



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

No.: CEA/PCD/ PTCC/PNB-360/223-25

Date: 19.05.2020

**Subject: - Induced voltage calculation in respect of LILO of 2<sup>nd</sup> circuit of 400 kV PGCIL- 220 kV Kotla Jangan (Nakodar) at 220 kV S/S Kartarpur line.-Reg.**

**Reference: -**

- |   |                   |
|---|-------------------|
| (i) PSTCL, Patiala Endst. No. 346                       | Dated: 24.12.2019 |
| (ii) BSNL Ref. No. DET/PTCC/ND/DV-9521/PB-910/2019-2020 | Dated: 16.01.2020 |
| (iii) Northern Railway Ref. No. 342-SIG/1/PTCC          | Dated: 30.05.2019 |
| (iv) Defense Ref. No. B/46937/Sigs 7(b)/1603            | Dated: 27.06.2019 |

The PTCC proposal submitted vide ref. (i) has been examined. The low frequency induction on BSNL Telecom Lines and Railway Block and Communication circuits as per details furnished vide above cited references (ii) and (iii) respectively has been examined. The Average Soil Resistivity value has been taken as 5,000 Ohms-cm, as per data submitted by Power Authority. Voltages likely to be induced on paralleling BSNL Telecom Lines and Northern Railway Block and Communication circuits under single line to ground fault condition are enclosed at Annex-I and Annex-II respectively. The screening factors as applicable have been considered. In addition, Defense has accorded NOC vide above ref. (iv) for this line (a copy enclosed at Annex-III).

Taking above into consideration, kindly take necessary action regarding issue of PTCC route approval.

Encl.: As above.

*Upendra Kumar*  
19.05.2020  
(Upendra Kumar)  
Chief Engineer

To,  
The Divisional Engineer (Telecom), BSNL  
PTCC O/o GM (North), Inspection Circle (T & D),  
CTS Compound, Netaji Nagar,  
Africa Avenue, New Delhi - 110023

M/C

Contd.

**Copy to:**

1. General Manager / S&T, Northern Railway, Office Headquarters, Baroda House, New Delhi-110001.(Annex-II only)
2. Additional Superintending Engineer/TS-II,PSTCL O/o Engineer-in-Chief/Transmission System,3rd Floor, Shakti Sadan,Patiala-147001.

Case No. : CEA/PCD/PTCC/PNB-360

Annexure I

Name of the Power Line: LILO of 2<sup>nd</sup> Ckt of 400 KV PGCIL-220 KV  
Kotla Jangra ( Nakodar) at 220 KV S/S  
Kartarpur Line.

Toposheet Scale : 1cm=500mts  
Total Length : 0.474Kms  
S.R Value : 5,000 Ohm-cm

| Sr. No. | Name of Telecom Line | LOP in Kms | MC in Ohms | Fault Current (Amps) | IV in Volts |
|---------|----------------------|------------|------------|----------------------|-------------|
|---------|----------------------|------------|------------|----------------------|-------------|

**BSNL**

Reference No. DET/PTCC/ND/DV-9521/PB-910/2019-20  
Date : 10.01.2020

| BSNL Details |   |                                 |  |  |  |
|--------------|---|---------------------------------|--|--|--|
| 1            | Pattar kalan TE- Barampur Pillar ( 100 Pr) 2.6 KM                               | } Out of parallelism            |  |  |  |
| 2            | Pattar kalan TE- Fazalpur Pillar ( 50 Pr) 2 KM                                  |                                 |  |  |  |
| 3            | Dhirpur TE- Kudonal Pillar ( 100 Pr) 0.5 KM                                     | } Outside IV consideration zone |  |  |  |
| 4            | Dhirpur TE- Bhikhal nangal- Mallian ( 100 Pr) 1.7 KM                            |                                 |  |  |  |
| 5            | Dhirpur TE- Dayalpur Pillar ( 50 Pr) 2.9 KM                                     |                                 |  |  |  |
| 6            | Dhirpur TE- Murg Pillar ( 200 Pr) 1.5 KM  |                                 |  |  |  |
| 7            | Sant Baba Shankar Das TE- Nangal Manaur Pillar ( 50 Pr) 1.7 KM                  | } Out of parallelism            |  |  |  |
| 8            | Sant Baba Shankar Das TE- Fateh jalal Pillar ( 50 Pr) 2.8 KM                    |                                 |  |  |  |
| 9            | Alampur Bakka TE- Chote Pind- Ali kher Pillar ( 100 Pr, 50 Pr) 4.8 KM           |                                 |  |  |  |
| 10           | Mustafapur TE-Rajab- Hasan Manda Pillar ( 50 Pr x 2) 1.3 KM                     |                                 |  |  |  |
| 11           | Mustafapur TE- Ghamiara Pillar ( 50 Pr) 1.2 KM                                  |                                 |  |  |  |
| 12           | Mustafapur TE- Rahimpur- Dugri- Faridpur Pillar (200 Pr x 2 & 50 Pr x 2) 4.6 KM |                                 |  |  |  |
| 13           | Bhatija Randhawa TE- Jalla Singh Pillar ( 100 Pr) 1.4 KM                        |                                 |  |  |  |
| 14           | Bhatija Randhawa TE- Bhatte Pillar ( 100 Pr) 2.9 KM                             |                                 |  |  |  |
| 15           | Bhatija Randhawa TE- Izipur- Kala bahian Pillar (50 Pr, 100 Pr) 2.7 KM          |                                 |  |  |  |
| 16           | Bhatija Randhawa TE- Ramsinghpura- Mari haznian Pillar (50 Pr) 3 KM             |                                 |  |  |  |
| 17           | Bhatija Randhawa TE- Nussi Pillar (100 Pr) 3.1 KM                               |                                 |  |  |  |
| 18           | Kartarpur TE- Phaguri-Chima Pillar ( 50 Pr) 3.6 KM                              | } IV less than 130V             |  |  |  |
| 19           | Kartarpur TE- Ambgarh Pillar ( 50 Pr) 3.5 KM                                    |                                 |  |  |  |
| 20           | Kartarpur TE- Kahalwan Pillar ( 200 Pr) 2 KM                                    |                                 |  |  |  |
| 21           | Kartarpur TE- Hamira I/A Pillar ( 50 Pr) 7.9 KM                                 |                                 |  |  |  |
| 22           | Kartarpur TE- PGCIL S/Stn Pillar ( 50 Pr) 3.3 KM                                |                                 |  |  |  |
| 23           | Kartarpur TE- Blonta Road Pillar ( 50 Pr) 3.1 KM                                |                                 |  |  |  |

मुख्य अभियंता/Chief Engineer  
केन्द्रीय विद्युत प्राधिकरण/C.E.A.  
विद्युत मंत्रालय/Ministry of Power  
भारत सरकार/Govt. of India  
नई दिल्ली/New Delhi

Case No. : CEA/PTD/PTCC/PNB-360

Name of the Power Line: LILO of 2<sup>nd</sup> Ckt of 400 KV PGCIL-220 KV  
Kotla Jangra ( Nakodar) at 220 KV S/S  
Kartarpur Line.

Annexure I

Toposheet Scale : 1cm=500mts

Total Length : 0.474Kms

S.R Value : 5,000 Ohm-cm

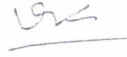
| Sl. No. | Name of Telecom Line   | LOP in Kms | MC in Ohms | Fault Current (Amps) | IV in Volts       |
|---------|--|------------|------------|----------------------|-------------------|
| 24      | Kartarpur TE- Khusrupur via Bhakhu Nangal Pillar ( 200 Pr, 50 Pr) 3.5 KM | }          |            |                      | IV less than 430V |
| 25      | Kartarpur TE- Tali sahib Pillar ( 100 Pr) 1.9 KM                         |            |            |                      |                   |
| 26      | Kartarpur TE- Sarai Khas Pillar ( 200 Pr , 100 Pr) 4.2 KM                |            |            |                      |                   |

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## ANNEXURE - II

| <b>Case No.:</b> PNB-360<br><b>Name of the Power line:</b> LILO of 2 <sup>nd</sup> circuit of 400 kV PGCIL- 220 kV Kotla Janga (Nakodar) at 220 kV S/S Kartarpur line. |                  | <b>Map Scale</b> : 1cm=500mts<br><b>Total Length</b> : 0.474 Km.<br><b>S.R. Value</b> : 5,000 Ohms-cm |                          |                                  |               |
|--|------------------|---|--------------------------|----------------------------------|---------------|
| S.No.  | Telecom. Details | Length of Parallelism in Km.  | Mutual Coupling in Ohms. | Effective Fault current in Amps. | I.V in Volts. |

|   |                                 |                    |        |        |    |
|---|---------------------------------|--------------------|--------|--------|----|
| <b>NORTHERN RAILWAY</b><br>Ref. No: 342-SIG/1/PTCC      DATED: 30-05-2019 |                                 |                    |        |        |    |
| <b>Affected Blocks &amp; Telcom Circuits Details</b>                      |                                 |                    |        |        |    |
| 1   | Hamira R/S to Kartarpur R/S     | Out of parallelism |        |        | 00 |
| 2   | Kartarpur R/S to Sura Nussi R/S | 0.26               | 0.0011 | 13,379 | 15 |

  
 मुख्य अभियंता/Chief Engineer  
 केन्द्रीय विद्युत प्राधिकरण/C.E.A.  
 विद्युत मंत्रालय/Ministry of Power  
 भारत सरकार/Govt. of India  
 नई दिल्ली/New Delhi

Tele : 23019746

(Annex-III)

Directorate General of Signals  
Signals 7  
General Staff Branch  
Integrated HQ of MoD, (Army)  
DHQ PO, New Delhi - 110011

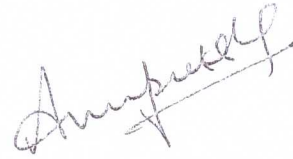
B/46937/Sigs 7(b)/1603/

27 Jun 2019

Office of Engineer-in-Chief/Transmission System  
Punjab State Transmission Corporation Limited  
3<sup>rd</sup> Floor, Shakti Sadan, Patiala-147001

**PTCC CASE OF LILO OF 2<sup>ND</sup> CIRCUIT OF 400KV PGCIL-220KV KOTLA JANGA (NAKODAR)  
AT 220KV S/S KARTARPUR LINE**

1. Ref your Endst. No 342 dt 02 May 2019 (copy att).
2. No Objection Certificate (NOC) is accorded based on inputs provided vide Map sheet received under your letter mentioned above.
3. Documents alongwith map sheets (in original) are returned herewith for your further necessary action.



(A Rawat)  
Maj  
GSO 1 (Comn)  
for SO-in-C

**Enclosures** : As above

**Copy to :-**

✓ The Director (PTCC), CEA  
Power Communication Development Division  
NRPC Complex, 18-A Shaheed Jeet Singh Marg  
Katwaria Sarai, New Delhi - 110016

for information.