



सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

विद्युत संचार विकास प्रभाग

Power System Communication Development Division

| | | |
|---|--|--------------|
| CEA Case No.: BHR-190 | | |
| Induced Voltage calculation for PTCC proposal of 220 kV D/C Transmission Line from Begusarai GSS to IOCL Barauni Refinery [Length-12.005 km]-Regd. | | |
| Reference: | | |
| S. No. | Reference No. | Dated |
| (i) | BSPTCL Letter No: 727/Begusarai | 28.02.2022 |
| (ii) | BSPTCL e-Mail | 19.01.2024 |
| (iii) | BSNL: DET/PTCC/ER/EBR130620235027/IV/1 | 01.11.2023 |
| (iv) | East Central Railway : ECR-HQ0SnT(Genl)/13/2022-O/oDy.CSTE/HQ/ECR/2135 | 06.06.2022 |
| (v) | Defense : B/46937/Sigs 7(b)/3413 | 15.09.2023 |

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

EPR zone for 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 |
|---------------------------------|------------------------------------|----------------------|-----------------------------------|------------------|------------------|----------------|-----------------|
| 220 kV IOCL Refinery Switchyard | 98 | 40 | 0.043 | 294 | 161 | N.A | N.A |

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

Taking above into consideration, necessary action regarding issuance of PTCC approval for the subject cited transmission line might be taken under intimation to this office.

Encl.: As above.

Chief Engineer

To,

File No.CEA-PS-17-11(11)/12/2024-PCD Division

| | | | |
|----|---|--|-------------------------|
| 1. | Divisional Engineer (PTCC), Eastern Zone | BSNL QA & Inspection Circle, QA Bhawan, EP-GP Block, Sector-V Kolkata | |
| 2. | General Manager (S&T) | O/o GM (S&T) East Central Railway Hajipur | |
| 3. | Chief Engineer (Telecom & OPGW) | Bihar State Power Transmission Co. Ltd. 4 th Floor, Vidyut Bhawan Patna | Copy for information |

ANNEXURE-I

| CEA Case No.: BHR-190 Name of the Power line: 220 kV D/C Transmission Line from Begusarai GSS to IOCL Barauni Refinery. | | | Map Scale : 1 cm= 500 m Total Length : 12.005 km S.R. Value : 10000 Ω-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: DET/PTCC/ER/EBR130620235027/IV/1 Date: 01.11.2023

Affected Blocks & Telecom Circuits Details

| | | |
|----------|---------------------------|--|
| 1 | Naubatpur Exchange | |
| 1 | Ziromilte TE | IV Calculation not required (Telephone Exchange) |
| 2 | Bihar TE | IV Calculation not required (Telephone Exchange) |
| 3 | Tilrath TE | IV Calculation not required (Telephone Exchange) |
| 4 | IOCL Gate 1 TE | IV Calculation not required (Telephone Exchange) |
| 5 | Mosadpur TE | IV Calculation not required (Telephone Exchange) |
| 6 | Begusarai Main TE | IV Calculation not required (Telephone Exchange) |
| 7 | Kachari TE | IV Calculation not required (Telephone Exchange) |
| 8 | Lohiya Nagar TE | IV Calculation not required (Telephone Exchange) |
| 9 | Power House BTS | IV Calculation not required (Telephone Exchange) |

ANNEXURE-II

| CEA Case No.: BHR-190 | | | Map Scale : 1 cm= 500 m | | |
|--|-------------------------|-------------------------------------|--|---|----------------------|
| Name of the Power line: 220 kV D/C Transmission Line from Begusarai GSS to IOCL Barauni Refinery. | | | Total Length : 12.005 km | | |
| | | | S.R. Value : 10000 Ω-cm | | |
| S.No. | Telecom. Details | Length of Parallelism in Km. | Mutual Coupling in Ohms. | Effective Fault current in Amps. | I.V in Volts. |
| East Central Railway Letter No: ECR-HQ0SnT(Genl)/13/2022-O/oDy.CSTE/HQ/ECR/2135 Date: 06.06.2022 | | | | | |
| <u>Affected Blocks & Telecom Circuits Details</u> | | | | | |
| 1 | Teghra to Barauni | -Out of Parallelism- | | | |
| 2 | Barauni to Tiltrath | 5.4 | 0.0041 | 16540 | 68 |
| 3 | Tiltrath to Begusarai | -Out of Parallelism- | | | |
| 4 | Begusarai to Garhara | 4.2 | 0.0012 | 16450 | 20 |
| 5 | Garhara to Semaria | 4.2 | 0.0034 | 16080 | 55 |
| 6 | Semaria to Rajendra Pul | -Out of Parallelism- | | | |
| 7 | Rajendra Pul to Hatidah | -Out of Parallelism- | | | |