




Comprehensive Audit:

1. Name of the Sub-Station: MATIA
2. Voltage level: 132/33 kV
3. Owner: AEGCL
4. Date of Audit: 16/11/2021
5. Members of Auditing Team:

Sl.No.	Name	Designation	Organization	Signature
1	Shaishav Ranjan	AEF	NERPC	
2.	Ankit Vash	DGM	POWERGRID	
3.	Abhi K. Vaghese	AM	NERLDC	

6. Representatives of the Sub-station/Generating Station assisting the auditing team:

[illegible]

Observations/Recommendations:

Sl.No.	Parameters	Yes/NO	Remarks
1	Whether redundant supply for station auxiliaries is available?	Yes	33/0.44KV 250kVA Sh set-100kVA
2	Whether SCADA system is present?	Yes	
3	Whether SAS has been implemented? If no, whether panels are SAS compliant?	Yes	
4	Whether protection relays for transformers/ICTs/reactors are operational?	Yes	
5	Whether reliability by way of Bus-Bar scheme is present in 132kV station?	Yes	Main-1 & Transfer Bus
6	Whether Double Main Arrangement is present in 220kV Station? If yes, whether operational or not?	—	—
7	Whether Bus Bar Protection is available for the 220kV and above station?	—	—
8	Whether protection relays for emanating lines are operational?	Yes	
9	Whether time synchronisation facility is available in the Sub-station?	No	
10	Whether existing RTUs are healthy and reporting?	Yes	
11	Whether existing communication via PLCC or OPGW? If PLCC then healthiness of PLCC panels	PLCC	Healthy & Reporting

A. Singh
16/11/2021

Shanker
16/11/21

A. Kumar

Ram
16.11.21

12	In case of OPGW connectivity to the station, whether end equipments are available and functional?	—	—
13	Whether all analog/digital points are reporting in local SCADA?	No	
14	Healthiness of Protection coupler/Coupling device?	No	Available but not healthy.
15	Whether sufficient lighting is available in the switchyard?	Yes	
16	DC Supply- Whether two DC sources are available?	No	110V AC source - 1 need one more AC source.
17	Earthing System in the switchyard: Whether as per IS?	Yes	
18	List of diagnostic tools, testing equipments etc. and whether are present in sufficient quantity?	No	
19	Whether firefighting provision is available in the station?	No	Fire Fighting provision should be made available
20	Whether Protection Audit has ever been carried out before? If yes then compliance status of Audit Observations/Recommendations	No	—
21	Whether all relay settings have been submitted in PDMS? If no, then compliance status	No	Relay settings to be submitted
22	Whether CTs, PTs/CVTs of sufficient accuracy is present in the station?	No	0.5 accuracy class available

Any other specific observations/recommendations:

1. CT/PT/CVT shall be acquired of 0.2S accuracy class
2. Diagnostic tools may be obtained (as per CEA regulations) as per AEGCL standard practices.
3. Additional DC source shall be acquired.
4. Analog / Digital points which are not reporting in local SCADA shall be made available on immediate basis.
5. AC to be installed in battery room.
6. Panel opening to be sealed to avoid entry of rodents. Rat spills found in the panel

Agreed 16/11/2021 Shashank 16/11/21

Shashank 16/11/21

7. DC earth fault alarm simulated but same was not being recorded in SAS. DC earth fault is persisting (+120/-0)
8. optical fibre patch codes and copper LAN cables to be checked properly in the panel.
9. GPS is installed but not time synchronized.
10. PLCC of 132 kV AGIA-MATIA is faulty.
11. In SAS DETC[™] PRV 1 of ICT-1 is showing high however no actual signal is persisting.
12. ICT-2 low oil level alarm persisting.
13. 132 kV ICT-1, 33 kV side ^{BCU} is faulty
14. Smoke detector is not installed in Control room.
15. 33 kV bus sectionalizer status is not reporting in SAS
16. DA set needs to be repaired (found faulty).
17. PVC pipe used for cable trays are to be sealed at openings
18. Rusted MOM boxes are to be cleaned and painted

Abhijit
16/11/2021

Shashank
16/11/21

Abhijit
15/11/21

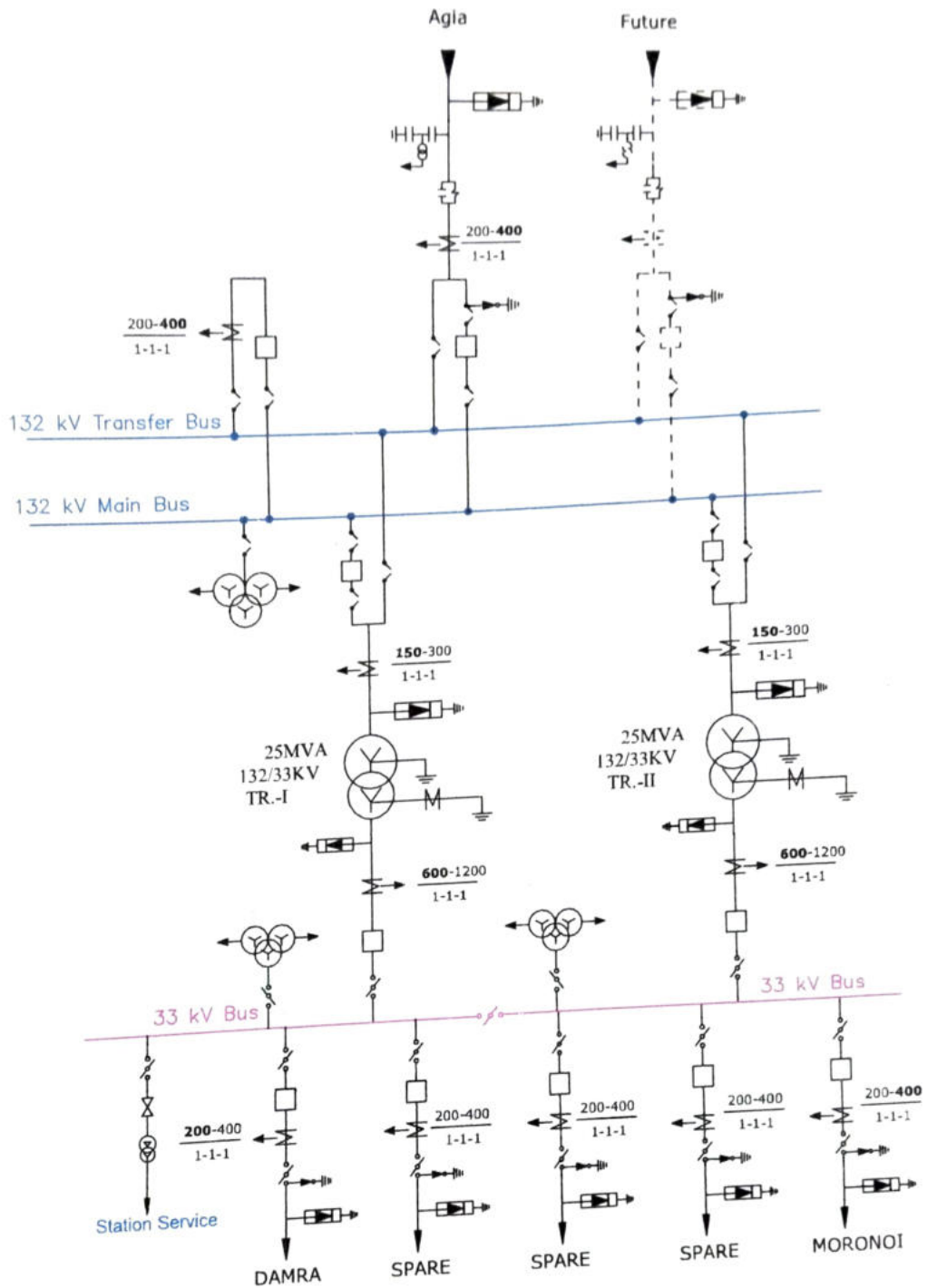
Ranish

14B. AVAILABILITY OF VARIOUS DIAGNOSTIC TOOLS

Sl. No.	DIAGNOSTIC TOOLS	Avail-ability	If Yes (i.e. if Available)	
		(Y/N)	Make	Model
1	Winding resistance meter	N		
2	Transformer Voltage Ratio test meter	N		
3	Insulation Resistance (IR) tester	N		
	(a) 5 kV	N		
	(b) 10 kV	N		
4	Capacitance & Tan delta Measurement Instrument			
	(a) Automatic	N		
	(b) Manual	N		
5	Break Down Voltage (BDV) Test kit for oil	N		
6	Dissolved Gas Analyser	N		
7	Sweep Frequency Response Analysis (SFRA) test kit	N		
8	Partial Discharge (PD) Measuring Instrument	N		
9	CB operational Analyser	N		
10	DCRM test kit	N		
11	SF6 Gas leakage detector	N		
12	Dew point measuring instrument	N		
13	SF6 Gas Handling Plant (for Evacuation, filling, filtering of gas)	N		
14	Static Contact Resistance Measuring instrument	N		
15	Leakage Current Meter (LCM)	N		
16	Earth Tester	N		
17	Automatic Realy test kit			
18	Thermovision camera for detection of hot spots	Y	FLIR	C2
19	Thermal Scanner (for Transformer / Reactor)	N		
20	Transmission line Response Analyser	N		
21	Puncture Insulator Detector (PID)	N		
22	On line Partial Discharge (PD) monitoring of GIS	N		
	If Yes			
	(a) Using Ultra High Frequency (UHF) technique			
	(b) Using Acoustic technique			
22	Any On line diagnostic tools	N		
	If Yes, List the instruments			
	(a)			
	(b)			
	(c)			

Most of the diagnostics tools are available with the MRT team.

Amrit
Amrit, Manager
 132 KV Matha GSS, AEGCE



EQUIPMENT LEGENDS

POWER TRANSFORMER	CIRCUIT BREAKER	ISOLATOR WITHOUT EB	ISOLATOR WITH EB	CURRENT TRANSFORMER	POTENTIAL TRANSFORMER	LIGHTNING ARRESTOR	WAVE TRAP	DVT

ASSAM ELECTRICITY GRID CORPORATION LIMITED.

MATIA 132/33 KV SUBSTATION

SINGLE LINE DIAGRAM

DRAWING NUMBER: AEGCL/MATIA /SLD/39
SHEET: 1 OF 1