SubContracts DEPT
BHEL PSSR CHENNAI
Corrigendum-1,dt:5/7/2016

BHEL's clarifications are furnished below against some of the bidder's query sought vide letters/email in Tender Specification BHEL PSSR SCT 1628 for Execution of STG work at 1 X 800 MW Kothagudem TPS, Telangana State .

Slno	DOCUMENT	CLAUSE NO	EXISTING PROVISION	BIDDER QUERY	BHEL Clarification
1	TCC	1.14.1.23	The tube shall be inserted such that it shall project 2 to 3 mm beyond the tube plate outer surface. The tube shall be expanded using an automatic electronic torque control tube expanding unit or pneumatic tube expander so as to get the % thinning of the tube walls and elongation of tube ends as recommended by the supplier / Drawing / Tube expansion procedure. The length of expansion in no case shall exceed a length of 70 to 80% of the tube plate thickness. Finally, proper trimming of the excess length of the tube shall be carried out and flare-up / bell mouthing has to be done by the contractor at his cost.	Please confirm the scope of supply for the Automatic electronic torque control/pneumatic tube expander machine	Supply of T&P as per Vol 1A, Part I, Chapter IV
2	TCC	1.14.1.23	The tube shall be inserted such that it shall project 2 to 3 mm beyond the tube plate outer surface. The tube shall be expanded using an automatic electronic torque control tube expanding unit or pneumatic tube expander so as to get the % thinning of the tube walls and elongation of tube ends as recommended by the supplier / Drawing / Tube expansion procedure. The length of expansion in no case shall exceed a length of 70 to 80% of the tube plate thickness. Finally, proper trimming of the excess length of the tube shall be carried out and flare-up / bell mouthing has to be done by the contractor at his cost.	Please confirm any stitch welding is applicable between tube and tube walls.	Stich welding is not applicable
3	TCC	1.9.1	Weight Schedule Summary D. Pumps and Motors (BFP,CEP, CW Etc.,)	The summation of weight given is 10,07,610 Kgs. But the actual summation is 54,04,110 Kgs. Please Confirm	Item D.28 to be read as other misc. Hardware is 4,88,500 Kg.However the summation given in tender is in order.
4	TCC	16.16	PRIMER AND PAINTS FOR FINAL PAINTING	Please provide BHEL/Customer approved agency list for the supply of Paints	Customer Approved Agency will be provided after award of contract.
5	TCC	1.12.17	Grouting of equipments is included in the scope of contractor. All the materials required for grouting including special cements like PAGEL, CONBEXTRA- GP2, SHRINKOMB or its equivalent grade free flow cement as approved by BHEL and other materials like Portland cement, sand, gravel etc., are to be arranged by the contractor within the quoted rate. It shall be the responsibility of the contractor to obtain prior approval of BHEL, regarding suppliers, type of grouting cements before procurement of grouting cements.	Kindly specify the volume of grouting	Vendor to refer Clause 1.12.19
6	TCC	Chapter II, clause no: 1.2.9	"Obtaining clearances and approvals from all applicable statutory / Government agencies e.g. IBR, Electrical Inspectorate etc. is also in the scope of contractor	As TG integral piping erection work only included in this package, should we take any permission from IBR inspectorate for execution of TG package? Kindly confirm.	Statutory clearances , if any applicable as mentioned in the tender is in the scope of the vendor.
7	TCC	chapter V, clause no 1.5.3.2	portable gantry: crane erection, load test , commissioning and dismantling etc are in the scope of contractor	Please confirm the portal gantry crane tonnage details for erection. We presume M/s BHEL will provide the load at site for load test. What will be the maximum weight of load sections to be handled at site. And also please clarify the scope of supply of paint for touch up painting	Portal gantry crane is 512 MT. Vendor to refer Clause 1.5.3.2.

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8	TCC	chapter IX, Clause No 1.9.1	BOQ, Sr. No E BOI items, there is no weight details given for following items.	Provide tonnage details of following items of BOI, a. Hydraulic Unit Assembly (Sr. No 46 of BOI) b. Generator Integral piping (Sr. No 47 of BOI) including valves &fittings c. Hydrogen coolers piping (Sr No 48 of BOI) d. Turbine oil (No of Drums / barrels) (Sr no.63) e. Turbine Integral Piping (Sr. No 66 of BOI) including valve f. H&S for turbine and generator integral piping (Sr. No. 67 of BOI) g. LP by pass stop &control valves (Sr. No 71 of BOI) h. Misc. Cranes, Electric hoists, chain pulley blocks (sr. No 85 of BOI) Details of cranes, hoists & chain pulley blocks and specific equipment / area to be confirmed.	Tentative Quantities as as below: 1. Hydraulic unit assembly---4.416 MT 2. Generator integral piping---14.852 MT (Gas system, seal oil, LDR, Primary Water, Waste gas system, Waste Fluid system) 3. Hydrogen cooler piping---7.036 MT 4. Turbine oil (No. of drums)---261 Drums 5. Turbine integral piping---45.922 MT (Lube oil, 6. H&S for turbine and generator integral piping---18.249 MT 7. LP bypass stop and control valves---24.37 MT (Valves, Actuator & Hydraulic unit) & 0.5 MT (Control oil piping) 8. The tentative list is as below,list is not exhaustive. **MIsc Cranes** 1.8T Single Girder EOT crane in Air compressor Building – 1 No 2.5T Single girder EOT cranes in Fire water Pump house- 1 No 3.8T single girder EOT crane in DG room – 1 No 4.8 T single girder EOT crane in CWPH – 1 No 5.5T single girder EOT crane in ACW pump house- 2 Nos **Misc Hoists: erection upto junction box in scope of vendor** 1. AC plant room hoist 5T – 1 No 2. Vaccum pump handling – 5T – 2 No 3. DMCW pump handling – 5T – 2 no 4. Drip pump 5T- 2 No 5. DM Transfer Pump – 2T- 2No 6. Vaccum pump handling 3 T- 2 Nos 7. Lube oil unloading 3T- 1 No 8. Condensate transfer pump 3T- 1 No 9. 8.4 Metre level at ESP building 3T- 2 Nos 10. 16.7 metre level at ESP building 3T – 2 Nos 11. Elevator M/c room (TG building) 3T – 2 Nos 12. Elevator M/s Room (ESP building) 3T – 2 Nos 13. Boiler MCC room -10T – 2nos 14. Cw Bay handling 15 T – 2 Nos
9	TCC	Chapter No XIV, clause no 1.14.1.10	Generator stator may be unloaded away from the A row columns and in such case dragging of stator and bringing it to the unloading point is in the scope of contract	M/s BHEL to confirm whether Generator stator is brought under the portal gantry crane reach (or) unloaded away from the A row column. What would be the max. distance if it is unloaded away from the "A" row columns since dragging of generator to the reach of portal gantry crane from the unloaded point has additional cost implication	Generator Stator will be brought at lifting position of the portal gantry crane.
10	TCC	chapter no: XIV, clause no 1.14.1.32	sand Grit /shot blasting of condenser is in the scope of contractor	M/s BHEL to confirm the tentative surface area of condenser,Water box and tube sheet in square meter for the estimation purpose	condenser drawings is enclosed for information and the same may be revised during execution.

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11	TCC	Nil	General	BHEL to provide the list of major T&P such as Crane, trailer,hydra etc. to be deployed by contractor other than the T&P provided by M/s BHEL for Material handling purpose i.e., loading at store,transportation and unloading at site etc for loading the cost	Supply of T&P as per Vol 1A, Part I, Chapter IV
12	TCC	Nil	General	Regarding Excess Piping Quantity - If there is any increase in the tendered TG integral piping quantity (above +15%), the quantity exceeding +15% of tendered quantity shall be paid @ unit rate / MT arrived on the basis of Total BBU % provided for integral piping (i.e,13.6% of LS price) divided by tendered quantity of TG integral piping because the piping erection cost shall not be the same of equipment erection cost.	Tender conditions prevail
13	Nil	General	Time Extension-We are studying the scope of work and have sent some queries which have to be clarified by M/s BHEL and our site visit is still pending due to pre-occupations.	Request you to kindly extend the due date of submission of above tender up to 15-07-2016	Time extension for bid submission is not possible due to administrative reasons,hence bidders are requested to submit their offers as per the schedule indicated in the tender

All other conditions remain unchanged

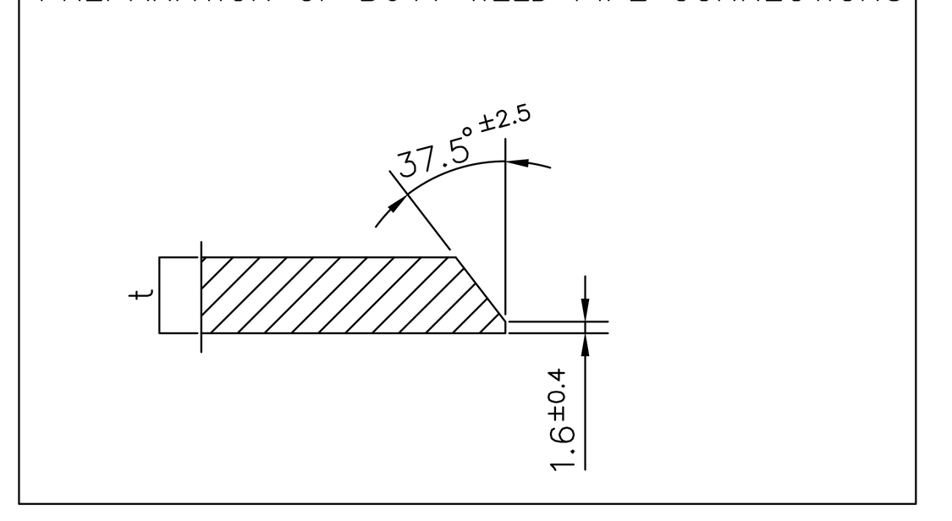
AGM/SCT

DEVELOPMENT CONSULTANTS PVT. LIMITED.

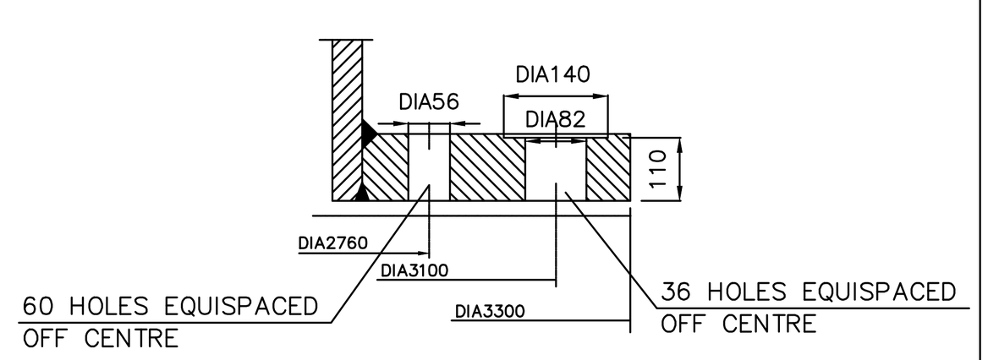
Reviewed only for general conformance with contract drawings and specifications. Contractor to be responsible for any errors and for fulfillment of detailed requirements of contract documents

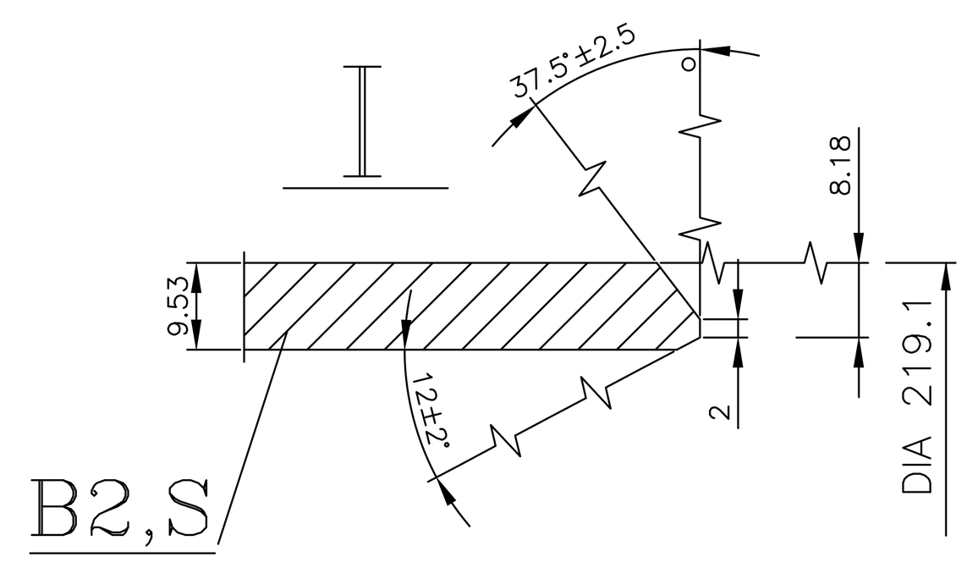
ACTION 6	DATE 15.12.2015
DISTRIBUTED BY. BS	
1 Distributed	4 Approved except as noted. Resubmission required
2 Approved	5 Disapproved see accompanying letter
3 Approved except as noted. Forward final drawings	✓ 6 For information only
SEE COVERING LETTER	
LETTER REF NO. 0925	DATE. 15.12.2015

UNLESS OTHERWISE STATED WELD EDGE PREPARATION OF BUTT WELD PIPE CONNECTIONS

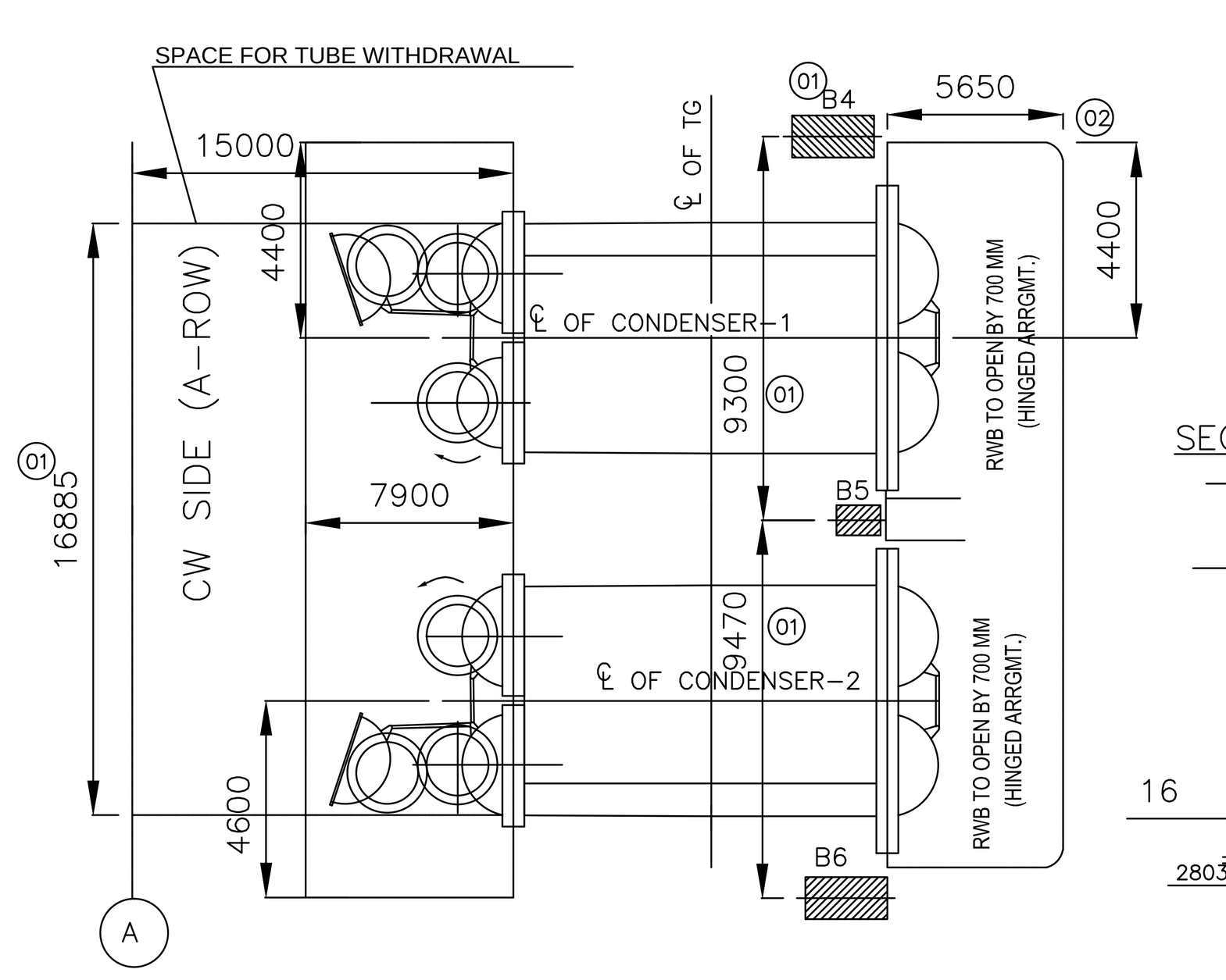


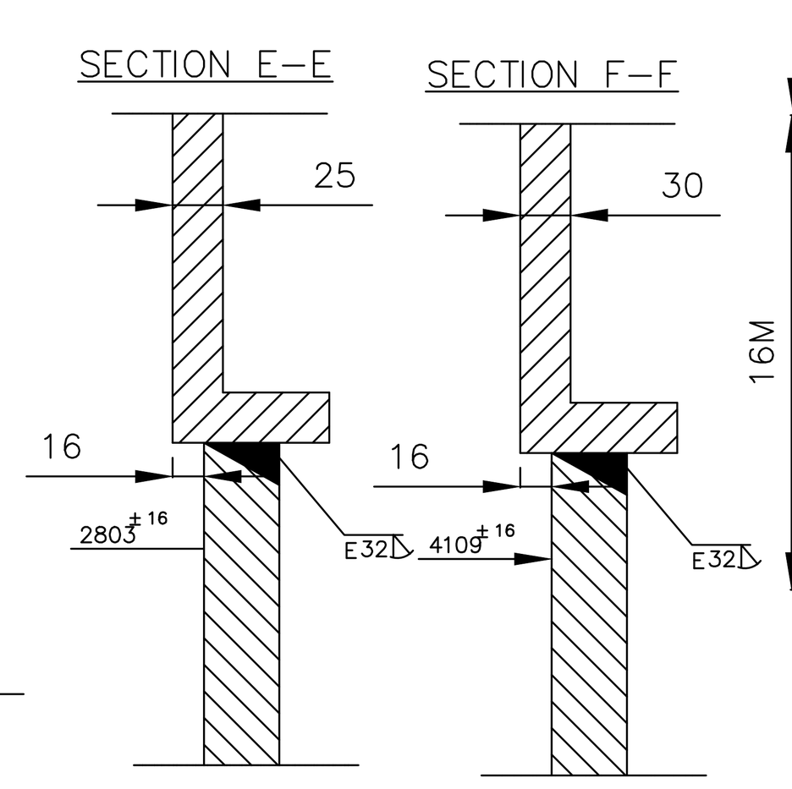
A-A (NTS)



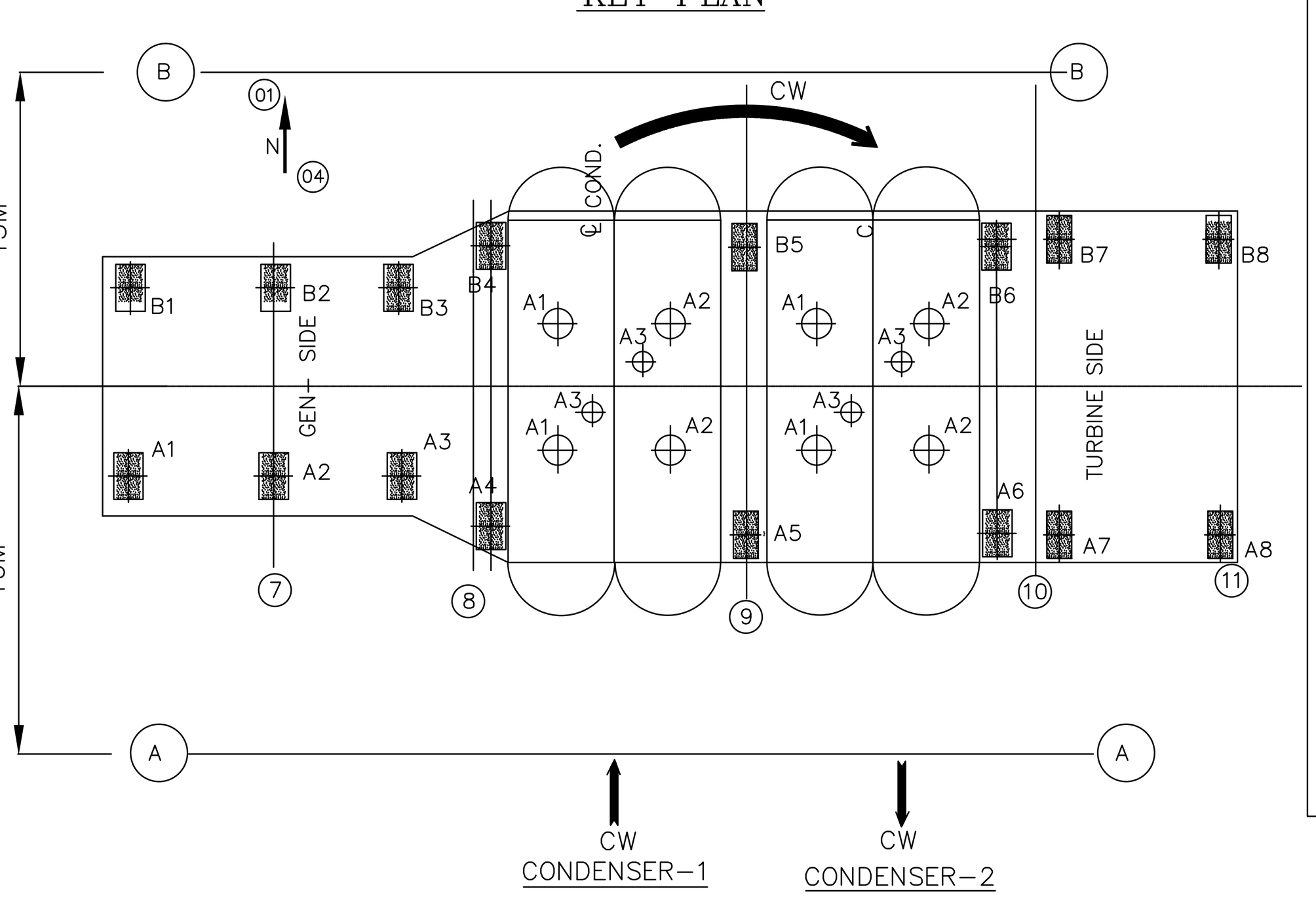


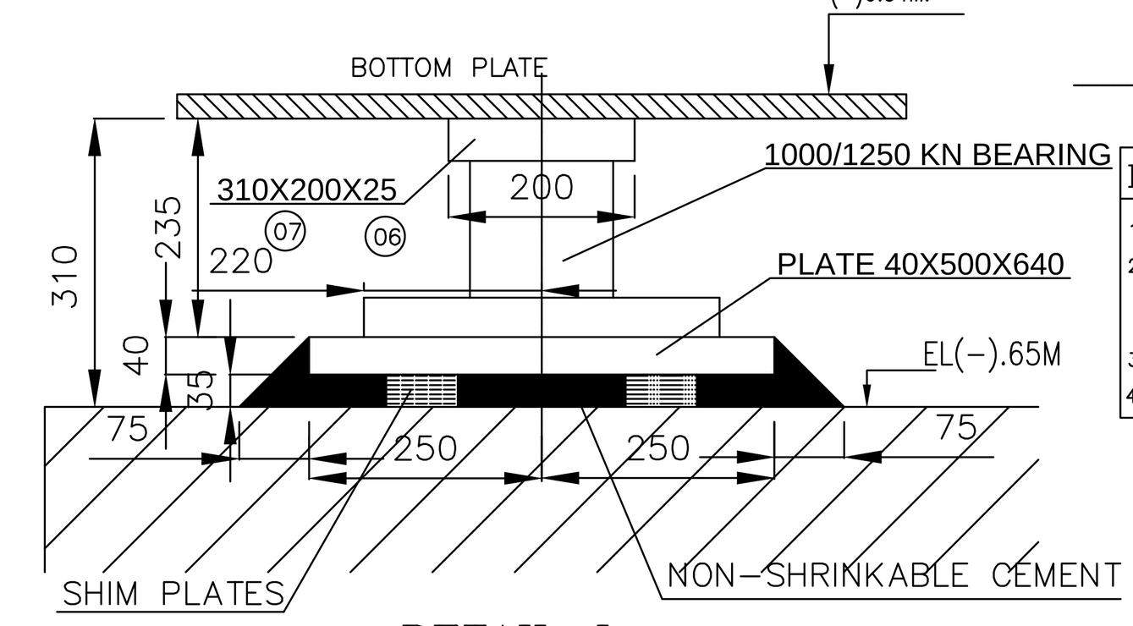
SPACE REQUIREMENT FOR WATER BOX REMOVAL AND TUBE WITHDRAWAL





KEY PLAN





DETAIL-I

DESIGN CONDITION	STEAM SIDE	WATER SIDE
1. DESIGN PRESSURE	FULL VACUUM & 1.08Kg/cm² (g)	0.1 Kg/cm² (abs)& 5.6 Kg/cm² (g)
2. TEST PRESSURE	FILLING WATER UP TO 300 MM ABOVE FINAL JOINT OF CONDENSER EXHAUST NECK TO TURBINE. (1.422Kg/cm² (abs))	7.28 Kg/cm²(g)
3. DURATION OF TEST	24 HOURS (MIN.)	30 MINUTES (MIN.)
4. DESIGN TEMPERATURE	120 °C	60°C

ONE CONDENSER WEIGHT:- (01)

DRY WEIGHT - 600 T (EXCL. LP HEATER WEIGHT)
OPERATING WEIGHT - 950 T
FLOODED WEIGHT - 1750 T
L.P. TURBINE OUTER CASING WEIGHT - 110 T

PAINTING:-

1. THE CONDENSER IS PAINTED AT WORKS AS FOLLWS:-
   STEAM SIDE SURFACES - STEAM WASHABLE PAINT
   CW SIDE SURFACES EPOXY BASE ZINC RICH PRIMER PAINT
   OUTSIDE SURFACES EPOXY BASE ZINC RICH PRIMER AND INTERMEDIATE PAINT
2. THE CONDENSER IS TO BE PAINTED AT SITE AS FOLLOWS:-
   EXTERNAL SURFACE:- TO BE PANTED WITH 2 COATS OF POLYURETHANE FINISH PAINTS. TOTAL DFT (FINAL) - 180 MICRONS
3. INTERIOR OF THE WATER BOXES AND WATER SIDE SURFACE OF TUBE PLATES TO BE PAINTED WITH EPOXY BASED ZINC RICH PRIMER AND HIGH BUILD BLACK COALTAR EPOXIDE PAINT. THE TOTAL MIN. DRY FILM THICKNESS AFTER PAINTING SHALL BE 200 MICRONS.
4. DECONSERVATION:-
   STEAM SIDE SURFACES OF THE CONDENSER SHOULD BE THROUGHLY CLEANED WITH THE APPLICATION OF STEAM. SINCE THEY HAVE BEEN SUPPLIED COATED WITH STEAM WASHABLE RUST PREVENTIVE PAINT.

DESIGN DATA:-

1. COOLING WATER FLOW = 84210 M^3/Hr
2. COOLING SURFACE AREA (DESIGN) = 2x34736 M^2
3. COOLING WATER INLET TEMPERATURE (DESIGN) = 33 °C
4. COOLING WATER TEMPERATURE RISE = 9.4 °C (4.72°C + 4.68° C)
5. NUMBER OF TUBE PASSES = 1
6. TUBE CLEANLINESS FACTOR = 0.9
8. COOLING WATER SIDE PRESSURE DROP = 2x2.86 MWC (EXCL. INTERCONNECTION PIPES)
   (PRESSURE DROP INDICATED ABOVE IS BETWEEN C.W. INLET OF CONDENSER-1 AND CW OUTLET OF CONDENSER-2.)
9. NO. OF COOLING TUBES (TOTAL) = 2x29755 NOS.
   9.1 CONDENSING ZONE = 2x27673 NOS.
   9.2 AIR COOLING ZONE = 2x2082 NOS.
10. SIZE OF COOLING TUBE = DIA 25.4 X 0.7112 mm,L=14730 MM(COMPLETE LENGTH)
    DIA 25.4 X 0.889, L=14730 MM(COMPLETE LENGTH) (FOR TOP TWO ROWS)
11. MATERIAL OF COOLING TUBES
    - CONDENSING ZONE
    - AIR COOLING ZONE AND TOP TWO ROWS
    = WELDED SS (ASTM A-249-TP304) (01)
12. CONDENSER HOTWELL STORAGE CAPACITY BETWEEN NORMAL WATER LEVEL AND LOW LOW WATER LEVEL. = 2x51.66 CUBM (3 MINUTES STORAGE CAPACITY)
12. CORROSION ALLOWANCE:
    a) WATER BOX, TUBE PLATE = 3.2 MM
    b) SHELL, HOTWELL, CONDENSER NECK = 1.6 MM
13. HEAT LOAD = 397.5 GCAL/HR (CONDENSER-1) & 392.5 GCAL/HR (CONDENSER-2).
14. DESIGN CONDITION = VWO 1% mu
    CONDENSER BACK PRESSURES = 0.0774 ata (CONDENSER-1) & 0.0992 ata (CONDENSER-2)

LIST OF MATERIALS:- (MAJOR PARTS)

SL.NO.	DESCRIPTION	MATERIAL
1	BOTTOM PLATE, SUPPORT PLATES, DOME WALLS, WATER BOX, SHELL, HOTWELL	IS:2062, Gr: B
2	MAIN TUBE PLATES	IS:2062, Gr: B
3	BAFFLES IN A.C. ZONE	SSTP 304
4	PIPES	IS:1239, Gr.: ERW
5	TIE ROD	IS:1570, Gr20 C8
6	DUMP PIPE	ALLOY STEEL P-11
7	BOLTS & NUTS	ALLOY STEEL CL. 8.8 (02)
8	GASKET	NEOPRENE
9	NOZZLES	CARBON STEEL

NOTE:

1. CONDENSER IS TO BE DESPATCHED IN LOOSE PARTS MAINLY COMPRISING, OF THE FOLLOWING.
   i) BOTTOM PLATE
   ii) TURBINE AND GENERATOR SIDE WALL PLATES.
   iii) DOME WALLS
   iv) FRONT WATER CHAMBERS AND REAR WATER CHAMBERS WITH TUBE PLATES
   v) TUBE SUPPORT PLATES 2X18 NOS. PER CONDENSER.
   vi) FIXED SUPPORTS (MULTI BALL BEARINGS).
   vii) WATER BOX HINGE ARRANGEMENT FOR FRONT & REAR WATER BOXES.
2. FOR INSTRUMENTION & FITTING FOR CONDENSER LEVEL CONTROL REF. DRG. NO. 11600070008C209
3. BOTH CONDENSERS TUBES ARE TILTED BY 0.5° TOWARDS A-ROW SIDE FOR SELF DRAINING.
4. CONDENSATE LEVEL IN EACH CONDENSER IS DIFFERENT.
5. EL 0.00M CORRESPONDS TO RL 99.5M I.E. FFL OF TG HALL.
6. CONDENSER IS DESIGNED, MANUFACTURED AND TESTED AS PER HEI,USA.
7. THE EMBEDMENTS PROVIDED ARE FOR ANCHORING & GUIDING CONDENSER MOVEMENTS.
8. MITRE IS THE PART OF WATER BOX AND WILL SUPPLY BY BHEL-PEM.
9. LARGE BOX TYPE SCREENING STRUCTURE WITH ANTI-VORTEX BAFFLING IS PROVIDED AT EACH HOTWELL CONNECTION TO SUCTION OF CONDENSATE PUMPS.

REV.	DATE	ALTERED / CHECKED	REMARKS
07	17.11.15	ALTERED DEEPAK KUMAR / CHECKED NAVEEN PRAKASH	DRAWING REVISED TO INCORPORATE CUSTOMER & PEM COMMENTS.
06	10.09.15	ALTERED DEEPAK KUMAR / CHECKED NAVEEN PRAKASH	DRAWING REVISED TO INCORPORATE CUSTOMER COMMENTS.
05	10.07.15	ALTERED DEEPAK KUMAR / CHECKED NAVEEN PRAKASH	DRAWING REVISED TO INCORPORATE CUSTOMER COMMENTS.
04	27.06.15	ALTERED DEEPAK KUMAR / CHECKED NAVEEN PRAKASH	DRAWING REVISED TO INCORPORATE CUSTOMER COMMENTS.
03	17.06.15	ALTERED DEEPAK KUMAR / CHECKED NAVEEN PRAKASH	DRAWING REVISED TO INCORPORATE CUSTOMER AND PEM COMMENTS.
02	19.05.15	ALTERED DEEPAK KUMAR / CHECKED NAVEEN PRAKASH	DRAWING REVISED TO INCORPORATE CUSTOMER AND PEM COMMENTS.
01	05.04.15	ALTERED DEEPAK KUMAR / CHECKED NAVEEN PRAKASH	DRAWING REVISED TO INCORPORATE CUSTOMER AND PEM COMMENTS.

CUSTOMER: TELANGANA STATE POWER GENERATION CORPORATION LTD
TELANGANA STATE, INDIA
1x800 MW KOTHAGUDAM TPS STAGE-VII UNIT#12, PALONCHA

OWNER'S CONSULTANT: DEVELOPMENT CONSULTANTS PVT. LTD.
CONSULTING ENGINEERS
KOLKATA MUMBAI CHENNAI NEW DELHI

BHARAT HEAVY ELECTRICALS LTD
HEEP, HARIDWAR

DEPT CODE 4222		NAME	SIGN	DATE
	DRN	R.K.	sd/-	20.02.15
	DESN	D.K.	sd/-	20.02.15
	CHD	D.K.	sd/-	20.02.15
	APPD	N.P.	sd/-	20.02.15

TITLE: CONDENSER GENERAL ASSEMBLY

DEPT. SIGN SCALE NTS

DRAWING NO. 01601070071C209
SHEET 1 OF 2 REV. 07

A-ROW SIDE VIEW

GENERATOR SIDE VIEW

VIEW OF CONDENSER 1&2 FOUNDATION

NOTE: EMBEDMENT PLATES DO NOT SUPPORT CONDENSER WEIGHT IN Y–DIRECTION (VERTICAL).

LIST OF FITTINGS / INSTRUMENTS:–

(02)

	SL. NO.	SIZE	DESCRIPTION	QTY.	TYPE	REMARKS	MOC
	01	NB 100	WATER BOX DRAIN VALVE	8	FLG. SW		CS
	02	NB 100	HOT WELL DRAIN VALVE	8	SW		CS
(02)	03	NB 150	WATER BOX VENT VALVE	4	FLG.		CS
	04	NB 25	ISOLATING VALVES FOR LEVEL SWITCHES	18	SW		CS
(02)	05	NB 25	ISOLATING VALVES FOR LEVEL GAUGE	16	SW	LEVEL GAUGES ARE PROVIDED WITH NB25 INTEGRAL ISOLATING VALVE FOR LEVEL GAUGE ISOLATION	CS
	06	NB 50	STAND PIPE ISOLATING VALVE	8	SW		CS
	07	NB 15	STAND PIPE VENT VALVE	4	SW		CS
	08	NB 15	STAND PIPE DRAIN VALVE	4	SW		CS
	09	M 33x2	THERMOWELL M20X1.5 (FEMALE) IN WATER BOX	16	SCR	IMMERSION LENGTH L=325 mm	CS
	10	M 33x2	THERMOWELL M20X1.5 (FEMALE) IN AIR OUTLET PIPE	4	SCR	L=125 mm	CS
	11	M 33x2	THERMOWELL M20X1.5 (FEMALE) IN CONDENSER SHELL	2	SCR	L=325 mm	CS
(02)	12	–	LEVEL SWITCHES (MAGNETIC FLOAT TYPE)	6	SW		CS
	13	NB 15	ISOLATING VALVE FOR CONDENSER VACUUM GAUGE	2	SW		CS
	14	M20X1.5	DIAL THERMOMETERS FOR CW SIDE RANGE 0–80°C	8	SCP		CS
	15	–	STAND PIPES (NB100)	4	–		CS
	16	NB 50	ISOLATING VALVE FOR TRANSMITTERS	12	SW		CS
	17	M 33X2	THERMOWELL M20X1.5 (F) IN WATER BOX (FOR PERFORMANCE TEST)	8	SCR	L=125 & 325 mm (4Nos. EACH) 1 No. EACH PER CW INLET CONN.	CS
(02)	18	NB 15	ISOLATING VALVE FOR CONDENSER VACUUM MEASUREMENT (FOR PERF. TEST)	12	SW		CS
(02)							
	20	NB 15	ISOLATING VALVE FOR CW PRESSURE GAUGE	8	SW		CS

LIST OF CONNECTIONS:–

	REF	SIZE OF (ODXTK.)	TYPE	FLANGE DETAIL OD	PCD	R.FACE DIA	R.FACE PRO	FLG. THK.	NO./HOLE SIZE	PCD–2	NO./HOLE SIZE–2	DESCRIPTION	QTY.	ZONE	REMARKS	
(03)	A	DIA 2780x40	FLG.	3500	3300	–	–	120	40/82*	2960	64/56*	CW INLET	4	F2	* DIA OF HOLE	
	B	DIA 2780x40	FLG.	3500	3300	–	–	120	40/82*	2960	64/56*	CW OUTLET	4	F8	* DIA OF HOLE	
	C	DIA 355.6x9.53	BW									CONDENSATE OUTLET	4	E5		
	D	⌴2200x1100										LP HEATER NO.1	2	J11		
	A1	DIA 700x10	BW									EXTRACTION PIPE LPH–1	4	J11		
	A2	DIA 700x10	BW									EXTRACTION PIPE LPH–2	4	J12		
	A3	DIA 610x10	BW									EXTRACTION PIPE LPH–3	2	K12	FROM TURBINE NB500	
(01)	G	DIA 1118x32	BW									LP BYPASS STEAM INLET	2	K8		
	H	DIA 219.1x6.35	BW									AIR EXTRACTION	4	H11		
	K	DIA 114.3X5	FLG.	210	170	148	3	18	4/M12			WATER BOX DRAIN WITH VALVE	8	F11		
(06)	L	OD 168.3X3.4	FLG.	210	170	148	3	18	4/M12			NORMAL/EMERGENCY MAKE–UP CONNECTION	2	H13	COND–1 DISPERSER FITTED COND–2 BLIND FLANGE	
	M	DIA 114.3x6.02	SW									HOT WELL DRAIN WITH VALVE	8	E11		
	N	DIA 2032x16	BW									BFPT EXHAUST CONNECTION	2	J10		
	S	DIA 219.1x8.18	BW									VACUUM BREAKER CONNECTION	2	H13		
	T1	DIA 168.3x7.11	BW									LPH–1 VENT	2	K13		
	T2	OD 168.3X7.11	BW									LPH–2 VENT	2	K13		
(06)	T3	OD 114.3X6.02	BW									LPH–3 VENT	1	K15		
	T4	OD 114.3X6.02	BW									LPH–4 VENT	1	K14		
(06)	U	OD 114.3X6.02	SW									VENT FROM CONDENSATE EXTRACTION PUMPS (SUCTION SIDE)	1	J5		
(07)	V	DIA 60.3x5.54	BW									CONDUCTIVITY MEASUREMENT CONNCTION	12	E5	PLUG FITTED	
	W	DIA 114.3x6.02	BW									LEAKAGES FROM U–RING HP INLET AND U–RING OVERLOAD VALVE TO HPT	1	K6		
	Z	NB 50	SW									CONNECTION FOR STAND PIPES	8	E3	STAND PIPE ERECTION	
	C1	DIA 1118x10	BW									FLASH TANK–A VENT (LP)	1	J6		(07)
(01)	D1	DIA 323.9x6.35	BW									FLASH TANK–A DRAIN	1	E5		
(01)	E1	DIA 1118x10	BW									FLASH TANK–B VENT (HP)	1	K5		
	F1	DIA 610x10	BW									FLASH TANK–B DRAIN	1	E10		
	J1	DIA 1219x16	BW									TURBINE FLASH BOX I VENT	1	K7		
	K1	DIA 323.2x7.1	BW									TURBINE FLASH BOX I DRAIN	1	E7		
(01)	L1	DIA 1219x16	BW									TURBINE FLASH BOX II VENT	1	J5		
	M1	DIA 323.9x7.1	BW									TURBINE FLASH BOX II DRAIN	1	E4		
	P1	DIA 168.3x7.11	FLG.	285	240	212	3	22	8/M20			WATER BOX STARTING VENT/AIR RELEASE VLV	4	H2	BLIND FLANGE FITTED	(A–ROW SIDE)
	P2	DIA 114	FLG.	210	170	148	3	18	4/M12			WATER BOX VENT RELEASE VALUE (B ROW SIDE)	4	H7	BLIND FLANGE FITTED	(B–ROW SIDE)
	W3	DIA 88.9x5.49										U–RING LEAK OFF FROM IP INLET AND HP EXHAUST	1	J5		
	T7	DIA 33.4x4.55										EXTRA TEMP.CONNECTION	2	H12		
	T6	DIA 88.9x5.49	BW									HEADER FOR CONDENSER INSTRUMENTS RACK	2	H16		
	R1	M33x2	SCR									CW TEMPERATURE CONNECTION	8	F8	PLUG FITTED	
	S1	M33x2	SCR									AIR OUTLET TEMPERATURE CONNECTION	4	H11	PLUG FITTED	
	U1	M33x2	SCR									CONDENSER SHELL TEMP. CONNECTION	2	H7	PLUG FITTED	
	V1	NB 15	SW									CW PRESSURE GAUGE CONNECTION	8	G2	VALVE FITTED	
	W1	NB 15	SW									VACUUM GAUGE CONNECTION WITH VALVE	2	H7	VALVE FITTED	
(07)	Z1	DIA 457.2x7.92	BW									EXCESS STEAM FROM SEAL STEAM HEADER	1	H4		
	M2	DIA 508x10	FLG	670	620	585	7	38	20/M24			MAN HOLES WITH HINGED COVERS	20	E4		
	C2	DIA 168.3x7.11	BW									RINSE WATER FROM POLISHER UNIT	1	H15	DISPERSER FITTED	
	T5	M14x1	SCR									REMOTE TEMP MEASUREMENT FOR LP BY PASS SPRAY CONTROL	4	K11	PLUG FITTED	
	Pt1	M33x2	SCR									CW INLET TEMP. CONN. FOR PERF TEST	8	G2	PLUG FITTED	
	Pt2	NB 15	SW									COND. VACUUM MEASUREMENT CONN. FOR PERF. TEST	16	H5	VALVE FITTED	
	T10	DIA 33.4x4.55	BW									EXCESS WATER FROM WATER SPRAY LINE TO LP BY PASS VALVE	2	J15		
	W2	DIA 273.1x9.27	BW									STEAM EVACUATION FROM HPT/CRH	1	K7		
	Q	DIA 168.3x7.11										GSC MIN. RECIRCULATION	1	H10		

REV.	DATE	ALTERED DEEPAK KUMAR	REV.	DATE	ALTERED DEEPAK KUMAR
07	17.11.15	CHECKED NAVEEN PRAKASH	06	10.09.15	CHECKED NAVEEN PRAKASH
DRAWING REVISED TO INCORPORATE CUSTOMER & PEM COMMENTS. Z1 CONNECTION SIZE INCREASED. LOAD ON EP ANCHOR & GUIDED POINTS. V CONNECTION ADDED IN WATER CHAMBER.			DRAWING REVISED TO INCORPORATE PEM AND CUSTOMER COMMENTS. B2,P CONNECTION DELETED. U,T2,T3,T4 CONNECTION SIZE INCREASED.		

REV.	DATE	ALTERED DEEPAK KUMAR	REV.	DATE	ALTERED DEEPAK KUMAR	REV.	DATE	ALTERED DEEPAK KUMAR	REV.	DATE	ALTERED DEEPAK KUMAR	REV.	DATE	ALTERED DEEPAK KUMAR
05	10.07.15	CHECKED NAVEEN PRAKASH	04	27.06.15	CHECKED NAVEEN PRAKASH	03	17.06.15	CHECKED NAVEEN PRAKASH	02	19.05.15	CHECKED NAVEEN PRAKASH	01	05.04.15	CHECKED NAVEEN PRAKASH
DRAWING REVISED TO INCORPORATE CUSTOMER COMMENTS.			DRAWING REVISED TO INCORPORATE CUSTOMER COMMENTS.			DRAWING REVISED TO INCORPORATE CUSTOMER AND PEM COMMENTS.			DRAWING REVISED TO INCORPORATE CUSTOMER AND PEM COMMENTS.			DRAWING REVISED TO INCORPORATE CUSTOMER AND PEM COMMENTS.		

CUSTOMER:
TELANGANA STATE POWER GENERATION CORPORATION LTD
TELANGANA STATE, INDIA
1x800 MW KOTHAGUDAM TPS STAGE–VII UNIT#12, PALONCHA

OWNER'S CONSULTANT:
DEVELOPMENT CONSULTANTS PVT. LTD.
CONSULTING ENGINEERS
KOLKATA MUMBAI CHENNAI NEW DELHI

BHARAT HEAVY ELECTRICALS LTD
HEEP, HARIDWAR

DEPT CODE		NAME	SIGN	DATE
4222	DRN	R.K.	sd/–	20.02.15
	DESN	D.K.	sd/–	20.02.15
	CHD	D.K.	sd/–	20.02.15
	APPD	N.P.	sd/–	20.02.15

TITLE
CONDENSER GENERAL ASSEMBLY

DEPT.
SIGN
SCALE NTS
DRAWING NO. 01601070071C209
SHEET 2 OF 2
REV. 07

DRG.NO. /REFERENCE
SIGN & DATE
INVENTORY NO.