



सत्यमेव जयते

भारतसरकार

Government of India

विद्युतमंत्रालय

Ministry of Power

उत्तरक्षेत्रीयविद्युतसमिति

Northern Regional Power Committee

NRPC/OPR/105/09/12908-12925

Dated:12/11/2018

As per list

Subject:- Minutes of Meeting held on 15/9.2018 to review the Replacement & Cleaning of Insulators in Northern Region.

The Minutes of the meeting held on 15.9.2018 is enclosed with. All utilities are requested to submit the information as desired.

-sd-

SE (Operations)

Copy to: GM, NRLDC, New Delhi

LIST

1. Director (Operation), Power Grid, Gurugram.
2. Member, Power, BBMB, Chandigarh.
3. Director (Operation), DTL, New Delhi.
4. Director (Technical), PSTCL, Patiala.
5. Director (Operation), UPPTCL, Lucknow.
6. Director (Technical), HVPNL, Panchkula.
7. Director (Technical), RRPVNL, Jaipur.
8. Director (Electrical Engineering-PS), Railway Board, Rail Bhavan, New Delhi.
9. CED, North Central Railway, Allahabad.
10. CED, Northern Railways, New Delhi.
11. CEO, POWERLINKS Transmission Limited, New Delhi.
12. ED, POWERGRID, NR-I, New Delhi.
13. ED, POWERGRID, NR-II, Jammu.
14. ED, POWERGRID, NR-III, Lucknow.
15. Senior VP (O&M), Adani Transmission Limited, Ahmedabad.
16. CEO Aravali Power Company Private Limited.
17. CEO ,PKTCL, Gurugram.
18. CEO, Sterlite Power Transmission Limited, New Delhi.

Summary Record of Discussions of the meeting on “Replacement & Cleaning of Insulators in Northern Region” held on 15.10.2016 at NRPC, New Delhi.

List of Participants is enclosed at **Annexure –1**.

1. SE(O), NRPC welcomed the participants and stated that this meeting has been called to review the status of replacement of Porcelain Insulators with Polymer and the cleaning of Insulators in the Northern Region. He requested Utilities to carry out targeted replacement and cleaning work prior to onset of fog.
2. SE (O) NRPC requested the NRLDC representative to discuss the lines that had tripped in the last winter on account of Fog. NRLDC representative highlighted that last year on 6-13th Nov 2017, ~ 36 EHV line tripped during Fog/Smog in Punjab/Haryana, mostly in Punjab along with Talwandi Sabo Units. Also he added that on 29 Dec 2017, ~ 8-10 lines tripped in Uttar Pradesh & Rajasthan. In the area of Chhabra, Akal, Bikaner, Barmer tripping was observed. The list of lines tripped due to Fog/Smog including the lines from Balia is annexed at **Annexure 2**. The lines were taken up for discussion thereafter.
3. BBMB representative stated that replacement of porcelain insulator with Anti Fog Insulators are under consideration on the lines that had tripped last winter as these had been procured before use of Polymer was decided in NRPC and had to be utilized. He added that the cleaning plan stands submitted and is targeted to be completed timely. He further added that replacement with Polymer insulator on Narela –Rohtak road line is being done in phased manner and 50% percent towers stands replaced by Polymer insulators and for the balance procurement action has been initiated. As regard Panchkula- Panipat line he added that the replacement will be done in a phased manner. He added that hot line washing has been planned at Panipat. The trippings have been minimized on account of hot line washing done in three cycles with DM water available at the Thermal Plant.
4. POWERGRID representative highlighted the use of Extender to enhance creepage (as was being used by them in Jhatikala).Also he added that use of RTV coating helps in reducing trippings on account of fog.
5. DTL representative submitted the detailed status of list of lines detailed by NRLDC that had tripped in the last winter (**Annexure 3**). SE (O) requested the DTL representative to expedite the cleaning action plan as the effect of pollution resulting in smog had already started.
6. HVPNL representative stated that the lines listed by NRLDC that had tripped during last winter action for cleaning already stands planned. The status submitted is

placed at **Annexure4**.NRLDC representative requested HVPNL representative to plan the timely cleaning of the 220KV lines in the fog prone and polluted area

7. POWERGRID NR 3 representatives stated that the cleaning has been planned for the lines detailed in the list by NRLDC. They further added that the cleaning work is targeted to be completed by 31.11.2018.He added that the polluted stretches had been identified .Further he added that the replacement work on Lucknow(PG)-Lucknow(UP) & Gwalior (PG) - Phagi (RVPNL) – 1 was being done. He added that lines on which porcelain insulator is there, cleaning had been planned for the month of November. POWERGRID NR 3 had submitted the detailed information as required but on reviewing the information submitted by them regarding the replacement work done, it was stated that the corrected statement would be resubmitted.

8. POWER GRID NR 2 & NR 1 representative were requested to review the lines listed by NRLDC for cleaning/ insulator replacement. They were also requested to submit the data desired as had been submitted by NR3.The issue of damaging the Polymer insulators by Birds was also brought forth by the NRLDC representative. He added that efforts like shifting of Bird nests have been made by POWRGRID. Also use of Bird guards was discussed. He added that birdx.com site could be referred to for dealing with the problem. POWERGRID also intimated that the insulator replacement work at Rihand-Dadri would be taken up in the outage planned for other works. Also the issue of frequent tripping on Agra-Sikar line in last winter was highlighted and POWERGRID was requested to look into the same

9. Punjab representative intimated that cleaning has been planned by them on the identified polluted stretches. He added that the problem faced last year on account of the trippings on lines from Talwandi saboo will be also taken care. Further he stated that it has been decided by the management to go ahead with installing long rod porcelain insulators instead of polymers for two lines connected with Talwandi saboo, but the same will be done by next winter season.

10. RVPNL representative submitted that for Akal-Barmer D/ C line procurement of polymers has been planned but the same would be available for next winter season. It was advised to RVPNL to plan cleaning on the insulators of Ratangarh-Suratgarh D/C line should be done timely to avoid tripping due to fog. Regarding Akal Barmer line it was stated that as the same is in the vicinity of Pokhran proper cleaning needs to be planned.

11. Representative of UPPTCL was requested to submit the data as desired. He was also advised to review the cleaning / replacement plan for especially the lines listed that had tripped on account of fog last winter.

12. Representative of Adani Transmission Limited submitted the desired data.

(Annexure 5)

14. All transmission utilities were requested to carry out patrolling to identify area where insulators were having pollution deposits and arrange for cleaning of insulators at the earliest. All utilities were requested to submit the information as desired in the meeting on priority.

List of Participants of the meeting of Replacement & Cleaning of Insulators held on 15.10.2018 at NRPC Sectt., New Delhi

S.No.	Name	Designation	Organization	E-mail ID
1	S. K. Sinha	DGM(T)	DTL	sinha.surendra@yahoo.com
2	Rajasekhar Chilukuri	Chief MRCES	STERLITE	rajasekhar.chilukuri@sterlite.com
3	VIVEK KARTHIKEYAN	DY MANAGER	STERLITE POW	vivek.karthikeyan@sterlite.com
4	A. K. Arya	SE(SOLD)	RVPNL, SLDC	se.arya@sterlite.com
5	नितीन यादव	असिस्टेंट	असिस्टेंट	nitinyadav@poso.co.in
6	Kamal Patidar	XEN (SLDC)	RVPNL	se.ed@rvpnl@gmail.com
7	Rajiv S Wale	ASE/PRM	POSTEL	ce_pm@pstcl.org
8	NITESH KANTAN	AGM (TM)	ATL	nitesh.kantan@atl.com
9	Manoj Tamsik	GM	APL	manoj.tamsik@atl.com
10	BRAJESH KUMAR	ADDL. IE	BOMB	brajesh.kumar@bomb.com
11	M. K. JAIN	Asst GM	POWERGRID	mkjain@powergridindia.com
12	BIMAL KUMAR	CM	Powergrid	bimalkumar@powergridindia.com
13	K. N. Singh	G.M	POWERGRID	kashinath.singh@gmail.com
14	R. K. ARORA	G.M (NR-1)	11	rkarora@powergridindia.com
15	Lalit Kumar	APC	SLDC, HVPNL	es.lalit@live.com
16	Ashesh Kr. Shukla	APC	SLDC, HVPNL	asheshshukla28@gmail.com
17	राजीव पोवाल	असिस्टेंट	असिस्टेंट	ok.poval@poso.co.in
18	प्रवीण कुमार	असिस्टेंट (3.8.2)	PG. (3.8.-2)	mr.praveenkumar@powergridindia.com
19	Pankaj Saxena	EE	UPPTCL	smart.saxena@gmail.com

S.No	Element Name	Type	Voltage Level	Owner	Outage		Revival		Reason / Remarks	Extra Remarks	Status of Polymer
					Date	Time	Date	Time			
1	Panchkula (PG) - Panipat (BBMB)	Line	400 kV	BBMB	4/1/2018	0:55	4/1/2018	17:51	Phase to earth fault. R-N fault, 154.1km from Panchkula end & 1 km from Panipat end. {Tripped during dense fog}.	Fog	Antifog
2	Narela(DTL)-Rohtakroad(BBMB) 2	Line	220 kV	BBMB	4/1/2018	4:57	4/1/2018	19:07	Phase to earth fault. . Tripped during dense fog.	Fog	DTL/ BBMB may confirm
3	Dehar (BBMB)-Rajpura (400kV) (PSEB)	Line	400 kV	BBMB	4/1/2018	5:51	4/1/2018	6:34	Phase to earth fault. B-N fault, 100km from Dehar end. {Tripped during dense fog}.	Fog	Antifog
4	Dehar (BBMB) - Panchkula (PG)	Line	400 kV	BBMB	15-01-2018	5:55	15-01-2018	7:36	Tripped from Dehar end only. Details awaited	May be Fog	Antifog
5	Mandola(PG)-Wazirabad(DTL) 4	Line	220 kV	DTL	4/1/2018	5:16	4/1/2018	15:18	Phase to earth fault. . Tripped during dense fog.	Fog	DTL may confirm
6	Mandola(PG)-Wazirabad(DTL) 2	Line	220 kV	DTL	4/1/2018	3:35	4/1/2018	19:11	Phase to earth fault. . Tripped during dense fog.	Fog	DTL may confirm
7	Mandola(PG)-Narela(DTL) 2	Line	220 kV	DTL	4/1/2018	5:07	4/1/2018	10:41	Phase to earth fault. . Tripped during dense fog.	Fog	DTL may confirm
8	Mandola(PG)-Narela(DTL) 1	Line	220 kV	DTL	4/1/2018	5:07	4/1/2018	10:41	Phase to earth fault. . Tripped during dense fog.	Fog	DTL may confirm
9	Bawana-Kanjanwala	Line	220 kV	DTL	4/1/2018	3:45	4/1/2018	11:05	Phase to earth fault. . Tripped during dense fog.	Fog	DTL may confirm
10	Badarpur(NTPC)-Mahrauli(DTL) 2	Line	220 kV	DTL	4/1/2018	5:35	4/1/2018	17:15	Phase to earth fault. . Tripped during dense fog.	Fog	DTL may confirm
11	Fatehabad-Nuhiyawati 2	Line	400 kV	HVPNL	13-11-2017	3:25	14-11-2017	15:40	Phase to earth fault. R-N. 20kms from Fatehabad	May be Fog	Antifog
12	Daultabad(HVPNL)-Jhajjar(APCPL) 2	Line	400 kV	HVPNL	14-12-2017	1:46	14-12-2017	2:29	Phase to earth fault. Y-N.,47.3km from Jhajjar	May be Fog	Conventional
13	Daultabad(HVPNL)-Gurgaon(PG) -1	Line	400 kV	HVPNL	8/11/2017	6:26	8/11/2017	11:50	Phase to earth fault	May be Fog	Conventional
14	Sarnath(UP)-Varanasi(PG) 2	Line	400 kV	PGCIL	27-12-2017	1:39	27-12-2017	2:35	R-Y-B fault, 68.9km (Sarnath end). Tripped from Sarnath end only.	May be Fog	Partial
15	Sarnath(UP)-Varanasi(PG) 1	Line	400 kV	PGCIL	27-12-2017	1:39	27-12-2017	2:35	R-Y-B fault, 61.3km (Sarnath end). Tripped from Sarnath end only.	May be Fog	Partial
16	Ratangarh (RVPNL) - Sikar (PG) - 1	Line	400 kV	PGCIL	7/11/2017	4:10	7/11/2017	6:36	Phase to earth fault	May be Fog	Conventional
17	Lucknow(PG)-Lucknow(UP)	Line	400 kV	PGCIL	26-12-2017	2:01	26-12-2017	17:28	Phase to earth fault. R-N, 14.2KM from Lucknow(UP) end.Charging attempt taken at 02:30hrs, but line did not hold.	May be Fog	Conventional
18	Gwalior (PG) - Phagi (RVPNL) - 1	Line	765 kV	PGCIL	5/11/2017	5:35	5/11/2017	7:27	Tripped only from Phagi end.	May be Fog	Not Available
19	Gaya-Varanasi 2	Line	765 kV	PGCIL	29-12-2017	3:29	29-12-2017	18:14	Phase to earth fault. R-N	May be Fog	Not Available
20	Fatehpur-Pusauli-1	Line	765 kV	PGCIL	26-12-2017	5:02	26-12-2017	5:45	Phase to earth fault. R-N, 4.36 KA, 103.5 KM from Fatehpur end.	May be Fog	Not Available
21	Champa(WR) - Kurukshetra(NR) line -2	Line	800 kV HVDC	PGCIL	13-12-2017	3:12	13-12-2017	18:08	Phase to earth fault. Due to heavy fog	Fog	Partial
22	Biharsharif-Varanasi 2	Line	400 kV	PGCIL	30-12-2017	1:56	30-12-2017	17:28	Phase to earth fault. B-N.Line was charged at 0229 hrs but immediately tripped on SOTF	May be Fog	Not Available
23	Biharsharif-Varanasi 1	Line	400 kV	PGCIL	27-12-2017	4:26	27-12-2017	10:05	Phase to earth fault. R-N, 10.25km from Biharsharif end.	May be Fog	Not Available
24	Bhiwani-Moga	Line	765 kV	PGCIL	16-11-2017	6:37	16-11-2017	16:28	Phase to earth fault. Y-N fault, dist. 229km (from Moga end).	May be Fog	Partial
25	Balia-Patna 3	Line	400 kV	PGCIL	31-12-2017	3:13	31-12-2017	5:05	Phase to earth fault. R-N. Tripped due to suspected fog	Fog	Not Available
26	Balia-Patna 1	Line	400 kV	PGCIL	27-12-2017	4:52	27-12-2017	5:39	Phase to earth fault. R-N, 49.8 Km from Balia	May be Fog	Not Available
27	Balia-Lucknow II	Line	765 kV	PGCIL	19-12-2017	3:36	19-12-2017	15:08	B-N fault, dist. 146.7km {from Lucknow(PG) end}. Charging attempt failed at 04:06hrs.	May be Fog	Conventional
28	Balia-Biharsharif 1	Line	400 kV	PGCIL	31-12-2017	4:23	31-12-2017	5:34	Phase to earth fault. R-N Fault. Tripped due to suspected fog	Fog	Not Available
29	Baghpat(PG)-Saharanpur(PG)	Line	400 kV	PGCIL	1/1/2018	1:00	1/1/2018	18:36	Phase to earth fault. B Phase	May be Fog	Partial
30	Allahabad-Fatehpur 2	Line	400 kV	PGCIL	30-12-2017	3:05	30-12-2017	21:54	Phase to phase fault. Y-B. Insulator string decap at Loc no-205. Line was charged at 0535 hrs but immediately tripped on SOTF	May be Fog	Conventional

S.No	Element Name	Type	Voltage Level	Owner	Outage		Revival		Reason / Remarks	Extra Remarks	Status of Polymer
					Date	Time	Date	Time			
31	Agra-Sikar 2	Line	400 kV	PGCIL	25-01-2018	1:02	25-01-2018	21:16	Phase to earth fault. . Y-ph, FLR:300km Agra	May be Fog	Partial
32	Agra-Sikar 1	Line	400 kV	PGCIL	14-12-2017	1:19	14-12-2017	6:50	Phase to earth fault. Y-N. From PMU	May be Fog	Partial
33	Agra-Gwalior -2	Line	765 kV	PGCIL	3/1/2018	4:03	3/1/2018	5:16	R-N fault, dist. 85km from Gwalior end; dist. 33.4km from Agra end.	May be Fog	Not Available
34	Agra(PG)-Agra(UP) 1	Line	400 kV	PGCIL	5/1/2018	4:01	5/1/2018	5:46	Phase to phase fault. B - N	May be Fog	Polymer
35	Nakodar - Talwandi Sabo-1	Line	400 kV	PSTCL	7/11/2017	2:57	7/11/2017	19:20	Tripped on suspected fog	Fog	Conventional
36	Nakodar - Talwandi Sabo-1	Line	400 kV	PSTCL	9/11/2017	7:21	9/11/2017	7:46	Phase to earth fault. / Fog	Fog	Conventional
37	Muktasar -Talwandi Sabo - 2	Line	400 kV	PSTCL	6/11/2017	4:40	8/11/2017	19:17	Phase to earth fault. Y Phase 14 km from Muktasar. Tripped due to suspected Fog	Fog	Conventional
38	Muktasar -Talwandi Sabo - 1	Line	400 kV	PSTCL	6/11/2017	3:23	8/11/2017	12:54	Phase to earth fault. R Phase 22km from Muktasar. Tripped due to suspected Fog	Fog	Conventional
39	Moga(PG) -Talwandi Sabo(PSEB)	Line	400 kV	PSTCL	7/11/2017	5:25	8/11/2017	11:36	Phase to earth fault	May be Fog	Conventional
40	Makhu -Muktasar -2	Line	400 kV	PSTCL	6/11/2017	1:42	7/11/2017	16:54	Phase to earth fault. Y Phase 15.2 km from Makhu	May be Fog	Conventional
41	Makhu -Muktasar -1	Line	400 kV	PSTCL	6/11/2017	4:11	9/11/2017	9:30	Phase to earth fault. B Phase 47 km from Makhu. Tripped due to suspected Fog	Fog	Conventional
42	Dhuri(400kv) -Talwandi Sabo 2	Line	400 kV	PSTCL	7/11/2017	1:54	7/11/2017	12:49	Phase to earth fault. Tripped on suspected fog	Fog	Partial
43	Dhuri(400kv) -Talwandi Sabo 1	Line	400 kV	PSTCL	7/11/2017	1:54	7/11/2017	15:21	Phase to earth fault. Tripped on suspected fog	Fog	Partial
44	Amritsar(PG)-Makhu(PSEB) -2	Line	400 kV	PSTCL	25-01-2018	22:45	28-01-2018	18:05	Phase to earth fault. Y-Phase,18.3 km from Amritsar.Dense fog. S/D code issued at 1038Hrs on 26.01.2018.	Fog	Partial
45	Amritsar(PG)-Makhu(PSEB) -1	Line	400 kV	PSTCL	6/11/2017	23:04	#####	18:33	Phase to earth fault. Y-N.Tripped on suspected fog. Line taken under S/D at 1003Hrs on 09.11.2017	Fog	Partial
46	Ratangarh-Suratgarh 2	Line	400 kV	RRVPL	17-11-2017	0:09	17-11-2017	15:23	Phase to earth fault. B-N Fault. Z-1 (87kms from Ratangarh).	May be Fog	Conventional
47	Ratangarh-Suratgarh 1	Line	400 kV	RRVPL	21-01-2018	2:35	21-01-2018	15:51	Phase to earth fault. R phase to earth fault	May be Fog	Conventional
48	Chabra-Hindaun II	Line	400 kV	RRVPL	22-12-2017	1:42	22-12-2017	2:16	Phase to earth fault. R-N.	May be Fog	Conventional
49	Bikaner-Suratgarh	Line	400 kV	RRVPL	28-11-2017	4:02	28-11-2017	5:32	Phase to earth fault. B-Ph	May be Fog	Conventional
50	Bhilwara-Chhabra 1	Line	400 kV	RRVPL	19-02-2018	3:24	19-02-2018	4:28	B Phase at 83 km from Bhilwara	May be Fog	Conventional
51	Akal-Barmer 1	Line	400 kV	RRVPL	16-11-2017	5:25	17-11-2017	18:20	Phase to earth fault	May be Fog	Conventional
52	Panki-Unnao	Line	400 kV	UPPTCL	2/11/2017	7:01	2/11/2017	21:01	As reported there was fault in B ph Unnao line B ph conductor snapped and fallen down on the bus and caused tripping of Bus and all 400 kV lines from Panki	May be Fog	Partial
53	Mathura 400(UP)-Muradnagar New(UP) 1	Line	400 kV	UPPTCL	14-12-2017	2:31	14-12-2017	6:30	Phase to earth fault. Y-Ph	May be Fog	Not Available
54	Mainpuri(PG)-Paricha(UPPTCL) -2	Line	400 kV	UPPTCL	18-01-2018	2:49	18-01-2018	3:58	Phase to earth fault. Y-phase at distance of 83.8 km from Mainpuri	May be Fog	Conventional
55	Mainpuri(PG)-Paricha(UPPTCL) -1	Line	400 kV	UPPTCL	20-02-2018	0:50	20-02-2018	1:40	Tripped on Y-G fault,57.9KM from Mainpuri end	May be Fog	Conventional
56	Mainpuri(PG)-Mainpuri 765(UP) 1	Line	400 kV	UPPTCL	25-11-2017	0:37	25-11-2017	1:12	Phase to earth fault. ZONE - 1, Y-PHASE-N, Dist. 10km from Mainpuri (UP)	May be Fog	Not Available
57	Mainpuri 765(UP)-Paricha TPS(UP)	Line	400 kV	UPPTCL	30-11-2017	3:08	30-11-2017	5:41	Phase to earth fault. R ph	May be Fog	Conventional
58	G.Noida(765)-G.Noida(400) 2	Line	400 kV	UPPTCL	2/1/2018	1:09	2/1/2018	16:28	Phase to earth fault	May be Fog	Not Available
59	Fatehabad 765(UP)-Mathura 400(UP) 2	Line	400 kV	UPPTCL	29-11-2017	1:47	29-11-2017	2:50	Phase to earth fault. Y-N.	May be Fog	Not Available
60	Bareilly-Unnao 2	Line	400 kV	UPPTCL	14-11-2017	3:21	14-11-2017	17:40	Phase to earth fault. Y-N Fault, Z-I, 25.2 Km From Bareilly end.	May be Fog	Partial
61	Bareilly-Unnao 1	Line	400 kV	UPPTCL	20-01-2018	3:32	20-01-2018	4:03	Phase to earth fault. Y-N, dist. 47.1 Km (from Bareilly).	May be Fog	Partial
62	Azamgarh-Sultanpur	Line	400 kV	UPPTCL	5/3/2018	5:17	5/3/2018	6:54	Phase to earth fault. R-N.	May be Fog	Conventional
63	Anpara-Sarnath 2	Line	400 kV	UPPTCL	29-12-2017	0:27	29-12-2017	1:32	Phase to Earth Fault	May be Fog	Conventional
64	Anpara-Sarnath 1	Line	400 kV	UPPTCL	29-12-2017	3:08	29-12-2017	4:01	Distance protection operated. Ph to earth	May be Fog	Partial

S.No	Element Name	Type	Voltage Level	Owner	Outage		Revival		Reason / Remarks	Extra Remarks	Status of Polymer
					Date	Time	Date	Time			
65	Anpara-Mau	Line	400 kV	UPPTCL	30-12-2017	5:23	30-12-2017	15:19	Phase to earth fault. Tripped due to suspected fog. Charging attempt failed at 0558 Hrs	Fog	Partial
66	Anpara C-Unnao	Line	765 kV	UPPTCL	14-12-2017	3:28	14-12-2017	4:51	Phase to earth fault. Y-N Fault , fault current-6.869kA	May be Fog	Conventional
67	Allahabad Rewa Road(400kV) - Panki	Line	400 kV	UPPTCL	29-12-2017	6:40	29-12-2017	7:56	R-N Fault	May be Fog	Not Available
68	Allahabad Rewa Road(400kV) - Banda(400kV) 2	Line	400 kV	UPPTCL	12/2/2018	3:07	12/2/2018	4:28	Phase to earth fault. B-N	May be Fog	Not Available
69	Aligarh(UP)-Sikandrabad 400(UP) 2	Line	400 kV	UPPTCL	13-12-2017	3:00	13-12-2017	6:52	Two phase to earth fault. Due to Heavy Fog	Fog	Not Available
70	Aligarh(UP)-Sikandrabad 400(UP) 1	Line	400 kV	UPPTCL	13-12-2017	2:50	13-12-2017	6:50	Phase to earth fault. Due to Heavy Fog	Fog	Not Available
71	Aligarh(UP)-Mainpuri 765(UP) 2	Line	400 kV	UPPTCL	2/1/2018	5:00	2/1/2018	9:33	Phase to earth fault	May be Fog	Not Available
72	Aligarh(UP)-Mainpuri 765(UP) 1	Line	400 kV	UPPTCL	2/1/2018	0:46	3/1/2018	18:12	Phase to earth fault	May be Fog	Not Available
73	Aligarh - Panki	Line	400 kV	UPPTCL	13-12-2017	3:17	13-12-2017	5:06	Phase to earth fault. Tripped from Panki end only	May be Fog	Partial
74	Aligarh - Muradnagar - 1	Line	400 kV	UPPTCL	30-12-2017	5:45	30-12-2017	6:16	Phase to earth fault. Zone -1. Tripped only at Aligarh	May be Fog	Not Available
75	Agra-Unnao	Line	400 kV	UPPTCL	6/1/2018	0:06	6/1/2018	0:42	Distance protection operated. Y ph to earth, 6 km from Unnao	May be Fog	Partial

DELHI TRANSCO LTD.

Status of progress of work Replacement of porcelain disc insulators with composite longroad Polymer Insulators sting on existing overhead lines under GM(T) O&M -I & II as on 12.10.2018.								
Awarded Quantiy , 90 KN Suspension - 2508 Nos, 90 KN, Dropper- 868 Nos. i.e (Total 90 KN- 3376) and 160 KN - 5207 Nos								
SL. No.	Date	Name of 220 KV lines	Suspension Towers	Tension towers	I- strings	Total 90 KN Insulator strings including I-Strings	Total 160 KN Insulator strings	Remarks
1	17.12.2017 to 31.12.2017 ,14.01.18 , 01.03.18 ,21.04.18 & 22.04.18	Bawana- shalimar bagh D/C	28	24	56	224	328	Total suspension Towers-28 & Tension towers- 27+ 2 Gayntry
2	01.01.18 , 03.01.18 , 04.01.2018, 26.03.18, 27.03.18, 28.03.18, 29.03.18 & 30.03.18, 26.04.18, 27.04.18 & 28.04.18	DSI IDC Bawana- Narela D/C	27	24	103	283	342	Total Suspension towers-27 & Tension Towers-24 ,
3	02.01.2018, 16.02.18 17.02.18 , 18.02.18, 19.02.18 & 20.02.18	DSI IDC Bawana- Bawana D/C	8	28	92	140	372	Total suspension Towers-08 & Tension Towers-29 Nos
4	31.12.2017 & 05.01.18 to 10.01.18, 11.01.18 ,28.02.18 & 09.05.18	Bawana- Kanjhawala D/C	36	9	26	229	175	Total Suspension Tower-36 & Tension Towers-12

3 Towers left on each ckt

100% completed

1 Tower left

3 Towers left

5	09.01.18 , 10.01.18 , 11.01.18 , 24.03.18 , 25.03.18 & 31.03.18, 29.04.18, 30.04.18, 01.05.18 to 05.05.18	Mandola- Narela D/C	55	18	51	405	259	Total suspension tower-55 & Tension towers-18	100% Completed
6	12.01.18, 13.01.18, 15.01.18, 16.01.18 17.01.18 18.01.18, 19.01.18 , 20.01.18, 17.04.18 , 23.04.18 24.04.18 & 25.04.18	KNJH- MDK- NJF Ckt	46	41	29	247	522	Total suspension Tower- 48 & Tension Towers - 44	2 Tower left
7	21.01.18, 22.01.18 &24.01.18, 13.04.18 16.04.18	Bamanuli- Najafgarh D/C	23	6	12	162	96	Total suspension Tower- 23 & Tension Towers - 06	100% Completed
8	25.01.18 , 29.01.18 , 01.02.18, 02.02.18 & 05.02.18	Bamnauli- PPK-II Ckt-I	19	37	75	132	235	Total suspension Tower- 22 & Tension Towers - 40	3 Towers left of Each ckt
9	27.01.18 ,28.01.18 , 30.01.18 , 31.01.18 , 03.02.18 & 04.02.018, 17.06.18, 08.09.18 & 17.09.18	Bamnauli- PPK-II Ckt-II	20	37	48	111	243		
10	07.02.2018 , 08.02.18 , 09.02.18 , 10.02.18, 11.02.18 ,12.02.18 ,13.02.18 ,14.02.18 & 15.02.18	Bamnauli- PPK-I double Ckt	12	35	90	162	474	Total suspension Tower- 12 & Tension Towers - 35	100% Completed
11	21.02.18 , 22.02.18, 23.02.18 , 24.02.18, 26.02.18 & 27.02.18	Bawana- Rohni-2 D/Ckt	0	18	0	0	252	On suspension towers already polymer installed during commission and total tension tower No-19	one Tower left

12	03.03.18 , 04.03.18 , 05.03.18, 06.03.18 , 07.03.18 & 21.03.18, 22.03.18, 24.08.18	Mandola- Gopalpur D/Ckt	37	12	74	320	184	Total suspension Tower- 58 & Tension Towers - 24	18 Towers left
13	08.03.18, 12.03.18, 16.03.18, 19.09.18 & 20.09.18	Mandola- wazirabad Ckt-I	34	15	21	119	105	Total suspension Tower- 40 & Tension Towers - 16	3 Towers left on each ckt
14	09.03.18, 13.03.18, 19.03.18, 24.09.18	Mandola- wazirabad Ckt-II	36	15	46	158	102	Total suspension Tower- 40 & Tension Towers - 16	
15	10.03.18, 14.03.18, 17.03.18, 25.09.18	Mandola- wazirabad Ckt-III	37	16	28	143	108	Total suspension Tower- 40 & Tension Towers - 16	
16	11.03.18, 15.03.18, 20.03.18, 19.06.18	Mandola- wazirabad Ckt-IV	38	16	45	163	108	Total suspension Tower- 40 & Tension Towers - 16	
17	02.04.18, 03.04.18 , 04.04.18, 05.04.18 & 06.04.18	BTPS- Okhla Ckt-I	5	31	28	58	216	Total suspension Tower- 05 & Tension Towers - 31	100% Completed
18	08.04.18, 12.04.18	SMB- Rohni-1 Ckt-I	2	21	33	39	165	Total suspension Tower- 08& Tension Towers -21 & 02 Nos Gayntry	6 Tower left
19	10.04.18 & 11.04.18	SMB- Rohni-1 Ckt-II	3	21	0	9	165	Total suspension Tower- 08& Tension Towers -21 & 02 Nos Gayntry	
20	05.10.18 to 12.10.18	Tughlakabad- Okhla D/Ckt	6	7	0	36	84	Total Suspension Towers	1 Tower left
21		Total			857	3140	4535		

S C Jha
Mgr(T) O&M S-5

400 KV Lines in Haryana Control Area and the status of cleaning / replacements of insulators

S. No.	Name of Line	Circuit ID	Tower Configuration (S/C or D/C)	Line Length (in Km)	Type of conductor	O&M by	Agency at		Replacement with Polymer Insulator (As a % of Total Line Length)	S/D to be availed for Disc cleaning in 152 OCC meeting
							End - I	End - II		
1	CLP Jhajjar - Dhanonda	1	D/C	20	Twin Moose	KT Jhajjar	CLP Jhajjar	HVPNL	Conventional	14-Nov
2	CLP Jhajjar - Dhanonda	2	D/C	20	Twin Moose	KT Jhajjar	CLP Jhajjar	HVPNL	Conventional	15-Nov
3	CLP Jhajjar - Kabulpur	1	D/C	35	Quad Moose	KT Jhajjar	CLP Jhajjar	HVPNL	Polymer	
4	CLP Jhajjar - Kabulpur	2	D/C	35	Quad Moose	KT Jhajjar	CLP Jhajjar	HVPNL	Polymer	
5	Deepalpur - Kabulpur	1	D/C	67	Quad Moose	KT Jhajjar	CLP Jhajjar	HVPNL	Polymer	
6	Deepalpur - Kabulpur	2	D/C	67	Quad Moose	KT Jhajjar	CLP Jhajjar	HVPNL	Polymer	
7	Dhanonda - Dultabad	1	D/C	73	Quad Moose	HVPNL	HVPNL	HVPNL	Polymer	
8	Dhanonda - Dultabad	2	D/C	73	Quad Moose	HVPNL	HVPNL	HVPNL	Polymer	
9	Gurgaon - Dultabad	1	D/C	21	Quad Moose	HVPNL	POWERGRID	HVPNL	Polymer	
10	Gurgaon - Dultabad	2	D/C	21	Quad Moose	HVPNL	POWERGRID	HVPNL	Polymer	
11	Jhajjar - Dultabad	1	D/C	64	Twin Moose	HVPNL	APCPL	HVPNL	Conventional	12 Nov- 14 Nov
12	Jhajjar - Dultabad	2	D/C	64	Twin Moose	HVPNL	APCPL	HVPNL	Conventional	15 Nov - 17 Nov
13	Khedar - Fatehabad	1	D/C	40	Twin Moose	HVPNL	HPGCL	POWERGRID	Antifog	
14	Khedar - Kirori	1	D/C	6	Twin Moose	HVPNL	HPGCL	HVPNL	Antifog	
15	Khedar - Kirori	2	D/C	6	Twin Moose	HVPNL	HPGCL	HVPNL	Antifog	
16	Khedar - Nuhiyawali	1	D/C	114	Twin Moose	HVPNL	HPGCL	HVPNL	Antifog	
17	Nuhiyawali - Fatehabad	1	D/C	78	Twin Moose	HVPNL	HVPNL	POWERGRID	Antifog	

ANNEXURE-5

Annexure-1

1. HVDC lines

S.No.	Name of Line	Circuit ID	Tower Configuration (S/C or D/C)	Line Length (in km)	Type of conductor	O&M by	Agency at		Replaced with Polymer Insulator (As a % of Total Line Length)	Remarks
							End-I	End-II		
B. Adani Power Ltd (Adani Transmission India Ltd.)										
1	Adani Mundra - Mahindergarh Pole-I	1	Bi-pole	990	ACSR Quad Bersimis	ATIL	APL Mundra	APL	Partial (10%)	Interconnection between Western region & Northern Region
2	Adani Mundra - Mahindergarh Pole-II	2	Bi-pole	990		ATIL	APL Mundra	APL	Partial (10%)	

Status of replacement of Porcelain insulators with Polymer insulators															As on- 11.10.2018		Remarks (If only partial location of the line has planned then may please indicate the location numbers or part kMs of line which have been planned)
S.No.	Name of Line/voltage/ S/C or D/C	Voltage Level (in kV)	Line details				Insulator to be replaced by polymer (Total target for replacement despite completion in any year)		Insulator to be replaced by polymer (Target for present year)		Progress (work already completed wrt present year target)		Progress (work already completed wrt total line)		Schedule for completion of replacement		
			Total Length of line (in kM)	Total Towers location (Nos)		Total Towers location (Nos)		Total Towers location (Nos)		Total Towers location (Nos)		Total Towers location (Nos)		Start date	End date		
				Suspension tower (no.s)	Tension tower (Nos)	Suspension tower (no.s)	Tension tower (Nos)	Suspension tower (no.s)	Tension tower (Nos)	Suspension tower (no.s)	Tension tower (Nos)	Suspension tower (no.s)	Tension tower (Nos)				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1	Adani Mundra - Mahindergarh 500KV HVDC Pole-I	500	990	2042	655	222	78	80	20	0	0	199	71	27-11-2018	30-11-2018	Part of 37 Kms is planned in FY-2018-19.	
2	Adani Mundra - Mahindergarh 500KV HVDC Pole-II	500	990	2042	655	222	78	80	20	0	0	199	71	01-12-2018	04-12-2018	Part of 37 Kms is planned in FY-2018-19.	

Note:1. Line constructed with Polymer Insulator may please also be indicated in the table

2. Similar separate table shall be formulated for Antifog insulators line as well for line which would be cleaned

3. Lines for whom there is no planning of cleaning or replacement may please also be given in the table but with '-' in planning as well as progress columns

Action Plan for cleaning of conventional insulator in polluted stretches								ANEXURE 2/2
Sr.No	Name of Line	No.s of location proposed for cleaning	No.s of porcelain insulator strings to be cleaned before ensuring winter	Line length to be cleaned	Departmently/ Contract basis	Nos. of days of outage required	Likely date of completion of work	Preasent status/Remarks
1	Adani Mundra - Mahindergarh 500KV HVDC Pole-I	616	2324	226	Both	4	30-11-2018	Disc Insulator Cleaning activity to be carried out year on year basis.
2	Adani Mundra - Mahindergarh 500KV HVDC Pole-II	616	2324	226	Both	4	04-12-2018	Disc Insulator Cleaning activity to be carried out year on year basis.

Adani Transmission India Limited

500KV HVDC Mundra Mohindergarh Transmission Line

Planning for Insulator Replacement in the Month of Nov / Dec - 2018

SN	Item	Nos of Towers	Tentative Planning Per Day per Pole								
			POLE-I				POLE-II				
			Day-1	Day-2	Day-3	Day-4	Day-1	Day-2	Day-3	Day-4	
1	210 KN Insulator Replacement	80	20	20	20	20	20	20	20	20	20
2	160KN Insulator Replacement	20	5	5	5	5	5	5	5	5	5

Adani Transmission India Limited

500KV HVDC Mundra Mohindergarh Transmission Line

Planning for Insulator Cleaning in the Month of Nov / Dec - 2018

SN	Item	Nos of Towers	Tentative Planning Per Day per Pole							
			POLE-I				POLE-II			
			Day-1	Day-2	Day-3	Day-4	Day-1	Day-2	Day-3	Day-4
1	Suspension Towers	434	105	110	109	110	105	110	109	110
2	Tension Towers	182	45	46	45	46	45	46	45	46