सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

विद्युत संचार विकास प्रभाग

Power Communication Development Division

****

CEA Case No. : MRA-1217		
Induced Voltage (IV) calculation for LILO of 220 kV ONGC - Panvel Transmission Line at 220 kV Karanjade TSS [Length – 1.90 km] – Regd.		
S. No	**Reference No.**	**Dated**
(i)	MSETCL: MSETCL/CO/PS/PTCC/In/B-595/No01935	21.03.2023
(ii)	MSETCL: e-Mail	12.01.2024
(iii)	CEA : CEA-PS-17-11(12)/8/2024-PCD Division	19.01.2024
(iv)	MSETCL: MSETCL/CO/CE/PTCC/Gen/No04221	03.07.2024
(v)	BSNL: IC/MBI/PTCC/MRA-2584/03	25.11.2023
(vi)	Central Railway: N.153/PTCC/220kV/MAH-833	05.04.2023
(vii)	Defense: B/46937/Sigs7(b)/3292	24.07.2023

The PTCC proposal submitted vide reference (i) & (ii) was examined. Induced Voltage calculation for subject cited Transmission Line was issued vide reference (iii). Later, vide reference (iv) MSETCL has stated that earlier submitted Soil Resistivity values were wrongly measured by the executing agency and later value of soil resistivity was again measured and same has been submitted.

The LF induction on Block and Telecom circuits of BSNL & Central Railway with respect to details furnished vide above reference (v) & (vi) has been computed. The voltage likely to be induced on paralleling Block and Telecom circuits of BSNL & Central Railway under Single Line to Ground fault condition are enclosed at Annexure-I & Annexure-II respectively. The screening factors as applicable have been considered. DG Signals, MoD has issued No Objection Certificate (NOC) vide reference (v).

EPR zone for 220 kV proposed S/S is mentioned below:

Name of the proposed Substation	Half diagonal distance , D/2 (mts)	Fault Current I (KA)	Resistance of Earth Mat, R (ohms)	d (mts) at 430 V	d (mts) at 650 V	d (mts) at 7kV	d (mts) at 10kV
220kV Karanjade TSS	42	28	0.136	330	204	N.A	N.A

As per the Telecom Details submitted by BSNL vide above reference (v), no telephone exchange of BSNL is falling within the EPR zone of proposed 220 kV Substation.

In view of the above, it is requested that PTCC route approval may be issued for the subject transmission line under intimation to this office.

Encl.**:** As above

Signed by Suman Kumar Maharana
Date: 09-07-2024 15:05:18
Chief Engineer

To,

1.	Divisional Engineer (PTCC), Western Zone	QA & Inspection circle, 1st floor, D- wing, BSNL Admin Bldg., Junu Tara Road, Santacruz (West), Mumbai-400054	
2.	GM (S&T)	O/o Pr. Chief S&T Engineer Central Railway Mumbai	
3.	Chief Engineer (Proj. Scheme Dept.) MSETCL	O/o Chief Engineer MSETCL, Mumbai	Copy for information.

ANNEXURE-I

CEA Case No.: MRA-1217 **Name of the Power line**: LILO of 220 kV ONGC - Panvel Transmission Line at 220 kV Karanjade TSS	**Map Scale :** 1 cm= 500 m **Total Length**: 1.90 km **S.R. Value :** 10000 Ohm-cm

S.No.	Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.
BSNL Letter No: IC/MBI/PTCC/MRA-2584/03 Dated 25.11.2023					
Affected Blocks & Telecom Circuits Details					
1	Old Panvel Exch area, Paramount Hospital, MCCH				
2	Shivaji Statue chowk, Old Panvel Exch area				
3	Dombala college, Kapad gali, Old Panvel Exch area				
4	Nagar Palika, Old Panvel Exch area				
5	Takka, Visrali naka, Old Panvel Exch area				
6	New Panvel Exch area, Sector 12 to 19				
7	New Panvel Exch area, Sector 1 to 13				
8	New Panvel Exch area, Khanda colony				
9	KL 5/32 sector 3E				
10	KL 5/32 sector 4E, averest				
11	Steel, disma, bhima				
12	Bhima complex				
13	KL E/6 sector 3E				
14	KLE5/8 sector 3				IV Less than 430 V
15	Everest Tower sector 4				
16	Sector 1,2,3,4 krishana petrol pump				
17	Sector 13 , LIG, steel market, kirokpada				
18	Ridhi sidhi				
19	Bhima, disma				
20	Sector 17,35,12,34				
21	Sector 6,6A,7,36,5				
22	Sector 10,14,11,8,9				
23	Sector 15,16,18,20,21,22,23,24				

ANNEXURE-II

CEA Case No.: MRA-1217 **Name of the Power line**: LILO of 220 kV ONGC - Panvel Transmission Line at 220 kV Karanjade TSS	**Map Scale :** 1 cm= 500 m **Total Length**: 1.90 km **S.R. Value :** 10000 Ohm-cm

S.No.	Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.
Central Railway Letter No: N.153/PTCC/220kV/MAH-833 Dated 05.04.2023					
Affected Blocks & Telecom Circuits Details					
1	Kharghar to Panvel	Out of Parallelism			
2	Panvel to Taloje	Out of Parallelism			
3	Panvel to Apta	1.40	0.0005	18800	10
4	Panvel to Mohape	Out of Parallelism			
5	Panvel to Jasai	1.80	0.019	20100	382

महापारेषण

MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO. LTD.
(CIN No. U40109MH2005SGC153646)
OFFICE OF THE CHIEF ENGINEER
(Project Schemes Department)
Phone No:- (022) (O) 26595115(P) 26595113,
Fax :-(022) 26598587
Email :- cepd@mahatransco.in.
Plot No, C- 19, Prakashganga
3rd Floor, Bandra-Kurla Complex,
Bandra (E), Mumbai-400 051

MSETCL/CO/CE/PTCC/Gen No 04221 Date: 03 JUL 2024

To
The Chief Engineer,
PSCD Division, CEA
Room No. 702 (North Wing),
Sewa Bhawan, R K Puram, Sector 1,
New Delhi 110066

Subject: Request to recalculate IV of EHV line, 220kV DCMC line, LILO on 220kV ONGC - Panvel TSS line at proposed 220kV Karanjade TSS of DFCCIL, 1.9 km (CEA MRA-1217)

Ref.: 1) Ltr No. N.153/PTCC/220kV/MAH-833, Dtd.6-2-2024,
2) Y.O. Ltr. No.CEA-PS-17-11(12)/8/2024-PCD Division, Dtd.19-1-2024

Sir,

(1) This office is in receipt of copy of Central Railways letter addressed to CEA vide letter under ref.(1), wherein re-engineering on Induced Voltage (498V) as calculated vide letter under ref.(2) is proposed.

(2) Upon examining the calculation, it was found that Soil Resistivity considered by CEA (based on Soil Resistivity Statement) was on higher side i.e. 25,000 Ohm-cm. The matter was discussed at length with concerns w.r.t high values of Resistivity which seems to be result of inadvertent measurement by executing agency. Consequently, it was decided to recheck and re-measure the resistivity. And re-measurement was carried-out based on which revised Soil Resistivity Statement is prepared.

The same revised Soil Resistivity Statement is attached herewith for further needful.

(3) In further context, MSETCL in the capacity of STU are using PSSE software for Load Flow and SC fault analysis, and hence Short Circuit (SC) Fault levels of all associated S/s of proposed EHV route will easily be provided. This in concurrence to PTCC Manual 2010, Ch.9. (Mutual Coupling calculations as per CCITT Directives), the inducing current (during LG fault) coming from source s/s are to be provided by organization operating the power line.

In view of above, SC Fault Levels of associated S/s is also attached herewith for further needful in the matter please.

Encl. A/a

Yours faithfully,

Jueiee Wagh
Chief Engineer
(Project Schemes)