



सत्यमेव जयते

भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति



आई एस ओ : 9001-2008
IS/ISO: 9001-2008

Western Regional Power Committee

एफ -3, एमआयडीसी क्षेत्र, अंधेरी (पूर्व), मुंबई - 400 093

F-3, MIDC Area, Andheri (East), Mumbai - 400 093

दूरभाष Phone: 022- 28209506, 28200195; 28200196; फैक्स Fax : 022 – 28370193

Website : www.wrpc.gov.in

E-mail : prc-wrpc@nic.in

No. : WRPC/Protection/Protection Audit/18-19/508 = Date: 31 MAY 2019

To,

**Secretary,
CERC, 4th floor,
Chanderlok Building, 36,
Janpath, New Delhi-110001.**

Sir/Madam,

Subject: Compliance status of Protection Audit observations in WR – Reg.

In compliance of CERC's order dated 05.03.2014 on petition no.220/MP/2012, the compliance status of protection audit observations as on March 2019 in respect of Maharashtra, Chhattisgarh, Madhya Pradesh etc being sent through email on secy@cercind.gov.in, acmis@cerc.gov.in for your perusal. It is to intimate that in case of remaining utilities, the Protection audit observations related to their system have already been complied as per information received from them and the related information has been furnished to you vide even number letter dated 14.02.2019.

Yours' faithfully

J K Rathod, 31/05/
SE(P), WRPC

Copy to:

- 1) Chief Engineer (LD), MSETCL, Kalwa
- 2) Chief Engineer (LD), MPPTCL, Jabalpur
- 3) Chief Engineer (LD), CSPTCL, Raipur
- 4) CE, SLDC, GETCO, Gotri, Vadodara
- 5) GM, POSOCO, WRLDC, Andheri, Mumbai
- 6) CE, STUs of all states
- 7) CTU, Gurugram

Third Party Protection Audit Report of MPPTCL for Qtr_IV (Jan-19 to Mar-19)

Name of Utility		Name of Entity										FY : upto March -2019					
Sr. No.	Name of the S/s	KV	Weather identified of PA		If identified for PA		Deficiency observed		No. of Defecencies			No. of Defecency attended			No. of Defecencies not yet attended		
			Yes	No	PA conducted on date	If not done Taget	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B
1	400KV S/s Bhopal	400KV	Yes		17.01.13		5		5	0	5	4	0	4	1	0	1
2	220KV S/s Bhopal	220KV	Yes		22.04.13		4		4	0	4	3	0	3	1	0	1
3	220KV S/s Gwalior	220KV	Yes		27.04.13		5		5	2	3	4	2	2	1	0	1
4	220KV S/s Malanpur	220KV	Yes		01.05.13		8		8	6	2	7	6	1	1	0	1
5	220KV S/s Mehgaon	220KV	Yes		30.04.13		6		6	5	1	5	5	0	1	0	1
6	220KV S/s South Zone Indore	220KV	Yes		23.04.13		5		5	3	2	4	3	1	1	0	1
7	220KV S/s Jabalpur	220KV	Yes		24.04.13		4		4	3	1	3	3	0	1	0	1
8	220KV S/s Rewa	220KV	Yes		29.04.13		8		8	6	2	6	6	0	2	0	2
9	220KV S/s Satna	220KV	Yes		01.05.13		6		6	3	3	3	3	0	3	0	3
10	220KV S/s Sagar	220KV	Yes		09.05.13		4		4	2	2	3	2	1	1	0	1
11	220KV S/s Chichli	220KV	Yes		13.03.15		3		3	1	2	1	1	0	2	0	2
12	220KV S/s Sukha	220KV	Yes		12.03.15		4		4	3	1	3	2	1	1	1	0
13	220KV S/s Narsinghpur	220KV	Yes		13.03.15		3		3	2	1	2	2	0	1	0	1
14	220KV S/s Pipariya	220KV	Yes		16.03.15		8		8	7	1	7	6	1	1	1	0
15	220KV S/s Guna	220KV	Yes		13.03.15		10		10	4	6	8	4	4	2	0	2
16	220KV S/s Shivpuri	220KV	Yes		15.03.15		7		7	2	5	6	2	4	1	0	1
17	220KV S/s Nagda	220KV	Yes		16.04.15		6		6	5	1	5	5	0	1	0	1
18	220KV S/s Chhindwara	220KV	Yes		12.03.15		3		3	0	3	2	0	2	1	0	1
19	220KV S/s Daloda	220KV	Yes		15.04.15		6		6	5	1	5	5	0	1	0	1
20	220KV S/s Anuppur	220KV	Yes		17.03.15		25		25	20	5	20	19	1	5	1	4
21	220KV S/s Indore Eas	220KV	Yes		12.03.15		10		10	6	4	8	6	2	2	0	2
22	220KV S/s Dhar	220KV	Yes		07.04.15		11		11	9	2	10	9	1	1	0	1
23	220KV S/s Neemuch	220KV	Yes		16.04.15		8		8	4	4	6	4	2	2	0	2
24	220KV S/s Rajgarh Baiora	220KV	Yes		08.04.15		8		8	6	2	7	6	1	1	0	1
25	220KV S/s Nepanagar	220KV	Yes		08.04.15		11		11	4	7	9	4	5	2	0	2
26	220KV S/s Sidhi	220KV	Yes		09.04.15		6		6	3	3	3	2	1	3	1	2
27	220KV S/s Maihar	220KV	Yes		07.04.15		5		5	3	2	2	2	0	3	1	2
28	220KV S/s Handiya	220KV	Yes		09.04.15		7		7	3	4	6	3	3	1	0	1
29	220KV S/s Kotar	220KV	Yes		08.04.15		8		8	5	3	6	5	1	2	0	2
30	220KV S/s Birsinghpur Pali	220KV	Yes		16.03.15		23		23	15	8	18	12	6	5	3	2

Third Party Protection Audit Report of MPPGCL for Qtr_IV (Jan-19 to Mar-19)

Name of the entity :- MPPGCL

FY: upto MARCH-2019

S.No.	Name of the S/s	KV	Whether identified for PA		If identified for PA		Deficiencies Observed		No.of Deficiencies			No.of Deficiencies attended			No.of Deficiencies not yet attended		
			Yes	No	PA conducted on date	if not done, Target Date for PA	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B
1	ATPS	220	YES		11.02.13 & 12.02.13		YES		11	3	8	10	3	7	1	0	1
2	SGTPS	220	YES		13.02.13 & 14.02.13		YES		17	11	6	13	11	2	4	0	4
3	SGTPS	400	YES		13.02.13 & 14.02.13		YES		15	10	5	15	10	5	0	0	0
4	STPS	220	YES		12.03.13 & 13.03.13		YES		18	6	12	12	6	6	6	0	6
5	STPS	400	YES		12.03.13 & 13.03.13		YES		16	9	7	15	9	6	1	0	1
6	TONS	220	YES		11.02.13 & 12.02.13		YES		31	6	25	14	6	8	17	0	17
7	SSTPS	220	YES		06.04.15 & 07.04.15		YES		1	1	0	1	1	0	0	0	0
8	SSTPS	400	YES		06.04.15 & 07.04.15		YES		4	4	0	4	4	0	0	0	0
9	BARGI	132	YES		22.04.13 & 23.04.13		YES		12	4	8	6	4	2	6	0	6
10	GANDHISAGAR	132	YES		22.04.13 & 23.04.13		YES		13	5	8	8	5	3	5	0	5

Third Party Protection Audit Report of OSP for Qtr_IV (Jan-19 to Mar-19)

Name of the utility:Omkareshwar Power Station												FY:18-19 (Period 01.01.2019 to 31.03.2019)					
Sr. No.	Name of the S/s	kV	Whether identified for PA in this FY		If identified for PA		Deficiencies observed		No. of Deficiencies			No. of Deficiencies attended			No. of Deficiencies not yet attended		
			Yes	No	PA conducted on date	if not done, Target Date for PA	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B
1	Omkareshwar Power Station	220			Yes		Yes		5	4	1	5	4	1	0	0	0



एन एच डी सी लिमिटेड

(एनएचपीसी लिमिटेड एवं मध्य प्रदेश शासन का संयुक्त उद्यम)

NHDC Limited

(A Joint Venture of NHPC Limited & Govt. of M.P.)

क्रं. एनएचडीसी/2/जे/संचालन/118/482

दिनांक: 08 / 04 / 2019

प्रति,

अधीक्षण यंत्री (ऑपरेशन)
स्टेट लोड डिस्पैच सेन्टर,
एमपीपीटीसीएल, नयागाँव,
जबलपुर (म.प्र.)

विषय:— Protection Audit Deficiencies and Observation Compliance पर तिमाही प्रतिवेदन के संबंध में।

संदर्भ:— WRPC का पत्र क्र. WRPC/Protection/GD/2014 दिनांक: 26/03/2014।

महोदय,

उपर्युक्त विषयांतर्गत लेख है कि Protection Audit Deficiencies and Observation Compliance पर तिमाही प्रतिवेदन (January 2019 से March 2019) संलग्न कर आपकी ओर आवश्यक कार्यवाही हेतु प्रेषित है।

संलग्नक:— उपर्युक्तानुसार।

भवदीय

विभागाध्यक्ष (संचालन)
इंदिरा सागर पावर स्टेशन

प्रतिलिपि:—

बाह्य

1. मुख्य अभियंता (एलडी), एसएलडीसी, एमपीपीटीसीएल, की ओर सूचनार्थ।

आन्तरिक

1. मुख्य महाप्रबंधक (तकनीकी), निगम मुख्यालय, भोपाल
 2. परियोजना प्रमुख, इंदिरा सागर पावर स्टेशन
 3. विभागाध्यक्ष (विद्युत कार्य विभाग), इंदिरा सागर पावर स्टेशन
 4. विभागाध्यक्ष (स्विचयार्ड विभाग), इंदिरा सागर पावर स्टेशन
- की ओर सूचनार्थ।

इंदिरा सागर पावर स्टेशन, एनएचडीसी कार्यालय परिसर, नर्मदानगर, जिला खण्डवा 450 119 (म.प्र.)

Indira Sagar Power Station, NHDC Office Complex, Narmada Nagar, Distt. Khandwa 450 119 (MP)

दूरभाष / Telephone : 07323 - 284084 फैक्स / Fax : 07323-284035

पंजीकृत कार्यालय : एन एच डी सी परिसर, होटल लेकव्यू अशोक के पास, श्यामला हिल्स, भोपाल - 462 013 (म.प्र.)

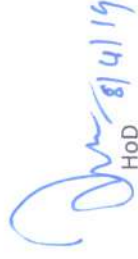
Regd. Office : NHDC Parisar, Near Hotel Lake View Ashoka, Shyamla Hills, Bhopal - 462 013 (M.P.)

Website : www.nhdcindia.com दूरभाष / Telephone : 0755 - 4030014, 2660874 फैक्स / Fax : 0755 - 4030080

निगम पहचान सं. Corporate Identity No.(CIN): U31200MP2000GOI014337

Protection Audit

Name of the Utility:		Name of entity: NHDC Limited										FY: upto March 2019						
S.N	Name of the S/s	kV	Whether identified for PA		If identified for PA		Deficiencies Observed		No. of Deficiencies			No. of Deficiencies attended			No. of Deficiencies not yet attended			
			Yes	No	PA conducted on date	if not done, Target Date for PA	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B	
1	Indira Sagar Power Station	400kV	Yes		22 & 23 February 2013		Yes		8	4	4	7	4	4	3	1	0	1


 HoD

Power House Operation

GUJARAT STATE ELECTRICITY CORPORATION LIMITED

VidyutBhavan, Race Course, Vadodara, India – 390007. Ph. 91-265-6612101, Fax: 91-265-2344537
e-mail: cegen.gsecl@gebmail.com Website: www.gsecl.in
CIN: U40100GJ1993SGC019988

REF: CEG/TESTING/31-A/PA/ 25

DATE: 4-1-2019

To,
THE SUPERINTENDING ENGINEER (PROT.)

Western Region Power Committee,
F-3, MIDC Area, Marol,
Andheri (East)

MUMBAI – 400 093


SUB: Protection Audit Data as per CERC format- Latest Status.
REF: T. O. Letter No. CEG/TESTING/31-A/PA/1728, DT:24.08.2018.

With reference to above subject, status of the protection audit observations of GSECL Power Stations is attached at Annexure.

Status of deficiencies:

SR NO	CATEGORY	DEFICIENCY	STATUS
1	Category - A	At Ukai TPS, Protection audit of 220 KV Ukai-Mota Line-1 pending due to non-availability of outage.	PA of 220 KV Ukai-Mota Line-1 carried out on 01.11.18.
2	Category - B	1. At KLTPS, 220 KV KLTPS – Akrimota Line no. 1: PLCC Panels are not working. Same to be attend by Akrimota as PLCC Panels were provided by them. 2. At KLTPS, 220 KV KLTPS – Akrimota Line no. 2: PLCC Panels are not working. Same to be attend by Akrimota as PLCC Panels were provided by them.	Defects of PLCC panels attended by Akrimota.

This is for information.


(A. C. PATEL)
CHIEF ENGINEER (GEN)

Encl: Annexure

ANNEXURE

GUJARAT STATE ELECTRICITY CORPORATION LIMITED

THIRD PARTY PROTECTION AUDIT : 2017-18 : STATUS.....AS ON 31.12.2018

SR. NO.	NAME OF POWER STATION	S/S VOLT-AGE	DEFICIENCIES (CATEGORY-A)		DEFICIENCIES (CATEGORY-B)		REMARK
			NO. OF DEFICIENCIES	NO. ATTENDED	NO. OF DEFICIENCIES	NO. ATTENDED	
1	WANAKBORI TPS	400 KV	00	00	00	00	---
		220 KV	00	00	00	00	---
2	UKAI TPS	400 KV	01	01*	00	00	*PA of 220 KV Ukai-Mota Line-1 carried out on 01.11.2018.
		220 KV	00	00	00	00	---
3	SSHEP-RBPH	400 KV	02	02	00	00	---
4	SSHEP-CHPH	220 KV	00	00	00	00	---
5	GANDHINAGAR TPS	220 KV	00	00	00	00	---
6	KLTPS	220 KV	00	00	02	02*	*Defects of PLCC Panels of 220 KV KLTPS-Akrimota Line No. 1, 2 attended by Akrimota.
7	SIKKA TPS	132 KV	00	00	00	00	---
8	UKAI HEP	220 KV	00	00	00	00	---
9	KADANA HEP	220 KV	00	00	00	00	---
10	UTRAN GBPS-I	220 KV	02	02	00	00	---
10	UTRAN GBPS-II	220 KV	00	00	00	00	---
11	DHUVARAN GBPS-III	220 KV	00	00	00	00	---
12	DHUVARAN GBPS-I/II	132 KV	00	00	00	00	---
GSECL - TOTAL			05	05	02	02	---

Format for Protection Audit

Name of Utility: Gujarat Energy Transmission Corporation Ltd.

Sr. No.	Name of Circle	Name of the Substation identified for audit	S/S Voltage (KV)	Observations of Protection Audit	Date on which audit conducted/completed	Deficiencies that can be corrected without procurement (Category A)			Deficiencies that involves procurement (Category B)			Remark (Defect)	
						No. of Defects in Category A	Attended Yes/NO	Reason for not attended	No. of Defects in Category A	Attended Yes/NO	Reason for not attended		
1	Amreli	132KV Barwala	132	Circle/ substaion wise observation report enclosed herewith.	22/6/12	8	Yes	Nil	NA	NA	NA	Nil	
2		132KV Paliyad	132		19-20/6/12	13	Yes	Nil	Nil	NA	NA	NA	Nil
3		220KV Dhasa	220		12/7/2012	13	Yes	Nil	Nil	NA	NA	NA	Nil
4		220 KV Botad	220		17/7/2012	9	Yes	Nil	Nil	NA	NA	NA	Nil
5		132KV Vallabhipur	132		21/6/12	3	Yes	Nil	Nil	NA	NA	NA	Nil
6		220KV Otha	220		5/7/2012	7	Yes	Nil	Nil	NA	NA	NA	Nil
7		220KV Savarkundla	220		16/7/2012	13	Yes	Nil	Nil	NA	NA	NA	Nil
8		220KV Sagapara	220		6/7/2012	7	Yes	Nil	Nil	NA	NA	NA	Nil
9		220KV Vartej	220		10/7/2012	4	Yes	Nil	Nil	NA	NA	NA	Nil
10		220KV Anjar	220		11/22/2013	12	Yes	Nil	Nil	NA	NA	NA	Nil
11	Anjar	132 KV Samakhiyali	132	Circle/ substaion wise observation report enclosed herewith.	5/23/2012	Nil	Nil	Nil	NA	NA	NA	Nil	
12		220KV Shivlakra	220		12/26/2013	15	Yes	Nil	Nil	NA	NA	NA	Nil
13		220 KV Kukma	220		12/25/2013	4	Yes	Nil	Nil	NA	NA	NA	Nil
14		220KV Nakhatrana	220		12/20/2013	29	Yes	Nil	Nil	NA	NA	NA	Nil
15		220KV Nanikhakar	220		12/27/2013	17	Yes	Nil	Nil	NA	NA	NA	Nil
16		220KV Tappar	220		12/23/2013	20	Yes	Nil	Nil	NA	NA	NA	Nil
17	Bharuch	132KV Ankleshwar	132	Circle/ substaion wise observation report enclosed herewith.	24/9/12	4	Yes	Nil	NA	NA	NA	Nil	
18		132KV Valia	132		23/8/12	12	Yes	Nil	Nil	NA	NA	NA	Nil
19		220KV Acchalia	220		29/9/12	Nil	Nil	Nil	Nil	NA	NA	NA	Nil
20		220 KV Wagra	220		6/9/2012	2	Yes	Nil	Nil	NA	NA	NA	Nil
21		220KV Dahej	220		20/9/12	Nil	Nil	Nil	Nil	NA	NA	NA	Nil
22	Gondal	220KV Kim	220	Circle/ substaion wise observation report enclosed herewith.	5/9/2012	9	Yes	Nil	NA	NA	NA	Nil	
23		220KV Zagadia	220		22/9/12	4	Yes	Nil	Nil	NA	NA	NA	Nil
24		220KV Haldarwa	220		7/9/2012	20	Yes	Nil	Nil	NA	NA	NA	Nil
25		132KV Bharuch	132		18/9/12	27	Yes	Nil	Nil	NA	NA	NA	Nil
26	Gondal	132KV Wankaner	132	Circle/ substaion wise observation report enclosed herewith.	2/14/2014	2	Yes	Nil	NA	NA	NA	Nil	
27		220KV Lalpar	132		7/2/2014	4	Yes	Nil	Nil	NA	NA	NA	Nil
28		132KV Jasdan	132		2/15/2014	9	Yes	Nil	Nil	NA	NA	NA	Nil
29		132KV Dhrol	132		4/2/2014	4	Yes	Nil	Nil	NA	NA	NA	Nil
30		220KV Gondal	220		2/22/2014	3	Yes	Nil	Nil	NA	NA	NA	Nil
31	Gondal	132KV Vajdi	132	Circle/ substaion wise observation report enclosed herewith.	5/3/2014	3	Yes	Nil	NA	NA	NA	Nil	
32		220KV Nyara	220		2/26/2014	1	Yes	Nil	Nil	NA	NA	NA	Nil
33		132KV Vikram	132		7/2/2014	2	Yes	Nil	Nil	NA	NA	NA	Nil
34		220KV Morbi	220		5/2/2014	7	Yes	Nil	Nil	NA	NA	NA	Nil

Sr. No.	Name of Circle	Name of the Substation identified for audit	S/S Voltage (KV)	Observations of Protection Audit	Date on which audit conducted/completed	Deficiencies that can be corrected without procurement (Category A)			Deficiencies that involves procurement (Category B)			Remark (Defect)
						No. of Defects in Category A	Attended Yes/NO	Reason for not attended	No. of Defects in Category A	Attended Yes/NO	Reason for not attended	
35		132KV Idar	132		19/6/12	4	Yes	Nil	NA	NA	NA	Nil
36		132KV Visanagar	132		20/6/12	4	Yes	Nil	NA	NA	NA	Nil
38		220KV Agiyol	220		10/6/2012	22	Yes	Nil	NA	NA	NA	Nil
39	Himmatnagar	220KV Bhutiya	220		27/6/12	5	Yes	Nil	NA	NA	NA	Nil
40		220KV Jamla	220		30/6/12	13	Yes	Nil	NA	NA	NA	Nil
41		220KV Vjapur	220		22/6/12	5	Yes	Nil	NA	NA	NA	Nil
42		220KV Dhansura	220		4/7/2012	24	Yes	Nil	NA	NA	NA	Nil
43		132KV Talod	132		23/6/12	16	Yes	Nil	NA	NA	NA	Nil
43		132 KV Tilakwada	132		30/4/13	9	Yes	Nil	NA	NA	NA	Nil
44		132 KV Vasedi	132		3/5/2013	4	Yes	Nil	NA	NA	NA	Nil
45		220KV Godhra	220		22/5/13	26	Yes	Nil	NA	NA	NA	Nil
46		132KV Dahod	132		7/5/2013	12	Yes	Nil	NA	NA	NA	Nil
47		220KV Jambuva	220		5/24/2013	2	Yes	Nil	NA	NA	NA	Nil
48		220KV Chandrapura	220		24/5/13	6	Yes	Nil	NA	NA	NA	Nil
49		220KV Gavasad	220		25-6-2013	10	Yes	Nil	NA	NA	NA	Nil
50	Jambuva	132KV Gotri	132		2/7/2013	12	Yes	Nil	NA	NA	NA	Nil
51		220KV Waghodia	220		30/6/2013	Nil	Nil	Nil	NA	NA	NA	Nil
52		132KV J' Nagar	132		31-6-2013	4	Yes	Nil	NA	NA	NA	Nil
53		132KV F" Nagar	132		11/6/2013	13	Yes	Nil	NA	NA	NA	Nil
54		132KV Karjan	132		3/7/2013	18	Yes	Nil	NA	NA	NA	Nil
55		132KV Manjusr	132		30-6-2013	4	Yes	Nil	NA	NA	NA	Nil
56		132 KV Limkheda	132		2/6/2013	Nil	Nil	Nil	NA	NA	NA	Nil
57		132KV Nandesari	132		4/7/2013	4	Yes	Nil	NA	NA	NA	Nil
57		220KV Ranavav	220		2/20/2014	8	Yes	Nil	NA	NA	NA	Nil
58		132KV Bhatia	132		2/21/2014	3	Yes	Nil	NA	NA	NA	Nil
59	Jamnagar	220KV Jamnagar	220		2/14/2014	13	Yes	Nil	NA	NA	NA	Nil
60		132KV Khambhalla	132		2/14/2014	3	Yes	Nil	NA	NA	NA	Nil
61		132KV Naghedi	132		2/14/2014	1	Yes	Nil	NA	NA	NA	Nil

Sr. No.	Name of Circle	Name of the Substation identified for audit	S/S Voltage (KV)	Observations of Protection Audit	Date on which audit conducted/completed	Deficiencies that can be corrected without procurement (Category A)			Deficiencies that involves procurement (Category B)			Remark (Defect)
						No. of Defects in Category A	Attended Yes/NO	Reason for not attended	No. of Defects in Category A	Attended Yes/NO	Reason for not attended	
62		132 KV Bhavavadar	132		18/8/12	2	Yes	Nil	NA	NA	Nil	
63		132KV Junagadh	132		7/9/2012	5	Yes	Nil	NA	NA	Nil	
64		220KV Keshod	220		8/9/2012	5	Yes	Nil	NA	NA	Nil	
65		132 KV Dhoraji	132		22/8/12	4	Yes	Nil	NA	NA	Nil	
66		220KV Motipaneli	220		8/24/2012	7	Yes	Nil	NA	NA	Nil	
67	Junagadh	220KV Sardargadh	220		7/9/2012	7	Yes	Nil	NA	NA	Nil	
68		220KV Visavadar	220		25/6/12	2	Yes	Nil	NA	NA	Nil	
69		132KV Haripur	132		26/6/12	9	Yes	Nil	NA	NA	Nil	
70		132KV Talala	132		27/6/12	19	Yes	Nil	NA	NA	Nil	
71		220KV Timbdi	220		2/7/2012	18	Yes	Nil	NA	NA	Nil	
72		220 KV Kansari(Dhokalva)	220		4/7/2012	11	Yes	Nil	NA	NA	Nil	
73		132 KV Patan	132		2/12/2013	4	Yes	Nil	NA	NA	Nil	
74		132 KV Siddhpur	132		11/27/2013	3	Yes	Nil	NA	NA	Nil	
75		220KV Kheralu	220		12/26/2013	4	Yes	Nil	NA	NA	Nil	
76	Mehsana	220KV Sankhari	220		11/29/2013	3	Yes	Nil	NA	NA	Nil	
77		220KV Chhatral	220		11/21/2013	2	Yes	Nil	NA	NA	Nil	
78		220KV Mehsana	220		12/21/2013	19	Yes	Nil	NA	NA	Nil	
79		220KV Mitha	220		10/12/2013	6	Yes	Nil	NA	NA	Nil	
80		132 KV Sabarmati	132		12/5/2012	21	Yes	Nil	NA	NA	Nil	
81		220KV Salejada	220		30/5/12	11	Yes	Nil	NA	NA	Nil	
82		132KV Ode	132		30/4/12	23	Yes	Nil	NA	NA	Nil	
83		132KV Undel	132		20/05/12	10	Yes	Nil	NA	NA	Nil	
84		220KV Kapadwanj	220		9/6/2012	15	Yes	Nil	NA	NA	Nil	
85		220 KV Bhat	220		31/05/12	9	Yes	Nil	NA	NA	Nil	
86	Nadiad	132KV Narol	132		22/05/12	17	Yes	Nil	NA	NA	Nil	
87		132KV Chiloda	132		24/7/12	3	Yes	Nil	NA	NA	Nil	
88		220KV Karamsad	220		29/4/12	34	Yes	Nil	NA	NA	Nil	
89		220KV Ranasan	220		17/05/12	70	Yes	Nil	NA	NA	Nil	
90		132KV Mahemdabad	132		19/05/12, 15/7/2012	24	Yes	Nil	NA	NA	Nil	
91		220KV Khanpur	220		19/7/12	14	Yes	Nil	NA	NA	Nil	
92		132KV Nadiad	132		18/05/12	13	Yes	Nil	NA	NA	Nil	

Sr. No.	Name of Circle	Name of the Substation identified for audit	S/S Voltage (KV)	Observations of Protection Audit	Date on which audit conducted/completed	Deficiencies that can be corrected without procurement (Category A)			Deficiencies that involves procurement (Category B)			Remark (Defect)
						No. of Defects in Category A	Attended Yes/NO	Reason for not attended	No. of Defects in Category A	Attended Yes/NO	Reason for not attended	
93		220KV Bhilad	220		Nil	Yes	Nil	NA	NA	NA	Nil	
94		220KV Talangpore	220		6/8/2013	Yes	Nil	NA	NA	NA	Nil	
95		220KV Ambheta	220		25/5/13	Yes	Nil	NA	NA	NA	Nil	
96		132KV Atul	132	Circle/ substaion wise observation report enclosed herewith.	16/05/12	Nil	Nil	NA	NA	NA	Nil	
97		132 KV Bhestan	132		10/6/2013	Yes	Nil	NA	NA	NA	Nil	
98	Navsari	220KV Ichhapore	220		7/6/2013	Yes	Nil	NA	NA	NA	Nil	
99		220KV Mota	220		11/5/2013	Yes	Nil	NA	NA	NA	Nil	
100		220KV Navasari	220		22/5/13	Yes	Nil	NA	NA	NA	Nil	
101		220KV Vapi	220		2/9/2013	Yes	Nil	NA	NA	NA	Nil	
102		220KV VAV	220		9/5/2013	Yes	Nil	NA	NA	NA	Nil	
103		220 KV Thavar	220		5/9/2012	Yes	Nil	NA	NA	NA	Nil	
104		220KV Tharad	220		1/9/2012	Yes	Nil	NA	NA	NA	Nil	
105		132 KV Deesa	132		6/9/2012	Yes	Nil	NA	NA	NA	Nil	
106	Palanpur	220KV Deodar	220	11/9/2012	Yes	Nil	NA	NA	NA	Nil		
107		220KV Jangral	220	25/8/12	Yes	Nil	NA	NA	NA	Nil		
108		220KV Palanpur	220	22/8/12	Yes	Nil	NA	NA	NA	Nil		
109		220KV Radhanpur	220	14/9/12	Yes	Nil	NA	NA	NA	Nil		
110		220KV Agarthala	220	29/8/12	Yes	Nil	NA	NA	NA	Nil		
111		132KV Dhandhuka	132	29/1/2013	Yes	Nil	NA	NA	NA	Nil		
112		132KV Sitagadh	132	30/1/2013	Yes	Nil	NA	NA	NA	Nil		
113		132KV DHANKDHRA	132	23/1/2013	Yes	Nil	NA	NA	NA	Nil		
114		220KV Halvad	220	25/1/2013	Yes	Nil	NA	NA	NA	Nil		
115		220KV Limbdi	220	31/1/2013	Yes	Nil	NA	NA	NA	Nil		
116	Surendranagar	220KV Viragam	220	2/28/2013	Yes	Nil	NA	NA	NA	Nil		
117		220 KV DUDHREJ	220	2/2/2013	Yes	Nil	NA	NA	NA	Nil		
118		220 KV RAJPAR	220	5/2/2013	Yes	Nil	NA	NA	NA	Nil		
119		220 KV BALA	220	6/2/2013	Yes	Nil	NA	NA	NA	Nil		
120		220 KV ADALSAR	220	1/23/2013	Yes	Nil	NA	NA	NA	Nil		
121		220 KV DHANKI	220	5/3/2013	Yes	Nil	NA	NA	NA	Nil		

PROTECTION, AUTOMATION & COMMUNICATION (PAC) UNIT, C.O. - AIROLLI.

Name of the Utility/Zone: MSETCL												FY: 2012-13				
S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		Deficiencies Observed		No. of Deficiencies			No. of Deficiencies attended			No. of Deficiencies not yet attended	
					Yes	No	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A
1	Amaravati	Akola	400	2012-13	Yes			No	0	0	0	0	0	0	0	0
2		Paras	220		Yes		YES		2	1	1	2	1	1	0	0
3		Chikhali	220		Yes		YES		1	0	1	1	0	1	0	0
4		Pusad	220		Yes		YES		1	1	0	1	1	0	0	0
5		Akola	220		Yes		YES		2	0	2	2	0	2	0	0
6		Amravati	220		Yes		YES		1	0	1	1	0	1	0	0
7		Badnera	220		Yes		YES		1	0	1	1	0	1	0	0
8		Malkapur	132		Yes		YES		1	0	1	1	0	1	0	0
9	Aurangabad	Girwali	400	2012-13	Yes		Yes		6	6	0	6	0	0	0	
10		Waluj	400/220/33		Yes			No	0	0	0	0	0	0	0	
11		Padegaon	220/132		Yes			No	0	0	0	0	0	0	0	
12		GCR Parli	220		Yes		Yes		1	1	0	1	1	0	0	
13		New TPS Parli	220		Yes		Yes		1	1	0	1	1	0	0	
14		Waghala	220/132		Yes		Yes		4	0	4	4	0	4	0	
15		Jalna	220/132		Yes		Yes		1	1	0	1	1	0	0	
16		Shendra	220/33		Yes		Yes		0	0	0	0	0	0	0	
17		Parbhani	220/132		Yes		Yes		1	0	1	1	0	1	0	
18		Hingoli	220/132		Yes		Yes		2	1	1	2	1	1	0	
19	Beed	220/132	Yes		Yes		3	3	0	3	3	0	0			
20	Harangul	220/132/33	Yes		Yes		1	1	0	1	1	0	0			
21	Osmanabad	220/33	Yes		Yes		1	1	0	1	1	0	0			
22	Tuljapur	220/132	Yes		Yes		2	2	0	2	2	0	0			
23	Murud	220/33	Yes		Yes		0	0	0	0	0	0	0			

S.N	Name of the Zone	Name of the S/s	KV	Year of Audit	Whether Identified for PA		If Identified for PA		Deficiencies Observed		No. of Deficiencies				No. of Deficiencies attended			No. of Deficiencies not yet attended			
					Yes	No	PA conducted on date	if not done, Target Date for PA	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B		
24		Karad	400		Yes	No	06.02.2013		No		0	0	0	0	0	0	0	0	0	0	0
25		Talange	400		Yes		20.02.2013	Yes			6	3	3	6	3	3	0	0	0	0	0
26		New Koyna	400			No					0	0	0	0	0	0	0	0	0	0	0
27		Jaigad	400																		
28		Nigade	220		Yes		05.12.2012		No		0	0	0	0	0	0	0	0	0	0	0
29		Ogalewadi	220		Yes		10.12.2012		No		0	0	0	0	0	0	0	0	0	0	0
30		Malharpath	220		Yes		13.12.2012		No		0	0	0	0	0	0	0	0	0	0	0
31		Sadawaghapur	220		Yes		15.12.2012		No		0	0	0	0	0	0	0	0	0	0	0
32		Vankuswade	220		Yes		18.12.2012		No		0	0	0	0	0	0	0	0	0	0	0
33		Satara MIDC	220		Yes		21.12.2012		No		0	0	0	0	0	0	0	0	0	0	0
34		Lonand	220		Yes		24.12.2012		No		0	0	0	0	0	0	0	0	0	0	0
35		Vita	220	2012-13	Yes		27.12.2012		No		0	0	0	0	0	0	0	0	0	0	0
36		Peth	220		Yes		29.09.2012		No		0	0	0	0	0	0	0	0	0	0	0
37		Miraj	220		Yes		01.01.2013		No		0	0	0	0	0	0	0	0	0	0	0
38		Ghatnandre	220		Yes		08.12.2012		No		0	0	0	0	0	0	0	0	0	0	0
39		Mudshingi	220				10.12.2012		No		0	0	0	0	0	0	0	0	0	0	0
40		Mumewadi	220				03.01.2013		No		0	0	0	0	0	0	0	0	0	0	0
41		Halkarni	220				05.01.2013		No		0	0	0	0	0	0	0	0	0	0	0
42		Tilwani	220				09.01.2013		No		0	0	0	0	0	0	0	0	0	0	0
43		Pawas	220				12.01.2013		No		0	0	0	0	0	0	0	0	0	0	0
44		Lote	220				16.01.2013		No		0	0	0	0	0	0	0	0	0	0	0
45		Orni	220				18.01.2013		No		0	0	0	0	0	0	0	0	0	0	0
46		Chavaneshwar	132		Yes		10.01.2013		No		0	0	0	0	0	0	0	0	0	0	0

This S/stn not Pertains to MSETCL

S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed		No. of Deficiencies				No. of Deficiencies attended			No. of Deficiencies not yet attended		
					Yes	No	PA conducted on date	if not done, Target Date for PA	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B	
47	Nagpur	Chandrapur GCR	400	2012-13	Yes		12.03.2013		Yes		4	4	0	4	4	0	0	0	0	
48		Khaperkheda	400		Yes		18.03.2013		Yes		5	3	2	5	3	2	0	0	0	
49		Koradi	400		Yes		20.03.2013		Yes		5	4	1	5	4	1	0	0	0	
50		Kaulewada	220		Yes		03.10.2012		Yes		4	2	2	4	2	2	0	0	0	
51		Wardha	220		Yes		04.12.2012		Yes		4	3	1	4	3	1	0	0	0	
52		Bhugaon	220		Yes		04.12.2012		Yes		3	3	0	3	3	0	0	0	0	
53		Bhandara	220		Yes		12.12.2012		Yes		5	3	2	5	3	2	0	0	0	
54		Umred	220		Yes		13.12.2012		Yes		3	3	0	3	3	0	0	0	0	
55		Kalmeshwar	220		Yes		14.01.2013		Yes		4	4	0	4	4	0	0	0	0	
56		MIDC Chandrapur	220		Yes		02.02.2013		Yes		3	3	0	3	3	0	0	0	0	
57		220KV Kanhan	220		Yes		14.02.2013		Yes		6	5	1	6	5	1	0	0	0	
58		Hinganghat	220		Yes		04.03.2013		Yes		4	3	1	4	3	1	0	0	0	
59		Ambazari	220		Yes		07.03.2013		Yes		5	2	3	5	2	3	0	0	0	
60		Warora	220		Yes		11.03.2013		Yes		5	3	2	5	3	2	0	0	0	
61		Khaperkheda	220		Yes		18.03.2013		Yes		3	2	1	3	2	1	0	0	0	
62		Butibori-I	220		Yes		19.03.2013		Yes		4	3	1	4	3	1	0	0	0	
63		Abhijeet	220		Yes		21.03.2013		Yes		3	3	0	3	3	0	0	0	0	
64		Besa	132		Yes		21.12.2012		Yes		4	4	0	4	4	0	0	0	0	
65		Pardi	132		Yes		24.12.2012		Yes		4	3	1	4	3	1	0	0	0	
66	Uppalwadi	132	Yes		17.01.2013		Yes		3	3	0	3	3	0	0	0	0			
67	Mankapur	132	Yes		23.01.2013		Yes		4	3	1	4	3	1	0	0	0			
68	Hingna	132	Yes		26.02.2013		Yes		3	3	0	3	3	0	0	0	0			
69	Khapri	132	Yes		27.02.2013		Yes		4	4	0	4	4	0	0	0	0			

S.N	Name of the Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed		No. of Deficiencies				No. of Deficiencies attended			No. of Deficiencies not yet attended		
					Yes	No	PA conducted on date	if not done, Target Date for PA	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B	
70		Khadka	400kV	2012-13	Yes		30.01.2013		Yes		1	0	1	0	1	0	0	0		
71		Deepnagar	400kV		Yes		30.01.2013		No		0	0	0	0	0	0	0	0		
72		Dhule	400kV		Yes		30.01.2013		No		0	0	0	0	0	0	0	0		
73		Babhaleshwar	400kV		Yes		31.03.2013		Yes		1	0	1	0	1	0	0	0		
74		Eklahare (GCR)	220kV		Yes		31.03.2013		No		0	0	0	0	0	0	0	0		
75		Eklahare (OCR)	220kV		Yes		30.01.2013		No		0	0	0	0	0	0	0	0		
76		Satana	220kV		Yes		31.03.2013		No		0	0	0	0	0	0	0	0		
77		Malegaon - II	220kV		Yes		31.03.2013		No		0	0	0	0	0	0	0	0		
78		Raymond	220kV		Yes		31.03.2013		No		0	0	0	0	0	0	0	0		
79		Babhaleshwar	220kV		Yes		31.03.2013		No		0	0	0	0	0	0	0	0		
80		Ahmednagar - II	220kV		Yes		31.03.2013		No		0	0	0	0	0	0	0	0		
81		Bhenda	220kV		Yes		31.03.2013		No		0	0	0	0	0	0	0	0		
82	Nashik	Chalisgaon - II	220kV		Yes		30.01.2013		Yes		1	0	1	0	1	0	0	0		
83		Dondaicha	220kV		Yes		30.01.2013		No		0	0	0	0	0	0	0	0		
84		Shahada	220kV		Yes		13.03.2013		No		0	0	0	0	0	0	0	0		
85		Jamde	220kV		Yes		30.01.2013		No		0	0	0	0	0	0	0	0		
86		Valve	220kV		Yes		30.01.2013		No		0	0	0	0	0	0	0	0		
87		Gangapur	220kV		Yes		30.01.2013		No		0	0	0	0	0	0	0	0		
88		Bhadli	220kV		Yes		30.01.2013		No		0	0	0	0	0	0	0	0		
89		Annalner	220kV		Yes		30.01.2013		No		0	0	0	0	0	0	0	0		
90		Bambhori	220kV		Yes		13.03.2013		No		0	0	0	0	0	0	0	0		
91		Belwandi	220kV	Yes		30.01.2013		No		0	0	0	0	0	0	0	0			
92		Dhule	220kV	Yes		30.01.2013		No		0	0	0	0	0	0	0	0			
93		Deepnagar	132kV	Yes		30.01.2013		Yes		1	0	1	0	1	0	0	0			

PROTECTION, AUTOMATION & COMMUNICATION (PAC) UNIT, C.O. - AIROLLI.

S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Name of the Utility/Zone: MSETCL				2013-14								
					Whether identified for PA		Deficiencies Observed		No. of Deficiencies		No. of Deficiencies attended		No. of Deficiencies not yet attended				
					Yes	No	PA conducted on date	if not done, Target Date for	Yes	No	Total	Category A	Category B	Total	Category A	Category B	
1		Akola	400		Yes		30.06.2013			No	0	0	0	0	0	0	0
2		Paras	220		Yes		30.06.2013		YES		2	1	1	0	0	0	0
3		Chikhali	220		Yes		28.09.2013		YES		2	1	1	0	0	0	0
4		Pusad	220		Yes		30.09.2013		YES		1	1	0	0	0	0	0
5		Akola	220		Yes		30.09.2013		YES		1	0	1	0	0	0	0
6		Anravati	220		Yes		30.09.2013		YES		1	0	1	0	0	0	0
7		Badnera	220		Yes		31.10.2013		YES		1	0	1	0	0	0	0
8		Malkepur	132		Yes		31.10.2013		YES		1	0	1	0	0	0	0
9		Malegaon	132		Yes		31.10.2013		YES		2	1	1	2	1	0	0
10		Yavatmal	220		Yes		30.11.2013			No	0	0	0	0	0	0	0
11		Dhamangaon	220		Yes		30.11.2013		YES		1	1	0	1	0	0	0
12		Wani	220		Yes		31.03.2014		YES		3	0	3	1	0	1	2
13	Amaravati	Patur	132	2013-14	Yes		31.10.2013		YES		1	0	1	1	0	0	0
14		Buldhana	132		Yes		31.10.2013		YES		1	0	1	1	0	0	0
15		Khanggaon	132		Yes		31.10.2013			No	0	0	0	0	0	0	0
16		Gorakshan Road	132		Yes		31.12.2013			No	0	0	0	0	0	0	0
17		Akola MIDC	132		Yes		28.02.2014			No	0	0	0	0	0	0	0
18		Akot	132		Yes		28.02.2014		YES		1	0	1	1	0	0	0
19		Digras	132		Yes		28.02.2014		YES		1	0	1	1	0	0	0
20		Anjangaon	132		Yes		28.02.2014		YES		2	1	1	2	1	0	0
21		Achalpur	132		Yes		28.02.2014		YES		1	0	1	1	0	0	0
22		Lalkhedi	132		Yes		28.02.2014		YES		1	0	1	1	0	0	0
23		Karanja	132		Yes		28.02.2014		YES		1	0	1	1	0	0	0

S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed		No. of Deficiencies			No. of Deficiencies attended			No. of Deficiencies not yet attended					
					Yes	No	PA conducted on date	if not done, Target Date for	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B	Total		
71		Kharepatan	220KV		Yes		28.06.2013				NO	0	0	0	0	0	0	0	0	0		
72		Vishrambag	110KV		Yes		18.07.2013				No	0	0	0	0	0	0	0	0	0		
73		Alit	110KV		Yes		13.07.2013				No	0	0	0	0	0	0	0	0	0		
74		Kundal	110KV		Yes		25.09.2013				No	0	0	0	0	0	0	0	0	0		
75		Tasgaon	110KV		Yes		25.09.2013				No	0	0	0	0	0	0	0	0	0		
76		K'mahankal	110KV		Yes		28.09.2013				No	0	0	0	0	0	0	0	0	0		
77		Borgaon	110KV		Yes		18.07.2013				No	0	0	0	0	0	0	0	0	0		
78		Chambukhadi	110KV		YES		2.04.2013				NO	0	0	0	0	0	0	0	0	0		
79		Shiroli	110KV		YES		6.05.2013				NO	0	0	0	0	0	0	0	0	0		
80		Bapat Camp	110KV		YES		27.08.2013				NO	0	0	0	0	0	0	0	0	0		
81		Khaparkheda	400KV		Yes		13.02.2014				Yes	5	2	3	2	3	5	2	3	0	0	
82		Koradi	400KV		Yes		13.03.2014				Yes	4	3	1	3	4	4	3	1	0	0	
83		Warora	400KV		Yes		16.12.2013				Yes	4	4	0	4	4	4	0	0	0	0	
84		Chandrapur GCR	400KV		Yes		04.02.2014				Yes	4	3	1	4	3	4	3	1	0	0	
85		Umred	220KV		Yes		26.11.2013				Yes	3	3	0	3	3	3	0	0	0	0	
86		Purli	220KV		Yes		26.11.2013				Yes	4	4	0	4	4	4	0	0	0	0	
87		Bhandara	220KV		Yes		25.11.2013				Yes	5	3	2	3	5	3	2	0	0	0	
88		Kaulewada	220KV		Yes		25.11.2013				Yes	3	2	1	3	2	3	2	1	0	0	
89		Kalmeshwar	220KV		Yes		06.12.2013				Yes	4	4	0	4	4	4	0	0	0	0	
90		Kanhan	220KV		Yes		13.12.2013				Yes	6	5	1	6	5	6	5	1	0	0	
91		Abhijeet	220KV		Yes		28.03.2014				Yes	3	3	0	3	3	3	0	0	0	0	
92		Ambazari	220KV		Yes		29.01.2014				Yes	6	3	3	6	3	6	3	3	0	0	
93		Buitbori-I	220KV	2013-14	Yes		06.03.2014				Yes	4	3	1	4	3	4	3	1	0	0	
94		Khaparkheda	220KV		Yes		21.02.2014				Yes	3	1	2	3	1	3	2	1	2	0	0
95		Wardha	220KV		Yes		21.11.2013				Yes	4	3	1	4	3	4	3	1	0	0	
96		Bhugaon	220KV		Yes		21.11.2013				Yes	3	3	0	3	3	3	0	3	0	0	

S.N	Name of the Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed		No. of Deficiencies			No. of Deficiencies attended			No. of Deficiencies not yet attended			
					Yes	No	PA conducted on date	if not done, Target Date for	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B	Total
97		Gadchiroli	220KV		Yes		05.12.2013			Yes		2	2	0	2	0	0	0	0	0
98		Sicom	220KV		Yes		10.12.2013			Yes		3	3	0	3	0	0	0	0	0
99		Mataredevi	220KV		Yes		10.12.2013			Yes		4	4	0	4	0	0	0	0	0
100		MIDC C'pur	220KV		Yes		10.12.2013			Yes		3	3	0	3	0	0	0	0	0
101		Vinur	220KV		Yes		03.01.2014			Yes		5	4	1	5	4	1	0	0	0
102		Gadchandur	220KV		Yes		03.01.2014			Yes		6	4	2	6	4	2	0	0	0
103		Warora	220KV		Yes		30.01.2014			Yes		5	3	2	5	3	2	0	0	0
104		Hinganghat	220KV		Yes		28.01.2014			Yes		4	3	1	4	3	1	0	0	0
105		Khadka	400KV		Yes		09.12.2013			No		0	0	0	0	0	0	0	0	0
106		Deeptnagar	400KV		Yes		01.03.2014			No		0	0	0	0	0	0	0	0	0
107		Eklahare (GCR)	220KV		Yes		04.12.2013			No		0	0	0	0	0	0	0	0	0
108		Eklahare (OCR)	220KV		Yes		21.02.2014			No		0	0	0	0	0	0	0	0	0
109		Satana	220KV		Yes		14.01.2014			No		0	0	0	0	0	0	0	0	0
110		Malegaon - II	220KV		Yes		27.08.2013			No		0	0	0	0	0	0	0	0	0
111		Raymond	220KV		Yes		09.12.2013			No		0	0	0	0	0	0	0	0	0
112	Nashik	Babhaleshwar	220KV	2013-14	Yes		25.07.2013			No		0	0	0	0	0	0	0	0	0
113		Bhenda	220KV		Yes		28.09.2013			No		0	0	0	0	0	0	0	0	0
114		Chalisgaon - II	220KV		Yes		30.01.2013			No		0	0	0	0	0	0	0	0	0
115		Dondaicha	220KV		Yes		30.01.2013			No		0	0	0	0	0	0	0	0	0
116		Shahada	220KV		Yes		13.03.2013			No		0	0	0	0	0	0	0	0	0
117		Amalner	220KV		Yes		23.08.2013			No		0	0	0	0	0	0	0	0	0
118		Bambhori	220KV		Yes		19.09.2013			No		0	0	0	0	0	0	0	0	0
119		220KV Dhule	220KV		Yes		30.01.2014			No		0	0	0	0	0	0	0	0	0
120		Meagarpatta	220KV		YES		09.01.2014		YES			3	2	1	3	2	1	0	0	0
121		512 Khatki	220KV				10.01.2014		YES			2	2	0	2	2	0	0	0	0
122		Hinjewadi-1	220KV				11.01.2014		YES			3	2	1	3	2	1	0	0	0
123		Hinjewadi-2	220KV				11.01.2014		YES			3	2	1	3	2	1	0	0	0

S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed		No. of Deficiencies			No. of Deficiencies attended			No. of Deficiencies not yet attended		
					Yes	No	PA conducted on date	if not done, Target Date for	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B
124		Telco	220KV				10.01.2014	YES		2	2	0	2	2	0	0	0	0	0
125		Vsnl	220KV				10.01.2014	YES		1	1	0	1	1	0	0	0	0	0
126		Urse	220KV		YES		10.01.2014	YES		1	1	0	1	1	0	0	0	0	0
127		Pirangut	220KV				09.01.2014	YES		2	1	1	2	1	1	0	0	0	0
128		Sahara	220KV		YES		09.01.2014	YES		1	1	0	1	1	0	0	0	0	0
129		Talegaon Ambi	220KV				26.02.2014	YES		1	1	0	1	1	0	0	0	0	0
130		Alephata	220KV				10.1.14	NO		0	0	0	0	0	0	0	0	0	0
131		Kathapur	220KV				26.2.14	YES		1	1	0	1	1	0	0	0	0	0
132		Rajangaon	220KV	2013-14			13.1.14	YES		2	1	1	2	1	1	0	0	0	0
133		Century Enka	220KV				10.1.14	YES		1	0	1	1	0	1	0	0	0	0
134		Bhigwan	220KV				26.2.14	YES		2	1	1	2	1	1	0	0	0	0
135		Jejuri	220KV				26.2.14	YES		1	0	1	1	0	1	0	0	0	0
136		Kurkumbh	220KV				26.2.14	YES		2	1	1	2	1	1	0	0	0	0
137		Kumbhari	220KV				18.02.14	YES		2	1	1	2	1	1	0	0	0	0
138		Tembhurni	220KV				02.03.14	YES		1	1	0	1	1	0	0	0	0	0
139		Karkamb	220KV		YES		02.03.14	YES		1	0	1	1	0	1	0	0	0	0
140		Solapur MIDC	132KV				02.03.14	NO		0	0	0	0	0	0	0	0	0	0
141		Mandrup	132KV				03.01.13	NO		0	0	0	0	0	0	0	0	0	0
142		Akkalkot	132KV				04.01.13	NO		0	0	0	0	0	0	0	0	0	0
143		Mahol	132KV				02.03.14	NO		0	0	0	0	0	0	0	0	0	0
144		Degaon	132KV				04.01.13	NO		0	0	0	0	0	0	0	0	0	0
145		Temghar	220KV		Yes		07.02.2014	Yes		1	0	1	1	0	1	0	0	0	0
146		Kolshet	220KV		Yes		04.03.2014		No	0	0	0	0	0	0	0	0	0	0
147		Pat-Dombivalli	220KV		Yes		21.03.2014	Yes		1	0	1	1	0	1	0	0	0	0
148		Mulund	220KV		Yes		25.03.2014	Yes		1	0	1	1	0	1	0	0	0	0
149		Bhandup GIS	220KV		Yes		25.03.2014		No	0	0	0	0	0	0	0	0	0	0
150		Kamba	220KV	2013-14	Yes		28.03.2014	Yes		1	0	1	1	0	1	0	0	0	0

S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed		No.of Deficiencies			No.of Deficiencies attended			No.of Deficiencies not yet attended			
					Yes	No	PA conducted on date	if not done, Target Date for	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B	Total
151		Wada	220KV		Yes		28.03.2014			No		0	0	0	0	0	0	0	0	0
152		Taloja	220KV		Yes		29.03.2014		Yes		1	0	1	0	1	0	0	0	0	0
153		Jambhul	220KV		Yes		01.04.2014			No	0	0	0	0	0	0	0	0	0	0
154		Anandnagar	220KV		Yes		12.04.2014			No	0	0	0	0	0	0	0	0	0	0
TOTAL											239	147	92	234	147	87	5	0	5	



PROTECTION, AUTOMATION & COMMUNICATION (PAC) UNIT, C.O. - AIROLI.

Name of the Utility/Zone: MSETCL														FY: 2014-15									
S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed			No. of Deficiencies			No. of Deficiencies attended			No. of Deficiencies not yet attended					
					Yes	No	PA conducted on date	if not done, Target Date for PA	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B				
1		Akola	400kV		Yes		24.09.2014		Yes		5	5	0	5	0	0	0	0	0	0	0	0	
2		Akola	220kV		Yes		27.09.2014		Yes		1	1	0	1	0	0	0	0	0	0	0	0	
3		Amaravati	220kV		Yes		31.03.2015		Yes		1	1	0	1	0	0	0	0	0	0	0	0	
4	Amaravati	Badnera	220kV	2014-15	Yes		24.09.2014		Yes		1	1	0	1	0	0	0	0	0	0	0	0	
5		Chikhali	220kV		Yes		20.03.2015		Yes		1	1	0	1	0	0	0	0	0	0	0	0	
6		Dhamangaon	220kV		Yes		30.01.2015		Yes		1	1	0	1	0	0	0	0	0	0	0	0	0
7		Paras	220kV		Yes		11.11.2014			No		0	0	0	0	0	0	0	0	0	0	0	0
8		Malkapur	132kV		Yes		18.11.2014			No	0	0	0	0	0	0	0	0	0	0	0	0	
9		Padegaon	220kV		Yes		20.11.2014		Yes		1	1	0	1	0	0	0	0	0	0	0	0	
10		Jalna	220kV		Yes		13.08.2014		Yes		2	1	1	2	1	1	0	0	0	0	0	0	
11		Girwali	400/220kV		Yes		22.09.2014 & 12.11.2014		Yes		4	4	0	4	0	0	0	0	0	0	0	0	
12		Old GCR Parli	220kV		Yes		22.09.2014		Yes		7	4	3	7	4	3	0	0	0	0	0	0	
13	Aurangabad	NTPS Parli	220kV	2014-15	Yes		22.09.2014		Yes		1	1	0	1	0	0	0	0	0	0	0	0	
14		Girwali	220/132/33kV		Yes		24.01.2014 & 12.11.2014		Yes		8	5	3	8	5	3	0	0	0	0	0	0	
15		Waghala	220kV		Yes		19.07.2014		Yes		6	6	0	6	6	0	0	0	0	0	0	0	
16		Parbhani	220kV		Yes		25.07.2014		Yes		2	0	2	2	0	2	0	0	0	0	0	0	
17		Waluj	400/220kV		Yes		07.09.2015				0	0	0	0	0	0	0	0	0	0	0	0	
18		Karad	400kV		Yes		16.09.2014			No	0	0	0	0	0	0	0	0	0	0	0	0	
19		New Koyna	400kV		YES		04.07.2014		YES		8	4	4	8	4	4	0	0	0	0	0	0	
20		Talange (Kolhapur)	400kV		Yes		20.10.2014		Yes		6	3	3	6	3	3	0	0	0	0	0	0	

S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed		No. of Deficiencies			No. of Deficiencies attended			No. of Deficiencies not yet attended				
					Yes	No	PA conducted on date	if not done, Target Date for PA	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B		
45		Koradi	400kV	2014-15	Yes		19.09.2014		Yes		3	2	1	2	2	0	1	0	0	1	
46		Khaperkheda	400kV		Yes		06.09.2014		Yes		1	1	0	1	1	0	0	0	0	0	0
47		Koradi-II	400kV		Yes		02.09.2014		Yes		1	1	0	1	1	0	0	0	0	0	0
48		Chandrapur	400kV		Yes		30.08.2014		Yes		2	2	0	2	2	0	0	0	0	0	0
49		Chandrapur-II	400kV		Yes		30.08.2014		Yes		1	1	0	1	1	0	0	0	0	0	0
50		Warora	400kV		Yes		29.09.2014		Yes		3	3	0	3	3	0	0	0	0	0	0
51		Ambazari	220kV		Yes		08.10.2014		Yes		24	18	6	24	18	6	0	0	0	0	0
52		Khaperkheda	220kV		Yes		22.09.2014		Yes		7	4	3	7	4	3	0	0	0	0	0
53		Butibori	220kV		Yes		17.10.2014		Yes		7	6	1	7	6	1	0	0	0	0	0
54		Kalmeshwar	220kV		Yes		04.10.2014		Yes		8	6	2	8	6	2	0	0	0	0	0
55		Bhandara	220kV		Yes		01.12.2014		Yes		11	8	3	11	8	3	0	0	0	0	0
56		Kaulewada	220kV		Yes		02.02.2015		Yes		9	4	5	9	4	5	0	0	0	0	0
57		Wardha	220kV		Yes		05.01.2015		Yes		11	7	4	11	7	4	0	0	0	0	0
58		Hinganghat	220kV		Yes		10.02.2015		Yes		10	9	1	10	9	1	0	0	0	0	0
59		Bhugaon	220kV		Yes		06.01.2015		Yes		9	6	3	9	6	3	0	0	0	0	0
60		Gadchiroli	220kV		Yes		04.02.2015		Yes		12	8	4	12	8	4	0	0	0	0	0
61		Gadchandur	220kV		Yes		30.09.2014		Yes		10	8	2	10	8	2	0	0	0	0	0
62		Warora	220kV	Yes		05.02.2015		Yes		8	8	0	8	8	0	0	0	0	0	0	
63		Virur	220kV	Yes		03.02.2015		Yes		10	8	2	10	8	2	0	0	0	0	0	
64		Pardi	132kV	Yes		20.09.2014		Yes		9	7	2	9	7	2	0	0	0	0	0	
65		Besa	132kV	Yes		20.09.2014		Yes		10	8	2	10	8	2	0	0	0	0	0	
66		Mankapur	132kV	Yes		19.09.2014		Yes		13	13	0	13	13	0	0	0	0	0	0	
67		Babhleshwar	400kV	Yes		30.10.2016		Yes		1	1	0	1	1	0	0	0	0	0	0	

S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed		No. of Deficiencies			No. of Deficiencies attended			No. of Deficiencies not yet attended				
					Yes	No	PA conducted on date	if not done, Target Date for PA	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B		
68	Nashik	Dhule	400kV	2014-15	Yes		26.12.2014			No	0	0	0	0	0	0	0	0	0		
69		Khadaka	400kV		Yes		26.12.2014			No	0	0	0	0	0	0	0	0	0	0	
70		Deepnagar	400kV		Yes		26.12.2014			No	0	0	0	0	0	0	0	0	0	0	0
71		Malegaon	220kV		Yes		22.09.2014			No	0	0	0	0	0	0	0	0	0	0	0
72		Nashik GCR	220kV		Yes		30.07.2014			No	0	0	0	0	0	0	0	0	0	0	0
73		Nashik OCR	220kV		Yes		30.07.2014			No	0	0	0	0	0	0	0	0	0	0	0
74		Ahamadnagar	220kV		Yes		16.03.2016			No	0	0	0	0	0	0	0	0	0	0	0
75		Babhaleshwar	220kV		Yes		20.12.2014			No	0	0	0	0	0	0	0	0	0	0	0
76		Dhule	220kV		Yes		26.12.2014			No	0	0	0	0	0	0	0	0	0	0	0
77		Deepnagar GCR	132kV		Yes		22.11.2014			Yes	1	1	0	1	1	0	1	0	0	0	0
78	Pune	Lonikand II	400kV	2014-15	Yes		18.06.2014		Yes	2	2	0	2	2	0	0	0	0	0		
79		Chakan	400kV		Yes		21.08.2014		Yes	2	2	0	2	2	0	0	0	0	0	0	
80		Bhosari-II	220kV		Yes		12.09.2014		Yes	2	1	1	2	1	1	0	1	0	0	0	
81		Infosys	220kV		Yes		04.10.2014		No	0	0	0	0	0	0	0	0	0	0	0	
82		Flagship	220kV		Yes		04.10.2014		Yes	1	1	0	1	1	0	1	0	0	0	0	
83		Talegaon Ambi	220kV		Yes		28.08.2014		Yes	1	1	1	1	1	1	0	1	0	0	0	
84		Bhosari-I	220kV		Yes		10.09.2014		Yes	1	0	1	1	0	1	0	1	0	0	0	
85		Theur	220kV		Yes		29.09.2014		Yes	1	0	1	1	0	1	0	1	0	0	0	
86		Baramati	220kV		Yes		18.11.2014		Yes	2	2	0	2	2	0	2	0	0	0	0	
87		Kharadi	132kV		Yes		23.02.2015		Yes	1	0	1	1	0	1	0	1	0	0	0	
88	Ganeshkhind	132kV	Yes		23.02.2015		Yes	1	0	1	1	0	1	0	1	0	0	0			
89	GIS Rastia Peth	132kV	Yes		23.02.2015		No	0	0	0	0	0	0	0	0	0	0	0			
90	Bale (Solapur-2)	220kV	Yes		05.09.2014		Yes	2	1	1	2	1	1	1	1	0	0	0			
91	South Solapur	220kV	Yes		14.02.2015		Yes	3	2	1	3	2	1	3	2	1	0	0			

S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed		No. of Deficiencies			No. of Deficiencies attended			No. of Deficiencies not yet attended		
					Yes	No	PA conducted on date	if not done, Target Date for PA	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B
92		Sangola	132kV		Yes		23.06.2014		Yes		1	1	0	1	0	0	0	0	0
93		Karmala	132kV		Yes		02.6.2014		Yes		2	2	0	2	0	0	0	0	0
94		Mangalwedha	132kV		Yes		03.03.2015		Yes		3	1	2	3	1	2	0	0	0
95		Soregaon	132kV		Yes		02.06.2014		No		0	0	0	0	0	0	0	0	0
96		Welspun	132kV		Yes		02.06.2014		No		0	0	0	0	0	0	0	0	0
97		Degaon	132kV		Yes		Sept. 2014		No		0	0	0	0	0	0	0	0	0
98		Kalwa	400kV		Yes		25.08.2014			No	0	0	0	0	0	0	0	0	0
99		Kalwa	220kV		Yes		27.08.2014			No	0	0	0	0	0	0	0	0	0
100		Trombay	220kV		Yes		06.04.2015		Yes		2	2	0	2	2	0	0	0	0
101		Borivali	220kV		Yes		07.11.2014		Yes		2	2	0	2	2	0	0	0	0
102		Kharghar	400kV		Yes		20.06.2014		Yes		3	2	1	3	2	1	0	0	0
103	Vashi	Nagothane	400kV	2014-15	Yes		07.04.2015			No	0	0	0	0	0	0	0	0	0
104		Uran	220kV		Yes		10.04.2015			No	0	0	0	0	0	0	0	0	0
105		Apta	220kV		Yes		09.02.2014		Yes		1	0	1	1	0	1	0	0	0
106		Kandalgaon	220kV		Yes		09.04.2015		Yes		1	1	0	1	1	0	0	0	0
107		Padghe	400kV		Yes		25.05.2015		Yes		2	2	0	1	1	0	1	1	0
TOTAL											303	210	93	301	209	92	2	1	1

PROTECTION, AUTOMATION & COMMUNICATION (PAC) UNIT, C.O. - AIROLI.

Name of the Utility/Zone: MSETCL														FY: 2015-16					
S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed		No.of Deficiencies			No.of Deficiencies attended			No.of Deficiencies not yet attended		
					Yes	No	PA conducted on date	if not done, Target Date for PA	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B
1	Amaravati	Akola	400kV	2015-16	Yes		19.03.2016		YES		9	9	0	9	9	0	0	0	0
2		Balapur	220kV		Yes		5.11.2015		YES		3	2	1	2	2	0	1	0	1
3		Ghatodi	220kV		Yes		16.10.2015			No	0	0	0	0	0	0	0	0	0
4		Paras	220kV		Yes		12.02.2016		YES		1	1	0	1	1	0	0	0	0
5		Yavatmal	220kV		Yes		25.03.2016		YES		3	2	1	3	2	1	0	0	0
6		Chandur Bazar	132kV		Yes		29.03.2016		YES		2	1	1	2	1	1	0	0	0
7		Durugwada	132kV		Yes		22.12.2015		YES		2	1	1	2	1	1	0	0	0
8		Jambazar	132kV		Yes		26.03.2016		YES		1	0	1	1	0	1	0	0	0
9		Mangrulpir	132kV		Yes		29.03.2016		YES		3	1	2	3	1	2	0	0	0
10		Mehakar	132kV		Yes		23.12.2015		YES		4	3	1	4	3	1	0	0	0
11		Tiwasa	132kV		Yes		26.10.2015		YES		1	0	1	1	0	1	0	0	0
12	Aurangabad	Jalna Old	132kV	2015-16	Yes		22.02.2016		Yes		1	0	1	1	0	1	0	0	0
13		Jalna MIDC	132kV		Yes		07.03.2016		Yes		1	0	1	1	0	1	0	0	0
14		Badnapur	132kV		Yes		26.03.2016		Yes		4	1	3	4	1	3	0	0	0
15		Ujani	132kV		Yes		27.08.2015 & 31.03.2016		Yes		11	2	9	11	2	9	0	0	0
16		MIDC (Latur)	132kV		Yes		31.08.2015 & 31.03.2016		Yes		1	0	1	1	0	1	0	0	0
17		Telgaon	132kV		Yes		06.02.2016		Yes		8	4	4	8	4	4	0	0	0
18		Mejajgaon	132kV		Yes		09.09.2015		Yes		7	4	3	7	4	3	0	0	0
19		Degloor	132kV		Yes		09.02.2015		Yes		2	0	2	2	0	2	0	0	0
20		Narsi	132kV		Yes		09.03.2015		Yes		2	0	2	2	0	2	0	0	0
21		Jintoor	132kV		Yes		22.09.2015		Yes		3	0	3	3	0	3	0	0	0
22		Jangamwadi	132kV		Yes		23.09.2015		Yes		13	0	13	13	0	13	0	0	0
23		Kurunda	132kV		Yes		27.10.2015		Yes		8	0	8	8	0	8	0	0	0
24		Pathri	132kV		Yes		28.10.2015		Yes		7	0	7	7	0	7	0	0	0
25		Umri	132kV		Yes		12.02.2015		Yes		6	0	6	6	0	6	0	0	0
26		Gangakhed	132kV		Yes		12.04.2015		Yes		7	0	7	7	0	7	0	0	0
27	Karad	Karad	400kV	2015-16	Yes		08.12.2015		Yes		1	1	0	1	1	0	0	0	0
28		New Koyna	400kV		Yes		15.10.2015		Yes		8	4	4	8	4	4	0	0	0
29		Talandge (Kolhapur)	400kV		Yes		22.02.2016		Yes		8	4	4	8	4	4	0	0	0
30		Panama	220kV		Yes		27.02.2016			No	0	0	0	0	0	0	0	0	0
31		Vita	220kV		Yes					No	0	0	0	0	0	0	0	0	0
32		Phaltan MIDC	220kV		Yes		23.03.2016		Yes		2	2	0	2	2	0	0	0	0
33		Vankusawade	220kV		Yes		20.04.2016		Yes		3	0	3	2	0	2	1	0	1
34		Dasturi	220kV		Yes		15.01.2016		Yes		3	1	2	3	1	2	0	0	0
35		Niwali	220kV		Yes		11.01.2016		Yes		3	3	0	3	3	0	0	0	0
36		Insuli	220kV		Yes		14.01.2016		Yes		1	1	0	1	1	0	0	0	0
37		Five Star	220kV		Yes		29.01.2016		Yes		2	2	0	2	2	0	0	0	0
38		Hamidwada	220kV		Yes		29.03.2016		Yes		4	0	4	4	0	4	0	0	0
39		Tilwani	220kV		Yes		28.03.2016		Yes		1	0	1	1	0	1	0	0	0
40		Bidri	220kV		Yes		22.03.2016		Yes		3	2	1	3	2	1	0	0	0
41		Phaltan	132kV		Yes	-	23.03.2016		Yes		2	0	2	2	0	2	0	0	0
42		Shirala	132kV		Yes	-	26.03.2016		Yes		1	0	1	1	0	1	0	0	0
43		Borgeon	110kV		Yes	-	18.03.2016			No	0	0	0	0	0	0	0	0	0
44		Vishrambag	110kV		Yes	-	18.03.2016			No	0	0	0	0	0	0	0	0	0
45		K'Mahankal	110kV		Yes	-	19.03.2016			No	0	0	0	0	0	0	0	0	0
46		Kale	110kV		Yes	-	29.03.2016		Yes		1	0	1	1	0	1	0	0	0
47	Tembhur	110kV	Yes	-	29.03.2016		Yes		5	0	5	5	0	5	0	0	0		

103	Navives	132kV		YES	06.08.2015		YES		1	0	1	1	0	1	0	0	0
104	Lokmangal	132kV		YES	06.08.2015		NO		0	0	0	0	0	0	0	0	0
105	Bhairavanath	132kV		YES	03.11.2015		NO		0	0	0	0	0	0	0	0	0
106	220kV Boisar	220kV	2015-16	Yes	05.08.2015		Yes		2	2	0	2	2	0	0	0	0
107	220kV Wada	220kV		Yes	09.03.2016		Yes		6	6	0	6	6	0	0	0	0
	220kV Vasai	220kV		Yes	27.01.2016		Yes		11	10	1	11	10	1	0	0	0
	220kV Kambha	220kV		Yes	10.02.2016		Yes		13	13	0	13	13	0	0	0	0
	220kV Temghar	220kV		Yes	03.12.2015		Yes		1	1	0	1	1	0	0	0	0
	220kV Kolshet	220kV		Yes	28.01.2016		Yes		6	4	2	6	4	2	0	0	0
	220kV Mulund	220kV		Yes	29.02.2016		Yes		2	2	0	2	2	0	0	0	0
	220kV Bhandup (GIS)	220kV		Yes	02.03.2016		Yes		7	7	0	7	7	0	0	0	0
	220kV Nerul	220kV		Yes	14.01.2016		Yes		11	11	0	11	11	0	0	0	0
	220kV Sonkhar	220kV		Yes	05.03.2016		Yes		2	2	0	2	2	0	0	0	0
	220kV Talaja	220kV		Yes	14.08.2015		Yes		1	1	0	1	1	0	0	0	0
	220kV PAL (Dombivai)	220kV		Yes	17.11.2015			No		0	0	0	0	0	0	0	0
	220kV Anand nagar	220kV		Yes	16.03.2016			No		0	0	0	0	0	0	0	0
	220kV Ghatghar	220kV		Yes	04.12.2015			No		0	0	0	0	0	0	0	0
	400kV Padghe	400kV	Yes	04.02.2016			No		0	0	0	0	0	0	0	0	
TOTAL									476	251	225	467	246	221	9	5	4

47		400kV Chandrapur Switching station	400kV	Yes		22.11.2016		No	0	0	0	0	0	0	0	0	0	0	0
48		400kV Warora	400kV	Yes	Yes	07.10.2016			1	1	0	0	0	0	0	0	0	0	0
49		220kV Bulburi 3	220kV	Yes		04.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
50		220kV Chandrapur MIDC	220kV	Yes		05.11.2016		No	0	0	0	0	0	0	0	0	0	0	0
51	Nagpur	132kV Katol	132kV	Yes	Yes	04.10.2016			1	1	0	0	0	0	0	0	0	0	0
52		132kV Mouda	132kV	Yes		13.10.2016		No	0	0	0	0	0	0	0	0	0	0	0
53		132kV Sakoli	132kV	Yes		12.09.2016		No	0	0	0	0	0	0	0	0	0	0	0
54		132kV Lakhadur	132kV	Yes		06.10.2016		No	0	0	0	0	0	0	0	0	0	0	0
55		132kV Bramhapuri	132kV	Yes		11.11.2016		No	0	0	0	0	0	0	0	0	0	0	0
56		132kV Sindewahi	132kV	Yes		18.11.2016		No	0	0	0	0	0	0	0	0	0	0	0
57		132kV Sebo	132kV	Yes		21.11.2016		No	0	0	0	0	0	0	0	0	0	0	0
58		132kV Pujgaon	132kV	Yes		17.10.2016		No	0	0	0	0	0	0	0	0	0	0	0
59		132kV Arvi	132kV	Yes		14.10.2016		No	0	0	0	0	0	0	0	0	0	0	0
60		132kV Mansar	132kV	Yes		04.11.2016		No	0	0	0	0	0	0	0	0	0	0	0
61		400kV Babhaleshwar	400	Yes		01.10.2016			12	10	2	10	10	0	2	0	0	0	2
62	Naashik	400kV Dhule	400	Yes		01.10.2016			3	3	0	3	0	0	0	0	0	0	0
63		220kV Pegasus	220 kV			08.12.2016		No	0	0	0	0	0	0	0	0	0	0	0
64		220kV Chakan-II	220 kV			29.03.2017		No	0	0	0	0	0	0	0	0	0	0	0
65		220kV Volkswagen	220 kV			30.03.2017		No	0	0	0	0	0	0	0	0	0	0	0
66		220kV MVM	220 kV			30.03.2017		No	0	0	0	0	0	0	0	0	0	0	0
67		220kV Bridgestone	220 kV			30.03.2017		No	0	0	0	0	0	0	0	0	0	0	0
68		220kV Shirsufal	220 kV			16.03.2017		No	0	0	0	0	0	0	0	0	0	0	0
69		220kV Watchandnagar	220 kV			14.12.2016		No	0	0	0	0	0	0	0	0	0	0	0
70		220kV Kondhawa	220 kV			12.12.2016		No	0	0	0	0	0	0	0	0	0	0	0
71		220kV Serum	220 kV			12.11.2016		No	0	0	0	0	0	0	0	0	0	0	0
72		220kV Fiat	220 kV			01.02.2017		No	0	0	0	0	0	0	0	0	0	0	0
73		132kV Narayangaon	132 kV			03.03.2017		No	0	0	0	0	0	0	0	0	0	0	0
74		132kV Chakan	132 kV			30.03.2017		No	0	0	0	0	0	0	0	0	0	0	0
75		132kV Kuruli	132 kV			13.12.2016	Yes		2	0	2	0	0	2	0	2	0	2	0
76		132kV Saneswadi	132 kV			21.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
77		220kV Vithalao Shinde SSK	220 kV			26.12.2016		No	0	0	0	0	0	0	0	0	0	0	0
78		132kV Bifs Super	132 kV			26.12.2016		No	0	0	0	0	0	0	0	0	0	0	0
79		132kV Zuari Cement	132 kV			26.12.2016		No	0	0	0	0	0	0	0	0	0	0	0
80		132kV Uthoptan Sugar	132 kV			22.12.2016		No	0	0	0	0	0	0	0	0	0	0	0
81		132kV Ultratech	132 kV			26.12.2016		No	0	0	0	0	0	0	0	0	0	0	0
82		132kV Parewadi	132 kV			22.12.2016		No	0	0	0	0	0	0	0	0	0	0	0
83		132kV Purnawade	132 kV			12.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
84		132kV Pultaj	132 kV			12.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
85		132kV Welapur	132 kV			17.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
86		132kV Karaji	132 kV			12.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
87		132kV Siddhanath	132 kV			12.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
88		132kV Shankarnagar	132 kV			22.12.2016		No	0	0	0	0	0	0	0	0	0	0	0
89		132kV Indapur	132 kV			17.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
90		132kV Daund	132 kV			23.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
91		132kV Janai	132 kV			23.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
92		132kV Bawada	132 kV			24.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
93		132kV Daund TSS	132 kV			23.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
94		132kV Yawat TSS	132 kV			23.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
95		132kV Someshwaragar	132 kV			24.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
96		132kV Adegao	132 kV			23.01.2017		No	0	0	0	0	0	0	0	0	0	0	0
97		400kV Kharghar	400kV			24.11.2016	Yes		2	0	2	0	0	0	2	0	0	0	2
98		400 kV Kalwa	400 kV			25.03.2017	Yes		16	16	0	14	14	0	2	2	0	0	0
99		400 kV Nagothane	400 kV			27.03.2017	Yes		13	13	0	13	13	0	0	0	0	0	0
100		220kV Uran	220 kV			24.09.2016	Yes		25	25	0	23	23	0	2	2	0	0	0
101		220kV Trombay	220kV			29.09.2016	Yes		15	15	0	15	15	0	0	0	0	0	0
102	Vashi	220kV Borivelli	220kV			19.10.2016	Yes		10	10	0	10	10	0	0	0	0	0	0
103		220kV Kandlgaon	220kV			13.10.2016	Yes		16	16	0	11	11	0	5	5	0	0	0
104		220kV Apta	220 kV			30.03.2017	Yes		30	30	0	30	30	0	0	0	0	0	0
105		110 kV Neral	110 kV			30.03.2017	Yes		9	9	1	6	6	0	1	0	0	1	0
106		100kV Padgite	100kV			9.11.2016	Yes		7	7	0	7	7	0	0	0	0	0	0
									148	147	1	130	130	0	18	0	17	1	1

215	201	14	184	179	5	31	22	9
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PROTECTION, AUTOMATION & COMMUNICATION (PAC) UNIT, C.O. – AIROLI.

Name of the Utility/Zone: MSETCL													FY: 2016 -17						
S.N	Name of Zone	Name of the S/s	KV	Year of Audit	Whether identified for PA		If identified for PA		Deficiencies Observed		No.of Deficiencies			No.of Deficiencies attended			No.of Deficiencies not yet attended		
					Yes	No	PA conducted on date	if not done, Target	Yes	No	Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B
1	Amravati	Akola	400 kV	2017-18	Yes		23.07.2017 - 24.07.2017		Yes		28	28	0	13	13	0	15	15	0
2	Karad	Karad	400 kV	2017-18	Yes		05.05.2017 - 08.05.2017		Yes		54	54	0	0	0	0	54	54	0
3	Karad	Talandage	400 kV	2017-18	Yes		09.05.2017 - 11.05.2017		Yes		46	44	2	0	0	0	46	44	2
3	Aurangabad	Girwali	400 kV	2017-18	Yes		07.08.2017 - 09.08.2017		Yes		36	33	3	3	3	0	33	30	3
5	Aurangabad	Waluj	400 kV	2017-18	Yes		17-18/08/2017		Yes		24	22	2	7	6	1	17	16	1
6	Nagpur	Chandrapur	400 kV	2017-18	Yes		17 to 19.7.2017		Yes		17	17	0	6	6	0	11	11	0
7	Nagpur	Koradi 1	400 kV	2017-18	Yes		13 to 14.07.2017		Yes		45	44	1	27	27	0	18	17	1
8	Nashik	Dhule	400 kV	2017-18	Yes		25 to 28.07.17		Yes		18	17	1	13	13	0	5	4	1
											268	259	9	69	68	1	199	191	8

PROTECTION, AUTOMATION & COMMUNICATION (PAC) UNIT, C.O. – AIROLI.
Name of the Utility/Zone: MSETCL

Sr. No.	Financial Year	No. of Deficiencies			No. of Deficiencies attended			No. of Deficiencies not yet attended			Remark
		Total	Category A	Category B	Total	Category A	Category B	Total	Category A	Category B	
1	2012-13	167	114	53	167	114	53	0	0	0	
2	2013-14	239	147	92	235	147	88	4	0	4	
3	2014-15	303	210	93	301	209	92	2	1	1	
4	2015-16	476	251	225	471	248	223	5	3	2	
5	2016-17	212	204	8	204	198	6	8	6	2	
6	2017-18	531	514	17	66	65	1	465	449	16	ONLY 400KV S/S
TOTAL		1928	1440	488	1444	981	463	484	459	25	



पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड

(भारत सरकार का उद्यम)

POWER GRID CORPORATION OF INDIA LIMITED

(A Government of India Enterprise)

आई.एस.ओ. 9001:2000 प्रमाणित • ISO 9001:2000 Certified



संप्रीति नगर, नारी रिंग रोड, डाकघर-उप्पलवाडी, नागपुर-440 026.

Sampriti Nagar, Nari Ring Road, P.O. Uppalwadi, NAGPUR-440 026.

दूरभाष / Phone : 0712-2641478-79, फ़ैक्स / Fax : 0712-2641366

E-mail : pgcil@nagpur.dotnet.in

पश्चिम क्षेत्र पारेषण प्रणाली-I क्षेत्रीय मुख्यालय / Western Region Transmission System - I, Regional Hqrs.

No. :WR-I/AM/317

Date:25.07.2018

To
Superintending Engineer (Prot.),
Western Regional Power Committee,
(WRPC),
F-3 MIDC Area,
Andheri (East),
MUMBAI – 400 093.

ATTN.: Shri J.K. Rathod. , S.E. (P)

SUB.: Status of pending protection audit observations.
Ref.: WRPC/Protection/PAR/2018/921 dated 11 July 2018

Dear Sir,

All the observations of protection audit of substations carried out during 2012- 13 in phase-1 and further in 2015-16 have been complied .The status in the required format is enclosed.

Further, it is to inform you that, we have placed an order on M/S CPRI for 8 Nos. new substations for protection audit, which shall be completed by Sept.2018.

With regards to 2nd phase of protection audit of substations (done in 2012-13), an order shall be placed to M/S CPRI by 15 Aug. 2018.

Thanking you,

Encl: As above.

Yours faithfully

(Kuleshwar Sahu)

Dy. General Manager

List of Observations of Protection Audit carried out by CPRI

Sr. No.	Station Name	Date of Audit	Observations	Status
1	Betul	Jul'18 - Aug'18	Nil	NA
2	Jabalpur PS	Jul'18 - Aug'18	Minor DC leakage in both the system	Rectified
	Jabalpur PS	Jul'18 - Aug'18	There is a mismatch of timing between SCADA server and GPS receiver timing. However GPS timing found synchronised with BCU & Protection relays	Rectified
	Jabalpur PS	Jul'18 - Aug'18	SNR signal is observed in the following PLCC Channels: Bhopal Line-1 channel -2 Bina - 3 Channel - 2	Rectified
	Jabalpur PS	Jul'18 - Aug'18	Loop test indication is in Red, (Jhabua Line -1 speech and protection panel)	Rectified
3	Kala	Jul'18 - Aug'18	It has been observed that the water is accumulated in the trench and yard due to continuous rainfall. It is suggested that water may be pumped out regularly in case of staggung	attended
	Kala	Jul'18 - Aug'18	In Main 1 & 2 relays of Kharadpada#1&2 Lines minor difference in Line Length was observed.	Rectified
4	Indore	Jul'18 - Aug'18	Nil	NA
5	Vindhyachal PS	Jul'18 - Aug'18	It has been observed that the data and drawing/reports are not properly available/maintained/archived at substation. It is suggested that the data/documents/reports should be available locally at the substation and maintained/archived properly.	Complied
6	Magarwada	Jul'18 - Aug'18	Nil	NA
7	Vadodara GIS	Jul'18 - Aug'18	Nil	NA

Statement of Protection Audit Observations

Year	State / Utility	No of S/A Audited S/A Audited before 2012 - 121	Observations in Category A (Prevention not required)		Observations in Category B (Prevention required)		Status PC/FC/NC	Remarks if any		
			No of Deficiencies Observed	No of Deficiencies rectified	No of Deficiencies pending	No of Deficiencies Observed			No of Deficiencies rectified	No of Deficiencies pending
2012-13	Gujarat	S/A Audited before 2012 - 121	1191	1391	0	NA				
			12	79	1	76	38	38	FC	
			122	114	0	53	53	0	FC	
			13	15	1	61	4	57	FC	
			11	9	0	NIL	NIL	NIL	FC	FC
			4	8	0	8	5	0	FC	
			1	11	0	0	0	0	FC	
			21	61	0	61	0	0	FC	
			21	42	1	42	14	28	FC	
			154	147	1	92	82	7	FC	
			5	18	6	21	6	15	FC	
			2013-14	Gujarat	S/A Audited before 2012 - 13 are - 121	NA	NA	NA	NA	NA
18	94	2				55	30	25	FC	
107	210	3				93	91	2	FC	
NIL	NIL	NIL				NIL	NIL	NIL	FC	
N/A	N/A	N/A				N/A	N/A	N/A	FC	FC
N/A	76	3				35	10	19	FC	
170	251	9				225	221	4	FC	
1	1	0				1	0	1	FC	
6	18	0				NIL	NIL	NIL	FC	
NA	NA	NA				NA	NA	NA	FC	
106	201	22				14	5	9	FC	
NIL	NIL	NIL				NIL	NIL	NIL	FC	
2014-15	Gujarat	S/A Audited before 2012 - 13 are - 121	NA	NA	NA	NA	NA	NA	FC	
			18	94	2	55	30	25	FC	
			107	210	3	93	91	2	FC	
			NIL	NIL	NIL	NIL	NIL	NIL	FC	
			N/A	N/A	N/A	N/A	N/A	N/A	FC	FC
			N/A	76	3	35	10	19	FC	
			170	251	9	225	221	4	FC	
			1	1	0	1	0	1	FC	
			6	18	0	NIL	NIL	NIL	FC	
			NA	NA	NA	NA	NA	NA	FC	
			106	201	22	14	5	9	FC	
			NIL	NIL	NIL	NIL	NIL	NIL	FC	
2015-16	Gujarat	S/A Audited before 2012 - 13 are - 121	NA	NA	NA	NA	NA	NA	FC	
			18	94	2	55	30	25	FC	
			107	210	3	93	91	2	FC	
			NIL	NIL	NIL	NIL	NIL	NIL	FC	
			N/A	N/A	N/A	N/A	N/A	N/A	FC	FC
			N/A	76	3	35	10	19	FC	
			170	251	9	225	221	4	FC	
			1	1	0	1	0	1	FC	
			6	18	0	NIL	NIL	NIL	FC	
			NA	NA	NA	NA	NA	NA	FC	
			106	201	22	14	5	9	FC	
			NIL	NIL	NIL	NIL	NIL	NIL	FC	
2016-17	Gujarat	S/A Audited before 2012 - 13 are - 121	NA	NA	NA	NA	NA	NA	FC	
			18	94	2	55	30	25	FC	
			107	210	3	93	91	2	FC	
			NIL	NIL	NIL	NIL	NIL	NIL	FC	
			N/A	N/A	N/A	N/A	N/A	N/A	FC	FC
			N/A	76	3	35	10	19	FC	
			170	251	9	225	221	4	FC	
			1	1	0	1	0	1	FC	
			6	18	0	NIL	NIL	NIL	FC	
			NA	NA	NA	NA	NA	NA	FC	
			106	201	22	14	5	9	FC	
			NIL	NIL	NIL	NIL	NIL	NIL	FC	

Mudhakar

Name of the Organization: NTPC Limited-WR stations

Sr.No	Deficiency Observed during Basic Protection Audit	Action taken / proposed to be taken	Time Schedule
Name of the Sub-station / Switchyard: Vindhyachal STPP			
1.	Replacement of balance Static distance protection relays, with Numerical relays, in line with Gazette notification of GOI for 400 kV Satna 1 & 2 lines.	Completed	Complied-B category
2.	63 MVAR Bus reactor needs to be taken into service.	Put in service	Complied-B category
3.	Main-I and Main-II Distance protection Schemes for all feeders need to be different make/characteristic for 400 kV Sasan, Mahan, and Satna-III & IV lines.	Being adopted.	Complied-B category
4.	Earth fault in 220 V switchyard DC system to be attended.	Ongoing routine activity	Complied-A category
Name of the Sub-station / Switchyard: Korba STPP			
1.	Over voltage relay: Drop off to Pick up ratio is not explicitly available in Micom relays.	Minimum Drop off / pick up ratio of 95% is available in MiCom relay and it is in order as far as over voltage protection is concerned. With a very high reset/operate ratio, chattering phenomena may be observed in relay.	Complied-A category
2.	Power swing blocking is enabled for Z2, Z3 and Z4. However de-blocking timer is set at 2 sec. The same may be reviewed.	Power swing blocking logic has to be universally decided across the grid. De-block timer of 2 sec has been adopted in all NTPC stations and is in line with NRPC / ERPC recommended setting guideline.	Complied-A category
3.	Auto re-close relay reclaim timer not uniform for all lines. Stage-I lines is having 10 secs and the same is 25 secs for stage-II lines. This may be reviewed.	Reclaim time of 25secs to be adopted for all lines as per NTPC practice.	Complied-A category

Sr.No	Deficiency Observed during Basic Protection Audit	Action taken / proposed to be taken	Time Schedule
4.	Zone 2 time delay is different for different lines (300ms and 400ms). The same may be reviewed.	As per NTPC practice, Zone-2 time delay of 400ms is being adopted & it is 500ms in case of long lines followed by short lines. The same to be adopted.	Complied-A category
Name of the Sub-station / Switchyard: Sipat STPP			
1.	Time Synchronization: All numerical relays except 5 nos relays of 765KV and 4 nos of relays of 400KV are time synchronized.	Taken up with OEM. Only 01 relay could be synchronized with GPS successfully.	Complied-B category
2.	Time setting of both Stage-I and Stage-2 are same in all 765KV and 400KV LBB relays.	The setting has been reviewed and found in order.	Complied-A category
3.	Over voltage relay: Drop off to Pick up ratio is not explicitly available in Micom relays.	Minimum Drop off / pick up ratio of 95% is available in MiCom relay and it is in order as far as over voltage protection is concerned. With a very high reset/operate ratio, chattering phenomena may be observed in relay.	Complied-A category
4.	Power swing blocking is enabled for Z2, Z3 and Z4. However de-blocking timer is set at 2 sec. The same may be reviewed.	Power swing blocking logic has to be universally decided across the grid. De-block timer of 2 sec has been adopted in all NTPC stations and is in line with NRPC / ERPC recommended setting guideline.	Complied-A category
Name of the Sub-station / Switchyard: Jhanor Gandhar GPS			
1.	Replacement of existing static relays for line protection with Numerical distance relays.	PO placed.	Complied-B category

PROTECTION AUDIT DEFICIENCIES/OBSERVATIONS COMPLIANCE [As on 30.09.2017]

CHHATTISGARH POWER TRANSMISSION COMPANY LIMITED

Name of Utility :

Name of S/S identified for protection audit	S/S voltage	Name of 3rd party protection audit agency	Date on which audit conducted	Observations of protection audit	Deficiencies that can be corrected without procurement (Category-A)			Deficiencies involving procurement (Category-B)			Remarks
					Yes / No	Whether attended Yes/No	If not attended, reason	Yes / No	Whether attended Yes/No	If no, expected date to attend	
400 KV Khedamara	400/ 220 KV	Tractebel India,WRLDC & CSPTCL Engineers	12 - 20 Feb'16	1. M II protection for 220 KV BRSS I&II,Raipur,Uria,Bemetara and Theikadih feeders are not available. 2. DC leakage to be monitored	S.No. 2	Yes	----	S.No. 1	No	31.12.2016	---
220 KV Bemetara	220/ 132 KV	CSPTCL Engineers	13.03.13	1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available. 4. M II protection for 220 KV feeder not available. 5. DC leakage to be monitored.	S.No. 5	Yes	----	Yes for S.No. 1 to 4	No	31.12.2016	---
220 KV Gurur	220/ 132 KV	CSPTCL Engineers	12.03.13	1. Carrier protection is not available.. 2. M II protection for 220 KV feeder not available. 3.DC leakage to be monitored.	S.No. 3	Yes	----	Yes for S.No. 1 & 2	No	31.12.2016	---
220 KV Suhela	220/ 132 KV	CSPTCL Engineers	22.03.13	1. Carrier protection is not available.. 2. GPS time synchronizing facility is not available. 3. M II protection for 220 KV feeder not available. 4. DC leakage to be monitored.	S.No. 4	Yes	----	Yes for S.No. 1 to 3	No	31.12.2016	---
220 KV Bhatapara	220/ 132 KV	CSPTCL Engineers	23.03.13	1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available. 4. M II protection for 220 KV feeder not available. 5. DC leakage to be monitored. 6. LBB protection not available.	S.No. 5	Yes	----	Yes for S.No. 1 to 6 except 5	No	31.12.2016	2nd battery set comm.
220 KV Mopka	220/ 132 KV	CSPTCL Engineers	29.03.13	1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available. 4. M II protection for 220 KV feeder not available. 5. DC leakage to be monitored. 6. LBB protection not available. 7. Synchronization trolley not available.	S.No. 5	Yes	----	Yes for S.No. 1 to 7 except 5	No	31.12.2016	---
220 KV Banari	220/ 132 KV	CSPTCL Engineers	29.03.13	1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available. 4. M II protection for 220 KV feeder not available. 5. DC leakage to be monitored. 6. LBB protection not available.	S.No. 5	Yes	----	Yes for S.No. 1 to 6 except 5	No	31.12.2016	---
220 KV Siltara	220/ 132 KV	CSPTCL Engineers	01.03.13	1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available. 4. M II protection for 220 KV feeder not available. 5. DC leakage to be monitored. 6. LBB protection not available. 7. Synchronization trolley not available.	S.No. 5	Yes	----	Yes for S.No. 1 to 7 except 5	No except S.No. 2	31.12.2016	2nd Battery set comm.

PROTECTION AUDIT DEFICIENCIES/OBSERVATIONS COMPLIANCE [As on 30.09.2017]

CHHATTISGARH POWER TRANSMISSION COMPANY LIMITED

Name of Utility :

Name of S/S identified for protection audit	S/S voltage	Name of 3rd party protection audit agency	Date on which audit conducted	Observations of protection audit	Deficiencies that can be corrected without procurement (Category-A)		Deficiencies involving procurement (Category-B)			Remarks
					Whether attended Yes/No	If not attended, reason	Yes / No	Whether attended Yes/No	If no, expected date to attend	
220 KV Doma, Raipur	220/132 KV	CSPTCL Engineers	22.03.13	1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available. 4. M II protection for 220 KV feeder not available. 5. DC leakage to be monitored.	S.No. 5 Yes	----	Yes for S.No. 1 to 4	No	31.12.2016	-
220 KV Paraswani	220/132 KV	CSPTCL Engineers	29.03.13	1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available. 4. M II protection for 220 KV feeder not available. 5. DC leakage to be monitored.	S.No. 5 Yes	----	Yes for S.No. 1 to 5 except 5	No except S.No. 2	31.12.2016	2nd Battery set comm.
220 KV Uda	220/ 132 KV	CSPTCL Engineers	23.03.13	1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available. 4. M II protection for 220 KV feeder not available. 5. DC leakage to be monitored. 6. LBB protection not available.	S.No.5 Yes	----	Yes for S.No. 1 to 6 except 5	No except S.No. 2	31.12.2016	2nd Battery set comm.
220 KV Thekadih	220/132 KV	CSPTCL Engineers		1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available. 4. M II protection for 220 KV feeder not available. 5. DC leakage to be monitored.	S.No. 5 Yes	----	Yes for S.No. 1 to 4 except 2	No except S.No. 2	31.12.2016	2nd Battery set comm.
220 KV Barsoor	220/132 KV	CSPTCL Engineers	07.03.13	1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available. 4. M II protection for 220 KV feeder not available. 5. DC leakage to be monitored.	S.No. 5 Yes	----	Yes for S.No. 1 to 6 except 5	No except S.No. 2	31.12.2016	2nd Battery set comm.
220 KV Bihilai	220/132 KV	CSPTCL Engineers	11.03.13	1. Carrier protection is not available.. 2. M II protection for 220 KV feeder not available. 3. DC leakage to be monitored. 4. LBB protection not available.	S.No. 3 Yes	----	Yes for S.No. 1 to 4 except 3	No	31.12.2016	---
220 KV Kotmikala	220/ 132 KV	CSPTCL Engineers	05.04.13	1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available. 4. M II protection for 220 KV feeder not available. 5. DC leakage to be monitored. 6. LBB protection not available. 7. Synchronization trolley not available.	S.No. 5 Yes	----	Yes for S.No. 1 to 7 except 5	No	31.12.2016	---

PROTECTION AUDIT DEFICIENCIES/OBSERVATIONS COMPLIANCE [As on 30.09.2017]

CHHATTISGARH POWER TRANSMISSION COMPANY LIMITED

Name of Utility :

Name of S/S identified for protection audit	S/S voltage	Name of 3rd party protection audit agency	Date on which audit conducted	Observations of protection audit	Deficiencies that can be corrected without procurement (Category-A)			Deficiencies involving procurement (Category-B)			Remarks
					Yes / No	Whether attended Yes/No	If not attended, reason	Yes / No	Whether attended Yes/No	If no, expected date to attend	
220 KV Raigarh	220/ 132 KV	CSPTCL Engineers	20.03,'13	1. Carrier protection is not available.. 2. 2nd DC battery set is not available. 3. GPS time synchronizing facility is not available.. 4. M II protection for 220 KV feeder not available.. 5. DC leakage to be monitored. 6. LBB protection not available.. 7. Synchronization trolley not available.	S.No. 5	Yes	---	Yes for S.No. 1 to 7 except 5	No	31.12.2016	---

PROTECTION AUDIT DEFICIENCIES/OBSERVATIONS COMPLIANCE [As on 30.09.2017]

CHHATTISGARH POWER TRANSMISSION COMPANY LIMITED

Name of S/S identified for protection audit	S/S voltage	Name of 3rd party protection audit agency	Date on which audit conducted	Observations of protection audit	Deficiencies that can be corrected without procurement (Category-A)				Deficiencies involving procurement (Category-B)			Remarks
					Yes / No	Whether attended Yes/No	If not attended, reason	Yes / No	Whether attended Yes/No	If no, expected date to attend		

CHHATTISGARH POWER GENERATION COMPANY LIMITED

220 KV KTPS, Korba (E)	220 KV	M.K.Banchhor CSPTCL N.P.Dewangan NTPC, N.K.Bizora CSPGCL, G.P.Rail S.C.Chakraborty CSPGCL	25.04.2013	1. Separate two sets DC system is recommended for switchyard protection	No			Yes	No		Estimate and Requisition for separate DC source has been sent for approval.
				2. Carrier Protection is out of service.	Yes	Yes, for 220 KV Korba East-West J/C No. I&II	Rest feeder's carrier prot. ckt checked & found deficiencies	Yes	No	For carrier protection panel/cards procurement required.	
				3. Disturbance Recorder and SERs are not available.				Yes	No	Tenders opened & procurement under progress.	
				4. Old THR make Static DPR relays needs to be replaced by numerical relays				Yes	Yes	Attended	
				5. Auto re-closer is not available.	Yes	No	Checking of circuits under progress.			Auto reclose of 220 KV Korba-Budhipadar ckt-3 is checked & put in service. In other feeders A/R ckt is OK and will be put in service after confirmation from other end.	
				6. Bus Bar Differential scheme is not available.					Yes	No	
				7. All relay settings are verified and found to be generally in order.	Yes	Yes					
				8. Multiple Earthing is not found in CT secondary.	Yes	Yes					
				9. PSB feature is Enabled for Z2, Z3, and Z4.	Yes	Yes					
				10. Synchronizing Panel is available for all feeders except Budhipadar Feeder No-II for that individual Synchronizing Trolley has provided.	Yes	Yes					

PROTECTION AUDIT DEFICIENCIES/OBSERVATIONS COMPLIANCE [As on 30.09.2017]											
CHHATTISGARH POWER TRANSMISSION COMPANY LIMITED											
Name of Utility :											
Name of S/S identified for protection audit	S/S voltage	Name of 3rd party protection audit agency	Date on which audit conducted	Observations of protection audit	Deficiencies that can be corrected without procurement (Category-A)		Deficiencies involving procurement (Category-B)			Remarks	
					Yes / No	If not attended, reason	Yes / No	Whether attended Yes/No	If no, expected date to attend		
220 KV DSPMTPS, Korba	220 KV	Third Party Protection Audit was carried out by SE(ET&I) HTPS,CSPGCL, representative of NTPC,EE,CSPTC LEE(Testing),DS PMTPS,CSPGCL	25.04.2013	1) Two independent source of 220 V DC are available in Switchyard.No DC leakage observed.	YES						
				2) All relay settings are verified & found generally in order.	YES						
				3) Dual channel carrier protection is available in all 220 KV feeders but kept out	YES	Due to non availability of Panel at remote end.	No				
				4) DRs are available in Numeric relays and SER is available.	YES		YES				
				5) Multiple earthing of CT secondary core is not available. CT secondary earthing is provided in Panel only.	YES		YES				
				6) 01 no synchronising trolley is available & in working condition.	YES		YES				
				7) PSB feature is enabled & in blocking condition for Z2,Z3 & Z4.	YES		YES				
				8) Auto reclose is available but presently kept out.	YES	As carrier protection is out.	No				
				9) Bus Bar differential scheme is available but presently kept out.	YES	To be checked before put in service	No			30.06.2016	Order placed on M/s ABB for recommissioning.
				Korba West TPS	400 KV	NTPC & CSPTCL Engineers	26.04.2013	1) Un availability of Main-II protection			
2) Un availability of Auto reclose scheme.								Yes			
3) Un availability of B/B differential & LBB protection								No	Yes	Bus Bar protection has been commissioned on 27.04.16. Presently it is in service.	
4) GPS is available however no relay is synchronised with it.								No	Yes		

PROTECTION AUDIT DEFICIENCIES/OBSERVATIONS COMPLIANCE [As on 30.09.2017]

CHHATTISGARH POWER TRANSMISSION COMPANY LIMITED

Name of Utility :

Name of S/S identified for protection audit	S/S voltage	Name of 3rd party protection audit agency	Date on which audit conducted	Observations of protection audit	Deficiencies that can be corrected without procurement (Category-A)			Deficiencies involving procurement (Category-B)			Remarks
					Whether attended Yes/No	If not attended, reason	Yes / No	Whether attended Yes/No	If no, expected date to attend		
				5) Committee recommended to replace ABCB with SF6 breakers & commissioning of isolator sequential operation with ABCB opening.			No	No	No	31.03.2017	Replacement of ABCB with SF6 breakers is under progress.

PROTECTION AUDIT DEFICIENCIES/OBSERVATIONS COMPLIANCE [As on 30.09.2017]

CHHATTISGARH POWER TRANSMISSION COMPANY LIMITED

Name of Utility :

Name of S/S identified for protection audit	S/S voltage	Name of 3rd party protection audit agency	Date on which audit conducted	Observations of protection audit	Deficiencies that can be corrected without procurement (Category-A)		Deficiencies involving procurement (Category-B)			Remarks		
					Whether attended Yes/No	If not attended, reason	Yes / No	Whether attended Yes/No	If no, expected date to attend			
Korba West TPS	220 KV	NTPC & CSPTCL Engineers	26.04.2013	1) Second DC system is recommended .			Yes	No	31.03.2017	Proposed in the year 16-17 in Refurbish Scheme.		
				2) To renovate/retrofit Main-I & Main-II Protection with numeric relays in all out going feeders.				Yes			Main-I & Main-II Protection with numeric relays in all out going feeders completed on 28.12.2014	
				3) Carrier Protection is not in service.		02 no. have been commission ed in KEB-KWB inter connectors	Yes	No	31.09.2016		In KEB-KWB interconnector I & II carrier protection has been taken in service.In KW-DSPM I/C action from DSPM is awaited.Other 3 feeders falls under CSPTCL scope	
				4) Disturbance Recorder and SER s are not available.				Yes	No	31.12.2016		Bay control panels for SCADA system have been received .M/s ABB is being persuaded to commission the same as early as possible.
				5) Non availability of Auto reclose scheme.				Yes	No	30.12.2016		Scheme is ready from KWB end.waiting for consent for connected sub stations.
				6) Non availability of B/B differential				Yes	No	31.12.2016		Work under progress.
				7) Non availability of LBB protection	Yes	YES						LBB has been kept in service
				8)GPS is available however no relay is synchronised with it.				Yes	No	31.12.2016		After commissioning of SCADA panel, Relays will be synchronised.GPS facility is available in SCADA.

Name of the Organization: NTPC Limited-WR stations

Sr.No	Deficiency Observed during Basic Protection Audit	Action taken / proposed to be taken	Time Schedule
Name of the Sub-station / Switchyard: Vindhyachal STPP			
1.	Replacement of balance Static distance protection relays, with Numerical relays, in line with Gazette notification of GOI for 400 kV Satna 1 & 2 lines.	Completed	Complied-B category
2.	63 MVAR Bus reactor needs to be taken into service.	Put in service	Complied-B category
3.	Main-I and Main-II Distance protection Schemes for all feeders need to be different make/characteristic for 400 kV Sasan, Mahan, and Satna-III & IV lines.	Being adopted.	Complied-B category
4.	Earth fault in 220 V switchyard DC system to be attended.	Ongoing routine activity	Complied-A category
Name of the Sub-station / Switchyard: Korba STPP			
1.	Over voltage relay: Drop off to Pick up ratio is not explicitly available in Micom relays.	Minimum Drop off / pick up ratio of 95% is available in MiCom relay and it is in order as far as over voltage protection is concerned. With a very high reset/operate ratio, chattering phenomena may be observed in relay.	Complied-A category
2.	Power swing blocking is enabled for Z2, Z3 and Z4. However de-blocking timer is set at 2 sec. The same may be reviewed.	Power swing blocking logic has to be universally decided across the grid. De-block timer of 2 sec has been adopted in all NTPC stations and is in line with NRPC / ERPC recommended setting guideline.	Complied-A category
3.	Auto re-close relay reclaim timer not uniform for all lines. Stage-I lines is having 10 secs and the same is 25 secs for stage-II lines. This may be reviewed.	Reclaim time of 25secs to be adopted for all lines as per NTPC practice.	Complied-A category

Sr.No	Deficiency Observed during Basic Protection Audit	Action taken / proposed to be taken	Time Schedule
4.	Zone 2 time delay is different for different lines (300ms and 400ms). The same may be reviewed.	As per NTPC practice, Zone-2 time delay of 400ms is being adopted & it is 500ms in case of long lines followed by short lines. The same to be adopted.	Complied-A category
Name of the Sub-station / Switchyard: Sipat STPP			
1.	Time Synchronization: All numerical relays except 5 nos relays of 765KV and 4 nos of relays of 400KV are time synchronized.	Taken up with OEM. Only 01 relay could be synchronized with GPS successfully.	Complied-B category
2.	Time setting of both Stage-I and Stage-2 are same in all 765KV and 400KV LBB relays.	The setting has been reviewed and found in order.	Complied-A category
3.	Over voltage relay: Drop off to Pick up ratio is not explicitly available in Micom relays.	Minimum Drop off / pick up ratio of 95% is available in MiCom relay and it is in order as far as over voltage protection is concerned. With a very high reset/operate ratio, chattering phenomena may be observed in relay.	Complied-A category
4.	Power swing blocking is enabled for Z2, Z3 and Z4. However de-blocking timer is set at 2 sec. The same may be reviewed.	Power swing blocking logic has to be universally decided across the grid. De-block timer of 2 sec has been adopted in all NTPC stations and is in line with NRPC / ERPC recommended setting guideline.	Complied-A category
Name of the Sub-station / Switchyard: Jhanor Gandhar GPS			
1.	Replacement of existing static relays for line protection with Numerical distance relays.	PO placed.	Complied-B category

CONCLUSIONS OF PROTECTION AUDIT REPORT

Item no.	400kV/220kV MUNDRA SS (APL) : ISSUES	Remarks
1	Recommendations of last Protection Audit	Status of works & reason for pending/suggestions
1	Control and protection panels - Phase 1: Main 1& Main 2 relay make & model are same for line protection except MRSS 1&2.	As per requirement of 220kV level scheme, there should be one distance protection and other Backup O/C and E/F protection. However instead of only B/U relay APL has provided one additional distance protection relay having B/U function.
2	Control and protection panels - Phase 1: A/R is not in service.	AR function is configured and relay to put in service, Function is off as at opposite end AR is not in service from GETCO end.
3	Control and protection panels - Phase 1&2: One bus bar protection scheme is available.	As per OEM BB scheme, the BB differential scheme with LBB, check zone and other required feature is provided.
4	Control and protection panels - Phase 3: Reclaim time is 10sec(fixed).	The NR electric make China) relays provide the fixed settings as indicated.
5	Control and protection panels - Phase 2&3: Main 1 & main 2 relay makes are same with different model & platform.	It is as per APL requirement and as well practice and various other guidelines and regulations.
6	Communication system - Phase 1 : Auto downloading feature for disturbance recorders from the relays in the common PC is not available.	The DR can be downloaded from remote DR / Engg. PC by polling feature of the ABB-PCM software. This feature is not available with the present SCADA software version installed. APL has taken up with ABB for automatic downloading feature if possible in the existing version of the software. However each and every disturbance records from all IEDs are being downloaded on regular basis and being checked daily.
7	Relay setting - Phase-2 : Mundra-Sami1&2 (Series compensated lines) line setting needs to be reviewed.	Setting calculation for Series compensated line is prepared. The same will be discussed at WRPC level with Powergrid-GETCO and will be implemented after approval from WRPC/Powergrid/GETCO.
8	Relay setting - Phase-3 : In line protection Zone-4 feature is not available.	As per relay algorithm, there is no separate reverse zone settings, However zone-3 takes care for source impedance and line impedance as per relaying point as a reference and provides backup for reverse fault as well. Please refer relay manual RCS902 and PCS902 of M/s. Nari Electrical.
9	Relay setting : In line protection Zone-2 settings, resistive reach, PSB (Phase 1&3) is not as per committee recommendations.	1) Zone-2 setting: According to next shortest line the zone-2 is set to avoid reach beyond next substation. And also settings suggested by GETCO. 2) Resistive reach is as per committee recommendation to avoid load encroachment as per maximum possible load. 3) PSB Phase-1: For 220kV voltage level all zone PSB blocking is adopted. Considering also line emanating from generating end. 4) PSB Phase-3: The relay provides PSB detection in term of voltage variation and over current element(1.1amp) with differentiation of fault condition, the fixed algorithm with internal feature provides PSB feature for distance protection.

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CONCLUSIONS OF PROTECTION AUDIT REPORT

Item no.	400kV/220kV MUNDRA SS (APL) : ISSUES	Remarks
10	Relay setting : DR timing setting to be reviewed.	Will be implemented as Pre- fault 1sec and 2sec post fault after consultation with OEM.
11	220kV and 400kV S/S Field Equipments - Phase-1: Healthiness of following LA counters needs to be confirmed as it is not showing current. 1) 400kV Sami-1 Y Phase. 2) 400kV Versana-2 Y Phase.	1) 400kV Sami line-1 Y Phase LA counters pointer problem found & rectified during shutdown. 2) 400kV Versana line-2, Y Phase LA healthiness will be checked during shutdown.
12	220kV and 400kV S/S Field Equipments - Phase-1: As per LCM test records, third harmonic resistive current (Ir) of few LAs is on lower side (1μA). Needs to be confirmed.	We have measured and found resistive current (Ir) almost same to the previous test report.
13	220kV and 400kV S/S Field Equipments : Metal gravels spreading is inadequate at few places.	Metal gravel levelling is in progress.
14	220kV and 400kV S/S Field Equipments : CVT Tan delta records are not available for the year 2015-16.	Due to unavailability of shutdown and in sufficient time duration of outage period, Tan delta test not conducted. Earlier records are already available further schedule is prepared on priority level.
15	DC Distribution - Phase 2 : Battery bank 220V DC set-2: Cell no 28 is bypassed.	It is in APL planning & will be connected in next month's 220V DC set-2 maintenance.
16	DC Distribution - Phase 2 : Battery bank 48V DC set-2: Cell no 11 is bypassed.	New cell connected.
17	DC Distribution - Phase 3 : Battery bank 220V DC set-2: Cell no 88 is bypassed.	PO has been ordered for battery 220V DC set-2.
18	DC Distribution : Battery voltages are measured with charger 'ON' condition, which will not reflect actual battery voltage and per cell voltage.	Battery voltages are measuring as per procedure.
19	DC Distribution : As per records, Specific gravity of electrolyte found on lower side in few cells.	Specific gravity of electrolyte were lower side due to water top & now it is OK.
20	DC Distribution : Electrolyte level indicator of few cells are not of proper size which leads to improper electrolyte level readings.	Replaced by new proper size level indicator wherever different sizes found.

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CONCLUSIONS OF PROTECTION AUDIT REPORT

Item no.	400kV/220kV MUNDRA SS (APL) : ISSUES	Remarks
21	DC Distribution : Efficiency of battery sets are as follows: Phase-1: 220V DC Battery Set-1: 91.44% 220V DC Battery Set-2: 93.43% 48V DC Battery Set-1: 90.29% 48V DC Battery Set-2: 93.52% Phase-2: 220V DC Battery Set-1: 95.24% 220V DC Battery Set-2: 96.06% 48V DC Battery Set-1: 93.52% 48V DC Battery Set-2: 95.5% Phase-3: 220V DC Battery Set-1: 90% 220V DC Battery Set-2: 40% 48V DC Battery Set-1: 97.18% 48V DC Battery Set-2: 91.24% Phase-4: 220V DC Battery Set-1: 88% 220V DC Battery Set-2: 88.49%	The 220V DC Battery Set-2 is planned to replace in month of June end. The new battery set has been procured already.
22	HVDC : Minor oil leakage observed in following equipments: 1) In flange of pole 1 R Phase converter Transformer. 2) In Delta bushing of pole 1 Y Phase Converter Transformer. 3) In Star bushing of pole 2 R Phase converter transformer.	Attended and kept under observation.
23	HVDC : In Pole 1 B Phase converter transformer (Star) winding temperature is not showing correct.	It has been replaced and showing correct value.
24	HVDC : Healthiness of Pole 2, R Phase LA counter to be confirmed as it is not showing current.	Under weekly monitoring for leakage current measured by clamp meter. Will be attended in next Pole-2 shutdown.
25	HVDC : As per the results of load test carried out in Feb-16, the efficiency of 48V DC battery system-1&2 found on lower side.	PR already raised and procurement is under process.
26	HVDC : Tan delta records of Converter Transformer Bushings are not available.	Will be attended during annual shutdown.

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CONCLUSIONS OF PROTECTION AUDIT REPORT

Item no.	400kV/220kV MUNDRA SS (APL) : ISSUES	Remarks
2	Review of Existing Settings at Substations	Recommended action
	Any inadvertently enabled settings/functions observed. (Yes/No)	No. However, certain deviations observed as below:
a	Auto reclosure feature is not enabled for 220kV lines.	APL informed that AR function is configured and relay to put in service, Function is off as at opposite end. On putting in service at other end will be put in service at Mundra end. GETCO has to take action as appropriate.
b	Zone resistive reach, reverse reach and other setting criteria for all distance protection are found to be different from the recommended setting given by TE-RO based on Ramakrishna committee recommendations (Task force committee guidelines).	APL has to take action as appropriate. APL request for detail calculations for all recommended settings from M/s. Tractebel. The same will be reviewed and deliberated for implementation if required in consultation with WRPC/WRDC and GETCO.
c	ICT differential protection and REF protection are enabled in same relay (Micom-P633)	APL has to take action as appropriate. APL informed that the relay scheme is as per OEM design, will be referred to OEM for feasibility to introduce separate device in the scheme.
3	Disturbance recorder - list of 3 trippings in last 6 months	Recommended action
3.a	DR as well as EL records for the trippings available (Yes/No)	Yes (Refer Enclosure-6 Record of previous tripping and associated fault analysis)
3.b	Records available for Tripping analysis and corrective actions taken (Yes/no)	Yes (Refer Enclosure-6 Record of previous tripping and associated fault analysis)
3.c	Time Synch Matched Between EL signals and DR signals (Yes/No)	Yes
3.d	Digital Signals of DR named properly (main CB Trip, Z1 Trip Etc) (Yes/No)	Yes
4	Chronic reason of tripping, if any	Recommended action
	NO	N/A.
5	Existing process for record of changes incorporated in the relay settings	
	Process are in place.	See attached correspondence (Refer Enclosure-9 Communication Procedure for relay settings)

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CONCLUSIONS OF PROTECTION AUDIT REPORT

Item no.	400kV/220kV MUNDRA SS (APL) : ISSUES	Remarks
6	Overvoltage grading for parallel line (time & pick up grading, provided or not)	Recommended action
	Provided.	Time grading in overvoltage settings for all the lines have been done, however voltage grading shall be adopted in addition to time grading for the lines. Final recommendation should come from WRPC.
7	Other deficiencies/Nonconformity observed (including the major non-conformities mentioned in the audit format.. ex: Single AC source etc.)	Recommended action
a	DC System: Minor Earth leakage (Voltage unbalance) is observed in the Phase-3 220V DC Battery set-2.	APL informed that 220V DC Battery Set-2 is planned to replace in month of June end. The new battery set has been procured already.
b	DC System: Phase-2 220V DC Battery set voltage (Positive to Negative) measurements as follow: 220V DC Battery Set-1: 243V 220V DC Battery Set-2: 244V 48V DC Battery Set-1: 54V 48V DC Battery Set-2: 53.1V In general DC voltage regulation shall be within +10% to -15%.	APL to check and maintain voltage accordingly.
c	Lightning protection System: Lightning protection (LA's) Earthing is not done as per standards/ NFPA in the 220kV MRSS-1 line, ICT 1&2 LV side bays. LA's (system) earthing is connected to earth electrodes directly as well as through equipment earthing.	LA's (system) earthing to be connected to earth electrodes directly like other bays. APL informed that the connection from LA to earth will be separated from Main structure during next available shutdown.
d	For other minor deficiencies and observations	Refer conclusion sheet attached at the end of report.

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Conclusion of Protection Audit carried out on 1/6/2016 to 3/6/2016 at APL-Mundra

Bay name/Bus	Voltage	Protection/Element/ Equipment/ System abdicated	Deficiencies/Nonconformity observed	Category	Remarks
Busbar	220/ 400 kV	Protection (Ph-1 & 2)	Busbar protection, one number of main Bus bar protection scheme and Check Zone protection is available.	Observation	As per OEM the Bus Bar Scheme with LBB, Check Zone and other required features are provided as per protection requirement and philosophy.
All lines	220KV	Protection	Auto-reclose feature is not enabled for 220kV lines.	Recommendation	AR function is configured and ready to put in service, function is not in service at opposite end. On putting in service at other end, will be put in service at Mundra end.
All lines	220/ 400 kV	Relay Setting (Ph 1-4)	Zone resistive reach, Reverse Reach and other setting criteria for all line distance protection are found to be different from the recommended setting given by TE-RO based on Ramakrishna committee recommendations (Task force committee guidelines)	Recommendation	APL request for detail calculations for all recommended settings from M/S Trectabel. The same will be reviewed and deliberated for implementation if required in consultation with WRPC/WRLDC and GETCO.
ICT-1&2	400KV	Relay Setting	ICT differential protection and REF protection are enabled in same relay(MICOM-P633)	Recommendation	The relay scheme is as per OEM design, will be referred to OEM for feasibility to introduce separate device in the scheme.
Phase-1	220 kV	DC Distribution	Battery voltages measured on the date of audit are as follows: 220V Battery set 1 : 237.0 P-N(V) 114.3 N-E(V) -125.6 220V Battery set 2 : 236.7 P-E(V) 113.3 N-E(V) -125.2 48V Battery set 1 : 54.0 NA 54.0 48V Battery set 2 : 53.9 NA 53.9	Observation	
Ph 1 to 4 and HVDC	220V DC	DC Distribution	DC supply available for Trip/ Closing circuit at farthest end Breaker panels are within permissible limit.	Observation	
Phase-2	220V DC	DC Distribution	Battery voltages measured on the date of audit are as follows: 220V Battery set 1 : 243.0 P-N(V) 122.2 N-E(V) -121.4 220V Battery set 2 : 244.2 P-E(V) 122.2 N-E(V) -121.9 48V Battery set 1 : 54.0 NA 54.0 48V Battery set 2 : 53.1 NA 53.1	Observation	The same will be checked and set as per equipment rating in service.

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Sunil Raval

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Sanjay Patil

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Conclusion of Protection Audit carried out on 1/6/2016 to 3/6/2016 at APL-Mundra

Bay name/Bus	Voltage	Protection/Element/ Equipment/ System abdicated	Deficiencies/Nonconformity observed	Category	Remarks																								
Phase 3 & 4	220V DC	DC Distribution	<p>Battery voltages measured on the date of audit are as follows:</p> <p>Phase-3:</p> <table border="1"> <tr> <td>P-N(V)</td> <td>P-E(V)</td> <td>N-E(V)</td> </tr> <tr> <td>220V Battery set 1 : 233.8</td> <td>121.9</td> <td>-117.0</td> </tr> <tr> <td>220V Battery set 2 : 233.7</td> <td>177.8</td> <td>-55.0</td> </tr> <tr> <td>48V Battery set 1 : 51.7</td> <td>NA</td> <td>51.7</td> </tr> <tr> <td>48V Battery set 2 : 52.0</td> <td>NA</td> <td>52.0</td> </tr> </table> <p>Phase-4:</p> <table border="1"> <tr> <td>P-N(V)</td> <td>P-E(V)</td> <td>N-E(V)</td> </tr> <tr> <td>220V Battery set 1 : 233.7</td> <td>131.1</td> <td>-102.5</td> </tr> <tr> <td>220V Battery set 2 : 233.9</td> <td>121.1</td> <td>-122.4</td> </tr> </table>	P-N(V)	P-E(V)	N-E(V)	220V Battery set 1 : 233.8	121.9	-117.0	220V Battery set 2 : 233.7	177.8	-55.0	48V Battery set 1 : 51.7	NA	51.7	48V Battery set 2 : 52.0	NA	52.0	P-N(V)	P-E(V)	N-E(V)	220V Battery set 1 : 233.7	131.1	-102.5	220V Battery set 2 : 233.9	121.1	-122.4	Observation	The 220 V DC Battery set is planned to replace in Month of June'16 end. The new set has already been procured.
P-N(V)	P-E(V)	N-E(V)																											
220V Battery set 1 : 233.8	121.9	-117.0																											
220V Battery set 2 : 233.7	177.8	-55.0																											
48V Battery set 1 : 51.7	NA	51.7																											
48V Battery set 2 : 52.0	NA	52.0																											
P-N(V)	P-E(V)	N-E(V)																											
220V Battery set 1 : 233.7	131.1	-102.5																											
220V Battery set 2 : 233.9	121.1	-122.4																											
HVDC	220V DC	DC Distribution HVDC	<p>Battery voltages measured on the date of audit are as follows:</p> <table border="1"> <tr> <td>P-N(V)</td> <td>P-E(V)</td> <td>N-E(V)</td> </tr> <tr> <td>220V Battery set 1 : 235.9</td> <td>120.6</td> <td>-115.3</td> </tr> <tr> <td>220V Battery set 2 : 235.7</td> <td>117.2</td> <td>-118.4</td> </tr> <tr> <td>220V Battery set 3 : 237.1</td> <td>113.2</td> <td>-123.8</td> </tr> <tr> <td>220V Battery set 4 : 235.9</td> <td>122.3</td> <td>-113.5</td> </tr> <tr> <td>48V Battery set 1 : 50.69</td> <td>NA</td> <td>49.82</td> </tr> <tr> <td>48V Battery set 2 : 51.19</td> <td>NA</td> <td>50.09</td> </tr> </table>	P-N(V)	P-E(V)	N-E(V)	220V Battery set 1 : 235.9	120.6	-115.3	220V Battery set 2 : 235.7	117.2	-118.4	220V Battery set 3 : 237.1	113.2	-123.8	220V Battery set 4 : 235.9	122.3	-113.5	48V Battery set 1 : 50.69	NA	49.82	48V Battery set 2 : 51.19	NA	50.09	Observation				
P-N(V)	P-E(V)	N-E(V)																											
220V Battery set 1 : 235.9	120.6	-115.3																											
220V Battery set 2 : 235.7	117.2	-118.4																											
220V Battery set 3 : 237.1	113.2	-123.8																											
220V Battery set 4 : 235.9	122.3	-113.5																											
48V Battery set 1 : 50.69	NA	49.82																											
48V Battery set 2 : 51.19	NA	50.09																											
Phase 1 to 4 & HVDC		SPS Protection System	The details of SPS scheme provided at 400KV/220KV/HVDC Mundra s/s are as per annexure seemed to be a good feature.	Observation																									
Phase 1 to 4 All lines & HVDC	220/ 400KV HVDC	Switchyard Field Equipment's (Ph 1-4)	Star ground connection for CT/CVT is done at local marshaling panel.	Observation																									
		Switchyard Field Equipment's	Star ground connection for CT/CVT is done at control panel.	Observation																									
MRSS-1 line bay ICT 1 & 2	220 KV	Switchyard Field Equipment's (Ph-1)	Lightning protection (LA's) Earthing is not done as per standards/NFPA in the 220KV MRSS-1 line & ICT 1 & 2 bay LV side bay. LA's (system) earthing is connected to earth electrodes directly as well as through equipment earthing. It shall be modified like other bays.	Recommendation	The connection from LA to earth will be separated from Main structure during next available shut down.																								

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Sanjay Bhatt

Sanjay Bhatt

Sunil Rawal

Sanjay Bhatt

Sanjay Bhatt

CONCLUSIONS OF PROTECTION AUDIT REPORT

Item no.	765/400 KV Tirora SS (ADANTI) : ISSUES	Remarks
1	Recommendations of last Protection Audit	Status of works & reason for pending/suggestions
a		Third party protection audit was not undertaken for this substation. However the substation has carried out its own internal audit. It is recommended the practise is continued in future too.
2	Review of Existing Settings at Substations	Recommended action
	Any inadvertently enabled settings/functions observed. (Yes/No)	No. However, certain deviations observed as below:
a	Pole discrepancy time delay for 765 kV CBs is kept as 2.0 sec for transformer & Reactor and 3 sec for Line.	Pole discrepancies relay need to be checked and implemented for lines 2.5 s and for ICT& Shunt Reactor 0.5 s
b	Warora line 1& 2 zone-4 time delay is kept as 1.0 sec	Zone-4 time delay shall be Zone-2 time
c	Over voltage stage-2 time delay is kept as 150 msec in 765 kV Koradi line-1&2 and 400 KV Warora	Over voltage stage-2 time delay shall be 0.1 sec.
3	Disturbance recorder - list of 3 trippings in last 6 months	Recommended action
3.a	DR as well as EL records for the trippings available (Yes/No)	Yes. (Refer Endlosure-2 Record of previous tripping and associated fault analysis)
3.b	Records available for Tripping analysis and corrective actions taken (Yes/no)	The tripping records are not being maintained stand format.
3.c	Time Synch Matched Between EL signals and DR signals (Yes/No)	Yes
3.d	Digital Signals of DR named properly (main CB Trip, Z1 Trip Etc) (Yes/No)	Yes

CONCLUSIONS OF PROTECTION AUDIT REPORT

Item no.	765/400 KV Tirora SS (ADANI) : ISSUES	Remarks
4	Chronic reason of tipping, if any	Recommended action
	NIL	N/A
5	Existing process for record of changes incorporated in the relay settings	
	Communication correspondence regarding change of relay setting is available.	See attached correspondence (Refer Enclosure-4 Communication Procedure for relay settings)
6	Overvoltage grading for parallel line (time&pick up grading, provided or not)	Recommended action
	No	To be implemented as per RPC guide lines
7	Other deficiencies/Nonconformity observed (including the major non-conformities mentioned in the audit format., ex: Single AC source etc.)	Recommended action
a	AC & DC System: It is observed that manual Changeover arrangement only has been provided between Incomer -1 & Incomer-2 feeder in ACDB.	It is suggested to implement auto bus transfer scheme
b	Communication System: At present there is no communication facility is available between control room and yard. Walky-talkie system to be provided for communication between switchyard and control room for facilitating switchyard operations.	Adani to take action as appropriate.
c	Field Equipments: spare ICT Spare ICT oil drying unit was found off on 27.01.2016	Adani take action immediately.
d	For other minor deficiencies and observations	Refer conclusion sheet attached at the end of report.

General remarks

Bay name/Bus	Voltage	Protection/Element/ Equipment/ System audited	Deficiencies/Nonconformity observed
KORADI LINE-2	765 kV	Main-1 & Main-II Distance relay	Actual line length is 133.4 km and the same is implemented in the relays. But as per Tractabel_Station input data provided by APLM Tirora the distance was 138.4 km.
KORADI LINE-1&2	765	Main-1 & Main-II Distance relay	The time delay setting for distance protection is kept as per below: Main-I tz1 = 0.00 sec tz2 = 0.35 sec tz3 = 0.80 sec tz4 = 0.30 sec tz5 = 1.0 sec Main-II tz1 = 0.00 sec tz2 = 0.35 sec tz3 = 1.0 sec tz4 = 0.30 sec tz5 = 0.80 sec
KOARDI LINE-1&2	765	Main-1 & Main-II Distance relay	1. Over Voltage Stage-2 time delay settings is kept 150 ms. 2. Voltage/ Pick-up grading is not provided.
ICT-1	765 kV	Relay Panel	WTI/OTT Input to the relay is not working Properly.
ICT-1	765 kV	Relay Panel	Observed that thermal over load relay for fan in R phase is not working properly
BUS REACTOR	765 kV	Relay Panel	Current rating is kept as 3000 A for Teed Protection.
KOARDI LINE-2	765 kV	Relay Panel	Observed that Breaker Failure Protection is kept as off in Tie Feeder.
ICT-1	765 kV	ICT	Spare ICT Oil drying unit was found off on 27.01.2016
WARORA LINE 1 & 2	400 kV	Main-1 & Main-II Distance relay	The time delay setting for distance protection is kept as per below: tz1 = 0.00 sec tz2 = 0.30 sec tz3 = 0.75 sec tz4 = 1.00 sec
WARORA LINE 1 & 2	400 kV	Main-1 & Main-II Distance relay	Observed all Zones are blocked for Power Swing Blocking protection with 2 seconds unblocking timer. The same has been communicated to WRPC.
WARORA LINE 1 & 2	400 kV	Main-1 & Main-II Distance relay	1. Over Voltage Stage-2 time delay settings is kept 150 ms. 2. Voltage/ Pick-up grading is not provided.
WARORA LINE 1 & 2	400 kV	Relay Panel	Observed that Breaker Failure Protection is available in peripheral unit A relay.
WARORA LINE - 2	400 kV	Speech Channel	Speech channel was found unhealthy. End to end testing is required.
All 400 kV	400 kV	Isolator	Observed that DC supply for the isolator is kept as off.
General			
			Relay Testing frequency at present is once in 2 years. Relay test records to be maintained on annual basis.
			Third Party Protection Audit was not undertaken for this substation. However the Substation has carried out its own Internal Audit. It is recommended the practice is continued in future too.
			Pole discrepancy time delay for 765 kV CBs is kept as 2 sec for Transformer & Reactor and 3 sec for Line.
			Supply changeover between AC Distribution Board is being done by manually.
			Walkie-Talkie is not available for communication between switchyard and control room
			Control room Shift charge logbook to be properly logged and checked by senior authorities.
			The tripping records are not being maintained in a standard format.
			The System Protection Scheme log sheets are not being maintained.
			Load encroachment logic not available in 400 kV.
			Standard Operating Procedure Manual for Operation is not available.
			Star ground connection for CT/CVT is being done in protection panel.

CONCLUSION OF PROTECTION AUDIT REPORT

Item no.	400kV/220kV Waluj SS (MSETCL) : ISSUES	Remarks
1	Recommendations of last Protection Audit	Status of works & reason for pending/suggestions
a	Retrofitting of 400kV Babhleshwar and 400kV Khadka(Bhusawal) distance protection relay.	Requirement submitted on date 09/12/2015.
b	Retrofitting of old Electromechanical back up relays of 220kV lines and ICT-1 and ICT-2 IV and Transformer-1 HV and LV.	220/33kV 50MVA Transformer-1 HV side OC/EF back up relay retrofitted on date 09/10/2015. 400/220/33kV 315MVA ICT-2 IV side OC/EF back up relay retrofitted on date 29/01/2016.
2	Review of Existing Settings at Substations	Recommended action
	Any inadvertently enabled settings/functions observed. (Yes/No)	No. However, certain deviations observed as below:
a	Zone-3 time delay is kept as 0.5 sec for 400KV BBLR and Bhusawal Line feeder Zone-3 time delay is kept as 0.6 sec for 400KV Thaptitanda and Dipnagar Line feeder Zone-3 time delay is kept as 1.5 sec for 400KV ACPG-I&II and PUNE-I&II Line feeder Zone-3 time delay is kept as 0.6 sec for 220KV PADEGAON-I&II, DEVGON, BHENDA, JALNA-I&II and CHITTEGAON-I&II Line feeder Zone-4 time delay is kept as 0.9 sec for 400KV Thaptitanda and Dipnagar Line feeder Zone-4 time delay is kept as 1.0 sec for 400KV PUNE-I&II Line feeder Zone-4 time delay is kept as 0.9 sec for 220KV PADEGAON-I&II, DEVGON, BHENDA, JALNA-I&II and CHITTEGAON-I&II Line feeder In all 400KV & 220KV line feeders Resistive reach of reverse Zone is not Kept identical with Zone 3 resistive reach. In all 400KV & 220KV line feeders Zone-4 (Reverse Zone) time delay should be co-ordinate with Zone-2 time delay setting.	According to guidelines, in all 400KV & 220KV line feeders Zone-3 time delay should be 1 sec. According to guidelines, in all 400KV & 220KV line feeders Zone-4 (Reverse Zone) time delay should be co-ordinate with Zone-2 time delay setting and Resistive reach of reverse Zone is to be kept identical with Zone 3 resistive reach.
b		
c	The Main-1&II relay is used in the 400KV Bhusawal and BBLR line feeder same make & model (ABB REL100). These relays are very old one and static type. There is no reverse Zone selection in these relays. Broken conductor for alarm is not enabled in Main-I relay in Bhusawal line feeder.	The Main-1 & Main-2 relays shall be same make but different model (or) different make but same model. MSETCL informed that the requirement already send to corporate office.
d	Directional earth fault (DEF) are not provided in the All 400KV lines except PGCIL 400KV line (Pune-I&II and ACPG-I&II).	MSETCL to review the DEF protection requirement .

C. Ananthu Raj