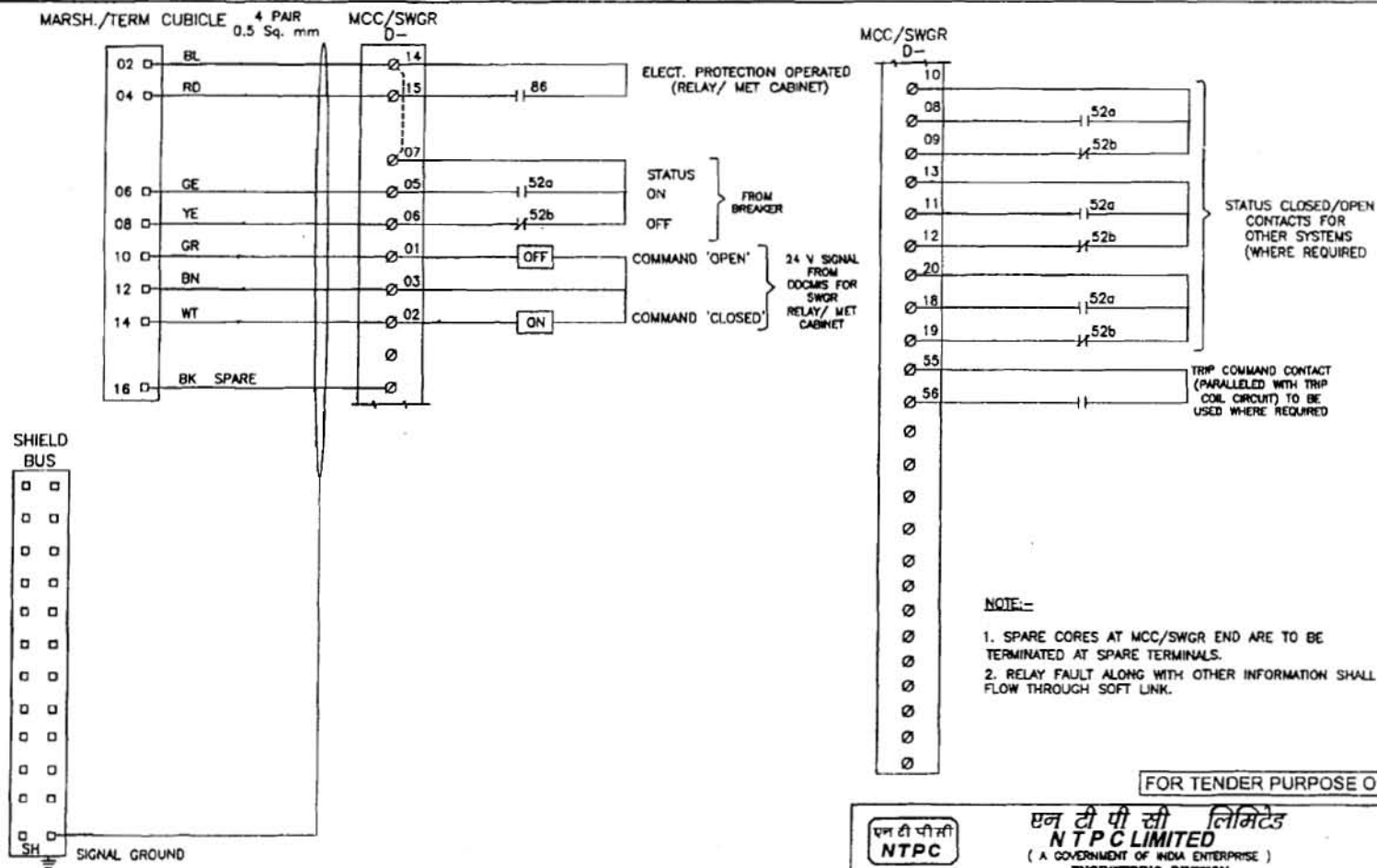
एन टी पी सी लिमिटेड
NTPC LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT		TYPICAL THERMAL POWER PROJECT	
TITLE		INTERFACING OF FIELD INSTRUMENTS INTERFACE OF DDCMIS WITH MCC/SWGR/ACTUATOR (Elect. Brkr. - Sync.-HT)	
SIZE	SCALE	DRG. NO.	REV. NO.
A3	NTS	0000-999-POI-A-065	B

REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	C	C&I	ARCH.	APPD.	DATE
0	Revised for Numerical relay based SWGR									14.02.08
Cleared by										

SH 13 OF 14

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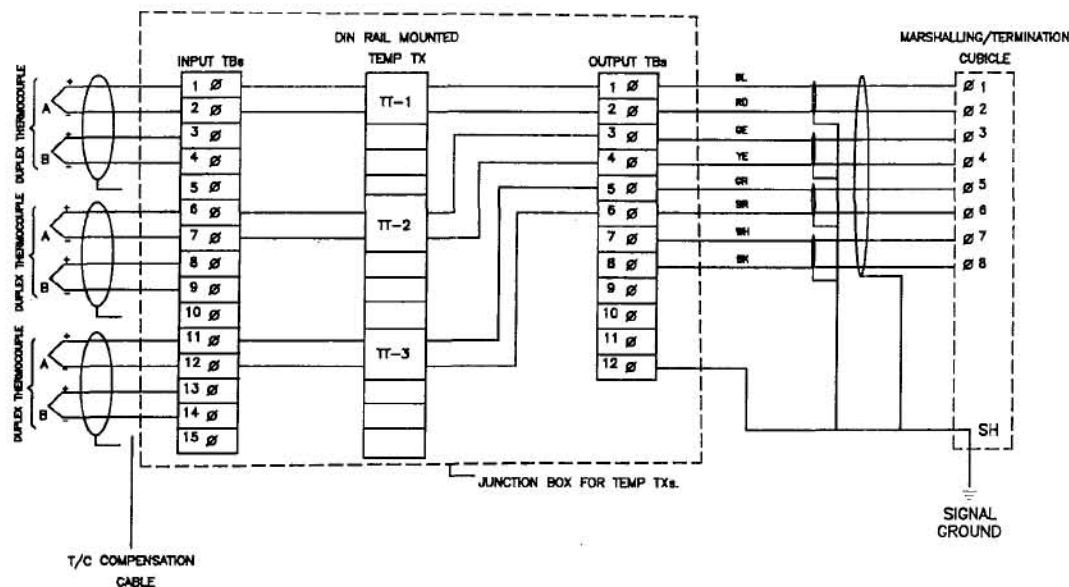
NOTE:-

1. SPARE CORES AT MCC/SWGR END ARE TO BE TERMINATED AT SPARE TERMINALS.
2. RELAY FAULT ALONG WITH OTHER INFORMATION SHALL FLOW THROUGH SOFT LINK.

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		एन टी पी सी लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION	
PROJECT		TYPICAL THERMAL POWER PROJECT	
TITLE		INTERFACING OF FIELD INSTRUMENTS INTERFACE OF DDCMS WITH MCC/SWGR/ACTUATOR (Elect. Brkr. - Non Sync.-HT)	
REV. NO.	DESCRIPTION	DATE	REV. NO.
B	Revised for Numerical relay based SWGR	14.02.08	B
DRAWN		DESIGN	CHKD.
C		C&I	ARCH.
Cleared by		DATE	
SIZE	SCALE	ORC. NO.	REV. NO.
A3	NTS	0000-999-POI-A-065	B
SH 14 OF 14			

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- NOTE: 1) ABOVE IS THE TYP DRG. FOR DIN RAIL MOUNTED TEMP TRANSMITTER FOR T/C APPLICATION. EXACT TYPE OF TEMP TRANSMITTERS SHALL BE AS PER PART-A OF SPECIFICATION.
- 2) THE EXACT GROUPING OF TEMP TXs SHALL BE FINALISED DURING DETAILED ENGG. STAGE.

FOR TENDER PURPOSE ONLY

एन टी पी सी
NTPC

NTPC LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT TYPICAL THERMAL POWER PROJECT

TITLE INTERFACING OF FIELD INSTRUMENTS
TYPICAL T/C CONNECTION WITH TEMP TXs IN JBs

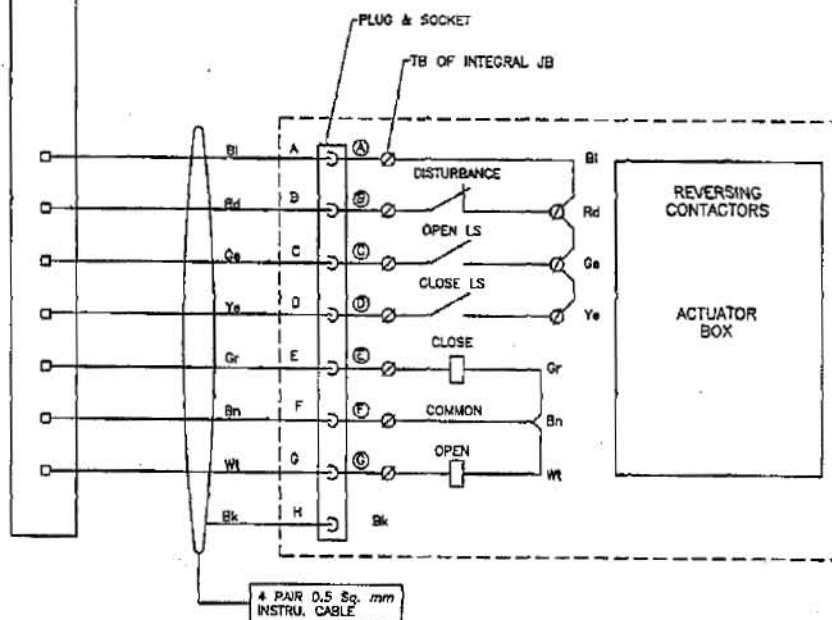
A	FIRST ISSUE	29.04.06
REV.NO.	DESCRIPTION	DRAWN DESIGN CHKD. M E C C&I ARCH. APPD DATE
		CLEARED BY

SIZE A3	SCALE NTS	DRG. NO. 0000-999-POI-A-065	REV. NO. B
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SH 15 OF 15

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TERMINATION AT
CONTROL SYSTEM END



FOR TENDER PURPOSE ONLY

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> <p>एन टी पी सी NTPC</p> </div> <div style="text-align: center;"> <p>NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION</p> </div> </div>									
<p>PROJECT: TYPICAL THERMAL POWER PROJECT</p>									
<p>TITLE: INTERFACING OF ACTUATORS</p>									
REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	ARCH.	DATE
A	FIRST ISSUE								28.04.01
					<p>CLEARED BY</p>				
								<p>SIZE: A3 SCALE: N.T.S. DRG. NO.: 0000-999-POI-A-063 REV. NO.: A</p>	



COMPRESSED AIR SYSTEM
2X 800 GADARWARA TPP

DOCUMENT NO.: **PE-TS-395-555-A001**

VOLUME- IIB

SECTION-C

REV. 0

SHEET 1 OF 1

VOLUME - II B

SECTION C.5

BHEL APPROVED SUB-VENDOR LIST
FOR
COMPRESSED AIR SYSTEM

		SUB VENDOR LIST & INSPECTION CATEGORISATION			
		<u>COMPRESSED AIR SYSTEM</u>			
SL No	Item	QP / Insp.Cat	Proposed Subvendor	Place of Manufacturer	Remarks
1	OIL FREE SCREW COMPRESSOR COMPLETE SKID MOUNTED WITH MOTOR, CONTROL PANEL AND ACCESSORIES	I	ATLAS COPCO - BELGIUM Assembly along with Indigenous components and Testing at Atlas Copco Works - Pune	Belgium (Pune)	
		I	KOBELCO - JAPAN Assembly along with Indigenous components and Testing at KPCL Works - Pune	JAPAN (Pune)	
		I	ELGI Air End from Hitachi Japan, Assembly along with Indigenous components and Testing at ELGI Works - Coimbatore	Coimbatore	
2	HOC / REACTIVATED BLOWER TYPE ADP	I	DELAIR	GURGAON	
			SUMMITS	COIMBATORE	
			MELLCON	NEW DELHI	
			ATLAS COPCO Testing at Atlas Copco Works - Pune	Belgium (Pune)	Only for MD type Air Drying Plant
3	MS/GI Pipes –ERW IS 1239 / IS 3589 (Quantity < 200 meters Assorted sizes)	III	SAIL	Rourkela	Material will be accepted on the basis of Main contractor COC supported by manufacturer TC as per relevant Code. In addition to above main contractor will certify availability of correlated identification marks on pipe wrt Manf TC and will also certify that pipes are free from rust
			Jindal (upto 350NB)	Ghaziabad	
			Surya Roshni (upto 400NB)	Bahadurgarh	
			Tata (upto 150NB) IS 1239 Pipes	Jamshedpur	
			Maharashtra seamless (200 to 500 NB) IS 3589	Raigad	
4	Forged/Formed fittings	III	EBY	Taloja	
			Siddarth & Gautam	Faridabad	
			Pipefit	Baroda	
			MS Fittings	Kolkata	
			Tube Products	Baroda	
			Bharat Forge	Pune	
			NL Hazra	Kolkata	
5	Ball Valve	I	Precision Engg	Nasik	upto 400NB 150 class
			Microfinish Valves Ltd	Hubli	upto 50NB 800 class; 400 NB 300 class
			BDK engg Industries	Hubli	upto 50NB 800 class ; 400NB 150 class
			Flow chem. Industries	Ahemdabad	upto 50 NB 800 Class: 350NB 150 class
			Audco	Chennai	
			Akay India	Hubli	upto 50NB 800 class

SL No	Item	QP / Insp.Cat	Proposed Subvendor	Place of Manufacturer	Remarks
6	CS/FS Gate/Globe/Check valves Upto 600 NB 150 Class, 50 NB 800 Class	III	Fouress	Mumbai/ Aurangabad	
			BDK	Hubli	
			Audco	Chennai	
			Leader	Jullundhar	
			KSB	Coimbatore	
			KBL	Kondhapuri	
7	Butterfly Valve (Upto 500 NB PN 16)	II	KBL	Kondhapuri	
			Fouress	Bangalore	
			Audco	Chennai	
			BDK	Hubli	
			Tyco	Halol	
			Inter Valve	Pune	
8	Air Receiver	I	Integrated Engineers	Mumbai	
			Diamond Fabricators	Pune	
			Parkaire	Delhi	
			Temasme Vesselex	Noida	
			United Engineering Works	Nasik	
9	Safety Relief Valve	III	LEADER	JALANDHAR	
			SPIRAX MARSHALL	PUNE	
			FISCHER SANMAR	CHENNAI	
10	Pr./Vacuum/Dp Gauges	III	Auxitrol	U.K	
			Switzer (for DP gauge)	Chennai	
			Budenburg	U.K	
			A.N.Instruments	Kolkata	
			Bells Control	Kolkata	
			Manometer India	Mumbai	
			H Guru	Muzzafarpur / Risra	
			General Inst.	Mumbai/Goa	
			Gluck India	Mumbai	
11	Pr./Vacuum/DP.switch	II*	Indfos Ind.	Ghazibad	* If the total Quantity is <= 10, then inspection category III. However, manufacturer TC to be submitted
		III	Barton Inst.system	USA	
		I*	Gauges Bourdon	Mumbai	
		II*	Switzer	Chennai	
12	Temperature Gauge	III	Budenburg	U.K	
			A.N.Instruments	Kolkata	
			Bells Control	Kolkata	
			H Guru	Muzzafarpur / Risra	
			General Inst.	Mumbai/Goa	
13	Temperature Transmitter	I	(ABB)	Faridabad / Germany	For Din Rail Type only
		II*	Yokogawa	Japan	* If the total Quantity is <= 10, then inspection category III. However, manufacturer TC to be submitted

SL No	Item	QP / Insp.Cat	Proposed Subvendor	Place of Manufacturer	Remarks
		II*	Emerson (Rosemount)	USA	
14	Pr./DP Transmitter	I	(ABB) -2600T series	Faridabad/Italy	
		II*	Honeywell	USA/India	* If the total Quantity is <= 10, then inspection category III. However, manufacturer TC to be submitted
		III	Fuji	Japan	
		III	Emerson (Rosemount)	USA	
		II*	Emerson (Rosemount)	Daman	* If the total Quantity is <= 10, then inspection category III. However, manufacturer TC to be submitted
		II*	Yokogawa	Japan	* If the total Quantity is <= 10, then inspection category III. However, manufacturer TC to be submitted. Calibration at YIL Bangalore is acceptable
15	HT Motor for Air compressor	I	CGL	Mandideep	Upto 1600 KW, 6.6 KV; Upto 1310 KW, 11 KV
			Marathon Electric	Kolkata	Upto 6.6 KV, 750 KW
			BHEL	Bhopal	
			SIEMENS	Germany	
			Hyosung	Korea	
			Hyundai	Korea	
16	Flow Switch	III	Switzer	Chennai	
			Levecon	Kolkata	
			DK Instruments	Kolkata	
			Delta	UK	
			ITT Barton	USA	
17	Temp Sensor	III	Pyro Electric	Mumbai	
			Detriv	Mumbai	
18	Flow Indicator	III	Sigma	Mumbai	
			Eureca	Pune	
19	Auto Drain Trap	III	Main Contractor approved sources		
20	Dew point meter	III	GE Sensing	Ireland	
			Michell Instruments	UK	
			Shaw	UK	
21	Flow Meter / Rota Meter	III	Trac	Hyderabad	
			Eureca	Pune	
22	Level Indicator/ Gauge	III	Sigma	Mumbai	
			Levcon	Kolkata	
			Pune Techtrol	Pune	
			SBEM	Pune	
23	Solenoid Valve	III	HERION	GERMANY/ ITALY	
			ROTEX AUTOMATION LTD.	V V NAGAR/ BARODA	
			ASCO	CHENNAI	
			JEFFERSON	ARGENTINA	

SL No	Item	QP / Insp.Cat	Proposed Subvendor	Place of Manufacturer	Remarks
24	Cable trays (max 300 meters)	III	INAR PROFILE	ANNAKAPALLI	
			ANAND UDYOG	THANE	
			MJ ENGG.	DELHI	
			INDIANA	MUMBAI	Galvanizing. At Karmatara
			TECHNO ENGG	CHANDIGARH	
			JAMUNA METAL	DELHI	
			INDUSTRIAL PERFORATION	KOLKATA	Galvanizing at Unistar
			VATCO	MUMBAI	Galvanizing At Sigma Mumbai
25	Cable Glands	III	SUNIL& COMPANY	KOLKATA	
			ARUP ENGG	KOLKATA	
			COMMET	MUMBAI	
			QUALITY PRECISION	KOLKATA	
26	Cable Lugs	III	DOWELLS	MUMBAI	
			CHETNA ENGG	NASIK	
			3D	VALSAD	
27	Control cable	I*	RADIANT CABLES	HYDERABAD	* FOR LENGTH LESS THAN 500 M TO BE CONSIDERED AS CAT-III
			HVPL	FARIDABAD	
			PARAMOUNT CABLES	ALWAR	
			NICCO	SHYAMNAGAR	
			UNIVERSAL CABLES	SATNA	
			ICL	RAJPURA	
			DELTON CABLE	FARIDABAD	
			KEI	BHIWADI	
			POLYCAB	DAMAN	
			TORRENT	NADIAD	
28	Instrument cable	I*	POLYCAB	DAMAN	* FOR LENGTH LESS THAN 500 M TO BE CONSIDERED AS CAT-III
			UNIVERSAL CABLES	SATNA	
			NICCO	KOLKATA	
			RELIANCE	BANGLORE	
			CORDS	BHIWADI	
			PARAMOUNT CABLE	KHUSKHERA	
			INCAB	PUNE	
29	Junction Box	III	Main Contractor Approved Sources		

NOTE :

- 1) INSP CAT I : FOR THOSE ITEMS THE QUALITY PLANS ARE APPROVED BY NTPC AND FINAL ACCEPTANCE WILL BE ON PHYSICAL INSPECTION WITNESS BY BHEL & NTPC.
- 2) INSP CAT II : FOR THOSE ITEMS THE QUALITY PLANS ARE APPROVED BY NTPC. HOWEVER NO PHYSICAL INSPECTION WILL BE DONE BY BHEL / NTPC. THE FINAL ACCEPTANCE BY BHEL / NTPC SHALL BE ON THE BASIS OF REVIEW OF DOCUMENTS AS PER QP.
- 3) INSP CAT III : FOR THOSE ITEMS FINAL ACCEPTANCE BY BHEL / NTPC BASED ON BIDDER'S COC.



COMPRESSED AIR SYSTEM
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SECTION C.6
MANDATORY SPARES LIST

MANDATORY SPARES FOR STEAM GENERATOR PACKAGE FOR CAS					
GADARWARA TPP, (2 X 800 MW)					
SI. NO.	PARTICULARS	QUANTITY	Unit Ex-Works price (Rs.)	Total Ex-Works price (2 x 800 MW set) (Rs.)	Remarks
1.27.00	AIR COMPRESSORS / ADP /COMPRESSOR HOUSE CRANE				
1.27.01	Oil free Screw Air Compressor (As applicable)				
1	H. P. Stage Complete HP Stage assembly consisting of high pressure element, Bearing for male and female rotors (drive end), Bearing for male and female rotors (non-drive end), Timing gears, Graphite ring shaft for compressor chamber seals or white metal labyrinth, suction valve, discharge valve, packing set, Axial thrust bearing, Labyrinth oil seal or radial seals or double acting seals for drive shafts.	1 Set of each type/rating			
2	L. P. Stage Complete LP Stage assembly consisting of high pressure element, Bearing for male and female rotors (drive end),Bearing for male and female rotors (non-drive end), Timing gears, Graphite ring shaft for compressor chamber seals or white metal labyrinth, suction valve, discharge valve, packing set, Axial thrust bearing, Labyrinth oil seal or radial seals or double acting seals for drive shafts.	1 Set of each type/rating			
3	Motor Bearings	2 Sets			
4	LP stage Gear and Pinion	1 Set			
5	HP stage Gear and Pinion	1 Set			
6	Air Intake Filter Element With Gaskets	4 Sets			
7	Oil Filter Element With Gaskets & Seals	4 Sets			
8	Safety Valve Springs and Gaskets for HP stage	1 Set			
9	Safety Valve Springs and Gaskets for LP stage	1 Set			
10	Valves (within the compressor house with actuators)	2 nos of each type/ratings/size.			
11	Oil Pump/Motor				
11.1	Oil Pump and Motor complete assembly	1 Set			
11.2	Pump impeller/rotor with shaft	1 Set			
11.3	Set of bearings	2 Set			
11.4	Set of Seals	2 Set			
12	DRAIN / MOISTURE TRAP	2 Set of each type/size.			
13	OIL COOLER GASKET & SEALS	2 sets			
1.27.02	Centrifugal Compressor (As applicable)				
1	Pinion Shaft journal Bearing Assembly	2 sets			
2	Thrust Bearing Assembly	2 sets			
3	Shaft Seals for Air-Oil (All stages)	2 sets			
4	Gasket / O rings	3 Sets of each type/size.			
5	Air Intake Filter Elements	4 Sets of each type/size.			

6.1	Main oil pump complete	1 No			
6.2	Aux. oil pump complete	1 No			
6.3	Complete coupling for main & Aux. Oil pump, spacer	1 No			
6.4	Catridge filter elements with gaskets and seal	4 sets			
7	Motor Bearings	2 sets			
8	DRAIN / MOISTURE TRAP	2 Set of each type/size.			
9	OIL COOLER GASKET & SEALS	2 sets			
1.27.03	AIR DRYING PLANT (Twin tower type) FOR IA SYSTEM				
1	Pre filter element(Ceramic candle or as applicable)	2 sets			
2	After filter element(Ceramic candle or as applicable)	2 sets			
3	Heater element (if applicable)	1 set			
4	Blower bearing (if applicable)	1 set			
5	Blower motor bearing (if applicable)	2 sets			
6	Valves & Valve Actuators (pneumatic/hydraulic)	2 sets			
7	Heater coil for temperature stabilization (for HOC type)(as applicable)	2 sets			
	OR				
1.27.03	AIR DRYING PLANT (Rotary Drum type) FOR IA SYSTEM				
a)	Spare drum (with required bearings) assembly packed with desiccant	2 sets			
b)	Spare drive assembly (for dryer) consisting of motor, gear boxes, drive shaft & coupling	1 set			
1.27.04	COMPRESSOR HOUSE CRANE				
1	All bearings	1 set of each type/rating	} Part of crane package		
2	Brake assembly and its liners	1 set of each type/rating			
3	Wire rope	1 complete length.			
3.00.00	CONTROL AND INSTRUMENTATION (APPLICABLE FOR STEAM GENERATOR AND AUXILIARIES INCLUDING MILL REJECT SYSTEM, FUEL OIL PRESSURISATION AND HEATING SYSTEM, AUXILIARY BOILER, DOZING SYSTEM, AIR COMPRESSORS ETC.)				
3.03.00	MEASURING INSTRUMENTS (for all systems including Air Compressor, FOPH, Dosing System, ECW System etc.)				
1	Electronic Transmitters				
1.1	Transmitters of all types, ranges and model no. (for the measurement of Pressure,differential pressure flow, level, etc.)	10% or 1 no. of each type and model			
1.2	Level Transmitters (Ultrasonic/ radar type)	50% of each type and length, including sensors			
2	Temperature elements				

2.1	RTD's* of each type and length(with head assembly, terminal block & nipple)	10% or 2 nos. of each type and length, whichever is more			
2.2	Thermocouples of each type like K-type, R-type, metal etc. * (with head assembly, terminal block & nipple)	10% or 2 nos. of each type and length which ever is more			
2.3	Thermowell for application like mill outlet temperature and SH/RH/Eco/ flue gas temp. in furnace	10% or 2 nos. of each type and length whichever is more			
2.4	Temperature transmitters	10% of each type and length			
3	Local Indicators like temperature gauges, pressure gauges, differential pressure gauges, flow gauges, flow meters etc.,	5% or 1 no. of each make, model and type whichever is more (to be divided to various ranges in proportion to main of all make, model, type population)			
4	Process Actuated Switch Devices Includes all types of Pressure, differential pressure, flow, temperature, differential temperature, level switch Devices	5% or 1 no. of each type and model whichever is more			
5	PD Type Flow Transmitters	1 no. of each type and model			
6	Instruments within Compressor Skid	10% or 2 nos. of each type and length, whichever is more			
7	Instruments within Drier Skid	10% or 2 nos. of each type and length, whichever is more			
3.06.00	INSTRUMENTATION CABLE, INTERNAL WIRING & ELECTRICAL FIELD				
	1. Pre fabricated cable of each type.	10% of installed quantity			
	2. Pre fabricated cable connector of each type	10% or 1 no. of each type and model, whichever is more.			
	3. Other cables	5% of each type, pair and size of actual installed quantity			
3.09.00	MICROPROCESSOR BASED/PLC BASED CONTROL SYSTEM FOR AIR COMPRESSOR & DRYER UNIT				
1	Complete set including integral microprocessor based control system alongwith system & application software and special cables	10% or 1 nos. which ever is more			



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SECTION C.5

FUNCTIONAL GUARANTEE



COMPRESSED AIR SYSTEM FUNCTIONAL GUARANTEES

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1.0 For Category-I Guarantees.

Reject the equipment/system/plant and recover the payments already made.

OR

Accept the equipment/system/plant after levying Liquidated damages as specified.

- A) Summation of power consumption of one Instrument Air Compressors, one Air Dryer Plant and one Service Air compressors.

2.0 For Category-III Guarantees.

Reject the equipment/system/plant and recover from the contractor the payments already made.

OR

Accept the equipment/system after assessing the deficiency in respect of the various ratings, performance parameters and capabilities and recover from the contract price an amount equivalent to the damages as determined by the employer. Such damages shall, however be limited to the cost of replacement of the deficiency so as to achieve the guarantee performance.

- A) Capacity and discharge pressure of each compressor (to be demonstrated at shop).
- B) Parallel operation of air compressors (to be demonstrated at site).
- C) Pressure drop across Air Drying Plant and capacity and dew point of air at the outlet of air drying plants (to be demonstrated at site).
- C) Vibration level and noise level of each air compressor, blowers and any other rotating equipments of each air drying plant shall be demonstrated at site and shop.
- D) Power consumption at motor input terminal at rated capacity as well as fully unloaded condition of all the compressor shall be measured at shop.

Note: Test shall be carried out on all compressors with contract drive motor.



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SECTION E

QUALITY ASSURANCE

CLAUSE NO.	QUALITY ASSURANCE			
1.00.00	AIR COMPRESSOR SYSTEM			
1.01.00	AIR COMPRESSORS :			
	<div>a) All pressure parts shall be hydraulically tested at not less than 150% of design pressure prior to painting and lining, if applicable. The test pressure will be maintained for 30 minutes.</div> <div>b) All other parts including inter-connecting piping shall be hydraulically tested wherever possible, as per relevant codes.</div> <div>c) Ultrasonic testing shall be carried out on all forgings and shafts (if dia.>= 50mm) viz. Crank shaft, connecting rod, piston rod, etc. MPI/DP test will be done on machined areas of the above components.</div> <div>d) Pistons shall be subjected to DP testing.</div> <div>e) During assembly all clearances and alignments shall also be checked and recorded.</div> <div>f) Rotor shall be statically and dynamically balanced.</div>			
1.01.01	PERFORMANCE TEST (SHOP TEST) :			
	<div>a) Performance test on the compressors shall be carried out in accordance with ISO:1217/eq.. The test shall also include demonstration of loading and unloading mechanism (Capacity control) and operation of safety valves.</div> <div>b) Power consumption at motor input terminal at rated capacity as well as at fully unloaded condition of all the compressor shall be measured.</div> <div>c) Vibration and noise level measurement will be done during shop performance test.</div> <div>d) Test shall be carried out on all compressors with contract drive motor where power consumption for compressors has been indicated as a guaranteed parameter</div> <div>e) Clearance on Type test requirements from Employer's Engg. Shall be reviewed prior to final clearance.</div>			
1.02.00	INTAKE AIR FILTER & SILENCER			
	Test for Capacity, Pressure drop and Efficiency shall be done as per manufacturer's standard.			
1.03.00	AIR RECEIVER, HEAT EXCHANGERS, MOISTURE SEPERATORS, AIR DRYING PLANT:			
	<div>a) Each finished vessel shall be hydraulically tested to 150% of the design pressure for a duration of 30 minutes.</div> <div>b) NDT on weld joints shall be as per respective code requirements or the minimum as specified below:<div><div>(i) 100 % DPT on root run of butt welds.</div><div>(ii) 100% DPT on all finished butt welds and fillet welds</div></div></div>			
LARA STPP (2x800MW) / DARLIPALI STPP-I (2 x 800MW) / GAJMARIA STPP-I (2x 800MW) / KUDGI STPP-I (3 x 800MW) STEAM GENERATOR PACKAGE		TECHNICAL SPECIFICATION SECTION-VI BID DOC NO.: CS-9548/ 9549/ 9566/ 9573-102-2	PART-B SUB-SECTION-VII:QM6 AIR COMPRESSOR	PAGE 1 OF 2

CLAUSE NO.	QUALITY ASSURANCE			
1.04.00	(iii) 10% RT on butt welds which shall include all T- joints.			
	c) Tube to Tube sheet joint of the heat exchangers shall be subject to Mock-up test as per the relevant standards.			
1.05.00	d) Reactivation blowers shall be tested for FAD, temp. rise, noise & vibration. Rotating parts shall be dynamically balanced.			
	e) Completely assembled ADP shall be pneumatically tested at design pressure for a duration of 5 minutes. Functional and sequential operation testing of the completely assembled ADP shall be demonstrated at shop. Other accessories shall be tested as per relevant code and sections. Dew point measurement shall be done .			
1.05.00	H.O.T. CRANE :			
	a) Chain pulley Blocks shall be tested as per IS: 3832.			
1.05.00	b) Following NDT requirements shall be met :			
	(i) 100% RT of Butt welds in tension and 10% RT of butt welds in compression.			
1.05.00	(ii) DP at random on all weldments.			
	Deflection, load, overload & travel check on HOT crane assembly shall be carried out as per IS:3177.			
1.05.00	PIPINGS, VALVES, FITTINGS AND OTHER SPECIALITIES			
	Refer , relevant clauses as indicated in SG portion of Technical specification .			
1.05.00	All forgings, dia ≥ 50 mm shall be Ultrasonic Tested irrespective of the type, size & rating of the valve.			
LARA STPP (2x800MW) / DARLIPALI STPP-I (2 x 800MW) / GAJMARA STPP-I (2x 800MW) / KUDGI STPP-I (3 x 800MW) STEAM GENERATOR PACKAGE		TECHNICAL SPECIFICATION SECTION-VI BID DOC NO.: CS-9548/ 9549/ 9566/ 9573-102-2	PART-B SUB-SECTION-VII:QM6 AIR COMPRESSOR	PAGE 2 OF 2



COMPRESSED AIR SYSTEM
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SECTION D
TECHNICAL DATA SHEET
(To be filled by Bidder)

CLAUSE NO.	Bidder's Name			
	COMPRESSED AIR SYSTEM			
1.00.00	AIR COMPRESSOR	INSTRUMENT AIR (IA)	SERVICE AIR (SA)	
1.01.00	Capacity selection (in NM ³ /min)			
	a) SG & Its auxiliaries requirement per unit	.....	.....
	b) TG & its auxiliaries / Unit	.....	.....
	c) Water Treatment Plant	.....	.....
	d) Station C&I System	.....	.....
	e) Selected Capacity as per design criteria specified (in NM ³ /min)	.....	.....
1.02.00	General Data			
	(a) Manufacturer name	.....	.....
	(b) Model No.	.....	.....
	(c) Type of compressor	.....	.....
	(d) Total numbers offered	.....	.....
1.03.00	Guaranteed Performance			
1.03.01	Capacity of each compressor (NM ³ /min.) considering design ambient condition	.....	
1.03.02	Discharge pressure {(Kg/cm ² (g)) at Compressor HP outlet	.....	
1.03.03	Discharge pressure {(Kg/cm ² (g)) of Instrument Air at ADP Outlet	.....	
1.03.04	KW input required at the compressor shaft at design condition	.....	
1.03.05	Guaranteed power consumption at motor input terminals at rated conditions (i.e. without any tolerance)	.....	
1.03.11	KW rating of drive motor	.....	
1.03.12	Drive motor speed (rpm)	.....	
1.03.13	Guaranteed Power Consumption of ADP	.....	
1.03.14	Whether the Material of Construction of compressor is as per Specification?	YES / NO		
NAME OF THE ROJECT..... STEAM GENERATOR PACKAGE		TECHNICAL SPECIFICATION SECTION-VI BID DOC NO.: CS-9548/ 9549/ 9566/ 9573-102-2	PART-F SUB-SECTION : DM8	PAGE 1 OF 4

CLAUSE NO.	Bidder's Name					
2.00.00	AIR RECEIVERS					
2.01.00	Design code	.....			
2.02.00	Design Pressure [Kg/cm ²]	.....			
2.03.00	Material of Construction	.....			
2.04.00	Number of Air receivers & capacity	.....			
3.00.00	INTERCOOLER, AFTER COOLER & HEAT EXCHANGERS OF ADP	Inter cooler	After cooler	Heat Exchan-ger (in case of type)	Dehumdier Blower (in case of HOC type)	
3.01.00	Numbers per compressors or per ADP offered (as the case may be)	.....	.....	.....	.....
3.02.00	Temperature, deg.C.					
	(a) Compressed air inlet/outlet	.....	.....	.....	.....
	(b) Cooling water inlet/outlet deg.C	.....	.....	.....	.....
3.03.00	Moisture separator provided as per specification?	Yes/No	Yes/No	Yes/No	Yes/No	
3.04.00	Level gauge, automatic drain trap etc provided as per specification?	Yes/No	Yes/No	Yes/No	Yes/No	
3.05.00	Whether the Material of construction is as per Specification?	-----YES / NO -----				
4.00.00	AIR DRYING PLANT					
4.01.00	Manufacturer	.....			
4.02.00	Type of ADP offered (Strike out whichever is not applicable)	Open Through(Blower Reactivated) type / HOC Type				
4.03.00	Number of drying plants offered	.....			
4.04.00	Whether two adsorber vessel is provided for each ADP ?	YES / NO				
4.05.00	Design airflow, at plant inlet NM3/min	.....			
4.06.00	Guaranteed dew point at the outlet throughout the operating cycle at atmospheric pressure	.....			
4.07.00	Max. pressure drop in the air steam	.....			
NAME OF THE ROJECT..... STEAM GENERATOR PACKAGE		TECHNICAL SPECIFICATION SECTION-VI BID DOC NO.: CS-9548/ 9549/ 9566/ 9573-102-2		PART-F SUB-SECTION : DM8		PAGE 2 OF 4

CLAUSE NO.	Bidder's Name			
4.08.00	Whether Filters provided as per Specification	?	YES / NO	
4.09.00	Reactivation Blower (in case of open through heat reactivated ADP)	.....	
	(a) Capacity & Head	.....	
	(b) Nos. per ADP	.....	
	(c) KW Rating for the Blower motor	.....	
4.10.00	Electric Heater (in case of open through heat reactivated ADP) or for HOC type ADP for temperature stabilization			
	(a) Type	.....	
	(b) Nos. per ADP	.....	
	(c) KW Rating/heating element	.....	
4.11.00	Guaranteed Power consumption per cycle for ADP (KW)			
	(a) For Blowers	.....	
	(b) For Heaters	.....	
5.00.00	COMPRESSOR HOUSE CRANE (E.O.T. TYPE)			
	(a) Manufacturer	.....	
	(b) Type	.....	
	(c) Number offered	.....	
	(d) Crane capacity (Tonne)	.....	
6.00.00	a) Cooling water required for Air Compressors (per compressor) - M ³ /hr. (including after cooler)	.....	
	b) Temperature rise across compressor inter cooler after cooler (deg.C)	.....	
	c) Cooling water required for each ADP (including all heat exchanger) - M ³ /hr.	.....	
NAME OF THE ROJECT..... STEAM GENERATOR PACKAGE		TECHNICAL SPECIFICATION SECTION-VI BID DOC NO.: CS-9548/ 9549/ 9566/ 9573-102-2	PART-F SUB-SECTION : DM8	PAGE 3 OF 4

CLAUSE NO.	Bidder's Name <div data-bbox="1307 94 1453 168" style="float: right; border: 1px solid black; padding: 2px;"> एनटीपीसी NTPC </div>		
7.00.00	<div data-bbox="418 220 1364 283"> d) Temperature rise across ADP circuit (deg.C) </div> <div data-bbox="418 304 1218 430" style="display: flex; justify-content: space-between;"> <div> Complete Instrumentation & Controls along provided as per specification for compressors and Air Drying Plants ? </div> <div> Yes/No </div> </div>		
NAME OF THE ROJECT..... STEAM GENERATOR PACKAGE	TECHNICAL SPECIFICATION SECTION-VI BID DOC NO.: CS-9548/ 9549/ 9566/ 9573-102-2	PART-F SUB-SECTION : DM8	PAGE 4 OF 4



COMPRESSED AIR SYSTEM
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SECTION F

SUGGESTIVE PRICE FORMAT

2X800 MW GADARWARA TPP
COMPRESSED AIR SYSTEM
SUGGESTIVE PRICE FORMAT

Clause No.	DESCRIPTION	Qty.	Unit	Unit Ex-Works Price Duly Packed	Total Ex-Works Price Duly Packed (Rs)	Excise Duty Inclusive cess	CST / VAT	Freight inclusive Service Tax	Total "FOR" Site Prices (Rs.)	E & C Charges Inclusive service Tax	Grand Total
1	2	3	4	5	6	7	8	9	10=6+7+8+9	11	12=10+11
1.0	LUMPSUM PRICES Total lumpsum firm prices for Equipment & Services as Specified, Comprising Design, Engineering, Manufacture, Inspection & Testing at Manufacturer's Works, Painting at Manufacturer's Works, Duly packed for Transportation, Delivery to Site of Compressed Air System as per Specification No. PE-TS-395-555-A001 including supply of erection materials, mandatory spares, consumables as required to complete the compressed air plants/equipments installation, maintenance tools & tackles.	1	Lot								
2.0	Break up prices for items covered in clause 1.0 above. Prices for design, manufacture, inspection & testing at manufacturers works & supply of following items.										
2.1	Instrument Air Compressor (oil free Screw / Centrifugal type) Each of 60 NM ³ /Minute capacity at 8.0 kg/cm ² (g) consisting Electric motor to drive the compressor with accessories, Suction filter and silencer, Inter Cooler, After Cooler with moisture separators, automatic drain traps, instruments, Control panel etc.	3	Nos								
2.2	Air Dryer (HOC Type) Air Drying Plant of 60 NM ³ /min and to match instrument air compressor with all instruments and controls as specified.	3	Nos								

Clause No.	DESCRIPTION	Qty.	Unit	Unit Ex-Works Price Duly Packed	Total Ex-Works Price Duly Packed (Rs)	Excise Duty Inclusive cess	CST / VAT	Freight inclusive Service Tax	Total "FOR" Site Prices (Rs.)	E & C Charges Inclusive service Tax	Grand Total
2.3	Plant Air Compressor (oil free Screw / Centrifuga type) Each of 60 NM ³ /Minute capacity at 8.0 kg/cm ² (g) consisting Electric motor to drive the compressor with accessories, Suction filter and silencer, Inter Cooler, After Cooler with moisture separators, automatic drain traps, instruments, Control panel etc.	4	Nos								
2.4	Air Receivers										
2.4.1	Compressor house & Unit air receiver of 10 M ³ capacity with each having Pressure switches, Relief valve, Drain connection with automatic trap stations and other accessories as specified.	9	Nos								
2.4.2	DM plant air receiver of 2 M ³ capacity, having Pressure switches, Relief valve, Drain connection with automatic trap stations and other accessories as specified.	1	Nos								
2.5	Inter connecting cooling water and compressed air piping as specified including fittings and valves, etc. for complete compressed air system.	1	Lot								
2.6	Drain piping up to the nearest drain point	1	Lot								
2.7	Field instruments as specified	1	Lot								
2.8	Temperature transmitters as specified(for RTD & BT element)	35	Nos								
2.9	Pressure Transmitters (Each for IA Header & SA Header)	2	Nos								
2.10	Electronic Dew point meter	3	Nos								
2.11	Interface module for the overall control of compressed air system through DDCMIS	1	Lot								
2.12	Junction box, Cable lugs, glands, etc for Compressed Air System equipment as required.	1	Lot								

Clause No.	DESCRIPTION	Qty.	Unit	Unit Ex-Works Price Duly Packed	Total Ex-Works Price Duly Packed (Rs)	Excise Duty Inclusive cess	CST / VAT	Freight inclusive Service Tax	Total "FOR" Site Prices (Rs.)	E & C Charges Inclusive service Tax	Grand Total
2.13	Control cable from Compressor House to HT Switch Gear & Signal cable between Compressor House & DDCMIS (SG C&I) as specified elsewhere in the Technical Specification	1	Lot								
2.14	Online Vibration monitoring system for all air compressors and its motors as specified	1	Lot								
2.15	Total lump sum prices for Maintenance Tool & Tackles (bidder to furnish item wise prices separately along with the price bid).	1	Lot								
2.16	Total lump sum prices for commissioning spares (bidder to furnish lists of spares with item wise prices separately along with the price bid).	1	Lot								
2.17	Total lumpsum prices for mandatory spares as specified for compressed air System. (Bidder to furnish unit prices for each item in the Mandatory spares list separately along with the price bid).	1	Lot								
3.0	Bidder to indicate the following in their offer:										
3.1	Import content and currency (for each item separately)										
3.2	Rate of exchange										
3.2	Rate of customs duty assumed										

NOTES

- 1 Bidder must submit prices in the Pro Forma duly filled in signed and stamped on every page without any ambiguity. The price shall be written against each item. Term such as "refer covering letter" etc. are not acceptable. Extra sheet may be attached if the space provided is not sufficient
- 2 Price format shall not be changed by the bidder



COMPRESSED AIR SYSTEM
2X 800MW GADARWARA TPP

DOCUMENT NO.: **PE-TS-395-555-A001**

VOLUME- IIB

SECTION-

REV. 0

SHEET 1 OF 1

ANNEXURES

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
 Power Sector – Project Engineering Management,
 PPEI Building,HRD & ESI Complex,
 Plot no. 25, Sec.16A
Noida – 201301(UP)

Sub	No Deviation Certificate.	
Job	Design, manufacturing, supply, erection, testing & commissioning of compressed air system for 2x800 MW GADARWARA TPP	
Ref	1.0	Tender document no
	2.0	BHEL's NIT vide reference no
	3.0	BHEL's Amendment vide reference no .
	4.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents and in case of observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in above referred NIT and convey our unqualified acceptance to all terms and conditions as stipulated in the tender and NIT.

We hereby confirm to unqualified compliance to technical specification together with other references as enumerated in above referred NIT.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer strictly in accordance with above.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized
representative of the bidder)

[illegible]

2x800 MW GADARWARA TPP - Compressed Air System
LIST OF RECOMMENDED SPARES FOR 3 YEARS OF NORMAL OPERATION
(Required for Commissioning of Compressed Air System)

Break up price for COMMISSIONING SPARES

[illegible]

NOTE -

Bidder shall furnish unit price of Recommended spares in above format alongwith the Bid.

2x800 MW GADARWARA TPP - Compressed Air System
LIST OF COMMISSIONING SPARES (Required for Commissioning of Compressed Air System)
Break up price for COMMISSIONING SPARES

[illegible]

NOTE -

Bidder shall furnish unit price of commissioning spares in above format alongwith the Bid. Any part even though not mentioned in list furnished but required at later date shall be supplied free of cost.

GADARWARA TPP (2x800 MW)**Compressed air package**

Guaranteed Power Consumption for Air Compressor System shall be as per following:

S.No (1)	Description of Equipment (2)	Nos. of Equipment to be considered for guaranteed power consumption (3)	Total Guaranteed Power Consumption for Each Equipment at motor input terminal. (4)	Duty factor (5)	Total (kW) (6)=(3)*(4)*(5)
1.0	Service Air Compressor of 60 Nm ³ /min at 8.0 kg/cm ² (g).	1		1	
2.0	Instrument Air Compressor of 60 Nm ³ /min at 8.0 kg/cm ² (g).	1		1	
3.0	Air Drying Plant for IA.	1		1	

TOTAL (KW)

Notes:

- 1.0 Base figure of Aux. Power consumption as per above criterion for CAS (for working drives only) shall be **1100 kW (Per Unit)** .
- 2.0 Bidder's guaranteed power consumption at motor input terminals (not shaft power) as furnished in guaranteed schedule shall be demonstrated by the successful bidder during performance testing at works/site.
- 3.0 The price quoted by the bidder shall be loaded **US \$ 2,845/-** for every additional kW increase in consumption from the base figure indicated at Note no. 1.0 above.
- 4.0 In case the successful bidder fails to establish / prove the guaranteed values of power consumption (base figure of auxiliary power consumption) on actual performance testing at the manufacturing works / site, penalty **US \$ 2,845/-** per kW increase in power consumption figure shall be levied.

DOCUMENT SUBMISSION THROUGH WEB BASED
DOCUMENT MANAGEMENT SYSTEM

Bidder to note that BHEL reserve the right for drg/doc submission through web based Document Management System. Bidder would be provided access to the DMS for drg/doc approval and adequate training for the same. Detailed methodology would be finalized during the kick-off meeting. Bidder to ensure following at their end.

- Internet explorer version – Minimum Internet Explorer 7
- Internet speed – 2 mbps (Minimum preferred)
- Pop ups from our external DMS IP (124.124.36.198) should not be blocked
- Vendor's Internal proxy setting should not block DMS application's link.

(<http://124.124.36.198/wrenchwebaccess/login.aspx>)

GADARWARA TPP 2x800MW

HT Drive housed in Compressor House	HT Swithgear	Approximate Distance (m)
IAC-1 & PAC-1	HT Swgr. Unit#1	500
IAC-2 & PAC-2	HT Swgr. Unit#2	900
IAC-3 & PAC-3	HT Swgr. Unit#2	900
PAC-4	HT Swgr. Unit#2	900

HT Drive housed in Compressor House	DDCMIS(SG-C&I)	Approximate Distance (m)
Compressor House	DDCMIS (SG-C&I)	400