

BHARAT HEAVY ELECTRICALS LIMITED
UNIT: HEEP, RANIPUR, HARDWAR, UTTARAKHAND,
INDIA – 249 403 Tel.: 00911334285849; 284269

CORRIGENDUM DOCUMENT

NIT NO- 30730 -Open Tender B/4011/2016/2122/V1 for the requirement of LP BYPASS SYSTEM WITH SPARES

Project: North Karanpura (03 Sets)

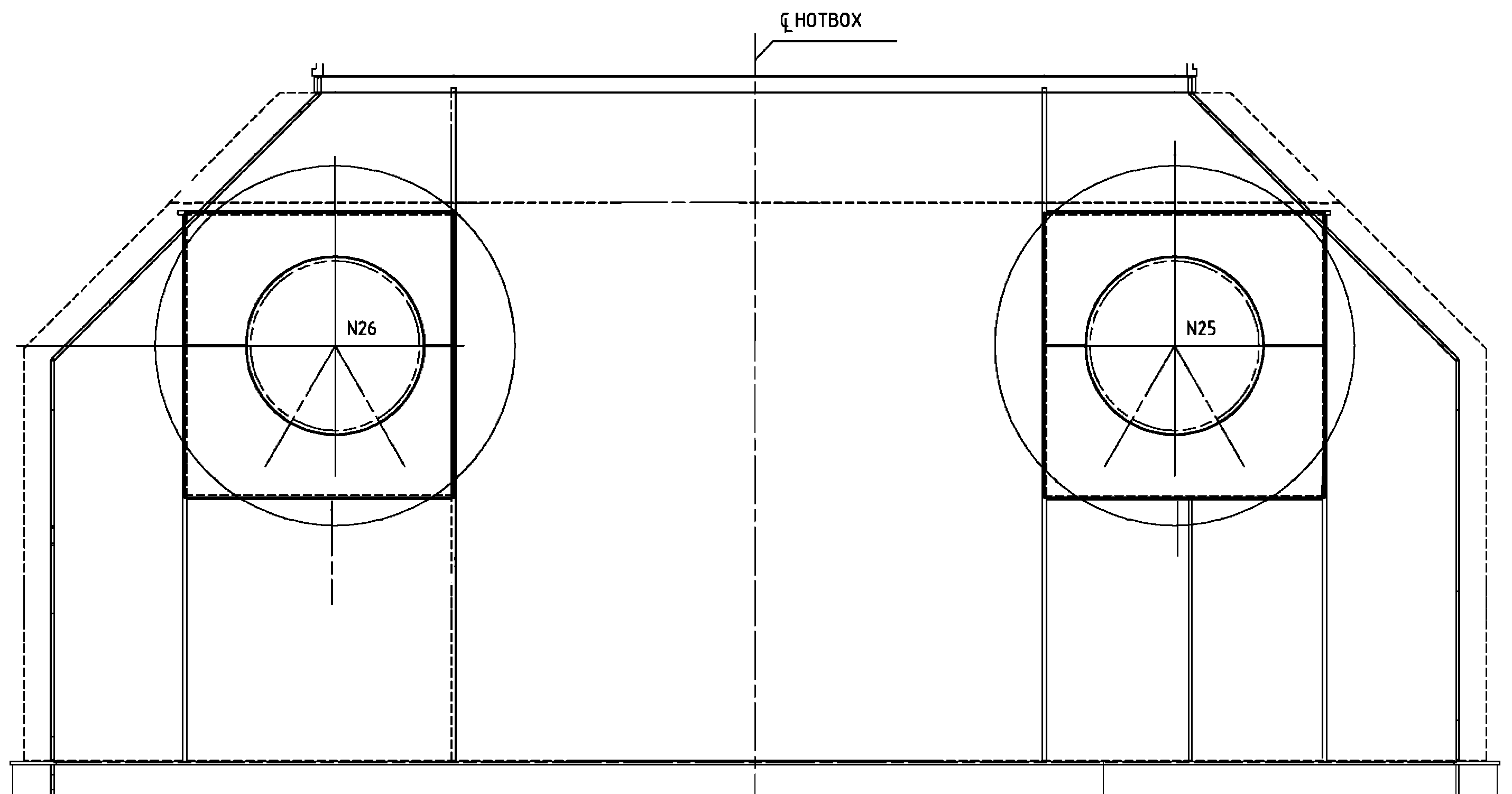
With respect to above mention tender, kindly note that the following changes have been made in the specification of North Karanpura LP Bypass Sytem.

1. Drawing no. 3-12300-59001 has been revised as Rev. 02.
2. Optional offer of Dump tube shall be submitted by the vendors. The arrangement & details of Dump tube tube shall be as per drawing no. 1-12300-59007.Rev.00
3. Revised Price Schedule

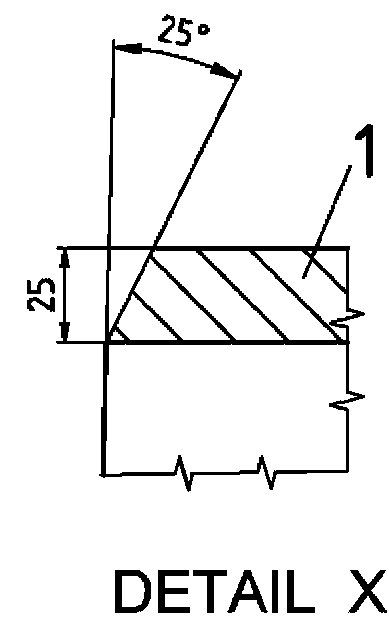
All other techno-commercial specifications will be as per initial documents only.

Revised enquiry due date is 15.03.2017. Last date of submission is: 15.03.2017 up to 01:45 PM
Opening date: 15/03/2017 at 14:00 Hrs.


Sarvesh Kumar
Sr. Engineer/PPX-BOI



DETAIL R



3

30° 30°

25

R8

80

1

2

30

30°

Φ 118

CIRCUMFERENTIAL TESTED FOR LAMINATION DEFECTS

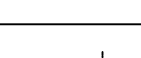
DETAIL R

TECHNICAL REQUIREMENTS:

- NOTES:

-
- Diagram illustrating the angle between the teeth of a circular saw blade. The angle is labeled "APPROX. 60°" and "HOLES".



TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		STEAM TURBINE				
 BHARAT HEAVY ELECTRICALS LTD. HARDWARE		DRN	NAME	SIGN	DATE	NO.OF VAR.
		CHD	H.SINGH	Sd/-	21.02.2017	73, 74
		APD	N.NIRALA	Sd/-	22.02.2017	
			R.RAWAT	Sd/-	22.02.2017	75, 77
DEPT. STE		SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		ITEM NO.
CODE 4011	NTS	—	—	—		75, 77
TITLE		1	DRAWING NO. 1-12300-59007			22, 23, 24
DUMP TUBE			SHEET NO. 01			NO.OF SHEETS 01

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3-12300-56001
SITE-TC DATA
D.TD. 23.07.15
Ref. Drawing No.

Sign & Date

Inventory No.

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

FORM DG 38(B)

10069-00271-3
DRAWING No.

DESCRIPTION	INPUT / PROCESS DATA				
Design Pressure (bar abs.)	INLET		OUTLET		
	72.3		15		
Design Temp. (°C)	601				
Valve Diameter – DN	** – Supplier to specify				
Pressure Rating – PN	** – Supplier to specify				
Type of Valve Connections –	Butt welded				
Valve Characteristics– Linear /Quadratic /Equal %	Linear				
Valve Type – Straight / Angle	As per DRG. 3–12300–59002				
Hydraulic Medium – Mineral Oil / FRF for Actuation	Fire Resistant Fluid (FRF)				
Ambient condition	0°C to 50°C				
Material for Valve Casing	ASTM A182 Gr:F91				
OPERATING REGIMES	CASE:1	CASE:2	CASE:3	CASE:4	CASE:5
Operating pressure at valve inlet P1 (ATA)	33.91	34.12	18.80	18.80	18.80
Operating temp. at valve inlet T1 (°C)	593	593	450	513	390
Operating pressure at inlet of dump tube near hot box wall at point 'P' shown in 3–12300–59002 P2 (bar abs.)	3	–Supplier to specify (corresponding to Case–1)			
Operating temperature at inlet of dump tube near hot box wall at point 'P' shown in 3–12300–59002 T2 (°C)	–Supplier to specify (Saturation Temp.)				
Steam flow per LP Bypass valve for various operating condition (T/hr)	737.95	636.78	245.38	263.97	234.63
Spray water quantity (T/hr) approx.	325.34	281.51	76.45	97.85	59.93

* ~~ACTUAL PRESSURE VALUE SHALL BE BETWEEN 3 TO 5 BAR AND THE FINAL VALUE SHALL BE INFORMED TO SUPPLIER LATER.~~

CASE1 : DESIGN LOAD CASE HP-LP BYPASS/65% BMCR.
CASE2 : LOAD CASE WITH HOUSE LOAD/65% BMCR.
CASE3 : LOAD CASE WITH WARM START UP.
CASE4 : LOAD CASE WITH HOT START UP.
CASE5 : LOAD CASE WITH COLD START UP.

GRADE OF UNTOL. DIM

M/CG.- AA0230208 m

WELDING-CLASS 'B' OF AA0621104

GAS CUTTING-TABLE 3 OF AA0621104

GMS No. / _____			C B O M	STATUS OF DRG U
AGREED DEPT		NAME	SIGN	DATE
REV	DATE	ALTERED H.SINGH -SD-		
01	12.08.16	CHECKED AKS/NN -SD-		

CHANGES HAVE BEEN
INCORPORATE AS PER
CAF NO. SSEHS_000163.

CHANGES HAVE BEEN
INCORPORATE AS PER
CAF NO. SSEHS_000153.

NOTE:-

- FOR ANGLE TYPE OF LP BYPASS VALVE
 - STOP VALVE ACTUATOR SHALL BE : VERTICAL (STANDING)
 - CONTROL VALVE ACTUATOR SHALL BE : HORIZONTAL
- ALL COMPONENTS OF LPBP STOP & CONTROL VALVE SHALL BE DESIGNED FOR DESIGN PRESSURE AND TEMPERATURE CONDITIONS & CORRESPONDING STEAM FLOW (i.e. 72.3 BAR & 601°C).
- THE LPBP VALVE SHALL ALSO BE SUITABLE FOR MAX. SHORT TERM PRESSURE 78 bar (a) & MAX. SHORT TERM TEMPERATURE OF 617°C. MAX. SHORT TERM PRESSURE AND TEMPERATURE ARE ONLY ALLOWED FOR BRIEF SWINGS OF 15 MINUTES OR LESS, PROVIDED THAT THE TOTAL OPERATING TIME DOES NOT EXCEED 80 HOURS DURING ANY 12 MONTHS OPERATING PERIOD.
- THE EXHAUST STEAM AFTER LP BYPASS VALVE WITH DESUPERHEATER SHALL GO TO AIR COOLED CONDENSER THROUGH HOT BOX.
- LPBP VALVE WITH DESUPERHEATER SHALL BE DESIGNED FOR THE FOLLOWING CONDITIONS:
 - A) HOT BOX PARAMETERS DURING LPBP OPERATION (PRESSURE 0.312 BAR ABSOLUTE & STEAM TEMPERATURE 72.9°C).
 - B) HOT BOX MAXIMUM ALLOWABLE PARAMETERS (PRESSURE 0.5 BAR ABSOLUTE & STEAM TEMPERATURE 90°C).
 - C) WATER QUANTITY TO BE SPRAYED THROUGH DESUPERHEATER TO OBTAIN ENTHALPY OF EXHAUST STEAM MIXTURE AS 2630 KJ/Kg.

02

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

STEAM TURBINE



BHARAT HEAVY ELECTRICALS LTD.
RANIPUR, HARDWAR

	NAME	SIGN	DATE	NO. OF VAR - 73 74
DRN	H.SINGH	-SD-	23.07.15	
CHD	N.NIRALA	-SD-	24.07.15	
APPD	N.GARG	-SD-	24.07.15	75 77

DEPT STE	SCALE NTS	WEIGHT (KG) -----	REF. TO ASSY. DRG. —	ITEM No. —	NO. OF ITEMS —
CODE 4011					75 77
TITLE : INPUT/PROCESS DATA FOR LPBP VALVE AND ACTUATORS		CARD CODE	DRAWING NO. 3-12300-59001		
			7	22 23 24	
			SHEET No. 1	No. OF SHEETS 1	

SIZE A3

ANNEXURE-I PRICE SCHEDULE FOR 01 TG SETS of NORTH KARANPURA PROJECT (3 X660 MW) FOR FOREIGN SUPPLY (i.e. SUPPLY FROM OUT SIDE INDIA)				
SL NO.	DESCRIPTION OF ITEMS	TOTAL QTY (COL 3)	UNIT PRICE (ON FOB BASIS)	TOTAL PRICE (FOR QTY. IN COLUMN 3) FOB
1.	LP BY PASS VALVE WITH EHAs & DESUPERHEATER	06 SETS		
2.	STEAM BLOWING DEVICES FOR LPBP VALVES	02 SETS		
3.	HYDRAULIC TEST DEVICES FOR LPBP VALVE	02 SETS		
4.	HYDRAULIC POWER SUPPLY UNIT (HPSU)	03 SETS		
5.	FILLING & GAUGING DEVICE FOR HYDRAULIC ACCUMULATOR	01 NO		
6.	MANUALLY OPERATED CONTROL FLUID PUMP FOR FILLING OF FLUID IN CF TANK FOR HPSU	01 NO		
7.	WATER INJECTION CONTROL VALVE WITH HYDRAULIC ACTUATOR	06 NOS.		
8.	FLOW NOZZLE FOR WIV	06 NOS.		
9.	FLUSHING DEVICE FOR CONTROL FLUID SYSTEM	01 SET		
10.	DUMP TUBE (OPTIONAL) FINAL REQUIREMENT WILL BE INFORMED BEFORE PRICE BID OPENING)	06 NOS		
11.	SPECIAL TOOLS & TACKLES AS PER CLAUSE 8.0 OF ST47050 (REFER POINT NO 4)	01 SET		
12.	MANDATORY SPARES (As per drawing no. 31230059100 REV.01)	01 SET		
13.	COMMISSIONING SPARES as per BHEL Spec. drawing no. 3-12300-56005 Rev.00	03 SETS		
14.	TOTAL FOB VALUE FOR THE SCOPE OF SUPPLY MENTIONED ABOVE.	03 TG SETS		
15.	SEA FREIGHT CHARGES UP TO MUMBAI FOR THE TOTAL SCOPE OF SUPPLY MENTIONED ABOVE (DISPATCHES WILL BE AS PER DELIVERY SCHEDULE MENTIONED IN THE NIT)	03 TG SETS		
16.	"PER DAY" CHARGES FOR SUPERVISION OF ERECTION & COMMISSIONING AND TRAINING INCLUDING EVERY EXPENSE.	--		
17.	"PER VISIT" CHARGES DURING SUPERVISION OF ERECTION & COMMISSIONING AND TRAINING INCLUDING EVERY EXPENSE	--		

- THE PRICES ARE TO BE SUBMITTED STRICTLY AS PER ABOVE PRICE SCHEDULE AND FOR THE SCOPE OF SUPPLY AS MENTIONED IN THE ENCLOSED DRAWINGS & SPECIFICATIONS, OTHER WISE THE OFFERS OF VENDORS MAY BE IGNORED.
- PRICE COMPARISON WILL BE DONE ON THE TOTAL LANDED COST TO BHEL TAKING ALL ITEMS & SERVICES TOGETHER.
- IN CASE OF SUPPLIES FROM FOREIGN COUNTRY (SUPPLIES FROM OUTSIDE INDIA) THE PRICES OF EACH AND EVERY ITEM, ARE TO BE QUOTED INCLUSIVE OF THIRD PARTY INSPECTION CHARGES (BY EITHER LLOYDS/BVQI/TUV).
- IN CASE SPECIAL TOOL & TACKLES ARE NOT OFFERED, THESE WILL HAVE TO BE SUPPLIED FREE OF COST, IF REQUIRED, AT ANY STAGE OF THE PROJECT IN FUTURE.
- PERDAY AND PER VISIT CHARGES FOR SUPERVISION OF ERECTION & COMMISSIONING AND TRAINING ERECTION ARE TO BE QUOTED IN THE PRICE SCHEDULE. FOR SUPERVISION OF ERECTION & COMMISSIONING AND TRAINING, 06 VISITS OF 32 DAYS (INCLUSIVE OF 02 DAYS FOR TRAINING) FOR 03 TG SETS WOULD BE TAKEN FOR THE PURPOSE OF EVALUATION. HOWEVER IN THE EVENT OF ORDERING, THE PAYMENT FOR SERVICES WILL BE MADE ON ACTUAL NUMBER OF DAYS / VISITS INVOLVED IN SUPERVISION OF ERECTION/ COMMISSIONING AND TRAINING.
- SUPPLIER TO FURNISH THEIR TECHNICAL OFFERS IN TRIPLICATE FOR ALL THE ITEMS AS SPECIFIED IN THE SCOPE. ANY INFORMATION/CLARIFICATION TO AVOID ANY AMBIGUITY AT THE TIME OF EXECUTION OF THE CONTRACT MAY BE OBTAINED WELL IN ADVANCE BEFORE SUBMITTING THEIR TECHNICAL-CUM-PRICED OFFER.

ANNEXURE-I PRICE SCHEDULE FOR 03 TG SETS of NORTH KARPURA PROJECT (3 X 660 MW) FOR INDEGINOUS SUPPLY (i.e. IN INDIA)				
SL NO.	DESCRIPTION OF ITEMS	TOTAL QTY (COL 3)	UNIT PRICE (ON FOB BASIS)	TOTAL PRICE (FOR QTY. IN COLUMN 3) FOB
1.	LP BY PASS VALVE WITH EHAs & DESUPERHEATER	06 SETS		
2.	STEAM BLOWING DEVICES FOR LPBP VALVES	02 SETS		
3.	HYDRAULIC TEST DEVICES FOR LPBP VALVE	02 SETS		
4.	HYDRAULIC POWER SUPPLY UNIT (HPSU)	03 SETS		
5.	FILLING & GAUGING DEVICE FOR HYDRAULIC ACCUMULATOR	01 NO		
6.	MANUALLY OPERATED CONTROL FLUID PUMP FOR FILLING OF FLUID IN CF TANK FOR HPSU	01 NO		
7.	WATER INJECTION CONTROL VALVE WITH HYDRAULIC ACTUATOR	06 NOS.		
8.	FLOW NOZZLE FOR WIV	06 NOS.		
9.	FLUSHING DEVICE FOR CONTROL FLUID SYSTEM	01 SET		
10.	DUMP TUBE (OPTIONAL) FINAL REQUIREMENT WILL BE INFORMED BEFORE PRICE BID OPENING)	06 NOS		
11.	SPECIAL TOOLS & TACKLES AS PER CLAUSE 8.0 OF ST47050 (REFER POINT NO 4)	01 SET		
12.	MANDATORY SPARES (As per drawing no. 31230059100 REV 01)	01 SET		
13.	COMMISSIONING SPARES as per BHEL Spec. drawing no. 3-12300-56005 Rev.00	03 SETS		
14.	TOTAL VALUE FOR THE SCOPE OF SUPPLY MENTIONED ABOVE.	03 TG SETS		
15.	FREIGHT CHARGES UP TO NORTH KARPURA PROJECT SITE (DISPATCHES WILL BE AS PER DELIVERY SCHEDULE MENTIONED IN THE NIT)	03 TG SETS		
16.	"PER DAY" CHARGES FOR SUPERVISION OF ERECTION & COMMISSIONING AND TRAINING INCLUDING EVERY EXPENSE.	--		
17.	"PER VISIT" CHARGES DURING SUPERVISION OF ERECTION & COMMISSIONIGN AND TRAINING INCLUDING EVERY EXPENSE	--		

- THE PRICES ARE TO BE SUBMITTED STRICTLY AS PER ABOVE PRICE SCHEDULE AND FOR THE SCOPE OF SUPPLY AS MENTIONED IN THE ENCLOSED DRAWINGS & SPECIFICATIONS, OTHER WISE THE OFFERS OF VENDORS MAY BE IGNORED.
- PRICE COMPARISON WILL BE DONE ON THE TOTAL LANDED COST TO BHEL TAKING ALL ITEMS & SERVICES TOGETHER.
- PRE-DISPATCH INSPECTION WILL BE ARRANGED BY BHEL-HARIDWAR
- IN CASE SPECIAL TOOL & TACKLES ARE NOT OFFERED, THESE WILL HAVE TO BE SUPPLIED FREE OF COST, IF REQUIRED, AT ANY STAGE OF THE PROJECT IN FUTURE.
- **PERDAY AND PER VISIT CHARGES FOR SUPERVISION OF ERECTION & COMMISSIONIGN AND TRAINING ERECTION ARE TO BE QUOTED IN THE PRICE SCHEDULE. FOR SUPERVISION OF ERECTION & COMMISSIONING AND TRAINING, 06 VISITS OF 32 MANDAYS (INCLUSIVE OF 02 DAYS FOR TRAINING) FOR 03 TG SETS WOULD BE TAKEN FOR THE PURPOSE OF EVALUATION. HOWEVER IN THE EVENT OF ORDERING, THE PAYMENT FOR SERVICES WILL BE MADE ON ACTUAL NUMBER OF DAYS / VISITS INVOLVED IN SUPERVISION OF ERECTION/ COMMISSIONING AND TRAINING.**
- SUPPLIER TO FURNISH THEIR TECHNICAL OFFERS IN TRIPLICATE FOR ALL THE ITEMS AS SPECIFIED IN THE SCOPE. ANY INFORMATION/CLARIFICATION TO AVOID ANY AMBIGUITY AT THE TIME OF EXECUTION OF THE CONTRACT MAY BE OBTAINED WELL IN ADVANCE BEFORE SUBMITTING THEIR TECHNICAL-CUM-PRICED OFFER.