

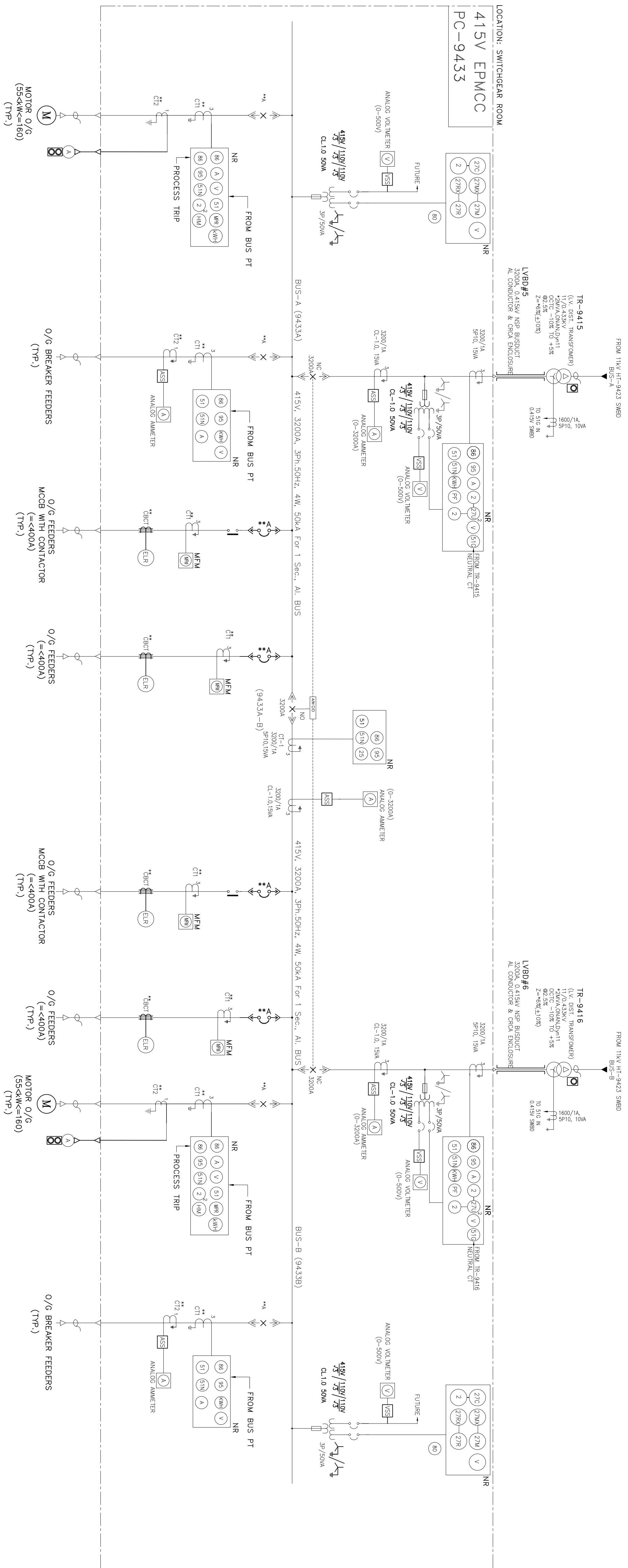


TABLE-3: 415V EPMCC OUTGOING FEEDER DETAILS.

SL NO.	FEEDER DESCRIPTION	FEEDER RATING	FEEDER TYPE	BREAKER RATING	FEEDERS QUANTITY				CT DETAILS			TERMINATION
					TOTAL	BUS-A	BUS-B		CT-1	CT-2	CBCT	
1	CTG AUXILIARY LUBE OIL PUMP	75kW	MOTOR FEEDER	630A	2	1	1		200/1A 50/10, 100A	200/1A C-10, 100A	NA	
2	LF PUMP MOTOR 888P-1,2	110kW	MOTOR FEEDER	630A	3	2	2		300/1A 50/10, 100A	300/1A C-10, 100A	NA	
3	WATER INJECTION 888W-1,2	110kW	MOTOR FEEDER	630A	2	1	1		300/1A 50/10, 100A	300/1A C-10, 100A	NA	
4	STG LUBE OIL PUMP DRIVE	75kW	MOTOR FEEDER	630A	2	1	1		200/1A 50/10, 100A	200/1A C-10, 100A	NA	
5	HP EXPORT FEED WATER PUMP(BOP LOAD)	110kW	MOTOR FEEDER	630A	2	1	1		300/1A 50/10, 100A	300/1A C-10, 100A	NA	
6	DC STARTING BULK LOAD	125kVA*	MCCB WITH CONTRACTOR FEEDER	250A	2	1	1		250/1A 50/10, 100A	NA	*50/1A	
7	1GT MCC	460kVA	ACB FEEDER	800A	2	1	1		750/1A 50/10, 100A	750/1A C-10, 100A	NA	
8	STG MCC	65kVA	ACB FEEDER	800A	2	1	1		100/1A 50/10, 100A	100/1A C-10, 100A	NA	
9	AC ELDB	35kVA	MCCB FEEDER	63A	2	1	1		63/1A 50/10, 100A	NA	*50/1A	
10	BOP MCC-2	490kVA	ACB FEEDER	800A	2	1	1		750/1A 50/10, 100A	750/1A C-10, 100A	NA	
11	DC SYSTEM-1(220V Critical Lighting)	85kVA	MCCB WITH CONTRACTOR FEEDER	160A	2	1	1		160/1A 50/10, 100A	NA	*50/1A	
12	DC SYSTEM-2 (110V SWGR CONTROL)	68kVA	MCCB WITH CONTRACTOR FEEDER	160A	2	1	1		160/1A 50/10, 100A	NA	*50/1A	
13	DC SYSTEM-3 (110V MOTOR LOADS)	42kVA	MCCB FEEDER	100A	2	1	1		100/1A 50/10, 100A	NA	*50/1A	
14	UPS SYSTEM-1 (110V)	*90kVA	MCCB WITH CONTRACTOR FEEDER	160A	2	1	1		160/1A 50/10, 100A	NA	*50/1A	
15	UPS SYSTEM-1 (240V)	*10kVA	MCCB FEEDER	63A	2	1	1		63/1A 50/10, 100A	NA	*1/1A	
16	SPRAGE BREAKER O/G FEEDER	-	ACB FEEDER	800A	1	1	-		750/1A 50/10, 100A	750/1A C-10, 100A	NA	
17	SPRAGE MOTOR O/G FEEDER (535-160kW)	-	MOTOR FEEDER	630A	1	-	1		300/1A 50/10, 100A	300/1A C-10, 100A	NA	
18	SPRAGE MCCB WITH CONTRACTOR FEEDER	-	MCCB WITH CONTRACTOR FEEDER	250A	1	1	-		250/1A 50/10, 100A	NA	*50/1A	
19	SPRAGE MCCB FEEDER	-	MCCB FEEDER	100A	1	1	1		100/1A 50/10, 100A	NA	*50/1A	

	OWNER:																
	PWC:																
PROJECT:																	
CAPTIVE POWER PLANT (CPP) PACKAGE VISAKH REFINERY MODERNIZATION PROJECT (VRMP) JOB NO. B016																	
HINDUSTAN PETROLEUM CORPORATION LIMITED																	
ENGINEERS INDIA LIMITED (EIL), NEW DELHI																	
																	
BHARAT HEAVY ELECTRICALS LTD. HYDERABAD																	
<table><tr><td>NAME</td><td>SIGN.</td><td>DATE</td><td>NO OF</td></tr><tr><td>DEN.</td><td>-SD-</td><td>12.04.18</td><td>VAR.</td></tr><tr><td>CHD.</td><td>P/SURESH</td><td>12.04.18</td><td></td></tr><tr><td>COORDINATING ENGINEER</td><td></td><td></td><td></td></tr></table>	NAME	SIGN.	DATE	NO OF	DEN.	-SD-	12.04.18	VAR.	CHD.	P/SURESH	12.04.18		COORDINATING ENGINEER				
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COORDINATING ENGINEER																	

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NOTES:

1. ALL BREAKAGE AND MCOB FEEDERS IN 415V PMCC ARE SINGLE FRONT AND DRAW OUT TYPE. CABLE ENTRY FROM BOTTOM.
2. CABLE SIZES SHALL BE AS PER ITC
3. CABLE SIZES SHALL BE AS PER ITC
4. INDICATIONS SHALL BE 10V OR REDUNDANT WITH AUTO CHANGEOVER FACILITY.
5. INCOMER & BUS-COUPLER ARE PROVIDED WITH AUTO CHANGEOVER AND MOMENTARY PARALLING FACILITY.
6. CABLE SIZES SHALL BE AS PER LT POWER CABLE SIZING CALCULATION WHICH SHALL BE SUBMITTED TO APPROVAL OF RESPECTIVE
7. EQUIPMENT RATING/PARAMETERS/QUANTITY ARE SUBJECT TO APPROVAL OF RESPECTIVE
8. FOR PROCESS. TIRPS ADDITIONAL SELF RESET TYPE LOCKOUT RELAY AND ITS INDICATIONS, SHALL BE PROVIDED IN NP FOR MOTOR FEEDERS.
9. ALL RELAYS EXCLUDING AUXILIARY RELAYS SHALL BE NUMERICAL MICROPROCESSOR BASED
10. MCOB SHALL BE PROVIDED WITH SHUNT TRIP COIL
11. EARTH LEAKAGE FEEDER SHALL HAVE BULITIN THER
12. # - 2 ACB FEEDERS OF 800A FOR OWNERS USE (TOTAL 3000VA) IS CONSIDERED AS PERFORMA CONTRACT. INDIVIDUAL FEEDER RATING IS ASSUMED AS 150VA.
13. EQUIPMENT RATING/PARAMETER/QUANTITY MARKED WITH (*) ARE TENTATIVE.

Refer attached file



DOCUMENT REVIEW DETAILS

- ☐ 1 No Comments.
- ☒ 2 Proceed with manufacture / fabrication as per the commented document. Revised document required.
- ☐ 3 Document does not conform to basic requirements as marked. Resubmit for review.
- ☐ R Retained for Records. ☐ V Void.

Signature with Date **02-MAY-2018**

Name of Reviewer **NAIK BHUKYA NAGARAJU (C254)**

Transmittal No. _____

COMMENT SHEET

DOC. NO.	B016		--
	JOB NO.	TR. NO.	S.NO

PROJECT: VRMP PROJECT, VIZAG
NAME OF PACKAGE: CPP package

CLIENT: M/s HPCL-Vizag
CONTRACTOR: M/s BHEL

SL. NO.	COMMENT/ OBSERVATION	RESOLUTION / ACTION
1	DRAWING / DOCUMENT TITLE : 415V SWITCHBOARD (EPMCC-9433) DOCUMENT NUMBER: PY-DL-1-M104-8809-02 R 00 CATEGORY/CODE: 2	
1	Please note that distribution transformer ratings & impedance values, motor ratings etc. mentioned are not reviewed at present. The same shall be as per final complete load data of the package, load analysis, Distribution Transformer Sizing calculations, Cable sizing calculations etc.	
2	Please note that CT ratios for incoming and outgoing feeders are not reviewed at present. These shall be checked / reviewed as per final transformer, motors, and capacitor ratings.	
3	All relays, meters, controls, timers, selector switches etc. as mentioned in bid package hardware data sheets and as required while developing the control schematic and felt necessary for safe operation shall be provided.	
4	Please note that 415V ACB for all incomers and buscouplers shall be four (4) pole circuit breakers. indicate the same in SLD.	
5	Incomer for solar panel shall be provided with ACB, 4P of minimum rating 800A as per bid package and not MCCB as indicated. M/s BHEL to check and revise.	
6	For solar panel incomer numerical relay shall be provided.	
7	Numerical relays where ever provided for motor feeders shall use in built under voltage relay and timer for delayed tripping on bus under voltage in line with S. No. 14 of Cl. 5.4.3.3 of electrical design basis A758-999-16-50-EDB-1001 attached with tender.	
8	Indicate the Line PT in SLD immediately after the Busduct in the incomer feeders.	
9	MCB in the bus PT shall be 4 Pole. Include this point in Notes.	
10	All super critical application motors shall be provided with double contactors in DOL feeder as per note-3 of clause 5.6.5 of electrical design basis A758-999-16-50-EDB-1001 attached with tender. Indicate a note of the same in SLD.	
11	Break-up of protection components being considered in MPR shall be indicated in the note. U/V+ Timer, E/F protection functions etc. shall also be part of all MPR. MPR functionalities shall be indicated separately for breaker controlled motor feeder. Update drawing Accordingly.	
12	In the Legend, instead of MCB indicate it as MCCB.	
13	Indicate a typical outgoing feeder for motors less than 55 kW in SLD. M/s BHEL to clarify motors less than 55 kW will be fed from this EPMCC switchboard or a separate MCC is considered.	
14	Spare feeders at least one number of each type of outgoing feeder or 10% of each type of outgoing feeder whichever is more shall be provided as per clause no. 5.3.4 of EIL specification 6-51-0099. Accordingly, quantity of spare feeders to be checked and indicate the same in revised SLD.	
15	Add note in the SLD "Stabilizing resistor shall be provided in residual earth fault connections for all motors and transformers even in case of numerical relays to prevent any spurious tripping during starting".	
16	metrosils shall be provided for numerical relays to prevent any spurious tripping. Add a note regarding the same.	
17	System architecture shall be IEC61850 HSR. Add this suitably in the notes.	
18	Indicate Owner's load in notes, kindly also indicate the same in EPMCC outgoing feeder details.	

DOCUMENT REVIEW DETAILS

☐ 1 No Comments.

☒ 2 Proceed with manufacture / fabrication as per the commented document. Revised document required.

☐ 3 Document does not conform to basic requirements as marked. Resubmit for review.

☐ R Retained for Records. ☒ V Void.

Comments By: (SIGN/ DATE): 02/05/18

Name of Reviewer: NAR BHUKYA NAGARAJU (C254)

Transmittal No. ENGINEERS INDIA LIMITED, NEW DELHI

Name: Nagraju / Sai

COMMENT SHEET

DOC. NO.	B016 JOB NO.	TR. NO.	-- S.NO
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PROJECT: VRMP PROJECT, VIZAG
NAME OF PACKAGE: CPP package

CLIENT: M/s HPCL-Vizag
CONTRACTOR: M/s BHEL

SL. NO.	COMMENT/ OBSERVATION	RESOLUTION / ACTION
19	Indicate cable sizes in the document.	
20	CLIENT COMMENTS	
	<i>Client comments if any shall be forwarded separately.</i>	

NOTE: CONTRACTOR IS OBLIGED TO FURNISH THIS SHEET (DULY FILLED UP WITH RESOLUTION TO ALL EIL COMMENTS) ALONGWITH REVISED DRAWINGS

	DOCUMENT REVIEW DETAILS
☐ 1	No Comments.
☒ 2	Proceed with manufacture / fabrication as per the commented document. Revised document required.
☐ 3	Document does not conform to basic requirements as marked. Resubmit for review.
☐ R	Retained for Records.
☐ V	Void.
Signature with Date: <u>02 MAY 2018</u> (SIGN/ DATE): 02/05/18	
Name of Reviewer: <u>NAIR BHUKYA NAGARAJU (C254)</u>	
Transmittal No. _____	

Comments By: _____
Department: Electrical

Name: Nagraju / Sai

ENGINEERS INDIA LIMITED, NEW DELHI