

THE INFORMATION CONTAINED HEREIN IS CONFIDENTIAL AND NOT FOR PUBLICATION, BEING THE PROPERTY OF NNE PHARMAPLAN INDIA LIMITED. THE INFORMATION IS ISSUED ON THE UNDERSTANDING THAT NO PART THERE OF SHALL BE COPIED OR COMMUNICATED TO A THIRD PARTY WITHOUT AUTHORISATION IN WRITING FROM NNE PHARMAPLAN INDIA LIMITED.

NOTES:-

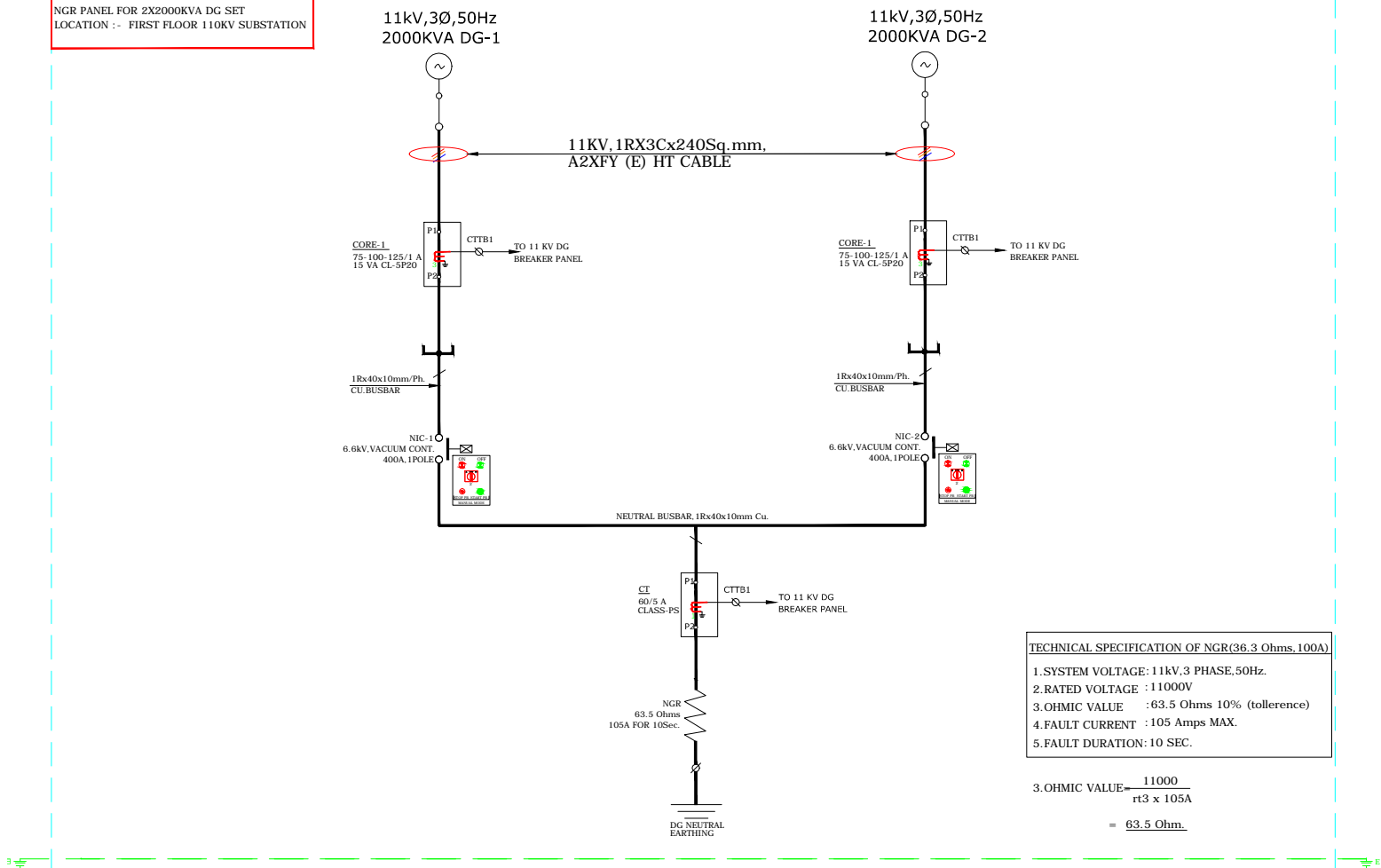
1	LT PANEL SPECIFICATION AS PER SPECIFICATION DOCUMENTS NO:- NPI-120310-ELC-S1-TD-02		
2	INCOMING ELECTRICAL POWER SUPPLY DETAIL ARE AS FOLLOWS. UTILIZATION VOLTAGE 11 K V , 3 PHASE , 3 WIRE , 50 Hz VOLTAGE VARIATION ± 10% FREQUENCY VARIATION ± 3%		
3	NGR PANEL SHALL BE SINGLE FRONT, FLOOR MOUNTED WITH PROVISION FOR BOTTOM CABLE ENTRY.		
4	ALL MAIN BUS BARS SHALL BE SUITABLY-PVC SLEEVED ELECTROLYTIC ALUMINIUM.		
5	VACUUM CONTACTOR SHALL BE 400 AMP SINGLE POLE 6.6 KV		
6	NEUTRAL CT AND PHASE CTs SHALL BE SUPPLIED BY ELECTRICAL CONTRACTOR		
7	NGR PANEL INCOMING SHALL BE HT CABLE 11KV,3Cx240Sq.mm		
8	AUXILIARY DC SUPPLY UNIT SHALL BE SEPARATE FROM NGR PANEL. AND SHALL HAVE BATTERY AND BATTERY CHARGER AUXILIARY POWER SUPPLY SHALL BE AS FOLLOWS,ALL EQUIPMENT SHALL BE RATED FOR 220 VAC /110 VDC CONTINUOUS OPERATION		
	SERVICE	VOLTS	AC/DC
	VCB CLOSING	110	DC
	VCB TRIPPING	110	DC
	CONTROL & INDICATION	110	DC
	AUX. RELAYS & CONTACTORS	110	DC
9	THE CONTROL SCHEME SHALL INCLUDE ALL NECESSARY SYNC. CHECK RELAY , TIMERS , RELAYS AND SELECTOR /CONTROL SWITCHES. MANUAL OPERATION SHALL BE INCLUDED.		
10	CT & PT RATING AND CHARACTERISTICS SHALL BE CONFIRMED BY THE SWITCHGEAR VENDOR.		
11	VENDORS TO INDICATE PURCHASER'S REFERENCE DRAWING NUMBER ON ALL DOCUMENTATION.		
12	THE SWITCHGEAR VENDOR SHALL BE RESPONSIBLE FOR THE COMPLETE DESIGN AS DETAILED IN THE SPECIFICATION RELEVANT STANDARDS AND ENGINEERING BEST PRACTICE.		
13	CT, RELAY, METERING, LAMPS ETC SHOWN ARE INDICATIVE AND MINIMUM. ANY AUX RELAYS, METERS, INDICATING LAMPS, CT SHALL BE PROVIDED.		

1	BREAKER CONTROL SWITCH
2	AUTO-MANUAL SWITCH
21	DISTANCE PROTECTION RELAY
25	UNDER VOLTAGE RELAY
27	UNDER VOLTAGE RELAY/NO VOLTAGE RELAY
32	REVERS POWER RELAY
40	LOSS OF EXITATION
49 O	OIL TEMPERATURE INDICATOR
49 W	WINDING TEMPERATURE INDICATOR
50 N	INST. OVER CURRENT EARTH FAULT RELAY
50	INST. OVER CURRENT RELAY
50LBB	BREAKER PROTECTION RELAY
51	IDMT OVER CURRENT RELAY
51N	IDMT EARTH FAULT RELAY
51NS	STAND-BY EARTH FAULT RELAY
51V	VOLTAGE RESTRAINED OVER CURRENT RELAY
59	OVER VOLTAGE RELAY
63 O	OIL SURGE RELAY FOR OLTC
63 T	BUCHHOLZ RELAY
63 X	PRESSURE RELIEF VALVE
64R	RESTRICTED EARTH FAULT RELAY
67	DIRECTION PHASE OVER CURRENT RELAY
67 N	DIRECTION EARTH FAULT RELAY
74	ALARM RELAY
78	OUT OF STEP (POLE SLIP FUNCTION)
81	UNDER FREQUENCY RELAY
86	MASTER TRIPPING RELAY
87 G	GENERATOR DIFFERENTIAL RELAY
87 B	BUSBAR PROTECTION RELAY
87 L	CABLE DIFFERENTIAL PROTECTION RELAY
87 T	TRANSFORMER DIFFERENTIAL RELAY
94	ANTI PUMPING RELAY
95	TRIP CIRCUIT SUPERVISION RELAY
97	PT FUSE FAILURE RELAY
95/86	SUPERVISION RELAY FOR MASTER TRIPPING RELAY

INSTRUMENTATION

A	AMMETER
ASS	AMMETER SELECTOR SWITCH
V	VOLTMETER
VSS	VOLTMETER SELECTOR SWITCH
DLM	DIGITAL LOAD MANAGER
EDO	ELECTRICAL DRAW OUT
MDO	MANUAL DRAW OUT
EPB	EMR. PUSH BUTTON
WTI	WINDING TEMPERATURE INDICATOR
OTI	OIL TEMPERATURE INDICATOR
BR	BUCHHOLZ RELAY
MOLG	MAGNETIC OIL LEVEL GAUGE
PRV	PRESSURE RELIEF OF VALVE
LM	LOAD MANAGER WITH HIGH DEMAND ALARM
RPRR	RAPID PRESSURE RISE RELAY
RTCC	REMOTE TAP CHANGING CUBUCLE
ARV	AUTOMATIC VOLTAGE RELAY
NGR	NEUTRAL GROUNDING RELAY
CT	CURRENT TRANSFORMER
NIC	NEUTRAL ISOLATING CONTACTOR
CTTB	CT TERMINAL BLOCK
ETB	EXTERNAL TERMINAL BLOCK
NL	NEUTRAL LINK
CC	CLOSING COIL
OC	OPENING COIL
IPB	ILLUMINATED PUSH BUTTON

NGR PANEL FOR 2X2000KVA DG SET
LOCATION :- FIRST FLOOR 110KV SUBSTATION



TECHNICAL SPECIFICATION OF NGR(36.3 Ohms,100A)

- 1.SYSTEM VOLTAGE: 11kV,3 PHASE,50Hz.
2. RATED VOLTAGE :11000V
3. OHMIC VALUE :63.5 Ohms 10% (tolarence)
4. FAULT CURRENT :105 Amps MAX.
5. FAULT DURATION: 10 SEC.

$$3. \text{ OHMIC VALUE} = \frac{11000}{\text{rt}3 \times 105\text{A}} = 63.5 \text{ Ohm.}$$

LEGEND:-

SYMBOL	DESCRIPTION
	RYB INDICATION LAMP (LED TYPE)
	ON, OFF, TRIP INDICATION LAMPS
	DIRECT SUPPLY TO PANEL
	SUPPLY CONNECT TO SWITCH SOCKET
	AIR CIRCUIT BREAKER DRAW OUT TYPE
	AMMETER
	VOLTMETER
	SWITCH DISCONNECTOR FUSE UNIT
	VOLTAGE TRANSFORMER
	CURRENT TRANSFORMER (FIGURE INDICATES NO. OF CTs)
	MINITURE CIRCUIT BREAKER
	SOFT STARTER
	MOTOR PROTECTION CIRCUIT BREAKER
	STARTER FEEDER INDICATION & PUSH BUTTON
	POWER METER
	DIGITAL LOAD MANAGER. ONLY TO INDICATE AMPER & kW RATING
	MOULDED CASE CIRCUIT BREAKER
	AUTO-MANUAL SELECTOR SWITCH
	CABLE GLAND

	SPARE FEEDER
	FUSE
	SDF WITH SUPERFAST SEMI CONDUCTOR FUSE
	EMERGENCY PUSH BUTTON
	GAS FILLED TYPE CAPACITOR WITH 7% OF DETUNED HARMONIC FILTER & DISCHARGE RESISTER RATING 480 VAC
	CAPACITOR FEEDER INDICATION & PUSH BUTTON (FOR SUB PANELs)
	DISTRIBUTION TRANSFORMER
	TRIP/NEUTRAL/CLOSE SWITCH
	TRIP CIRCUIT HEALTHY INDICATION
	CLOSING COIL
	TRIPPING COIL
	SPRING CHARGING MOTOR (BLUE COLOUR)
	BREAKER ON INDICATION (RED COLOUR)
	BREAKER OFF INDICATION (GREEN COLOUR)
	AUTO TRIP INDICATION (AMBER COLOUR)
	DC SUPPLY FAIL INDICATION
	BUS DUCT
	THYRISTOR MODULE SIMILAR TO TSM SERIES OF EPCOS MAKE WITH 2200 TIE CARD
	CAPACITOR FEEDER INDICATION & PUSH BUTTON (APFC PANEL)
	VACUUM CONTACTOR 6.6 KV (NIC-NEUTRAL ISOLATING CONTACTOR)

01.	21.07.2014	BAKD	VNIR	REVISED AS PER CLIENT COMMENTS			
Rev.	Date	Changed	Checked	Kind of revision	No. Of Pages	Date	Issued To
File name :-				Project No. : 120310			
Originated From Drg. No. :				Location : CHENGALPATTU			
Project :				Description :			
INTEGRATED VACCINES COMPLEX , HLL BIOTECH LIMITED				NEUTRAL GROUNDING RESISTOR PANEL			
Date : 23.06.2014				Name : BAKD			
Checked : 23.06.2014				VNIIR			
Approved : 23.06.2014				VNIIR			
Scale : NTS				Units : mm			
Drawing no. : NPI/120310/ELC(SLD)/U2/10				Rev. : 01			