Thomas R. Teehan
Senior Counsel

March 16, 2011

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: Commission Investigation relating to Stray and Contact Voltage Occurring in Narragansett Electric Company Territories
Responses to Commission Data Requests (Set 1)

Dear Ms. Massaro:

On behalf National Grid[1] enclosed please find ten (10) copies of the Company's responses to the Commission's First Set of Data Requests issued in the above-captioned proceeding.

Thank you for your attention to this transmittal. If you have any questions, please feel free to contact me at (401) 784-7667.

Very truly yours,

Thomas R. Teehan

Enclosure

cc: Stray Voltage Service List
Steve Scialabba
Leo Wold, Esq.

[1] The Narragansett Electric Company d/b/a National Grid ("National Grid" or the "Company").

Certificate of Service

I hereby certify that a copy of the cover letter and/or any materials accompanying this certificate were electronically transmitted and sent via U.S. Mail to the individuals listed below. Copies of this filing were hand delivered to the RI Public Utilities Commission.

_____ March 16, 2011

Joanne M. Scanlon Date
National Grid

National Grid – Investigation Into Stray Voltage and Contact

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Commission 1-1

Request:

For the non-engineers among us, please explain stray and contact voltage and their causes.

Response:

The definitions for stray and contact voltage provided below are derived from the IEEE Working Group on Voltages at Publicly and Privately Accessible Locations (P1695).

> Stray Voltage: A voltage (usually smaller than 10 volts) resulting from the normal delivery and/or use of electricity that may be present between two conductive surfaces that can come into contact with members of the general public and/or animals. Stray voltage is caused by primary and/or secondary return current, and power system induced currents, as these currents flow through the impedance of the intended return pathway, its parallel conductive pathways, and conductive loops in close proximity to the power system. Stray voltage is not related to power system faults, and is generally not considered hazardous. The types of conditions that can lead to stray voltage are imbalances of a three phase distribution or transmission system, induced voltages from an overhead transmission line, or grounding.
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> Contact Voltage: A voltage resulting from abnormal power system conditions that may be present between two conductive surfaces that can come into contact by members of the general public and/or animals. Contact voltage is caused by power system fault current as it flows through the impedance of available fault current pathways. Contact voltage is not related to normal system operation and can exist at levels that may be hazardous. The types of conditions that can lead to contact voltage are cracked or broken insulators on overhead distribution or transmission systems, underground cable insulation degradation, underground cable neutral corrosion or burn out, poor workmanship during construction or repair, and damage due to construction, i.e. digging into an underground cable.

Prepared by or under the supervision of: John Gavin and Ross Cox

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Commission 1-2

Request:

For each occurrence of stray and contact voltage which has occurred in the last 5 years, in Rhode Island or any of the jurisdictions or territories in which the Company operates, please provide:

a. the date of the occurrence;
b. the specific location of the occurrence;
c. the specific object that was energized, i.e. light pole, sign post, manhole, etc;
d. the amount or level of the stray or contact voltage measured in volts;
e. how the company became aware of the occurrence, i.e. whether reported by a member of public, city/town, public works, fire, police or other public official or whether National Grid discovered the incident, etc;
f. the cause(s) of the stray or contact voltage;
g. a description of any injuries to people, animals, property;
h. whether any lawsuits have been filed against the Company as a result of person injuries or property damages sustained as a result of stray or contact voltage;
i. the amount of any monetary damages paid by National Grid or its insurers as a result of personal injuries or property damage caused by the stray or contact voltage;
j. any and all actions taken to remedy the condition or situation giving rise to the incident, either at the site of the incident or elsewhere.

Response:

(a) – (g) and (j): Please see attached DTE Siemens reports for Massachusetts, New Hampshire, and Rhode Island for 2006 through February 28, 2011 (For Massachusetts, please see Attachment COMM 1-2 (a); for New Hampshire, Attachment COMM 1-2 (b); and for Rhode Island, Attachment COMM 1-2 (c)). The Siemens Reports contain information relative to elevated voltage reports and a separate manhole report including: (i) date of report; (ii) source of report; (iii) location; (iv) type of equipment impacted; (v) voltage; (vi) repair type; (vii) action taken; (viii) injuries; and (xi) a narrative.

For New York State, Attachment COMM 1-2(d) contains the Shock Reports for 2006 through December 31, 2010 filed with the New York State Public Service Commission in Case 04-M-0159. The Shock Reports contain information including: (i) the total number of shock reports received from the public on an annual basis (note that while the 2006 Shock Report has a date of 11/30/06 to 12/31/06, this is a typographical error; the correct date is 11/30/05 to 12/31/06); (ii)

Commission 1-2 (cont.)

the location of the occurrence; (iii) the voltage source; (iv) whether medical attention was sought; and (v)

actions taken to address the condition. Additional information can be found in the Company's Annual Stray Voltage Testing and Facility Inspection Reports filed in Case 04-M-0159.

(h) and (i): In the past five years, there has been one lawsuit filed alleging an occurrence of stray/contact voltage. That lawsuit was filed in Massachusetts and alleged electric current in a pool. National Grid was dismissed out of that case. In the past five years, National Grid has paid the following amounts in settlement of claims alleged to have been caused by stray or contact voltage: Massachusetts - $1,210.15; New York - $94.18; New Hampshire - $0.0; Rhode Island $0.0.

Prepared by or under the supervision of: Ross Cox and Joseph Weber

Elevated Voltage Report - Massachusetts
06/01/2006 - 02/28/2011

Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc Accident ID	COMMENTS
1	Company	06/01/2006 9:29	Ross A Cox	508-897-5753	GLOUCESTER	FARRINGTON AVE	Wood Pole	Company	Fair	0			< 0.1 kV	10/02/2006	No	0	Pole # 7744 Secondary riser pole with no system ground attached to the pole.Troubleman made temporary repairs to pole 7744MIA department supervisor went out to audit this EV hit and found58.71 VAC with Fluke 179 multimeter without the resistor installedAfter resistor is installed voltage declined to 1.304 VACNotified area supervisor ?Ed Lally? Ed will be notifying engineering to write up a repair order to bring this pole up to company specifications and standards, pending this write up being sent to him.Permanent repairs are to be.System ground to be installed Guying to be bonded to system groundGround rod to be installedCustomer grounding point on top of riser pipe to be repaired and bonded with appropriate copper grounding wire.Digsafe needed for ground installation.
2	Public	06/08/2006 19:16	Ross A Cox	508-897-5753	UXBRIDGE	MOODY ST	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	1	Permanent Rep	Service Wire	< 0.1 kV	06/09/2006	No	0	CUSTOMER WORKING ON HIS HOUSE RECIEVED A MINOR SHOCK, NO INJURY WAS REPORTED. WAS REPORTED HERE IN ERROR SUBMITTED AGAIN ON ACCIDENT REPORT FORM #945 09 27 06: Hse #11 Moody St. WR # 880776 Replaced Service, bad breaker on customers main.
3	Public	06/08/2006 23:15	Ross A Cox	508-897-5753	BEVERLY	LOTHROP ST	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			< 0.1 kV	08/07/2006	No	0	FIRE DEPT REPORTED GROUND PROBLEM AT 106 LOTHROP ST. TROUBLE MAN TESTED AND FOUND ELEVATED VOLTAGE 3 VOLTS ON THE NEUTRAL NO REPORTS OF CONTACT (MIA DEPARTMENT)TimDyer Customer reported that there was noise coming from the ground connection on the house water pipe when initially read voltage was approximately 3 VAC when they de energized the service voltage reading was elevated to 36 VAC Company went to the neighbors house and de energized their service and found the same voltage problem. John Calnan was on site and reported to me this info. I was also told that he saw that there had been a lot of construction in the immediate area and thought there might have been something damaged from the construction. Customers ground was warm to the touch. Andy Hadden called back into the MIA department and informed me that elevated Voltage was Due to a Streetlight secondary feed that had a failed splice inline with the conduit. Underground department pulled out the old cable and pulled in the new cable. Elevated Voltage was fixed and no voltage was indicated on the customers water pipe.
4	Public	06/10/2006 16:44	Ross A Cox	508-897-5753	CHELMSFORD	GLEN AVE	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			< 0.1 kV	08/07/2006	No	0	6/10/06 16:44 Report of "customer getting zapped" received from KATHLEEN SCARMEAS. 37 Glen Ave Unit 24, Chelmsford MA 978 250 9662 / 978 256 3439. OH Supervisor Mike Menzie investigated report. Customer told Mike that daughter had been shocked last summer while turningon the outside faucet in bare feet. Mike was not certain if there was any shock that had actually occurred today. Mike reported that the 23kV lineis near this location and that a ground rod exists near the meter box. Initial reading of 1.7 volts outside the water spicket was recorded and 15minutes later the reading was 0.6 volts per M Menzie. Please note that 37 Glen Ave is the address that is used by approximately 8 bldgs in thiscomplex. The building where the elevated voltage was reported includes Unit 24 and their are 4 5 units in this building. Referring this issueto Merrimack Valley Engineering Dept Jeremy Kupcho for further investigation. perm repairs made
5	Company	06/20/2006 9:24	Ross A Cox	508-897-5753	HAMILTON	WILLOW ST	Wood Pole	Company	Fair	0			< 0.1 kV	07/21/2006	No	0	0 voltage found when tested by troubleman @ pole 897 Hamilton St. Trouble man bonded guy to secondary neutral.Perm repairs made
6	Public	06/30/2006 6:32	Ross A Cox	508-897-5753	FRANKLIN	CONSTITUTION BLVD	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	11.5	Permanent Rep	Install Cable & Ground	< 0.1 kV	08/24/2006	No	0	Contractor William Davis (tel 716 536 2890) reported elevated voltage on 10 Streetlights on Constitution Blvd, Freedom Way North and Freedom Way South. On Constitution Blvd poles 11 5V, 12 11.5V, 13 8.5V and 14 7.8V. On Freedom Way North poles 1 4.8V, 2 5.9V and 3 5.6V. On Freedom Way South poles 1 8V, 2 10V and 3 8V. The service to these lights was disconnected at PD.5 Constitution Blvd. Per Paul Sibley, permanent repair will be made as soon as possible. Greg Lundahl, Supervisor Ops Engineers, Southeast has been notified. Per an email from Mike Peterson, Business Svcs. the ownership of these lights has been taken over by the municipal. The town of Franklin is reponsible for the permanent repair. 08 09 06: The town of Franklin has hired a contractor to make repairs and has requested Ngrids assistance under WR # 1114037. 08/24/06: WR # 1114037 Repair Made

Elevated Voltage Report - Massachusetts
06/01/2006 - 02/28/2011

Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc Accident ID	COMMENTS
7	Company	06/30/2006 6:32	Ross A Cox	508-897-5753	FRANKLIN	CONSTITUTION BLVD	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	11.5	Permanent Rep	Install Cable & Ground	< 0.1 kV	08/24/2006	No	0	Contractor William Davis (tel 716 536 2890) reported elevated voltage on 10 Streetlights on Constitution Blvd, Freedom Way North and Freedom Way South. On Constitution Blvd poles 11 5V, 12 11.5V, 13 8.5V and 14 7.8V. On Freedom Way North poles 1 4.8V, 2 5.9V and 3 5.6V. On Freedom Way South poles 1 8V, 2 10V and 3 8V. The service to these lights was disconnected at PD.5 Constitution Blvd. Per Paul Sibley, permanent repair will be made as soon as possible. Greg Lundahl, Supervisor Ops Engineers, Southeast has been notified. THIS IS A DUPLICATE OF REPORT #6. Per an email from Mike Peterson, Business Svcs. the ownership of these lights has been taken over by the municipal. The town of Franklin is reponsible for the permanent repair. 08 09 06: The town of Franklin has hired a contractor to make repairs and has requested Ngrids assistance under WR # 1114037. 08 24 06: WR # 1114037 Repair Made
8	Company	07/01/2006 9:31	Ross A Cox	508-897-5753	FRANKLIN	CRYSTAL POND LN	Metallic SL Standard	Company	Fair	6.9	Permanent Rep	Cable Bad	< 0.1 kV	12/28/2006	No	0	Elevated voltage was discovered at street light pole 1 on Crystal Pond Ln by the contractor Bill Davis. The reading he reported was 6.9 voltsMIA dept investigating. Service to Light was disconnected, per Chris McCarthy 09 27 06: UG Cable to be replaced, 12-28-06: Complete, Tested 0V
9	Company	07/02/2006 22:22	Ross A Cox	508-897-5753	LOWELL	FRENCH ST	Metallic SL Standard	Company	Fair	45	Permanent Rep	Lamp Wiring	< 0.1 kV	09/19/2006	No	0	Troubleman was routinely patrolling streetlights and found elevated voltage (45 volts) on streetlight poles 9 & 10 French St in Lowell . No human or animal contact reported... MIA dept Tim Dyer. Talked with northboro trouble center and was informed that the poles in question were de energized in preparation for repair to problematic streetlights.
10	Company	07/06/2006 7:53	James Bouford	508-421-7648	MEDFORD	SALEM ST	Steel Pole	Company	Fair	0.1	Permanent Rep	Bad Neutral	< 0.1 kV	08/16/2006	No	0	Company contractor tested 5.5 volts at P2190 Salem St near house 123 Salem St, undergourmd crew sent to correct MIA dept Tim Dyer P2190 Salem St, Malden (not medford) was repaired yesterday. Bad neutral connector. 0 volts. WR# 1005428 per Keith KerzelMVA at riser pole 5005 salem st had de energized poles 1 5. WR# 1155582.
11	Public	07/06/2006 8:24	Ross A Cox	508-897-5753	MEDFORD	SAVIN ST	HandHole	Company	Fair	0			< 0.1 kV	09/05/2006	No	0	Company contractor measured 6 volts on aluminum street light P17 Savin Way at intersection of Fellsway West, underground crew on property sent to correct: MIA Dept P17 Savin St, Malden (not Medford) WR1006443 was repaired on 8/21/2006. Corroded connector in hand hole.
12	Public	07/06/2006 8:30	Ross A Cox	508-897-5753	MEDFORD	WOODLAND RD	Steel Pole	Company	Fair	0			< 0.1 kV	10/18/2006	No	0	Company contractor measured slightly elevated voltage on aluminum street light P137 Woodland Rd, troubleshooter tested 5.5 volts, took photo cell out, undergourndsupervisor notified MIA dept: P137 Woodland Rd, Medford WR#1006546 was repaired on 8/18/2006. Pinched wire in Arm.
13	Company	07/07/2006 6:16	Ross A Cox	508-897-5753	EVERETT	BROADWAY ST	Metallic SL Standard	Company	Fair	0			< 0.1 kV	09/28/2006	No	0	Street light pole 3661 1 @135 broadway had 15 volts Perm Repair 08/28/2006bad connector in light and replaced connector and replaced the head Per Chris Meneades WR # 1199976 Tested Zero volts per Chris M
14	Company	07/12/2006 22:13	Ross A Cox	508-897-5753	MALDEN	KENNEDY DR	Wood Pole	Company	Fair	14.5	Permanent Rep	Cable Bad	< 0.1 kV	08/10/2006	No	0	HOT POLE VOLTAGE OF 14.5V AT POLE 10 KENNEDY DR, REPORTED BY BILL DAVIS, CONTRACTOR. TMAN CUT SERVICE AT POLE. Mia Dept. TIm Dyer. Call into Frank Cottle Troubleworker Supv for more information Kennedy Drive is done! All lights are working 0 stray volts. Failed cable between XFMR Pad and Pole 10 (possible dig in).Completed
15	Company	07/12/2006 23:23	Ross A Cox	508-897-5753	REVERE	LYNNWAY ST	Steel Pole	Company	Rain - light / moderate	25	Permanent Rep	Lamp Wiring	< 0.1 kV	08/03/2006	No	0	HOT POLE VOLTAGE OF 25V AT POLE 4837 LYNNWAY ST, REPORTED BY BILL DAVIS, CONTRACTOR. TMAN DISCONNECTED SERVICE AT POLE. MIA Dept Tim Dyer. Talked to Aldo Baressi and he confirmed the initial information on pole 4837 Lynneway St. Trouble worker has disconnected pole awaiting permanent repairs. MIA department TIm Replace bad conectors and also replaced head tested zero volts per Chris Meneades
16	Company	07/13/2006 2:09	Ross A Cox	508-897-5753	NAHANT	VERNON ST	Steel Pole	Company	Fair	0.001	Permanent Rep	Ground Connection	< 0.1 kV	08/02/2006	No	0	HOT POLE VOLTAGE OF 15V AT POLE 1 VERNON ST, REPORTED BY BILL DAVIS, CONTRACTOR. TMAN CUT SERVICE AT POLE. MIA Dept Tim Dyer. Talked with Aldo Baressi about the status of this EV problem and he reconfirmed that the pole has indeed been de energized and awaiting permenant repairs. Perm repairs made tested zero volts bad connectors
17	Company	07/11/2006 11:00	Ross A Cox	508-897-5753	WEYMOUTH	MAIN ST	Fence	Company	Fair	7	Permanent Rep	Down Ground	< 0.1 kV	07/27/2006	No	0	Mid Weymouth Sub. EV check at Gates: Gate 1: 3.0v, Gate 2: 7.0v, Gate 3: 2.8v, Gate 4: 6.1v, Gate 5: 2.1v. EV is due to the enduced voltage from the OH Transmission Lines. Paul McDonough to remove electric extension cord from fence on 07/12/06. Jeff Merritt to update the fence grounding. Per Jeff Merritt 07/27/06, new grounds have been installed, which corrected the EV problem.
18	Company	07/13/2006 22:37	Ross A Cox	508-897-5753	LYNN	SILSBEE ST	Metallic SL Standard	Company	Fair	0			< 0.1 kV	09/30/2006	No	0	ELEVATED VOLTAGE (25V) REPORTED AT POLE 12 SILSBEE ST AT MOUNT VERNON ST. REPORT GIVEN BY CONTRACTOR BILL DAVIS. TMAN CUT SERVICE AT POLE. MIA pole perm repairs made 08/30/2006 per UG Dept
19	Company	07/18/2006 5:43	Ross A Cox	508-897-5753	SALEM	FRONT ST	Metallic SL Standard	Company	Fair	14.5	Permanent Rep	Bad Neutral	< 0.1 kV	02/28/2007	No	0	BILL OF DAVEY TREE PH 716 512 3911 REPORTS ELEVATED 14 VOLTS AT POLE 6441 FRONT STREET. Service to Street Light was disconnected. 07 19 06: Neutral Wire was replaced for permanent repair.This job has been completed per the area UG Dept regarding this in email 2/28/07 10:29am aldo subject elevated Voltage Report to Tim Dyer

Elevated Voltage Report - Massachusetts
06/01/2006 - 02/28/2011

Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc Accident ID	COMMENTS
20	Company	07/20/2006 23:07	Ross A Cox	508-897-5753	GLOUCESTER	ESSEX AVE	Metallic SL Standard	Company	Fair	0			< 0.1 kV	02/28/2007	No	0	P66 Essex Ave, Gloucester, company contractor tested 6.5 volts on this pole, troubleshooter removed photo eye to de energizest light pole MIA Dept Tim Dyer investigated N grid Underground Department Irv Silverman This light was rewired from the manhole to the street light head. As it turns out the neutral connection (# 6 aluminum to the end of a piece of 2/0 P & L) in the manhole appeared to be the culprit. Voltage was taken after the repair and was .1 Volts. This job has been completed per the area UG Dept regarding this in email 2/28/07 10:29am aldo subject elevated Voltage Report to Tim Dyer
21	Public	07/24/2006 4:55	Ross A Cox	508-897-5753	WORCESTER	SOUTH ST	Metallic SL Standard	Company	Fair	0			< 0.1 kV	08/02/2006	No	0	elevated voltage at pole 104 91 8.5 volts tmen pulled cell at pole. MIA investigating
22	Company	07/24/2006 5:15	James Bouford	508-421-7648	WORCESTER	FRANKLIN ST	Metallic SL Standard	Company	Fair	0			< 0.1 kV	08/31/2006	No	0	elevated voltage pole 87 81 franklin street of 8.2 volts. E,man disconnected awaiting repair by contractor. Halpin crew dispacthed to repair issue. Contractor pulled in new wire and re-wired streetlight head
23	Company	07/24/2006 5:17	Ross A Cox	508-897-5753	WORCESTER	LINCOLN ST	Metallic SL Standard	Company	Fair	0			< 0.1 kV	09/06/2006	No	0	elevated voltage p38 81 lincoln street of 8.9 voltsWork request # 1237380:Lighting
24	Public	07/30/2006 9:21	Ross A Cox	508-897-5753	MILLBURY	WOODRIDGE ROAD	Wood Pole	Company	Fair	20	Permanent Rep	Down Ground	< 0.1 kV	08/24/2006	No	0	7 Woodridge road customer shocked. MIA Dept Tim Dyer investigating truck 9630 called at 14:48 and dispacthed at14:53 pole 10 customer stated was walking barefooted felt a tingling sensation and callednational grid troubleman was dispatched t disconnect handhole. Bo Maryanek , Joe Bollea ,Control Authority, Walt Marengo as well as Corporate communications department notified about the incident. MIA dept to Investige furter. Crew sent to repair issue. zero volts reported
25	Company	08/01/2006 15:40	Ross A Cox	508-897-5753	SWAMPSCOTT	ATLANTIC RD	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			< 0.1 kV	09/06/2006	No	0	off pole 6 atlantic rd, privately owned riser, tman got 35 volts on syphon feed.. he disconnected the hot legs. notes on the customer's account that they need electrician/inspection prior to reconnect
26	Company	08/01/2006 15:47	Ross A Cox	508-897-5753	SWAMPSCOTT	ATLANTIC RD	Wood Pole	Company	Fair	0			< 0.1 kV	03/05/2007	No	0	off pole 6 atlantic avenue tman recorded 35 volts off privately owned syphon feed. he disconnected the hot legs. notes on the custs acct that they need electrician and inspection prior to reconnect. this might be a duplicate as I dont believe report 25 went through. Duplicate please ignore
27	Company	08/01/2006 10:37	Ross A Cox	508-897-5753	WORCESTER	TACOMA ST	Steel Pole	Company	Fair	0			< 0.1 kV	12/05/2006	No	0	Pole 16 Tacoma St., was a hot pole as confirmed by Steve Ostrosky. A crew will run the service to a different pole (temporarily). Original report was made by contractor Bill Davis.
28	Public	08/03/2006 11:30	Ross A Cox	508-897-5753	NANTUCKET	CENTER ST	Metallic SL Standard	Company	Fair	50	Permanent Rep	Luminaries Change	< 0.1 kV	08/08/2006	No	0	Elevated Voltage was discovered at the Street Light Pole #83 in front of #21 Center St. by DPW and reported by William Larabee, Supervisor Ops Overhead. 50V without resistor in place. 08 08 06: Replaced the head, due to a bad transformer in the light, after repairs were made, the pole was checked for voltage and 0 volts were recorded.
29	Public	08/17/2006 14:40	Ross A Cox	508-897-5753	MONSON	EAST HILL RD	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	2	Permanent Rep	Down Ground	< 0.1 kV	09/30/2006	No	0	Karen Falcone of 249 East Hill Rd, Monson reports getting small shocks from her outside water faucet in back of her house.Troubleman investigated found all connector at pole and house good. Took voltage reading at faucet to the grass and got 2 volts.Did notice customer did not have a driven ground rod at meter socket. Customer is OK and just wants to know what is going on.Referred to Overhead Supervisor Monson Andy Grant will follow up and call customer. MIA dept called Andy and he told me that Foua had been notified and was handling this incident
30	Public	08/28/2006 17:18	Ross A Cox	508-897-5753	BRIMFIELD	WARREN RD	Wood Pole	Company	Fair	0			< 0.1 kV	10/02/2006	No	0	EMPLOYEE FROM THE XTRA MART AT INTERSECTION OF RT 19 & RT 20 WAS CUTTING SIGN WITH SCISSORS & GOT ZAPPED EMPLOYEE OKAY T/MAN DID MULTIPLE LOAD READS ON POLE ZERO VOLTAGE Non event Talked with Supervisor and no voltage at area in question.
31	Public	09/06/2006 10:22	Ross A Cox	508-897-5753	WINTHROP	CREST AVE	Metallic SL Standard	Company	Fair	0			< 0.1 kV	11/06/2006	No	0	Customer claims dog got shocked p#1616 per Bill Richards (urd superv.) pole not energized no voltage Bill spoke with customer (Scott Cone) customer did not actually see dog get shocked. non event
32	Company	09/06/2006 14:22	Ross A Cox	508-897-5753	GEORGETOWN	2373 LINE RWAY	Wood Pole	Company	Fair	0			< 0.1 kV	10/11/2006	No	0	POLE 197 OFF TEMPERNELL CIR IN OUR RIGHT OF WAY APPROX 600 FT FROM MILL ST LOCATED IN THE WOODS OSMOSE TESTED 4.9 VOLTS ON GUY. MIA Dept Investigating
33	Company	09/11/2006 22:58	Ross A Cox	508-897-5753	QUINCY	NEWPORT AVE EXT	Metallic SL Standard	Company	Fair	8.5	Permanent Rep	Cable Bad	< 0.1 kV	06/04/2007	No	0	Contractor tested light poles 95, 98, 100 and 102 at Newport Ave Ext Quincy at high voltage of 8.5v Steve Habelt on sight and Bob Dohery on call supv was notified troubleman Mike Graham disconnected at PD.172 Newport Ave Ext. Repair will need t be coordinated with the city of Quincy, because they own the streetlight base and conduit. 01/18/07: WR # 2392681 to make repaires at PD.172 and street lights 02/23/07: WR # 726368 to make repairs to the conduit system. After repairs were made, there was no EV present
35	Public	09/21/2006 3:31	Ross A Cox	508-897-5753	CHELMSFORD	FAIRBANKS RD	Wood Pole	Company	Fair	65	Permanent Rep	Insulator	< 0.1 kV	10/18/2006	No	0	Verizons technician experienced tingling at pole 1 Fairbanks Rd. He reported elevated volttage and troubleman confirmed same 65vac coming from pole. Troubleman said primary insulator needed to be changed. A crew was dispatched to location of problem they spliced the wires and changed the primary insulator. Perm repairs tested zero volts after repair.

Elevated Voltage Report - Massachusetts
06/01/2006 - 02/28/2011

Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc Accident ID	COMMENTS
36	Public	10/01/2006 14:42	Ross A Cox	508-897-5753	SALEM	LAFAYETTE ST	Metallic SL Standard	Company	Fair	0			< 0.1 kV	02/28/2007	No	0	An unidentifed caller notified the fire department of an energized wire rubbing against a aluminum pole at 146 Lafayette St, Salem. Tman arrived, recorded 20 volts at a guy wire off pole 2490 Lafayette St. An overhead crew responded to make repairs. They recorded 2 volts on the test potential voltage meter. MIA dept investigating. This job has been completed per the area UG Dept regarding this in email 2/28/07 10:29am aldo subject elevated Voltage Report to Tim Dyer
37	Company	10/09/2006 12:26	Ross A Cox	508-897-5753	WESTFORD	MAIN ST	Wood Pole	Company	Fair	10.5	Permanent Rep	Guy	< 0.1 kV	11/07/2006	No	0	Mellissa Boudreau called on behalf of technician due to poor reception over phone. Reported 10.5 volts on guy wire at pole 51 Main St. The tman bonded the guy. Retested and got 0 volts. Cleared 14:47 MIA investigating zero volts reported
38	Company	10/09/2006 15:07	Ross A Cox	508-897-5753	WESTFORD	PINE RIDGE RD	Wood Pole	Company	Fair	0			< 0.1 kV	10/17/2006	No	0	Technician doing routine voltage check found 6v at pole 36 Pine Ridge Rd. The tman put in a resistor and reduced the voltage to 0v. MIA department Investigating Contractor informed of error and retrained. This report was created in error and the area in question was re-tested at zero volts AC
39	Public	10/12/2006 11:00	Ross A Cox	508-897-5753	SALISBURY	BEACH RD	Wood Pole	Company	Fair	0			< 0.1 kV	11/27/2006	No	0	Technician from Comcast reported 100v on pole 44 on Beach Rd. Tman checked transformer, connections, service line, and found no elevated voltage. MIA dept re-tested pole 44 Beach road and found zero volts AC no customer contact or elevated voltage
41	Company	10/16/2006 1:54	Ross A Cox	508-897-5753	LOWELL	MERRIMACK ST	Steel Pole	Company	Fair	0			< 0.1 kV	01/03/2007	No	0	P27 MERRIMACK ST, LOWELL / BILL DAVIS FROM DAVEY RESOURCES REPORTING 9 VOLTS AT THIS LOCATION / THIS IS NEAR 408 MERRIMACK ST / REPORTED BY BILL DAVIS: 716 512 3911 TROUBLEMAN (T7989) RESPONDED AND REPORTED 11 . vVOLTS AT THIS ALUMINIUM STANDARD / UG SUPERVISORLEIF KORB NOTIFIED AND ENROUTE AT 2:30AM / AN UG CREW RESPONDED AND DISCONNECTED ST LIGHT AT 3AM. MIA Dept Investigating waiting for confirming work order. UG dept repaired broken feed to light on 1/3/07
42	Company	10/18/2006 5:40	Ross A Cox	508-897-5753	LOWELL	CHARLES ST	Metallic SL Standard	Company	Fair	0			< 0.1 kV	10/24/2006	No	0	Davey Tree reported 17 volts at p29 Charles St at the intersection of Central St . Underground crew called in and disconnected street light pole. MIA dept investigating.Tim this should be central st lowell UG dept repaired wires in base of pole
43	Public	10/20/2006 18:06	Ross A Cox	508-897-5753	SWAMPSCOTT	SALEM ST	Wood Pole	Company	Fair	14	Permanent Rep	Ground Connection	< 0.1 kV	12/20/2006	No	0	Verizon reported elevated voltage at pole 63 Salem st, Swampscott. Our tman tested the voltage at the pole and got readings of 0 volts at the bottom of the pole. He did get readings of 14 volts near our secondary wires. Because the voltage was way up on the pole the Oh suprvisor and tman tagged it warning other utitilites of the voltage. MIA investigating(EL VOLT RPT #10) COMPANY CONTRACTOR TESTED 5.5 VOLTS AT P2190 SALEM ST NEAR HOUSE 123 SALEM ST, UNDERGOURND CREW SENT TO CORRECT MIA DEPT TIM DYER P2190 SALEM ST MALDEN REPAIRED 07/05/2006 BAD NEUTRAL CONNECTOR TESTED AT ZERO VOLTS WR# 1005428 PER KEITH KERZEL
44	Company	11/10/2006 11:19	Ross A Cox	508-897-5753	MALDEN	CHARLES ST	Store Sign	Customer	Fair	65	Permanent Rep	Customer Owner Facility Problem	< 0.1 kV	12/18/2006	No	0	A 20 MPH school zone sign and the associated riser pipe that was feeding the sign had an elevated voltage of 65 Vac. Upon investigation the troubleshooter found that the neutral connection on the pole had been cut . MIA investigating Tim Dyer From talking with the Safety specialist Dave Beattie he informed me that it looked like the cable company might have inadvertently cut our neutral wire to better facillitate thier own connection . The troubleworker de energized the sign and called westboro dispatch to call the city of Malden for sign removal since the school is now condominiums. Troubleworker tested zero volts. Perm repairs
45	Public	11/11/2006 12:06	Ross A Cox	508-897-5753	MALDEN	HOSPITAL RD	Metallic SL Standard	Company	Fair	0			< 0.1 kV	12/11/2006	No	0	Woman (781 396 7486) reported walking her dog in parking lot behind the Malden Hospital at 1 Hospital Rd, Malden; said dog put wet paw on base of P565 3 and yelped suspected elevated voltage contact troubleshooter and two supervisors went to site used three voltage testers found no voltage on this pole with a primary siphon supervisors to contact caller. Mia Dept investigating Follow up from John Leach at 09 20 on Sat. morning a call came into customer service from a customer Mrs. Rita Bennett who noticed her dog Jake a Shitzu reacting as if he received a shock as he made contact with a utility pole. During the phone call with customer service the Mrs Bennett stated that Jake was fine. The pole of concern is in the Malden hospital parking lot at 1 Hospital RD. Pole 565 3 The customer informed me that Jake had wet paws at the time of the incident. Ed Lally responded to the location and investigated the situation. The pole had a primary riser pipe that when tested did not indicate elevated voltage. There was a crew on site and Ed had the crew ensure that the pole and riser were properly bonded. I made a follow up call Sunday morning to Mrs. Bennett she rea
47	Public	11/17/2006 12:02	Ross A Cox	508-897-5753	SAUGUS	BLACKSMITH WAY	StreetLight	Customer	Fair	0			< 0.1 kV	03/05/2007	No	0	Cust called to report elevated voltage on Alum Pole 5 Blacksmith Way and that dog received a shock. This is a city of saugus owned St Light Pole Tman tested at 99 volts to make area safe he pulled the photo eye and disconnected the wires at the base Zero volts tested at pole

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48	Public	11/18/2006 18:11	Ross A Cox	508-897-5753	MARLBOROUGH	PHEASANT HILL RD	Wood Pole	Company	Fair	24	Permanent Rep	Insulator	< 0.1 kV	11/23/2006	No	0	VERIZON CALLED AND REPORTED ELEVATED VOLTAGE ON POLE 2 PHEASANT HILL ROAD; LINE CREW WENT OUT AND MADE REPAIRS; REPLACE INSULATORS, RAN A DOWN GROUND, ETC. POLE IS STILL HOT AND WILL WRITE UP FOR CREW IN DAYTIME HOURS. CREW ALSO PATROLLED AREA. JOHN CASTRO DOING FOLLOWUP FOLLOWUP CHANGED DEAD END INSULATORS LEFT AT 0 (ZERO) VOLTAGE AT POLE
49	Public	11/30/2006 15:09	Ross A Cox	508-897-5753	SHIRLEY	LAWTON RD	Wood Pole	Company	Fair	0			< 0.1 kV	03/06/2007	No	0	Verizon reported energized pole #6 in front of 12 Lawton. The tman tested the pole and got a reading of 4 volts. He said that there are 115KV lines running directly over the pole and that could possibly be the cause. MIA dept investigating, 3/6/07 Checked pol with resistor in place and tested to 2millivolts
51	Public	12/13/2006 18:39	Ross A Cox	508-897-5753	FRANKLIN	MAIN 1 ST	StreetLight	Customer	Rain - light / moderate	17	Permanent Rep	Bad Neutral	< 0.1 kV	12/13/2006	No	0	p7 Main St call from Fire Dept stating dog received electrical contact . Per Supv this is town owned street light. The neutral was broken tman repaired was 70v when took ou resister then went down to 17v replaced photo cell and bulb and back to 0v. 12/13/06 L.7 Main St., Tman repaired broken neutral, replaced photo cell and bulb. This string o AL Standards are being fed OH from wood Pole #7 Main St.
52	Public	12/13/2006 20:00	Ross A Cox	508-897-5753	BROCKTON	WESTGATE DR	PadMount Transformer	Company	Fair	0			< 0.1 kV	12/14/2006	No	0	Emergency medical Tech throught they flet a slight shock on his leg from ug lines /however when tman checked voltage ug no voltage of voltage reader/no ug lines/he also checked transfomer above and tested okay tman said whatever the emt felt it wasnot a shock from our end. 12/14/06: PD.14 1 Westgate Dr., Brockton, no damage to our equipment and no EV found.
53	Public	12/13/2006 22:11	Ross A Cox	508-897-5753	REVERE	LYNNWAY ST	Metallic SL Standard	Company	Fair	14	Permanent Rep	Photo Eye	< 0.1 kV	12/13/2006	No	0	Customer Mona Giuffre ,Ph 781 286 0530 walking dog in front of house 145 Lynnway St,Revere claims dog shocked at pole 4837. TMEN Ron Chito says voltage was 14 volts, bird in head of st light, removed eye voltage down to close to zero. Spoke with Mona Giuffre via phone says dog is is fine. Mia Dept investigating
54	Public	12/16/2006 16:21	Ross A Cox	508-897-5753	FALL RIVER	BUFFINGTON ST	Wood Pole	Company	Fair	175	Permanent Rep	Equip Other (use comments)	< 0.1 kV	02/26/2007	No	0	high voltage reported at p4 buffington st by cable co rep tman took readings at transformer and reading was 350v leg to leg per o/h supervisor jumped out crib and still read high went to sub and read high o&m called in to sub and readings were normal unknown or no cause found o/h supervisor .R. Desmarais is still woking on th problem 12 29 06: MIA Investigating 02/26/07: R. Desmarais changed settings on regulators at station rechecked 0 volts.
55	Company	12/16/2006 18:21	Ross A Cox	508-897-5753	REVERE	REVERE BEACH BLVD	Metallic SL Standard	Company	Fair	0			< 0.1 kV	12/17/2006	No	0	contractor found hot pole with 13.5 volts, when light went out pole got cold, contractor requested tman to be sent when dark tman found 21volts, disconnected bad neutral MIA dept investigating All poles on Revere Beach BLVD have been repaired. Per area supervision
56	Company	12/20/2006 1:48	Ross A Cox	508-897-5753	PLAINVILLE	BARNA WOODS WAY	Metallic SL Standard	Company	Fair	15.7	Permanent Rep	Service Wire	< 0.1 kV	12/20/2006	No	0	Cameron Gillespie DRG, street light test crew, reported elevated voltage of 15.7 volts on street light p1 Barna Woods Way. Tman disconnected street light at transformer. 12/21/06: Referred to Engineering. 12/29/06: MIA Investigating.
58	Public	12/26/2006 12:51	Ross A Cox	508-897-5753	METHUEN	SUMMIT AVE	Wood Pole	Company	Fair	0			< 0.1 kV	12/28/2006	No	0	APSASIA FIORINO REPORTED WHILE WALKING DOG ACROSS FROM 2 SUMMIT AVE, DOG RECIEVED A SHOCK FROM A POLE AND WENT INTO CONVULSIONS. DISPATCHED SUPERVISOR AND CREW TO INVESTIGATE. FOUND 0.7 VOLTS ON TRANSFORMER P2198 SUMMIT AVE. THER WAS NO GROUND ROD OR BOND WIRE. CREW INSTALLED GROUND AND BOND PER SUPERVISOR. THERE IS NO CONTACT INFORMATION FOR THE CUSTOMER MIA investigating. MIA Steve Habelt investigating actual pole # is 135-1 and the pole tested at 0 VAC down ground installed and pictures have been taken. 50Kva on pole as well as primary dead ends on this pole
59	Public	01/23/2007 14:56	Ross A Cox	508-897-5753	REVERE	LYNNWAY ST	Steel Pole	Company	Fair	0			< 0.1 kV	01/24/2007	No	0	TMEN DAVE WINTERS AT POLE 4837 LYNN WAY GOT MEASUREMENT OF .1 VOLTS...MIA department This is a non-event .1 vAC
85	Public	02/21/2007 0:02	Ross A Cox	508-897-5753	LOWELL	MIDDLE ST	StreetLight	Customer	Fair	28	Permanent Rep	Lamp Wiring	< 0.1 kV	02/21/2007	No	0	The pole in question is fed from City owned conductors past their meter and main switch. We disconnected at the pole to alleviate the hazardous condition. The City Wiring Inspector was involved and was appreciative that we disconnected the pole for them. The City is aware that it is a city light and that they need to make repairs..PD REPORTED DOG GOT SHOCKED WHILE WALKING IN FRONT OF 194 MIDDLE ST BETWEEN 8 9PM 2/20/07. OWNER"S NAME AND CONTACT NUMBER: MIKE HOERMAN 978 455 3858. TMAN REPORTED 28 VOLTS AT POLE POLE BELIEVED TO BE CITY OWNED. TMAN DISCONNECTED. 02 21 07:
86	Public	02/20/2007 18:21	Ross A Cox	508-897-5753	MEDFORD	FULTON ST	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			< 0.1 kV	02/20/2007	No	0	This event is not an Elevated Voltage event, This event is mearly a "High Voltage" event due to a broken neutral. Ross A. Cox.Broken neutral at pole 144 Fulton St resulted in elevated voltage at 115 Fulton St which caused damage to some appliances. Tman changed connections at pole and house and voltage afterwards was 118/ 118/ 238. Tman had not measured voltage before making repairs. Cable technician also confirmed high voltage per tman.

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87	Company	02/22/2007 4:10	Ross A Cox	508-897-5753	LOWELL	MERRIMACK ST	Steel Pole	Company	Fair	17	Permanent Rep	Ground Connection	< 0.1 kV	02/26/2007	No	0	Tman found hot pole #2 Merrimack St @ Dutton St and pole #4 Merrimack St while doing maintenance work. Poles had 16 volts and 13 volts respectively. These were underground street lights poles. On call supr sent u/g crew, they lowered voltage to "0" volts. There were no incidents. 02 22 07: MIA Dept. Investigating UG reports bad neutral on pole and have repaired same
88	Public	03/03/2007 11:17	Ross A Cox	508-897-5753	SWAMPSCOTT	BELLEVUE RD	Wood Pole	Company	Fair	0			0.1 - < 4.5 kV	03/03/2007	No	0	REPORT OF DOG GETTING A SHOCK FROM P8 BELLEVUE RD TMAN FOUND OLD SYPHON SVC P72/9 CUST NOW HAS OH SVC AND UG WAS NEVER DISCONNECTED TESTED W/ LIGHT STICK SO NO SURE OF EXACT AMT OF VOLTAGE PUT 5 DOWN ONLY BECAUSE WOULD NOT ACCEPT W/OUT A NUMBER MIA dept investigating.. After talking with Overhead supervision that had been on site at this incident there was an old siphon service that was disconnected by the trouble man this should have been disconnected when the new overhead service was connected . Siphon service is now disconnected and at zero volts.
89	Public	03/03/2007 11:17	Ross A Cox	508-897-5753	MEDFORD	BELLEVUE ST	Wood Pole	Company	Fair	0			0.1 - < 4.5 kV	03/03/2007	No	0	REPORT CALLED IN THAT DOG RECEIVED A SHOCK TMAN FOUND P72/9 OLD UG SYPHON NEVER DISCONNECTED CUST NOW HAS OH SERVICE TESTED W/ STICK LIGHT DID NOT GET NUMBER PUT 5 ONLY CAUSE NUMBER WAS REQUIRED FOR REPORTMIA investigating... this report is a duplicate report
92	Public	03/13/2007 17:21	Ross A Cox	508-897-5753	E. BRIDGEWATER	MCCORDICK AVE	Wood Pole	Company	Fair	40	Permanent Rep	Ground Connection	< 0.1 kV	03/14/2007	No	0	osmos, co contractor, testing for hot poles, reported getting a reading of 40 volts from the guy wire to ground at p4 McCordick Ave. The trouble man grounded the guy wire a took readings of 0 volts. 03/14/07: Steve Habelt, MIA Dept., HD Tester showed voltage. Multimeter w/resistor, 0.034V on Down Guy, Siphon Svc Riser to Hse. #35, Siphon Svc to Hse #36 and Down Ground for 50KVA XFMR. Soil was damp. Construction was OK not too old.
93	Public	03/14/2007 14:01	Ross A Cox	508-897-5753	BELLINGHAM	SOUTH MAPLE ST	Wood Pole	Company	Fair	48	Permanent Rep	Ground Connection	< 0.1 kV	03/15/2007	No	0	Verizon reported a hot pole. Pole 23 2 South Maple St. The troubleman responded and measured a voltage of 48 volts. He grounded the guy wire and this cleared the voltage from the pole. Matrix notifications were made. 03/15/07: Steve Habelt, MIA Dept. investigated location and found the following. Weather: Rain. Pole is on the road to the Town of Bellingham's Recycling Center behind a locked gate. I had to walk to P.23 2 and found 0 volts, construction OK and I took one picture. I talked to the Tman that respnded (Donald G. Lloy) and confirmed he used the 500ohm resistor when he took his voltage reading.
94	Public	05/02/2007 21:43	Ross A Cox	508-897-5753	COHASSET	JERUSALEM RD	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			< 0.1 kV	05/03/2007	No	0	Jennifer Palmer.285 Jerusalem Road: Cohasset: 781.383.0315. Plumber working at this site claims received a shock. Call came in at 15:50. Tman changed conn at weatherhead corroded from salt water. Also ran a new service. Tman put the beast on everything checked out ok. Voltage taken 127/127/250. Bill Diliddo (cell 508.326.9557) was supv on call. He will email engineer from area to check voltage in area. Plumber left the site, his job was complete...no name or number given. Tman spoke with painter on site. Customer cable and meter trim needs to be changed. No other information found or given. 05 03 07: S. Habelt, MIA investigating. Per the Tman, the plumber was working inside the house and had left the location before he arrived. He didn't take a voltage reading before he made the repairs to the service because he didn't know where the claimed shock took place. Per J. Huxley, the engineer for the town of Cohasset, the Capacitor Bank on P.54 is scheduled to be taken off line to correct the high voltage situation. There are no problems on our side at this time.
96	Public	05/10/2007 14:50	Ross A Cox	508-897-5753	METHUEN	NEVINS RD	Wood Pole	Company	Fair	0			< 0.1 kV	05/10/2007	No	0	verizon reported to NGrid foreman of "hot" pole at p2997 Nevins St, troubleshooter confirmed evalated voltage (but did not specify value),replaced cutout on this pole which repaired the problem, more info to follow. MIA DEPT INVESTIGATING. Per Richard Aumais Troubleman Jimmy Noel and Tony Cicero responded to this call and found the cause of the voltage problem to be a potted cutout both men changed the cutout and re-tested the pole and read zero volts AC . TimDyer
102	Public	07/24/2007 17:27	Ross A Cox	508-897-5753	METHUEN	SUGAR HILL CIR	Wood Pole	Company	Fair	0			< 0.1 kV	07/24/2007	No	0	@ 15:50, I received order # 991024 which stated that Verizon was reporting a hot pole. The tman, Jim Noel arrived @ 17:17 requesting more information. None had been reported on the order (tech name or call back number or if anyone had been hurt.). I h
103	Public	07/26/2007 13:51	Ross A Cox	508-897-5753	SOUTHBOROUGH	WOODLAND RD	Wood Pole	Company	Fair	4	Permanent Rep	Poor Insulation	< 0.1 kV	07/30/2007	No	0	Elevated votage on cable line to house at 181 Woodland Rd, Southborough, reading of 10V on cable service to house and 15V on main cable wire on street troubleman patrolled area and grounded the main cable wire, the verizon wire and a down guy at pole 73 Woodland Rd, still same voltage, supervisor to have crew change insulators and ab chance cutout and check reading again, Situation still under investgation. 07/26/07: MIA Dept investigating. Per Chris McCarthy, the 10V and 15V readings were taken w/o the resistor, 4V with the resistor. 07/30/07: MIA Dept re tested and found zero volts.

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105	Public	07/31/2007 12:28	Ross A Cox	508-897-5753	WORCESTER	HACKER ST	Wood Pole	Company	Fair	0			< 0.1 kV	07/31/2007	No	0	CHARTER CABLE (MIKE MARTIN 508 726 9741) REPORTED POLE 5 ENERGIZED (NEAR 13 HACKER ST). ALTERNATE CLBK # 508 854 5045. BOB PATENAUDE (OH SUPV WORCESTER) CHECKED POLE WITH RESISTOR AND CONFIRMED "O" READING (NO STRAY VOLTAGE) NOTIFIED MIKE MARTIN @ CHARTER WITH RESULTS / POWERON #994833 1□ MIA Dept Zero volts present no injuries or public contact reported
106	Public	08/18/2007 10:46	Ross A Cox	508-897-5753	SCITUATE	FIRST PARISH RD	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	55	Permanent Rep	Customer Owner Facility Problem	< 0.1 kV	08/18/2007	No	0	fire dept called they got a phone call from a man walking his dog and he reported the dog got shocked from a pole at the corner of 3a and first parish rd in scituate, ma in the scituate school parking lot dispatched tman brian landry 7026 and he reported p111a chief justice cushing hwy had 55v secondary riser he killed riser down to zero this is customer owned tman spoke to cust at school. 08/20/07: Inspections Dept. investigating. At P.111A Chief Justice Cushing Hwy., per Scott Siereveld, 55V reading was taken without the 500 ohm resistor. The siphon service (120V) that Brian Landry cut was not being used. The other siphon service on this pole is a service to a sign for the Scituate High School. Photos taken. Zero volts at pole.
107	Company	08/23/2007 11:57	Ross A Cox	508-897-5753	WORCESTER	BLAKE ST	ManHole	Company	Fair	0			< 0.1 kV	09/04/2007	No	0	Elevated voltage call Blake st Worcester. Emergency worker sent to investigate and found that a civil contractor for Gas company installed metal street plates on top of damaged streetlight base causing the conduit to break and or bend and elevate the voltage to the surrounding area. Underground Supervisor Tim lowkes responded and forwarded the repairs to local FCC Jim Ritchie who had Halpin Line crew investigate and de energize the Effected area at the intersection of Columbia st and Blake st MH # 1453 WR # 3175519
113	Public	09/07/2007 8:00	Ross A Cox	508-897-5753	HAMPDEN	RAYMOND DR	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	1.4	Permanent Rep	Ground Connection	< 0.1 kV	09/07/2007	No	0	arrived out at this customers residence at approximately 16:45 and surveyed the area around the residence. I took a couple of digital pictures of the poles next to the residence and checked out the secondary crib for any obvious problems regarding catv and telco, nothing was found irregular. All down grounds as well as catv and Telco stanchions were tested for elevated voltage. Met with the customer at 143 Raymond Drive and informed her that I would be investigating this issue. The yard was surveyed for anything obvious and nothing appeared to be out of norm. The in ground pool was tested and found to have a voltage of approximately 1.4 VAC without the 500 ohm resistor in place. With the resistor the voltage decreased to just under 1VAC, The pool was recently installed within a couple of months and the customer was receiving anything from a tingling to a shock getting out or touching the concrete outside the pool A ground wire was inserted into the pool and the voltage disappeared. When the ground was removed the voltage re appeared. The home owner had not installed the stairs going into the deep end of the pool and it was suggested that we might install the
116	Public	09/16/2007 17:43	Ross A Cox	508-897-5753	NORTH ANDOVER	GRANVILLE LN	StreetLight	Customer	Fair	0			< 0.1 kV	09/16/2007	No	0	electrician claims stray voltage on street light pole. Inspections department: Trouble worker Brian Lannon reported that the customer has an underground service and is getting a voltage of 6 volts at the meter trough. Area Supervisor Chris Wellington tested the residence in question and found .3 volts to the ground rod with a resistor in place. The original issue of an elevated voltage on a streetlight was in error.
117	Public	09/16/2007 17:49	Ross A Cox	508-897-5753	TEWKSBURY	CABOT RD	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			0.1 - < 4.5 kV	09/16/2007	No	0	customer claims receives a shock when puts hand in pool. Inspections dept: Overhead lines department supervisor Toby Keyser was on scene and stated that he had crews test the service and found approx 1/2 vac at the customers water spigot and .4vac at the pool. Customer stsaed also that they only started feeling tingling sensation after VIOS was installed by verizon. Supervisor found zero volts when neutral was diconnected from service at the meter . supervisor suggested to call phone and cable TV as well as electrician to remedy problem.
118	Public	09/17/2007 14:30	Ross A Cox	508-897-5753	ATTLEBORO	COUNTY ST	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			< 0.1 kV	09/17/2007	No	0	Attleboro pd reported passerby was shocked when he touch control box for traffic lights report passerby was okay foreman and troubleman responded took voltage reading and received zero voltage. 09/17/07: Inspections Dept. investigation. The traffic light control box is fed from MH.66 County St. Voltage test was performed on all metalic equipment in the area, which showed zero volts. The town of Attleboro will have an electrician check the control box.
123	Public	10/03/2007 16:54	Ross A Cox	508-897-5753	LEOMINSTER	CENTRAL ST	Steel Pole	Company	Fair	114	Permanent Rep	Induce Voltage	> 8 kV	10/03/2007	Yes	1936	Contractor contacted aluminum street light pole with hand and claims to have received a shock. Local crews replaced the streetlight head and this solved the problem
127	Public	11/01/2007 10:59	Ross A Cox	508-897-5753	PEMBROKE	DWELLEY ST	Wood Pole	Company	Fair	10	Permanent Rep	Insulator	< 0.1 kV	11/01/2007	No	0	Verizon tech called in to report hot pole 28 Dwelley Street: Tman went to site and took voltage reading, He could not determine what the cause was. Two Tmen and a line crew grounded all guy wires, changed insulator and crossarm. Matrix called. 11/02/07: Inspections Dept. investigation. Per Tman, 280V Pole to Pole Guy to Neutral (w/o resistor). 80V Pole to Neutral (w/o resistor). Photo's taken.
134	Public	12/19/2007 17:40	Ross A Cox	508-897-5753	NEWBURY	BOSTON RD	Wood Pole	Company	Fair	0			< 0.1 kV	12/19/2007	No	0	Verizon called in a report of pole 64 being hot when troubleman arrived the pole was hot and informed me that he would be changing the cut out on the pole Cut out has been changed

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Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc Accident ID	COMMENTS
135	Public	12/23/2007 22:56	Ross A Cox	508-897-5753	WORCESTER	BELMONT ST	Steel Pole	Company	Fair	0.01	Disconnected	Cable Bad	< 0.1 kV	12/23/2007	No	0	Pole 16 Belmont St Worcester report dog recieved shock e,man called out to investigate. E,man was sent to pole 16 house # 122 Belmont St Worcester and found 17 volts on pole with resistor in place. Inspection Department investigating. Underground department was called in to de energize secondary secondary cut off in manhole #505 Belmont St.Business Services did call into the Worcester PD to inquire if they had recieved any information regarding this call and they had not. A phone # of 508 756 2313 was given initially and was called by Tlm Dyer inquiring about this incident and the owner of the household stated that she knew nothing of this and did not know the person "Jimmy" who called No other information is available. Pole has been de energized and is awaiting permenant repair by the Worcester underground department. One call has been notified # 28142
136	Public	01/02/2008 13:26	Ross A Cox	508-897-5753	ANDOVER	HAVERHILL ST	ManHole	Company	Fair	2.5	Permanent Rep	Equip Other (use comments)	< 0.1 kV	01/02/2008	No	0	REPORT OF POSSIBLE DOG SHOCK CALLED IN AT INTERSECTION OF HAVERHILL ST 100" FROM MAIN ST MADE TEMPORY REPAIRS TO ST LIGHT CABLE ON RACK. Inspections department investigating Called customer and he stated that the dog appears to be fine. no issues have arisen from this incident. Customer Jason Bukowski (617)760-0673 if anything comes up he was told to let us know. Tim
138	Public	01/27/2008 23:31	Ross A Cox	508-897-5753	MALDEN	SALEM ST	Steel Pole	Company	Fair	0.1	Temporary Rep	Photo Eye	< 0.1 kV	04/14/2008	No	0	Customer called to report dog was zapped at 280 Salem St (pole 4431). (This was 7:36 p.m. but the system would not allow me to put in the time, calling it future time). Tman confirmed pole was hot, pulled photocell, and reduced voltage to zero. The underground supervisor was notified and he"ll have a crew to take care of the pole tomorrow (Monday 1/28). Inspections Department. Per Elaine Murphy the dogs owner is Jackie White and the Power on Number is 1061733 Andy Hadden was the UG supervisor on call and the Trouble worker was Pat Eisan on site. Call into John Leach he states WR # 395156 at 100 Salem St Malden 2190
140	Public	03/24/2008 6:29	Ross A Cox	508-897-5753	WRENTHAM	SHELDON RD	Wood Pole	Company	Fair	0			< 0.1 kV	03/23/2008	No	0	Tman first reported there to be 6.3 volts on ROW pole 472 which is located behind house 180 Sheldon Rd in Wrentham MA. Tman was not checking voltage correctly. Using the proper equipment, a shunt resistor, the meter reading was 0 volts. Customer had reported her daughter to have received a shock. 03/24/08: Inspections Dept. investigation. Per Harvey Bertrand, On Call Supervisor: he assisted Lawrence Farnell, Tman, T #7978, with the investigation. PowerOn IS: #1081421.1. One Call IA: #29947. CSS Notes: 03/23/08 (5). 23kV / 2284 Feeder (P472.1) crosses under the 345kV / 303 Line P342.1 & P342.2 and 115kV / C129S Line P363.1 & P363.2. Photo's taken.
141	Public	04/11/2008 23:50	Ross A Cox	508-897-5753	SALEM	FRONT ST	Metallic SL Standard	Company	Rain - light / moderate	38	Permanent Rep	Lamp Wiring	< 0.1 kV	04/11/2008	No	0	FD CALLED IN STATING DOG MIGHT HAVE REC"D SHOCK BY POLE IN FRONT OF OLD TOWN HALL. CALLED PD FOR POLE NUMBER ALUMINUM POLE # 6439. TMAN ARRIVED, GOT VOLTAGE READINGS OF 38V @ BASE OF POLE AND 48V @ HEAD. HE DEENERGIZED THE POLE # REMOVED THE PHOTO CELL, REC"D 0V. WRITTEN UP FOR THE UNDERGROUND DEPT. THERE WERE NO INJURIES REPORTED PER THE POLICE DEPARTMENT. P/F ETA REPORT RECORDED. 04/12/08: Inspections Dept. investigation. Per Jim Burns, Supervisor, Malden, the tman that first responed was Ed Ryan T#7982, he did not use the 500ohm resistor to record the 38V. This light standard was replaced 03/30/2007 due to an MVA under WR #2254371. PowerOn IS #1087025.1. UG Department will replace the wiring to the St.Lt.Head on Monday, 04/14/08. More information is as followed in Christelle Lindewa email. The Salem FD called @ 23:50 reporting that the police had just notified them of a dog that might have been shocked in front of the old town hall on Front St. I immediately dispatched the tman, Ed Ryan, and then called the PD for more information. It was an aluminum pole # 6439 and there were no injuries reported. Ed a
142	Public	04/16/2008 4:41	Ross A Cox	508-897-5753	TEWKSBURY	BRIANA LEE CIR	Wood Pole	Company	Fair	0.2	No Action Required (This can be selected only if the voltage is less than 4.5 volts in field #9)	Equip Other (use comments)	< 0.1 kV	04/16/2008	No	0	customer house in right under the 345 line customer states feels the voltage tension in the air & on baby"s skin also there is static trblman Marty Lagasse found .2 volts down guy induction notification matrix was followed engr"s to follow up in am. 04/16/08: Inspections Department investigation. After talking with Richard Aumais the customer is upset at the new installation of a 100 foot tower for the 345 line. Richard also states that there was a broken AB chance potted porcelin cutout that is being repaired per WR # 3878486 pole 2 -1 Vale st . at the corner of brianna lee circle. No injurys have been reported.
143	Company	04/21/2008 12:01	Ross A Cox	508-897-5753	ANDOVER	NORTH MAIN ST	Steel Pole	Company	Fair	5.1	Permanent Rep	Cable Bad	< 0.1 kV	04/29/2008	No	0	Pole # 5473 Al streetlight the LV 5 tester lit up the trouble worker tested 61.5 volt without the resistor and 5.1 with the resistor and at that time he secured the area from public contact and then went to test the streetlight head and showed 78 volts ac without the resistor. Called in to UG dept and they disconnected the streetlight. Also pole # 3654 was reading similar and Underground de energized this also. Civil contracting has been given this job to repair. No public contact troubleworker found this while doing normal streetlight maintenance.

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146	Public	06/11/2008 8:37	Ross A Cox	508-897-5753	LAWRENCE	HAVERHILL ST	Steel Pole	Company	Fair	0			< 0.1 kV	06/11/2008	No	0	DPU (MIKE CURLEY) REPORTED SOMEONE TOUCHED TRAFFIC POLE AND ALUMINUM STANDARD AND WAS SHOCKED / PERSON DID NOT SEEK MEDICAL TREATMENT / BRYANT HART (UG SUPV) REPORTED NEUTRAL PROBLEM / UG CREW CUT SERVICE CLEAR IN MANHOLE STRAY VOLTAGE Per Bryant Hart this problem has been alleviated and the streetlight standard has been removed and is waiting to pull new cable to the light.
148	Company	06/22/2008 4:26	Ross A Cox	508-897-5753	LOWELL	BROADWAY ST	Metallic SL Standard	Company	Fair	0			< 0.1 kV	07/08/2008	No	0	TMAN, MIKE BUCKLEY, WAS PERFORMING STREETLIGHT PATROL AND LOCATED POLE 14 BROADWAY @ MIDDLESEX REGISTERING 18 VOLTS. HE MENTIONED THE NEARBY GUARDRAIL WAS ALSO ENERGIZED. CALLED IN U/G CREW. THERE ARE 5 ALUMINUM STANDARD POLES LOCATED NEAR THIS INTERSECTION, THE LAST TWO (CLOSEST TO THE BRIDGE) APPEARED TO HAVE A BAD NEUTRAL. ALL FIVE POLES WERE DISCONNECTED. 0 VOLTS. Called Chris Wellington and he told crew to de energize the poles in question so that new secondary cable can be pulled into the area Per Christes Meneades :Aluminum street light pole 14 on Pawtucket St Lowell was found with elevated voltage by a trouble man on patrol on June 22, 2008. The voltage measured was 18 volts. An underground crew disconnected the feed between streetlights #13 and 15 which cleared the elevate voltage.□ Faulted cable was found and replaced between streetlights 13 and 15 and the job completed on 7/8/2008. All poles tested zero volts after repairs
149	Public	06/26/2008 14:55	Ross A Cox	508-897-5753	FRANKLIN	GLENWOOD RD	Wood Pole	Company	Fair	0.006	Permanent Rep	Insulator	< 0.1 kV	06/26/2008	No	0	Verizon tech reported hot Pole 2 Glenwood Road, Franklin, Ma. Line crew went to site and took voltage from pole. Depending on where on the pole, it read 30volts or 60volts Line crew then changed primary deadend glass on pole. Took voltage again, it read .006. Talked to Gary Bourque and he informed me that this problem was taken care of when it was found. There was no public contact or injury
150	Public	07/07/2008 16:42	Ross A Cox	508-897-5753	DIGHTON	WHEELER ST	Wood Pole	Company	Fair	4	Permanent Rep	Insulator	0.1 - < 4.5 kV	07/09/2008	No	0	verizon called to report a hot pole at 2055 wheeler st north dighton trouble reported that dead end bell was leaking into pole he replaced bell and still received a high voltage o verizon line and electric neutral checked everything out at pole and street (for possible failed insulator)found nothing tman sent to ohl for further investigation (pending) (his equipment didn"t give voltage amount). Inspections Dept. Investigation: PowerOn IS: 1123934.1. The pole location is P.39A6 Wheeler St., Hse. Address 2055 (Bob Wilson and Sons Excavating 508.822.9277). Per Jamie Lindsey, OHL Supervisor, crew changed out the DE Insulator and T.C.O. Tested for voltage and measured 0.6 volts. Before the work was performed, 4 volts was measured at the system neutral, but zero volts at ground level on the Down Guy and XFMR Down Gnd. Photos taken.
151	Public	07/17/2008 20:03	Ross A Cox	508-897-5753	STOCKBRIDGE	HAWTHORNE ST	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Extreme hot or cold (below 10 or above 90 degrees)	5	Permanent Rep	Ground Connection	< 0.1 kV	07/17/2008	No	0	an electrician, Jeff Alosi, called stating that children were getting shocked in a pool at a privately owned campground. He tested 5 volts being registered. Tman Mike Moriarity responded, an obtained a beta key to unlock the meter. The problem was found to be on the customer"s side a bad secondary connections in the secondary hand hole. The electrician made repairs, and retested the voltage, which came in at 0 volts. No public contact or injury reported
152	Public	07/23/2008 14:06	Ross A Cox	508-897-5753	WRENTHAM	VILLAGE WAY	Wood Pole	Company	Fair	0.3	No Action Required (This can be selected only if the voltage is less than 4.5 volts in field #9)	Customer Owner Facility Problem	0.1 - < 4.5 kV	07/25/2008	No	0	POWER ON TICKET 1131104 ORDER REPORTED BY ELECTRICIAN : CUSTOMER GETTING SHOCKS IN THE SHOWER, POWER COMING BACK FROM NETRALCREW 8010 ALVES REPORTED CHANGED CONNECTIONS AT HOUSE AND POLE OLD ELECT ICIAN CONNECTIONS 2ND CALL POWER ON TICKET 1131289 1 CUSTOMERS STATES RECEIVING SHOCKIN IN SHOWER, CUSTOMER WANTS TO THER WHEN WE (NGRID) WE OUT. CALLL HIM @ 508 889 1462REFERAL TO SPVR ANDY CAPISTRON 13:33 TO FOLLW UP. Inspections Dept. Investigation: Met with Robert Clougier (customer), he had his electrician install a new 200A Service Panel 1 to 2 years ago. The problem has been going on for quite some time in the upstairs bathroom, per Eileen Clougier (customer), but it is new in the downstairs bathroom. Voltage Measured: XFMR Down Gnd to Driven Gnd Rod 2.8V w/o Res / 0V w/ Res, Pri & TelCo Down Guy 2.9V w/o Res / 0V w/ Res, Water Spigot bach of house to Driven Gnd Rod 3.5V w/o Res / 0.3V w/ Res, Back Door Threshold to Driven Gnd Rod 0.4V w/o Res / 0.04V w/ Res. Andy Capistron, OH Supervisor: Meter 120/240V, zero on the neutral. Beast 116/123V Left, 121/118V Right. Info forwarded to
153	Public	08/25/2008 16:21	Ross A Cox	508-897-5753	WEBSTER	TREASURE IS RD	PadMount Transformer	Company	Fair	0			0.1 - < 4.5 kV	08/26/2008	No	0	29 volts on transformer 3 p 4 1 called in by charter employee Grid employees responded to call and tested 2.3 volts with a resistor in place this is a nuisance voltage
154	Public	09/13/2008 5:54	Ross A Cox	508-897-5753	SALEM	LAFAYETTE ST	Steel Pole	Company	Rain - light / moderate	0			< 0.1 kV	09/13/2008	No	0	Mr William Braunstein 978 744 2669 walking his dog on Lafayette St near Salem Laundry p3683 dog was screeching when troubleman arrived found 52 Volts disconnected st lite (alum pole) i notify Bill Richards & John Cameron (safety) dog is ok Inspections Department investigation:

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155	Public	09/28/2008 18:30	Ross A Cox	508-897-5753	LOWELL	OLD FERRY RD	Steel Pole	Company	Rain - light / moderate	0			< 0.1 kV	09/29/2008	No	0	Fire Dept was told by customer at 40 Old Ferry Road Lowell Dog got zapped Our troubleman check st lite pole no stray voltage everything tested ok exposed wires at based were taped refer to U/G for 9/29/08 to repair PO 1158831
158	Public	11/08/2008 8:59	Ross A Cox	508-897-5753	ANDOVER	MAIN ST	Steel Pole	Company	Rain - light / moderate	0			< 0.1 kV	12/11/2008	No	0	No elevated voltage found in entire vicinity...A woman was walking her Jack Russell Terrier & said when the dog went to sniff the base of 1one of our aluminum poles (which was completely covered in leaves), he was "zapped". I called her back (ok per shift supervisor) and she was not upset and that she and the dog were fine. Upon further investigation, the Underground Supervisor, along with his crew double checked every single pole in the general vicinity. They could not find any problems. They think perhaps an insect may have stung the animal or some other type of irritation.Inspections Department investigation. Spoke with Ted Teal, North Andover Underground Supervisor,. Ted informed me that fellow supervisor, Brian Hart was in the area and tested multiple poles in the surrounding vacinity and no elevated voltage was found.
159	Public	12/07/2008 20:38	Ross A Cox	508-897-5753	MALDEN	PLEASANT ST	Metallic SL Standard	Company	Fair	4	Disconnected	Photo Eye	< 0.1 kV	12/07/2008	No	0	as reported to Westboro Service per Malden PD at 19:40 on Dec 7, 2008, a pedestrian called Malden PD to report that their dog was "zapped" at p2817 Pleasant Street, near house #488. The troubleman, Brian Lees was dispatched immediately. The overhead supervisor, Dave McCann was called to the scene. They pulled the photo cell from the street light which de energized the pole. More info to follow.Inspections Department investigation from I. A. 38085. Person was walking dog, the dog urinated on aluminium underground streetlight pole and got zapped. Troubleworker was called at 7:00pm, arrived at 7:10pm, tested pole with stray voltage tester and it glowed. Then tested with fluke got 8 volts, called supervisor 7:15pm. Supervisor arrived 7:40pm retested got 8 volts, installed stray voltage adapter and got 4 volts, Troubleworker then pulled the photocell and the stray voltage went away. Inspections Department investigation. Information from I. A. 38085. Person was walking dog, the dog urinated on aluminium underground streetlight pole and got zapped. Troubleworker was called at 7:00pm, arrived at 7:10pm, tested pole with stray voltage tester and it glowed. Then tested with f
160	Public	12/24/2008 21:23	Ross A Cox	508-897-5753	SWAMPSCOTT	SWAMPSCOTT AVE	HandHole	Company	Rain - light / moderate	0			4.5 - < 8 kV	12/24/2008	No	0	293 Humphrey St., Swampscott, Patricia Meyer was walking her dog on sidewalk near metal grate dog squealed and fell down dog has abrasions on leg and cuts dog very quiet and resting (18:49) troubleman J Worthylake tested handhole and got 7 volts made repairs and taped connection and tested 0 volts cust ph # 781 842 3093 and po # 1236204
161	Public	01/18/2009 21:57	Ross A Cox	508-897-5753	LYNN	LYNNWAY ST	Metallic SL Standard	Company	Snow - dry	98	Permanent Rep	Bad Neutral	< 0.1 kV	01/18/2009	No	0	A pedestrian walking on Lynnway made contact with aluminum pole 269 and reported that she was zapped. The tman who responded confirmed elevated voltage (98V). After speaking with the u/g supervisor, the tman cut the neutral and hot leg to deenergize the pole. The u/g supervisor will do follow up 1/19. The pedestrian did not leave name or phone number and refused medical treatment as reported by the police to the tman, and had left by the time the tman arrived. All relevant persons were contacted and were notified in person or by voicemail. Inspections department investigation 1/19/09. Power on number 1246742 1. Per underground supervisor John Leach, Tman Jerry Worthylake responded to call. Tman tested and found 98 volts without the 500 ohm resistor. UG supervisor was told the 500 ohm resistor is required per the EOP and should be used in the future. Individual was interviewed by fire department but left the scene and was unavailable. John was told the individual was homeless therefore further contact could not be made.The streetlight was made safe. A crew was sent to p.269 on 1/20. They found that the tshooter had disconnected the feed to the pole at the bottom o
162	Public	01/24/2009 15:22	Ross A Cox	508-897-5753	MENDON	BLACKSTONE ST	Wood Pole	Company	Fair	50	Permanent Rep	Down Ground	< 0.1 kV	01/26/2009	No	0	verizon tech reported hot pole at pole 40, pole 40 1, pole 40 2 and pole 40 3 voltage reading at 50 volts trouble man (Phil Catusi) reported that the neutral is to low in several spot 700 ft of wire needs tighten. He was unable to complete today. He referred to gary bourque (hot line) which should be complete by monday 01/26/09. moved ground to safe position. (Broken guy wire.) Inspection Dept. Investigation: PowerOn: 1249236.1 Per Tman, this Primary Tap is below standard. Pole Top Pins bent, broken Down Guy at P.40 3 and other work to be performed. Request has been sent to OH Lines. Tman measured 0v with 500ohm Resistor before performing temp fix (pulled slack). 321W6 Feeder.
163	Public	01/28/2009 17:29	Ross A Cox	508-897-5753	WORCESTER	CAMBRIDGE ST	Metallic SL Standard	Company	Snow - wet	0			< 0.1 kV	01/29/2009	No	0	CUSTOMER RECEIVED A SHOCK WHEN HE TOUCHED EXPOSED WIRES LOCATED AT 530 CAMBRIGE STREET, WORCESTR CLAIMS THAT THE CUSTOMER WAS SHOVELING HIS SIDEWALK AND NOTICED THAT THEIR WERE EXSPOSED WIRES AT THE STREET LIGHT BASE. THE STREET LIGHT WAS PREVIOUSLEY KNOCKED AND THE CONE OR PROTECTED GUARD WAS MISSING FROM THE BASE AT THE TIME OF THE INCIDENT. THE TROUBLE MAN ARRIVED AT THE SEEN AND FOUND THE EXSPOSED WIRES AND TESTED THE WIRES LIVE. THE TROUBLE MAN PROCEEDED TO TAPE THE EXSPOSED WIRES AND MADE SAFE, HE ALSO PLACED A CONE OVER THE BASE OF THE LIGHT. TROUBLE MAN SUPERVISOR CONTACTED THE CONTRACTOR WHO INSTALLED A NEW 30¿ STREET LIGHT POLE AT POLE 42 CAMBRIGE ST. CONTACTED WESTBORO SERVICE TO VERIFY WHEN THE STREET LIGHT POLE WAS DAMAGED BUT COULD NOT VERIFY WHEN THIS HAPPENED. POWER ON RPT# 1250163 1

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165	Public	01/28/2009 11:08	Ross A Cox	508-897-5753	OXFORD	CLARABARTON WEST RD	Wood Pole	Company	Freezing Rain or Sleet	0.1	Temporary Rep	Ground Connection	< 0.1 kV	02/28/2009	No	0	MARK MANGAUDIS REPORTS CUSTOMERS AT 25 CLARA BARTON RD ARE GETTING SHOCKS IN THE SHOWER. HE HAD ELECTRICIAN CHECK SERVICE ENTRANCE BUT FOUND NO PROBLEM. MATRIX NOTIFIED. TMAN TESTED 10 VOLTS FROM TRANSFORMER DOWN GROUND TO NEUTRAL. CREW ONSITE WAS ABLE TO GET READ DOWN TO 8 1/2 VOLTS IN CUSTOMER"S BASEMENT. REFERRING ISSUE TO STRAY VOLTAGE COMMITTEE FOR FOLLOW UP. POWERON ORDER #1250066 1Refered out to Power Quality for investigation
167	Public	02/07/2009 14:54	Ross A Cox	508-897-5753	LYNN	NEPTUNE BLVD	Metallic SL Standard	Company	Fair	23	Permanent Rep	Insulator	< 0.1 kV	02/07/2009	No	0	A pedestrian"s dog was urinating on an aluminum and made contact with the pole. This was at 80 Neptune Blvd at pole #18. The pole had a reading of 23V and the Handhole next to it had a reading of 50V. It is understood that the owner was en route to a vet wit the dog because of the incident. Inspections investigation. Power On number 125272 1. Spoke to UG supervisor, John Calnan. Connector in handhole broke down insulatio of cable and came in contact with handhole cover energizing cover. Connector was replaced and retaped making permanant repairs. The pole and handhole cover both read 0 volts after repair. Waiting on police report to report condition of dog. 2/9/09. 2/10/09 Spoke with North Shore Animal Hospital of Lynn and was told the dog was brought in on Sunday and was released. The condition of the dog was given as good and no follow up has been requested.
168	Public	03/09/2009 20:06	Ross A Cox	508-897-5753	REVERE	WINTHROP AVE	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			< 0.1 kV	03/09/2009	No	0	CALLED IN BY PD 149 WINTHROP AVE REVERE MAN WALKING DOG NOTICED DOG RECEIVED A SHOCK IN FRONT OF THIS ADDRESS. DID NOT GIVE HIS NAME ONLY A PHONE # 617.799.4442 STATED DOG WAS FINE. TMAN FOUNDP462 WINTHROP AVE WITH AN ENERGIZED RISER PIPE NOT BELONGING TO NGRID. OWNED BY CITY OF REVERE FEEDING FLASHING LIGHT THAT WAS NOT WORKING DISCONNECTED 110 SVC FEEDING PIPE ED LALLY NOTIFIED @ 21:10 HE WILL NOTIFIY CITY OF REVERE THAT THEY NEED THERE ELECTRICIAN TO MAKE REPAIRS TO SVC FEEDING THE LIGHTS TMAN DID NOT GET AN INITIAL VOLTAGE RDG BUT DID TEST IT DEAD AFTER HE DISCONNECT THE FEED TO THE LIGHT. Per Inspections investigation 3/10/09. Power on number 1260382 1. Spoke with OH supervisor Ed Lally. Service will remain disconnected until City makes necessary repair. Service to flashing light that was not working. Believed customer owned cable breaking down within riser pipe caused incident. No initial voltage reading taken, spoke with Ed regarding EOP and need to ge voltage reading with fluke meeter and resistor, Ed to address with Tmen. Dog was in good condition and owner did not seek medical attention for dog.
169	Public	03/12/2009 12:20	Ross A Cox	508-897-5753	WORCESTER	DEVENS RD	Steel Pole	Company	Fair	0			< 0.1 kV	03/13/2009	No	0	CUST REPORTS DOG SHOCKED NEAR 28 DEVINS RD / EMAN REPORTS DOG IS OK BUT THERE IS ELEVATED VOLTAGE AT POLE 4 ALUM POLE / INSPECTOR"S DEPT (TIM DYER) REPORTS 6 VOLTS / CREW DISCONNECTED ST LTS ON DEVENS RD FOR THE NIGHT AND RETURN FRIDAY AM AND CONTINUE THEIR WORK/ Halpin crew to repair lighting circuit on 3-13-09 Light has been de - energized
170	Public	03/26/2009 23:11	James Bouford	508-421-7648	WORCESTER	LINCOLN ST	Wood Pole	Company	Rain - light / moderate	0.5	No Action Required (This can be selected only if the voltage is less than 4.5 volts in field #9)	Procedure Not Followed	< 0.1 kV	03/26/2009	No	0	Charter Communications report hot pole at 173 Lincoln St at P2 Lincoln St @ Orne St measured voltg with resister 0.05 (half a volt) voltage reading notified Tim Dyer. 1/2 volt reading with resistor in place this does not fall under the parameters. Power on # 1264198
173	Public	07/08/2009 14:40	Ross A Cox	508-897-5753	QUINCY	FRENCH ST	Wood Pole	Company	Fair	1000	Permanent Rep	Equip Other (use comments)	< 0.1 kV	07/08/2009	No	0	Someone felt a mild shock and heard a buzzing noise from pole 11 French St line crew went out and stated there is elevated voltage at the pole and took the capacitor bank offline and tagged for Lincoln Control. Inspections Dept investigation: Power On: 1295020, 4J2 Feeder, 3 Phase 450KVAR Cap Bank Switched. The problem was called in by the Quincy PD. The person who felt the mild shock notified the Quincy PD only and is unknown. Per Scott Siereveld, OH Line Supervisor, the voltage found was 1000V with the 500ohm resistor. The Cap Bank was taken off line to remove the EV. The connector for the Cap Bank Ground to the neutral was burnt off. The crew repaired the Ground Connection. A work request will be written to replace the Cap Bank. EV wi be tested after the bank is put back on line. There was no other metallic objects that could be reached from the ground by the public.
175	Public	08/03/2009 17:50	Ross A Cox	508-897-5753	WORCESTER	BEAVER ST	Wood Pole	Company	Fair	0			< 0.1 kV	08/03/2009	No	0	Customer Tina Rodriguez said she plugged an appliance in and felt a slight shock and saw a snap. She ran downstairs and shut off her main breaker. Eman arrived and found broken neutral which appears to have occured during the December Ice Storm. Eman repaired neutral and changed all 6 connectors (3@pole and 3@ house). Customer said there was no injury.

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178	Public	11/30/2009 13:00	Ross A Cox	508-897-5753	AYER	HIBISCUS LANE	Tower	Company	Rain - light / moderate	0			< 0.1 kV	12/01/2009	No	0	SENT T/MAN AS FIRST RESPONER SPOKE WITH CUSTOMER SCOTT WHITTING THINKS THIS IS A TRANSMISSION PROBLEM, WIRES ARE LOW, SHOULD BE INVESTIGATED REFERED TO TRANSMISSION, MORE INFO TO FOLLOW. Inspections. Supervisor Kevin Kinnear dispatched Troubleman Frick to investigate and he did not get any voltage readings at the site. Inspections department had gone out approximately 3 years prior and found similar information. This development is near and has a roadway directly under a 345 kv line. This is a non event as no voltage is present
180	Public	12/31/2009 19:07	Ross A Cox	508-897-5753	GLOUCESTER	ATLANTIC RD	Steel Pole	Company	Fair	0			< 0.1 kV	02/10/2011	No	0	Customer Steve Cohen reports that he was walking his dogs and between houses 51 & %3 Atlantic Rd in Gloucester the dogs got an electrical shock tman out to Pole 6106 Atlantic Rd 8 Volts at base of pole 40 volts at top of pole red capped lite and no volts on pole UG crew investigated repaired neutral in manhole or c hole 383 1
181	Public	12/31/2009 19:07	Ross A Cox	508-897-5753	GLOUCESTER	ATLANTIC RD	Steel Pole	Company	Fair	8	Permanent Rep	Bad Neutral	< 0.1 kV	12/31/2009	No	0	Customer Steve Cohen reports that he was walking his dogs and between houses 51 & %3 Atlantic Rd in Gloucester the dogs got an electrical shock tman out to Pole 6106 Atlantic Rd 8 Volts at base of pole 40 volts at top of pole red capped lite and no volts on pole UG crew investigated repaired neutral in manhole or c hole 383 1
182	Company	12/31/2009 19:07	Ross A Cox	508-897-5753	GLOUCESTER	ATLANTIC RD	Steel Pole	Company	Fair	8	Permanent Rep	Bad Neutral	< 0.1 kV	12/31/2009	No	0	Customer Steve Cohen reports that he was walking his dogs and between houses 51 & %3 Atlantic Rd in Gloucester the dogs got an electrical shock tman out to Pole 6106 Atlantic Rd 8 Volts at base of pole 40 volts at top of pole red capped lite and no volts on pole UG crew investigated repaired neutral in manhole or c hole 383 1
183	Company	12/31/2009 19:07	Ross A Cox	508-897-5753	GLOUCESTER	ATLANTIC RD	Steel Pole	Company	Fair	8	Permanent Rep	Bad Neutral	< 0.1 kV	02/10/2011	No	0	Customer Steve Cohen reports that he was walking his dogs and between houses 51 & %3 Atlantic Rd in Gloucester the dogs got an electrical shock tman out to Pole 6106 Atlantic Rd 8 Volts at base of pole 40 volts at top of pole red capped lite and no volts on pole UG crew investigated repaired neutral in manhole or c hole 383 1
184	Company	12/31/2009 19:07	Ross A Cox	508-897-5753	GLOUCESTER	ATLANTIC RD	Steel Pole	Company	Fair	8	Permanent Rep	Bad Neutral	< 0.1 kV	02/10/2011	No	0	Customer Steve Cohen reports that he was walking his dogs and between houses 51 & %3 Atlantic Rd in Gloucester the dogs got an electrical shock tman out to Pole 6106 Atlantic Rd 8 Volts at base of pole 40 volts at top of pole red capped lite and no volts on pole UG crew investigated repaired neutral in manhole or c hole 383 1
185	Company	12/31/2009 19:07	Ross A Cox	508-897-5753	GLOUCESTER	ATLANTIC RD	Steel Pole	Company	Fair	8	Permanent Rep	Bad Neutral	< 0.1 kV	02/10/2011	No	0	Customer Steve Cohen reports that he was walking his dogs and between houses 51 & %3 Atlantic Rd in Gloucester the dogs got an electrical shock tman out to Pole 6106 Atlantic Rd 8 Volts at base of pole 40 volts at top of pole red capped lite and no volts on pole UG crew investigated repaired neutral in manhole or c hole 383 1
186	Public	12/31/2009 23:42	Ross A Cox	508-897-5753	GLOUCESTER	ATLANTIC RD	Steel Pole	Company	Fair	8	Permanent Rep	Bad Neutral	< 0.1 kV	12/31/2009	No	0	Customer Steve Cohen reported light pole between 51 & 53 Atlantic Rd has voltage and when walking his 2 dogs they got an electric shock tman out and took voltage 8 volts at base of aluminum pole 6106 he red capped lite and then no volts UG crew investigated and found broken neutral at manhole P383 1 and repaired
187	Public	01/09/2010 17:07	Ross A Cox	508-897-5753	MANCHESTER	OLD NECK RD	Metallic SL Standard	Company	Fair	0			< 0.1 kV	01/09/2010	No	0	received call from martha wales (resides at 11 tappan way, manchester) at 14:36, ms. wales was walking her dog on old neck rd, the dog jumped back from aluminum st light p14 old neck rd, cust reported snow melted around pole and thought her dog got a shock; troubleshooter tested 22 1/2 volts on pole, notified underground supervisor brian sturgeon, called in underground crew to disconnect the street light pole, made contact with team leader tim o"leary and safety person john weagraff, brian sturgeon made contact with customer, dog is OK, more info to follow Per inspections investigation 1/11/10. Talked with UG supervisor and was told the problem exists in a 250ft run of lead cable thought to be burning thru. The light was de engerized. A job is being written to pull out the old lead cable and install new cable to re energize the light.
188	Public	02/21/2010 16:38	Ross A Cox	508-897-5753	FRANKLIN	PARTRIDGE ST	StreetLight	Customer	Fair	45	Permanent Rep	Service Wire	< 0.1 kV	02/21/2010	No	0	Mike Hulbig, 411 Partridge Street, Franklin 508.954.7709 called police to complain that his dog was "sapped" at Pole 1 Tanglewood Drive. Pole 1 is a Street Light pole. Street light pole is owned by town. Supervisor Gary Bourque reported tested pole reading was 45v to ground. Tman disconnected wires, reading reads O. Gary is sending crew in morning, thinks there is mixed wiring. Please call Gary at 508.328.5814 with any questions. Inspections Dept investigation: PowerOn # 1368782, Light was connected 240V instead of 120V. Crew will make the repair in the morning. Light 1.1 is fed from PD1 Tanglewood Dr. Gary will enter this event into the IMS System. Their was no personal injury.

Elevated Voltage Report - Massachusetts
06/01/2006 - 02/28/2011

Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc Accident ID	COMMENTS
189	Public	03/21/2010 18:36	Ross A Cox	508-897-5753	HAVERHILL	GINTY BLVD	StreetLight	Customer	Fair	0			< 0.1 kV	03/21/2010	No	0	received call from Haverhill fire department, individual and dog received shock at p9 ginty blvd, upon arrival person and dog gone, fire dpt said person and dog uninjured, fir dpt met troubleshooter at st light pole, tested 120 volts; underground supervisor Brian Hart notified, called in underground crew to de energize pole, service to pole was cut and per Brian Hart pole is owned by city and he will contact city wire inspector. Inspection Investigation 3/22/10. Power on # 1393419 1. Called Haverhill fire dept. 10:30 am on 3/22. They had no further info on pedestrian. They said there was no injury to him or the dog. Per Brian Hart, he instructed the Tman to use the 500 ohm resistor while testing. Brian also said the pedestrian was an electrician and that it looks like direct contact with the pole was not made. The City has been informed since they own the lights, the light was cut at the base. No further details available.
190	Public	04/03/2010 11:35	Ross A Cox	508-897-5753	NORTON	NORTON GLEN RD	HandHole	Company	Fair	10	Permanent Rep	Cable Bad	< 0.1 kV	04/03/2010	No	0	verizon tech reported a customer that lives in Bldg 9 Norton Glen rd reported to him tha she and her dog get shocked at a handhole in front of this building whenever it rains. The troubleman checked and did get a reading of 10 volts from the metal top of the handhole. He found that the wires in the handhole had pushed up into the metal bracke and were rubbing against the bracket. He was able to push the wires back into the older small handhole and make the area safe. The Attleboro offices has been faxed a copy of this requesting that the handhole be replaced, We do not know who the customer was that spoke to the verizon tech. Inspections Dept investigation: PowerOn # 1399456 (no outage). HH.3 2 Norton Glen Rd., Tman Bill Small T.# 2120 took voltage at 10V without 500ohms resistor and repaired insulation on Secondary Cable.
192	Public	06/06/2010 8:29	Ross A Cox	508-897-5753	MANCHESTER	BEACH ST	Steel Pole	Company	Fair	60	Permanent Rep	Cable Bad	< 0.1 kV	06/06/2010	No	0	MANCHESTER FD REPORT DOG SHOCKED NEAR P8 BEACH ST AND MASCONOMO. TMAN & OH SUPV BILL TREFRY RESPONDED AND REQUESTED UG CREW COME IN TO DISCONNECT ALUM STD AT P8 / BILL TREFRY SPOKE TO FIRE DEPT (OWNER"S NAME & CONTACT: BETSY DALTON 978 5261323. FD REPORTS BLACK LAB AND DOG APPEARED FINE. Per Inspections investigation 6/7/10. Spoke with UG supervisor Chris Wellington. UG crew found neutral and hotleg rolled in MH at Beach St. and Tappan and made permanent repairs 6/7. Spoke with son of dog owner and dog is fine. Have call into on call supervisor to try and capture more info. 6/8/2010 Tman reported a reading of 60 volts on metal streetlight. Permanent repairs completed 6/7/2010. UG not sure how hotleg and neutral came in contact. There was a digin in the area recently by town DPW department that may hav contributed.
193	Public	06/24/2010 12:49	Ross A Cox	508-897-5753	WORCESTER	LEE ST	Metallic SL Standard	Company	Extreme hot or cold (below 10 or above 90 degrees)	5.5	Permanent Rep	Install Cable & Ground	< 0.1 kV	06/24/2010	No	0	Elevated voltage was reported on NStar owned gas lines on Lee St in Worcester. An E Man was dispatched to investigate. He determined that it was coming from aluminum street light P.3 on Lee St. The E Man disconnected the source to P.3 & P.4 Lee St. P.1 & P.2 are still energized without incident. The elevated voltage condition was then corrected. New conduit and cable are scheduled to be installed on Monday 6/28. Additionally, the main water and gas lines on Lee St have been replaced with PVC pipe as opposed to the original metallic pipe, interrupting the continuous grounding of those pipes.
194	Public	07/07/2010 14:12	Ross A Cox	508-897-5753	MILLBURY	COLDBROOK RD	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Extreme hot or cold (below 10 or above 90 degrees)	1.5	No Action Required (This can be selected only if the voltage is less than 4.5 volts in field #9)	None Required	0.1 - < 4.5 kV	07/07/2010	No	0	An elevated voltage call was received from 19 Coldbrook Rd, Millbury. The customer was complaining of shocks received whenever they exited their pool. A troubleman was dispatched to investigate. The troubleman confirmed that there was roughly 2V on the concrete pad surrounding the pool. He checked the service and determined that there was nothing wrong with any of the connections. He then referred the customer to the Inspections Department. Inspections then referred the call to Distributed Resources and both went out to investigate. The representative from Distributed Resources then took various voltage readings along the street and around the pool in question. He verified that the customer was seeing 1.5V around the pool which is classified as a nuisance. H then notified the customer that because of the level of the voltage measured, it was not dangerous and they could use their pool safely. Distributed Resources will continue to look into the issue.

Elevated Voltage Report - Massachusetts
06/01/2006 - 02/28/2011

Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc Accident ID	COMMENTS
195	Public	07/14/2010 20:46	Ross A Cox	508-897-5753	MALDEN	FERRY ST	Metallic SL Standard	Company	Fair	23	Permanent Rep	Bad Neutral	< 0.1 kV	07/14/2010	No	0	Woman walking dog claimed dog @street light pole 1191 had electrical contact. Tman found 23 volts at pole disconnected feed. Per Inspections investigation. Spoke with UG supervisor Chris Wellington. Women was very upset but dog appeared fine. Chris gave customer our claims dept. #. Customer called claims twice last night and left 2 numbers. Nancy O'Malley from claims called one number and it was out of service this morning 7/15. She called the other number and spoke to the customer's neighbor (upstairs). The neighbor said the dog is fine and was never taken to the hospital, the customer was sleeping. Nancy gave the neighbor the claims dept number in the event she wanted to file a claim. Spoke with UG splicer Dwight Morrison. Dwight disconnected feed in manhole to streetlight. Dwight said neutral was bad and was carrying some voltage. UG supervisor Chris Wellington sent email to Chris Meanedes to write a job to pull out old cable and run 80ft of new cable. PO # 1442179 1 Dog never went to hospital contrary to report in Power On.
197	Public	08/17/2010 23:39	Ross A Cox	508-897-5753	SCITUATE	JAY RD	Wood Pole	Company	Fair	0			< 0.1 kV	08/17/2010	No	0	14 JAY RD COX CABLE WORKED REPORTED RECEIVING A SMALL JOLT TMAN FOUND FAULTY SLEEVE, JUMPED OUT SLEEVE AND CHANGED CONNECTIONS AT HOUSE AND POLE COX WORKER DID NOT REQUIRE MEDICAL ATTENTION. 08/18/10: Inspections Dept investigation. PO No: 1456366. The Tman did not take voltage before the repair was completed. Service connections were replaced at the pole and house. Pieced in a short section of Neutral near the weatherhead. Lugs in the Meter Socket are corroded. There was no personal injury.
200	Public	02/02/2011 16:02	Ross A Cox	508-897-5753	LYNN	LYNNWAY ST	Steel Pole	Company	Snow - wet	120	Permanent Rep	Lamp Wiring	< 0.1 kV	02/02/2011	No	0	P267 Lynnway St Report of person had electrical contact / shock from metal plate near p267 Lynnway Lynn MA transferred to Mass General via Atlantic Ambulance UG Crew on site; confirmed aluminum Pole 267 Lynnway elevated voltage of 110 volts; no volts from hanhole next to pole; per PD not fatality at this time; at Mass General Hosp getting tests done name Ivan Ramerez.... Pole was tested energized at 120v shortly after incident. Upon investigation, the live leg and neutral were swapped in MDC handhole just in back of pole #267. Crew disconnected and confirmed problem was confined to this location. Wire was manufactured and installed in 2007. Distance from pole #267 to MDC Handhole (HH) is 3 feet confirmed.
201	Public	02/03/2011 13:00	Ross A Cox	508-897-5753	NAHANT	NAHANT RD	Metallic SL Standard	Company	Fair	0			< 0.1 kV	02/03/2011	No	0	Police Dept report of dog stepped on grate and was shocked near Pole 265 Nahant Rd at Cliff St Ug on site 9 volts from manhole cover 4 volts from st light Pole 265 found some pitted lead and disconnected and made safe
202	Public	02/06/2011 17:35	Ross A Cox	508-897-5753	CHELMSFORD	FLETCHER ST	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	110	Permanent Rep	Customer Owner Facility Problem	0.1 - < 4.5 kV	02/06/2011	No	0	Fire dept called to report electric shock @ pole 12 Fletcher St. Tman reports 110V @ pole (with melting snow at base), that feeds Eastern Bank (17 Fletcher St), needs to be disconnected. O/H supervisor notified, Business Service rep notified to call bank re: disconnect. Neither fire dept nor animal hospital could give name of any person or owner of any pet(s) that was affected. Shift supervisor, O/H supervisor, and Business Svc rep aware of details and follow up. Per Inspection investigation 2/7/11, Spoke with OH supervisor Richard Aumais, He and Tman found wire in customer owned secondary riser pipe to be frayed and making contact with the pipe energizing it at 110 volts. They de energized by pulling the 3 cutouts. Business Services contacted Easter Bank and the bank has Crow Electric out there this morning pulling a new service. I spoke with the Chelmsford Fire Dept and was told a women walked into the fire department with her dog and said the dog "felt tingling" while walking by p12 Fletcher S No direct contact was made. The women did not leave her name and both her and the dog were not injured. The FD dispatched a crew to the location and found melted snow
203	Public	02/12/2011 19:43	Ross A Cox	508-897-5753	LOWELL	GORHAM ST	Steel Pole	Company	Fair	21	Permanent Rep	Service Wire	< 0.1 kV	02/12/2011	No	0	CUSTOMER (JOSE RODRIGUEZ 978 479 2174) WALKING DOG IN FRONT OF 145 GORHAM ST REPORTED DOG WAS ZAPPED WHILE RUBBING AGAINST THE LIGHT POLE. CUSTOMER WAS TAKING DOG TO THE VET / TMAN REPORTS VOLT READING OF 21 AT POLE HE DISCONNECTED HOT LEG AND READ IS NOW "0". NOTIFICATION MATRIX WAS FOLLOWED / PO 1534370 1 Per Inspection investigation 2/14. PO number1534382 1. street light cable pinched. UG to pull new cable. Tman made safe. No further info available on dog. G. Yameen, went out and tested pole on 2 14 as well as surrounding poles and found no voltage present in area.
205	Public	02/17/2011 20:16	Ross A Cox	508-897-5753	MARLBOROUGH	PLEASANT ST	Wood Pole	Company	Fair	0.08	Permanent Rep	Ground Connection	< 0.1 kV	02/17/2011	No	0	Marlboro police dept reported a dog received a shock in front of pole 14 on Pleasant st. I spoke with the dispatcher at the PD and as far as they know the dog is ok and they did not have any contact information for the dog owner the troubleman, Dan Heavey, measured 1 volt at the pole and after grounding a riser pipe and bonding the ground wire he received the same voltage. He touched the pipe and felt no voltage. Supervisor Gary Bourque and Jamie Lindsay were both notified and will investigate further. Inspections investigation: PO# 1535571/1, 02/18 @ 0745, 0 volts on Primary Riser and Down Ground. OH Dept will be installing a new Down Ground.

Elevated Voltage Report - New Hampshire
06/01/2006 - 02/28/2011

Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc. Accident ID	COMMENTS
46	Public	11/16/2006 16:33	Ross A Cox	508-897-5753	SALEM	CLOVER CT	Metallic SL Standard	Company	Fair	11	Permanent Rep	Poor Insulation	< 0.1 kV	02/28/2007	No	0	Customer reported wire stickin out of ground and dog received shock. Tman found Tel Co wire exposed between 4 & 6 Clover Ct Tman taped end of wire with tape and covered w/ cone. Tel co notified @ 16:17pm MIA dept investigating.This job has been completed per the area UG Dept regarding this in email 2/28/07 10:29am aldo subject elevated Voltage Report to Tim Dyer
156	Public	10/07/2008 23:07	Ross A Cox	508-897-5753	WINDHAM	WINTER ST	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			0.1 - < 4.5 kV		No	0	customer called from 2 Winter St complaining that there are high tension lines near his property and he was getting an electrical charge on the swing set on his property. Tman recorded .1 volts. The situation has not been resolved and has ben ref to the power quality group for further investigation on 10/8. As for now the swing set was barracaded off and the customer was informed of this. Inspections Dept. investigation.

Elevated Voltage Report - Rhode Island
06/01/2006 - 02/28/2011

Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc. Accident ID	COMMENTS
34	Company	09/12/2006 21:54	Ross A Cox	508-897-5753	PROVIDENCE	CANAL ST	Metallic SL Standard	Company	Fair	61	Permanent Rep	Cable Bad	< 0.1 kV	09/14/2006	No	0	The contractor tested voltage at streetlight poles 30 and 31 Canal St in Proivdence and found at p30 61.9v and at p31 found 61v. The troubleman de energized the poles per supervisor Joe Florio. Joe will investigate for a permanent repair. 09 14 06: Repair made under WR # 1278506, replaced UG Cable between poles, voltage test 0.0V
50	Public	11/30/2006 16:13	Ross A Cox	508-897-5753	CRANSTON	GREYLOCK AVE	Wood Pole	Company	Fair	45	Permanent Rep	Down Ground	< 0.1 kV	11/30/2006	No	0	12:24 VERIZON GLEN REPORTED INSCT GREYLOCK AVE & ELSIE ST P37 WAS A HOT POLE DISPATCHED TMAN 7033 SILVIA VOLTAGE READING WAS45V AT P037 ELSIE ST, AFTER INSTALLING GROUND WIRE & BONDED INTO NEUTRAL READING NOW 0V A/B HANDLE ALSO FOR 22KV LINE GROUND WIRE NEVER ATTACHED TO HANDLE CLEARED 15:30 MIA investigating seems problem alleviated by workers and supervisor.
57	Public	12/20/2006 11:17	Ross A Cox	508-897-5753	SOUTH KINGSTOWN	KINGSTOWN RD	Wood Pole	Company	Fair	128	Permanent Rep	Ground Connection	< 0.1 kV	12/20/2006	No	0	report from Jim McGowan of Verizon of hot pole at p34 50 at corner of Kingstown Rd and Rte 138. Tman got reading of 128volt (without resistor) at guy wire O/H Supv J. Claudino sent crew to repair the problem. 12/21/06: Per J. Claudino, Installed fiberglass rod and bonded the guy. Checked 0v OK. 01/09/07: S. Habelt checked construction OK and 0v on Down Guy.
60	Public	01/24/2007 15:01	Ross A Cox	508-897-5753	BRISTOL	SECOND SCHOOL ST	Wood Pole	Company	Fair	21	Permanent Rep	Ground Connection	< 0.1 kV	01/24/2007	No	0	telco called and reported a hot pole to pole guy wire between p24 state st and p1 second st. tman took voltage reading of 21 volts on guy wire. the tman then bonded the guy wire to the neutral and no voltage was present. 01 26 07: S. Habelt investigated this location OK. There is no metal on the pole that the public can come in contact with. Photos taken.
91	Public	03/09/2007 17:16	Ross A Cox	508-897-5753	BRISTOL	OLIVER ST	Wood Pole	Company	Fair	70	Permanent Rep	Ground Connection	< 0.1 kV	03/09/2007	No	0	steve from verizon 401 439 6589 reported hot pole he was in process of installing telephone service and tested voltage on guy wire/tman checked voltage reading was 70 volts from p2 oliver st to telephones messenger cable tman bounded neutral which brought voltage down to zero matrix was called 03/12/07: Steve Habelt, MIA Dept. Investigating. 03/14/07: Steve Habelt, MIA Dept. Span Guy from P.9114 Hope St. to P.2 Oliver St. has been connected to the system neutral. It is out of reach to the general public with no conductive material going to ground.
95	Public	05/07/2007 19:10	Ross A Cox	508-897-5753	COVENTRY	PURITAN AVE	Wood Pole	Company	Fair	105	Permanent Rep	Ground Connection	< 0.1 kV	05/07/2007	No	0	Verizon called reported a hot guy wire at p7 Puritan ave, Coventry. John Ovalles, trouble man, took voltage reading on the guy wire that fluctuated between 79 volts and 105 volts (without 500ohm resistor). After bonding the guy wire to the system neutral the readings were 0.1 volts. There was no electrical contact reported
97	Public	05/15/2007 17:07	Ross A Cox	508-897-5753	WESTERLY	PICKERING DR	Wood Pole	Company	Fair	6000	Permanent Rep	Insulator	< 0.1 kV	05/17/2007	No	0	verizon reported a hot pole at pole 2 Pickering Dr in Westerly troubleman responded and stated we need an OHL crew to make repairs to the primary insulator which was leaking and the pole top pin is hot. OHL crew made repairs troubleman has reported 6000 volts upon arrival. 05/17/07: S.Habelt, MIA Dept. per Tman, voltage reading was taken between the system neutral and the TCO bracket. Repairs have been made and there is no EV. Photo's taken
98	Company	05/21/2007 17:44	Ross A Cox	508-897-5753	WOONSOCKET	BERNON ST	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			< 0.1 kV	05/21/2007	No	0	15:51 Fire Dept reported wires arcing and or burning on building 278 Bernon St, Woonsocket tman reported fire fighter recieved jolt when opening breakers in basement of bldg, went to ri hospital was conscious, tinglings in arm troubleman cut service clear to building (truck had backed into bldg pull down wires). 05/22/07: S.Habelt, MIA Dept. Investigating. Service has been replaced. EV was not recorded at the time of the event.
99	Public	05/24/2007 17:25	Ross A Cox	508-897-5753	PROVIDENCE	BRIGHTON ST	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			< 0.1 kV	05/24/2007	No	0	Complaint of electric shock felt at water main in front of house. Troubleman checked voltage at the water main in front of house and at the house, all checked out OK No elevated voltage found. 05 24 07: MIA dept has a call into John Kennedy for more information.
100	Public	06/22/2007 10:44	Ross A Cox	508-897-5753	NORTH KINGSTOWN	KNOLLWOOD CIR	Wood Pole	Company	Fair	7	Permanent Rep	Equip Other (use comments)	< 0.1 kV	06/25/2007	No	0	Verizon worker report voltage on pole 10 feet above ground level. Troubleman recorded 6.3 volts on pole 9 and 6.3 volts on pole 10 knollwood Cir. Replaced cutout and insulators still had 6 to7 volts. checking ground wire on Monday 6/25. Still under investigation. 06/25/07: MIA Dept. Investigating. 6/25 at pole 8 and 10 replaced ab chance cutouts and insulators and checked bonds ok, Pole 9 replaced insulators and checked bond ok, checked voltage on cable 0.020 volts. Checked voltage on down ground and down guy at 1.2V w/o resistor and 0.020V with resistor. Pole 9 was recently hit by a motor vehicle.

Elevated Voltage Report - Rhode Island
06/01/2006 - 02/28/2011

Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc. Accident ID	COMMENTS
101	Public	07/09/2007 16:52	Ross A Cox	508-897-5753	COVENTRY	ISLAND DR	Wood Pole	Company	Fair	18	Permanent Rep	Insulator	< 0.1 kV	07/09/2007	No	0	report of a hot pole at pole 7 island dr. Troubleman notified supervisor Dave DelSanto that the problem could be a leaking insulator Dave sent out a crew to investigate. After several attempts to follow up there was not any new information the problem was still under investigation. 07/10/07: MIA Dept. investigating. Per Dave DelSanto, the followin work was performed to correct the problem. Prior to work 18V (w/o resistor) measured on CATV neutral. Crew replaced Primary Insulator, installed bond to TCO bracket and installed a down ground for the 15KVA Transformer. All other bonding was OK. 0.01V (w/o resistor) measured once work was complete.
104	Public	07/28/2007 11:10	Ross A Cox	508-897-5753	NORTH SMITHFIELD	MECHANIC ST	ManHole	Company	Fair	1.4	Permanent Rep	Ground Connection	< 0.1 kV	07/28/2007	No	0	Police called to report worker zapped while using the weed wacker around a manhole cover. Troubleman Steve Thompson responded and reported back that everything on the ground was hot at P26 1A Mechanic St, i.e. sewer covers, mailbox, gas valves, etc. Joe Florio, Supvervisor went to site , they tested voltage on everything and voltage was lower than normal at 1.4V (w/o resistor) lower than hazardous. 07/30/07: MIA Dept. Investigating. Per Joe Florio, the crew installed a bond to the down guy at P.26 1A and retested all equipment in URD at zero volts, except MH.1 4 Justice Ct., which measured 1.4V w/o resistor and 0.01V with resistor. Photo's taken.
119	Public	09/17/2007 23:37	Ross A Cox	508-897-5753	NORTH KINGSTOWN	SHORE DR	Wood Pole	Company	Fair	30	Permanent Rep	Ground Connection	< 0.1 kV	09/17/2007	No	0	Al Perez, 355 Shore Drive, North Kingstown 401.295.7686 cust states keeps getting zapped even through main breaker is off. Pole 17 Shore Drive: North Kingstown, Rhode island: 15v close to meter 30v farther away: per tman truck 7973 at some point in time, the cross arm was changed and the system neutral conn to secondary neutral bushing was never reconnected lead left in loop, laying in primary bushing and lead, leaking primary voltage into system neutral. tman opened cutout, pulled lead off primary bushing with stick and reconnected to system neutral: after energizing, less than one volt. Customer did not report injury. 09/17/07: Inspections Dept. investigation. 30F2 Fdr., P.17 Shore Dr., 5KVA XFMR. WR # 2823031 Cross Arm Program. OH Construction is OK. All bonds are in place. Zero volts on Down Guy and Down Ground. Photo's taken
120	Public	09/22/2007 16:41	Ross A Cox	508-897-5753	JOHNSTON	SHUN PIKE	Manhole Cover	Customer	Fair	0			< 0.1 kV	09/23/2007	No	0	At 1:26am Verizon reported at p18 Shun Pike corner of Greenhill in Johnston 11 to 20 volts on guys, stop signs and manholes. Tman and Supv Jeff Day reported unbounded guy and made safe for now and will send crews during daytime to test matrix notified cleared at 5:05am. 09/22/07: Inspection Dept. investigation. 09/27/07: Actual location is P.6 Shun Pike, Johnston. (Top, 2227 Feeder, Bottom, 18F1 Feeder) Site Meeting w/ Jeff Day. Bond to Primary Down Guy has been disconnected, 0 V recorded. Water MH Cover, 8.6 V w/o resistor, 0 V w/ resistor. Stop Sign and Private AL Light Standard, 7.0 V w/o resistor, 0 V w/ resistor. Photo's taken.
121	Public	10/02/2007 13:08	Ross A Cox	508-897-5753	WEST WARWICK	MICHAEL ST	Wood Pole	Company	Fair	48	Permanent Rep	Insulator	< 0.1 kV	10/02/2007	No	0	Mike from verizon reported hot pole (pole 3 michael st w. warwick) after he tested with his voltage reader) When trouble man arrived he checked voltage and received 6 volts from telephone j hook to pole. And from system neutral to pole reading was 48 volts when testing w/voltage reader at ground it tested zero tman reported that something is possibly wrong with primary glass and he will forward to his ohl supervisor to replace primary glass (electricity is leaking somewhere) 10/02/07: Inspections Dept. investigation: Dave DelSanto, Line Supervisor had a crew change out the insulators and the TCO at pole 3. The 48V reading was taken without the 500 ohms resistor. Once the work was completed, voltage was at zero. Photo's taken.
122	Public	10/03/2007 16:22	Ross A Cox	508-897-5753	COVENTRY	HOOVER DR	Wood Pole	Company	Fair	50	Permanent Rep	Insulator	< 0.1 kV	10/03/2007	No	0	POLE 3 HOOVER DR, VERIZON REPORTED HOT POLE, RECEIVED 50VOLTS ON STREET LIGHT BRACKET, BONDED ALL EQUIPMENT AND CHANGED INSULATOR. 10/03/2007: Inspections Department investigating. Called dispatch talked to Jean D. She refered me to Steve Gouveia 401 255 0168 . Talked to Steve and the trouble workers are using the resistor to test and are in the process of changing insulators and cutouts to find out where the voltage leak is coming from. tdtrouble men changed insulator and cutout at pole 2, voltage down to 3 volts 10/4. 0 volts on Down Guy. All proper bonding is in place. Photo's taken.
124	Public	10/04/2007 15:27	Ross A Cox	508-897-5753	PROVIDENCE	BASSWOOD AVE	Wood Pole	Company	Fair	35	Permanent Rep	Ground Connection	< 0.1 kV	10/04/2007	No	0	Pole 3 Basswood Ave., Verizon reported elevated voltage on guy wire measured voltage at 35V. Bonded Pole to Pole Guy and brought voltage to zero volts, no injuries. 10/04/07: Inspections Dept. investigation. P.3 is a primary deadend pole to pole guy (high side) going to P.2 (low side). The pole to pole guy has been bonded mid span. There is no metal on either pole that can be reached by the public. Photo's taken.

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Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc. Accident ID	COMMENTS
125	Public	10/09/2007 17:41	Ross A Cox	508-897-5753	PROVIDENCE	MASSACHUSETT AVE	Wood Pole	Company	Rain - light / moderate	0.3	Permanent Rep	None Required	< 0.1 kV	10/09/2007	No	0	10:42 DOUGH SHOCKED FROM WATER SERVICE WHEN TOUCHED (2ND CALL 11:16) 401 461 8879 REPORTED LOW VOLTAGE AND CONSTRUCTION WORK IN AREA TMAN 10:46 ASSIGNED. CHECKECK VOLTAGE ON TELCO WIRES 0.3V OK, CABLE TV 0.2V OK. IF PULLING INDUCTIONS TELCO PROBLEM. NO HOT POLE CLEARED 13:54 (TMAN 9802 STEVE THOMPSON) TICKET 1018210 1. 10/09/07: Inspections Dept. investigation. P.4 Massachusett Ave. Zero volts measured on XFMR Down Ground. Photo's taken.
126	Public	10/16/2007 11:10	Ross A Cox	508-897-5753	JOHNSTON	SCITUATE AVE	Wood Pole	Company	Fair	20	Permanent Rep	Down Ground	< 0.1 kV	10/16/2007	No	0	VERIZON TECH KEN BLAZE REPORTED HOT POLE 6 FEET UP POLE (WAS MAKING EQUIPMENT HOT) POLE 25.50 SCITUATE AVE., JOHNSTON. TROUBLE MAN REPORTED DOWN GROUND ATTACHED TO LIGHTNING ARRESTER? CONTRACTORS BUILT A SMALL ROAD GOING INTO WOODS AND BROKE THE GROUND WIRE SOME TIME AGO? TROUBLE MAN MADE REPAIRS AND VOLTAGE. WAS 20 VOLTS BEFORE REPAIRS. NOW VOLTAGE IS BACK TO ZERO AFTER REPAIRS. 10/16/07: Inspections Dept. investigation. Tman installed a new Down Ground at P.25/50. Zero volts measured on Primary Down Guy. Photo's taken.
128	Public	11/17/2007 11:20	Ross A Cox	508-897-5753	WARWICK	CHARLOTTE DR	Wood Pole	Company	Fair	0			< 0.1 kV	11/17/2007	No	0	Verizon Tech called hot Pole 3 Charlotte Drive: tman tested 2 volts: Floated neutral away from pole and voltage read 0. Tman insulated with plastic tube over neutral and clamped. 11/19/07: Inspections Dept. investigation. No matalic objects can be reached by the public. Work has been completed. Photo's taken.
129	Public	11/18/2007 22:55	Ross A Cox	508-897-5753	COVENTRY	VAUGH HOLLOW RD	Wood Pole	Company	Fair	30	Permanent Rep	Equip Other (use comments)	< 0.1 kV	11/19/2007	No	0	JIM A VERIZON TECH REPORTED STRAY VOLTAGE (BY WAY OF TEST) OUR TMAN ATTEMPTED TO JUMP OUT P1 AND VOLTAGE IS STILL HIGH AT 25 TO 30 VOLTS AROUND THE NEUTRAL AND THE HIGHER UP THE POLE THE HIGHER THE VOLTAGE TMAN REPORTED THAT REASON FOR STRAY VOLTAGE COULD BE DUE TO THE CUTOUT BEING IMPROPERLY MOUNTED ON POLE (3 INCHES FROM POLE) HOWEVER JOHN PENA (OHL SUPERVISOR) REPORTED THAT THE WORK THAT WILL BE NEEDED ,IS TOO INVOLVED TO COMPLETE THIS LATE IN THE EVENING. JOHN PENA WILL TAKE AN ENGINEER OUT TOMORROW TO DETERMINE WHERE PROBLEM IS ORIGINATING FROM AND CORRECT PROBLEM BY 11/19/07. 11/19/07: Inspections Dept. investigation. 0V on Primary Down Guy. 0V on XFMR Down Gnd. Photo's taken.
130	Public	11/19/2007 13:10	Ross A Cox	508-897-5753	WEST GREENWICH	HARRY L ANDREWS RD	Wood Pole	Company	Fair	20	Permanent Rep	Insulator	< 0.1 kV	11/19/2007	No	0	Verizon Tech reported high voltage Pole 5 Harry L Andrews Rd. Tman tested with two different testers 4 volts on Telco messenger to pole and 20 volts neutral to pole. Supervisor Dave Delsanto going to site with line crew to replace insulator at Pole 5 and dead end glass on Pole 6 Harry L Andrews Rd. Tman used 2 testers reporting 0 volts. 11/19/07: Inspections Dept. investigation. No metalic objects can be reached by the public. Work is complete. Photo's taken.
131	Public	11/21/2007 14:20	Ross A Cox	508-897-5753	CRANSTON	ELDRIDGE ST	Wood Pole	Company	Fair	0.4	Permanent Rep	Guy	0.1 - < 4.5 kV	11/21/2007	No	0	ELEVATED VOLTAGE POLE TO POLE GUY WIRE WAS CAUSING HIGH VOLTAGE POLE 24 TO POLE 26 ELDRIDGE ST CRANSTON, RI. VOLTAGE WHEN TESTED 22 VOLTS BEFORE REPAIR. TROUBLE MAN BONDED THE POLE TO POLE GUY WIRE TO NEUTRAL WIRE ON TRIPLEX AND NOW THE VOLTAGE IS 0.4 11/21/07: Inspections Dept. investigation. No voltage on Down Ground at P.24 or P.26. Work is complete. Photo's taken.
132	Public	11/26/2007 14:54	Ross A Cox	508-897-5753	NORTH KINGSTOWN	BROOKSIDE DR	Wood Pole	Company	Rain - light / moderate	0			< 0.1 kV	11/26/2007	No	0	pole 7brookside dr, elevated voltage report, showed 2 volts, at pole 8 brookside dr showed 40volts, replaced cutout and glass insulators at pole 8, volt now .5 volts. Inspections department per report voltage problem has been mitigated and nothing to report
133	Public	11/26/2007 16:58	Ross A Cox	508-897-5753	CENTRAL FALLS	BROOK ST	Wood Pole	Company	Rain - light / moderate	22	Permanent Rep	Photo Eye	< 0.1 kV	11/26/2007	No	0	Voltage at house address 23 Brook St., off Pole 2, per Cable Co. Troubleman found at Pole 119 Lonsdale Ave. 22 volts on Streetlight, disconnect Streetlight and this removed voltage, turning into supervisor for further investigation. 11/26/07: Inspections Dept. investigation. No voltage on Down Ground. Streetlight has been disconnected and will be replaced. Photo's taken.
137	Public	01/03/2008 10:30	Ross A Cox	508-897-5753	WEST GREENWICH	SEMINOLE TRL	Wood Pole	Company	Fair	0.3	Permanent Rep	Equip Other (use comments)	< 0.1 kV	01/03/2008	No	0	On 01/03/08 at 10:30 a Verizon Technician reported high voltage at Pole 1 Seminole Trl., W. Greenwich, RI. Troubleman notified OHL supervisor Tony Chiaradio and he sent a crew out to make repairs. The hot pole was between Pole 1 and Pole 2 Seminole Trl., West Greenwich. There was a head guy from pole to pole reading 150 volts (w/o 500 ohm resistor) to ground at Pole 1 and a leaking A/B chance Cutout which contributed to the elevated voltage. Tony Chiaradio had his crew remove the head guy and replaced the A/B chance cutout. The voltage after repair is normal at 0.2 volts (w/o 500 ohm resistor). 01/04/08: Inspections Dept. investigation. Construction complete. 0 volts on Down Guy at P.2 84 Mohawk Trl. Photo's taken.

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Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc. Accident ID	COMMENTS
139	Public	03/07/2008 5:59	Ross A Cox	508-897-5753	TIVERTON	BULGARMARSH RD	Wood Pole	Company	Fair	0			< 0.1 kV	03/07/2008	No	0	ON 3/6/08 VERIZON REPORTED A HOT POLE AT POLE 1670 BULGARMARSH RD, TIVERTON THE TROUBLEMAN RECORDED 38 VOLTS ON THE GROUND WIRE, AT POLE 1670 BULGARMARSH RD THE REPLACED 2 SETS OF DEAD END INSULATORS AND REPLACED THE DOWN GUY, AT POLE 248 MAIN ST THEY REPLACED A CUTOUT, THIS LOWERED THE VOLTAGE TO BETWEEN 1 & 2 VOLTS, REPLACEMENT OF REMAINING INSULATORS ON BURGARMARSH RD WILL BE SCHEDULED FOR NEAR FUTURE
144	Public	05/19/2008 14:09	Ross A Cox	508-897-5753	PROVIDENCE	BELMONT AVE	Wood Pole	Company	Fair	4	Permanent Rep	Ground Connection	< 0.1 kV	05/19/2008	No	0	verizon tech reported elevated voltage at pole 11 Belmont Ave. upon arrival troubleman tested and received 4 volts troubleman then changed the ground connector and tested again and received zero volts. 05/20/08: Inspections Dept. investigation. PowerON ID # 1096845.1, Tman John Silva, T # 7033 replaced ground connection at the 50KVA Transformer on P.11 Belmont Ave. 50W HPS Street Light is not bonded. NGrid down ground is on the left in the photo taken (0V). CaTv down ground is on the right in the photo taken (0V). There are no other metallic objects that can be reached from the ground. The Span Guy from P.11 to P.12 is OK. P.11 has a Fiberglass Rod on the high end and P.12 is bonded on the low end. Photo's taken.
145	Public	05/20/2008 13:02	Ross A Cox	508-897-5753	WEST WARWICK	COCHRAN ST	Wood Pole	Company	Fair	7	Permanent Rep	Insulator	< 0.1 kV	05/20/2008	No	0	AT POLE 10 COCHRAN ST VERIZON REPORTED A HOT POLE TROUBLEMAN BONDED THE DOWN GUY BUT STILL WAS GETTING 3 7VOLTS FOREMAN DAVE DELSANTO WAS NOTIFIED AND HE SENT A CREW TO CHANGE THE PRIMARY GLASS. 05/20/08: Inspections Dept. investigation. PowerOn # 1097615.1 first responder, John Fargnoli, T # 7972, Tman. Dave Delsanto, OH Supervisor made permanent repairs to correct the problem. P.10 replaced Pole Top Pin Insulator, Primary Down Guy has no fiberglass rod, but is bonded, OK, 50W StreetLight Bracket not bonded. CaTV Down Guy is bonded. TelCo Down Guy is not bonded. All metallic objects that can be reached by the public measured 0V. PowerOn # 1097710.1, P.8 Replaced TCO, OK. PowerOn # 1097726.1, P.13 Replaced TCO, OK. Photo's taken.
147	Public	06/13/2008 13:21	Ross A Cox	508-897-5753	NARRAGANSETT	COL JOHN GARDNER RD	Wood Pole	Company	Fair	10	Permanent Rep	Insulator	< 0.1 kV	06/13/2008	No	0	troubleman Jeremy Fortune responded to pole 34 Col John Gardner Rd and is getting 10 volts inside the pole Mark Swanson OHL foreman is getting a crew to replace the dead end glass. 06/13/08: Inspections Dept. investigation. PowerOn # 1111472.1 first responder, Jeremy Fortune, Tman. Mark Swanson, OH Supervisor made permanent repairs to correct the problem. P.34 replaced Pole Top Pin Insulator, P.38 replaced DE Insulator, Secondary Down Guy is not bonded, OK, 50W StreetLight Bracket is bonded. All metallic objects that can be reached by the public measured 0V. Photo's taken.
157	Public	10/10/2008 16:59	Ross A Cox	508-897-5753	WEST GREENWICH	DONALD POTTER DR	Wood Pole	Company	Fair	0.8	No Action Required (This can be selected only if the voltage is less than 4.5 volts in field #9)	Equip Other (use comments)	< 0.1 kV	10/10/2010	No	0	At aprroximately 14:40 Mr. John Kuprevich from 59 Donald Potter Rd W Greenwich RI, received a shock while getting into hot tub. Trouble man took voltage reading today it read .8 volts from water in hot tub to ground. Since July 9, 2008 we"ve changed transformer and changed insulator on road. Two months ago we dropped service and still a received reading from location Customer is very upset that and feels nothing is being done. Diane Edwards is the engineering investigating this case. Trouble stated tha this is an on going investigation. Still pending. Transfered to distributive resorces to investigate.
166	Public	02/03/2009 14:11	Ross A Cox	508-897-5753	FOSTER	KING RD	Wood Pole	Company	Freezing Rain or Sleet	4	Permanent Rep	Down Ground	4.5 - < 8 kV	02/03/2009	No	0	A representative from Verizon reported a 'hot pole' at approximately 10:00 a.m. on 02/03/09. Trouble man reported a broken down ground at telephone pole 30 King Rd. Voltage registered at 8 volts befor repairs. After repairs voltage registered at 4 volts. Trouble man was dispatched immediately and reported a broken down ground at pole 30 King Rd, Foster RI. The trouble man tested the pole before the repairs and the voltage registered at 8 volts. The trouble man made repairs to the ground and retested the down ground which the voltage registered at 4 volts. The trouble man did not use the 500 ohm input load impedance when testing the ground. I contacted the OH supervisor to have another team sent out to check the voltage with the 500 ohm input load impedance on the volt meter. They found a potted porcelain cutout and dead end glass and sleeved primary that needed replacing. After repairs were made, the crew tested th ground which registered 0 Volts.
171	Public	03/24/2009 9:33	Ross A Cox	508-897-5753	WEST WARWICK	MAYWOOD DR	Wood Pole	Company	Fair	0			< 0.1 kV	03/24/2009	No	0	PER TROUBLEMAN GETTING 10 15 VOLTS FROM THE MESSENGER TO THE POLE AT POLE 2 MAYWOOD DR IN WEST WARWICK OHL FOREMAN IS SENDING A LINE CREW TO CHANGE THE PRIMARY INSULATOR Crew has gone out and changed the ptp insulator and retested the ground which then read 0 volts.
172	Public	06/24/2009 15:15	Ross A Cox	508-897-5753	WARWICK	EAST AVE	SwitchGear	Company	Rain - light / moderate	0			< 0.1 kV	06/24/2009	No	0	David from Osmos was stenciing pole 9038 East ave, Warwick when he touched the handle of the Air Break, he stated that the Air Break was making a noise. There was not a hot ground wire as first reported. The Troubleman tested measured 0v with a 500 ohm resistor connected. The troubleman installed a ground wire here and Supv. Andy Capistron will arrange to Air Break replaced. Osmos worker was not injured nor did he require medical attention. Waiting for information form the OH depatment

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Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc. Accident ID	COMMENTS
174	Public	07/22/2009 21:27	Ross A Cox	508-897-5753	COVENTRY	MONTANA AVE	Wood Pole	Company	Fair	0			< 0.1 kV	07/22/2009	No	0	Cox Cable worker reported getting zapped at 25 Montana Ave reported 40 60volt reading on his machine Cable worker stated he was ok and did not need to go to hospital. Troubleman changed connections at house and noticed cracked cutout at pole he did not take any reading but will check voltage when he goes back with second troubleman to change cutout WORKER NAMED ROB MESSORE, SAYS GETTING BACK FEED ON LINE. CHANGED CONNECTIONS AT HOUSE CUTOUT AT POLE CRACKED, WILL CHANGE TONIGHT WITH SECOND TMAN WILL TAKE READINGS AT THAT TIME. Cutout changed, refuse 10k. Troublemen changed connections at pole, from ground and from neutral to all other equipment at pole and tested zero volts .
176	Public	08/07/2009 15:31	Ross A Cox	508-897-5753	PROVIDENCE	PINE ST	ManHole	Company	Fair	0			< 0.1 kV	08/07/2009	No	0	At the intersection of Pine St and Stewart St in Providence at manhole #589 cable burnt up and was energizing area at 90 volts. No injuries reported. The underground department cut it clear. INSPECTIONS: Power on: 1305687 1 At the intersection of Pine St and Stewart St in Providence, At MH 589, the secondary cable leaving to feed HH 7 Pine Street had the insulation burnt off exposing the hot leg causing the metal conduit to energize. 90 volts was tested with out the 500 ohm resistor where the civil work was being performed (water main). The surrounding area of the street was tested with the wand, which lit up at a chain link fence, down guy and also a stop sign. The underground department cut it capped the secondary cable and retested the area 0 volts, again with out the 500 ohm resistor. Power on: 1305687 No IDS number because of no outage. No injuries reported
177	Public	10/06/2009 13:24	Ross A Cox	508-897-5753	SMITHFIELD	APPLE ORCHARD LN	Wood Pole	Company	Fair	168	Permanent Rep	Equip Other (use comments)	< 0.1 kV	10/06/2009	No	0	Pole 1 Apple Orchard Lane, Smithfield; broken cutout caused tracking which found 168 volts on the down guy. Crew changed out cutout and also bonded guy wire which brought the volatge to .4 volts.
179	Public	12/27/2009 14:09	Ross A Cox	508-897-5753	NARRAGANSETT	SAKONNET BLVD	HandHole	Company	Rain - light / moderate	120	Permanent Rep	Service Wire	< 0.1 kV	12/27/2009	No	0	PLOW HIT CEMENT HANDHOLE EXPOSING SECONDARY WIRE DOG BELONGING TO CUSTOMER AT 30 SAKONNET BLVD RECEIVED SMALL JOLT DOG IS OK, WIRES MADE SAFE AND CONED OFF HANDHOLE TO BE REPLACED. Inspections Dept investigation: PowerOn 1351461 Fdr 17F2. Per Al Caldarone, Tman HH is between Hse 30 and 36, HH.0 1 off PD.1 97. One Hot Leg was exposed 120V. Contractor to replace HH.
191	Public	05/02/2010 20:05	Ross A Cox	508-897-5753	WARWICK	MAJOR POTTER RD	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	1.4	No Action Required (This can be selected only if the voltage is less than 4.5 volts in field #9)	None Required	< 0.1 kV	05/02/2010	No	0	Neutral to Earth voltage reported at 715 Major Potter rd Warwick. Trouble man reported voltage reading of 18 volts coming from his outside shower. Had the trouble man disconnect service and pull meter at house which isolated the house from the electrical sysytem, and measured 18 volts at house. This morning on May 3rd, I tested the meter at the house using the 500 ohm shunt resistor and measured 1.4 volts. Checked several poles on that street, all tested below 4.5 volt threshold with the 500 ohm resistor. I will forward this issue to engineering for a further investigation.
196	Public	08/14/2010 19:45	Ross A Cox	508-897-5753	NORTH KINGSTOWN	SLOCUM RD	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			< 0.1 kV	08/14/2010	No	0	A customer at 130 Slocum Rd. N Kingstown reported at approximately 08:24 A.M. on 08/12/10 that they receive shocks when touching the faucet outside the house. The trouble man who responded was John Smith and he reported he ran a new down ground and changed all connectors at both the pole and the house. Investigation transferred to distributed resources.
198	Public	01/29/2011 22:21	Ross A Cox	508-897-5753	WARWICK	KING ST	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0			< 0.1 kV	01/29/2011	No	0	20:41 REPORT GENERATED FOR 50 KING ST, WARWICK, RI CUSTOMER CLAIMED THEY WERE GETTING SHOCKS WHEN THEY WALK IN THROUGH DOOR AND THE DOG WAS SQUEALING WHILE WALKING THROUGH DOOR AS WELL , TROUBLEMAN JOHN OVALLES CHECK LOCATION AND FOUND NO PROBLEM WITH NGRID EQUIPMENT CUSTOMER INSTALLED ALUMINUM SIDING OVER OLD OUTSIDE LIGHT SOCKET, SO WHEN LIGHT SWITCH IS TURNED ON, IT ENERGIZES THE ALUMINUM TRIM AROUND THE DOOR CUSTOMER PROBLEM TROUBLEMAN ADVISED CUSTOMER CLEARED @ 22:05 POWERON ORDER 1529877 1 NO ONE HURT
199	Public	02/02/2011 14:41	Ross A Cox	508-897-5753	EAST PROVIDENCE	BULLOCKS POINT AVE	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Rain - light / moderate	0			> 8 kV	02/02/2011	No	0	ripta bus authoriy said they received reports of people getting shocks from a bus shelter near pole 374 bullucks point ave tman found that there was no meter in socket or cover on it neutral wire and hot leg was burnt at weatherhead. Electrician stated EV was 20 25volts

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Report ID	Reported By	EV Date & Time	Contact Person	Contact Phone	TOWN	STREET	Impacted Equipment	Equipment Owner	Weather Condition	Voltage	Immediate Action	Repair Type	Post Mitigation Voltage	Date of Mitigation	INJURY	Assoc. Accident ID	COMMENTS
204	Public	02/14/2011 16:41	Ross A Cox	508-897-5753	TIVERTON	STONEY HOLLOW RD	Other Customer Owned Equipment-Other Customer Owned Equipment	Customer	Fair	0.795	Permanent Rep	Equip Other (use comments)	0.1 - < 4.5 kV	02/15/2011	No	0	SV TROUBLEMAN DAVE DAVIES ARRIVED @ 14:13, POWEON ORDER 1534633 1 DOG SHOKED AT METER PEDESTAL WHICH WAS 4 FT FROM PINE TREE PINE TREE WAS ENERGIZED WHEN CAME IN CONTACT WITH PRIMARY AT POLE 5 STONEY HOLLOW RD, TIVERTON, RI ... CUSTOMERS AT 54 STONEY HOLLOW RD SERIVCE WAS GROUNDED, TROUBLEMAN TRIMMED OUT AROUND POLE 5 STONEY HOLLOW RD AND CHANGED ALL CONNECTIONS AT POLETHE DOG IS FINE AND RESIDE AT LOCATION OF 54 STONEY HOLLOW RD No voltage found when T-man arrived. With 500 ohm resistor installed, 0.052 volts found by inspections dept. 0.795 volts without the resistor.

Manhole Reports - Rhode Island
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Report ID	Manhole Report Type	Number of Customers Interrupted	Customer Outage Hours	Cause	Failure Date	Failure Time	Weather	Town	Street	Feeder	Voltage Class	Manhole#	Date of Most Recent Manhole Inspection	Manhole Cover Type	Cover Dislodged? (Y/N)*	Failed Equipment Type	Estimated Age of Failed Equipment	Cable Type (if applicable)	Gas Detected	Injury (Y/N)	Associated Accident ID	Comments
381	Manhole Explosion			Insulation failure - cable	11/22/2006	18:29:00	Fair	PROVIDENCE	WESTMINSTER ST	107W63		35	11/22/2006	Solid	Y	Cable	1950	EPR	N		1345	Providence Police reported manhole #35 cover dislodged. Underground arrived and a cable fault was found at Westminster & Moulton Sts. When Police Officer tried to remove cover off Manhole gas was ignited secondary cables found burnt in manhole. Mia Investigating. 11/24/2006: WR #1652346 written to remove damaged secondary cable and install 300KCM Quad. 600V CU EPR Secondary Cable between MH.35 and MH.36 Westminster St.
464	Manhole Fire			Insulation failure - cable	03/02/2007	23:11:25	Rain - light / moderate	PROVIDENCE	WATERMAN ST	107W63	J (4.16 kV)	1315	03/02/2007	Solid	N	Joint	2003	XLP	N		0	manhole 1315 waterman st. quick splice flashed,damaging mainline. 2J1 CIRCUIT BREAKER OPENED, CABLE FAILURE MANHOLE 1315 WATERMAN ST, QUCIK SPLICE PROBLEM MANHOLE 1315 FLASHED DAMAGING MAINLINE, CUSTOMERS PICKED UP THROUGH LINCOLN CONTROL OPENED LB P67 1/2 BROOK ST CLOSED LB P54 BROOK ST (PICKED UP 381 CUSTOMERS) @ MH2762 WATERMAN OPENED #1 VACUMN SWITCH TO ISOLATE, CLOSED #4 VACUMN SWITCH MH 2762 WATERMAN (PICKED UP 129 CUSTOMERS) CLOSED VFI SWITCH MH 2762 WATERMAN REMAINING 20 CUSTOMERS PICKED UP JOE FLORIO UNDEGROUND SUPV.
466	Smoking			Insulation failure - cable	03/06/2007	20:19:30	Fair	PROVIDENCE	HOPE ST	107W63	J (4.16 kV)	2202	03/06/2007	Solid	N	Cable	1980	XLP	N		0	MANHOLE SMOKING AT THE CORNER OF HOPE ST AND GLENDALE AVE CAUSED BY THE RISER CABLE 37J3 FEEDER LOCKED OUT HAPPENED AT 19:30PM 3/6/07. 03/07/07: S.Habelt MIA Dept. WR # 2085086 to replace damaged cable. MH.2202 Hope St. was the location of the cable fault.
550	Manhole Explosion			Insulation failure - cable	05/03/2007	10:37:03	Fair	PROVIDENCE	WESTMINSTER ST	107W63	J (4.16 kV)	1795	03/29/2007	Solid	N	Cable	1950	PILC	N		0	at 9:23 the ug crew was energizing a portion of the 6j8 feeder when there was a manhole explosion at vault #1 manhole 1795 there were no injuries or damage reported. 05/04/07: S.Habelt MIA Dept. Per R.Carpenter, crew energized the 6J8 ug cable from a riser pole down the street which caused the failure. This area is scheduled to be converted so the UG Department did not install new splices. This MH was last inspected on 03/29/07
710	Manhole Explosion			Insulation failure - cable	06/29/2007	11:19:07	Fair	PROVIDENCE	ELMGROVE AVE	107W63		2368	06/29/2007	Solid	N	Cable	1970	XLP	N		0	fire dept called and reported a manhole cover exploded at 511 Elmgrove Ave Providence, fire dept on site. Supervisor for ug Keith Burgoyne went to site the manhole cover was intact but blew out through manhole and crowned 40 feet of street. Cable failed on 2248 feeder manhole #2368 Elmgrove Avel UG crews also on site. 07/02/07: MIA Dept. investigating. 07/05/07: Per Keith Burgoyne, all electrical and MH work has been completed. Road work is scheduled to be completed today. There were no customers effected by this outage. See Trouble/Splice Log #15388 for more info. MH.2368 was not on the schedule for inspection last year, it is on this years schedule, but has not been looked at yet.
1145	Manhole Fire			Unknown	04/02/2008	10:51:20	Fair	PROVIDENCE	BENEFIT ST	107W63	J (4.16 kV)	2727	04/02/2008	Solid	Y	Termination	1980	XLP	N		0	Blown manhole cover in front of 88 Benefit St, Providence causing a feeder lock out on the 2J9 feeder. Notified O & M at 11:05,notfied matrix, no injuries reported. 362 customers lost power at 10:51,restored 187 customers at 11:23. Open manhole # 1220 N Main St Providence at 11:52 for repairs to cable fault. All repairs made and all customers restored at 19:22. 04/02/08 Inspections Dept. investigation. MH.2727 Benefit St. PowerOn: 1084106.1, IDS:7349971, Failed T Body.
1347	Smoking			Insulation failure - cable	07/09/2008	9:18:05	Fair	PROVIDENCE	CHARLES ST	107W63		2552	07/09/2008	Solid	N	Cable	1980	XLP	N		0	smoking manhole at 2552 Charles St in Providence underground on scene to make repairs 2237 feeder went out no injuries reported. Inspections Dept. investigation: Per Bill Sugrue, UG Supervisor, the UG Dept. made repaires to the 2237 Sub.T. Feeder on the C Phase cable by installing a piece of 1000 XLPE AL cable and two splices. No customers were effected.
1407	Smoking			Unknown	07/19/2008	21:09:08	Fair	NEWPORT	AMERICA'S CUP AVE	122J2	J (4.16 kV)	278	10/30/2006	Solid	Y	Joint	1970	XLP	N		0	17:11 FIRE DEPT REPORTED M.H COVER POPPED, SMOKE COMING OUT MATRIX NOTIFIED NO OUTAGES (JUST LIGHTS FLICKERED ON & OFF AT STATION) NO INJURIES JOE FLORIO TO HAVE U.G CHECK / MAKE REPAIRS. Inspections Dept. Investigation: PowerOn: # none, IDS: # none. Per Joe Florio, The feeder was the 131J14. A Joint failed, 3 conductor to 3 conductor. 350 XLPE CU. The MH Cover is solid and was tipped open when the Tman arrived. There were no personal injuries. MH.278 was last inspected on 10/30/2006 in good condition.
1687	Manhole Explosion			Deterioration	11/27/2008	0:58:07	Fair	WOONSOCKET	CUMBERLAND ST										N		0	Manhole #382 cumberland st/Intersection of cass ave. Manhole explosion called in by customer at 182 cumberland tbody failed
1958	Manhole Explosion			Insulation failure - cable	04/11/2009	14:34:00	Rain - light / moderate	PROVIDENCE	HARRISON ST										N		0	The Providence Fire Dept reported an explosion on the corner of Harrison & Westminster St. They stated "two manhole covers had blown off". The tman on duty Jeff Kemp confirmed the explosion occured between manhole 222 Harrison St(at corner of Westminster St) and handhole 1 Courtland St.(also at corner of Westminster St) and both covers were dislodged. He also reported that an underground leg blew and lit off residual gas which caused the explosion. No injuri were reported and only 1 customer at 1204 Westminster St had partial power as a result of this. An underground crew was called in to make repairs. Per inspections investigation PowerOn Number - 1268465-1
2008	Manhole Explosion			Insulation failure -	06/27/2009	5:18:32	Fair	WOONSOCKET	DIAMOND HILL RD										N		0	manhole 330 (off diamond hill rd)explosion blew cover off - no injuries
2408	Smoking			Flooding	03/29/2010	5:08:20	Rain - light / moderate	PROVIDENCE	WESTMINSTER ST	Z1101		554	03/23/2007	Slotted	Y	Cable	1990	PILC	N		0	Providence PD called in smoking manhole intersection of westminster st @ cranston st. Tman found smoke from manhole and notified U/G supervisor. Per Inspections Investigation 3/29/10: spoke to UG supervisor Harvey Bertrand,the 1101 feeder had a cable fault at MH 554 Westminster Street. Replacing 3 sections of UG cable at MH 1707 514 2275 212 Westminster St. No customers affected. Power number 1395642 1.
2428	Smoking			Insulation failure - cable	03/29/2010	23:14:02	Rain - heavy	PROVIDENCE	PARK ST	13F8	F (12.47 kV)	2614	07/13/2005	Slotted	Y	Cable	1995	EPR	N		0	MANHOLE EXPLOSION IN MH 2614 PROMENADE ST CAUSING FEEDER LOCKOUT ON THE 13F8 FEEDER Inspection Investigation: Spoke with Harvey Bertrand UG supervisor, Pulling in new section of cable between MH2614 and MH2615 and 6 T bodies @ Park st. All customers picked up.. Per IDS Report # ALL CUSTOMERS AUTO FLOPPED OVER TO ALTERNATE FEEDS. Power On# 1395974 1
2468	Manhole Explosion			Unknown	04/27/2010	19:47:00	Fair	PROVIDENCE	ADELAIDE AVE										N		0	Providence Fire Dept Dispatcher #19 reported at the intersection of Elmwood Ave and Adelaide Ave the manhole cover was blown off. Troubleman Rob Bain truck #7970 went to the site to find the Manhole #696-22 at that corner blew off and landed on the ground and broke in half. There were no injuries or damages. John Pena the on call supervisor was notified and he called in an underground crew. They did not clear with Lincoln Service.
2770	Smoking			Insulation failure - cable	12/15/2010	4:19:11	Fair	PROVIDENCE	EDDY ST										N		0	M.H. 291 EDDY ST (INTERSECT BROOM ST), PROVIDENCE, RI SMOKING AND DISLODGED U.G. CABLE FAULT 20:57 CAUSED LOCKOUT OF PAWTUXET SUB, WARWICK, RI 2260 LINE (FEEDERS AFFECTED 31J1 83 CUSTOMERS, 31J2 1,063 CUSTOMERS AND 2260 LINE 14 CUSTOMERS RESTORED AT 21:42 CONTACTS KEITH BURGOYNE 401 639 3068 - NO INJURIES
2948	Manhole Explosion			Unknown	02/27/2011	10:07:00	Snow - wet	PROVIDENCE	BROAD ST	76F6	F (12.47 kV)	791	10/15/2007	Solid	Y	Cable	1995	EPR	Y		0	Between 1200 & 1300 Broad St manhole cover blew off underground crew testing to make sure our equipment is ok no outage associated with this and no injuries reported. Per inspections investigation, a gas leak into electric MH791, Broad St in Providence was ignited by a secondary fault causing the cover to dislodge. Approximately 120 feet of secondary was replaced to restore conditions back to normal. Power On #1540778-1. No IDS event.

Shock Reports from the Public

nationalgrid December 2006 Report (11/30/06-12/31/06)	Quarterly Update	Yearly Total
I. Total shock calls received:		
Voltage Found	5	133
Unsubstantiated	2	63
Employee Contact		1
Non-Employee Contact	1	45
II. Medical Attention Sought:		
Employee		1
Non-Employee	1	17
Domestic Animal		1
The following sections apply for the incidents listed as "Voltage Found" in Section I		
III. Equipment owner:		
Utility	1	34
Non-utility (Coned only)		
Customer	4	99
IV. Action to make safe:		
Permanent repair at time of discovery		36
Temp. repair at time of discovery		16
Cut and cap service line		3
Customer circuit breaker or fuse	4	50
Barriers		
Other	1	28
V. Voltage Source:		
Streetlight service line		2
Streetlight base connection		2
Streetlight internal wiring or light fixture		
Issue with primary, joint, or transformer	1	8
Defective service line		7
Abandoned service line		
Customer wiring	2	49
Customer equipment	2	37
Other		28
VI. Voltage Range:		
1.0V to 4.4V	2	7
4.5V to 7.9V		5
8.0V to 24.9V		9
25.0V to 99.9V		14
100.0V or higher	1	21
No Reading Primary Involved	1	3
No Reading	1	74

Shock Reports from the Public

nationalgrid November 2007 Report (12/01/06-11/30/07)	Monthly Update Nov 2007	2007 Yearly Total
I. Total shock calls received:		
Voltage Found	7	139
Unsubstantiated	8	55
Employee Contact		
Non-Employee Contact	3	25
II. Medical Attention Sought:		
Employee		
Non-Employee	1	15
Domestic Animal		2
The following sections apply for the incidents listed as "Voltage Found" in Section I		
III. Equipment owner:		
Utility		31
Non-utility (Coned only)		
Customer	7	108
IV. Action to make safe:		
Permanent repair at time of discovery	1	20
Temp. repair at time of discovery		7
Cut and cap service line		22
Customer circuit breaker or fuse	5	47
Barriers		
Other	1	43
V. Voltage Source:		
Streetlight service line		1
Streetlight base connection		
Streetlight internal wiring or light fixture		2
Issue with primary, joint, or transformer		7
Defective service line		9
Abandoned service line		5
Customer wiring	4	57
Customer equipment	1	30
Other	2	28
VI. Voltage Range:		
1.0V to 4.4V		2
4.5V to 7.9V		3
8.0V to 24.9V		10
25.0V to 99.9V		14
100.0V or higher	1	20
No Reading Primary Involved		2
No Reading	6	88

Shock Reports from the Public

nationalgrid November 2008 Report (12/01/07-11/30/08)	Monthly Update	Yearly Total
I. Total shock calls received:		
Voltage Found	9	124
Unsubstantiated	9	64
Employee Contact		
Non-Employee Contact	5	34
II. Medical Attention Sought:		
Employee		
Non-Employee	1	11
Domestic Animal		3
Non-Domestic Animal/Wildlife		1
The following sections apply for the incidents listed as "Voltage Found" in Section I		
III. Equipment owner:		
Utility	4	48
Non-utility (Coned only)		
Customer	5	76
IV. Action to make safe:		
Permanent repair at time of discovery	1	34
Temp. repair at time of discovery	2	9
Cut and cap service line		17
Customer circuit breaker or fuse	5	39
Barriers		
Other	1	25
V. Voltage Source:		
Streetlight service line	1	4
Streetlight base connection		1
Streetlight internal wiring or light fixture		1
Issue with primary, joint, or transformer	1	11
Defective service line	1	11
Abandoned service line		5
Customer wiring	3	51
Customer equipment	2	14
Other	1	26
VI. Voltage Range:		
1.0V to 4.4V	2	13
4.5V to 7.9V		1
8.0V to 24.9V	2	13
25.0V to 99.9V		19
100.0V or higher		11
No Reading Primary Involved		6
No Reading	5	61

November report includes 1 shock report from July, 1 shock report from September and 2 shock reports from October

YEARLY TOTALS HAVE BEEN REVISED TO INCLUDE SHOCK CALLS REPORTED IN DECEMBER 2007

Summary of Shock Reports from the Public

National Grid 2009 1st Quarter December 1, 2008 – March 31, 2009	Quarterly Update	Yearly Total
I. Total shock calls received:	**67**	**67**
Unsubstantiated	20	20
Normally Energized Equipment	7	7
Stray Voltage:		
Person	38	38
Animal	2	2
II. Injuries Sustained/Medical Attention Received	**3**	**3**
Person		
Animal	3	3
III. Voltage Source:	**40**	**40**
Utility Responsibility		
Issue with primary, joint, or transformer	2	2
Secondary Joint (Crab)		
SL Service Line	1	1
Abandoned SL Service Line		
Defective service line		
Abandoned service line	2	2
OH Secondary	1	1
OH Service	2	2
OH Service neutral	6	6
Pole		1
Riser		1
Other		2
Customer Responsibility		
Contractor damage		
Customer Equipment / Wiring	26	26
Other Utility / Gov't Agency Responsibility		
SL Base Connection		
SL Internal Wiring or Light Fixture		
Overhead Equipment		
IV. Voltage Range:		
1.0V to 4.4V	2	2
4.5V to 24.9V	6	6
25V and above	5	5
Unknown	27	27

National Grid 2009 2nd Quarter April 1, 2009 – June 30, 2009	Quarterly Update	Yearly Total
I. Total shock calls received:	**49**	**116**
Unsubstantiated	16	36
Normally Energized Equipment	13	20
Stray Voltage:		
Person	16	54
Animal	4	6
II. Injuries Sustained/Medical Attention Received		
Person		
Animal		3
III. Voltage Source:		
Utility Responsibility		
Issue with primary, joint, or transformer		2
Secondary Joint (Crab)		
SL Service Line	2	3
Abandoned SL Service Line		
Defective service line	1	1
Abandoned service line		2
OH Secondary		1
OH Service		2
OH Service neutral		6
Pole	1	1
Riser		
Other		
Customer Responsibility		
Contractor damage		
Customer Equipment / Wiring	16	42
Other Utility / Gov't Agency Responsibility		
SL Base Connection		
SL Internal Wiring or Light Fixture		
Overhead Equipment		
IV. Voltage Range:		
1.0V to 4.4V		2
4.5V to 24.9V	1	7
25V and above	7	12
Unknown	12	39

National Grid 2009 3rd Quarter July 1, 2009 – September 30, 2009	Quarterly Update	Yearly Total
I. Total shock calls received:	**74**	**190**
Unsubstantiated	13	49
Normally Energized Equipment	20	40
Stray Voltage:		
Person	40	94
Animal	1	7
II. Injuries Sustained/Medical Attention Received	**3**	**6**
Person		
Animal	3	6
III. Voltage Source:	**41**	**101**
Utility Responsibility		
Issue with primary, joint, or transformer	4	6
Secondary Joint (Crab)	2	2
SL Service Line	1	4
Abandoned SL Service Line		
Defective service line		1
Abandoned service line		2
OH Secondary		1
OH Service		2
OH Service neutral	3	9
Pole		1
Riser		
Other	4	4
Customer Responsibility		
Contractor damage	1	1
Customer Equipment / Wiring	26	68
Other Utility / Gov't Agency Responsibility		
SL Base Connection		
SL Internal Wiring or Light Fixture		
Overhead Equipment		
IV. Voltage Range:		
1.0V to 4.4V	5	7
4.5V to 24.9V	7	14
25V and above	6	18
Unknown	23	62

National Grid 2009 4th Quarter October 1, 2009 – December 31, 2009	Quarterly Update	Yearly Total
I. Total shock calls received:	**39**	**229**
Unsubstantiated	6	55
Normally Energized Equipment	10	50
Stray Voltage:		
Person	23	117
Animal		7
II. Injuries Sustained/Medical Attention Received	**1**	**7**
Person	1	1
Animal		6
III. Voltage Source:	**23**	**124**
Utility Responsibility		
Issue with primary, joint, or transformer	2	8
Secondary Joint (Crab)		2
SL Service Line	1	5
Abandoned SL Service Line		
Defective service line	1	2
Abandoned service line		2
OH Secondary		1
OH Service		2
OH Service neutral	2	11
Pole		1
Riser		
Other		4
Customer Responsibility		
Contractor damage	1	2
Customer Equipment / Wiring	14	82
Other Utility / Gov't Agency Responsibility		
SL Base Connection		
SL Internal Wiring or Light Fixture		
Overhead Equipment	2	2
IV. Voltage Range:		
1.0V to 4.4V	2	9
4.5V to 24.9V	2	16
25V and above	4	22
Unknown	15	77

Summary of Shock Reports from the Public

nationalgrid 2010 1st Qurater January 1, 2010 - March 31, 2010	Quarterly Update	Yearly Total
I. Total shock calls received:	**36**	**36**
Unsubstantiated	11	11
Normally Energized Equipment	3	3
Stray Voltage:		
Person	22	22
Animal		
II. Injuries Sustained/Medical Attention Received Due To SV		
Person	1	1
Animal		
III. Voltage Source:	**22**	**22**
Utility Responsibility		
Issue with primary, joint, or transformer	1	1
Secondary joint (Crab)		
SL service Line	1	1
Abandoned SL service line		
Defective service line		
Abandoned service line		
OH Secondary		
OH Service		
OH Service neutral	5	5
Pole		
Riser		
Other	3	3
Customer Responsibility		
Contractor damage		
Customer equipment/wiring	12	12
Other Utility/Gov't Agency Responsibility		
SL Base Connection		
SL Internal wiring or light fixture		
Overhead equipment		
IV. Voltage Range:	**22**	**22**
1.0V to 4.4V		
4.5V to 24.9V	3	3
25V and above	1	1
Unknown	18	18

nationalgrid 2010 2nd Quarter April 1, 2010 - June 30, 2010	Quarterly Update	Yearly Total
I. Total shock calls received:	**63**	**99**
Unsubstantiated	8	19
Normally Energized Equipment	17	20
Stray Voltage:		
Person	38	60
Animal		
II. Injuries Sustained/Medical Attention Received Due To SV		
Person	1	2
Animal		
III. Voltage Source:	**38**	**60**
Utility Responsibility		
Issue with primary, joint, or transformer	2	3
Secondary joint (Crab)		
SL service Line	2	3
Abandoned SL service line		
Defective service line		
Abandoned service line		
OH Secondary	2	2
OH Service		
OH Service neutral	9	14
Pole		
Riser		
Other	2	5
Customer Responsibility		
Contractor damage		
Customer equipment/wiring	21	33
Other Utility/Gov't Agency Responsibility		
SL Base Connection		
SL Internal wiring or light fixture		
Overhead equipment		
IV. Voltage Range:	**38**	**60**
1.0V to 4.4V	6	6
4.5V to 24.9V	5	8
25V and above	8	9
Unknown	19	37

nationalgrid 2010 3rd Quarter July 1, 2010 - September 30, 2010	Quarterly Update	Yearly Total
I. Total shock calls received:	**78**	**177**
Unsubstantiated	10	29
Normally Energized Equipment	19	39
Stray Voltage:		
Person	48	108
Animal	1	1
II. Injuries Sustained/Medical Attention Received Due To SV		
Person	2	4
Animal	2	2
III. Voltage Source:	**49**	**109**
Utility Responsibility		
Issue with primary, joint, or transformer	9	12
Secondary joint (Crab)	1	1
SL service Line		3
Abandoned SL service line		
Defective service line		
Abandoned service line		
OH Secondary	2	4
OH Service	5	5
OH Service neutral	1	15
Pole		
Riser		
Other	1	6
Customer Responsibility		
Contractor damage	1	1
Customer equipment/wiring	29	62
Other Utility/Gov't Agency Responsibility		
SL Base Connection		
SL Internal wiring or light fixture		
Overhead equipment		
IV. Voltage Range:	**49**	**109**
1.0V to 4.4V	5	11
4.5V to 24.9V	6	14
25V and above	10	19
Unknown	28	65

Report includes 1 Pending Shock Report from 2nd Quarter

nationalgrid 2010 4th Quarter October 1, 2010 - December 31, 2010	Quarterly Update	Yearly Total
I. Total shock calls received:	**34**	**211**
Unsubstantiated	7	36
Normally Energized Equipment	7	46
Stray Voltage:		
Person	20	128
Animal		1
II. Injuries Sustained/Medical Attention Received Due To SV		
Person	2	6
Animal		2
III. Voltage Source:	**20**	**129**
Utility Responsibility		
Issue with primary, joint, or transformer		12
Secondary joint (Crab)		1
SL service Line		3
Abandoned SL service line		
Defective service line		
Abandoned service line		
OH Secondary	2	6
OH Service		5
OH Service neutral	1	16
Pole		
Riser		
Other		6
Customer Responsibility		
Contractor damage		1
Customer equipment/wiring	17	79
Other Utility/Gov't Agency Responsibility		
SL Base Connection		
SL Internal wiring or light fixture		
Overhead equipment		
IV. Voltage Range:	**20**	**129**
1.0V to 4.4V	1	12
4.5V to 24.9V	4	18
25V and above	4	23
Unknown	11	76

Report includes 1 Pending Shock Report from 3rd Quarter

Commission 1-3

Request:

Please explain in detail any program(s) the company has in place to conduct surveys or to monitor or test for stray and contact voltage, and the amount of monies, if any, budgeted or set aside for this purpose. Please include in your response the following:

a. the specific method(s) or technologies, if any, used by the Company to monitor or test for stray and contact voltage;
b. with regard to subsection (a), please rate the technology employed on a scale of 1 to 10, 10 being the most advanced;
c. with regard to subsection (a), please state the lowest AC voltage that the technology employed is capable of detecting;
d. whether the individual(s) who conduct any such surveys, monitoring or tests are employees of National Grid;
e. where the individuals in subsection (d) are employed, if not by National Grid;
f. the frequency of any such surveys, monitoring or tests.

Response:

a.– f. The Company's program relative to stray/contact voltage is described in its Electric Operating Practice G016 entitled Elevated Equipment Voltage Testing ("EOP-G016"), which is Attachment COMM 1-3 to this response. The Company's activities related to its Elevated Equipment Voltage Testing program in Rhode Island is not broken out separately for budgeting purposes. National Grid's EOP-G016 identifies the types of facilities at which elevated equipment voltage testing is performed, test equipment that is utilized, test procedures that are followed, and corrective actions that are required. The frequency of testing for various types of equipment and locations is described in section II of the attached EOP-G016. The Company uses a combination of company employees and contractors to perform surveys, monitoring and testing. Pursuant to EOP-G016, the Company uses the following manual and mobile elevated voltage testing equipment, which are capable of detecting voltages as indicated:

Manual Test Equipment:
A hand-held device (proximity detection unit) that is capable of detecting voltage from 6 volts to 600 volts. HD Electric model LV-S-5.

Commission 1-3 (cont.)

A portable AC digital high-impedance volt meter must have the ability to take readings with and without an input load impedance of 500 ohms. Fluke Multi Meters.

Mobile Test Equipment:
NARDA 8950/10 Stray (Contact) Voltage Detection System.
A UL certified mobile testing device capable of reliably detecting voltages of greater than 2 volts from a distance of 30 feet on a mobile platform traveling at a speed of 25 miles per hour.

The Company's current use of portable volt-meters to take direct measurement of the physical system and the manual efforts required to obtain these readings represent what is traditionally the most common method of testing recognized within the industry. There has not been a wide selection of technology utilized to perform this testing until recently with the development of electric field detection as a means of locating contact voltage, which is considered the most advanced type of testing for stray voltage and contact testing.

National Grid has purchased three (3) NARDA 8950/10 Stray Voltage Detection Systems using electric field detection in late 2010 and is in the process of evaluating the equipment and developing a program utilizing this equipment. The Company will supplement this response after completing its evaluation process.

Prepared by or under the supervision of: John Gavin and Ross Cox

nationalgrid	**Doc No.:** NG-USA EOP G016
	Page: Page 1 of 11
ELECTRIC OPERATING PROCEDURES	**Date:** 08/17/09
SUBJECT: Elevated Equipment Voltage Testing	**SECTION**: General

GENERAL INFORMATION:

The purpose of this procedure is to outline the requirements for the annual elevated equipment voltage testing on National Grid Facilities in New York as required by the New York Public Service Commission's "Electric Safety Standards" issued on January 5, 2005 and the New York Public Service Commission's "Order Adopting Changes to Electric Safety Standards issued and effective on December 15, 2008. Additionally the Massachusetts Department of Telecommunications and Energy provided a series of recommendations on December 9, 2005 that have been included in this procedure.

This procedure also outlines corporate requirements for elevated equipment voltage testing in New Hampshire and Rhode Island. The variance in requirements between New York, Massachusetts, New Hampshire, and Rhode Island is based on sound utility practice versus regulatory requirements.

APPLICABILITY

This procedure applies to all personnel involved with or responsible for the testing of facilities designated by this EOP for elevated equipment voltage.

DEFINITIONS:

Stray Voltage – As defined by NYPSC the term "Stray Voltage" means voltage conditions on electric facilities that should not ordinarily exist.

Stray Voltage Testing – The process of checking an electric facility for stray voltage using a device capable of reliably detecting and audibly and/or visually signaling voltages in the range of 6 to 600 volts.

Proximity Detection Unit – A low voltage hand held detector used to test exposed metallic surfaces and conductors for the presence of low voltage from 6V to 600V.

Elevated Equipment Voltage Inspector – The individual performing the elevated equipment voltage inspection.

Handheld Computer - An electronic Data recording device that is used in the field to create a record of conditions found.

Elevated Equipment Voltage – An A.C. rms voltage difference between utility equipment and the earth, or to nearby grounded facilities that exceeds the lowest perceptible voltage levels for humans.

Finding – Any confirmed voltage reading on an electric facility or streetlight greater than or equal to 1V measured using a volt meter and a 500 ohm shunt resistor.

Mitigation – Corrective actions performed by the utility to address the stray voltage finding.

PROGRAM ADMINISTRATOR:

Distribution Engineering Services

SCOPE:

I. Facilities Where Elevated Equipment Voltage Testing/Documentation is Required – New York
   A. Street Lights and Municipally Owned Facilities
   B. Substation Fences
   C. Overhead Distribution Facilities
   D. Overhead Transmission Facilities
   E. Underground Facilities
   F. Daily Work Areas
   G. Exemptions

II. Facilities Where Elevated Equipment Voltage Testing/Documentation is Required – New Hampshire and Rhode Island
   A. Street Lights
   B. Overhead Distribution Facilities
   C. Underground Facilities
   D. Daily Work Areas
   E. Exemptions

III. Facilities Where Elevated Equipment Voltage Testing/Documentation is Required – Massachusetts
   A. Street Lights
   B. Overhead Distribution Facilities
   C. Underground Facilities
   D. Daily Work Areas
   E. Exemptions

IV. Test Equipment
V. Test Procedure
VI. Corrective Action Requirements for Elevated Voltage Findings
VII. Database Requirements
VIII. Annual Reporting and Certification Requirements
IX. Responsibility

I. FACILITIES WHERE ELEVATED EQUIPMENT VOLTAGE TESTING/DOCUMENTATION IS REQUIRED – NEW YORK

A. Street Lights and Municipally Owned Facilities
   1. Company owned metallic street lighting standards are required to be tested for elevated equipment voltage annually. This test is to be performed while the light is operating.
   2. Municipally owned street light systems that National Grid directly provides energy to must be tested for elevated equipment voltage annually. National Grid will complete this testing unless assurances of the completion of required testing and transfer of such test data are made by the appropriate municipality. This test is to be performed while the light is operating.
   3. Municipal owned metallic traffic signal standards and accessible devices are to be tested annually for elevated equipment voltage by National Grid.
   4. All street lights identified on public thoroughfares regardless of ownership are to be tested annually.
   5. All street lights under a maintenance contract are to be tested annually.

6. Exceptions not requiring elevated equipment voltage testing: private lighting, park associations, parking lots, fiberglass (or other non-conductive) street light standards, and locations where street light standards are not publicly accessible, such as facilities located in the center of highways that cannot be accessed without stopping traffic or creating potentially hazardous situations for the worker and/or public.

B. National Grid Substation Fences
   1. Metallic fencing surrounding substations with National Grid Facilities shall be tested for elevated equipment voltage annually. This fencing can be customer owned for customer stations, if a National Grid facility is part of the station.

C. Overhead Distribution Facilities
   1. Towers and/or metallic poles with distribution facilities shall be tested annually for elevated equipment voltage.
   2. The following equipment on wood distribution poles requires annual elevated equipment voltage testing:
      a. Metallic riser guard or conduit (company or non-company).
      b. Uncovered or uninsulated down ground (company or non-company).
      c. Down guy (company or non-company).
      d. Any other publicly accessible conductive piece of equipment (company or non-company) on the pole within reach from the ground.
   3. Exceptions: Customer meters and customer meter poles are excluded.

D. Overhead Transmission Facilities
   1. Towers and/or metallic poles with transmission facilities shall be tested annually for elevated equipment voltage.
   2. The following equipment on wood transmission poles or structures require annual elevated equipment voltage testing:

      a. Metallic riser guard or conduit (company or non-company).
      b. Uncovered or uninsulated down ground (company or non-company).
      c. Down guy (company or non-company).
      d. Any other publicly accessible conductive piece of equipment (company or non-company) on the pole or structure within reach from the ground.

E. Underground Facilities
   1. Annual elevated equipment voltage testing is required on all of the following equipment where accessible to the public.
   2. All metallic manhole covers, vault covers and grates, junction box covers, handhole covers, pad mount transformers, and switchgear.
   3. Annual mobile stray voltage detection survey for underground distribution facilities located in cities with population of at least 50,000 (Albany, Schenectady, Syracuse, Utica, Buffalo, Niagara Falls) (based on the 2000 census) where overhead facilities will not interfere with the mobile testing.
   4. Exceptions: Non-metallic concrete or fiberglass pads or handholes are not required to be tested.

F. Daily Job Site Test Requirements
   1. Each job site where National Grid personnel or its contractors complete a work assignment shall be tested for elevated equipment voltage at the end of the work day or the completion of the assignment. **This testing requirement is considered good utility practice and does not require specific documentation**.

2. Exceptions:
    a. Substation fencing will not require elevated equipment voltage testing unless scheduled as part of the inspection program or if work was done on the fencing.
    b. In a storm situation, where mutual aid is required, testing by other than National Grid personnel will not be required.

G. Exemptions
1. A completely fenced in area where access is denied to the general public and where access is only achieved by climbing a fence. Good judgment is required by the tester in these scenarios.

II. FACILITIES WHERE ELEVATED EQUIPMENT VOLTAGE TESTING/DOCUMENTATION IS REQUIRED – NEW HAMSHIRE AND RHODE ISLAND

A. Company Owned Street Lights
1. Testing will be performed during each outage investigation notification and the data will be recorded for each instance.

B. Overhead Distribution Facilities
1. Wood distribution poles require testing to be completed on metallic risers in conjunction with the distribution patrol program covered by NG-USA EOP D004.
2. Documentation is only required on metallic risers found to be at an elevated voltage requiring repair. Testing data is not required for a facility that is found to be operating as designed.

C. Underground Facilities
1. Testing for elevated equipment voltage shall be done while completing scheduled inspections of underground equipment covered by NG-USA EOP UG006, Underground Inspection and Maintenance. The following items are to be tested on a five year cycle, padmount transformers, switchgears, and metallic handhole covers.
2. Testing for elevated equipment voltage shall be completed on underground facilities while completing working inspections covered by NG-USA EOP UG006. The metallic items to be tested are manholes covers, vault covers, handhole covers, splice box covers, junction box covers, padmount transformers, switchgear, and submersible equipment covers.

D. Daily Job Site Test Requirements
1. Each job site where National Grid personnel or its contractors complete a work assignment shall be tested for elevated equipment voltage at the end of the work day or the completion of the assignment. **This testing requirement is considered good utility practice and does not require specific documentation**.
    a. In a storm situation, where mutual aid is required, testing by other than National Grid personnel will not be required.

F. Exemptions
1. A completely fenced in area where access is denied to the general public and where access is only achieved by climbing a fence. Good judgment is required by the tester in these scenarios.

III. FACILITIES WHERE ELEVATED EQUIPMENT VOLTAGE TESTING/DOCUMENTATION IS REQUIRED – MASSACHUSETTS

A. Company Owned Street Lights
1. Company owned metallic street lighting standards are required to be tested for elevated equipment voltage on a five year cycle.

2. Exceptions: Testing shall not be completed at locations where street light standards are not publicly accessible, such as facilities located in the center of highways that cannot be accessed without stopping traffic or creating potentially hazardous situations for the worker and/or public.

B. Overhead Distribution Facilities
1. Wood distribution poles require testing to be completed as noted below in conjunction with the distribution patrol program covered by NG-USA EOP D004.
2. The following equipment on wood distribution poles requires annual elevated equipment voltage testing:
    a. Metallic riser guard or conduit (company or non-company).
    b. Uncovered or uninsulated down ground (company or non-company).
    c. Down guy (company or non-company).
    d. Any other publicly accessible conductive piece of equipment (company or non-company) on the pole within reach from the ground

C. Underground Facilities
1. Elevated equipment voltage testing is required on all of the following equipment where accessible to the public on a five year cycle.
    a. All metallic manhole covers, vault covers and grates, junction box covers, handhole covers, pad mount transformers, secondary pedestals, and switchgear.
2. Exceptions: Non-metallic concrete or fiberglass pads or handholes are not required to be tested.

D. Daily Job Site Test Requirements
1. Each job site where National Grid personnel or its contractors complete a work assignment shall be tested for elevated equipment voltage at the end of the work day or the completion of the assignment. **This testing requirement is considered good utility practice and does not require specific documentation**.
    a. In a storm situation, where mutual aid is required, testing by other than National Grid personnel will not be required.

F. Exemptions
1. A completely fenced in area where access is denied to the general public and where access is only achieved by climbing a fence. Good judgment is required by the tester in these scenarios.

IV. TEST EQUIPMENT

A. A hand held device (proximity detection unit) that is capable of detecting voltage from 6 volts to 600 volts.
B. A portable AC digital high impedance volt meter must have the ability to take readings with and without an input load impedance of 500 ohms.
C. The handheld devices utilized must be certified by an independent test laboratory as being able to reliably detect voltages of 6 – 600 volts. The following units has been certified:

1. HD Electric model LV-S-5 (5-600 volts).
2. Fluke 85
3. Fluke 87
4. Fluke 170 series or equivalent
5. Fluke 175
6. Fluke 177
7. Fluke 179
8. Fluke 187
9. Fluke 189

V. TEST PROCEDURE

A. Job Briefing

1. At minimum, the following information must be communicated to all personnel at the beginning of each shift for elevated equipment voltage testing:

    a. Structures are never to be touched with a bare hand while performing the tests, only the voltage detector or meter probe is to be used to make contact with the facilities.
    b. Appropriate PPE must be worn.
    c. Each individual needs to be aware of his/her surroundings at all times.
    d. Make sure to observe all traffic before entering a street, either at intersections or any other point.
    e. Traffic safety vest (DOT Compliant Class II) is to be worn at all times when exposed to traffic. Be aware that when bending down, the visibility benefits of the traffic safety vest are diminished.
    f. Obey all traffic control devices.
    g. When working in the street, face oncoming traffic whenever possible.

B. Measurements for voltages will be performed in accordance with the following:

1. Initial measurements for the presence of voltage shall be made using a certified proximity detection unit as noted in the testing equipment certified equipment list in Section IV C.
    a. To verify the proper operation of the proximity detector, follow operating instructions for the particular certified unit being utilized, this is to be done daily.
    b. After verification that the detection unit is working, approach the area/equipment to be tested. The proximity detector will illuminate prior to touching the area/equipment being tested if voltage is present. If the proximity detector does not illuminate in close proximity to the area/equipment touch the area/equipment to be tested with the probe of the unit.

2. If this test detects voltage, repeat the test with the portable AC voltmeter:

    a. Measurements with a portable AC voltmeter shall be taken on clean bare metallic surface (structure, ground wire, etc.)
    b. When using a portable AC voltmeter, connection shall be made to suitable neutral or ground source with the common (black) lead.

        i. In locations where the neutral or ground point is at a distance in excess of the voltmeter lead length, the connection to the neutral/ground shall be made with up to 25’ of # 16 stranded copper lead wire (covered), the other end of which shall be securely connected to the negative (black) probe of the meter. When using such “extension leads” appropriate care shall be taken in the placement of such leads so as to not create a physical hazard to workers, pedestrian or vehicular traffic.
        ii. In locations where a system ground is not available, or the existing ground registered voltage upon the proximity test, a metal rod shall be firmly embedded into the earth to a depth of no less than 6” to create a ground reference point for the measurement to be taken. The reference point should be as close as practicable to the facility being tested to simulate an elevated equipment voltage situation (3’ to 4’.) On occasion longer leads may be necessary to find undisturbed earth (up to 25’.)

c. The "live" meter probe lead shall then be placed into contact with the structure under inspection.
    i. Install a 500 ohm input load impedance on the volt meter. Measure the voltage and record this voltage in the database for the site.

VI. CORRECTIVE ACTION REQUIREMENTS FOR ELEVATED VOLTAGE FINDINGS

A. If an elevated equipment voltage condition is found and verified by the Test Procedure in Section V, the site is to be guarded until made safe by Company personnel or if municipally owned, made safe by the owner or company. Guarded for the purposes of this EOP is defined as guarded by a person or a protective barrier that prevents public contact if the elevated equipment voltage found is greater than 1 volts. **If the voltage measures less than 1 volts and is found to be consistent with system operation design (no visual evidence of a problem upon review) no further action is required.** If the voltage measures greater than 1 volts and less than 4.5 volts it can either be guarded in person or by a protective barrier that prevents public contact. If the voltage measurement is greater than 4.5 volts it must be guarded by an elevated equipment voltage inspector or a Company employee that has been trained to stand by on energized facilities If the voltage measures greater than 8 volts immediate response is required using the notification in section C below.

B. In the event of a elevated voltage finding on an electric facility or streetlight during the stray voltage Test Procedure, all publicly accessible structures and sidewalks within a minimum 30 foot radius of the electric facility or streetlight must be tested for stray voltage for New York..

C. The following notification process for personnel to respond shall be utilized.

1. Notification by location:
    a. New York: contact Systems Operations Dispatch 1-877-716-4996
    b. Bay State West and North & Granite: Westboro Control Center 508-389-9032.
    c. Bay State South, and Ocean State: Lincoln Control Center 401-335-6075.
2. Inform the operator that this is an elevated equipment voltage call, giving inspector name, company (if not National Grid), unique ID, address where problem is identified, facility number, circuit number , ownership, type of equipment, voltage found and whether they are physically guarding or leaving the site after flagging and installing a protective barrier. National Grid personnel or designee will be assigned to respond.

D. Temporary repairs may be used to correct the elevated equipment voltage thereby removing the need to guard the site.

E. Except as noted in VI. F, permanent repairs to the equipment shall be made within 45 days of the occurrence.

F. If permanent repairs can not be made within 45 days due to extraordinary circumstances, the company shall periodically perform site visits to monitor the condition of the temporary repair. For New York, all exceptions must be identified and justified in the annual reporting of the program to the NYPSC.

G. The Stray Voltage Tester/Elevated Equipment Voltage Inspector may detect a minimal voltage level that is attributable to the design of the facility and not the result of an improper condition, no corrective action is required in this instance.

H. The individuals conducting the elevated equipment voltage tests on street light standards shall have a supply of "Angel guards" available for installation if the cover is missing or wires are found to be exposed to the public at the time of testing. Angel guards shall only be installed after the testing of the

street light standard is complete and 1) there is no indication of elevated equipment voltage above 1 volts, or 2) repairs have been completed to correct the elevated equipment voltage.

I. The elevated equipment voltage inspector shall report any potentially hazardous conditions found on National Grid facilities seen visually during the survey process.

J. Customer Owned Equipment

1. Where the Company finds elevated equipment voltage above 1 volts and identifies its source as customer-owned equipment, the Company shall guard the site and notify the customer or a responsible person, as appropriate, that a potentially hazardous situation exists. The Company shall advise the customer or responsible person that the cause of the elevated equipment voltage must be immediately remedied.
2. Company personnel are encouraged to work with the customer to determine and rectify the problem. If the customer agrees to accept the Company's assistance, the Company may charge a reasonable cost for this effort.
3. The Company may temporarily remove a customer's meter or take such other actions as are appropriate and necessary to protect the public.

VII. DATABASE REQUIREMENTS

A. The database in use shall be easily searchable for information and reporting.

B. Information fields required to be completed for facilities:

1. Survey Date
2. Region
3. District
4. Contractor
5. GIS ID/Asset # (Unique ID)
6. Facility Type
7. Owner
8. Feeder/Circuit
9. Line #
10. Tax District
11. Pole/Structure/Equipment ID
12. Street Name
13. Inspectors Name
14. GPS Taken
15. Pre-load Match
16. Elevated Equipment Voltage Test Required
17. Voltage Found Y/N
18. Voltage Measurement
19. Type of Equipment (See Appendix A)
20. Immediate Action Taken
21. Person Notified
22. Permanent Repair Date
23. Type of Repair
24. Person Responsible for repair (Employee ID)

VIII. NEW YORK ANNUAL REPORTING AND CERTIFICATION REQUIREMENTS

A. Each Regional program supervisor shall provide certification to the program manager that the Region they supervise has complied with the elevated equipment voltage testing and inspection program as ordered by the PSC.

B. The program manager shall provide certification to the Vice President Distribution Network Strategy and the Senior Vice President of Distribution Network Strategy that the organization has complied with the elevated equipment voltage testing and inspection program as ordered by the PSC.

C. Written certification of the completion and results of every elevated equipment voltage test and inspection shall be completed, as well as a certification that all unsafe conditions identified have been remediated by appropriate company personnel.

D. The President or officer with direct responsibility for overseeing the elevated equipment voltage testing and inspection shall provide an annual certification to the NYPSC that the Company has tested all of its publicly accessible conductive surface electric facilities and all street lights, as well as completed all required inspections.

E. The President or officer with direct responsibility for overseeing facility inspections shall provide an annual certification to the Commission that the utility is in compliance with its inspection program and has inspected the requisite number of electric facilities. Additionally, at the end of the five-year inspection cycle, the officer shall certify that all of the utility's electric facilities have been inspected at least once.

F. The annual reporting and certification is required by February 15 of each year. In addition to certifications, it shall address the following:
   1. Details the results of stray voltage test results and inspections conducted over the 12-month period ending December 31 of the prior calendar year. (A separate report will be required for inspections from November 1 – December 31, 2008 to account for transition to calendar year reporting.)
   2. Addresses the performance mechanism contained in Section 10 of the PSC Order Adopting Changes to Electric Safety Standard effective December 15, 2008 (December 15, 2008 Order).
   3. Contain certification describe in C, D, and E of this section.
   4. Contain a breakdown of the voltage findings in a tabular format as detailed in Attachment 1 of the December 15, 2008 Order; for all findings that result in a reading of 1 V or more after completion of mitigation efforts, a detail report of company efforts shall be provided.
   5. Contain a breakdown of the shock reports received from the public as detailed in Attachment 2 of the December 15, 2008 Order.
   6. Discussion of the analysis undertaken on the causes of the stray voltage within the Company's electric system, the conclusions drawn there from, the preventative and remedial measures identified, and the Company's plan to implement those measures.
   7. Description of the priority levels used to guage the severity of a deficiency, including repair timeframes, and details the requirements for training personnel to properly identify and categorize the deficiencies.
   8. Contain a breakdown of facilities to be inspected, unique inspection conducted per year, and the cumulative number of unique inspections conducted to meet the five year requirement.
   9. Contain a breakdown of the deficiencies found, permanent repair actions taken by year, whether a repair was completed within the required timeframe, and the number of deficiencies awaiting repair. This information should be provided on a yearly basis by priority level and by equipment groupings as detailed in Attachment 3 of the December 15, 2008 Order.
   10. Contain a review and analysis of the inspection results. Identifying areas of concern along with remedial actions or future plans to alleviate inadequacies in current program assets.

11. Description of the quality assurance program along with the results from quality assurance activities conducted during the year.
12. Any additional information that is pertinent to the issues addressed by the safety standards should also be included.

F. The Company is required by the December 15, 2008 Order to have independence in the quality assurance program required by the order. The management and personnel performing the quality assurance activities shall be separate from those performing the required stray voltage testing and inspection activities.

G. The Company shall maintain its written certification and other documentary proof of its testing at its' Albany, Buffalo, and Syracuse office facilities. These documents shall be made available to the public for review upon request.

IX. MASSACHUSETTS REPORTING REQUIREMENTS

A. National Grid shall submit an annual report that includes the following:
   1. Annual reports that list inspection and testing data, including number of inspections conducted by equipment type.
   2. Number of elevated equipment voltage events detected by inspection personnel versus call-ins or notification by third parties.
   3. Variance reports on current year inspection targets.
   4. Elevated equipment voltage events detected on equipment that is not included in elevated equipment voltage equipment inspection schedules (which will enable the DTE to determine if the company is inspecting and testing the correct equipment).
   5. Number of exceptional or non-routine events that required reporting to OSHA or other government organizations due to injuries or other substantive impacts.

RESPONSIBILITIES:

1. Distribution Engineering Services
   A. Update program as necessary.
   B. Provide field support and training upon request.
   C. Act as liaison with existing database vendor when required.

2. Inspections
   A. Ensure the elevated equipment voltage program as outlined in this EOP is implemented properly and timely.
   B. Ensure that the program as outlined in the EOP is completed each year.
   C. Provide qualified personnel to complete elevated equipment voltage testing.
   D. Ensure all elevated equipment voltage testers have been trained.

3. C&MS Management
   A. When requested by Field Operations/Distribution Network Strategy obtain, schedule and manage contractors to perform elevated equipment voltage testing.
   B. Ensure all elevated equipment voltage testers have been trained.
   C. Manage contractual terms and conditions including all change orders and resource requirements.
   D. Establish a process for the delivery of work, collection of data, invoice verification and payment, and reporting to local management and Distribution Network Strategy.
   E. Manage any established support processes such as back office support or data entry clerks.

4. Elevated Equipment Voltage Inspector
   A. Demonstrate the ability and proficiency to perform elevated equipment voltage testing per this EOP.
   B. Demonstrate the ability to become proficient in the use of the appropriate database.
   C. Possess the ability to do walking patrols, collect information, edit data, and guard unsafe facilities.
   D. Attend elevated equipment voltage training program.

5. T&D Technical Training
   A. Provide training upon request.

6. Distribution Network Strategy
   A. Provide input into program revisions.
   B. Ensure the elevated equipment voltage program as outlined in this EOP is implemented properly and timely.
   C. Ensure the program as outlined in the EOP is completed each year.
   D. Provide qualified personnel to complete elevated equipment voltage testing.
   E. Ensure all elevated equipment voltage testers have been trained.
   F. Provide program management.

7. Process and Systems
   A. Provide and support database.

REFERENCE:

NYPSC Order 04-M-0159
NYPSC Order Adopting Changes to Electric Safety Standards.
Applicable National Grid Safety Rules & Procedures
Testing Equipment Operation Instructions

TYPE OF EQUIPMENT
APPENDIX A

TYPE	CODE	EQUIPMENT DESCRIPTION
Distribution	910	Pole
	911	Regulator
	912	Sectionalizer
	913	Recloser
	914	Ground
	915	Guy
	916	Riser
	917	Switch Handle Mechanical Operated
	929	Distribution – Other (use comments)
Transmission	930	Pole
	931	Tower
	932	Guy
	933	Ground
	934	Riser
	935	Switch Hand Mechanical Operator
	949	Transmission – Other (use comments)
Underground	950	Handhole
	951	Manhole
	952	Switchgear
	953	Transformer
	954	Vault – Cover/Door
	969	Underground – Other (use comments)
Street Light	970	Handhole
	971	Standard
	979	Street light – Other (use comments)
Customer Street Light/Other	980	Handhole
	981	Standard
	989	Customer SL/Other – Other (use comments)
Traffic Control	990	Handhole
	991	Standard
	992	Control Box
	993	Pedestrian Crossing Pole
	999	Traffic control – Other (use comments)

NG-USA EOP G016

"Elevated Equipment Voltage Testing"

08/17/09

Revisions made throughout document.

Commission 1-4

Request:

Please provide the specific results of the most recent survey, monitoring or testing of stray or contact voltage performed by National Grid or other person/entity acting on its behalf. Please provide in your response the following:

a. the amount of stray or contact voltage detected;
b. the specific action(s), if any, that were taken to remedy the presence of stray or contact voltage detected

Response:

Please see Attachment COMM 1-4 for the most recent Rhode Island survey results.

Prepared by or under the supervision of: John Gavin and Ross Cox

nationalgrid

Stray Voltage Report
Distribution

New England

Company: 49 NARRAGANSETT ELECTRIC
Preload Year 2005
Reporting for: Voltage >= 1.0 volts and Current Inspections Only and Region/Company=49

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	108W53	0055	0644	31	Osmose	42.005198	-71.522051	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	272651155	Joint		Y	B	1.6	910						OS	No	3/12/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location
Street Name: UNKNOWN

Comments

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	108W53	0218	0644	29	Osmose	42.010683	-71.524375	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	272660153	Joint		Y	B	1.0	910						OS	No	3/7/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location
Street Name: HARRIS AVE

Comments

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	108W53	0387	0644	15	Osmose	42.010546	-71.517679	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	272690056	Joint		Y	B	1.3	910						OS	No	3/10/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location
Street Name: PROSPECT ST

Comments

nationalgrid

Stray Voltage Report
Distribution

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2005

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	108W61	0193	0644	22	Osmose	41.998018	-71.513598	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	272658228	Joint		Y	B	2.5	910						OS	No	2/19/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	PINE ST

Comments

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	108W61	0484	0644	13	Osmose	41.993088	-71.516355	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	272685243	Sole		Y	B	1.4	910						OS	No	2/20/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	VALLEY ST

Comments

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	21F1	1384	0604	85	Osmose	41.733668	-71.497505	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	271280853	Joint		Y	B	1.5	910						OS	No	7/1/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	ACCESS RD

Comments

nationalgrid

Stray Voltage Report
Distribution
Preload Year 2005

New England

Company: 49 NARRAGANSETT ELECTRIC

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	34F3	0570	0614	315	Osmose	41.867543	-71.739588	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	271619470	Joint		Y	B	1.0	910						OS	No	2/23/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	PRAY HILL RD

Comments

nationalgrid

Stray Voltage Report
Distribution

New England

Company: 49 NARRAGANSETT ELECTRIC
Preload Year 2005
Reporting for: Voltage >= 1.0 volts and Current Inspections Only and Region/Company=49

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	3307	8007	0637	9079	Osmose	41.469851	-71.513766	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	272410594	Sole		Y	B	1.0	910						OS	No	12/30/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	KINGSTOWN RD

Comments

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	33F3	0755	0625	11	Osmose	41.519233	-71.185076	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	272483110	Joint		Y	B	1.0	910						OS	No	12/12/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	UNKNOWN

Comments

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	46F1	0629	0609	76	Osmose	41.637264	-71.494361	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	272053491	Joint		Y	B	1.0	910						OS	No	9/9/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	SOUTH COUNTY TRL

Comments

nationalgrid

Stray Voltage Report
Distribution

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2005

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	54F1	1100	0612	3	Osmose	41.705416	-71.626766	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	272128287	Joint		Y	B	1.0	910						OS	No	8/13/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	INDIAN TRL

Comments

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	61F1	4784	0605	114	Osmose	41.663531	-71.497950	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	271942973	Joint		Y	B	1.0	910						OS	No	9/24/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	QUAKER LN

Comments

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	61F4	4784	0605	112	Osmose	41.663838	-71.498158	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	271942967	Joint		Y	B	1.0	910						OS	No	9/24/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	QUAKER LN

Comments

nationalgrid

Stray Voltage Report
Distribution

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2005

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	68F3	0985	0633	59	Osmose	41.397874	-71.626641	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	272362944	Joint		Y	B	1.0	910						OS	No	2/14/2009

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	UNKNOWN

Comments

Facility Type	Feeder	Line Num	Tax Dist	Pole Num	Insp	HH Lat	HH Long	GPS Taken
Wood Pole	72F3	0987	0605	5	Osmose	41.750675	-71.439054	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	271878236	Joint		Y	B	1.5	910						OS	No	7/1/2008

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	DOVER RD

Comments

nationalgrid

Stray Voltage Report

Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC
Preload Year 2006
Reporting for: Voltage >= 1.0 volts and Current Inspections Only and Region/Company=49

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	601	0127	0038 00		WSD	41.829643	-71.390883	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56806105	Sole		Y	B	2.4	971						DR	No	9/6/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	ANGELL ST

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	601	0641	0012 00		WSD	41.835313	-71.411790	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56826375	Sole		Y	B	2.1	971						DR	No	9/6/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	CHARLES ST

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	601	0641	0014 00		WSD	41.835560	-71.411927	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56826385	Sole		Y	B	1.5	971						DR	No	9/6/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	CHARLES ST

Comments

nationalgrid

Stray Voltage Report
Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2006

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	601	4393	0030 00		WSD	41.835010	-71.410187	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56862988	Sole		Y	B	1.7	971						DR	No	9/6/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	NORTH MAIN ST

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	601	4739	0008 00		WSD	41.837945	-71.410165	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56872527	Sole		Y	B	1.6	971						DR	No	9/6/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	RANDALL ST

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	601	4739	0009 00		WSD	41.838187	-71.409833	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56872532	Sole		Y	B	1.1	971						DR	No	9/6/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	RANDALL ST

Comments

nationalgrid

Stray Voltage Report
Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2006

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	601	5026	0041 00		WSD	41.819690	-71.419965	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56878961	Sole		Y	B	1.3	971						DR	No	9/5/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	SERVICE 7 RD

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	601	6449	0041 00		WSD	41.828205	-71.386118	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56889925	Sole		Y	B	2.1	971						DR	No	9/6/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	WATERMAN ST

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	603	6620	0019 00		WSD	41.810222	-71.387348	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56983852	Sole		Y	B	1.1	971						DR	No	9/15/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	VETERANS MEMO PK

Comments

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Stray Voltage Report
Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2006

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	603	6620	0020 00		WSD	41.809700	-71.387302	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56983857	Sole		Y	B	1.4	971						DR	No	9/15/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	VETERANS MEMO PK

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	603	6620	0077 00		WSD	41.792982	-71.365977	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56983587	Sole		Y	B	1.0	971						DR	No	9/14/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	VETERANS MEMO PK

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	603	6620	0078 75		WSD	41.792178	-71.365698	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56983607	Sole		Y	B	1.1	971						DR	No	9/14/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	VETERANS MEMO PK

Comments

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Stray Voltage Report
Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2006

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	607	5014	0423 00		WSD	41.868753	-71.517792	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56944445	Sole		Y	B	2.2	971						DR	No	9/28/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	ROUTE 295 HW

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	607	5014	0425 00		WSD	41.869442	-71.518005	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56944450	Sole		Y	B	2.1	971						DR	No	9/28/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	ROUTE 295 HW

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	607	5014	0443 00		WSD	41.868967	-71.517525	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56944365	Sole		Y	B	4.1	971						DR	No	9/3/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	ROUTE 295 HW

Comments

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Stray Voltage Report
Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2006

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	607	5014	0451 00		WSD	41.869100	-71.515313	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56944330	Sole		Y	B	1.2	971						DR	No	9/28/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	ROUTE 295 HW

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	607	5014	0474 00		WSD	41.871677	-71.514497	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56944215	Sole		Y	B	3.7	971						DR	No	9/28/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	ROUTE 295 HW

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	607	5014	0488 00		WSD	41.872273	-71.514672	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56944190	Sole		Y	B	4.1	971						DR	No	9/28/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	ROUTE 295 HW

Comments

nationalgrid

Stray Voltage Report

Streetlight

Preload Year 2006

New England

Company: 49 NARRAGANSETT ELECTRIC

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	647	0209	0007 01		WSD	41.872757	-71.382360	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57231130	Sole		Y	B	1.2	971						DR	No	9/5/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	DIVISION ST

Comments

nationalgrid

Stray Voltage Report
Underground

New England

Company: 49 NARRAGANSETT ELECTRIC
Preload Year 2006
Reporting for: Voltage >= 1.0 volts and Current Inspections Only and Region/Company=49

Facility Type	Feeder	Line Num	Tax Dist	ID Num	Insp	HH Lat	HH Long	GPS Taken
Padmount	126W42	0034	0645	93	CAG	41.935933	-71.474682	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	277521519	Sole		Y	B	1.2	953						DR	No	9/15/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		Y	Ground Connection	UG			12/22/2006

Location	Street Name
	DRIVE WAY TO MALL ST

Comments

nationalgrid

Stray Voltage Report

Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC
Preload Year 2006
Reporting for: Voltage >= 1.0 volts and Current Inspections Only and Region/Company=49

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	605	5061	0082 00		CAG	41.720215	-71.477208	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57056861	Sole		Y	Y	7.8	971	AUD					DR	No	10/17/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
IB	LCC	Y	Neutral	S. GOUVEIA			2/23/2007

Location	Street Name
	RT 295 ST

Comments 12-29-06: MIA INVESTIGATING 02-23-07: S. GOUVEIA, REPAIRED NEUTRAL

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	627	0011	0009 00		WSD	41.487878	-71.315727	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56744397	Sole		Y	B	1.2	971						DR	No	9/19/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	AMERICA'S CUP AV

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	627	0011	0009 30		WSD	41.487790	-71.315355	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56744402	Sole		Y	B	2.5	971						DR	No	9/19/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	AMERICA'S CUP AV

Comments

nationalgrid

Stray Voltage Report
Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2006

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	627	0011	0010 00		WSD	41.488045	-71.316190	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56744407	Sole		Y	B	1.3	971						DR	No	9/19/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	AMERICA'S CUP AV

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	627	0011	0011 00		WSD	41.488348	-71.316590	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56744412	Sole		Y	B	1.3	971						DR	No	9/19/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	AMERICA'S CUP AV

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	627	0011	0012 00		WSD	41.488765	-71.316735	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56744417	Sole		Y	B	1.2	971						DR	No	9/19/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	AMERICA'S CUP AV

Comments

nationalgrid

Stray Voltage Report
Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2006

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	627	0011	0013 00		WSD	41.489132	-71.316832	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56744422	Sole		Y	B	1.3	971						DR	No	9/19/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	AMERICA'S CUP AV

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	627	0696	0003 00		WSD	41.500063	-71.317078	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	56757624	Sole		Y	Y	9.0	971	AUD					DR	No	9/30/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
GU	LCC	Y	Neutral	S. GOUVEIA			2/23/2007

Location	Street Name
	NPT BRG RAMP ST

Comments 16V-TROUBLEMAN HAD ME TEST NEIGHBORING POLES FOUND MORE HOT, 12-29-06: MIA INVESTIGATING 02-23-07: S. GOUVEIA, REPAIRED NEUTRAL

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	631	0738	0005 00		WSD	41.355420	-71.818460	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57109272	Sole		Y	B	1.0	971						DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	JANA RD

Comments

nationalgrid

Stray Voltage Report
Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2006

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	632	1270	0075 02		WSD	41.510902	-71.693947	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57089732	Sole		Y	B	3.3	971						DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	RT 95 REST AR HW

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	632	1270	0075 04		WSD	41.511983	-71.694035	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57089752	Sole		Y	B	2.5	971						DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	RT 95 REST AR HW

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	632	1270	0075 05		WSD	41.512582	-71.693972	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57089762	Sole		Y	B	1.5	971						DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	RT 95 REST AR HW

Comments

nationalgrid

Stray Voltage Report
Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2006

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	632	1270	0080 01		WSD	41.502900	-71.703015	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57089822	Sole		Y	Y	8.5	971	AUD					DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
GU	LCC	Y	Z - Customer Problem	S. GOUVEIA			2/23/2007

Location	Street Name
	RT 95 REST AR HW

Comments 12-29-06: MIA INVESTIGATING 02-23-07: S. GOUVEIA, STATE OF RI LIGHTS. DISCONNECTED SERVICE.

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	632	1270	0080 02		WSD	41.511228	-71.691838	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57089832	Sole		Y	B	2.7	971						DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	RT 95 REST AR HW

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	632	1270	0080 03		WSD	41.511795	-71.691407	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57089842	Sole		Y	B	2.7	971						DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	RT 95 REST AR HW

Comments

nationalgrid

Stray Voltage Report
Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2006

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	632	1270	0093 05		WSD	41.513223	-71.693762	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57090112	Sole		Y	B	2.2	971						DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	RT 95 REST AR HW

Comments

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	632	1270	0094 01		WSD	41.514473	-71.690590	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57090132	Sole		Y	Y	7.0	971	AUD					DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
IB	LCC	Y	Z - Customer Problem	S. GOUVEIA			2/23/2007

Location	Street Name
	RT 95 REST AR HW

Comments 11.5V, 12-29-06: MIA INVESTIGATING 02-23-07: S. GOUVEIA, STATE OF RI LIGHTS. DISCONNECTED SERVICE

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	632	1270	0094 02		WSD	41.513867	-71.690577	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57090142	Sole		Y	B	1.1	971						DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	RT 95 REST AR HW

Comments

nationalgrid

Stray Voltage Report
Streetlight

New England

Company: 49 NARRAGANSETT ELECTRIC

Preload Year 2006

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	632	1270	0094 03		WSD	41.513370	-71.690553	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57090152	Sole		Y	Y	5.4	971	AUD					DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
IB	LCC	Y	Z - Customer Problem	S. GOUVEIA			2/23/2007

Location	Street Name
	RT 95 REST AR HW

Comments 12-29-06: MIA INVESTIGATING 02-23-07: S. GOUVEIA, STATE OF RI LIGHTS. DISCONNECTED SERVICE.

Facility Type	Tax Dist	Line	Pole Num	Ident 4	Insp	HH Lat	HH Long	GPS Taken
Metallic SL	632	1270	0094 04		WSD	41.512815	-71.690583	Y

Match	GIS/Customer ID	Owner	Owner Name	Test Req	Volt Fnd	Max Voltage	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Contractor	Old Insp	Insp Date
Y	57090162	Sole		Y	B	4.3	971						DR	No	10/2/2006

Action Taken	Person Notified	Perm Repair	Type Repair	Person Making Repair	Mitigated Voltage		Date Repaired
BT		N					

Location	Street Name
	RT 95 REST AR HW

Comments

Commission 1-5

Request:

Please explain in detail any program(s) the Company has in place to mitigate occurrences of stray or contact voltage, and the amount of monies, if any, budgeted or set aside for this purpose.

Response:

Please see response to Commission 1-3 and Attachment COMM 1-3 for National Grid's EOP-G016 Elevated Equipment Voltage Testing.

Prepared by or under the supervision of: Ross Cox

Commission 1-6

Request:

Please state whether the Company has been ordered by any state or local authorities or agencies, including public utilities or public service commissions, to implement monitoring or testing of stray and contact voltage.

Response:

The Massachusetts Department of Public Utilities (the "Department") issued a Letter Order on December 9, 2005 directing each electric distribution company to submit its plan for implementation of the recommendations contained in the final reports on stray voltage and manhole safety. On January 30, 2006 the Department issued a Letter Order to National Grid approving its plan to implement procedures pertaining to the detection and mitigation of stray voltage and to the inspection and operation of manholes. Please see Attachment 1 for the December 9, 2005 Letter Order, Attachment 2 for the January 30, 2006 Letter Order and Attachment 3 for a copy of National Grid's plan filed and approved by the Department.

On January 5, 2005, the New York State Public Service Commission ("Commission") issued an order in Case 04-M-0159, Proceeding on Motion of the Commission to Examine the Safety of Electric Transmission and Distribution Systems, *Order Instituting Safety Standards*, with subsequent revisions on July 21, 2005 and December 15, 2008, requiring all electric utilities in New York State to test annually all of their publicly accessible transmission and distribution facilities for stray voltage and to inspect their electric facilities on a five-year cycle. In a related proceeding, Case 10-E-0271, In the Matter of Examining the Mobile Testing Requirements of the Electric Safety Standards, *Order Requiring Additional Mobile Stray Voltage Testing* (issued and effective July 21, 2010), the Commission ordered that mobile stray voltage scans be conducted in certain municipalities in New York State. Please see Attachment 4 for the January 5, 2005 order, Attachment 5 for the January 21, 2005 revision, Attachment 6 for the December 18, 2008 revision, and Attachment 7 for the July 21, 2010 order.

Prepared by or under the supervision of: Legal Department

THE COMMONWEALTH OF MASSACHUSETTS

OFFICE OF CONSUMER AFFAIRS AND BUSINESS REGULATION

DEPARTMENT OF TELECOMMUNICATIONS & ENERGY

ONE SOUTH STATION

BOSTON, MA 02110

(617) 305-3500

December 9, 2005

Werner Schweiger
Senior Vice-President, Operations
NSTAR Electric
One NStar Way
Westwood, MA 02090

Edward J. Dienst
Senior Vice-President, Distribution Operations
National Grid
55 Bearfoot Road
Northborough, MA 01532

Michael Smith
Director of Operations
Western Massachusetts Electric Company
One Federal Street, Bldg. 111-4
Springfield, MA 01105

Thomas Meissner
Senior Vice President, Operations
Unitil Corp
6 Liberty Lane West
Hampton, NH 03842-1720

RE: Distribution System Safety
Stray Voltage and Manhole Safety Assessments

Dear Sirs:

The Department of Telecommunications and Energy ("Department") has reviewed the final reports on (1) the Independent Assessment of Stray Voltage in Underground Distribution Systems of Massachusetts Electric Companies ("Stray Voltage Final Report") as prepared by Navigant Consulting, Inc. ("Navigant"), and (2) the Independent Assessment of Dislodged Manhole Covers ("Manhole Safety Final Report") as prepared by Siemens Power Transmission & Distribution, Inc. ("Siemens"). Both reports are attached. In initiating both assessments, the Department sought to determine the adequacy of the safety plans and inspection procedures currently used by electric companies and to seek expertise as to what additional actions, if any, should be taken by the companies to ensure the safe operation of their distribution systems. As detailed therein, the Final Reports make recommendations designed to enhance the safe operation of electric distribution systems in the Commonwealth.

The Department directs each company to submit, by 10 January 2006, its plan for implementation of the recommendations contained in the Final Reports.

The plans submitted on 10 January 2006 should pay careful attention to the level at which stray voltage would be detected. Detection equipment deployed today, as Navigant notes, is sometimes warranted at 24 volts. Navigant, however, recommends a 20-volt detection standard, which may exceed the warranted capability of detection equipment already owned by some companies. A sound plan must achieve a 20-volt detection level, even where that means acquiring more sensitive detection equipment not currently in a company's inventory, as this threshold ensures that all electric companies in Massachusetts will test for stray voltage at or above levels that are considered hazardous. Furthermore, Navigant stated that stray voltage is perceptible at or above eight volts and credibly suggested that detection levels as low as eight volts may also be practicable. We would expect your plan to address achieving, if feasible over time, detection at that level or at comparable levels. A sound plan will not be static: it will embody the longer-range goal to stay abreast of developments and improvements in detection capability and of procurement and deployment of more sensitive detection equipment as it becomes commercially available and of proven reliability. Training in detection will also be an important feature of a sound plan. Your plan would be incomplete if it failed to provide for setting and achieving a dynamic and evolving standard rather than a static one.

Companies should be ready to implement their inspection and maintenance plans in accordance with the recommendations contained within the Final Reports. A company seeking to depart from the recommendations in the Final Reports should identify those circumstances that warrant such departure.

Sincerely yours,

_____S_____
Paul G. Afonso, Chairman

_____S_____
James Connelly, Commissioner

_____S_____
W. Robert Keating, Commissioner

_____S_____
Judith F. Judson, Commissioner

_____S_____
Brian Paul Golden, Commissioner

cc: Mary L. Cottrell, Secretary
Andrew O. Kaplan, General Counsel
Timothy Shevlin, Executive Director
Ronald LeComte, Director, Electric Power Division
John Cope-Flanagan, Assistant General Counsel
Joan Foster Evans, Senior Counsel

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF TELECOMMUNICATIONS & ENERGY

ONE SOUTH STATION
BOSTON, MA 02110
(617) 305-3500

January 30, 2006

Edward J. Dienst
Senior Vice-President, Distribution Operations
National Grid
55 Bearfoot Road
Northborough, MA 01532

Re: Electric Distribution System Safety Plans

Dear Mr. Dienst:

On December 9, 2005, the Department of Telecommunications and Energy ("Department") distributed the following two reports relating to the safety of electric distribution systems in Massachusetts: (1) the Independent Assessment of Stray Voltage in Underground Distribution Systems of Massachusetts Electric Companies ("Stray Voltage Final Report") as prepared by Navigant Consulting, Inc., and (2) the Independent Assessment of Dislodged Manhole Covers ("Manhole Safety Final Report") as prepared by Siemens Power Transmission & Distribution, Inc. ("Siemens"). With the issuance of these reports, the Department required each of the Massachusetts electric distribution companies, including Massachusetts Electric Company and Nantucket Electric Company d/b/a/ National Grid, to file plans to implement the recommendations contained in each report. National Grid filed its implementation plan with the Department on January 10, 2006 ("National Grid Plan").

The Department has reviewed the National Grid Plan to implement procedures pertaining to the detection and mitigation of stray voltage and to the inspection and operation of manholes, and we find that the National Grid Plan is in substantial compliance with the recommendations contained in the Stray Voltage Final Report and the Manhole Safety Final Report. Accordingly, the Department approves the National Grid Plan with the following modifications. Regarding National Grid's plan to report stray voltage incidents and manhole

events through the Department's Outage Reporting Protocol ("ORP") system, until such time as the ORP system is modified to accept the reporting data recommended in the Final Reports, National Grid must report stray voltage incidents and manhole events to the Department, including all required information, outside of the ORP system.

The Manhole Safety Final Report included a recommendation that each company maintain a database of new and repair splices made by employees and contractor crews in order to determine possible workmanship issues and related splicing training needs. Siemens provided a listing of information that should be captured in the splicing log at Appendix B.2. Beginning no later than June 1, 2006, National Grid is directed to keep a splicing log on all new and repair splices containing the information recommended by the Manhole Safety Final Report. The companies may develop, through the Working Group (see below), an alternative proposal that allows the identification of workmanship-related trends. The Department will review any alternative proposed by the Working Group, and may modify this requirement as appropriate.

Consistent with the recommendations in the Stray Voltage Final Report and the Manhole Safety Final Report, the Department directs National Grid to participate with the other Massachusetts electric distribution companies in a working group ("Working Group") to address issues regarding electric distribution system safety, the development of a uniform approach to electric distribution system safety plans, and such other issues of importance including, but not limited to: the development of protective equipment for use on secondary systems, manhole event trends, root cause analyses, research studies, results of pilot programs, new technologies, and lessons learned. In addition, the Working Group shall address the use of the Outage Reporting Protocol or other standardized protocol for reporting manhole events and stray voltage incidents to the Department. The Working Group shall meet quarterly, and report quarterly to the Department. Staff from the Department's Electric Power Division may participate in the Working Group.

National Grid shall implement its Plan immediately. In order to allow for the Department's continued review of the National Grid Plan, by June 1, 2006, and every three months thereafter, National Grid shall file with the Department's Electric Power Division a written report on its progress in implementing the National Grid Plan, including a summary of all stray voltage incidents and manhole events in the current quarter and year to date. Upon review of National Grid's implementation of its Plan, the Department may direct modifications to the National Grid Plan as necessary.

By Order of the Department,

_____/s/_____
Judith F. Judson, Chairman

_____/s/_____
James Connelly, Commissioner

_____/s/_____
W. Robert Keating, Commissioner

_____/s/_____
Paul G. Afonso, Commissioner

_____/s/_____
Brian Paul Golden, Commissioner

cc: Mary L. Cottrell, Secretary
Andrew O. Kaplan, General Counsel
Timothy Shevlin, Executive Director
Ronald LeComte, Director, Electric Power Division
John Cope-Flanagan, Assistant General Counsel
Joan Foster Evans, Senior Counsel

National Grid

Plan for Implementation of the Recommendations Contained in Final Consultants' Reports to the Department on Stray Voltage and Manhole Safety

January 10, 2006

Submitted to:
Massachusetts Department of
Telecommunications and Energy
Docket D.T.E. No.

Submitted by:

nationalgrid

National Grid
Plan for Implementation of the Recommendations Contained in Final Consultant Reports to the Department on Stray Voltage and Manhole Safety

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National Grid
Plan for Implementation of the Recommendations Contained in Final Consultant Reports to the Department on Stray Voltage and Manhole Safety

I. GENERAL

On December 9, 2005, the Massachusetts Department of Telecommunication and Energy (the "Department") directed each Massachusetts electric distribution company to submit, by January 10, 2006, its plan for implementation of the recommendations contained in two final reports:

(1) The Independent Assessment of Stray Voltage in Underground Distribution Systems of Massachusetts Electric Utilities. ("Stray Voltage Final Report") as prepared by Navigant Consulting, Inc. ("Navigant"), and

(2) the Independent Assessment of Dislodged Manhole Covers ("Manhole Safety Final Report") as prepared by Siemens Power Transmission & Distribution, Inc. ("Siemens");

These two reports are hereinafter collectively referred to as the "Final Reports".

Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid ("Company" or "National Grid") have prepared this implementation plan (the "Plan") in compliance with the Department's directive (the "Directive") to implement the recommendations in the Final Reports.

The Directive provides guidance regarding the levels at which voltage should be detected, the need for a dynamic and evolving voltage detection standard and the need for detection training. The Directive also requires respondents to identify the circumstances that warrant any departure from the recommendations contained in the Final Reports.

This Plan is intended to fully address the Department's Directive. To assure quality and integrity of the testing, documentation and repair process, the Company will implement a quality assurance program as described in detail below in Attachment 6.

II. OVERVIEW

The Directive calls for stray voltage (a.k.a. elevated voltage) testing, initially to a 20-volt standard, with an ultimate goal of testing to an 8-volt standard over time. The Stray Voltage Final Report calls for metallic equipment accessible by the general public to be tested for stray voltage including:

- Metallic street lights and fixtures
- Metallic risers, sweeps and conduits
- Metallic manhole and handhole covers
- Secondary pedestals
- Padmount transformers and transclosures
- Padmount switchgear , termination cabinets and junction boxes
- Control cabinets such as pole-mounted capacitor controls within public reach
- Exposed down grounds

The report also requires monitoring, tracking and reporting to the Department of stray voltage events as well as testing results.

At the outset, the Company can assure compliance with the 20 volt standard provided in the Directive. The initial Plan implements a 5-year rolling schedule for stray voltage testing and a 5-year manhole inspection program. With respect to stray voltage testing, the Company will complete the required initial 5 year cycle of testing of its overhead distribution system in concert with the Company's on-going inventory and condition assessment survey of its overhead distribution system.

Supplementing this joint survey and inspection work with stray voltage testing on conductive metallic equipment will minimize overall cost (however metal street lights will be tested separately, at night.) The Company's Plan provides a comprehensive approach to test for stray voltage of metallic equipment accessible by the general public to an 8-volt standard at the onset of the program. While this initial 8-volt testing standard is part of the initial Plan, development and application of effective mitigation solutions to an 8 volt standard may take time to accomplish.

Based upon the Company's experience with stray voltage from a prior survey, related public events and data gathered in the Company affiliate's New York operations, metallic street lights present the greatest risk of exposure for stray voltage. As such , testing of metallic street lights and fixtures has been given the highest priority. There are approximately 18,000 metallic street lights in the Company's service territory in Massachusetts. The Plan calls for inspection of 100% of these facilities in one 12 month period starting April 1st, 2006 with completion by March 31st, 2007. After that time the Company will assess the need to start the rolling five year inspections on these facilities or to continue with one 100% inspection at least once every five years.

With respect to the Manhole Safety Final Report, the Company's Plan calls for the internal inspection of all manholes over a five-year period, including infrared testing of separable connectors, development of a recording system for cable splices and incident analysis and documentation of manhole events to include incidents with smoke, fire and/or explosions with and/or without cover dislodgement. Specifically, the Manhole Safety Final Report recommends that the Company:

- Broaden its definition of manhole events to include smoke, fire, explosions with and/or without cover dislodgement; with notification to the Department for such events.
- Implement a program designed to inspect all manholes over the five-year period beginning January 1, 2006 and create a database of manhole conditions and required repairs. The resulting data should be used to prioritize future manhole inspections

and/or determine an appropriate periodic re-inspection cycle. Additionally, the report recommends that the Company adopt a standardized repair priority schedule and track repair backlogs by priority.

- Maintain a database of splices and splice repairs made by employees and contractor crews in order to determine possible workmanship issues and related training needs.
- Perform field failure analysis for all manhole events. Analysis should be performed by employee(s) trained in forensic failure analysis. Prepare annual trend assessments of root-cause failure analysis results and submit to the Department.
- Employ standardized manhole inspection and manhole event data collection forms that maximize checklist items and minimize the need for free-form comments. Submit quarterly and annual reports with prescribed summary analysis to the Department. Submit individual standardized reports on all events involving dislodged covers to the Department.

- Create a Working Group of representatives from each of the other three Massachusetts distribution companies and the Department staff to meet quarterly for sharing information on manhole event trends, root cause analyses, research studies, results of pilot programs, new technologies, and lessons learned. The Working Group could also address broader issues related to electric distribution reliability and safety, as appropriate.
- Survey non-jurisdictional operators of underground electric distribution systems regarding manhole events and manhole inspection practices, and determine their interest in participating in the Working Group.

To communicate the requirements of the Final Reports to its workforce and implement the details of the Plan, the Company has drafted a series of electric operating procedures ("EOP's"). These EOPs are attached to this Plan, and are subject to change based on experience over time. In addition to the detailed EOPs, a general description of the Plan follows.

A. Stray Voltage Testing of all Publicly Accessible Electric Facilities Capable of Conducting Electricity

The details of the Company's stray voltage testing procedures and protocols are included in NG-USA EOP G016, entitled "Elevated Equipment Voltage Testing Procedure," provided in Attachment 1. Below is an overview of the programs and associated procedures and protocols.

(1) Facilities to Be Tested

In accordance with the recommendations in the Stray Voltage Final Report, utilities should inspect and test the following equipment where accessible by the general public:

- Metallic street lights and fixtures
- Metallic risers, sweeps and conduits
- Metallic manhole and handhole covers
- Secondary pedestals
- Padmount transformers and transclosures
- Padmount switchgear , termination cabinets and junction boxes
- Control cabinets such as pole-mounted capacitor controls within public reach
- Exposed down grounds

For purposes of the Company's program, all facilities falling into the covered categories listed below that are within reach of a person will be tested (i.e., within reach by an inspector standing on the ground). The Company has identified common equipment that is covered by this directive and

developed a list of such equipment and facilities, as set forth below:

(a) *Metallic* street lighting standards owned by the Company. Consistent with the Directive to test when exposure may be greatest, street lighting standards will be tested at night, when the light would normally be energized. Stray voltage testers also will be equipped with "angel guards" (street light standard base covers) for installation if covers are missing or wires are found to be exposed to the public at the time of testing. Private area lighting, state- or municipal-owned lights, lights owned by park associations, lights in parking lots, municipal traffic signals, non-conductive (e.g., fiberglass) street light standards, and standards located in places that are not publicly accessible (e.g., without stopping traffic or creating hazardous situations for workers or members of the public) will not be tested;

(b) *Metallic* components of overhead distribution facilities, excluding transmission facilities, that are within reach of inspectors, including such items as metallic towers and metallic poles, metallic riser guards or conduit, uncovered or non-insulated down grounds, and any other metallic piece of equipment on the pole (i.e., other than a pole step, stencil or any other metallic piece that is an incidental attachment to a non-conductive structure) within reach of the ground. Meters and customer meter pedestals are excluded.

(c) The following *metallic* equipment associated with underground facilities: manhole covers, vault covers and grates, junction box covers, handhole covers, padmount transformers, and switchgear.

(d) Concrete and fiberglass handholes and other non-conductive equipment will not be tested.

The Company maintains information about the equipment to be tested in multiple systems, in both electronic and paper form. Based on those records, the Company estimates that the number of potentially conductive equipment that will require testing is shown in Table 1 below.

Table 1

Conductive T&D Equipment Items Referenced in Order for Voltage Testing

Element	Totals
Dist Poles (portion, refer to b. above)	767,452
Handhole Covers – all	39,219
Manhole Covers	15,500
Vault Covers/Entrances	1,690
Pad Mount Transformers	30,587
Switchgear	708
Metallic Outdoor Lighting	18,000

(2) Limitations on Testing

The Company expects to encounter situations where equipment is located in areas where access to the public is prevented, located in areas where the public is reasonably not expected to be walking (median strips of limited access highways, for example). The Company will not scale barriers, or endanger personnel, to test such equipment, which will be considered not publicly accessible.

Similarly, there may be temporary construction or other work activity that obstructs access to a particular facility for an extended period of time. In such cases, the Company will make note of the obstruction, but will not attempt to test the equipment at such time.

(3) Daily Job Site Testing

In addition to the formal testing program, the Company will implement daily job site testing.

The daily job site testing will require that metallic equipment, associated with a job at each job site where Company personnel or contractors complete a work assignment, shall be tested for stray voltage at the end of the work day or the completion of the assignment. These stray voltage tests will not be documented.

(4) Use of Test Equipment

The Company will use hand held devices (proximity detection units) that are capable of detecting voltage from 8 volts to 600 volts. The devices will be certified to a minimum level of 8 volts and to a maximum level of 600 volts by an independent laboratory. At this time, the following unit has been certified: HD Electric model LV-S-5.

When testing, if the presence of voltage is indicated by the proximity detection unit, a portable AC digital voltmeter with a minimum of Category III 1,000 volt rating will be utilized to confirm the voltage. The test meter will have an input load impedance of at least 500 ohms. However, since 500 ohm resisters must be made manually, the Company may migrate to a 3,000 ohm resistor which can be readily obtained.

At this time, the following units have been approved:

1. HD Electric model LV-S-5 (5-600 volts).
2. Fluke 85
3. Fluke 87
4. Fluke 170 series or equivalent
5. Fluke 175
6. Fluke 177
7. Fluke 179
8. Fluke 187
9. Fluke 189

The details of the testing procedure that will be used are set forth in EOP-G016 in Attachment 1.

(5) Corrective Action Requirements

The Company has established a procedure to be followed when a stray voltage condition is found, in accordance with the testing procedure.

To assure safety, where stray voltage in excess of 8 volts is found on a facility that is located in an area where pedestrians can make contact, a person will be assigned to remain on site to "guard" the location until action is taken to reduce the voltage to 8 volts or less. If the stray voltage measures less than 8 volts, but above 4.5 volts, the Company will, at a minimum, install a barrier and protective markings, but will also use its discretion on whether or not to assign a guard until action is taken to reduce the voltage to 4.5 volts or less.

Temporary repairs will be made to reduce the voltage to 4.5 volts or less as soon as practical after the condition is discovered. Permanent repairs will be made within 45 days of the occurrence. If permanent repairs cannot be made within 45 days of the occurrence, due to extraordinary conditions, the Company will periodically visit the site to monitor the condition of the temporary repair until the permanent repair is made.

Where the tester detects a minimal voltage level of 4.5 volts or less (i.e. the voltage standard of the proximity tester) that is attributable to the design of the facility (e.g., a nominal induced voltage) and not the result of an improper condition, no corrective action would be taken.

B. <u>Manhole Inspection Programs</u>

The recommendations contained in the Manhole Safety Final Report can be summarized into four requirements:

- Internally inspect all manholes over a five year period, including infrared thermal testing of separable connectors, with repairs completed using a standardized repair priority schedule,
- Develop a record keeping system of new and replaced cable splices,

- Develop an incident analysis and documentation of manhole events to include failure and trend analysis, and,
- Inter-company coordination along with outreach to non-jurisdictional operators.

The Company's underground inspection program will have its inspectors report maintenance and safety issues through hand held computers, or pre-printed forms, that will be inputted into the Company's central database, which is described in greater detail in Section IV below. The underground distribution facility maintenance items identified through this patrol will be separated into four priority categories A, B, C, and E priority. The problem codes, used for each identified type of maintenance and safety issue, will automatically default to the appropriate priority category, but the default priority can be adjusted by the individual performing the inspection based on actual field conditions. A complete list of maintenance items, default priorities, and repair time-frames can be found in Attachment 2, NG-USA EOP UG006. The priority categories are defined as follows:

- A Priority - An identified facility/component that must be repaired or replaced as soon as practical.
- B Priority – An identified facility/component condition that shall be considered for repair or replacement as the feeder is scheduled for maintenance. These identified conditions will be corrected as preventive maintenance and or facility life extension.
- C Priority – An identified facility/component condition that is being trended and reviewed by Asset Management that may require replacement through the engineering process (Requires project/capital expenditures). Non-capital conditions identified under this priority will be corrected at the discretion of field operations.

- E Priority – An identified facility/component that must be replaced or repaired immediately to address public safety or system reliability. The inspector shall notify the appropriate operations department for immediate response and corrective action any time an E priority is found during an inspection.

(1) Underground Inspection

The underground inspection procedures and protocols are included in NG-USA EOP-UG006, entitled "Underground Inspection and Maintenance," provided in Attachment 2, along with NG-USA EOP-UG001, entitled "Infrared Non-Contact Thermometer Inspection" in Attachment 3. Underground electrical facilities requiring inspection include an estimated 15,500 manholes and 1,690 electrical vaults. These facilities are located in the Company's underground networks (Worcester, Brockton, and Lynn) and in conventional, non-network, underground manhole/handhole and duct. systems. The database of the network equipment is included in paper drawings, but will be converted to electronic format with the documentation of this program. A data base will be used to retain the documentation of equipment maintenance items and priority. Attachment 4 is the "Underground Inspection Log" data base, and Attachment 4.a. is the "Underground Inspection Log Form."

(2) Inspection Schedules

The manhole visual inspection program will be accomplished over a five year period, in accordance with the Directive. Each year, an inspection of 20% of the total amount of facilities will be targeted.

(3) Database of Cable Splices

The Company will establish a procedure and database to track all newly installed and maintenance replaced cable splices. The database of cable splices will be developed in tandem with the "Underground Trouble Report Data Base" program. This cable splice data base will require the

Company's inspectors to report "Underground Trouble" and "Cable Splices" through hand held computers, or pre-printed forms, that will be inputted into the Company's database.

The National Grid splice log will only include splices located in manhole and vault type systems; not those as part of an underground residential development (URD), underground commercial development (UCD), or rural area splices; which are typically direct buried cable applications. Attachment 5 shows "screen shots" of the Trouble / Splice Log data base.

(4) Manhole Event Incident Analysis

The Company will establish a procedure and system to analyze all manhole events. The Company maintains a data base of all events that result in an outage, including those events occurring in manholes, vaults, and service boxes. Qualified Company personnel investigate every customer outage event to determine the root cause. Once found, the root cause is recorded in a data base that is analyzed for trends. The Company's engineering laboratory and distribution engineering services department also examine the root causes of underground system events in order to learn how to minimize the occurrence of future events.

When a material defect is suspected as the root cause of a failure, manufacturers' representatives are contacted, or independent laboratories consulted, to assist in further analysis. If the Company suspects that it is not using material or equipment appropriately, Company work methods engineers investigate. If a material defect or work method is found to be the cause of an underground or manhole event, mitigation strategies are quickly communicated directly to the workforce via alert bulletins illustrated in Attachment 8 a-c, at the Company's weekly scheduled safety briefings, or if necessary, through safety stand-downs.

The Company tracks and analyzes data on manhole cover events that the Company becomes aware of, even if there is no outage involved. By this policy, the Company will capture critical data

surrounding the event and document it in an "Underground Trouble Report." Attachment 5 shows the Trouble / Splice Log data base input screens format.

III. *Notification to Department*

The Final Reports require notification to the Department for any events including, (i) electrical shocks reported by the public, and (ii) manhole events including smoke, fire, explosions with and/or without dislodgement. To accomplish this, the Company has modified its NG-USA EOP G009 entitled "Personal Injury Accidents/Newsworthy Events Report," provided in Attachment 7, to utilize its Outage Reporting Protocol ("ORP") system to notify the Department of such events. The EOP was modified to incorporate the following:

A. National Grid, in compliance with the requirements of Massachusetts General Laws, Chapter 164, Section 95, shall report within a 24 hour period an accident to employees or the public in regards to National Grid electric facilities where the individual is injured, rendered insensible or killed. The notification will be made utilizing the Department's Outage Reporting Protocol (ORP) website, as described in Section II.A of Attachment 7, NG-USA-EOPG009. The Accident Report Program shall be the form utilized. The following information is required:

1. Date
2. Company name
3. Contact person
4. Telephone number
5. Accident date and time
6. Location of incident
7. Detailed description of accident

The notification/report is to be completed and submitted by the appropriate Regional Control Center upon receiving the information from Company personnel. Additionally, a copy of the submittal shall be faxed to the Company's Manager of Corporate Safety and Health.

B. Exceptional, or non-routine events, due to elevated equipment voltage that required reporting to OSHA, or other government organizations, due to injuries or other substantive impacts, are required to be submitted to the Department within one to three days. Events involving a fatality or injury (human or domestic animal) should be reported immediately. The notification shall be made utilizing the Department's Outage Reporting Protocol (ORP) website as described in Section II.A. of Attachment 7, NG-USA-EOPG009. The Accident Report Program, providing the same information listed above, shall be the form utilized.

The notification/report is to be completed and submitted by the appropriate Regional Control Center upon receiving the appropriate information from Company personnel. Additionally, a copy of the submittal shall be faxed to the Company's Manager of Corporate Safety and Health.

C. The Department requires initial notification of all manhole events (i.e., explosions, fires and smokers) to be submitted as soon as possible, but no later than 24 hours after the event. Manhole events include the following:

1. Smoking Manhole – A manhole event in which smoke is visible, but no visible flame is escaping from the edge of the manhole cover or from holes in the cover.
2. Manhole Fire – A manhole event in which the cover remains seated in its frame and there is visible flame escaping from the cover's edge or from holes in the cover.
3. Manhole Explosion – A manhole event in which a release of energy from the manhole occurs and the manhole cover is dislodged from its frame, or debris such as cement and dirt is projected into the air although the manhole cover remains seated.

The notification shall be made utilizing the Department's Outage Reporting Protocol (ORP) website, as described in Section II.A. of Attachment 7, NG-USA-EOPG009. These required reports involving manhole events should contain the following information:

1. Event record number
2. Location of failure
3. Date and time of failure
4. Weather conditions for previous 24 hours
5. Manholes involved in event
    a. Number and location
    b. Manhole size
    c. Manhole covers type (solid or slotted)
    d. Whether manhole cover was dislodged
6. Failed equipment type (cable, splice, etc.)
    a. Feeder number for primary cable failure
    b. Voltage
    c. Cable type and age
    d. Cable loading
    e. Other equipment involved and age
7. Supply substation identification
8. Event type (smoke, fire, explosion)
9. Manhole entry
    a. Date of most recent manhole inspection (attach inspection sheet)
    b. Date of most recent manhole entry and reason (e.g. maintenance)

c. Failures at this location in the past five years

d. Gas detected in manhole

10. Sequence of occurrences during the event

a. Number of customers interrupted

b. Duration of interruption

c. Personal injuries and/or property damage

d. Related outages

11. Summary of initial investigation into cause of failure

The initial notification/report is to be completed and submitted by the appropriate Regional Control Center upon receiving the information from Company personnel. Additionally, a copy of the submittal shall be faxed to the Company's Manager of Corporate Safety and Health. The final manhole cover dislodgement report is to be completed by the appropriate Field Operations Supervisor and to be sent as soon as possible after the event, when the information required by the Department becomes available.

IV. THE DATABASE SYSTEM

The Company has developed a tabular database to document the equipment requiring maintenance. The database will be populated with information from hand-held computers, within which the maintenance codes are pre-programmed.

The equipment deficiencies are entered into the hand-held computer. At days-end, the hand-held computer information is downloaded into the database.

The hand-held computers have built-in GPS capability that allows the inspector or tester to confirm an equipment location, or add additional facilities, with the touch of a key to input the longitude and latitude of the facility. Hand-held computers utilized in the Stray Voltage testing will be

provided by the contractor hired by the Company to perform the services. The Company will provide the necessary data requirements (as listed in EOP G016) and the contractor will be required to provide them to the Company in the proper format.

The Stray Voltage data repository will be developed to meet the information requirements listed in NG-USA EOP G016, included in Attachment 1.

The Company will be completing a comprehensive survey of its overhead distribution equipment and will conduct the stray voltage testing at that time. The handheld devices will document; the equipment characteristics, GPS longitude and latitude points, and the results of the stray voltage tests.

V. TRAINING

The training programs for the Stray Voltage testing and inspections will involve the following subjects:

- Use of personal protective equipment, including rubber gloves
- Understanding the Electric Operating Procedures described herein
- Knowing what constitutes elevated voltage
- How to perform inspections, including priority maintenance codes assessment
- How to use a proximity tester
- How to use a multi-meter
- Identification of distribution system equipment
- A review of construction standards
- How to perform street light inspections and make minor repairs(e.g., grounds, bonding)
- Hands on lab training in all the above subjects, as well as classroom training
- How to use handheld data entry devices

All Company employees doing inspections are trained to work on or with overhead facilities and/or are specially trained for underground equipment. Entry to manholes and vaults requires additional training and safety requirements. Through this training, employees are trained on the principles of electricity, electrical equipment, Company standards, safety requirements, personal protective equipment and first aid.

To utilize the database (i.e., to electronically gather data), workers (in-house and contractor) will be trained on the use of the hand-held device that inputs the data to the Company's data base, its operation, various asset class screens on the device (e.g., overhead, underground, street light standards, stray voltage testing, etc.), and other corresponding maintenance priority codes.

The Company anticipates that employees will be qualified with the aforementioned training and will be skilled in the ability to conduct the required stray voltage testing and voltage measurements. The same workers who do the voltage testing may also be used to make any necessary repairs.

Contractors conducting inspections will be required to meet training qualification criteria comparable to that of in-house workers. The Company's Construction and Management Services (C&MS) group coordinates safety and proficiency training for contractors on a routine basis when using such contractors. The bid specification for these workers will require proof of such qualification. This includes contractor orientation for the different levels of testing and inspection activity, review of safety plans and risk mitigation, and contractor safety procedures in general. Required technical skills are outlined in the EOPs and any additional training necessary for contractors to perform the required testing and inspection activities will be provided by the Company.

Contractors conducting the stray voltage tests shall be provided orientation training regarding the program for a subset of their workforce, who will then serve as trainers to instruct and train the remainder of the contractor's workforce using Company training materials. Testing equipment will be

demonstrated, and materials and policies will be provided. Workers will be equipped with the applicable materials to perform their job and will be trained on the protocols to secure an area where an excessive stray voltage condition is found. The training will include a review of the applicable EOPs.

VI. MATTERS OF INTERPRETATION AFFECTING IMPLEMENTATION

In developing its Plan, the Company identified a number of items where implementation may differ from the recommendations and/or clarification is required. Below, each matter is identified and explained in further detail.

A. Non-Metallic Manhole & Handhole

The Stray Voltage Final Report references testing "manhole and handhole covers". The Company will test these if they are metallic, but will not test concrete and fiberglass covers.

B. Inspections and Stray Voltage Tests Documented by GPS Point of Facility

The Company's system for inspections and stray voltage testing itemizes the facility at each GPS point and identifies it by asset type; e.g., pole, street light standard, manhole, handhole, vault, pad mount transformer, or pad mount switchgear. For example, a pole may have a guy and a downground, which requires two stray voltage tests. This will be recorded as a "pole tested." Similarly, regarding inspections, a pole may have a pole-top transformer, guy, downground, cutouts, connections, etc. If all associated equipment on the pole is in good condition, it will be recorded as a "pole inspected," but every piece (and sub-piece) of equipment will not be separately noted.

C. Street Lights on Wood Poles - Testing Down Ground During Daytime

Metallic street light poles will be tested for stray voltage when the light is operating during the night. However, for wood poles with a guy or downground, a street light arm/head located on that wood pole would be tested during the daytime along with the rest of the overhead system.

D. Inaccessible Street Lights on Highways

Certain street light poles, especially those in the median between interstate highways or other major roads, are inaccessible to the public. Thus, the Company does not interpret the Stray Voltage Final Report recommendations to require voltage testing of such facilities, as this could place the Company's workers in a potentially hazardous situation. While these facilities can be visually inspected from a distance, the detailed inspection, and stray voltage testing, will not be performed.

E. Inaccessible Equipment Due to Fence

Certain equipment may be generally inaccessible to both the public and our employees due to customer fences. (e.g., poles in back-yard lots). In such cases, we are recommending that stray voltage testing would not be conducted.

F. Stray Voltage Detection Level

As described herein, the Company will utilize a proximity tester typically sensitive to 4.5 volts certified to 8 volts, for its stray voltage testing. Upon any positive test, a separate reading with a grounded multi-meter with a minimum of a 500 ohm impedance shall be utilized for a voltage reading. Where greater than 8 volt is found, actions for immediate guarding, investigation, and repair will be taken.

G. Cable Load & Temperature Readings

The Manhole Safety Final Report recommends load and temperature readings taken on the secondary network to assist in assessing where customer load may contribute to overloading the secondary cable and cause failures as a result. The Company's Plan does not incorporate this recommendation. National Grid's network is primarily paper and lead cable which does not allow for a clamp on meter to take load and temperature readings. Nevertheless, the Company's system design and operation addresses this issue, and thus it should not be a concern. National Grid's primary ring bus network is managed through extensive load flow analysis, which appropriately manages the network

load. The Company manages spot network customers in a similar manner to customers of an overhead line transformer, aggregating their metered load to assess the need, number, and location of network vaults to meet the total load obligations. If overloading were a problem, it would appear in customer interruptions on the secondary network, which has not been the case.

H. Seasonal Factors

Scheduling inspections during periods when equipment may have greater susceptibility to stray voltage is not always feasible. For example, it is not practical to locate all of the Company's underground facilities during winter months due to snow cover. When there are instances of possible damage caused by snow clearing activities, we are contacted by the local authorities to assess and remedy any problems. Through its inspection programs, which span all seasons, National Grid will have the opportunity to gather factual information to help determine and identify what impacts seasonal factors may have on elevated voltage.

I. Splice Log

The National Grid splice log will only include splices on manhole and vault type systems. No logs will be maintained for splices in underground residential developments (URDs), underground commercial developments (UCDs), or rural areas, as these are typically direct buried cable applications.

Furthermore, while the Company has established a database to record splices in conventional manhole and in the network systems, implementation will require training and maturity through the workforce. The Company will work with the Utility Working Group to consider an alternative approach that would facilitate the identification of workmanship issues on spliced, underground cables.

It should be noted that splicing logs were of more importance in the past, when the splices were lead-wipe and required a considerable amount of craft expertise to install successfully. This is no longer the case. Splices are now completed as cold splices or using heat-shrink technology. These

splices are routinely performed using much less craft expertise, and therefore, the Company (like most other utilities) finds little value to maintain detailed splicing logs tracking the level of information suggested by the Manhole Inspection Final Report. The utility working group will provide a forum for the consideration of alternative approaches that will coincide with the systems and operational practices of the companies.

J. **Underground Asset Repository Information**

In Appendix B.5 of the Manhole Safety Final Report, Siemens recommends the collection of certain information that is better gathered and retained in the Company's GIS system. To date, the Company has not justified the costs versus benefits of completing a GIS survey update of its underground system. Even though it was recommended in the Final Report, the Company continues to believe that updating its underground asset register for certain information is not necessary if the real focus is on inspection and completion of any needed repairs to ensure manhole safety. In particular, the Company believes that gathering the following information in an inspection assessment program is unwarranted:

- Grid # - Not required given that the feeder and equipment location identify this.
- Combustible gas is tested as a required safety item before a manhole is opened, but does not add value to record and maintain
- Ambient MH temperature
- Transformer type and ratings
- Breaker information
- Other equipment information
- Sump pump
- Sewer connection

- Voltages in manhole
- Number of feeders
- Type of primary cables
- Type of secondary cable
- Rodent droppings
- Record ampacity and temperature

K. Underground Inspection Priority Maintenance

The Manhole Safety Final Report in Appendix B.1 outlines certain priority maintenance items along with explicit repair timelines. The Company, in its EOP described in Section II.B. of this Plan, identifies a different set of priority items and repair timelines which the Company will implement. The priorities the Company plans to implement have been established and proven to be effective through numerous years of National Grid operations experience. Comparison can be made by reviewing the EOP along-side Appendix B.1.

L. Stray Voltage Conduits and Sweeps

The Directive calls for Stray Voltage testing of conduits and sweeps. Conduits and sweeps, typically underground portions of a riser installation, will not be tested as separate items, but, since they are electrically connected to a metallic riser, will, be tested as part of the riser system.

M. Manhole Event Definition

The Company agrees with the Manhole Inspection Final Report of establishing uniform definitions of “manhole events” for the purpose of data tracking and monitoring activities. The Company proposes to work with the other Massachusetts electric companies through a Working Group to develop these uniform definitions.

Consolidated Edison Electric Company ("ConEd")operates a large underground distribution system in New York City and has experience with these types of events. Therefore, the Company recommends that the definitions developed by ConEd be used as a starting point for uniform definitions in Massachusetts. The ConEd definitions are as follows:

- *Smoking Manhole* – A manhole event in which smoke, but no visible flame is escaping from holes in the cover or around the cover's edge and the cover remains seated in its frame.
- *Manhole Fire* – A manhole event in which flame is visible at holes in the manhole cover or around the cover's edge and the cover remains seated in its frame.
- *Manhole Open* – A manhole event in which a release of energy from the manhole occurs and one or more manhole covers are dislodged from their respective frames. There is no reported injury or damage.
- *Manhole Explosion* – A manhole event in which a release of energy from the manhole is accompanied by physical injury to people and/or damage to vehicles or surrounding structures, including windows.

The ConEd Model provides a more precise and appropriate definition of the types of events that have the potential to occur on an underground distribution system and, if adopted by all the Massachusetts utilities, will facilitate the Department's review and tracking of these types of events.

VII. Working Group

The Manhole Safety Final Report recommends development of multi-utility working group and reach-out to other municipalities and organizations that operate similar systems. The intent of the group would be to share best practices and experience with inspection and repair of manhole events, and to provide a forum to re-define appropriate inspection programs . To date the

Massachusetts Utilities, namely NSTAR Electric, National Grid, Western Massachusetts Electric Company, and Unitil Corp have had technical personnel teleconferencing in the development of these plans to comply with the Department's Directive. Technical personnel from each Company will establish a working group to meet the objectives, and then contact other known organizations for interest in joining and contributing to the group.

VIII. Organization & Execution

A project manager will have supervisory control and authority over the Company's Inspection and Testing Programs. The project manager will facilitate the Quality Assurance program, as well as facilitate oversight of any inspections and stray voltage testing by Company employees and contractors. In addition, the project manager will assure day-to-day management of the inspection schedules, data quality, analysis, and reports. The project manager will issue Requests for Proposals (RFPs) for services and hire workers as necessary. The project manager will be supported by several other Company departments. These departments are as follows. A Construction & Maintenance Service (C&MS) Department maintains relations with qualified contractors, and administers contracts with vendors. The T&D Technical Services Department develops EOPs, maintains the computer system administration, selects qualified testing devices, certifies laboratories, provides technical support for data analysis, and schedules development. Information Technology (IT) offers computer software support. Field Operations will support the inspection of identified facilities.

To ensure that adequate resources, with the necessary qualifications, are available to complete this work, the Company currently plans to perform the work as follows:

(1) Underground Network Vaults, Manholes and Submersible Transformer Vaults

The Company will predominantly use in-house qualified resources, supplemented by contractors where regionally required due to any lack of resources, to inspect the annual targeted

amount of network vaults, manholes and submersible transformer vaults. Stray voltage tests for grates and covers of network vaults, manholes and submersible transformer vaults will be completed and documented at the same time as the inspections.

(2) Stray Voltage Testing

As previously mentioned, the Company has contracted for a comprehensive survey of its overhead distribution system to be completed over the next three years. In concert with this effort, stray voltage testing will be completed on metallic risers, sweeps, conduits, down grounds and control cabinets such as pole-mounted capacitor controls.

In addition, the Company will predominantly use in-house qualified resources, supplemented by contractors where regionally required due to any lack of resources, to inspect the annual targeted amount of:

- Metallic street lights and fixtures
- Metallic risers, sweeps and conduits
- Metallic manhole and handhole covers
- Secondary pedestals
- Padmount transformers and transclosures
- Padmount switchgear , termination cabinets and junction boxes
- Control cabinets such as pole-mounted capacitor controls within public reach
- Exposed down grounds

IX. QUALITY ASSURANCE

A. Overview

Quality Assurance programs have been developed, described in further detail in Attachment 6, to assure the integrity of the data developed during inspection and testing.

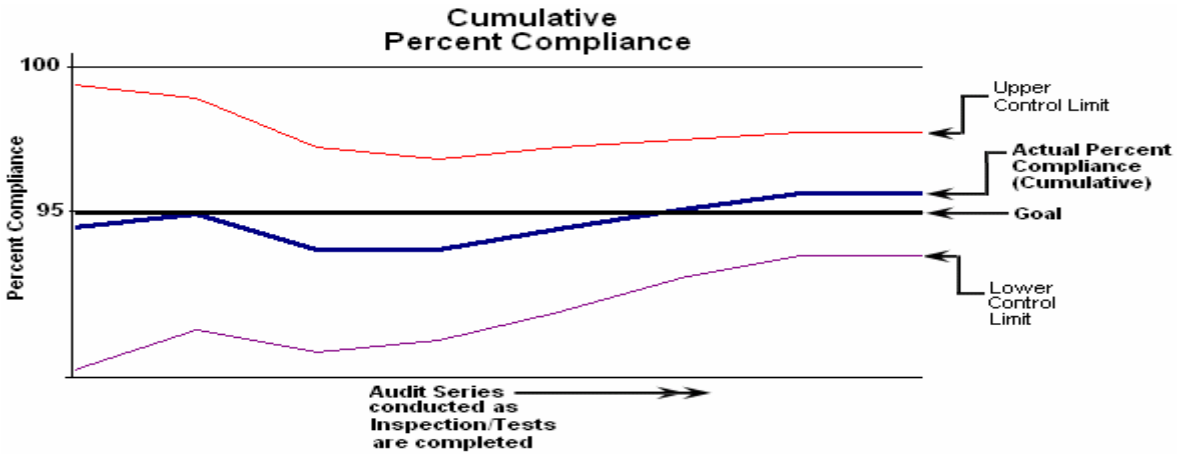
The quality assurance/quality control (QA/QC) approach most suitable for application to the Asset Inspection/Testing Program is the ***Statistical Process Control*** (***SPC***) Method. SPC is specifically designed for implementation on a continuous stream of products (data) created over long periods of time (e.g.: manufacturing assembly lines). Features of SPC that will heighten the integrity and efficiency of the Inspection/Test Program include:

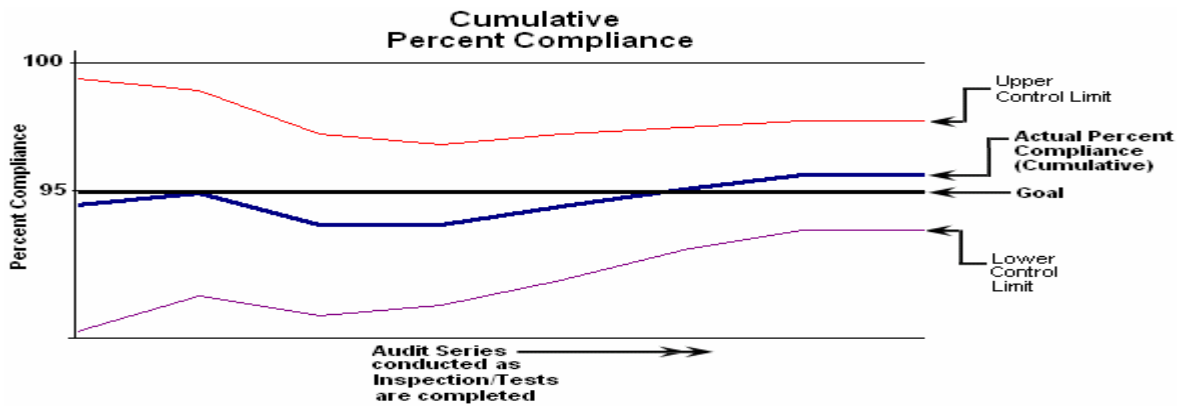
- verifying the integrity of inspection/surveillance results at reasonable time intervals,
- providing "early warning" of results that are unacceptably inconsistent and/or trending towards unacceptable quality levels, and
- enabling the determination of root-cause(s)/corrective action to restore process integrity prior to the significant accumulation of suspect inspection/test results

B. QA Program Statistical Compliance

The QA program is designed to assure that the accuracy, thoroughness and integrity of the test/inspection data is maintained. The QA program also provides assessment features that alert analysts to the potential onset of unfavorable trends and the decay of quality before their entrenchment and the accumulation of significant amounts of suspect data.

The minimum level of quality sought is 95% Compliance as designated by the "Goal" threshold on the following plot. The SPC Method also provides depth to the QA process by illustrating tends as audits are conducted, by plotting natural upper and lower bounds against which the level of stability and consistency of data-quality is assessed and, thereby, prompting corrective interventions should trends be unfavorable and/or the stability or consistency is undesirable.





Attachment 1 – NG-USA EOP G016 Elevated Equipment Voltage Testing

nationalgrid **ELECTRIC OPERATING PROCEDURES**	**Doc No.:** NG-USA EOP G016 **Page:** Page __ of 12 **Date:** 01/01/06
SUBJECT: Elevated Equipment Voltage Testing	**SECTION**: General

REFERENCE:

NYPSC Order 04-M-0159
Applicable National Grid Safety Rules & Procedures
Testing Equipment Operation Instructions

GENERAL INFORMATION:

The purpose of this procedure is to outline the requirements for the annual elevated equipment voltage testing on National Grid Facilities in New York as required by the New York Public Service Commission's "Electric Safety Standards" issued on January 5, 2005. Additionally the Massachusetts Department of Telecommunications and Energy provided a series of recommendations on December 9, 2005 that have been included in this procedure.

This procedure also outlines corporate requirements for elevated equipment voltage testing in New Hampshire and Rhode Island. The variance in requirements between New York, Massachusetts, New Hampshire, and Rhode Island is based on sound utility practice versus regulatory requirements.

PROGRAM ADMINISTRATOR:

Distribution Engineering Services

APPLICABILITY

This procedure applies to all personnel involved with or responsible for the testing of facilities designated by this EOP for elevated equipment voltage.

SCOPE:

I. Facilities Where Elevated Equipment Voltage Testing/Documentation is Required – New York
   A. Street Lights and Municipally Owned Facilities
   B. Substation Fences
   C. Overhead Distribution Facilities
   D. Overhead Transmission Facilities
   E. Underground Facilities
   F. Daily Work Areas
   G. Exemptions

Attachment 1 – NG-USA EOP G016 Elevated Equipment Voltage Testing

II. Facilities Where Elevated Equipment Voltage Testing/Documentation is Required – New Hampshire and Rhode Island
   A. Street Lights
   B. Substation Fences
   C. Overhead Distribution Facilities
   D. Underground Facilities
   E. Daily Work Areas
   F. Exemptions

III. Facilities Where Elevated Equipment Voltage Testing/Documentation is Required – Massachusetts
   A. Street Lights
   B. Substation Fences
   C. Overhead Distribution Facilities
   D. Underground Facilities
   E. Daily Work Areas
   F. Exemptions

IV. Test Equipment
V. Test Procedure
VI. Corrective Action Requirements
VII. Database Requirements
VIII. Annual Reporting and Certification Requirements
IX. Responsibility
X. Definitions
XI. Training

I. FACILITIES WHERE ELEVATED EQUIPMENT VOLTAGE TESTING/DOCUMENTATION IS REQUIRED – NEW YORK

A. Street Lights and Municipally Owned Facilities
   1. Company owned metallic street lighting standards are required to be tested for elevated equipment voltage annually. This test is to be performed while the light is operating.
   2. Municipally owned street light systems that National Grid directly provides energy to must be tested for elevated equipment voltage annually. National Grid will complete this testing unless assurances of the completion of required testing and transfer of such test data are made by the appropriate municipality. This test is to be performed while the light is operating.
   3. Municipal owned metallic traffic signal standards and accessible devices are to be tested annually for elevated equipment voltage by National Grid.
   4. All street lights identified on public thoroughfares regardless of ownership are to be tested annually.
   5. All street lights under a maintenance contract are to be tested annually.
   6. Exceptions not requiring elevated equipment voltage testing: private lighting, park associations, parking lots, fiberglass (or other non-conductive) street light standards, and locations where street light standards are not publicly accessible, such as facilities located in the center of highways that cannot be accessed without stopping traffic or creating potentially hazardous situations for the worker and/or public.

Attachment 1 – NG-USA EOP G016 Elevated Equipment Voltage Testing

B. National Grid Substation Fences
   1. Metallic fencing surrounding substations with National Grid Facilities shall be tested for elevated equipment voltage annually. This fencing can be customer owned for customer stations, if a National Grid facility is part of the station.
   2. See reference to NG-USA EOP 400.06.2 Substation - V&O Inspection Procedure.

C. Overhead Distribution Facilities
   1. Towers and/or metallic poles with distribution facilities shall be tested annually for elevated equipment voltage.
   2. The following equipment on wood distribution poles requires annual elevated equipment voltage testing:
      a. Metallic riser guard or conduit (company or non-company).
      b. Uncovered or un-insulated down ground (company or non-company).
      c. Down guy (company or non-company).
      d. Any other publicly accessible conductive piece of equipment (company or non-company) on the pole within reach from the ground.
   3. Exceptions: Customer meters and customer meter poles are excluded.

D. Overhead Transmission Facilities
   1. Towers and/or metallic poles with transmission facilities shall be tested annually for elevated equipment voltage.
   2. The following equipment on wood transmission poles or structures require annual elevated equipment voltage testing:

      a. Metallic riser guard or conduit (company or non-company).
      b. Uncovered or un-insulated down ground (company or non-company).
      c. Down guy (company or non-company).
      d. Any other publicly accessible conductive piece of equipment (company or non-company) on the pole or structure within reach from the ground.

E. Underground Facilities
   1. Annual elevated equipment voltage testing is required on all of the following equipment where accessible to the public.
      a. All metallic manhole covers, vault covers and grates, junction box covers, handhole covers, pad mount transformers, and switchgear.
   2. Exceptions: Non-metallic concrete or fiberglass pads or handholes are not required to be tested.

F. Daily Job Site Test Requirements
   1. Each job site where National Grid personnel or its contractors complete a work assignment shall be tested for elevated equipment voltage at the end of the work day or the completion of the assignment. **This testing requirement is considered good utility practice and does not require specific documentation**.
   2. Exceptions:
      a. Substation fencing will not require elevated equipment voltage testing unless scheduled as part of the inspection program or if work was done on the fencing.
      b. In a storm situation, where mutual aid is required, testing by other than National Grid personnel will not be required.

Attachment 1 – NG-USA EOP G016 Elevated Equipment Voltage Testing

G. Exemptions
   1. A completely fenced in area where access is denied to the general public and where access is only achieved by climbing a fence. Good judgment is required by the tester in these scenarios.

II. FACILITIES WHERE ELEVATED EQUIPMENT VOLTAGE TESTING/DOCUMENTATION IS REQUIRED – NEW HAMSHIRE AND RHODE ISLAND

A. Company Owned Street Lights
   1. Testing will be performed during each outage investigation notification and the data will be recorded for each instance.

B. National Grid Substation Fences
   1. Metallic fencing surrounding substations with National Grid Facilities shall be tested for elevated equipment voltage annually.
   2. See reference to NG-USA EOP 400.06.2 Substation – V&O Inspection Procedure.

C. Overhead Distribution Facilities
   1. Wood distribution poles require testing to be completed on metallic risers in conjunction with the distribution patrol program covered by NG-USA EOP D004.
   2. Documentation is only required on metallic risers found to be at an elevated voltage requiring repair. Testing data is not required for a facility that is found to be operating as designed.

D. Underground Facilities
   1. Testing for elevated equipment voltage shall be done while completing scheduled inspections of underground equipment covered by NG-USA EOP UG006, Underground Inspection and Maintenance. The following items are to be tested on a five year cycle, padmount transformers, switchgears, and metallic handhole covers.
   2. Testing for elevated equipment voltage shall be completed on underground facilities while completing working inspections covered by NG-USA EOP UG006. The metallic items to be tested are manholes covers, vault covers, handhole covers, splice box covers, junction box covers, padmount transformers, switchgear, and submersible equipment covers.

E. Daily Job Site Test Requirements

. Each job site where National Grid personnel or its contractors complete a work assignment shall be tested for elevated equipment voltage at the end of the work day or the completion of the assignment. **This testing requirement is considered good utility practice and does not require specific documentation**.2. Exceptions:

   a. Substation fencing will not require elevated equipment voltage testing unless scheduled as part of the inspection program or if work was done on the fencing.
   b. In a storm situation, where mutual aid is required, testing by other than National Grid personnel will not be required.

F. Exemptions
   1. A completely fenced in area where access is denied to the general public and where access is only achieved by climbing a fence. Good judgment is required by the tester in these scenarios.

Attachment 1 – NG-USA EOP G016 Elevated Equipment Voltage Testing

III. FACILITIES WHERE ELEVATED EQUIPMENT VOLTAGE TESTING/DOCUMENTATION IS REQUIRED – MASSACHUSETTS

A. Company Owned Street Lights
   1. Company owned metallic street lighting standards are required to be tested for elevated equipment voltage on a five year cycle.
   2. Exceptions: Testing shall not be completed at locations where street light standards are not publicly accessible, such as facilities located in the center of highways that cannot be accessed without stopping traffic or creating potentially hazardous situations for the worker and/or public.

B. National Grid Substation Fences
   1. Metallic fencing surrounding substations with National Grid Facilities shall be tested for elevated equipment voltage annually.
   2. See reference to NG-USA EOP 400.06.2 Substation – V&O Inspection Procedure.

C. Overhead Distribution Facilities
   1. Wood distribution poles require testing to be completed as noted below in conjunction with the distribution patrol program covered by NG-USA EOP D004.
   2. The following equipment on wood distribution poles requires annual elevated equipment voltage testing:
      a. Metallic riser guard or conduit (company or non-company).
      b. Uncovered or un-insulated down ground (company or non-company).
      c. Down guy (company or non-company).
      d. Any other publicly accessible conductive piece of equipment (company or non-company) on the pole within reach from the ground

D. Underground Facilities
   1. Elevated equipment voltage testing is required on all of the following equipment where accessible to the public on a five year cycle.
      a. All metallic manhole covers, vault covers and grates, junction box covers, handhole covers, pad mount transformers, secondary pedestals, and switchgear.
   2. Exceptions: Non-metallic concrete or fiberglass pads or handholes are not required to be tested.

E. Daily Job Site Test Requirements
   1. Each job site where National Grid personnel or its contractors complete a work assignment shall be tested for elevated equipment voltage at the end of the work day or the completion of the assignment. **This testing requirement is considered good utility practice and does not require specific documentation**.
   2. Exceptions:
      a. Substation fencing will not require elevated equipment voltage testing unless scheduled as part of the inspection program or if work was done on the fencing.
      b. In a storm situation, where mutual aid is required, testing by other than National Grid personnel will not be required.

F. Exemptions
   1. A completely fenced in area where access is denied to the general public and where access is only achieved by climbing a fence. Good judgment is required by the tester in these scenarios.

Attachment 1 – NG-USA EOP G016 Elevated Equipment Voltage Testing

IV. TEST EQUIPMENT

A. A hand held device (proximity detection unit) that is capable of detecting voltage from 8 volts to 600 volts.
B. A portable AC digital high impedance volt meter must have the ability to take readings with and without an input load impedance of 500 ohms.
C. The handheld devices utilized must be certified to indicate a minimum of 8 volts and be capable of withstanding a maximum of 1000 volts by an independent laboratory. The portable AC digital voltmeter must be capable of measuring a minimum of 0.1 volt and a maximum of 1000 volts, the following units has been certified:

10. HD Electric model LV-S-5 (5-600 volts).
11. Fluke 85
12. Fluke 87
13. Fluke 170 series or equivalent
14. Fluke 175
15. Fluke 177
16. Fluke 179
17. Fluke 187
18. Fluke 189

V. TEST PROCEDURE

A. Job Briefing
   1. At minimum, the following information must be communicated to all personnel at the beginning of each shift for elevated equipment voltage testing:
      a. Structures are never to be touched with a bare hand while performing the tests, only the voltage detector or meter probe is to be used to make contact with the facilities.
      b. Appropriate PPE must be worn.
      c. Each individual needs to be aware of his/her surroundings at all times.
      d. Make sure to observe all traffic before entering a street, either at intersections or any other point.
      e. Traffic safety vest (DOT Compliant Class II) is to be worn at all times when exposed to traffic. Be aware that when bending down, the visibility benefits of the traffic safety vest are diminished.
      f. Obey all traffic control devices.
      g. When working in the street, face oncoming traffic whenever possible.

B. Measurements for voltages will be performed in accordance with the following:

   1. Initial measurements for the presence of voltage shall be made using a certified proximity detection unit as noted in the testing equipment certified equipment list in Section IV C.
      a. To verify the proper operation of the proximity detector, follow operating instructions for the particular certified unit being utilized, this is to be done daily.
      b. After verification that the detection unit is working, approach the area/equipment to be tested. The proximity detector will illuminate prior to

touching the area/equipment being tested if voltage is present. If the proximity detector does not illuminate in close proximity to the area/equipment touch the area/equipment to be tested with the probe of the unit.

2. If this test detects voltage, repeat the test with the portable AC voltmeter:

   a. Measurements with a portable AC voltmeter shall be taken on clean bare metallic surface (structure, ground wire, etc.)
   b. When using a portable AC voltmeter, connection shall be made to suitable neutral or ground source with the common (black) lead.

      i. In locations where the neutral or ground point is at a distance in excess of the voltmeter lead length, the connection to the neutral/ground shall be made with up to 25' of # 16 stranded copper lead wire (covered), the other end of which shall be securely connected to the negative (black) probe of the meter. When using such "extension leads" appropriate care shall be taken in the placement of such leads so as to not create a physical hazard to workers, pedestrian or vehicular traffic.
      ii. In locations where a system ground is not available, or the existing ground registered voltage upon the proximity test, a metal rod shall be firmly embedded into the earth to a depth of no less than 6" to create a ground reference point for the measurement to be taken. The reference point should be as close as practicable to the facility being tested to simulate an elevated equipment voltage situation (3' to 4'.) On occasion longer leads may be necessary to find undisturbed earth (up to 25'.)

   c. The "live" meter probe lead shall then be placed into contact with the structure under inspection.
      i. Install a 500 ohm input load impedance on the volt meter. Measure the voltage and record this voltage in the database for the site.

V. CORRECTIVE ACTION REQUIREMENTS

A. If an elevated equipment voltage condition is found and verified by the Test Procedure in Section IV, the site is to be guarded until made safe by Company personnel or if municipally owned, made safe by the owner or company. Guarded for the purposes of this EOP is defined as guarded by a person or a protective barrier that prevents public contact if the elevated equipment voltage found is greater than 4.5 volts. **If the voltage measures less than 4.5 volts and is found to be consistent with system operation design (no visual evidence of a problem upon review) no further action is required.** If the voltage measures greater than 4.5 volts and less than 8 volts it can either be guarded in person or by a protective barrier that prevents public contact, contact your supervisor for required action. It is expected that sound judgment shall be utilized in this application. If the voltage measures greater than 8 volts immediate response is required using the notification in section B below.

B. The following notification process for personnel to respond shall be utilized.

   1. Notification by location:

a. New York: contact Systems Operations Dispatch 1-877-716-4996
b. Bay State West, and Bay State North & Granite: Westboro Control Center 508-389-9032.
c. Bay State South, and Ocean State: Lincoln Control Center 401-335-6075.

2. Inform the operator that this is an elevated equipment voltage call, giving inspector name, company (if not National Grid), unique ID, address where problem is identified, facility number, circuit number , ownership, type of equipment, voltage found and whether they are physically guarding or leaving the site after flagging and installing a protective barrier. National Grid personnel or designee will be assigned to respond.

C. Temporary repairs may be used to correct the elevated equipment voltage thereby removing the need to guard the site.

D. Except as noted in VI.E, permanent repairs to the equipment shall be made within 45 days of the occurrence.

E. If permanent repairs can not be made within 45 days due to extraordinary circumstances, the company shall periodically perform site visits to monitor the condition of the temporary repair. For New York, all exceptions must be identified and justified in the annual reporting of the program to the NYPSC.

F. The Tester/Inspector may detect a minimal voltage level that is attributable to the design of the facility and not the result of an improper condition, no corrective action is required in this instance.

G. The individuals conducting the elevated equipment voltage tests on street light standards shall have a supply of "Angel guards" available for installation if the cover is missing or wires are found to be exposed to the public at the time of testing. Angel guards shall only be installed after the testing of the street light standard is complete and 1) there is no indication of elevated equipment voltage above 4.5 volts, or 2) repairs have been completed to correct the elevated equipment voltage.

H. The elevated equipment voltage tester shall report any potentially hazardous conditions found on National Grid facilities seen visually during the survey process.

I. Customer Owned Equipment

1. Where the Company finds elevated equipment voltage above 4.5 volts and identifies its source as customer-owned equipment, the Company shall guard the site and notify the customer or a responsible person, as appropriate, that a potentially hazardous situation exists. The Company shall advise the customer or responsible person that the cause of the elevated equipment voltage must be immediately remedied.
2. Company personnel are encouraged to work with the customer to determine and rectify the problem. If the customer agrees to accept the Company's assistance, the Company may charge a reasonable cost for this effort.
3. The Company may temporarily remove a customer's meter or take such other actions as are appropriate and necessary to protect the public.

VI. DATABASE REQUIREMENTS

A. The database in use shall be easily searchable for information and reporting.

B. Information fields required to be completed for facilities:

1. Survey Date
2. Region
3. District
4. Contractor
5. GIS ID/Asset # (Unique ID)
6. Facility Type
7. Owner
8. Feeder/Circuit
9. Line #
10. Tax District
11. Pole/Structure/Equipment ID
12. Street Name
13. Inspectors Name
14. GPS Taken
15. Pre-load Match
16. Elevated Equipment Voltage Test Required
17. Voltage Found Y/N
18. Voltage Measurement
19. Type of Equipment (See Appendix A)
20. Immediate Action Taken
21. Person Notified
22. Permanent Repair Date
23. Type of Repair
24. Person Responsible for repair (Employee ID)

VII. NEW YORK ANNUAL REPORTING AND CERTIFICATION REQUIREMENTS

A. Each Regional program supervisor shall provide certification to the program manager that the Region they supervise has complied with the elevated equipment voltage testing and inspection program as ordered by the PSC.

B. The program manager shall provide certification to the Vice President Distribution Network Strategy and the Senior Vice President of Distribution Network Strategy that the organization has complied with the elevated equipment voltage testing and inspection program as ordered by the PSC.

C. Written certification of the completion and results of every elevated equipment voltage test and inspection shall be completed, as well as a certification that all unsafe conditions identified have been remediated by appropriate company personnel.

D. The President or officer with direct responsibility for overseeing the elevated equipment voltage testing and inspection shall provide an annual certification to the NYPSC that the Company has tested all of its publicly accessible conductive surface electric facilities and all street lights, as well as completed all required inspections.

E. The annual reporting and certification is required by January 15 of each year. In addition to certifications, it shall address the following:
   1. Analyses of elevated equipment voltage data to show trends or common causes.

2. Discussion of performance mechanism, if required.
3. Changes to program implementation due to lessons learned.

F. The Company shall maintain its written certification and other documentary proof of its testing at its' Albany, Buffalo, and Syracuse office facilities. These documents shall be made available to the public for review upon request.

VIII. MASSACHUSETTS REPORTING REQUIREMENTS

A. National Grid shall submit an annual report that includes the following:
   1. Annual reports that list inspection and testing data, including number of inspections conducted by equipment type.
   2. Number of elevated equipment voltage events detected by inspection personnel versus call-ins or notification by third parties.
   3. Variance reports on current year inspection targets.
   4. Elevated equipment voltage events detected on equipment that is not included in elevated equipment voltage equipment inspection schedules (which will enable the DTE to determine if the company is inspecting and testing the correct equipment).
   5. Number of exceptional or non-routine events that required reporting to OSHA or other government organizations due to injuries or other substantive impacts.

IX. RESPONSIBILITY

A. Distribution Engineering Services
   1. Update program as necessary.
   2. Provide field support and training upon request.
   3. Act as liaison with existing database vendor when required.

B. Field Operations
   1. Ensure the elevated equipment voltage program as outlined in this EOP is implemented properly and timely.
   2. Ensure that the program as outlined in the EOP is completed each year.
   3. Provide qualified personnel to complete elevated equipment voltage testing.
   4. Ensure all elevated equipment voltage testers have been trained.

C. C&MS Management
   1. When requested by Field Operations/Distribution Network Strategy obtain, schedule and manage contractors to perform elevated equipment voltage testing.
   2. Ensure all elevated equipment voltage testers have been trained.
   3. Manage contractual terms and conditions including all change orders and resource requirements.
   4. Establish a process for the delivery of work, collection of data, invoice verification and payment, and reporting to local management and Distribution Network Strategy.
   5. Manage any established support processes such as back office support or data entry clerks.

D. Elevated Equipment Voltage Inspector
   1. Demonstrate the ability and proficiency to perform elevated equipment voltage testing per this EOP.
   2. Demonstrate the ability to become proficient in the use of the appropriate database.
   3. Possess the ability to do walking patrols, collect information, edit data, and guard unsafe facilities.

4. Attend elevated equipment voltage training program.

E. T&D Technical Training
   1. Provide training upon request.

F. Distribution Network Strategy
   1. Provide input into program revisions.
   2. Ensure the elevated equipment voltage program as outlined in this EOP is implemented properly and timely.
   3. Ensure the program as outlined in the EOP is completed each year.
   4. Provide qualified personnel to complete elevated equipment voltage testing.
   5. Ensure all elevated equipment voltage testers have been trained.
   6. Provide program management.

G. Process and Systems
   1. Provide and support database.

IX. DEFINITIONS:

A. "Stray Voltage" – As defined by NYPSC the term "Stray Voltage" means voltage conditions on electric facilities that should not ordinarily exist.

B. Proximity Detection Unit – A low voltage hand held detector used to test exposed metallic surfaces and conductors for the presence of low voltage from 8V to 600V.

C. Elevated Equipment Voltage Inspector – The individual performing the elevated equipment voltage inspection.

E. Handheld Computer - An electronic Data recording device that is used in the field to create a record of conditions found.

F. Elevated Equipment Voltage – An A.C. rms voltage difference between utility equipment and the earth, or to nearby grounded facilities that exceeds the lowest perceptible voltage levels for humans.

X. TRAINING:

A. Distribution Engineering Services with assistance from the database vendor will provide training on the utilization of handheld computers and the selected database.

B. At a minimum, each worker conducting these tests should have knowledge and training in the following areas:

   1. Proper use of appropriate Personal Protective Equipment.
   2. Work Area Protection.
   3. Hazard Communication.
   4. First Aid CPR (This is required only on multi-person crews.)
   5. The proper use of certified voltage detection units and voltmeters.
   6. Hazardous condition identification.

The attendance of this training shall be documented.

Attachment 1 – NG-USA EOP G016 Elevated Equipment Voltage Testing

TYPE OF EQUIPMENT
APPENDIX A

TYPE	CODE	EQUIPMENT DESCRIPTION
Distribution	910	Pole
	911	Regulator
	912	Sectionalizer
Transmission	930	Pole
	931	Tower
	932	Guy
	933	Ground
	934	Riser
	935	Switch Hand Mechanical Operator
	949	Transmission – Other (use comments)
Underground	950	Handhole
	951	Manhole
	952	Switchgear
	953	Transformer
	954	Vault – Cover/Door
	969	Underground – Other (use comments)
Street Light	970	Handhole
	971	Standard
	979	Street light – Other (use comments)
Customer Street Light/Other	980	Handhole
	981	Standard
	989	Customer SL/Other – Other (use comments)
Traffic Control	990	Handhole
	991	Standard
	992	Control Box
	993	Pedestrian Crossing Pole
	999	Traffic control – Other (use comments)

Attachment 2 - NG-USA EOP UG006 Underground Inspection and Maintenance

nationalgrid **ELECTRIC OPERATING PROCEDURES**	**Doc No.:** NG-USA EOP UG006 **Page:** Page __ of 8 **Date:** 01/01/06
SUBJECT: Underground Inspection and Maintenance	**SECTION**: Underground

REFERENCE:

NY PSC Order 04-M-0159
Applicable National Grid Safety Rules and Procedures
Distribution Line Patrol and Maintenance NG-USA EOP D004
Elevated Equipment Voltage Testing NG USA EOP-G016
Transmission Line Patrol and Maintenance NG USA EOP – T007

GENERAL INFORMATION:

The purpose of this procedure is to outline the requirements for the patrol and maintenance activities associated with National Grid's underground transmission and distribution facilities.
The variance in inspection procedures in New York, Massachusetts, New Hampshire, and Rhode Island service territories is due to the requirements of New York Public Service Order 04-M-0159 and the Massachusetts Department of Telecommunications and Energy recommendations of December 9 2005, which is incremental to National Grid in New York and Massachusetts.

This program is designed for the patrol and designated maintenance of underground facilities on a five year schedule. The Inspector will record all required maintenance on an approved National Grid database.

The underground distribution facility maintenance items identified through this patrol are separated into four priority categories A, B, C, and E priority. The problem codes identified default to the appropriate priority. The default priority can be adjusted by the individual performing the inspection based on actual field conditions. These priority categories are defined as follows:

A Priority - An identified facility/component that must be repaired/replaced as soon as practicable.

B Priority – An identified facility/component condition that shall be considered for repair/replacement as the feeder is scheduled for maintenance by Distribution Planning and Engineering. These identified conditions will be corrected as preventive maintenance and or facility life extension.

C Priority – An identified facility/component condition that is being trended and reviewed by Distribution Planning and Engineering that may require replacement through the engineering process (Requires project/Capital expenditures). Non-capital conditions identified under this priority will be corrected at the discretion of field operations.

E Priority – An identified facility/component that must be replaced/repaired immediately to address public safety or system reliability. The inspector shall notify the appropriate operations department for immediate response and corrective action any time an E priority is found during an inspection.

ALL "E" PRIORITY CONDITIONS SHALL BE CORRECTED IMMEDIATELY UPON NOTIFICATION.

ALL "A PRIORITY" CONDITIONS IDENTIFIED PRIOR TO NOVEMEBR 1ST MUST BE REPAIRED/CORRECTED BY NOVEMBER 3OTH.

Attachment 2 - NG-USA EOP UG006 Underground Inspection and Maintenance

PROGRAM ADMINISTRATOR:

Distribution Engineering Services

APPLICABILITY

This procedure applies to all personnel involved with or responsible for the inspection or maintenance of underground transmission and distribution facilities.

SCOPE:

Distribution Maintenance

I. Patrols
II. Equipment to be Inspected and Maintenance Codes
III. Maintenance database
IV. Maintenance
V. Work management
VI. Completion
VII. Definitions
VIII. Responsibilities
IX. Training

I. PATROLS

1. New York

Inspection of underground equipment will be scheduled in such a manner that each Underground Facility will be examined once every five years. These patrols shall be completed by November 30th of the schedule year.

One-fifth of all underground utility components should be inspected each year. URD and UCD facilities shall be inspected on the existing overhead distribution circuit schedule. Additionally all riser poles are inspected in accordance with the Transmission and Distribution Overhead Inspection Programs, NG-USA EOP T007 and NG-USA EOP D004. Customer owned manholes and vaults that enclose National Grid equipment shall require the inspection of these National Grid facilities.

The T&D Superintendent's are responsible to create the patrol schedule for their respective Regions for the remainder of underground facilities. The Distribution inspector uses a hand held computer to record region, district, employee ID, feeder number, structure ID number, GPS location, tax zone, line number, comments and maintenance problem codes. The Inspector while patrolling shall also complete the following maintenance codes if found deficient upon inspection:617 – manhole missing nomenclature, 639 - network transformer- missing nomenclature, 660 – switchgear missing nomenclature, 681 – transformer missing nomenclature, 707 – vaults improper nomenclature. The Inspector will input the code into the handheld as required, as well as completing the work unit in the handheld upon field completion while at the site. If the Distribution Inspector finds unmapped facilities from the information supplied from the Geographic Information System (GIS), refer to NG-USA EOP G011, Preparation and Distribution of Electric Facilities Records, for required procedure for corrections.

2. New Hampshire and Rhode Island

Inspection of designated underground equipment will be scheduled in such a manner that each designated Underground Facility will be examined once every five years. These patrols shall be completed by November 30th of the schedule year.

Attachment 2 - NG-USA EOP UG006 Underground Inspection and Maintenance

One-fifth of all metallic handhole covers, padmount transformers and switchgear shall be inspected annually. These facilities shall be opened for a visual inspection. Additionally all separable components in these facilities are to be inspected by infrared. Refer to NG-USA EOP UG001 for infrared procedure. An "E Priority" shall be assigned to a temperature gradient greater than 20º. An "A Priority" shall be assigned to a temperature gradient between 10º and 20º. A "B Priority" shall be assigned to a temperature gradient less than 10º. Additionally, an elevated equipment voltage test shall be completed at each location, refer to NG-USA EOP-G016.

A working inspection on underground facilities is required for all manholes, vaults, handholes, splice boxes, junction boxes, padmount transformers, switchgear and submersible equipment, each time a crew performs work at one of these facilities. The format for data collected shall follow this EOP. Additionally an elevated equipment voltage test shall be completed at each location, refer to NG-USA EOP-G016.

All transmission riser poles are inspected in accordance with the Transmission NG-USA EOP-T007.

The T&D Superintendent's are responsible to create the patrol schedule for their respective Regions for the designated underground facilities. The Distribution inspector uses a hand held computer to record region, district, employee ID, feeder number, structure ID number, GPS location, line number, comments and maintenance problem codes. The Inspector, while patrolling or crew while inspecting, shall also complete the following maintenance codes if found deficient upon inspection, 617 – manhole missing nomenclature, 639 - network transformer- missing nomenclature, 660 – switchgear missing nomenclature, 681 – transformer missing nomenclature, 707 – vaults improper nomenclature. The Inspector will input the code into the handheld as required, as well as completing the work unit in the handheld upon field completion while at the site. If the Distribution Inspector finds unmapped facilities from the information supplied from GIS, refer to NG-USA EOP G011, Preparation and Distribution of Electric Facilities Records, for required procedure for corrections. Crews performing working inspections are to follow the same protocol for inspections by using either a handheld data entry unit or paper inspection logs requiring data entry by clerical support.

3. Massachusetts

Inspection of designated underground equipment will be scheduled in such a manner that each designated Underground Facility will be examined once every five years. These patrols shall be completed by November 30th of the schedule year.

One-fifth of all metallic handhole covers, padmount transformers, manholes, and switchgear shall be inspected annually. These facilities shall be opened for a visual inspection. Additionally all separable components in these facilities are to be inspected by infrared. Refer to NG-USA EOP UG001 for infrared procedure. An "E Priority" shall be assigned to a temperature gradient greater than 20º. An "A Priority" shall be assigned to a temperature gradient between 10º and 20º. A "B Priority" shall be assigned to a temperature gradient less than 10º. Additionally, an elevated equipment voltage test shall be completed at each location, refer to NG-USA EOP-G016.

A working inspection on underground facilities is required for all vaults, splice boxes, junction boxes, and submersible equipment, each time a crew performs work at one of these facilities. The format for data collected shall follow this EOP. Additionally an elevated equipment voltage test shall be completed at each location, refer to NG-USA EOP-G016.

All transmission riser poles are inspected in accordance with the Transmission NG-USA EOP-T007.

The T&D Superintendent's are responsible to create the patrol schedule for their respective Regions for the designated underground facilities. The Distribution inspector uses a hand held computer to record region, district, employee ID, feeder number, structure ID number, GPS location, line number, comments and maintenance problem codes. The Inspector, while patrolling or crew while inspecting, shall also complete the following maintenance codes if found deficient upon inspection, 617 – manhole missing nomenclature, 639 - network transformer- missing nomenclature, 660 – switchgear missing nomenclature, 681 – transformer missing nomenclature, 707 – vaults improper nomenclature. The Inspector will input the code into the handheld as required, as well as completing the work unit in the handheld upon field completion while at the site. If the Distribution Inspector finds unmapped facilities from the information supplied from GIS, refer to NG-USA EOP G011, Preparation and Distribution of Electric Facilities Records, for required procedure for

corrections. Crews performing working inspections are to follow the same protocol for inspections by using either a handheld data entry unit or paper inspection logs requiring data entry by clerical support.

II. EQUIPMENT TO BE INSPECTED AND MAINTENANCE CODES

This EOP requires the visual inspection of the following facilities as designated above for either New York, New Hampshire, Rhodes Island or Massachusetts, which require opening, and may require pumping on some items to assure a proper inspection:

- Manholes
- Vaults
- Handholes – non-fiberglass
- Splice boxes
- Junction boxes
- Pad mount transformers
- Pad mount switchgears
- Submersible equipment
- Handholes – fiberglass do not require opening

Table 1 on page 4 details the Inspection Program and Maintenance Codes.

INSPECTION PROGRAM AND MAINTENANCE CODES

TABLE 1

Maintenance Code	Description	Expense or Capital	Default priority
600	Handholes - Broken/damaged/unsecured	E	B
602	Handholes - Missing nomenclature	E	C
603	Handholes - Secondary needs repair	E	B
604	Handholes – Other (use comments)	E	B
605	Infrared Inspection – Separable Components	E	B
610	Manhole - Bonded	E	B
611	Manholes - Cable/Joint leaking	E	A
612	Manholes - Cables bonded	E	B
614	Manholes - Cracked/broken	C	B
615	Manholes - Fire proofing	E	C
616	Manholes - Improper grade	E	B
617	Manholes - Missing nomenclature	E	A
620	Manholes - Rerack	E	B
621	Manholes - Ring/cover repair/replace	C	B
630	Network Protector - Barriers broken/dama	E	A
632	Network Protector - Oil leak	E	A
633	Network Protector - Worn/damaged gasket	E	A
635	Network transformer - Bushing Broken/Cra	E	B
637	Network transformer - Low oil	E	B
638	Network transformer - Missing Ground	E	A
639	Network transformer - Missing nomenclature	E	A
642	Network transformer - Oil Weeping	E	A
643	Network transformer - Rusted/ Paint peel	E	C
651	Switchgear - Barrier broken/damaged/unsecured	E	A
652	Switchgear - Base broken/damaged	C	B
654	Switchgear - Cable Not Bonded	E	A
656	Switchgear - Door Broken/Damaged	E	A

Attachment 2 - NG-USA EOP UG006 Underground Inspection and Maintenance

657	Switchgear – Excessive vegetation	E	C
659	Switchgear - Missing ground	E	A
660	Switchgear - Missing Nomenclature	E	A
661	Switchgear – Other	E	C
662	Switchgear - Rusted/Paint peeling	E	C
672	Transformer - Bushing Broken/Cracked	E	B
673	Transformer - Door Broken/damaged/unsecured	E	A
675	Transformer - Elbows tracking/burned	E	B
676	Transformer – Excessive vegetation	E	C
680	Transformer - Missing Ground	E	A
681	Transformer - Missing nomenclature	E	A
682	Transformer – Mud/debris	E	C
684	Transformer - Oil Weeping	E	A
685	Transformer - Pad broken/damaged	E	B
686	Transformer - Protection (ballards) damaged	C	B
687	Transformer - Rusted/ Paint peeling	E	C
690	Trench - Exposed Cable	E	A
692	Trench Path - Sunken	E	B
700	Vaults - Cable missing bond	E	A
702	Vaults - Cracked/broken	C	B
703	Vaults - Damaged/broken cover	E	B
704	Vaults - Damaged/broken door	E	B
705	Vaults - Damaged/broken ladder	E	A
706	Vaults - Improper grade	E	B
707	Vaults - Improper nomenclature	E	A
708	Vaults - Light not working	E	B
713	Vaults - Ventilation failure	E	B
720	Submersible equip. - Excess corrosion	E	C
721	Submersible equip. - Physical damage	E	C
722	Submersible equip. - Leaking	E	C
730	Anodes - Missing	E	C
731	Anodes - Need replacement	C	C

III. MAINTENANCE DATABASE

The Maintenance database consists of data downloaded from the hand held and data entered from the desktop computer. The field hand held can be downloaded to any National Grid desk top computer that is connected to the network and the inspector is logged on as a valid user of the UG Maintenance program. The National Grid desktop computer is also used to generate various reports and work tickets depending on the user's need. These reports are utilized to schedule and accomplish distribution maintenance work.

IV. MAINTENANCE

The maintenance activities are scheduled by priority categories with all "A Priority" conditions identified prior to November 1 repaired/corrected by November 30th. The "B Priority" conditions are scheduled based on the reliability of the circuit, load served, and condition of facilities. The "B Priority" maintenance is to be performed on circuits selected by Distribution Planning and Engineering, and identified in the "Energy Delivery Work Plan". All "B Priority" maintenance as outlined in the "Energy Delivery Work Plan" must be completed by March 31 of that fiscal year. The "C Priority" maintenance work will be completed as planned and directed by the Distribution Planning and Engineering department (Capital expenditures) after reviewing annually for trends that would require expenditures. All "E Priority" conditions shall be responded to immediately upon notification for correction.

V. WORK MANAGEMENT

The time recording of both patrol and maintenance activities is accomplished in the Severn Trent Operating Resource Management System (STORMS).

STORMS requires that the Distribution Inspector/Operations Personnel fill out a daily time sheet. The Distribution Inspector would record their time actually performing the foot patrol inspection of the Distribution system under the DO2105 Activity along with the appropriate work order or a work request if the patrol has been scheduled. For Transmission and Sub-transmission facilities the inspector shall utilize activity TO2100. Work orders or work request numbers can be obtained from the Operations Supervisor or from the Distribution Planning/Area Resource Coordinator (ARC).

Operations Personnel performing scheduled maintenance on the Distribution System should record their time actually performing maintenance activities under the appropriate work request number set up by their Distribution Planning/ARC in their respective area. Operations Personnel performing maintenance activities that have not been scheduled should charge the DM2105 activity along with appropriate work order number.

For Transmission and Sub-transmission utilize activity TM2100. STORMS work request numbers are created when the work has been scheduled by Distribution Planning/ARC. Work orders or work request numbers can be obtained from the Operations Supervisor or from the Distribution Planning/ARC.

VI. COMPLETION

The replacement/repair of an identified maintenance problem code after completion in the field must be updated in the database. The completion of the maintenance problem codes can be done through the edit screen found on the desktop computer. Field personnel that perform the work are required to complete the work order form providing the date completed, and employee ID number. The work order form is returned to the T&D Supervisor who will close out the completed maintenance problem codes in the database at their desk top computer or designate the inspector or clerk to perform the close out. Additional maintenance problems that may be discovered and completed by personnel must be noted on the work order ticket so they can be recorded as work completed on that specific facility.

ALL MAINTENANCE WORK PERFORMED THAT WAS IDENTIFIED ON THE WORK ORDER OR DISCOVERED DURING THE REPAIR/CORRECTION OF THE ORGINAL MAINTENANCE PROBLEM MUST BE LISTED ON THE DATABASE AND THEN CLOSED OUT WHEN COMPLETE.

VII. DEFINITIONS

Desktop Computer: A personal computer that is connected to the National Grid network and used to download the Hand Held device and retrieve the information in the form of reports.

Elevated Equipment Voltage Test: An A.C. rms voltage difference between utility equipment and the earth, or to nearby grounded facilities that exceeds the highest perceptible voltage levels for humans.

Hand Held Computer: An electronic data recording device that is used in the field to create a record of conditions found.

Hand-Hole: An enclosure identified for use in underground systems, provided with an open or closed bottom, and sized to allow personnel to reach into, but not enter, for the purpose of installing, operating, or maintaining equipment or wiring or both.

Infrared Inspection: An inspection conducted to detect abnormal heating conditions associated with separable connectors. An infrared inspection is required before work begins in an enclosed space, enclosure, padmounted transformer or padmounted switchgear.

Inspector: An underground qualified worker who can identify deficiencies or non-standard construction conditions on National Grid facilities.

Attachment 2 - NG-USA EOP UG006 Underground Inspection and Maintenance

Manhole: An enclosure identified for use in underground systems, provided with an open or closed bottom, and sized to allow personnel to enter, for the purpose of installing, operating, or maintaining equipment or wiring or both.

Patrol: An assessment of National Grid facilities for the purpose of determining the condition of the facility and any associated components.

Service Box: See Hand-hole
Submersible Equipment: Electric equipment such as transformers and switches that, are generally located within a Hand-hole, Manhole, or Vault.
URD: Underground Residential Distribution

UCD: Commercial Distribution**Underground Distribution Facilities:** Manholes, vaults, hand-holes and service boxes, padmounted equipment and the components and equipment contained in these structures. (See GENERAL INFORMATION above).
User: An individual who the program administrator has authorized to use the inspection reporting program.

Vault: An enclosure, above or below ground, which personnel may enter and which is used for the purpose of installing, operating, or maintaining equipment or wiring or both.

VIII. RESPONSIBILITIES

Distribution Engineering Services

1. Update program as necessary.
2. Provide field support and training as requested.
3. Report System Maintenance progress monthly by Region.

Field Operations

1. Ensure the Underground Maintenance Program as outlined in this EOP is implemented properly and timely.
2. Select circuits to be patrolled for a running five-year cycle and ensure that the circuits scheduled for patrol are completed each year.
3. Provide qualified personnel as the inspectors, to provide consistent and accurate identified maintenance concerns/problems.

Distribution Inspector

1. Demonstrate the ability to identify maintenance concerns and the aptitude to become proficient in the use of a hand held computer and desktop computer.
2. Demonstrate the understanding and requirements of this EOP.
3. Possess the ability to do walking patrols, collect information on a hand held, download to a desk top computer, edit data, provide requested information/reports/work tickets to supervision, and track/close out work completed in the database.

C&MS

1. At the request of Field Operations obtain, schedule and manage contractors to perform inspections and perform required maintenance.

Distribution Network Strategy

1. Provide inspectors where applicable.
2. Provide input into program revisions.
3. Provide program management.
4. Ensure program is completed annually as required.
5. Ensure inspectors are trained.

Process and Systems

1. Provide and support database.

T&D Technical Training

1. Provide training upon request.

IX. TRAINING

1. Distribution Engineering Services with assistance from the database vendor will provide training on the utilization of handheld computers and the selected database.
2. Distribution Engineering Services along with the training department will provide training for the identification of A, B, C, and E maintenance items to the qualified employee who will be performing the inspections.

Attachment 3- NG-USA EOP UG 001 Infrared – Non-Contact Thermometer Inspection Requirement for Underground Equipment

nationalgrid **ELECTRIC OPERATING PROCEDURES**	**Doc No.:** NG USA EOP – UG 001 **Page:** Page 42 of 2 **Date:** 03/20/03
SUBJECT: Infrared - Non-Contact Thermometer Inspection Requirement for Underground Equipment	**SECTION**: Underground

INTRODUCTION

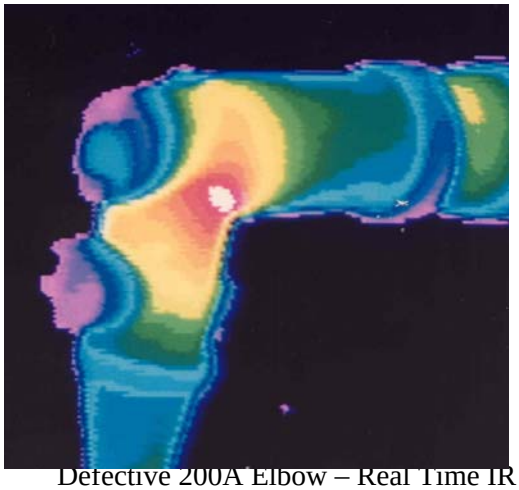
This procedure establishes work practices for infrared, non-contact thermometer inspection of distribution voltage separable connectors in underground operations.

An infrared inspection of separable components is required before work begins in an enclosed space, padmounted transformer or enclosure.

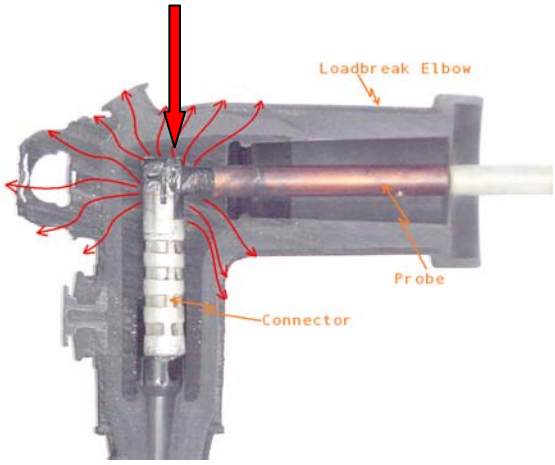
GENERAL INFORMATION

IR Guns (infrared, non-contact thermometers) can identify faulty or failing separable connectors if the connector is carrying electric current. The IR gun can detect heat generated by a poor, current carrying connection.

Separable connectors include 200A elbows, 600A modular T bodies, and Y and H connectors.



Defective 200A Elbow – Real Time IR Scan



Cutaway showing connector defect and heat path

HAZARDS

1. The laser light used to aim this device can damage eyesight. Never point the unit at another person or yourself. Avoid direct exposure via reflective materials such as glass or mirrors.
2. Components not carrying current produce no heat. Defects will not be identified. A normal temperature reading does not guarantee the equipment is free of defects. Take all necessary precautions and use added safeguards as appropriate.

3. This unit is not insulated. Never touch energized equipment during the inspection.

PROCEDURE

1. Complete all entry requirements and a visual hazard inspection before beginning an infrared

Attachment 3- NG-USA EOP UG 001 Infrared – Non-Contact Thermometer Inspection Requirement for Underground Equipment

2. temperature inspection on the underground distribution equipment in the manhole or vault.

3. Inspect each separable connector. Compare the connector temperature to the temperature of the cable on the same phase. Connectors with elevated temperature may indicate a connector defect.

4. Use the following table to compare connector temp mperature.

Delta Temp º F	Work Conditions
Less than 10 º F	Normal, begin work, may operate elbows
11 to 20 º F	Do not operate elbows. Schedule component repairs and use added safeguards as appropriate
More than 20 º F	Schedule immediate repairs. Stability and reliability concern.

ADDITIONAL INFORMATION

1. Use only National Grid approved equipment.

2. The IR Gun is available through Supply Chain: Stores code 487300 New England/Symbol Number 0811144 New York

3. National Grid EOP Training Supplement dated March 2003.

Attachment 3- NG-USA EOP UG 001 Infrared – Non-Contact Thermometer Inspection Requirement for Underground Equipment

3a - Infrared Non-Contact Thermometer

INTRODUCTION

This material is intended to supplement EOP UG001, "Infrared, non-contact thermometer inspection requirement for underground equipment."

An infrared inspection of separable components is required before work begins in an enclosed space, padmounted transformer or enclosure.

This training material contains references specific to the Raytek ST-80, the model presently purchased by Supply Chain. The procedures are applicable to all models approved for purchase.

TRAINING OUTLINE

1. Complete a sign in sheet to document training. Forward the sign in sheet to Mike Pazzanese, Millbury Training Center,Lines.Review EOP UG006, "Infrared, non-contact thermometer inspection requirement for underground equipment."
2. Discuss PART 1 of this document with the group.

Attachment 3- NG-USA EOP UG 001 Infrared – Non-Contact Thermometer Inspection Requirement for Underground Equipment

PART 1 – Required Training

APPLICATION

Before work begins in an enclosed space, padmounted transformer or enclosure, a temperature scan must be completed on all distribution voltage underground, separable connectors.

Infrared non-contact thermometers measure the surface temperature of a solid object. Loose or deteriorated mechanical connections are resistors to electric current flow. This resistance generates heat that can be detected with a temperature scan.

The cable or component being inspected must be carrying current (load) to produce a temperature rise. Temperature rise is proportional to the amount of current passing through the defective component. Low current produces less heat. A low temperature reading is not a guarantee of good equipment condition.

Optional temperature scans can be useful. It is possible to detect "hot spots" on secondary or ground connections, identify overloaded equipment and determine the oil level in a transformer.

Definition: Separable Components include, but are not limited to, 200A elbows and 200A WYE joints as well as 600A modular "T" joints and "I", "Y" or "H" joints.

LASER SAFETY

The laser light used to aim this device can damage eyesight. Never point the unit at another person or yourself. Avoid direct exposure via reflective materials such as glass or mirrors.

Only infrared units with low level lasers are approved for use at National Grid. This does not completely remove the hazard to eyesight. Always exercise caution when aiming these devices.

The low level laser also results in a weaker targeting light. Use care in brightly lit areas as the target may be difficult to see.

Keep the unit away from children and in the storage case when not in use.

STORAGE and CARE

Store the instrument in its original protective case.

Units approved for service at National Grid require no calibration.

Troubleshoot problems using the manufacturers instructions included with each unit. Contact the Central Laboratory if an instrument requires service.

Attachment 3- NG-USA EOP UG 001 Infrared – Non-Contact Thermometer Inspection Requirement for Underground Equipment

TARGETING and TEMPERATURE MEASUREMENT

The Raytek ST-80 uses laser light to target the measurement area. The laser light forms a circle of points.

The temperature reading is the average temperature within the target circle. To accurately measure an object's temperature, that object must completely fill the target circle. Measuring the temperature of a small object like cable requires the user to be very close to the cable. These instruments are not insulated, all appropriate caution must be taken near live components.

Definitions: The Target Spot Size increases as the distance between the instrument and target object increases. The smaller the target, the closer one must hold the unit to that target. This is called Cone Effect.

Exercises for the trainer:

1. **Target a close object and then target a distant object to demonstrate cone effect.**

2. **Measure the temperature of a wall or desk. Measure the temperature of a cup of coffee.**

Attachment 3- NG-USA EOP UG 001 Infrared – Non-Contact Thermometer Inspection Requirement for Underground Equipment

PROCEDURE

1. All work must be done in accordance with National Grid Safety Manual and safe work practices:

- Always conduct a pre-job briefing.
- Wear all Personal Protective Equipment (PPE) as required.
- Use Class 2 rubber gloves when opening and working on energized equipment.
- Use only instruments approved by National Grid.
- User must be familiar with the proper use and limits of this device.
- Complete all entry requirements for an enclosed space, perform a visual hazard inspection of the work area on the underground distribution in the manhole, vault or pad-mounted equipment

2. Inspect all distribution voltage separable components which are carrying current in the following situations:

- Upon entering a manhole or vault containing separable components
- Prior to switching energized separable elbows
- Prior to working on or near energized underground pad-mounted equipment

3. Compare ambient cable temperature to component temperature of the same phase. Components with elevated temperature may indicate a potential defect within the component.

Delta Temp º F	Work Conditions
Less than 10 º F	Normal, begin work, may operate elbows
11 to 20 º F	Do not operate elbows. Schedule component repairs and use added safeguards as appropriate
More than 20 º F	Schedule immediate repairs. Stability and reliability concern.

Attachment 3- NG-USA EOP UG 001 Infrared – Non-Contact Thermometer Inspection Requirement for Underground Equipment

PART 2

GENERAL FEATURES

The Raytek ST-80® is a full featured model with an extended temperature range and a 50:1 spot ratio; this allows the user to increase the distance from the target and measure a smaller spot area. The common features of The Raytek ST-80 are:

- 9volt alkaline or NiCad battery with 20-40 hour life
- Displays of MAX, MIN, DIF and AVG temperature with resolution of 0.1°F
- LCD backlight
- Circular laser sighting with high/low alarm
- Distance to spot size of 50:1 with a trigger lock
- Temperature range of –25 to 1400° F with an ambient operating range of 32 to 150°F
- Accuracy of units are 1% or+/-2°F @ 73°F of ambient operating temperature and up to =/-5°F @ -25 to -15°F
- Unit requires no calibration
- Weighs less than 11oz.
- Hard Carrying case

APPROVED INSTRUMENTS, CALIBRATION AND STORAGE

- Use hand held, infrared non-contact instruments that have been approved by National Grid Work Methods. Listed on page 8
- Contact The Central Laboratory if instruments requires service
- Store the instrument in its original protective case
- Field check the battery and operation before each use; to change battery, insert it with the positive side toward the rear of the battery compartment

UNIT FUNCTIONS

The unit can be changed from F° to C° by sliding switch near battery compartment to C and also can be locked on for continuous measurement by sliding adjacent lock switch to on.

	Function	Action
1	**Mode**	Advance mode cycle
2	**Log**	To store data
3	**Set**	Set high/low alarms
4	**Up/down keys**	Adjust values or log locations
5	**Laser/light**	Activate laser and backlight

Attachment 3- NG-USA EOP UG 001 Infrared – Non-Contact Thermometer Inspection Requirement for Underground Equipment

LIMITATIONS

- **The non-contact thermometer is** ONLY **an additional tool as part of your safety process**
- **Condition of component and environment must be considered**
- **Cable or component** MUST **be carrying current (load)**
- **All existing work practices and safety equipment** MUST **be deployed**
- **Distance from any object affects the size of the spot measured**
- **Ensure object fills entire field of view**

TROUBLESHOOTING the Raytek ST-80

Code	Problem	Action
--- (on display)	**Target temp. is over or under**	**Target within spec's**
Battery icon appears	**Low Battery**	**Check/replace battery**
Blank Display	**Possible dead battery**	**Check/replace battery**
Laser doesn't work	**Low or dead battery**	**Replace battery**
Laser doesn't work	**Ambient temp. above 104°F**	**Use in area with <temp.**
ERR	**Possible damage by EMF**	**Contact distributor**

4 -Inspection List4.a - Underground Inspection Log Form

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Underground Inspection Log

Date:										**Inspector:**			
Division:	**BSW**	☐	**SN**	☐	**BSS**	☐	**OS**	☐		**Feeder:**			
Town:										**Street:**			
Handhole	☐	Manhole	☐	Net Protect	☐	Net XFMR's	☐	Switchgear	☐	Transformer	☐		
Vault	☐	EV	☐	Submersible	☐	Anodes	☐	Pull Box	☐	Trench	☐	Number	_____

Manholes, Handholes, Vault Structures

Water (in hole) ☐ Yes ☐ No

Gas Monitor Readings

			Alarm Setting
Lower Explosive Limit (LEL)			10% or above
Oxygen	(O_2)		% below 19.5, above 23.5
Carbon Monoxide	(CO)		35 ppm
Hydrogen Sulfide	(H_2S)		10 ppm

EV Test Required	☐	**Yes** / **No**
EV Found Voltage:	☐	**Yes** ☐ **No**
Voltage Action Taken:	☐	**Repaired** / **De-Energized**

Supervisor's Name:

Action Taken:

Additional Comments:

The underground distribution facility maintenance items identified through this patrol are separated into four priority categories A, B, C, and E priority. The problem codes identified default to the appropriate priority. The default priority can be adjusted by the individual performing the inspection based on actual field conditions. These priority categories are defined as follows:

A Priority **-** An identified facility/component that must be repaired/replaced as soon as practicable.

B Priority - An identified facility/component condition that shall be considered for repair/replacement as the feeder is scheduled for maintenance by Distribution Planning and Engineering. These identified conditions will be corrected as preventive maintenance and or facility life extension.

C Priority - An identified facility/component condition that is being trended and reviewed by Distribution Planning and Engineering that may require replacement through the engineering process (Requires project/Capital expenditures). Non-capital conditions identified under this priority will be corrected at the discretion of field operations.

E Priority - An identified facility/component that must be replaced/repaired immediately to address public safety or system reliability. The inspector shall notify the appropriate operations department for immediate response and corrective action any time an E priority is found during an inspection.

ALL "E" PRIORITY CONDITIONS SHALL BE CORRECTED IMMEDIATELY UPON NOTIFICATION.

ALL "A PRIORITY" CONDITIONS IDENTIFIED PRIOR TO NOVEMEBR 1ST MUST BE REPAIRED/CORRECTED BY NOVEMBER 30th.

Code	Description	DP	Notes	Code	Description	DP	Notes
600	Handholes - Broken/damaged/unsecured	B		672	Transformer - Bushing Broken/Cracked	B	
602	Handholes - Missing nomenclature	C		673	Transformer - Door Broken/damaged/unsecured	A	
603	Handholes - Secondary needs repair	B		675	Transformer - Elbows tracking/burned	B	
604	Handholes – Other (use comments)	B		676	Transformer – Excessive vegetation	C	
605	Infrared Inspection – Separable Components	B		680	Transformer - Missing Ground	A	
610	Manhole - Bonded	B		681	Transformer - Missing nomenclature	A	
611	Manholes - Cable/Joint leaking	A		682	Transformer – Mud/debris	C	
612	Manholes - Cables bonded	B		684	Transformer - Oil Weeping	A	
614	Manholes - Cracked/broken	B		685	Transformer - Pad broken/damaged	B	
615	Manholes - Fire proofing	C		686	Transformer - Protection (ballards) damaged	B	
616	Manholes - Improper grade	B		687	Transformer - Rusted/ Paint peeling	C	
617	Manholes - Missing nomenclature	A		690	Trench - Exposed Cable	A	
620	Manholes – Re-rack	B		692	Trench Path - Sunken	B	
621	Manholes - Ring/cover repair/replace	B		700	Vaults - Cable missing bond	A	
630	Network Protector - Barriers broken/damaged	A		702	Vaults - Cracked/broken	B	
632	Network Protector - Oil leak	A		703	Vaults - Damaged/broken cover	B	
633	Network Protector - Worn/damaged gasket	A		704	Vaults - Damaged/broken door	B	
635	Network transformer - Bushing Broken/Cracked	B		705	Vaults - Damaged/broken ladder	A	
637	Network transformer - Low oil	B		706	Vaults - Improper grade	B	
638	Network transformer - Missing Ground	A		707	Vaults - Improper nomenclature	A	
639	Network transformer - Missing nomenclature	A		708	Vaults - Light not working	B	
642	Network transformer - Oil Weeping	A		713	Vaults - Ventilation failure	B	

643	Network transformer - Rusted/ Paint peel	C		720	Submersible equip. - Excess corrosion	C	
651	Switchgear - Barrier broken/damaged/unsecured	A		721	Submersible equip. - Physical damage	C	
652	Switchgear - Base broken/damaged	B		722	Submersible equip. - Leaking	C	
654	Switchgear - Cable Not Bonded	A		730	Anodes - Missing	C	
656	Switchgear - Door Broken/Damaged	A		731	Anodes - Need replacement	C	
657	Switchgear – Excessive vegetation	C		950	EV Handhole		See EOP G016
659	Switchgear - Missing ground	A		951	EV Manhole		See EOP G016
660	Switchgear - Missing Nomenclature	A		952	EV Switchgear		See EOP G016
661	Switchgear – Other	C		953	EV Transformer		See EOP G016
662	Switchgear - Rusted/Paint peeling	C		954	EV Vault – Cover/Door		See EOP G016

Attachment 5 - EOP Database of Cable Splices

Underground Trouble Report

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Create/Edit - Trouble/Splice Log

Failure Date: Emp. Name: Emp. ID:

Division: District: Town:

Trans. Circuit: Dist. Circuit: Voltage:

Other: Other:

From Location

Street: Manhole/Pole: Suffix:

To Location

Street: Manhole/Pole: Suffix:

Trouble

Failed: Manhole Cover Dislodged (Explain in Notes)

Other: Gas Found (Explain in Notes)

Failed/ Removed

Cable: Joint/ Termination:

Other: Other:

Size: Cu Al Size Other:

Installed

Cable: Joint/ Termination:

Other: Other:

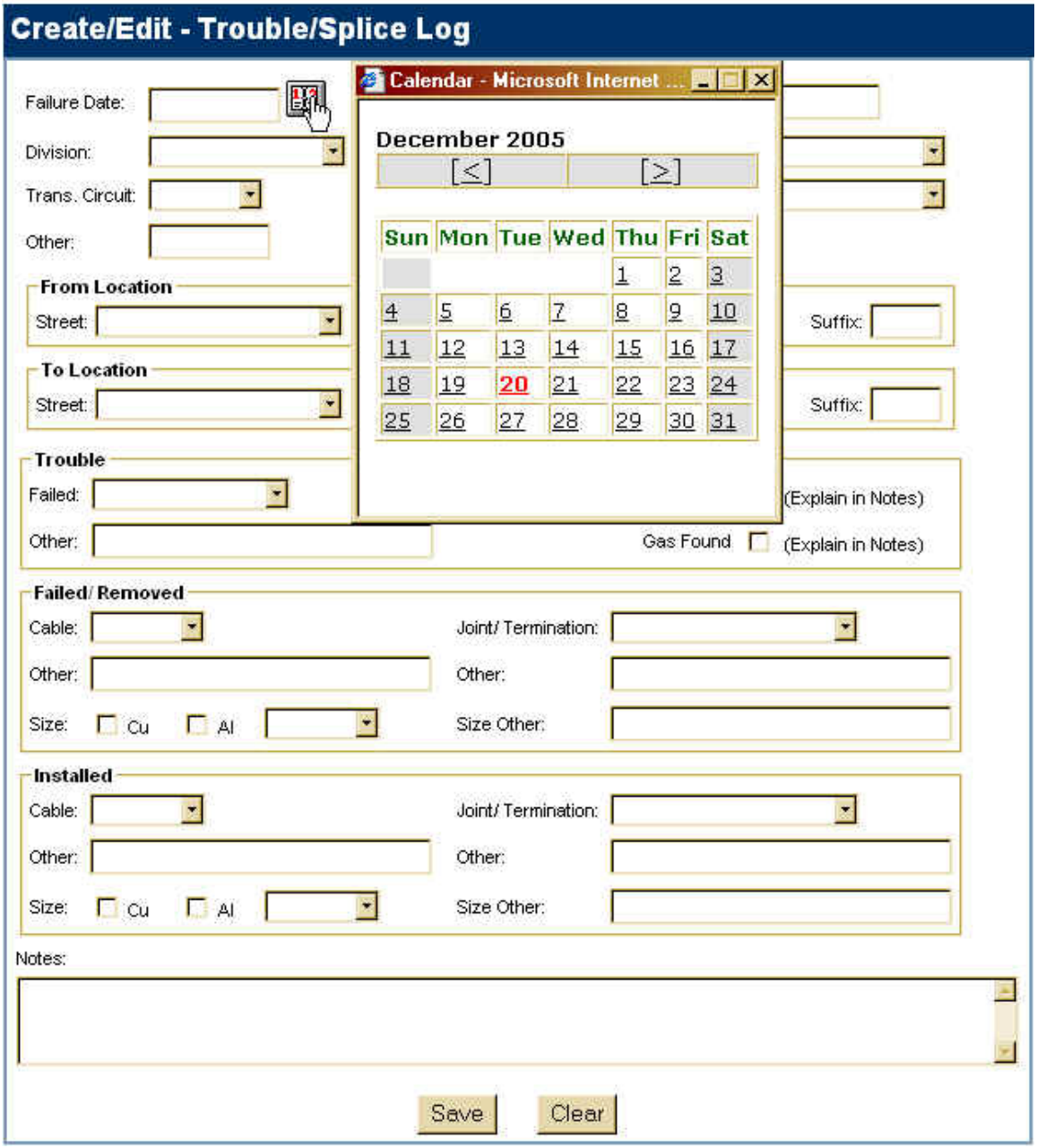
Size: Cu Al Size Other:

Notes:

Save Clear

Underground Trouble Report

nationalgrid



Underground Trouble Report

nationalgrid

Create/Edit - Trouble/Splice Log

Failure Date: 12/20/2005 Emp. Name: John Smith Emp. ID: 1000012345

Division: District: Town:

Trans. Circuit: Dist. Circuit: Voltage:

Other: Other:

- Unknown
- Bay State South
- Bay State West
- North & Granite
- Ocean State
- NY - Western
- NY - Central
- NY - Eastern
- NY - System

From Locati

Street: Manhole/Pole: Suffix:

To Location

Street: Manhole/Pole: Suffix:

Trouble

Failed: Manhole Cover Dislodged (Explain in Notes)

Other: Gas Found (Explain in Notes)

Failed/ Removed

Cable: Joint/ Termination:

Other: Other:

Size: Cu Al Size Other:

Installed

Cable: Joint/ Termination:

Other: Other:

Size: Cu Al Size Other:

Notes:

Save Clear

Underground Trouble Report

nationalgrid

Create/Edit - Trouble/Splice Log

Failure Date: 12/20/2005 Emp. Name: Emp. ID:

Division: Bay State South District: Town:

Trans. Circuit: Dist. Circuit: Voltage:

Other: Other:

District dropdown options: South Shore, Southeast, Nantucket

From Location

Street: Manhole/Pole: Suffix:

To Location

Street: Manhole/Pole: Suffix:

Trouble

Failed: Manhole Cover Dislodged (Explain in Notes)

Other: Gas Found (Explain in Notes)

Failed/ Removed

Cable: Joint/ Termination:

Other: Other:

Size: Cu Al Size Other:

Installed

Cable: Joint/ Termination:

Other: Other:

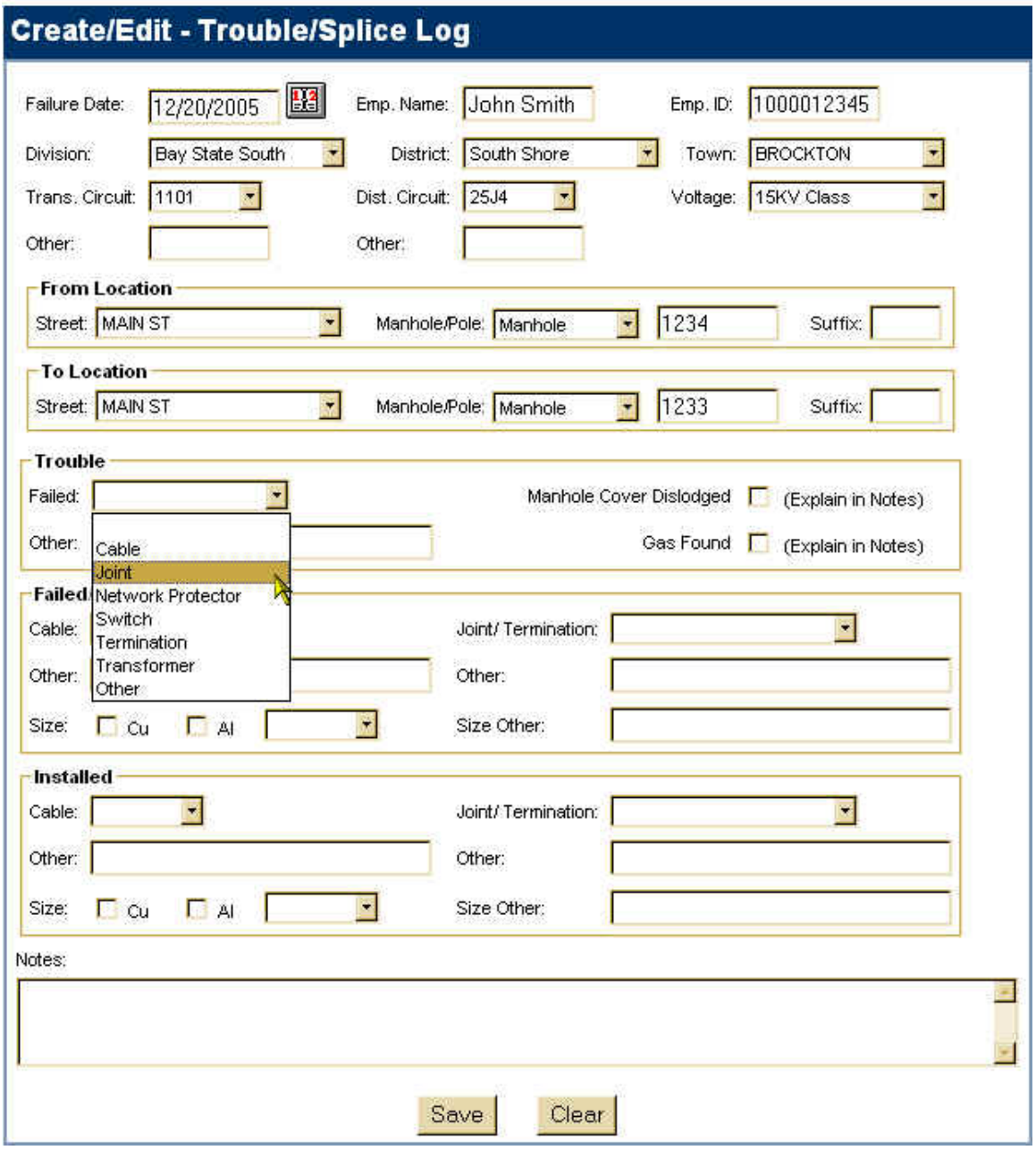
Size: Cu Al Size Other:

Notes:

Save Clear

Underground Trouble Report

nationalgrid



Underground Trouble Report

nationalgrid

Create/Edit - Trouble/Splice Log

Failure Date: 12/20/2005 Emp. Name: John Smith Emp. ID: 1000012345

Division: Bay State South District: South Shore Town: BROCKTON

Trans. Circuit: 1101 Dist. Circuit: 25J4 Voltage: 15KV Class

Other: Other:

From Location

Street: MAIN ST Manhole/Pole: Manhole 1234 Suffix:

To Location

Street: MAIN ST Manhole/Pole: Manhole 1233 Suffix:

Trouble

Failed: Joint Manhole Cover Dislodged ☑ (Explain in Notes)

Other: Gas Found ☐ (Explain in Notes)

Failed/ Removed

Cable: XLP Joint/ Termination:

Other: Other:

Size: ☐ Cu ☑ Al 350 Size Other:

200A Premold
600A Premold
Cold Shrink
Hand Applied Lead
Hand Applied Non Lead
Heat Shrink
T-Body
Other

Installed

Cable: Joint/ Termination:

Other: Other:

Size: ☐ Cu ☐ Al Size Other:

Notes:

Save Clear

Attachment 5.a - Underground Trouble andLog Form

nationalgrid

Underground Trouble / Splice Log

Name:	**Emp ID:**
Date:	**District:**
Division: BSW ☐ BSN ☐ BSS ☐ OS ☐	**District Circuit:**
Town:	**Trans. Circuit:**
Other:	**Other:**

Voltage:

5 kV Class	☐	**15 kV Class**	☐	**25 kV Class**	☐	**35 kV Class**	☐	**Network Sec**	☐
Other Sec/ St Lt	☐	**Other:**							

From Location Street: _____ ***Manhole/Pole:*** _____ ***Suffix:*** _____

To Location Street: _____ ***Manhole/Pole:*** _____ ***Suffix:*** _____

Trouble Failed

Cable: ☐ ***Joint:*** ☐ ***Switch:*** ☐ ***Terminator:*** ☐ ***Transformer:*** ☐ ***Other:*** ☐

Network Protector: ☐ ****Manhole Cover Dislodged:*** ☐ ****Gas Found:*** ☐ ****Explain in Notes***

Failed/Removed Cable:
EPR: ☐ ***VC:*** ☐ ***PILC:*** ☐ ***XLP:*** ☐ ***Other:***

Size
Cu: ☐ ***Al:*** ☐
<#2: ☐ ***500:*** ☐ ***1/0:*** ☐ ***750:*** ☐ ***4/0:*** ☐ ***1000:*** ☐ ***350:*** ☐ ***Other:*** ☐

Failed Joint/Termination:
200A Premold: ☐ ***600A Premold:*** ☐ ***Cold Shrink:*** ☐ ***Hand Applied Lead:*** ☐ ***Hand Applied Non Lead:*** ☐
Heat Shrink: ☐ ***T-Body:*** ☐ ***Other:*** _____

Installed Cable
EPR: ☐ ***VC:*** ☐ ***PILC:*** ☐ ***XLP:*** ☐ ***Other:*** _____

Size
Cu: ☐ ***Al:*** ☐
<#2: ☐ ***500:*** ☐ ***1/0:*** ☐ ***750:*** ☐ ***4/0:*** ☐ ***1000:*** ☐ ***350:*** ☐ ***Other:*** ☐

Installed Joint/Termination
200A Premold: ☐ ***600A Premold:*** ☐ ***Cold Shrink:*** ☐ ***Hand Applied Lead:*** ☐ ***Hand Applied Non Lead:*** ☐
Heat Shrink: ☐ ***T-Body:*** ☐ ***Other:*** _____

Attachment 6 - Quality Assurance Program

The quality assurance/quality control (QA/QC) approach most suitable for application to the Asset Inspection/Testing Program is the ***Statistical Process Control*** (***SPC***) Method. SPC is specifically designed for implementation on a continuous stream of products (data) created over long periods of time (e.g.: manufacturing assembly lines). Features of SPC that will heighten the integrity and efficiency of the Inspection/Test Program include:

- verifying the integrity of inspection/surveillance results at reasonable time intervals
- providing "early warning" of results that are unacceptably inconsistent and/or trending towards unacceptable quality levels
- enabling the determination of root-cause(s)/corrective action to restore process integrity prior to the significant accumulation of suspect inspection/test results

Sampled/Audited Non-Compliances:

Literature indicates that processes are always subject to a certain amount of variation due to "chance"; that such variation is inevitable. "Natural variation" has generically been quantified by industry as being 3 Standard Deviations (or 3σ)[1]. Variations beyond 3σ are considered "*special causes*" and prompts the investigation for its root-cause and corrective action.

Sample/Audit Sizes:

Literature also indicates that sample sizes should be on the order of $1/p$ [2]; where "p" is the targeted maximum fraction of non-compliances. Thus, for p = 5%, $1/p$ = 20 Samples

Compliance Determination - *Inspections*:

There are many generic attributes assessed in the course of inspecting an asset; some being subjective and based on experience and judgment.

Therefore, it is unreasonable to expect an exact correlation between the results of Inspections and those of Audits.

Instead, Inspection compliance will be based on Inspection results:

- precisely matching

or

- being conservative with respect to Audit results.

The following is a brief description of the two-step process used for Asset Inspection Compliance evaluations:

1. Comparison review of *each* individual attribute identified as an issue for an Asset (i.e.: designation of appropriate Maintenance Codes). The chart below illustrates the three possible outcomes for each Maintenance Code identified during Inspections and/or Audits.

2. Final Rating of an Asset's Inspection. The following chart illustrates the full spectrum of Inspection versus Audit Comparison possibilities:

- o should all comparisons be any or all of Cases 1, 2 or 3, Inspection results were in agreement or conservative with respect to Audits. As such, the respective Inspection is deemed compliant
- o should any comparison be Case 4, 5, 6 or 7, Inspection results were not in agreement nor conservative with respect to Audits; the respective Inspection is deemed non-compliant

Treatment of Code-by-Code Comparisons:

Asset	Maintenance Codes Inspection	Audit
xxxxxx	A	B

Possible Outcomes	Dispostion	Key
A = **B**	Match (Compliance)	0
A is a Code & **B** is Null	Inspection Conservative	1
A is Null & **B** is a Code	Inspection Non-Compliance	2

Audit Summary Labels applied to Assets;
Summary Treatment of Inspection vs. Audit Code:

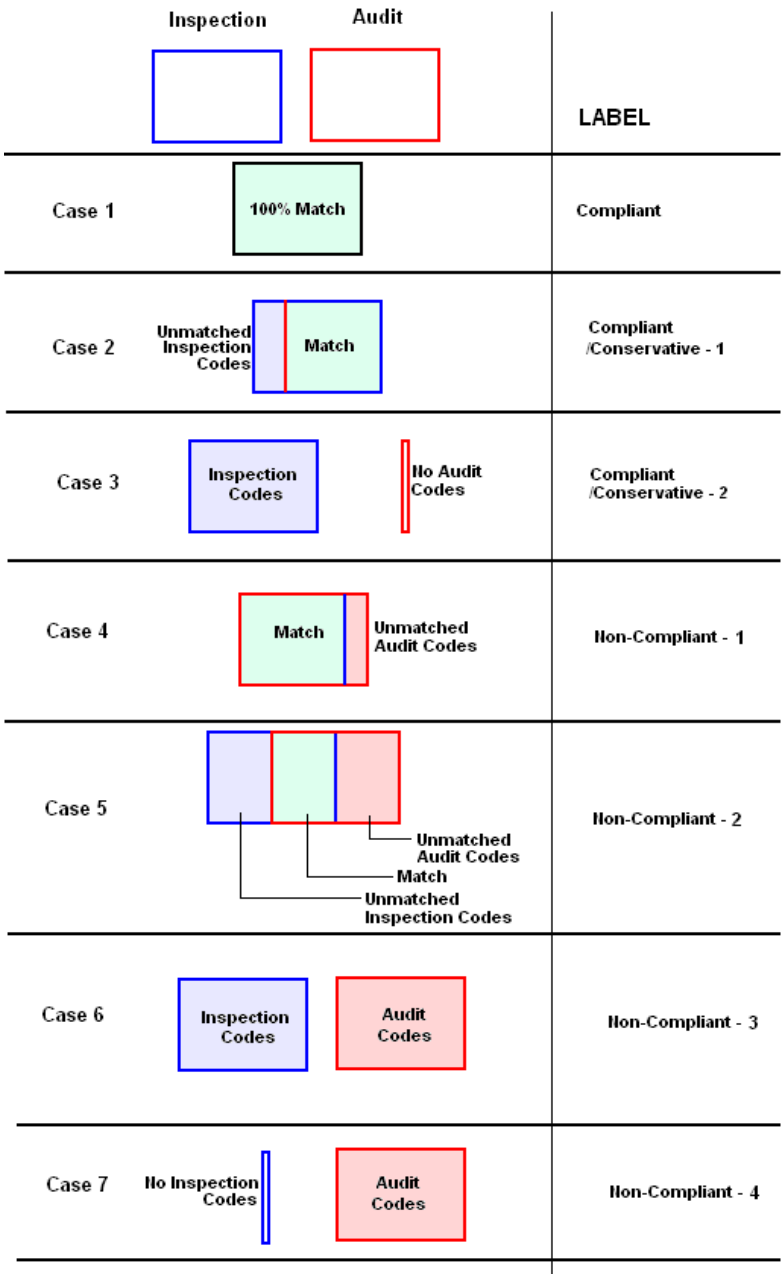
	Key Assigned:			
Key --->	2	1	0	**Label:**
Case 1:	N	N	Y	Compliance
Case 2:	N	Y	Y	Compliant & Conservative -1
Case 3:	N	Y	N	Compliant & Conservative - 2
Case 4:	Y	N	Y	Non-Compliance - 1
Case 5:	Y	Y	Y	Non-Compliance - 2
Case 6:	Y	Y	N	Non-Compliance - 3
Case 7:	Y	N	N	Non-Compliance - 4

The following is a pictorial representation of the effect of this two-step process.

Each rectangle is viewed as containing the Maintenance Codes identified in the Inspection and the follow-up Audit; Codes appearing in

- both the Inspection and Audit rectangles are matches
- the Inspection rectangle but absent from the Audit rectangle are "Unmatched Inspection Codes"
- the Audit rectangle but absent from the Inspection rectangle are "Unmatched Audit Codes"

The treatment of the appearance of those three possibilities in rating the Inspection Compliance of the respective Asset is addressed in the "Label" column of this pictorial.



Compliance Determination – *Elevated Voltage Tests*:

Similar to the Quality rating of Asset Inspections; to be compliant, Elevated Voltage (EV) Testing needs to provide results that

- precisely match Audit results

or

- are conservative with respect to Audit results.

Unlike Asset Inspections, only three "attributes" are assessed for EV Testing

a) Voltage Test is Required
b) Test indicated presence of Voltage
c) Voltage measured was equal to/conservative with respect to the Audit

The level of compliance for each EV Test is quantified in Step 2 as described below

Step 1:

a.) Voltage Test Req'd
b.) Voltage Detected

Test	Audit	Compliance Evaluation
No (=0)	No (=0)	Compliant
No (=0)	Yes (=1)	Non-Compliant
Yes (=1)	No (=0)	Compliant
Yes (=1)	Yes (=1)	Compliant

c.) Voltage Level Measured

Comparison	Compliance Evaluation
Test > Audit	Compliant
Test = Audit	Compliant
Test < Audit	Non-Compliant

Step 2:

Compliance Rating Convention:

Attribute:	Audit Finding:	Score:
Voltage Test Req'd	Compliant	1
Voltage Test Req'd	Non-Compliant	0
Voltage Detected	Compliant	1
Voltage Detected	Non-Compliant	0
Voltage Level Messured	Compliant	1
Voltage Level Messured	Non-Compliant	0

Rating = 100'Σ Score/3

Special Circumstance:

Explanation:

Each of the 3 attrubutes (Test Req'd, Voltage Detected, Am't Measured) are generally evaluated independently and then combined to provide an over-all compliance rating

However, IF

1.) Inspection/Test records indicate that "Voltage Test Req'd" was "No"
and
2.) Audit records indicate that "Voltage Test Req'd" was "Yes"

Inspection Compliance for Voltage Detected and Mount Measured will be considered Non-Compliant and the Inspection/Test of the Asset Non-Compliant in total

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

nationalgrid **ELECTRIC OPERATING PROCEDURES**	**Doc No.:** NG-USA EOP G009 **Page** : 75 of 20 **Date:** 01/01/05
SUBJECT: Personal Injury Accidents/Newsworthy Event Reports	**SECTION:** General

GENERAL INFORMATION:

National Grid USA companies are required by state regulatory agencies to report all employee personal injury accidents and deaths, as well as all public injuries associated with the Company's electric facilities. Additionally, some states require notification on unusual events that receive media attention.

PROGRAM ADMINISTRATOR:

Distribution Engineering Services

SCOPE:

I. New York PSC Requirements
II. Massachusetts DTE Requirements
III. Rhode Island PUC Requirements
IV. New Hampshire PUC Requirements
V. Responsibilities
VI. Training
VII. Exhibits

APPLICABILITY:

This procedure shall apply whenever the following occur: employee personal injury accidents and deaths, public incidents (injuries) with company facilities, and unusual or major events.

I. NEW YORK PSC REQUIREMENT

A. Reports of Personal Injury Accidents and Media Events – New York

A telephone report shall be made immediately (within one hour except as noted in the following paragraph) for each electric system accident resulting in major media attention, injury or death to a non-employee and each electric system accident resulting in inpatient hospitalization or death of an employee or contractor employed by National Grid. A standardized PSC report form included in Attachment A must be filed. Dispatch shall be notified of all shock incidents by the field or control centers. These shall include personal shocks as well as animal (pets) shocks reported to the Company.

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

Telephone reports for motor vehicle accidents and shocks, except those involving a fatality or major media attention, are not required. Notification for these events are to be done by e-mail as noted in Attachment C. Immediate notification must be made for events involving a fatality or major media attention.

Immediate telephone notices should include the following information:

1. The location of the accident.

2. The date and time of the accident.

3. Whether or not the injured party is a company employee or contractor employed by National Grid or a member of the public.

4. The name, approximate age, and sex of the injured party.

5. A description of the injuries sustained and the status of the injured party.

6. A description of the accident and its cause.

7. The date and time National Grid received notification of the incident.

8. The date and time the first utility personnel arrived on scene.

9. The date and time the first QUALIFIED utility personnel arrived on scene (i.e., capable of addressing the safety hazard).

10. Whether Emergency Response operations were affected until utility personnel arrived.

NOTE: If information is incomplete, report what is available and fill in details later.

Telephone reports are to be made to the PSC Office of Electricity and Environment in Albany at (518) 473-0763. When notification by telephone is required after business hours, please refer to the after hour's contact list (Attachment C). The Company shall also follow up all telephone reports with an e-mail or faxed report.

Contacts are to be made by the respective Regional Control Centers and/or Dispatch. All shock incidents shall be e-mailed or faxed to the PSC daily by Dispatch as noted in Attachment C.

NOTE: When any PSC notification is required, Distribution Engineering Services in Syracuse must also be notified immediately afterwards. Follow up the immediate telephone notice by e-mail to the PSC as noted in attachment C or fax at (518) 474-6537. All information regarding the incident and PSC contact should be faxed to

DES at (315) 428-5983. Attention: Director – Distribution Engineering Services. Additionally, a copy of all notifications shall be faxed to the Manager Corporate Safety and Health at (315)460-1127.

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

Monthly reporting requirements: By the 10th of each month Corporate Safety and Health shall file with the PSC written reports of all accidents specified by this procedure when company employees are involved. By the 10th of each month the Director Dispatch and Control New York shall file with the PSC written reports of all accidents specified by this procedure when the public is involved. New York PSC Form A will be utilized (Attachment B), with a copy sent to the Manager of Claims at fax number (518)433-3964 and Director Distribution Engineering Services at fax number (315)428-5983.

B. Reports of Other Unusual Events:

1. Media Attention:

Immediate telephone notice shall be made by the Regional Control Centers and/or Dispatch for any other unusual event associated with National Grid that will most likely result in media attention. Examples of reportable events are fires, manhole explosions, major equipment damage, opening of regional storm centers, outages affecting high profile customers such as hospitals or shopping malls, etc.

2. Major Media Events:

Immediate telephone notification shall be made by the Regional Control Centers and/or Dispatch for major events associated with Niagara Mohawk electric system that will likely result in considerable media attention. Examples of major events would include load shedding, catastrophic storm emergencies, opening of system storm room, boiler explosions, substation fires, or natural events such as floods or fires that threaten damage to facilities. This notice should be provided during business hours to the PSC Energy and Water Division at (518) 473-0763. When notification is required after business hours, please refer to Attachment C.

3. Security

Serious threats to critical company facilities require immediate notification. Threat notices received from NYISO and government entities also require notification.

Refer to Attachment C for notification information.

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

NOTE When any PSC notification is required, follow up the immediate telephone notice by e-mail to the PSC as noted in Attachment C or fax at (518) 474-6537. Distribution Engineering Services in Syracuse must also be notified immediately afterwards. All information regarding the incident and PSC contact should be faxed to DES at (315) 428-5983. Attention: Director – Distribution Engineering Services.

II. MASSACHUSETTS DTE REQUIREMENTS

A. In compliance with the requirements of Massachusetts G.L. CI 164 S.95, National Grid shall report within a 24 hour period an accident to employees or the public in regards to National Grid electric facilities where the individual is injured, rendered insensible or killed. The notification shall be made utilizing the Massachusetts DTE Outage Reporting Protocol (ORP) website as described in Attachment D. The Accident Report Program shall be the form utilized. The following information is required:

1. Date
2. Company name
3. Contact person
4. Telephone number
5. Accident date and time
6. Location of incident
7. Detailed description of accident

The notification/report is to be completed and submitted by the appropriate Regional Control Center upon receiving the appropriate information from Company personnel. Additionally a copy of the submittal shall be faxed to the Manager Corporate Safety and Health at (315)460-1127.

B. Exceptional or non-routine events due to elevated equipment voltage that required reporting to OSHA or other government organizations due to injuries or other substantive impacts are required to be submitted to the DTE within one to three days. Events involving a fatality or injury (human or domestic animal) should be reported immediately. The notification shall be made utilizing the Massachusetts DTE Outage Reporting Protocol (ORP) website as described in Attachment D. The Accident Report Program shall be the form utilized. The following information is required:

1. Date
2. Company name
3. Contact person
4. Telephone number
5. Accident date and time
6. Location of incident
7. Detailed description of accident

The notification/report is to be completed and submitted by the appropriate Regional Control Center upon receiving the appropriate information from Company personnel. Additionally a copy of the submittal shall be faxed to the Manager Corporate Safety and Health at (315)460-1127.

C. The Massachusetts DTE requires initial notification of all manhole events (i.e., explosions, fires and smokers) to be submitted as soon as possible but no later than 24 hours after the event. Manhole event definitions are as follows:

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

1. Smoking Manhole – A manhole event in which smoke is visible, but no visible flame is escaping from the edge of the manhole cover or from holes in the cover.
2. Manhole Fire – A manhole event in which the cover remains seated in its frame and there is visible flame escaping from the cover's edge or from holes in the cover.
3. Manhole Explosion – A manhole event in which a release of energy from the manhole occurs and the manhole cover is dislodged from its frame, or debris such as cement and dirt is projected into the air although the manhole cover remains seated.

Additionally, all events involving dislodged manhole covers should be submitted to the DTE as soon after the event as possible. The notification shall be made utilizing the Massachusetts DTE Outage Reporting Protocol (ORP) website as described in Attachment E. These required reports involving cover dislodgement should contain the following information:

1. Event record number
2. Location of failure
3. Date and time of failure
4. Weather conditions for previous 24 hours
5. Manholes involved in event
   a. Number and location
   b. Manhole size
   c. Manhole cover type (solid or slotted)
   d. Whether manhole cover was dislodged
6. Failed equipment type (cable, splice, etc.)
   a. Feeder number for primary cable failure
   b. Voltage
   c. Cable type and age
   d. Cable loading
   e. Other equipment involved and age
7. Supply substation identification
8. Event type (smoke, fire, explosion)
9. Manhole entry
   a. Date of most recent manhole inspection (attach inspection sheet)
   b. Date of most recent manhole entry and reason (e.g. maintenance)
   c. at this location in the past five years
   d. Gas detected in manhole
10. Sequence of occurrences during the event
    a. Number of customers interrupted
    b. Duration of interruption
    c. Personal injuries and/or property damage
    d. Related outages
11. Summary of initial investigation into cause of failure

The initial notification/report is to be completed and submitted by the appropriate Regional Control Center upon receiving the appropriate information from Company personnel. The final manhole cover dislodgement report is to be completed by the appropriate Field Operations Supervisor and to be sent as soon as possible after the event when the information required by the DTE is available.

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

III. RHODE ISLAND PUC REQUIREMENTS

A. In compliance with the requirements of R.I.G.L. 39-4-1, National Grid shall report within a 24 hour period any accident with loss of human life, or serious injury within the state directly or indirectly arising from or connected to maintenance or operation of National Grid facilities.

The notification shall be made by use of the Rhode Island PUC Accident Report, Form A (Attachment F). The report shall be faxed to Rhode Island PUC contact Al Contente and a telephone contact be made to him using one of the following numbers: Office: 401-780-2121, fax: 401-941-4885, Cell Phone: 401-465-2575 or pager: 401-763-8967.

The following information is required:

1. Date
2. Time
3. Place
4. Name
5. Description of incident.

The report is to be completed and submitted by the appropriate Regional Control Center upon receiving the appropriate information from company personnel. Additionally a copy of the submittal shall be faxed to the Manager Corporate Safety and Health at (315)460-1127.

IV. NEW HAMPSHIRE PUC REQUIREMENTS

A. In Compliance with the requirements of New Hampshire Administration Rules PUC 306.06~~,~~ National Grid, shall report to the commission as soon as possible after each accident happening in connection with the operation of it's property, facilities or service, wherein any person shall have been killed or seriously injured or any serious property damage shall have been caused. The initial report may be preliminary, but if so, shall be followed later by as full a written statement as possible of the cause and details of the accident and the precautions taken, if any, to prevent similar accidents. Fatalities involving automobile hits must be reported, as well as electrical contacts.

Immediate notice is to be made by telephone utilizing the Commission Protocol Roster (Attachment H), if unable to make contact, utilize the general telephone number and leave a voice mail message providing:

1. Utility and the name and return telephone number of the individual reporting.
2. Stating that an accident occurred requiring notification and will be reported upon when the commission next opens.

If during PUC working hours a contact cannot be made to an individual at the PUC, a message is to be left at the Commission general phone number 603-271-2431. The individual calling shall provide name and contact number as well as all information noted below.

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The following information is required to be provided:

1. Name of utility
2. Name of individual making report and telephone number
3. Brief description of accident and location
4. A description of any known fatalities, personal injuries and damages
5. Any other known information relevant to the cause of the accident and the extent of damages.
6. The time at which the accident occurred and the time the utility was first notified.

A written report is required within 10 days of the accident utilizing Form E-5 (Attachment G). Field Operations shall complete and send report. Additionally, a detailed written report referencing the original E-5 report number is required within 60 days of notification. The report shall include any supportive documentation not provided in its original E-5 report. Field Operations shall complete and send report.

The initial notification shall be completed by the appropriate Regional Control Center upon receiving the appropriate information from company personnel. Additionally a copy of the submittal shall be faxed to the Manager Corporate Safety and Health at (315)460-1127.

B. Reports of Other Unusual Events

1. Media Attention/Major Event – Any accident or event listed below requires immediate reporting to the NHPUC.

    a. Involves power line clearances
    b. Involves aircraft, trains or boats
    c. Results in closure of state highway
    d. Is likely to be, or has been, reported in network television
    e. Involves an electrical contact in which a piece of equipment has been damaged
    f. Involves consequences of a magnitude or severity comparable to those described a-e above.

If during PUC working hours a contact cannot be made to an individual at the PUC, a message is to be left at the Commission general phone number 603-271-2431. The individual calling shall provide name and contact number as well as all information noted below.
The following information is required to be provided:

1. Name of utility
2. Name of individual making report and telephone number
3. Brief description of accident and location
4. A description of any known fatalities, personal injuries and damages
5. Any other known information relevant to the cause of the accident and the extent of damages.
6. The time at which the accident occurred and the time the utility was first notified.

A written report is required within 10 days of the accident utilizing Form E-5 (Attachment G). Field Operations shall complete and send report. Additionally, a detailed written report referencing the original E-5 report number is required within 60 days of notification. The report shall include any

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

supportive documentation not provided in its original E-5 report. Field Operations shall complete and send report.

The initial notification shall be completed by the appropriate Regional Control Center upon receiving the appropriate information from company personnel.

C. Additional Reporting Requirements

1. National Grid is required to report on all accidents involving company pole and anchor facilities located within the public right of way. The company is to utilize Form E-5 (Attachment F) together with all applicable supportive documentation. Submission of such information is required within 10 business days following the conclusion of each calendar quarter. Field Operations shall complete and send report.

V. RESPONSIBILITIES:

A. Distribution Engineering Services:
   1. Update procedures as necessary.
   2. Provide Field Operations personnel with training when requested.

B. Field Operations Management:
   1. Ensure the components of the procedure are implemented.
   2. Provide procedure revision input as necessary.
   3. Review the procedure with employees.

C. Employee:
   1. Demonstrate the understanding of the procedure.
   2. Comply with the requirements of the procedure.

VI. TRAINING:

Initial: Provided in appropriate National Grid training programs for Engineering Services and Field Operations personnel and as requested.

VII. EQUIPMENT:

Not applicable.

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ATTACHMENT A

FAX TRANSMITTAL TO

NYS PUBLIC SERVICE COMMISSION
TELEPHONE - (518) 473-0763

FAX (PSC): (518) 474-6537

FAX (DES): (315) 428-5983

FROM

NIAGARA MOHAWK, A NATIONAL GRID COMPANY
REGIONAL CONTROL
(CIRCLE ONE)

WEST CENTRAL EAST

CONTACT - (SHIFT SUPERVISOR)
FAX -

REPORT OF PERSONAL INJURY/NEWSWORTHY EVENT

SENT BY:

DATE:

NUMBER OF PAGES INCLUDING COVER SHEET:

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

NOTIFICATION DATA SHEET:

The following information is to be reported to the New York State Public Service Commission by telephone and followed up by e-mail or facsimile. When using facsimile please use the fax cover sheet specific to this procedure and fax to PSC and DES.

PSC: (518) 473-0763 (Telephone)

PSC: (518) 474-6537 (FAX)
DES: (315) 428-5354 (FAX)

PERSONAL INJURY DETAILS

Location of Incident:
Date and Time of Incident:
Company Employee: Yes/No (circle one)

Name of Injured Party: (UNKNOWN)*
Description of Injury and Status of Injured Person:

(UNKNOWN)*

Initials of Person Preparing Report:

*NOTE: If information is not available from the field, circle (UNKNOWN).

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PSC: (518)473-00763 (Telephone)

PSC: (518)474-6537(FAX)
DES: (315)428-5354(FAX)

NEWSWORTHY EVENT REPORTS

Location of Event

Date and Time of Event

Date and Time of Restoration (Estimated)*

Amount of Load Reduction (Estimated)*
or
Amount of Load Interrupted (Estimated)*

Customers Affected From Interruption (Estimated)*

Description of Events Leading to Occurrence

System(s) Affected:

Effect on System(s):

*If information is estimated, circle estimated.

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

PSC NOTIFICATION FORM
ACCIDENTS WITH INJURIES
INVOLVING UTILITY FACILITIES
(Including Vehicular Accidents)

Complete the following form and fax to 518-474-6537 or E-Mail as noted in Attachment C to the PSC. Note – The PSC shall be notified by telephone within one (1) hour for any vehicular or other accidents resulting in death, involving utility facilities):

Utility Name:	
Date/Time of accident:	Date:_____ Time:_____ : __ AM/PM
Location of accident:	
Is injured a utility employee?	Yes/No
Description of injury/Status of Injured: (if known)	
Description of accident/Cause of accident (if known):	
Time utility notified of accident:	Time:_____ : _____ AM/PM
Time first utility personnel Arrived:	Time:_____ : _____ AM/PM
Time first qualified utility personnel arrived to address safety hazard	Time:_____ : _____ AM/PM
Were wires down?	Yes/No
Was rescue operation affected until utility personnel arrived?	Yes/No
Were customers interrupted? How many?	
Was there media coverage?	Yes/No/Information not available
Form Completed By:	Name: Title: Telephone:

Please contact _____ at _____ with any questions.

(Name/Title) (Telephone #)

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

ATTACHMENT B

FORM A ACCIDENT REPORT	Chronological No. of Accident	
Name of Corporation or Municipality Reporting: National Grid		
Address: 300 Erie Boulevard W., Syracuse, NY 13202		Do not use this space
Date of Accident		
Precise Location of Accident		
Name	PERSON INJURED	Age
Address		Sex
Occupation		Employee of Company
Regularly or Temporarily Employed		Length of Service
Nature and Extent of Injury		
Taken After Injury To	Is Death Probable?	
Probable Duration of Disability		
Name of Attending Physician	Address	
Names of Witnesses	Addresses	
Was Injured Person Obeying Instructions at Time of Accident?	Instructions Given by Whom?	
Was Accident Due to Negligence of Injured Person?	Official Capacity	
Give an exact and detailed description of accident and its cause, supplementing by sketch if same makes explanation clearer; together with statement of extent of damage to equipment and action taken to prevent accidents in future.		
	Manager - Safety	
Signature of Person Reporting Accident	Official Capacity	
Date _____		

DO NOT WRITE IN THIS SPACE

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

ATTACHMENT C
PSC ELECTRIC EVENT NOTIFICATION REQUIREMENTS

In accordance with the Electric Safety Standards, Case 04-M-0159, utilities are required to notify the Department of various events involving their systems. This document outlines the requirements for contacting Staff to maintain compliance with Appendix B of the Safety Standards Order.

Type of Event	Notify
I. System Control	
► All transmission lines outage 230kV and above, overhead or underground, if the line fails to reclose. ► Outages of a major tie to another control area. ► Any event which affects major transmission customers or which trigger event or disturbance recorders. ► Initiation of load shedding procedures, voltage reduction, or emergency operations procedures to maintain the adequacy of the electric system. ► Activation of Alternate Control Center (for other than routine test purposes), or loss of data communications with NYISO or other NYS transmission owner control centers. ► All tree related outages and structure collapses on 115kV and above circuits.	Transmission Staff
II. Loss of Electric Service	
► Loss of electrical service to customers resulting from load shedding/emergency operation procedures.	Transmission and Distribution
► Loss of electrical service to 5,000 customers or more lasting 30 minutes or more resulting from a transmission line outage.	Transmission and Distribution
► Loss of electrical service to 5,000 customers or more lasting 30 minutes or more resulting from a distribution line outage. ► Any loss of a distribution system network.	Distribution Staff
III. Personal Injury Accidents	
► All electric system accidents that result in injury or death to a non-employee and/or inpatient hospitalization or death to an employee or contractor employed by the utility, including accidents that occur at generating plants.	Distribution Staff
IV. Shock Incidents and Motor Vehicle Accidents	
► All electric shock incidents. ► Motor vehicle accidents involving utility facilities in which there is a personal injury.	Distribution Staff
V. Unusual and Media Attention Events	
► Major events that will likely result in widespread media attention, such as catastrophic storm emergencies, opening of system storm center, substation fires, nuclear radiation releases, or natural events such as floods or fires that threaten to damage facilities.	Transmission and Distribution
► Events that will likely result in local media attention, such as manhole explosions, opening of a regional storm center, and outages affecting high profile customers (like a hospital or shopping mall).	Distribution Staff
VI. Security	
► Serious threats to critical company facilities. ► Threat notices received from NYISO and government entities.	Howard Tarler or Michael Worden

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

ATTACHMENT C (cont'd)

PSC ELECTRIC EVENT NOTIFICATION REQUIREMENTS

When and How Notifications Should Be Made

- All notifications to be made by **telephone within one hour of the incident** unless otherwise specified.
- **Notifications regarding system control incidents (Category I), major events (Category V), and critical facility security events (Category VI) require immediate telephone notification regardless of the time of day.**
- Other notifications between the hours of 10 p.m. and 6 a.m. shall be made within one hour via e-mail and reported by telephone the following morning by 8:30 a.m.
- Reports for loss of electric service after business hours should be delayed to the following morning unless they receive significant media attention.
- Reports for accidents and shocks involving personal injury, except those involving a fatality or major media attention, occurring after business hours shall be made the next business day by 8:30 a.m.
- Reports for shocks that do not involve personal injury or vehicular accidents that do not involve a fatality may be submitted by e-mail only and do not require telephone notification unless they involve major media attention.
- All telephone notifications should be followed up with an e-mail report.

Contact Information

During Business Hours (Monday – Friday, 8:30 a.m. – 4:45 p.m.): **518-473-0763**
Contact Department and email transmission and/or distribution staff list (below).

Reporting After Business Hours (Transmission Staff):

Contact and email both individuals.

► Howard Tarler	H: 518-489-9134	P(NYS):	518-343-1862	howard_tarler@dps.state.ny.us
► Ed Schrom	H: 518-355-4434	P(NYS):	518-342-4717	edward_schrom@dps.state.ny.us
	C: 518-461-8839	P(Nation):	800-539-4975	

Reporting After Business Hours (Distribution Staff):

Contact only one individual, starting at top of list, and email all on list

► David Reulet	518-581-9544	david_reulet@dps.state.ny.us
Patrick Maher	518-399-5235	patrick_maher@dps.state.ny.us
Karl Roenick	518-371-4162	karl_roenick@dps.state.ny.us
Christian Bonvin	518-283-8283	christian_bonvin@dps.state.ny.us
Michael Worden	518-475-3072	michael_worden@dps.state.ny.us
Kin Eng	518-461-3035	kin_eng@dps.state.ny.us
		jeanne_harder@dps.state.ny.us

Revised October 2005

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

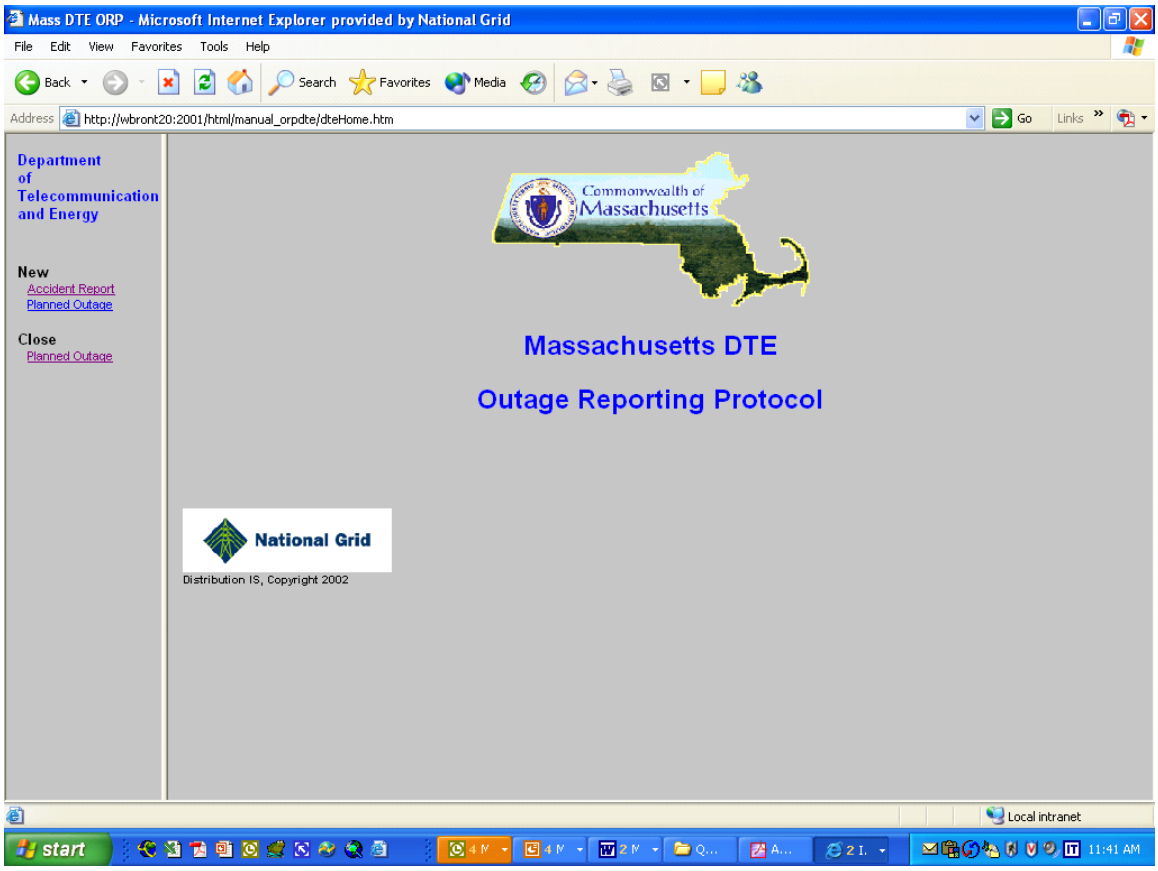
ATTACHMENT D

The manual outage reporting application can be accessed from the following URL
(By clicking the following link or pasting this link in the Internet Browser address bar)

http://nyhcbapp25:2001/html/manual_orpdte/main.htm

This application can presently **only** be accessed by Users that have access to IDS (Interruption Disturbance System).

Main Screen:
(Figure: 1.0)



The Menu options are on the Left divided into

New	
Accident Report	Create a new Accident Report
Planned Outage	*Create a new Planned Outage Report*
Close	
Planned Outage	*Close a Planned Outage*

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

ATTACHMENT E

Accident Report

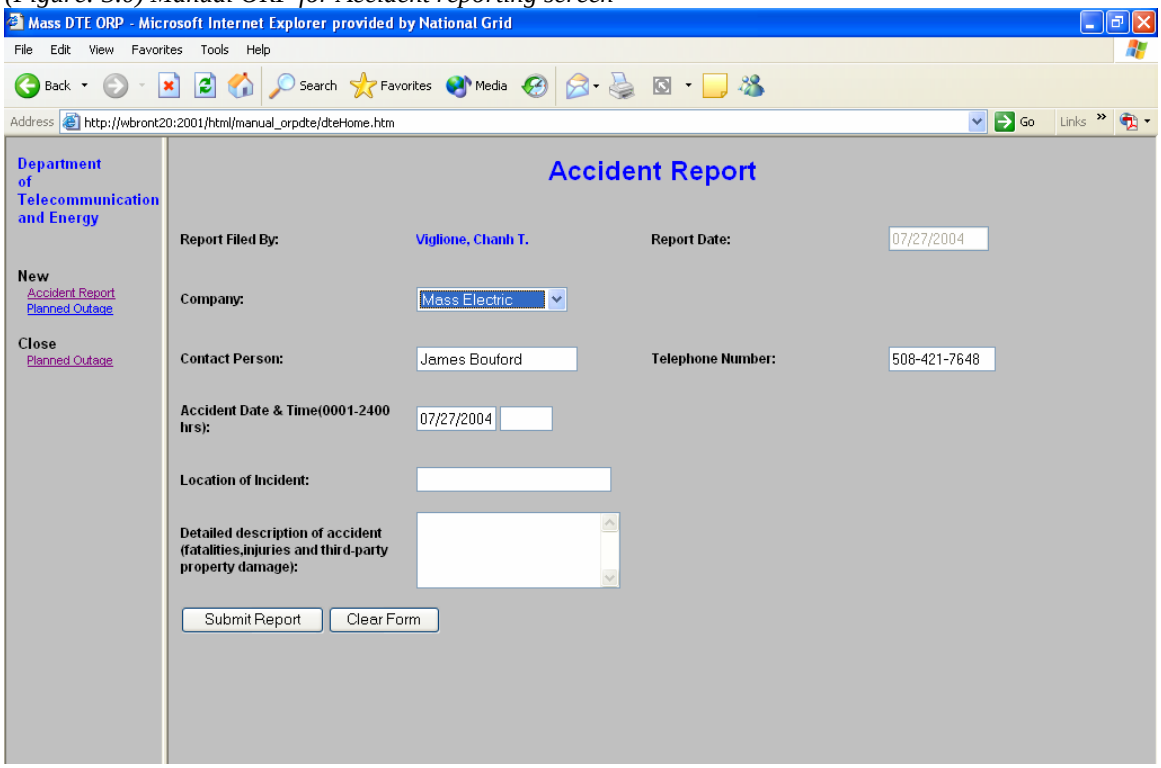
The DTE requires National Grid to report within 24 hours of the accident any event involving electricity that causes personal injury or death. On August 24, 2001, the Mass DTE implemented a revised outage reporting protocol ("ORP"), which allowed the companies to submit outage and accident reports through a website.

1. To create a new accident report:

**You need to be an IDS user in order to use the manual ORP application to fill out an accident report.*

When you select "Accident Report", the application will automatically fill in your name in the "Report Filed by" from the IDS user list.

(Figure: 3.0) Manual ORP for Accident reporting screen



Some of the values are populated by default and some are mandatory
I.e.: **Accident Date & Time**

Once data has been entered, hit the "Submit Report" button. The report will be sent to the Massachusetts DTE.

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

ATTACHMENT F

RHODE ISLAND ACCIDENT REPORTING FORM

STATE OF RHODE ISLAND
DEPARTMENT OF BUSINESS REGULATION
OFFICE OF
PUBLIC UTILITY COMMISSION
ACCIDENT REPORT

(Date of Report)

A

(Name of Utility)

REPORT OF ACCIDENT at ..... (Designate portion of plant, or street and number if not on utility property) (City or Town)

on ..... (Date) Time .....

CLASSES OF PERSONS	KILLED	INJURED
Employees on duty:		
(d) Power Station employees		
(dd) Employees gas plant		
(f) Employees gas dist. system		
(ff) Linemen		
(g) Other employees		
(h) Employees (all classes) not on duty		
(i) Highway travellers		
(ii) Other persons, not trespassing		
(j) Other persons, trespassing		
TOTAL		

*NATURE AND CAUSES OF AND CIRCUMSTANCES ATTENDING THIS ACCIDENT

Weather Condition at time of Accident.

(If more space is required, attach a plain sheet to the underside hereof)

**NAMES AND ADDRESSES OF PERSONS KILLED OR INJURED

(If more space is required, enter names on back of this sheet)

(Name and title of officer sending this report)

*If accident from gas inhalation, specify coal, water or mixed.

**Enter name and residence of each person killed or injured in this accident, entering first the killed and then the injured and using a line for each person. If an employee give occupation. In each item give the person's age, if known or readily ascertainable, or approximate age. State, in one sentence, following name, the extent of injury.

Attachment 7 - NG-USA EOP G009 Personal Injury Accident/Newsworthy Events Report

ATTACHMENT G

NHPUC Electric and Telephone Accident Reporting Form (E-5)

The State of New Hampshire
Public Utilities Commission
Concord, NH 03301

☐ Ten Day Report (1) ☐ Quarterly Report (2)

General Information

Report No: _____ Current Date: _____

Utility Name: _____

Date of Accident: _____

Location of Accident: _____

Did an Entire Substation lose service for more than 5 minutes? ☐ Yes ☐ No

Did an entire Telephone Exchange lose service for more than 15 minutes? ☐ Yes ☐ No

State Cause of Accident and Extent of Damage (3) . _____

Fatality/Injury Information

Name of Injured Person: _____

Injured Person's Relationship with Utility: _____

Nature and Extent of Injury (4) : _____

Did Accident Involve Electric Contact? ☐ Yes ☐ No Was Injury Fatal? ☐ Yes ☐ No

Date of Death: _____ Previous Report No. (if applicable): _____

Pole/Anchor Information

Was Pole Licensed?	☐ Yes	☐ No	
Was PoleProperly Located (5)	☐ Yes	☐ No	☐ Undetermined
Was Anchor Licensed?	☐ Yes	☐ No	
Was PoleProperly Located (5)?	☐ Yes	☐ No	☐ Undetermined

Signature: _____ Title: _____

(1) If "Ten Day Report" is checked, immediately or next day notification as defined by PUC 306.08 or PUC 405.06 is required, followed by this form being filed within 10 (ten) working days of the accident. A detailed report must then follow within 60 (sixty) calendar days of the accident.

(2) If "Quarterly Report" is checked, this form must be submitted at the end of the present quarter.

(3) Attach Diagram if necessary and also attach a police report if available.

(4) Attach Doctor's report if available. If death occures after this report is filed, that fact must be stated in a subsequent report.

(5) If "No", attach license and a diagram of the actual location versus the licensed location.

Revision - September 9, 1

ATTACHMENT H

STATE OF NEW HAMPSHIRE

PUBLIC UTILITIES COMMISSION
21 S. Fruit St., Suite 10
Concord, N.H. 03301-2429

TDD Access: Relay NH
1-800-735-2964

Tel. (603) 271-2431

FAX No. 271-3878

Website:
www.puc.nh.gov

Accident Notification Protocol Roster

Pursuant to PUC 306.06 (electric), 405.06 (telephone), 508.03 (gas), 608.03 (water), 707.03 (sewer), or 1105.05 (steam) the following is a list of commission staff contacts to be used for accident notification. Accidents should be reported per the contact order below for your specific industry. Once person-to-person contact has been made with one of the below listed individuals and required information is conveyed, or the procedure has been exhausted, notification is deemed complete.

Utility Engineers

Contact Name	For Calls Related to	Work Phone	Home Phone **	Cell Phone
Jody O'Marra	Telephone	(603) 271-6554	(603) 226-0942	
Douglas Brogan	Water, Sewer, Steam	(603) 271-6025	(603) 225-3508	
Chester Kokoszka	Gas, Electric Safety	(603) 271-6027	(603) 228-8589	(603) 235-2497
Tom Frantz	Electric Outage	(603) 271-6334	(603) 735-6490	

If unable to reach the Utility Engineer for your industry, contact:

Primary

Randy Knepper	(603) 271-6026 (office)	(603) 224-8122 (home)	(603) 235-5836 (work cell) (603) 568-0498 (home cell)

Secondary

Chester Kokoszka	(603) 271-6027 (office)	(603) 228-8589 (home)	(603) 235-2497 (work cell)

If unable to reach any of the above, or in the event of an Emergency or Electrical Contact if direct contact with one of the individuals listed above cannot be made during normal business hours please press 0 (zero) to be transferred to our reception desk or call the Commission's general phone number listed below. Identify that you are required to make direct contact with a person in order to get the message to the proper person as soon as possible.

If unable to reach any of the above outside of normal Commission hours, call the Commission's general phone number listed below and leave a voice mail message with required information.

- Commission normal working hours are Monday through Friday, 8:00 AM to 4:30 PM (EST).
- Commission General Phone number is (603) 271-2431.
- This roster is for external use only within your utility and none of these numbers are to be given to anyone except the appropriate utility contact(s) who will be responsible for making the notification calls.

**Home phone numbers are to be utilized for accidents requiring immediate notification only.

NHPUC Revised – February 2005

Attachment 8.a - Work Methods Bulletin #04-09 Underground Equipment Failure Analysis Program

Bulletin

Safety
Standards
Work Methods

Issued by Work Methods #04-09

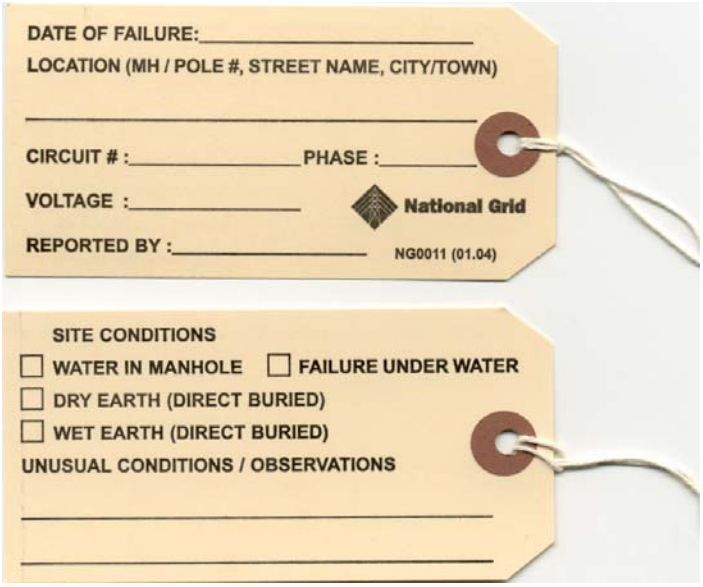
NY and NE

UG Equipment Failure Analysis Program

Delivery Engineering Services and the Worcester Laboratory have teamed up to develop a new program aimed at investigating underground equipment failures. Power cables and their accessories are relatively inaccessible and repair or replacement of cable systems can be expensive. By identifying the causes of failure, mitigating actions can be developed and implemented. The information from this program will also be used to identify material or design issues associated with the cable and accessories that National Grid USA is presently purchasing.

Underground cable, splices, or terminations that have failed in service or under test conditions should be sent to the Worcester Laboratory for analysis. If possible, the failure should be kept intact so that any clues to the cause of the failure are not disturbed. Once the root cause of the failure has been determined, a follow-up report will be issued to the reporting division explaining the cause of the failure and any recommended remedial actions. The laboratory will also maintain a failure database to identify any trends in locations / failures.

To assist the lab with the identification of the failed equipment, a new cable failure tag has been created. Field supervisors will be receiving the tag shortly. The tag should be filled out as completely and accurately as possible and attached to the piece of equipment that is being sent for analysis.



Send failed cable, splices & terminations to:

Massachusetts Electric Company
Worcester Engineering Laboratory
939 Southbridge Street
Worcester, MA 01609

01/10/2006 - TSG

National Grid

Attachment 8.b - Work Methods Bulletin #05-21 Underground Equipment Failure Analysis Program

Bulletin

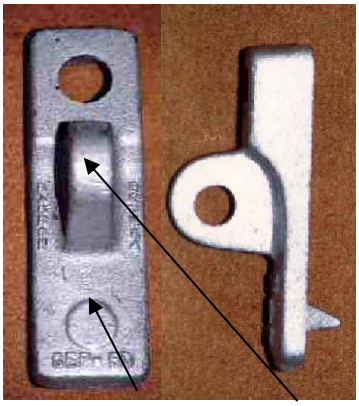
Issued by Work Methods #04-21

Safety
Standards
Work Methods

POLE EYE PLATE FOR GUYING

For one 6M, 10M & 12.5M guy, use:

ITEM ID 5994050
15,000 lbs Ultimate Strength



Drive the spur into the pole with a hammer blow at this point only.

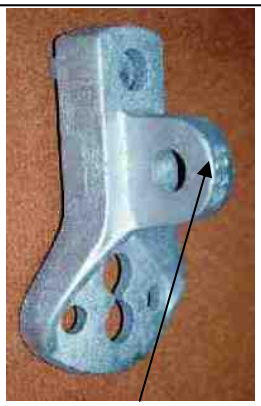
Do not hit eye with hammer

For one 16M or dual 6M or 10M guy (see Note 1), use:

ITEM ID 3503425
20,000 lbs Ultimate Strength

For dual 12.5M guy (see Note 1), use:

ITEM ID 9200396
28,000 lbs Ultimate Strength



Identifying part number 1258

In order to meet the strength requirements of standard guy wire, three pole eye plates will be utilized when fiberglass strain insulators need to be installed.

- For one 12.5M (previously referred to as 13M), 10M and 6M guy, use Item 5994050 with one ¾" thru bolt and 3" square curved washer. Drive the spur into the pole with a hammer blow below the eye. Never use a hammer blow on the eye as the plate may crack and/or split in two.
- For one 16M or dual 6M and 10M guy, use Item 3503425 with one ¾" thru bolt with 3" square curved washer and two ½" x 4" lag screws.
- For a dual 12.5M guy, use Item 9200396 with one ¾" thru bolt with 3" curved square washer and two ½" x 4" lag screws.

Note 1: **Dual guy means one guy strand installed around a fiberglass insulator roller creating two down guys with twice the holding strength of a single down guy.**

Note 2: **Per the National Electrical Safety Code, the maximum load on guys and attachments** shall not exceed 90% of their ultimate strength.

8/2/04 - JCT

National Grid

Attachment 8.c - Work Methods Bulletin #03-04 Heat Shrink Splice Failures

Bulletin

Issued by Standards #03-04

Safety
Standards
Work Methods

Heat Shrink Splice Failures

An increasing number of heat shrink splices are failing in service and during acceptance tests. Failure analysis revealed the following installation problems were common.

1. Incomplete shrinking of the tubes: Air voids between the tubes will cause electrical stress failures. Incomplete tube shrinking is the most common failure mode observed (see Figure 1). Smaller air voids are created when water drips onto the tube during the shrinking process. Cover your workspace as needed.

2. Poor conditions for splicing: The second most common cause found for heat shrink splice failure was water or foreign material in the joint. Maintain a clean work space in the manhole. Water, grease, dirt or debris will cause a splice to fail. Before putting on the tubes, thoroughly clean the cable. Leave the tubes in their plastic covers even on the cable.

3. Cable end preparation: The semicon cutbacks must be smooth and the insulation surface thoroughly cleaned. A jagged semicon cutback is an electrical stress point which will eventually fail. When semicon material is not cleaned from the insulation, tracking will occur along the insulation surface causing the splice to fail (see Figure 2).

4. Neutral connections: Bonding connections must be solid. Oversized connectors, wrong tools and too little pressure led to bad crimps in many splices investigated. Use the correct connector and crimping tools.

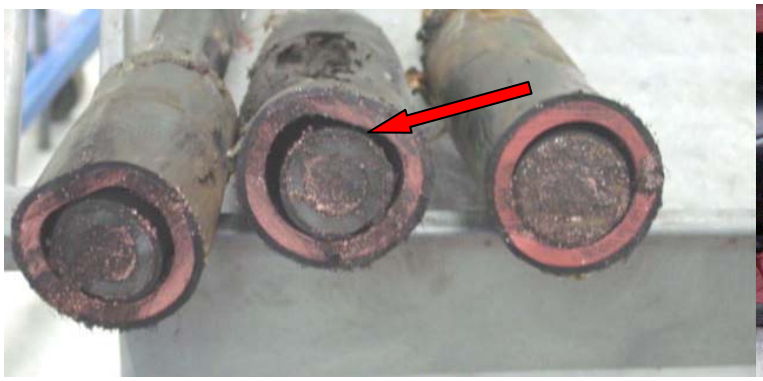


Figure 1: Voids between tubes

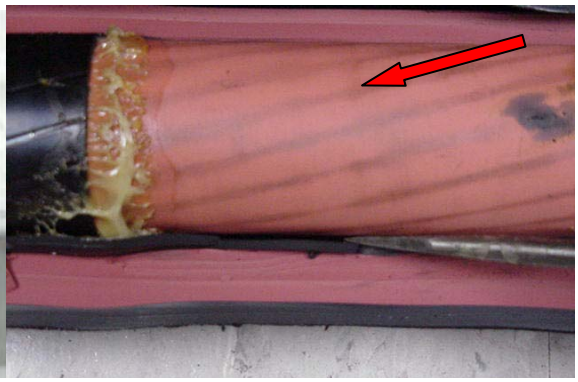


Figure 2: Semicon material

4/10/03 PRG

National Grid

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service Commission held in the City of New York on December 15, 2004

COMMISSIONERS PRESENT:

William M. Flynn, Chairman
Thomas J. Dunleavy
Leonard A. Weiss
Neal N. Galvin

CASE 04-M-0159 – Proceeding on Motion of the Commission to Examine the Safety of Electric Transmission and Distribution Systems.

ORDER INSTITUTING SAFETY STANDARDS

(Issued and Effective January 5, 2005)

BY THE COMMISSION:

In the aftermath of the tragic death of a New York City resident in January 2004, we began an investigation into Consolidated Edison Company of New York, Inc.'s (Con Edison) procedures to ensure the public's safety from its electrical facilities.[1] Although the proceeding was commenced specifically to examine the safety of Con Edison's electric system, the information gathered as part of our investigation demonstrates that stray voltage concerns are not limited to Con Edison's service territory, they encompass electric facilities in operation throughout the State. Therefore, in July 2004, we broadened the scope of the proceeding to consider the need for and

[1] Case 04-M-0159, Proceeding on Motion of the Commission to Examine the Safety of Consolidated Edison Company of New York, Inc.'s Electric Transmission and Distribution Systems, Order Instituting Proceeding, Requiring Additional Testing and Any Necessary Repair and Report on Status of Electric System (issued February 11, 2004).

appropriateness of state-wide measures to address situations related to stray voltage and other potential electrocution risks to the public.[2]

We then issued a Notice Soliciting Comments seeking input on proposed measures the electric utilities, both investor-owned and municipal, should take to minimize the potential exposure of the public to stray voltage conditions.[3] The Notice included a series of general questions and a set of proposed safety standards developed by Department of Public Service Staff (Staff Proposal). Additionally, notice of the proposed rulemaking was published in the State Register on August 18, 2004, in accordance with State Administrative Procedure Act §202(1). We received comments from 16 interested parties.

The State Legislature has granted us plenary power in Articles 1 and 4 of the Public Service Law (PSL) to regulate utility safety, including the authority to impose safety-related requirements. These requirements replace and supersede any similar efforts taken on a localized basis.[4] Pursuant to this general and comprehensive authority, we are adopting a set of state-wide safety standards that will apply to all electric utilities subject to our jurisdiction. The safety standards are described in Appendix A. They include: (1) annual stray voltage testing of utility electric facilities accessible to the public**,** using qualified voltage detection devices; (2) inspections of utility electric facilities on a minimum of a five-year cycle; (3) recordkeeping, certification, and reporting requirements; and (4) adoption of the National Electric Safety Code (NESC) as the minimum standard governing utility construction, maintenance, and operations. The standards require that where a utility finds stray voltage, it must immediately make the facility safe and repair it within a short time period thereafter. We are also adopting a performance mechanism to ensure that the utilities maintain proper focus on safety and compliance with these safety standards.

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[2] Case 04-M-0159, supra, Order on Staff Proposal (issued July 30, 2004), p. 7.

[3] Case 04-M-0159, supra, Notice Soliciting Comments (issued July 30, 2004).

[4] The legality of those prior localized efforts is questionable but need not and will not be addressed in this Order.

Definitional Issues

The safety standards apply to all investor-owned and municipal electric corporations subject to our jurisdiction that own and/or operate transmission or distribution facilities, whether fully or lightly regulated. As appropriate, the safety standards also apply to the corporations subject to our jurisdiction that own and/or operate electric generating facilities within the State, whether fully or lightly regulated. As used in this Order, the terms "electric utilities" and "utilities" refer to all of these corporations.

The term "electric facilities" means and refers to any electric plant, as that term is defined in PSL §2(12), that is used to modulate, transmit, and/or distribute electricity, or is related to its modulation, transmission, and/or distribution. The term "overhead facilities" generally includes the electric facilities that are part of a utility's overhead distribution system (e.g., the system that serves rural areas and includes towers, poles, and aerial cable and conductors). The term "underground facilities" generally includes the electric facilities that are part of a utility's underground distribution system (e.g., the system that serves urban areas and includes manholes, service boxes, and underground cable and conductors).

Some parties express concern that the term "stray voltage" does not properly describe the situation our safety standards primarily address. For example, Central Hudson Gas & Electric Corporation (Central Hudson) suggests that the term "stray voltage" is not precise because it also refers to naturally occurring phenomena; it suggests that we use the term "errant voltage," instead. Central Hudson is correct that in different contexts the term "stray voltage" can have different meanings. In this proceeding we have consistently used that term to mean voltage conditions on electric facilities that should not ordinarily exist. These conditions may be due to one or more factors, including, but not limited to, damaged cables, deteriorated, frayed or missing insulation, improper maintenance, or improper installation. The public has also understood the term to have this meaning as it relates to the matters discussed in this Order. Therefore, the concerns are noted, but we will continue to use the term "stray voltage" to refer to the condition addressed by the safety standards.

In a number of instances, the safety standards make reference to streetlights and traffic signal poles and devices. As used in this Order, the term "streetlights" means and includes utility-owned streetlights and municipal-owned streetlights located on, along, or adjacent to public thoroughfares and areas and traffic signal poles and devices to which a utility provides direct service. It does not include privately-owned light fixtures, such as those located in private parking lots.

Implementation of Safety Standards

General Comments

Virtually all of the parties acknowledged the importance of safety and support the overall goal behind the safety standards. The parties disagreed, however, on the content and breadth of the safety standards and offered various alternatives.

Con Edison supports adoption of electric safety testing, inspection, and reporting standards. Central Hudson, New York State Electric & Gas Corporation (NYSEG), Niagara Mohawk Power Corporation (Niagara Mohawk), Orange and Rockland Utilities, Inc. (O&R), Pennsylvania Electric Company (Penelec), and Rochester Gas & Electric Corporation (RG&E) suggest alternate programs that, they say, are entirely consistent with our objective of promoting public safety, compatible with the engineering design of the companies' systems, and less costly to customers. O&R seeks clarification of the standards, relief from unnecessary and overly broad requirements, and consideration of a proactive and symmetrical enforcement program. Con Edison and O&R describe the standard setting process as a dynamic work in progress, with possible additional review after obtaining the benefit of more information, experience, and improved technologies.

Central Hudson, Niagara Mohawk, NYSEG, and RG&E propose a set of principles to guide safety standards. They request that we consider these principles in our determination of this matter. These principles provide that any testing and inspection standards should: (1) contribute to safety; (2) consider differences in utility systems, type of facilities used (i.e., overhead and underground), and population densities (urban, suburban, and rural); (3) focus on electric facilities identified as presenting the greatest potential exposure to the public, based on type, location and public access, and recognize

that the majority of electric utility infrastructure is designed to incorporate devices and schemes for public and system protection; (4) provide consistency with the NESC requirements for testing, inspection, and maintenance of electric equipment at such intervals as experience has shown to be necessary; (5) consider cost effectiveness to ensure costs of the safety program are commensurate with added safety or reliability; and (6) provide that utility responsibility for testing and inspection extends only to its facilities and not to facilities owned by others. These utilities also assert that establishing rate adjustments for failure to meet test and inspection targets is unnecessary, duplicates reliability standards, and contributes to higher costs without improving safety, and that they should be permitted to recover, or defer for later recovery, all incremental costs related to additional requirements imposed by the safety standards. They estimate that the state-wide cost to implement the Staff Proposal would be approximately $100,000,000 annually.

Each utility provides the details of the safety testing and inspection programs it conducts and disputes the underlying rationale stated in the Staff Proposal and our July 30 Order for establishing standards.[5] That is, the utilities disagree with the proposition that certain electric corporations did not engage in any voltage testing and are not properly focused on providing safe service.

Central Hudson, NYSEG, and RG&E acknowledge their responsibility under PSL §65(1) to furnish safe and adequate service. Their preference is to enter into a constructive technical dialogue to develop improvements in the standards to serve the public interest in a cost-effective program. Central Hudson claims that following the

[5] NYSEG and RG&E specifically request a correction of the record to acknowledge that they disclosed plans to conduct testing in a March 11, 2004 letter to Staff. No changes to the record are required. The letter stated, among other things, that the companies are planning a pilot incorporating new practices into their existing procedures, but it did not provide any time frame for their plans. The companies state that the lack of a Staff response to the letter indicated Staff's acceptance of their proposal. The companies are cautioned not to generally interpret lack of a response to a letter as an indication of assent, and in this case should not have so interpreted Staff's silence.

incident in New York City, it reviewed its construction and inspection practices to determine if its facilities were subject to the same risks of stray voltage as identified by Con Edison. It concluded that its facilities are not likely to experience the same conditions and that its inspection program should be adequate in identifying unsafe conditions. While it identified a number of streetlights to which it provides service, it did not perform any stray voltage testing on them.

Niagara Mohawk notes that much of its system is overhead and located in rural areas, which it claims limits public access and opportunities for public contact. It maintains that potential exposure is confined to a small subset of the company's facilities (0.1% of company facilities), and, where risk exists, the probability of experiencing stray voltage is very small. It therefore proposes an alternative program for its service territory that reflects geographic and economic constraints. The program would: (1) focus on reliability and safety and but not mandate inspections, which the company claims accrue a high cost and do not fix anything; (2) include a performance-based ratemaking scheme with positive incentives for good performance; (3) exclude application of the safety standards to its transmission system, which it reports are generally located on company owned or private rights-of-way with limited public access, and to its distribution facilities located in remote or lightly populated areas; and (4) provide for visual inspection of overhead transmission and distribution facilities on a five-year cycle. The company believes that this program will provide similar public safety benefits, provide greater reliability to its customers, and result in more efficient use of its resources.

The company maintains that a thorough visual inspection can identify the need for repairs, and, as its system ages, a program of this nature is important to make informed decisions about improvements. It states that proposed stray voltage tests are a redundant measure. Considering the geographical and physical restrictions Niagara Mohawk claims limit public access to its overhead facilities, and the efficacy of its inspection programs, the company believes that an increase in public safety from a testing program is negligible. However, the company commits to checking for stray voltage at all work sites, and to performing remedial action, as necessary, to eliminate any stray voltage found before leaving the site. Given this proposal, the company does not believe

imposition of a whole new regime of incremental testing and inspection is warranted. It argues that non-discriminate application of state-wide standards may detract resources from infrastructure improvements.

NYSEG and RG&E jointly submitted comments in which they describe the actions they propose to take to test and inspect facilities for stray voltage. The companies maintain that greater benefit to the public safety will result if they, in cooperation with Staff, develop testing and inspection programs that are specific to their operations and experiences. They state that the proposed generic approach does not achieve maximum public benefit, although some aspects of the Staff Proposal are suitable for state-wide uniformity. The companies state that Staff did not justify or provide a rationale for the Staff Proposal, and that Staff should have provided its analysis and evaluation to the companies.

NYSEG/RG&E's program would concentrate on low voltage equipment, which, they claim, poses a greater potential risk to the public because the design, construction and operation of high voltage equipment tends to minimize its probability as a source of shocks. They also point out that testing provides only a snapshot of the voltage level at the time of the test because variable conditions may change test results. The companies recommend limiting the testing and inspection program to facilities that are publicly accessible (i.e., metallic street light poles, switchgear, pad-mounted transformers, distribution pedestals, and handhold covers, which they collectively refer to as "priority facilities"), and incorporating it into existing programs with testing on an agreed upon cycle, instead of the annual testing program.

They also recommend use of the pilot program results to design company-wide testing and inspection programs. They expect the pilot to provide a more accurate indication of the extent of stray voltage on the companies' facilities.

Similar to the other utilities' arguments, Penelec urges that we promote reasonable measures that balance costs and benefits, recognize differences in operations and operating territory, and ensure cost recovery. The company submits that there is no supporting justification in the Staff Proposal for the extreme level of mandatory testing and inspection standards which tend to micromanage the utility's operations and fail to

strike the proper balance between costs and benefits. It claims that routine testing is not necessary to maintain safety, and requests that we do not adopt measures that would micromanage its responsibility to provide safe and adequate service.

The New York Municipal Power Agency (NYMPA) claims that its member municipal systems are very small, unlike the systems of the investor-owned utilities, and should not be subject to the same requirements. Its members can agree to conduct an initial round of testing but propose to do so in 18 months. NYMPA claims that its members' safety records demonstrate that a more aggressive schedule is unnecessary and that the 18-month schedule would allow its members to avoid adverse impacts on their operations and significant increased costs. It recommends postponement of subsequent testing requirements and the development of an inspection program until the initial round of testing is completed and the results analyzed.

NYMPA claims that its member systems already conduct extensive monitoring and inspections, and that such efforts are supplemented by reports received from other municipal employees. As a result, it claims, the members' day-to-day knowledge of their systems is far greater than that of the investor-owned utilities. This heightened awareness also results, according to NYMPA, in no occurrence of a safety, or a stray voltage, incident on any of its members' systems. Specific to the stray voltage issue, NYMPA claims that its members have remediated stray voltage concerns in agricultural settings for decades.

Eight municipal electric utilities jointly filed comments that strongly support our goal of ensuring the public's safety from stray voltage.[6] Like NYMPA, the NY Municipals claim that they have not experienced any of the problems of the type that caused us to commence and expand the scope of this proceeding. They urge us to proceed on a cost effective basis and balance the level of risk involved with the extent of

[6] These utilities, which filed joint comments, include the Villages of Bergen, Rockville Centre and Sherburne, Freeport Electric Department, Green Island Power Authority, Greenport Municipal Utilities, and City of Jamestown and Salamanca Boards of Public Utilities (the NY Municipals).

the requirements, focusing on the facilities that pose the greatest potential risk (e.g., metallic streetlights, manhole covers, and service boxes). The NY Municipals also request 18 months to complete the initial round of testing and authority to incorporate testing and inspection requirements into their maintenance practices.

The New York State Consumer Protection Board (CPB) fully supports the proposed safety standards and urges us to implement them on a state-wide basis. It believes the standards are an important step in minimizing the public's exposure to stray voltage and generally ensuring the safety of the utilities' electric systems.

The City of New York (City) supports the proposed safety standards, in particular, the provisions relating to streetlights, no currents and the use of temporary shunts, and believes that the safety standards will help ensure the safety of Con Edison's electric system.[7] The City interprets the safety standards as incremental to Con Edison's current maintenance obligations and seeks assurances that the standards will not diminish or detract from the company's current responsibilities.

The Public Utility Law Project of New York, Inc. (PULP) supports implementation of safety standards.

Local 1-2, Utility Workers Union of America, and Locals 83, 97, and 503, International Brotherhood of Electrical Workers (the Unions) collectively submitted comments. They support the implementation of safety standards and our overall effort to improve the safety of utility facilities. They believe that enforcement of the standards is as important as enactment of the standards. They express concern that the utilities are not placing enough focus on their infrastructure and that the safety standards will likely influence the utilities to concentrate on maintaining their systems.

[7] The City offers a number of comments and recommendations that appear to be focused solely on Con Edison's system. We will therefore consider the City's recommendations as applying only to Con Edison, not state-wide.

Roger Lane states that he and his family support the implementation of safety standards to prevent other tragic incidents.[8]

Discussion

Ensuring the safe operation of the state-wide electric system is one of our most important roles and responsibilities. Based on the information before us, we find that, while the electric system cannot be considered unsafe, the utilities can and should do more to monitor their electric facilities and protect the safety of the public from their facilities. Contrary to the utilities' assertions, the safety standards we are adopting are not unnecessary or overbroad.

While there are certainly costs associated with maintaining a safe electric system, there can be tremendous costs—economic, societal, physical, and emotional—associated with failing to properly monitor and maintain the system. Therefore, on balance we do not consider the costs associated with the safety standards to be unreasonable, unfair, or an inappropriate burden to place on the utilities and their ratepayers.

The record and facts before us are sufficient to demonstrate that testing and inspections are warranted and should assist in identifying, preventing, and repairing conditions that present, or could present, hazards to the public. They should also assist in maintaining, if not enhancing, the reliability of the utilities' electric systems by finding and correcting problems before they cause deleterious consequences.

Because only Con Edison has performed widespread testing of its electric system, sufficient information on the condition of the other utilities' systems is needed. Therefore, it is premature and potentially arbitrary to draw distinctions between service territories or types of facilities, as the upstate utilities propose. It is also inappropriate, based on the record before us, to conclude that different standards should apply to different communities or that people living in rural areas are not entitled to the same level

[8] Mr. Lane is the father of Jodie Lane, the Manhattan pedestrian who was tragically killed when she came into contact with an electrified service box cover and whose death caused us to commence this proceeding.

of focus as people living in urban areas. Once we have a sufficient quantity of data, we may find that modifications to the standards, that maintain the same level of protection for all New Yorkers, are appropriate. For now, though, we will establish uniform, state-wide safety standards, not separate standards tailored to each utility's particular characteristics.

While we are instituting a uniform set of safety standards, no one should interpret them as altogether new requirements. The utilities are required by PSL §65(1) to provide safe and adequate service and to safely maintain their systems. As part of these responsibilities, the utilities already conduct programs to protect against stray voltage and inspect their facilities. In the prudent operation of their businesses, they should be routinely monitoring and tracking the condition of their facilities. It is not our intent to duplicate or supplant existing programs; the safety standards should be incorporated into those existing programs, and where the utilities are already performing the same tasks and appropriately documenting their activities, no additional actions are required. Also, within the parameters we are establishing, the utilities will have flexibility to decide how to implement the safety standards and operate their companies.

Finally, we reject NYSEG/RG&E's contention that Staff was required or obligated to justify its proposal or provide its analysis to the utilities. In this matter, Staff is acting in an advisory capacity to us; accordingly, Staff's analysis was not subject to disclosure to the parties. Moreover, there is no legal requirement that Staff provide to utilities the basis for its proposals and recommendations to us.

Stray Voltage Testing

Staff recommends that the utilities conduct stray voltage testing on all electrical facilities accessible to the public, regardless of whether they are served by underground or overhead systems. These facilities include, but are not limited to, manholes, service boxes, transformer vaults, pad-mounted transformers, poles (all metallic poles and wooden poles with a riser, ground, or guy wire); customer meters are not included. While substation equipment need not be tested, metallic fencing that surrounds substations could conduct electricity and pose a safety risk and should be tested. Staff proposes that initial testing be completed within six months of the date of

this Order, with additional testing occurring annually thereafter. Staff further proposes that utilities may petition for future modification of the annual testing requirement, except in New York City, after a baseline is established and based on good cause shown.

Central Hudson opposes Staff's recommendation for stray voltage testing and instead recommends adoption of its alternate program. The company contends that because Staff did not perform a cost-benefit analysis or provide a rationale for requiring testing outside New York City, is not appropriate to impose any testing requirement elsewhere in the State. As to immediately testing its facilities, the company is concerned that the quality of the testing data would be low and would not provide useful information.

Con Edison states that it completed its initial round of stray voltage testing last spring and that it will complete its second round of testing on its underground facilities and all streetlights located in New York City by the end of 2004. It states that it will test the other facilities, such as grounds or guy wires on wooden poles, within six months of the date of this Order. The company states that it will begin a November to November annual test cycle commencing November 2005.

Con Edison and O&R suggest that the scope of testing be clarified to encompass only utility-owned electrical facilities, exclude customer-owned facilities, and cover risers, grounds, or guy wires on wooden poles rather than the poles, themselves.

Niagara Mohawk believes testing of risers, grounds, and guy wires is unnecessary because those facilities are included in the company's visual inspection program. Testing of underground facilities are also not necessary, it continues, because the company limits the use of temporary repairs and inspects the facilities when work is performed on or in them. It opposes the initial six-month testing requirement due to weather, manpower, and cost reasons.

NYSEG/RG&E also oppose Staff's recommendation for stray voltage testing and instead recommends adoption of their alternate program. They assert that there is no need to test their high voltage facilities because such facilities do not normally cause stray voltage. Instead, they suggest focusing the testing on low voltage facilities.

Contrasting the size, diversity, and composition of their systems and experiences with stray voltage to Con Edison's, they do not believe conducting an initial round of testing within six months is necessary. Due to the size of their service territories, they do not believe they could complete the testing within that time frame. Further, to the extent testing is required, it should be limited to certain facilities.

The companies approach annual testing from the opposite perspective as Staff and other parties. They do not accept that testing could contribute to safety and contend that there must be a demonstration that annual testing will enhance safety before it should be required. They also propose to continue their pilot testing programs and request that we defer implementation of the safety standards until after we review the results from those programs.

O&R reports that the results of its 2004 testing and inspection efforts indicate that only aluminum street light poles exhibited signs of stray voltage and warrant annual full system testing. Based on these results and the design of its system, it does not believe annual testing is necessary. Rather, it proposes to implement an annual testing and inspection program for all aluminum street light poles, limited scope testing for stray voltage on guy wires and ground wires, and two percent sample testing of other electrical facilities susceptible to stray voltage. O&R also states that NESC grounding requirements may result in voltages that should not be interpreted as stray voltage problems. The company requests an exemption for facilities tested in 2004 and an 18-month period to complete stray voltage testing on its remaining facilities.

Penelec contends that annual testing is not reasonable, and that it could not comply with the six-month initial testing period set forth in the Staff Proposal. However, the company could incorporate a reasonable additional level of testing of equipment most likely to pose a hazard into its inspection practices.

The City proposes that we expand the scope of the testing program to all electric facilities, including those that are not accessible to the public. It contends that all electric facilities could pose a public danger and therefore should be tested.

The Unions request that we review the testing performed to date and examine whether it was performed by qualified personnel. If not, the Unions continue, it does not constitute adequate initial testing and should be redone. While the Unions prefer annual testing thereafter, they recognize that alternate cycles may be appropriate but urge that any request to change the test cycle be subject to public comment.

Discussion

Voltage testing is the most direct means of determining whether stray voltage is present and to what extent it exists in electric facilities across the State. Staff recommends a proactive, annual voltage testing program that includes only the facilities that are accessible to the general public. While the utilities contend the Staff Proposal is too broad, the City argues that it is not broad enough. We reject both contentions.

The utilities contend that, based on the testing performed to date across the State, the incidence of stray voltage on overhead facilities is far lower than on underground systems and that there is less risk associated with the overhead facilities. For example, Niagara Mohawk and O&R report that sample testing they performed on overhead facilities did not reveal any stray voltage conditions. Based on these arguments, they assert that annual testing of facilities in rural areas is unnecessary.

While we do not dispute these results, the quantity of facilities tested was relatively small and possibly not fully indicative of the condition of the utilities' entire systems. In contrast, Con Edison did detect stray voltage conditions on some overhead facilities. Our records also demonstrate that we have received several shock incident reports involving overhead facilities.

Niagara Mohawk's claim that testing is unnecessary because of its maintenance and inspection practices is not persuasive. Visual inspections cannot detect stray voltage on risers or guy wires, and the company's lack of a specific inspection program for underground facilities indicates that a stray voltage problem could remain in existence for an extended period of time without being detected. Also, the company does use temporary repairs, which can lead to stray voltage conditions.

The record before us demonstrates that we do not have enough information to draw a general conclusion that the risks from overhead versus underground facilities are so different as to warrant different testing cycles. While we acknowledge that the greatest risk is in densely populated areas with high pedestrian traffic, we do not have sufficient information to quantify the risks in medium or low density areas or to conclude that there are no risks in such areas. For these reasons, we will not accept Central Hudson's conclusion that there are no stray voltage concerns outside New York City and that state-wide testing is unnecessary.[9]

We reject the contention that transmission facilities located on company-owned or private rights-of-ways are not accessible to the public and need not be tested. Ownership of land does not constitute a reasonable barrier to public access, and even a cursory examination of the location of transmission facilities across the State reveals that they exist in close proximity to residential houses, businesses, and land open to the public (e.g., parks, hiking trails). We agree with Con Edison's and O&R's proposed clarification. Testing should occur on the facilities that may conduct electricity, not on the wood poles to which they are attached.

It is not necessary or appropriate to test all electric facilities. For example, it is neither practical nor productive to test underground or aerial cables for stray voltage. Since the purpose of our safety standards is to protect the general public, it is not necessary to test facilities that are not accessible to the public.

Annual voltage testing of all overhead and underground electric facilities that are accessible to the public, regardless of whether they are located in urban, suburban, or rural areas, is reasonable and provides the most protection to the public. We therefore adopt the voltage testing program that Staff proposes. Once we have better and more complete data on the results of utility-wide testing, we will revisit this issue to determine if different testing cycles are appropriate in certain areas or for certain types of facilities.

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[9] Central Hudson's concerns about the absence of a cost-benefit analysis or rationale for the safety standards are addressed above.

We recognize that it may take the utilities some time to ramp up their testing efforts and that seasonal variations in weather may impede testing of all facilities within the next six months. Further, we do not see any reason to differentiate between the initial and subsequent rounds of testing and will not do so. Each utility shall test its publicly accessible facilities at least annually, starting January 2005. Requests for exemption from the testing requirement for testing performed during 2004 are denied. Because the utilities must test their facilities annually, testing conducted in 2004 will not satisfy the testing requirement for 2005.

Given our decision, we need not consider whether and to what extent prior testing should be considered as "initial testing." However, the Unions raise a valid concern relating to the qualifications of the employees and contractors who perform the testing. While we will not set minimum qualifications or review the qualification of particular individuals, the utilities are expected to properly train their personnel on all aspects related to testing.

Finally, we recognize that utilities regularly visit their facilities for many purposes. We encourage them to integrate stray voltage testing into this work to avoid duplication of effort and the incurrence of unnecessary costs.

Inspections

Staff recommends that every utility develop and implement a formal inspection program that applies to all transmission and distribution facilities, except customer meters, and provides for the inspection of each facility at least once every five years. It proposes that the inspections be conducted as part of routine maintenance activities, and that they must be properly documented and certified.

Central Hudson opposes the Staff's recommendation for stray voltage testing and instead recommends adoption of its alternate program. Niagara Mohawk states that it visually inspects its overhead facilities every five years but has no specific inspection program for underground facilities. It therefore supports a five-year inspection cycle for overhead facilities but recommends that inspections of underground facilities be limited to observing the ground conditions above the facilities; it does not consider

opening and inspecting manholes, service boxes, or other types of facilities to be useful or cost-effective.

Con Edison and O&R recommend that we emphasize the safety purpose of the inspection program and limit the scope of the inspections to facilities that are accessible to the public. Con Edison agrees that a five-year inspection cycle is reasonable but considers it a challenging goal. It requests that we clarify that the utilities may conduct inspections in conjunction with ongoing work.

NYSEG/RG&E offer the same comments and recommendations for inspections as they do for testing. O&R generally supports the use of inspections but notes that it will require a robust and accessible information system for documentation. It recommends that we establish the inspection cycles based on reliability-centered maintenance principles, statistical sampling, and risk assessment. Applying these principles, the company proposes a 15-year inspection cycle with a mid-point evaluation check.

Penelec reports that it performs circuit by circuit distribution inspections of its equipment on a five-year cycle. The NY Municipals request that they be exempt from any requirement to conduct inspections.

The City proposes that Con Edison coordinate its inspections with the City to reduce the frequency of street openings. It also recommends that inspections be conducted annually, instead of on a five-year cycle, due to what it characterizes as a high and widespread incidence of stray voltage conditions identified over the past six or so months.

The Unions believe further definition of what constitutes an inspection is needed. They contend there is a difference between cursory visual inspections and detailed inspections. They also recommend that underground systems be inspected on a three-year cycle rather than a five-year cycle. They also urge that we require the utilities to address all hazardous conditions found during inspections, not just conditions that may cause stray voltage.

Discussion

Utilities should be taking proactive steps to prevent stray voltage and not just reacting to stray voltage conditions found as a result of voltage testing. One of these proactive steps is to conduct periodic inspections of electric facilities. As some commenters have observed, testing will provide the condition of a facility only as of the point in time the testing occurred. Inspections, however, provide opportunities to carefully examine the condition of facilities and are more likely to result in identification and elimination of conditions, such as deteriorated or missing insulation, that may lead to stray voltage conditions or other problems affecting safety or reliability. For this reason, we find no basis to exempt the municipal electric utilities from the inspection requirements.

The utilities conduct inspections of varying types and to varying degrees as part of their routine maintenance programs. Given this fact, we will not be dissuaded by their objections to the inspection element of the safety standards. Moreover, incorporation of the inspection requirement into existing work practices and maintenance programs will minimize costs and avoid significant operational changes. We reject Con Edison's and O&R's proposal to limit the scope of the inspections to publicly accessible facilities and Niagara Mohawk's proposal to limit inspections to overhead facilities and the ground above underground facilities. Because the inspections will serve to ensure the safety of the public and the continued safe and reliable operation of the utilities' electric systems, it is not appropriate to limit their scope in the same way as the scope of the testing program. We therefore adopt the inspection program Staff proposes.

With respect to the cycle for the inspections, many utilities currently use a five-year inspection cycle. For the reasons set forth in our July 30 Order, we find no reason to adopt a longer cycle. Shortening the inspection cycle is not likely to further improve safety because deterioration of facilities takes time. Also, some of the upstate utilities have expansive service territories and a significantly large number of facilities and may therefore have difficulty in completing the inspections in three years, as the Unions propose. Further, while Con Edison's recent testing identified a large number of

locations where stray voltage was found, we do not consider that initial round of testing as forming a reasonable basis for requiring more frequent inspections.[10]

Therefore, we adopt Staff's recommendation that every utility develop and implement an inspection program in which every electric facility is inspected at least once every five years. Additionally, and as appropriate, the utilities should continue to inspect certain facilities on a shorter cycle where premature deterioration is found, above-average instances of stray voltage are detected, or for other reasons.

Some parties seek clarification as to what constitutes an inspection for purposes of these safety standards. We define an inspection for this purpose as a visual examination of towers, poles, guy wires, risers, overhead cables and conductors, transformers, breakers, switches, and other aboveground equipment and facilities, and of the interior of manholes, service boxes, vaults, and other underground structures.[11] Inspection of equipment should be performed in a manner that allows the inspector to examine its components, except those that are ordinarily encased in sealed compartments. We do not expect the utilities to perform destructive testing as part of this inspection program, except as otherwise required by their more intensive inspection procedures. This inspection requirement is intended to complement, not supplant, the inspections any utility already performs. To the extent a utility's inspection program is broader or more intensive than the program described herein, the utility should continue to follow its own program.

When a visual inspection indicates the need for a more intensive examination, the utilities shall perform infrared testing and/or other inspection procedures. When an inspection reveals a hazardous condition or other problem, whether related to stray voltage or otherwise, the utility must make all repairs necessary to

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[10] It should be noted that in each instance where stray voltage was found, the facility was immediately made safe.

[11] Where debris or water is found in the structure, it must removed before commencing the inspection so that all of the facilities in the structure, and the structure itself, may be fully inspected.

eliminate the condition. While it is not our intent to be prescriptive in detailing the inspection requirements because there is no "best" inspection practice, the utilities are encouraged to discuss their programs and inspection results with each other and Staff in order to develop best practices, to the extent possible, over time.[12] For example, Central Hudson describes an inspection program that would meet our expectations and could be used as a model by other utilities.

Finally, we agree that Con Edison, and all utilities, should coordinate street opening and other activities that affect traffic with municipalities. However, mandating such coordination as a component of the safety standards is not necessary.

Corrective Actions Required

In the event stray voltage is detected during testing or an inspection, Staff proposes that the utility guard the facility until the condition is made safe. In cases where utility-owned facilities are determined to be the cause of the stray voltage conditions, the utility should be required to make permanent repairs within 45 days.

Con Edison and O&R agree with the Staff Proposal but request a modification that permits utilities to maintain temporary repairs, with periodic visits to the sites, when circumstances beyond their control or operating reasons prevent a permanent repair within 45 days. O&R points out that the Staff Proposal involves any stray voltage and that this is a more conservative and unrealistic threshold than the eight volt threshold application to the testing program.

Niagara Mohawk states that its current practice is consistent with the Staff Proposal.

[12] We recognize that each utility's work practices are somewhat different, and that the integration of the inspection program into each utility's practices and procedures will entail some variation. It is nevertheless possible that certain inspection techniques and methods could be considered commonly employed as best practices.

Discussion

The utilities' concerns are valid, and delays could occur anywhere in the State for reasons beyond their control. Therefore, we adopt a requirement that utilities make permanent repairs with 45 days, unless they demonstrate that external factors prevented them from meeting this deadline. Where permanent repairs cannot be made within 45 days, the utility shall make periodic site visits to ensure that the temporary repair is not deteriorating or becoming damaged and that the facility remains safe and free from stray voltage. The utilities shall describe and justify all claimed exceptions to this requirement in their annual reporting.

While we require the utilities to conduct the testing using an eight volt threshold, they are not excused from correcting any stray voltage conditions that are not due to naturally occurring causes or inherent to the proper functioning of the subject electric facility. For example, if during an inspection an inspector identifies a cable with damaged insulation but which is only emitting five volts, the utility must comply with these corrective action requirements. In contrast, if the inspector detects a minimal voltage level that is attributable to the design of the facility and not the result of an improper condition, no corrective action is needed.

Analysis of Causation

Some parties assert that the Staff Proposal does not go far enough, and that testing and inspecting electric facilities is not sufficient to properly address the stray voltage issue. They contend that the information obtained via these efforts must be analyzed and the factors that are causing stray voltage identified.

We agree. Testing and inspections are important to identify and correct hazardous, or potential hazardous, conditions, but they do not fully address the issue. We therefore direct the utilities to analyze the stray voltage conditions they encounter in order to determine if there are common causes of the conditions. To the extent common causes are identified, the utilities should ascertain the measures they could take to prevent future or recurring stray voltage incidents, including, but not limited to, changes in maintenance practices and construction procedures or modifications to facilities that are more prone to stray voltage conditions. The annual reports the utilities file related to the

safety standards shall include a discussion of the analyses undertaken, the conclusions drawn therefrom, the preventative and remedial measures identified, and the utilities' plans to implement those measures.[13]

Quality Assurance

Staff recommends that each utility be required to develop a quality assurance program to ensure timely and proper compliance with our safety standards.

Niagara Mohawk reports that it will develop a quality assurance program. O&R reports that it will manage its testing program to comply with the requirements. The City suggests that we approve the details of the utilities' quality assurance programs after an opportunity for public comment. The Unions propose that the utilities' compliance with the safety standards be subject to audit by third parties, as well as Staff.

Discussion

In order to ensure that the utilities fully comply with the safety standards and properly implement and conduct the testing and inspection programs, quality assurance programs are essential and shall be implemented. While the utilities have primary responsibility for ensuring their compliance with the standards, we direct Staff to monitor and audit the utilities' efforts. At this time, we anticipate that the combination of the utilities' quality assurance programs, the extensive reporting requirements, the performance mechanism, and Staff's involvement in the process will provide an appropriate level of oversight. Therefore, we do not find any reason to require third-party audits or another layer of review.

[13] Some utilities already conduct such analyses. For example, Con Edison has identified salt deposition as a primary cause of deterioration of its underground facilities and is conducting research and development on ways to address the salt issue. The company routinely reports on its ongoing analysis of and progress in this matter. Those reports should be merged with the reporting required herein, and, as appropriate, the company should expand its investigation of the causes of stray voltage on or emanating from its facilities.

Recordkeeping

Staff recommends that each utility develop procedures and protocols to track the stray voltage testing and inspection dates and results for each facility. These records should be kept in a manner that is readily accessible and searchable, continuously updated, and subject to review and audit.

Con Edison requests clarification of the extent of active management of the testing program to assure adherence to and recording of testing schedules. It points out that it does not maintain a searchable database for streetlights that it does not own. Niagara Mohawk states that it already utilizes a database to track its inspections. The company proposes to incorporate the testing information into this database. NYSEG/RG&E maintain that the proposed recordkeeping requirements are unduly burdensome and suggest requiring records only when stray voltage exceeding 10 volts is discovered and corrective action taken. O&R requests an 18-month grace period for meeting this requirement. Penelec proposes that records be maintained at the circuit level, with more detailed information maintained on an exception-only basis.

The City seeks clarification as to the contents of the records kept, recommending that they include the details on each piece of equipment tested and inspected, such as location, where on the equipment stray voltage was found, if at all, and the date the condition was repaired. Mr. Lane recommends that we require the utilities to track dates of testing and test results by location.

Discussion

Recordkeeping is an important aspect of the safety standards, given the numerous facilities involved. In addition to allowing careful tracking of progress, maintenance of complete and accurate records will make possible close monitoring of the condition of the utilities' facilities and assist in locating potential safety problems, developing maintenance enhancements, identifying the need for capital investments, and improving the reliability of the electric system.

An exception-based approach wherein only locations where stray voltage or other problems are identified are recorded would not provide adequate support of the number of facilities tested and inspected. Additionally, such an approach would not be

consistent with the tracking needed for the performance mechanism, the quality assurance programs, or audits.

The information provided by Central Hudson refutes the argument advanced by NYSEG/RG&E that maintaining detailed records would be too burdensome and demonstrates that there are commercially available software packages that can be used or adapted to meet the recordkeeping needs associated with the safety standards. Simply certifying that a circuit has been tested and inspected, as Penelec proposes, is not acceptable because it does not provide a sufficient level of detail of the company's actions and findings. While we will not specify the manner in which each utility must maintain its records for these efforts, we require that complete and auditable records be maintained.

Certifications

Staff recommends that each utility certify its annual compliance with the safety standards.

Con Edison and O&R interpret this requirement as permitting a manager to provide written certification for testing and inspections conducted by others. The companies recommend that we require filing of this certification by January 15 of each year. Con Edison requests that we specify that the certification may contain exceptions for untested facilities, provided that they are identified and justifications for noncompliance are included. Con Edison and O&R request that we require one day's notice for a request to review certifications and other documentation.

Niagara Mohawk recommends that we perform a cost-benefit analysis of this requirement and ensure that the costs to certify compliance do not exceed the benefits obtained. NYSEG/RG&E assert that certifications are not necessary for accountability or responsibility as safety is paramount at the companies and is demanded by management. They request that, if certifications are required and made available to the public, only persons with a valid purpose should have access. O&R requests that we clarify that the certification may rely upon the certifier's knowledge, information and belief.

Discussion

The certification requirement is appropriate because it is a clear demonstration of each utility management's focus on safety and the safe operation of the utility's electric systems. Provided that the utilities maintain accurate and complete records, and that their managements oversee these efforts, as they prudently should, certifications will not be burdensome. Niagara Mohawk's request that a cost-benefit analysis be performed seems misplaced. There should not be a significant or material cost associated with the act of certifying compliance with the safety standards, and no such analysis is warranted.

With respect to access, the utilities have not established legitimate reasons for requiring advance notice to review the certifications or other documents related to the safety standards. We do not believe such a requirement is necessary or appropriate. This matter clearly and directly affects the public; the public has a right to review documents relating to public safety and to confirm that the utilities take their responsibilities seriously and are taking steps necessary to make their electric systems and facilities safe. The availability of public inspection of the documents may also increase public confidence in the safety of the electric system. Accordingly, the utilities shall maintain the certifications and the reports related to the safety standards in locations that are accessible to the public and shall provide them upon request. A requirement that a person must first state a valid purpose for access to this information is a very general limitation that may result in discriminatory application. We are not aware of any reason that would justify denial of access to the public. Therefore, the utilities may not place any special requirements or burdens (e.g., advance notice, reason for access) on the public as a condition to providing access to this information.

Reporting Requirements

Since the spring of 2004, and as a direct outcome of its investigation in this proceeding, Staff requested the utilities to notify the Department of all incidents involving shocks and events affecting system reliability or the provision of electric service to customers. Staff recommends that we formalize these notification requirements. Staff also proposes that, within 30 days of the date of this Order, each

utility file a report that provides: (i) the details of its voltage testing program; (ii) the details of its inspection program; (iii) the safety criteria it will apply as part of each program; (iv) an inspection schedule that demonstrates how the utility will comply with the requirement to inspect all of its electric facilities at least once every five years; (v) the details of its quality assurance program; (vi) its plans to train its employees and contractors to perform the testing and inspections; and (vii) a description of any research and development activities the utility is conducting or plans to conduct related to stray voltage and safety issues. Staff recommends that the utilities file reports on the findings of their initial round of stray voltage testing no later than one month after testing has been completed, and to file, on or before January 15 each year, reports detailing the results of stray voltage tests and inspections conducted over the prior 12-month period ending November 30.

Con Edison states that the utilities should not be required to independently determine whether an injury has occurred; instead, they should be permitted to rely upon medical reports. It seeks clarification that reports are required for shocks to domesticated animals (e.g., dogs, cats, horses) but not non-domesticated animals (e.g., squirrels, birds). Con Edison and O&R seek clarification that the report on research and development activities is limited to activities related to stray voltage.

NYSEG/RG&E believe that the additional reporting requirements are not necessary and instead propose limiting reporting to the events described in 16 NYCRR Part 125. The companies note that because Staff's April 2004 request to notify the Department of all shock-related incidents went beyond the requirements of our regulations, they had no obligation to comply with it.

O&R interprets the Staff Proposal as meaning that one-hour reporting is required for an injury, subject to employee awareness, physical ability to report, and no intervening conditions, such as acts of God. It maintains that 30 days for the initial report is an unreasonable short time for such an important and wide-ranging initiative; it proposes six months. Also, it requests at least 90 days to develop and file its initial and subsequent stray voltage testing results reports, claiming that it needs time to collect the data and prepare the reports. The company recommends a consolidated filing date for all

information related to the safety standards, and that the filing reflect any authorized annual inspection requirements for a utility (if less than 100%).

The City recommends that the reports should be accessible by interested parties electronically. PULP suggests modifications to the reporting requirements. It recommends that we adopt a uniform reporting standard that would allow for comparisons among utilities and identification of best practices. Pointing to the inconsistent reporting by the gas utilities of gas leaks, PULP contends that permitting individualized electric safety reports will prevent productive use of the information provided. It recommends that we commence a collaborative to develop common definitions and a uniform reporting format and content. The Unions argue that the testing and inspection records should be available on our web site and subject to audit by a third-party as well as the Department. They suggest that the reports contain descriptions of the process used to verify qualifications of the workers performing the safety-related tasks. Mr. Lane recommends that the utilities file quarterly reports on the status of their activities.

Discussion

Expansion of the scope of reporting will permit greater understanding of the stray voltage problem throughout the State and development of a more complete picture of the nature and scope of the situation. It will also allow us to more closely monitor and oversee the reliability of the electric system and immediately respond to events that occur. We therefore adopt and require each utility to comply with the notification requirements set forth in Appendix B. We reject O&R's interpretation as inconsistent with the express requirements of Part 125. NYSEG and RG&E are correct that Staff's April request is more expansive than the requirements in Part 125. While they were also accurate that there was no legal requirement that they comply with the request, there is no legal prohibition from imposing, via this Order, notification or filing requirements that exceed the specific requirements of our regulations, provided they remain within the scope of our authority under the Public Service Law. Here, the reporting is within the scope of our authority under Articles 1 and 4 of the Public Service

Law. Therefore, to ensure that every utility complies with these notification requirements, we order them to do so.[14]

As for the various recommendations on the reporting requirements, it is important that the utilities maintain, and that we receive, a complete description of the utilities' activities and findings. In addition to providing a better understanding of the issue, the inclusion of complete information will aid us in evaluating the appropriateness and effectiveness of the safety standards and in considering future modifications thereto. While we appreciate the concerns expressed as to the volume of information the annual reports will contain, we do not see a need for quarterly reports. Staff will closely monitor the utilities' efforts and can report to us on an interim basis if a problem is identified. We do not, at this time, see a need to specify the structure or contents of the reports, or to establish a uniform format. We will give the utilities flexibility in the structure and format of their reports, but they shall not omit any required information. In the event that improvements or uniformity is needed, we will establish additional reporting requirements.

Because we are eliminating the initial six-month testing requirement and instead establishing an annual requirement, no separate report within 30 days of the completion of the first round of voltage testing is required. Rather, the results from that testing are to be included in the first annual report. It is reasonable to allow the utilities additional time to file reports detailing the manner in which they will comply with the safety standards. Those reports will be due within 45 days of the date of this Order. We accept Con Edison's and O&R's clarifications on the animals for which the notification requirement applies and on the scope of the research and development reporting requirement. Also, while we do not expect the utilities to review and confirm the findings of others as to whether an injury has occurred, in the absence of a medical or

[14] Typically, we do not have to convert Staff's informal requests to the utilities to formal requirements. However, the tenor of NYSEG/RG&E's comments suggests that those companies have an incorrect understanding of their responsibilities and of the role of Staff. We take this action so that there is no misunderstanding of the companies' obligations.

other report, the utilities must analyze incidents involving their facilities and take reasonable actions to ascertain whether an injury was involved.

We find no reason to require third-party audits of the reports or explanations of training and qualification procedures for the personnel who will conduct the testing and inspections. At this time, we will not require electronic availability of the reports or posting on our web site.

Adoption of the National Electric Safety Code

Staff recommends that we adopt the NESC, which is the national standard for the installation, construction, maintenance, and operation of electric facilities, as the minimum safety requirements with which each utility should comply. Staff proposes, though, that the utilities be permitted to petition for exemptions from provisions of the NESC, if valid technical reasons make compliance impossible or inappropriate.

Con Edison supports formal adoption of the NESC's safety standards and recommends that we authorize deferral of any increased costs of compliance with those standards. It also recommends that OSHA Standard 1910.269 govern electrical safety-related work practices for utility employees. Con Edison and O&R recommend that we expand the basis for exemption from the NESC to allow the utilities to demonstrate that using a different approach provides comparable safety at less cost.

Niagara Mohawk notes that the inspection requirements are not mandated by the NESC. O&R states that this proposal is a significant change in Commission policy. It points out that utilities have historically operated under our guidance, with reliance on the NESC to examine safety on a case-by-case basis. Formal adoption of the NESC and application to existing facilities would require O&R to review all of its existing facilities and procedures for NESC compliance, develop compliance programs, and incorporate NESC design into all future projects. It proposes grandfathering of current facilities, and a minimum 18-month transition period to achieve compliance for future facility designs and installations and for ongoing operation and maintenance practices. It also suggests that we maintain our current practice of assessing existing facilities on a case-by-case basis, using NESC rules as guidelines.

Penelec reports that it already complies with the NESC. The NY Municipals support adoption of the NESC. The Unions urge that any requests for waiver of the NESC be first subject to public comment.

Discussion

The NESC is the basic standard for safeguarding persons from hazards arising from the installation and operation of electric utility facilities. The NESC is recognized as an American National Standard and acknowledged, in some manner, in the regulations of 48 other states. Although not heretofore formally adopted, we have long expected, and understood, that the utilities design, construct, operate, and maintain their facilities in compliance with the NESC or more stringent standards. Also, our Staff uses the NESC as the standard when investigating consumer complaints and incidents involving electric facilities.

It is not our intent that the utilities reduce any standards they employ that are more stringent than the requirements of the NESC. The NESC shall be considered the minimum standard to be employed. Henceforth, the NESC or more stringent, utility-specific standards shall apply to all new projects undertaken by the utilities, but the utilities are not required to retrofit their existing facilities to comply with the latest version of the Code. To the extent that projects currently being constructed do not comply with the NESC or more stringent standards, exemption from compliance will be considered on a case-by-case basis. Given this clarification, and our understanding of the utilities' operations, we find no merit to the utilities' claim that converting the NESC from an informal to a formal minimum standard will result in additional costs.

The NESC contains provisions related to testing and inspection of utility facilities that vary from the safety standards set forth herein. Where any such conflict exists, these safety standards shall control. We reject the request to broaden the scope of potential reasons for exemption from the NESC. Cost concerns are not a controlling factor or reason for deviating from minimum safety requirements. The applicability of OSHA standards and regulations are a matter of federal law and need not be addressed herein.

Target Levels for Testing and Inspections

Staff recommends a 100% annual performance target for stray voltage testing. It does, however, provide for exemption of certain physically inaccessible facilities when calculating a utility's performance.[15] Situations involving winter parking rules and temporary street closings, for example, would not qualify because the utilities will have one year to complete each round of voltage testing. Staff recommends that the annual performance target for inspections be set at 95% of the level needed to assure that all facilities are inspected on a five-year cycle. It includes no exemptions or exceptions. Finally, it recommends the use of certified testing devices that reliably measure a range of 8 to 600 volts.

Central Hudson supports targets for testing and inspection but proposes that we set more reasonable targets, after consideration of the type, location, public accessibility of equipment, and extent of possible public contact. It recommends an evaluation of the results obtained from testing and inspections and adjustment of the targets, as appropriate, to the frequency of testing and inspections. Also, the company expresses concern with the detection devices Con Edison is using, suggesting that the devices are not designed or intended for the use to which they are being put.

Con Edison generally supports annual target levels for testing and inspection but contends that the proposed 100% stray voltage testing target is unnecessarily rigid, unfair, and unrealistic. Some recognition is needed of the possibility for inadvertently missing some facilities despite best efforts. The company proposes that the standards permit electric corporations to request adjustment of the targets for good cause, if supported by data, experience, or technology, and provide for waivers in the event of extraordinary circumstances. It does not oppose a 95% annual inspection target, but it recommends a phase-in of this target over three years, starting with a target of 80%

[15] Exemptions may include facilities located in construction zones where scaffolding is in place over a manhole for an extended period of time, or where fencing or the construction of a structure temporarily (one year or more but not permanently) precludes access to otherwise publicly accessible facilities.

and phasing up to a the 95% target. This phase-in is needed, it explains, because of formidable logistical and resource requirements to initiate the program and need to hire and train workers.

With respect to the voltage testing range, Con Edison states that its analysis indicates that stray voltage detection at eight volts is a conservative level that is substantially lower than the threshold voltage level that is hazardous to the public. It asserts that the upper limit detection level of 600 volts is not necessary and recommends 300 volts. Its secondary electric system generally operates in a narrow range of about 120 volts, with some customer installations at 277/480 volts, for which the maximum voltage to ground is 277 volts. The company explains that two kinds of proximity-type detectors are commercially available—proximity voltage detectors equipped with adjustable sensitivity controls with a threshold sensitivity of eight volts or less when correctly adjusted for field conditions, and probes that do not require a sensitivity adjustment and have a threshold sensitivity of about 15 to 16 volts. The proximity voltage detectors, the company states, may inadvertently be improperly set or the setting may change while in use, thereby producing false-negative results. Con Edison is working to develop a non-adjustable proximity voltage detector; production units are expected to be available in the first quarter of 2005. Until the units are available, Con Edison states that it plans to use the non-adjustable commercially available detectors.

Niagara Mohawk recommends alternative annual target levels: five-year detailed visual inspection of all overhead transmission and distribution facilities; five-year underground exterior visual inspections; and metallic streetlight standard stray voltage inspections completed concurrent with bulb outage cycles. On the voltage testing level, the company reports it uses eight volts as its lower testing limit.

NYSEG/RG&E see no need for annual target levels because rate adjustments are not appropriate. The companies propose incorporation of the tests and inspections into their existing programs. They claim more experience is needed to establish reasonable targets that recognize their expansive service territories. With respect to the testing level, the companies contend that numerous factors, including the

resistance of the human body, must be considered. Based on information they present in their comments, they recommend 10 volts as the appropriate level for testing purposes.

O&R contends that Staff's proposed target levels are unfair and unrealistic. The company states that annual targets are appropriate for some equipment, but that only sampling is needed for other equipment. Also, the target must reflect that some facilities could be missed inadvertently and that other events or unusual system conditions could prevent achievement of a target. Therefore, it proposes exceptions for major events and unusual circumstances. As to the testing level, the company believes eight volts is very conservative and that commercially available, pre-calibrated testing devices have a threshold of 15 volts. Therefore, it proposes to test for 15 volts until future research determines 15 volts is not a reasonable threshold and pre-calibrated devices that can reliably measure eight volts are readily available.

Penelec claims that we should not set specific target levels but should instead rely on the NESC's testing and inspection requirements. The NY Municipals urge us to wait until the initial round of testing is completed before imposing inspection or further testing requirements or performance targets. Any future requirements should reflect the potential risk of different types of facilities and the different maintenance cycles of each utility. They also contend that testing at the levels specified in the Staff Proposal is unnecessary and possibly very costly. They recommend a lower threshold of between 10 and 20 volts and request clarification of the upper threshold for stray voltage testing. They claim that voltage levels of 600 volts are a concern but indicative of problems other than stray voltage and should not be included in the range of stray voltage testing.

The City supports Staff's view that targets and associated ratemaking adjustments are needed to ensure that the utilities comply with the safety standards. It notes that the provision of electric service is a natural monopoly and customers have virtually no other options if they are dissatisfied with the service they receive. The performance mechanism set forth in the Staff Proposal, the City continues, protects customers by imposing economic consequences for poor performance, thereby ensuring that the utilities adhere to the standards and place safety above shareholder value. The

City also recommends that the testing equipment used be able to detect any stray voltage (i.e., any voltage above zero volts).

Mr. Lane believes it is very important to set frequency and target levels for testing and inspections in order to provide a means of measuring performance and effectiveness of the safety standards, as well as to enhance safety. Acknowledging that testing and inspections capture conditions only at the time of the activity, Mr. Lane believes that there should be an ongoing assessment of the impact of the programs on safety, and the frequency may be modified over time as circumstances warrant. As to the target voltage level, Mr. Lane contends that the presence of any stray voltage indicates a problem and the possibility of an unsafe condition. He therefore recommends that the target voltage level be reduced from eight volts to four volts.

Discussion

Initially, we reject the suggestions to defer consideration of any performance targets. Concomitant with the establishment of testing and inspection requirements, we need to establish metrics against which we will measure and determine the utilities' performance and compliance.

We find no reason to set the performance target for the voltage testing program at a level less than full compliance. Given the level of effort involved in performing the testing, there is no legitimate reason why the utilities cannot test all of the publicly accessible facilities over a 12-month period. The inspection program is more intensive than the testing program, and the utilities' contention that they need time to integrate it into their routine maintenance activities is reasonable. Therefore, we will phase-in the performance targets for annual inspections. Doing so, however, does not change the requirement that all facilities be inspected at least once every five years. Starting with this overall requirement, the utilities should inspect at least one-fifth of their facilities each year. We therefore base the performance targets on a percentage of the average number of facilities that must be inspected each year. The specific targets for purposes of the performance mechanism will be 85%, 90%, and 95% of the one-fifth amount for calendar years 2005, 2006, and 2007, respectively. Each year thereafter, the performance target will be 95%, except that in every fifth year, each utility must ensure

that it has inspected all of its facilities.[16] In the event that a utility inspects all of its facilities pursuant to a compressed schedule and completes its inspection cycle prior to the end of the five-year period, we will consider it to have satisfied this safety standard.

The final target level to be addressed is the voltage level at which the testing must occur. Many different thresholds and ranges have been offered. Some parties express concern that any stray voltage is unsafe, others are concerned that no probes that comply with the proposed testing range are commercially available.

As a practical matter, testing to zero volts is not feasible. As noted by O&R, utility systems inherently create current imbalances that cannot be entirely eliminated. It would require tremendous resources to reach such a low threshold, whereas accomplishing the testing required by the safety standard will require the use of a portable device capable of easily measuring low voltage levels. Such devices are commercially available, but they are capable of detecting low voltages only above a minimum threshold.

Quantifying the level of voltage that places public health and safety at risk is not easily accomplished. Staff recommends a threshold of eight volts based on its research, the research conducted by Con Edison, the analysis performed by the independent expert commissioned by Con Edison at Staff's request, and the results of testing performed by Con Edison and an independent laboratory retained by Con Edison. These sources conclude that commercially available, hand-held, easy to use devices exist that are capable of reliably detecting eight volts. Based on the record before us, we find that the eight volt threshold is reasonable. Therefore, the objections to it are rejected and

[16] An example will assist in understanding this metric. If a utility must inspect 100,000 facilities in total, it will need to inspect approximately 20,000 facilities each year. In 2005, to achieve the performance target it must inspect 85% of 20,000 facilities, or at least 17,000 facilities. In 2006, it must inspect at least 18,000 facilities (90% x 20,000), and in 2007, and in each year thereafter, it must inspect at least 19,000 facilities (95% x 20,000). At the end of 2009, and each five-year period thereafter, it must complete the inspections of all 100,000 facilities.

it is adopted. Moreover, to ensure the accuracy and reliability of the detectors used, they must be certified to a level of eight volts by an independent laboratory.[17]

The record also indicates the testing could not be reliably performed at four volts, as recommended by Mr. Lane, so his proposal is not feasible. Nevertheless, the theory he espouses is as valid at eight volts as at four volts. That is, although the detection of eight volts may not pose an immediate safety hazard, it is an indication of a problem and a potential safety hazard. As discussed in the Corrective Action section, whenever stray voltage is found, no matter the level, the utility should investigate its cause and repair any improper conditions that are discovered.

The 600 volt limit Staff recommends is a typical upper rating by manufacturers in the electric utility industry for low voltage equipment. While some utilities operate their low voltage systems at lower voltages, our goal is to set a uniform, state-wide testing range. Therefore, there is no need to lower the upper threshold below 600 volts.

Finally, we find Central Hudson's contentions about the devices used by Con Edison to be unfounded. First, at Staff's direction, Con Edison had its probes tested by its laboratory and an independent laboratory. All of the test results indicate that two of the detectors it was using, both of which are readily available, could reliably test at the eight volt level. Second, we do not find the information Central Hudson submitted on the differences between Category III and Category IV ratings to be controlling. Our understanding of the ANSI categorizations is that they are primarily safety guidelines for workers; Category IV devices have a much higher peak impulse voltage rating and are necessary for direct testing and maintenance of electric cables and circuits. Here, the testing is to occur on facilities that are not supposed to register any voltage. While it is essential that the utilities implement appropriate safety protocols for its workers when

[17] Once one utility has certified a detector, it need not be recertified by other utilities. The utilities are encouraged to work together both on identifying and certifying appropriate detectors and on developing next generation detectors that may be better suited to their needs.

using these devices, the information before us demonstrates that the available probes are safe and appropriate for this use.

Performance Mechanism to Incent Compliance

Staff recommends a range of 50 to 100 basis points each for failure to achieve the annual testing and inspection targets described above.

Central Hudson states that the incentives are actually penalties and provide no opportunity for consideration of any relevant exculpatory factors. It asserts that PSL §25 establishes a remedy for violations of the standards under consideration, that imposition of a generic ratemaking adjustment is not authorized, and that the proposed incentives are not appropriate.

Con Edison does not support imposition of rate adjustments. It maintains that utilities are required by law to comply fully with our orders. The company asserts that no basis exists for the assumption that an industry-wide punitive measure is needed to promote compliance; record keeping and reporting will provide inducement to comply. It adds that any rate adjustment should be set at the level of avoided costs, and that any rate adjustment that reduces earnings in excess of costs is an unauthorized penalty unless imposed under the process established in PSL §25.

Niagara Mohawk asserts that stray voltage conditions may impact reliability and trigger sanctions for failure to achieve its system reliability targets. It claims that the proposed rate adjustments are redundant to existing reliability standards and could result in increased costs of capital. The company states that, in view of the nature of its system, the effort invested in system inspections, maintenance and reliability, the proposed rate adjustments are excessive and unwarranted. However, it believes that incentives for good or superior performance should be considered.

NYSEG/RG&E recommend against rate adjustments because the companies are required to provide safe and adequate service under PSL §65(1). The companies assert that the rate adjustments are tantamount to amendments to their rate plans, and it is inappropriate to modify the plans through an unrelated proceeding. They assert that they are committed to maintaining practices to enhance public safety.

O&R states that sanctions are incompatible with the company's program and more likely to impede than advance a successful program. It believes that rate adjustment mechanisms are a last resort for willful violations or associated with chronic failure to comply with standards or a willful disregard of safety. The company points to proactive initiatives established by other government agencies responsible for safety as the better models. Finally, it suggests that we institute matching incentives for superior performance if we adopt a performance mechanism containing possible rate adjustments.

Penelec asserts that rate adjustments are not needed to maintain a safe and reliable system. It urges us to instead focus on cost recovery of incremental programs we impose. Such focus, it believes, will foster a cooperative environment between the utilities and the agency.

CPB views the performance mechanism as being different from the penalty provisions of PSL §25. It notes that we are pursuing a penalty against Con Edison related to the death of Ms. Lane.[18] It argues that we have broad authority to impose rate adjustment mechanisms in the context of setting rates, and that the mechanism set forth in the Staff Proposal will help to ensure that the utilities commit the resources necessary to provide safe service to their customers and the public.

The City recommends the immediate correction of all stray voltage conditions, including those arising from customer-owned facilities, and that the Commission impose upon Con Edison a penalty of $1.00 per day per occurrence for failure to permanently restore service and/or implement a permanent repair within 45 days of the date of detection. The City asserts that the use of a temporary shunt should not be considered a permanent restoration or repair, and that the same penalty should apply for failure to remove temporary shunts within 45 days of the date of their installation.

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[18] Case 04-E-0160, Proceeding on Motion of the Commission Investigating the Death of a Manhattan Pedestrian and Whether Consolidated Edison Company of New York, Inc. Violated the Public Service Law, Order Initiating Proceeding and To Show Cause (issued February 11, 2004).

PULP fully supports the performance mechanism set forth in the Staff Proposal. It expresses concern that utilities may be deferring capital and maintenance expenditures and shifting associated cost savings to unregulated activities of the utilities' affiliates. As to the size of the rate adjustment, PULP cautions that it must not be set at too low a level and thereby provide the wrong incentive to the utility to choose to pay the adjustment instead of undertaking the more costly compliance with the safety standards.

The Unions recommend the rate adjustment for the performance mechanism be set at 100 basis points to ensure that this issue receives primary attention by the utilities. Mr. Lane contends that the performance mechanism is appropriate to demonstrate to the investor-owned utilities that their failure to make safety paramount will have economic consequences.

Discussion

As we noted in our July 30 Order, we commonly adopt performance-based multi-year rate plans for the investor-owned electric utilities. In virtually every rate plan, there are a number of incentive mechanisms, both positive and negative, to encourage the utilities to maintain and improve their performance. These mechanisms are applicable to many aspects of utility service, including, but not limited to, earnings sharing, reliability performance, and customer service. Contrary to the utilities' assertions, these mechanisms are not akin to penalties under PSL §25; they constitute a proper form of ratemaking that provides targets and goals for areas of performance combined with consequences for exceeding, or failing to achieve, those targets and goals. The performance mechanism Staff recommends is designed to operate in a similar fashion. Here though, the mechanism is asymmetric because the utilities don't need additional positive incentives to safely and adequately maintain their systems; the rates of return upon which the utilities' revenue requirements are based, and associated earnings sharing mechanisms, provide sufficient incentives to do so.

The purpose of a performance mechanism associated with the safety standards is to ensure that the utilities continue to place the appropriate focus and emphasis on safely maintaining their electric systems and invest the capital and maintenance dollars necessary to do so. We recognize the competing demands of providing safe and adequate service to customers and providing value and benefits to shareholders, and we do not want to see safety sacrificed, or investments and expenditures deferred, in order to improve earnings or increase other shareholder benefits. Because the ability of a utility to comply with the safety standards rests with its management and the focus its management places on this effort, and because the utility will be able to wholly avoid the possibility of rate adjustments by its decisions and actions, the mechanism is neither unreasonable nor punitive.

Further, as noted by CPB, there is a difference between the imposition of penalties under PSL §25 and the ratemaking adjustments contained herein. The former addresses specific instances in which a utility has failed to obey or comply with the provisions of the Public Service Law or our orders. The latter ensures that in this era of performance-based rate plans, the utilities place the proper focus and emphasis on monitoring, investing in, and safely maintaining their electric systems.

As to the comments on our ability to adopt this performance mechanism, the utilities appear to have misinterpreted our ratemaking authority under the Public Service Law. Their contentions that the rate plans we have approved and adopted for their electric businesses cannot be amended without their consent or outside of their rate proceedings are wrong as a matter of law. We may modify rate plans within rate proceedings or in other proceedings provided that we have a rational basis for doing so. This Order fully provides the basis for the rate plan modifications we are adopting, so we have satisfied the requisite legal requirements and the utilities' claims are without merit.

Recordkeeping requirements do not provide adequate inducement to comply with the safety standards and supplant the need for the performance mechanism. We do not consider a requirement to maintain records of the actions taken as a motivating factor to actually undertake the actions. We also reject the notion that the stray voltage issue is already encompassed with the system reliability mechanisms in place for some

utilities. The incidence of stray voltage is relatively isolated and typically does not affect an entire operating area. Also, the presence of stray voltage does not necessarily indicate a diminution in system reliability. Therefore, this performance mechanism is not redundant or duplicative of other mechanisms already in place.

We find that the implementation of a performance mechanism to incent the utilities to comply with the safety standards is appropriate. We further determine that setting the potential rate adjustments at 75 basis points each for the annual testing and inspection targets is fair and reasonable. Although these rate adjustment levels are equivalent to an amount that is in excess of the compliance costs reported by the utilities, they are not punitive, confiscatory, or prohibited by law. The performance mechanism provides the proper economic signals to the utilities to comply with the safety standards and take the steps necessary to ensure the safety of their systems. It also removes any unintended benefits the utilities may otherwise attempt to realize by paying the rate adjustments, avoiding the investments and expenditures needed to properly maintain their electric systems, and employing their capital elsewhere. Finally, this mechanism sends a clear message to the utilities, their customers, and the public of the importance we place on safety.

Given this performance mechanism, we do not see any reason to impose a one dollar per day penalty for certain violations, as suggested by the City. Additionally, inasmuch as the City's proposal constitutes an administrative penalty rather than a ratemaking adjustment, there may be legal impediments associated with it. Moreover, the City's concerns appear to be very fact-specific and related solely to conditions in New York City; they are more properly raised in Con Edison's ongoing rate proceeding, or, to the extent they are considered a utility/customer issue, in a complaint filed with our Office of Consumer Services.

Incentives for Compliance by Municipal Electric Utilities

Con Edison, O&R, Central Hudson, NYSEG/RG&E, and the City did not comment on this question. Niagara Mohawk points out that shifting responsibility to the utility for municipal equipment (e.g., streetlights) would serve as a disincentive for compliance by municipalities with the proposed standards. Penelec states that the

municipal electric utilities should be required to comply with the NESC and all other requirements imposed on the investor-owned utilities.

NYMPA claims morale at its member systems is high and no incentives are needed for its members to ensure that their systems are safe. Given the structure of their companies, added financial costs would not improve performance but would only raise costs to their customers; they claim positive incentives would be inconsistent with the function and purpose of public power companies. The NY Municipals share NYMPA's position on the need for incentives. Instead, they urge us to promptly approve their requests for rate increases related to the safety standards and associated recordkeeping requirements.

Mr. Lane believes that the performance mechanism should be equally applicable to the municipal electric utilities and that the incentive amount be progressive and material, potentially leading to revocation of the utility's monopoly. He also recommends that, as appropriate, company employees, officers, and/or directors be held personally accountable for non-compliance with the safety standards.

Discussion

Municipal electric utilities are different from investor-owned utilities. Given their purpose and structure, the use of performance-based ratemaking is not a preferable or appropriate approach. These companies do not earn a return on equity or focus on making profits, and any negative incentives we may impose would be paid by the companies' customers. Therefore, based on the record before us, we find that the municipal electric utilities have sufficient reasons to safely and adequately maintain their systems and additional incentives, whether positive or negative, are unnecessary. Nevertheless, we require the municipal electric utilities to fully comply with the safety standards and performance targets set forth above.

As to Niagara Mohawk's concerns, it is not our intent in adopting safety standards to have the utilities supplant the responsibilities of municipal owners of streetlights. The primary responsibility for safely operating and maintaining such facilities clearly rests with their owners. However, the information before us indicates that, in a significant percentage of incidents where stray voltage is found on streetlights,

the cause can be traced to the utility's cable providing service to the streetlight. Thus, the obligation to maintain safe service to such facilities is shared, and the utilities should coordinate with the municipalities to which they provide service to develop procedures to ensure achievement of the testing and inspection requirements of our safety standards.

Additional Standards, Programs, and Procedures

Central Hudson, Niagara Mohawk, NYSEG, and RG&E recommend adoption of their guiding principles and the design of safety programs based on those principles. Con Edison states that the safety standards constitute a comprehensive program for minimizing the occurrence of stray voltage on its electric system and does not propose any additional programs or procedures. Because the program is relatively new within the electric industry, data collection, experience, and technology advances may provide valuable information and opportunities for making the standards more effective and efficient. It recommends that we periodically review the standards to ensure their continued effectiveness.

Penelec contends that the only standards that should be imposed are those set forth in the NESC. In the alternative, it recommends approval of its proposed testing and inspection program. O&R recommends approval of its company-specific program. NYMPA recommends coordination among the electric utilities, telecommunications and cable companies, and highway departments to ensure that all potentially involved entities work together to ensure the safety of the utilities' systems and of the public.

CPB expresses concern that the utilities may not be providing enough attention to other aspects of their operations, including sag and tension of overhead lines, clearance between overhead lines and trees and structures, and security issues. CPB proposes that we review the utilities' practices and procedures related to providing safe service and determine whether additional measures are needed.

The City proposes that we adopt requirements related to new service requests, arguing that Con Edison's response time has gotten progressively worse. It contends that delays in making new connections can cause public safety concerns, including higher risk of traffic accidents and criminal activity. It believes that all new requests should be accommodated within 90 days and imposition of a performance metric

for noncompliance. Specifically, it proposes a rate adjustment of between 50 to 100 basis points in the event Con Edison does not provide service to at least 95% of the City's new service requests within the 90 day period.

The City also proposes that Con Edison conduct outreach and education about stray voltage, including how to identify and protect one's self and the public from it. Additionally, the City suggests that we require the company to identify locations at which stray voltage is frequently found and to insulate its facilities with materials designed to protect the public from stray voltage.

PULP recommends additional performance metrics.[19] It proposes metrics related to the number of shock incidents occurring each year, manhole explosions, and property damage caused by unsafe practices (e.g., tree trimming). It also proposes that we expand the reporting requirements set forth in the Staff Proposal to include incidents of property damage caused by unsafe utility practices and facilities, which we already require for incidents involving gas systems.[20] PULP urges us to require the utilities to log all safety-related complaints they receive, periodically publish information related to safety complaints in the same manner we publish information related to consumer complaints, and broaden our outreach and education efforts about our role in resolving issues associated with utility repairs of unsafe conditions.

Arguing that safe service entails routine maintenance, PULP proposes that we require the utilities to track and report on their financial expenses for and personnel assigned to complying with the safety standards and routine maintenance activities. It

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[19] PULP requests that we further expand this proceeding to encompass gas and steam utilities and establish safety standards for those types of utility service as well. This proceeding is focused on the safety of electric facilities; we are not aware of similar problems confronting the safe provision of gas or steam service that are not being addressed in other proceedings or by the utilities directly or are not covered by our extensive gas safety regulations. Therefore, we will not expand the scope of this proceeding to include those utility services.

[20] PULP recommends that we modify 16 NYCRR §255.801 to reduce the monetary threshold property damage related to gas incidents. That issue is beyond the scope of this proceeding and will not be considered herein.

also believes the utilities should file root cause analyses of the stray voltage conditions they discover so that we and interested parties may understand the reasons the conditions occur and the steps necessary to avoid their reoccurrence. On quality assurance, PULP recommends that compliance with the safety standards should be audited by an unaffiliated third-party. We should also, it continues, specify the consequences for improper certification of compliance with the safety standards.

The Unions similarly request that we specify the consequences for improper certification. They also recommend that we require utilities (and their contractors) to test and inspect each facility before leaving a job site. If a job requires multiple days, the testing should occur at the end of each day. They assert that we should establish standards for mandatory replacement of equipment and correction of dangerous conditions. Like CPB and PULP, the Unions contend that additional performance metrics are needed, relating to the number of stray voltage incidents, temporary shunts, and manhole incidents, and that the maximum rate adjustment applicable to each utility associated with these metrics be based on the utility's size and operating characteristics.

Mr. Lane suggests that we require the utilities to comply with the National Electric Code (NEC) in addition to the NESC. Where deviations from the NESC or NEC are requested, Mr. Lane suggests that we require the utilities to demonstrate clear and compelling evidence supporting the waiver and proposed alternative. He contends that we should require the utilities to report on modifications they make to their systems to prevent the occurrence of stray voltage and to detect and rectify stray voltage on a real-time basis.

Discussion

We have already discussed the upstate utilities' proposed guiding principles and utility-specific programs that have been offered. We choose to establish uniform state-wide standards, as set forth herein, and will not adopt the utilities' proposals that are inconsistent with our standards. Con Edison's suggestion that we revisit the standards over time has merit and we will do so, as necessary based upon the information and analyses before us. If a utility or other party believes that the standards should be modified at any point in time, it may petition us to do so.

We have addressed the application of the NESC above. While we find it acceptable as a minimum standard, it is not acceptable as the exclusive standard. In some areas, such as testing and inspection, the NESC is not as stringent as our standards, and for the reasons we discuss throughout this Order, stringent testing and inspection requirements are needed to protect the public from stray voltage and electrocution risks caused by the utilities' electric systems. We agree with NYMPA that utilities should coordinate their efforts with the municipalities in which they operate. We also agree that the electric utilities should work together to address safety issues and strongly encourage them to coordinate their efforts and develop best practices. Coordination with telecommunications companies is also important and should occur.

CPB raises valid concerns about other aspects of the utilities' operations and maintenance practices. The Department devotes significant resources and effort to these issues and works closely with the utilities and others to analyze the potential problems that may arise and appropriate solutions to those problems. Given these activities, we need not undertake additional investigations into the utilities' practices at this time.

The City's new service request issue is not directly related to the safety issues addressed in this proceeding. The appropriate forum for consideration of this issue is Con Edison's ongoing rate proceeding, Case 04-E-0572, and this matter is transferred to that proceeding.[21] As for its proposed outreach and education effort, it is not clear how the public might identify stray voltage without a detection device or what such an effort might entail. The notification proposal is unnecessary. Under our safety standards, the utilities are required to repair all stray voltage conditions they find. Therefore, we do not expect recurring problems at any particular facility. Finally, the City's insulation proposal is confusing. Underground electric cables are insulated, and it is not necessary

[21] To the extent the City considers its problems to be a customer/utility dispute, it may also file a complaint with our Office of Consumer Services.

to insulate overhead conductors as they are usually not the cause of stray voltage.[22] While the utilities should continue their research and development efforts on making their facilities safer, we will not impose any specific requirements at this time.

We reject PULP's and the Unions' recommendations to expand the performance mechanism. The mechanism we are adopting is sufficient to address the concerns associated with stray voltage. An additional metric based solely on the number of shock incidents is not likely to improve any utility's performance in this area and is arguably punitive since there are no qualifiers related to knowledge, cause, or responsibility (utility or third-party) of the incident. Manhole explosions are a concern, but there are numerous causes for them, some of which are outside the utilities' control (e.g., salt deposition). There is no easy fix to the problem, and the utilities, especially Con Edison, continue to study and investigate possible solutions. Under the circumstances, a performance metric for this problem is not warranted.

We also reject PULP's proposals to establish a performance metric and reporting requirement for property damage situations. Stray voltage of the type discussed herein does not typically result in property damage, and even if it did, the goal of our efforts is to protect the public, not property. To the extent PULP seeks a performance metric related to property damage arising from other utility practices, the request is outside the scope of this proceeding and will not be addressed. We find the reporting requirements discussed herein to be adequate, so there is no reason to expand the reporting as PULP suggests.

The financial reports PULP seeks are matters for rate-setting, and PULP may request such information in each utility's rate case, provided the requests are relevant to the issues in dispute and comply with our discovery regulations. The personnel information is an unnecessary level of detail. The proposal on performing

[22] Doing so would require the redesign and reconstruction of all supporting structures due to the added weight of the insulation. There is no reason to undertake such a massive effort. Similarly, retrofitting or redesigning and rebuilding all underground structures to protect against the possibility of stray voltage is not feasible or an appropriate or necessary response to this matter.

analyses of the causes of stray voltage conditions is valid and has been adopted, as discussed above. Its general request for third-party audits has also been addressed. The consequences for improper certifications are matters of law and need not be specified herein. Finally, the suggestion to broaden our outreach and education efforts to discuss our role in safety matters is reasonable and sensible. We direct the Office of Consumer Services to incorporate such information in its programs and presentations.

The Unions' daily job-site test requirements are reasonable, are not burdensome, and do not entail incremental costs or efforts. The utilities shall test each job site for stray voltage at the end of each work day and before departing the site upon completion of the work assignment. There is no basis for establishing standards for the mandatory replacement of equipment. Each utility must, in the prudent operation of its electric business, make continuous capital improvements and replace equipment that can no longer function as intended.

We will not accept the recommendation to adopt the NEC; by its express terms, it does not apply to installations by electric utilities. In instances where the utilities seek exemption from the NESC, we will not require that they satisfy any particular legal standard. Such decisions should, and will, be based on technical reasons, not satisfaction of legal standards of review. The additional reporting requirements Mr. Lane proposes, while informative, will not serve a regulatory purpose separate and distinct from the reporting requirements we are adopting. However, the utilities should share information of this type among themselves.

Program Cost and Rate Implications

Central Hudson estimates that it requires $2.7 million annually to implement and maintain the testing and record keeping system and $600,000 for data management system (an approximate 2% rate increase). It states that, under its rate plan, incremental costs are deferred for subsequent recovery.

Con Edison states that it will incur substantial costs, which should be reflected in its revenue requirement and recovered in rates. It proposes deferral of any incremental costs until included in its revenue requirement. The annual costs, according to the company, are estimated at $7 million for testing, $93.5 million for inspection, and

$2.9 million for a data management system. It proposes that any deferral of additional costs required for compliance with NESC rules and a petition for authority to recover the costs in rates.

Niagara Mohawk provides an extensive breakdown of its total estimated annual costs of $13,765,000. It states that it has a program in place for conducting inspections that provides adequate testing opportunities, and, based on its tests, the potential occurrence of stray voltage is limited to a small subset of company equipment. It points out that the substantial incremental costs for implementing the proposal would need to be recovered or deferred for subsequent recovery under its rate plan.

NYSEG/RG&E assert that their total estimated $40,500,000 costs ($8,100,000 for RG&E and $32,400,000 for NYSEG) far exceed enhancements to public safety resulting from the Staff Proposal and are disproportionate to the companies' risk profile and experience with incidents of stray voltage. The estimated annual costs, after implementation, are approximately $5,100,000 for RG&E and $20,000,000 for NYSEG. They assert that their proposed alternative programs are cost-effective.

O&R states that it will incur substantial incremental costs to test and inspect its entire electric system: $725,000 for a field assessment, $2,300,000 for testing and inspection of its New York service territory; additional costs not yet determined for a data management and reporting system and its integration with other asset management data systems. This process is estimated to require 12 to 18 months. It requests deferral of incremental costs until they can be reflected in its revenue requirement and recovered in rates.

Penelec estimates its cost for complying with the Staff Proposal at a minimum of $125,000 annually. It proposes the use of a surcharge mechanism for contemporaneous recovery or authority to defer the costs for recovery in future rate proceedings. The NY Municipals do not have specific cost estimates for compliance with the Staff Proposal; they state that their systems will incur incremental costs because they will likely need to hire contractors or new employees to comply with the requirements.

CPB recommends that we consider cost recovery on a case-by-case basis and, in each case, determine whether the utility’s current rates are already sufficient to

provide safe and adequate service. If they are, CPB continues, there is no need for cost recovery specifically for compliance with the safety standards.

The City presumes that the costs associated with complying with the safety standards are included in the utilities' maintenance budgets because the utilities are already required to provide safe and adequate service. It recommends that any utility seeking incremental cost recovery be required to prove that its rates are insufficient to allow it to comply with the standards; if the utility can do so, the City believes cost recovery should be addressed in the context of the utility's next rate case.

PULP shares CPB's view, arguing that downward trends have occurred in utility maintenance spending. As an example, it notes that Con Edison's second stray voltage report indicates that it intends to "increase" maintenance funding to the level it spent prior to the year 2000. PULP asserts that the utilities should not receive cost recovery for compliance with the safety standards except in the context in a full rate case when all of a utility's costs can be examined.

Mr. Lane believes the costs associated with the safety standards are nominal, at least for Con Edison, and would not result in a rate increase. Generally, he asserts that, when the costs and benefits are balanced, the need to maintain safe systems justifies increasing rates to pay for compliance with the safety standards.

Discussion

While there is a cost associated with mandating and implementing the safety standards, the costs of not adopting the standards could be much higher and those costs cannot easily or accurately be quantified. Moreover, it is not appropriate to look at safety and the protection of the public from exposure to stray voltage solely in economic terms. The societal and emotional costs and impacts are equally, if not more, important, and all reasonable steps must be taken to ensure the risk to the public is minimized to the maximum extent possible. Therefore, we decline to decide this matter solely or primarily on an economic cost-benefit basis.

Nevertheless, we must look at the costs of the safety standards because of our statutory responsibility to ensure that electric rates remain just and reasonable. The cost data provided by the utilities shows that, for a majority of the utilities, implementing

annual stray testing is more expensive than implementing the visual inspection requirements. This is not surprising because those utilities already have inspection programs in some form (most of which are already on a five-year cycle), but they do not have voltage testing programs. Additionally, the costs involved with voltage testing a large number of overhead facilities in non-urban areas, especially where located off road, is greater than the costs involved in voltage testing in urban areas.

Each utility's rate plan contains different provisions relating to incremental costs and cost recovery for new programs. Moreover, it is not evident whether the costs reported by the utilities remain valid for the specific safety standards we are adopting. Since the details of each utility's submission have not yet been fully evaluated, the accuracy of the utilities' estimates is uncertain.

The comments of the non-utility parties raise an important issue. Many utilities have on-going inspection programs, and most engage in at least some level of stray voltage testing. To the extent that compliance with the safety standards encompasses activities currently undertaken and reflected in rates, the costs are not properly considered incremental. We therefore agree with the recommendation that any utility seeking cost recovery for complying with the safety standards must demonstrate that the costs it incurs are incremental to the amounts included in its rates. Additionally, the utilities are cautioned that, in considering such petitions, we will apply our traditional process for evaluating deferral accounting requests and would not favorably consider requests that do not satisfy the three elements of that process.[23]

Given the foregoing and the potential for different treatment for each utility, we will not approve cost recovery for any utility at this time. Rather, each utility that seeks authorization to recover costs for complying with the safety standards as an incremental expense is directed to file a detailed estimate, with supporting documentation

[23] To qualify for deferred accounting treatment, an item must be incremental to current rates; the amount must be material to the utility's earnings; and the utility cannot be over earning.

and work papers, of its costs for implementing the safety standards.[24] To be considered, the filing shall include the following elements: (i) identification and justification of the extent to which the costs are incremental to the utility's existing programs and procedures; (ii) an explanation of the extent to which the costs are incremental to the utility's responsibility and obligation under PSL §65(1) to provide safe and adequate service; (iii) a demonstration that the costs satisfy the three-prong test for deferral accounting; (iv) a description of the provisions of the utility's current rate plan as it relates to these activities; (v) a proposal of the type of cost recovery the utility is seeking;[25] and (vi) an exposition of the potential rate and bill impacts to customers.

Customer-Owned Equipment

Staff recommends that, in instances where stray voltage is determined to be caused by customer-owned equipment, the utilities should be required to make the area safe and to notify a responsible person associated with the premises or equipment. The utilities would be required to inform the person that permanent repairs are necessary before placing the equipment back in service.

Central Hudson states that every person operating electrical equipment should be held to the same standards of knowledge and performance as the utilities. The utilities should provide electrical service, and be responsible for problems occurring, up to the demarcation, or delivery, point. It asserts that a utility lacks a right to enter onto customer premises to do any work beyond the demarcation point, such as red tagging. Its only recourse is to turn off power at the demarcation point. Therefore, the company continues, a governmentally mandated role to assist the customer would subject the utility to a claim that it contributed to any accidents caused by the customer's equipment.

According to Con Edison, its tariff authorizes it to "disconnect service to a building, unit or piece of equipment, at any time," for several reasons, including an

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[24] This requirement does not apply to Con Edison to the extent the compliance costs are addressed in its ongoing rate case.

[25] If the utility is seeking contemporaneous recovery instead of deferral authorization, the rationale for such recovery should be provided.

emergency that threatens the health or safety of a person or the area surrounding the company's generation, transmission or distribution systems. Con Edison states that, upon finding stray voltage, it isolates and tags the defective equipment and notifies the owner that repairs are required. It argues that the customer, not the utility, is responsible for correcting the condition.

Niagara Mohawk uses electric Operating Procedures NG003 and NG004, involving a warning tag and notice to the customer that a licensed electrician is needed to investigate the problem identified. The company objects to notifying customers of the manner in which to correct a stray voltage condition. It does not believe it should have any responsibility for conditions arising on or from customer-owned equipment.

NYSEG/RG&E state that the utilities should be responsible for testing and inspecting only their own facilities. When a stray voltage condition emanates from customer-owned facilities, the companies continue, they may provide notice and reasonable assistance to the customer, as determined by the attendant circumstances. They state that a red tag procedure is not appropriate because it would impose obligations and responsibilities on the companies that belong to the customer.

O&R states that the transfer of responsibility to a utility for customer-owned equipment is inequitable, difficult because of lack of reasonable access and a reliable inventory, and improperly places the costs of such testing on ratepayers. It proposes that, if the cause of stray voltage originates from customer-owned equipment, it will notify the customer and assist in identification and isolation of the source and, if notification and/or access are not possible, it will isolate and re-energize after a repair. The company agrees with Con Edison that the customer, not the utility, is responsible for correcting the condition. If we require it to test or inspect customers' facilities, then O&R requests authority to impose a charge for those activities and any associated repairs it makes.

Penelec claims that, when it finds hazardous conditions such as stray voltage, it requests its customers to repair the problems. If they do not, the company disconnects its service. It believes this practice should continue and that customers, not the utilities, should be responsible for their own equipment.

The NY Municipals believe their responsibility should be limited to alerting customers to the problems and making repair recommendations. They request that we clarify that the utilities may shut off service where the customers do not fix stray voltage problems for which their equipment is the cause.

The City agrees with the Staff Proposal's treatment of this issue. Mr. Lane argues that both the customer and a utility that is aware of a stray voltage problem should be responsible for protecting the public by making the facility safe.

Discussion

The utilities raise valid concerns regarding this aspect of the Staff Proposal. Staff's recommendation could be interpreted as expanding the utilities' legal responsibilities and obligations for facilities over which they have no control or that are inaccessible. At the same time, however, we cannot lose sight of the fact that utilities are frequently called when a customer experiences a shock condition and may be in the best position to deal with such hazards on an emergency basis.

Accordingly, we establish the following requirements applicable to customer-owned equipment. Where a utility finds stray voltage and identifies its source as customer-owned equipment, it shall immediately make the area safe and notify the customer or a responsible person, as appropriate, that a dangerous situation exists. The utility shall advise the customer or responsible person that the cause of the stray voltage must be immediately remedied.

The appropriate course of conduct where customer-owned equipment is the cause of stray voltage should be determined, within these parameters, on a case-by-case basis. As appropriate, the utilities are encouraged to work with their customers to determine and rectify any problems. If a utility chooses to do so, it may charge a reasonable cost for this effort, consistent with a tariff that specifies the amount and manner in which the charges will be calculated. Also, depending on the circumstances involved and in accordance with the provisions of each utility's tariff, the utilities may temporarily remove a customer's meter or take such other actions as are appropriate and necessary to protect the public. Should any utility's tariff not contain provisions related to such actions, the utility is directed to file appropriate tariff amendments. Any such

amendments must specify the procedures the utility will follow and the conditions under which this action is taken.

Streetlights

Staff recommends that the utilities test both the streetlights they own and those to which they directly provide power. Staff further proposes that if a streetlight to which a utility provides service is owned by another entity, and that entity conducts stray voltage testing meeting the requirements described herein, the utility may substitute that testing program for its own, provided the utility can certify the other entity's results. Finally, Staff asserts that all testing associated with streetlights should be conducted when the light is activated (i.e., at night).

As noted above, Niagara Mohawk recommends testing streetlights concurrent with replacing their bulbs, or about once every three to five years. The company opposes testing or inspecting any streetlight that it does not own, regardless of whether it directly supplies power to the facility; it argues that the municipalities that own the facilities should be solely responsible for their maintenance.

O&R states that it should test only company-owned facilities and collect a charge for testing non-company facilities. It agrees with night testing of streetlights. The City suggests that Con Edison has primary responsibility for testing streetlights unless it reaches an agreement with the City that provides otherwise.

Discussion

Given the proximity of streetlights to pedestrian pathways, stray voltage on these facilities is a primary safety concern. In addition to their proximity to the public, utilities often provide service to streetlights via direct and unmetered connections to their distribution systems. The testing conducted by Con Edison, Niagara Mohawk, and O&R found numerous instances of stray voltage on streetlights, and subsequent investigations of these conditions revealed that problems emanate from both the utility's service and the streetlight apparatus.

Given the importance of protecting the public from stray voltage on these facilities, and inasmuch as the utilities are responsible for at least some of the stray voltage conditions, requiring the utilities to test all streetlights to which they provide

service is a proper use of utility resources and ratepayer funds. O&R's request to charge municipalities for this effort is rejected. We disagree with the City's position that responsibility for the safety of municipal-owned streetlights rests with the utility. The municipalities have primary responsibility for safely maintaining their facilities, and should take all appropriate actions to satisfy this responsibility. However, because we do not have jurisdiction over such entities and for the foregoing reasons, we are imposing a concurrent responsibility on the utilities. We encourage the municipalities and the utilities to work together and coordinate their efforts in order to address this important safety issue.

New York City Streetlight Issues

Staff's investigation and comments from the City revealed that Con Edison has a large number of streetlights where power is not provided or is provided via a temporary shunt. The reasons for this vary, but Staff reports that it has seen credible evidence that an unacceptably high level of the stray voltage locations involving streetlights occurred at previously identified no current locations. Therefore, the Staff Proposal includes a specific discussion of and separate recommendations on this issue.

Staff recommends that Con Edison permanently repair all street light and traffic signal poles to which power is currently not provided (i.e., no currents) within three months of the date of this Order. Staff also proposes that Con Edison permanently repair and remove the temporary shunts that provide power to streetlights within three months of the date of this Order. In both instances, the work should be undertaken in a manner such that no other operation, maintenance, or capital work is adversely affected or delayed. Also, Con Edison should coordinate its repair efforts with the appropriate City agencies so that streetlights are not left inoperable after the temporary shunts are removed. Finally, Staff recommends the permanent repair of new no current and temporary shunt conditions within 45 days.

Con Edison reports that it hopes to complete all repairs in compliance with the proposed schedule but that resource constraints may prevent it from doing so. As for the 45-day requirement, the company expresses concern that reasons beyond its control may prevent it from achieving this deadline.

Discussion

We understand that there has been an ongoing dialogue among Staff, Con Edison, and the City to try to resolve these particular issues. We also understand that the Joint Proposal recently filed in Con Edison's electric rate case proposes resolution of these issues. Accordingly, we are transferring this matter to Case 04-E-0572 and will address it there. The Administrative Law Judge presiding over that proceeding will advise the parties of the manner in which he will address this issue.

Other Issues

There are aspects of the Staff Proposal that have not been expressly discussed. This lack of discussion is attributable to the fact that no commenters disputed or offered modifications to those aspects. We have thoroughly reviewed and considered all of Staff's recommendations and adopt without modification all provisions that are not discussed above. Attached hereto as Appendix A is a complete recitation of the safety standards we are adopting and that, as of the date of this Order, apply to each and every electric utility subject to our jurisdiction.

Some parties have raised tangential issues that have not been specifically discussed in this Order. We have fully considered such issues, and they do not warrant specific discussion, changes to the safety standards, or other actions on our part.

CONCLUSION

Public safety is one of our top priorities in meeting the obligations that we have under the Public Service Law. The safety standards adopted herein will take a positive, proactive step towards ensuring the safety of the public from stray voltage and enhancing electric utility reliability. In reaching this conclusion, we have considered all of the comments submitted and balanced the interests and needs the utilities, their ratepayers, and the public.

The Commission orders:

1. The safety standard discussed in the body of this Order and detailed in Appendix A are adopted.

2. The event notification requirements discussed in the body of this Order and detailed in Appendix B are adopted.

3. Each and every electric utility that owns transmission or distribution facilities and is subject to the jurisdiction of the Public Service Commission shall file an original and three copies of a report, within 45 days of the date of this Order, that provides: (i) the details of its voltage testing program; (ii) the details of its inspection program; (iii) the safety criteria it will apply as part of each program; (iv) an inspection schedule that demonstrates how the utility will comply with the requirement to inspect all of its electric facilities at least once every five years; (v) the details of its quality assurance program; (vi) its plans to train its employees and contractors to perform the testing and inspections; and (vii) a description of any research and development activities the utility is conducting or plans to conduct related to stray voltage and safety issues.

4. The provisions of the National Electric Safety Code, including all prospective amendments thereto, are adopted as the minimum safety standards to which all electric utilities subject to our jurisdiction must adhere. Where the safety standards discussed in the body of this Order or a utility's own standards are more stringent, such standards shall apply. A utility may petition for exemption from one or more provisions of the National Electric Safety Code based on a demonstration that valid technical reasons prevent compliance with such provision(s). The burden of proof for every exemption request will reside solely with the utility.

5. All requests for recovery of costs related to development and implementation of the safety standards are denied. Any utility that seeks authorization to recover the costs for complying with the safety standards as an incremental expense shall file a detailed estimate, with supporting documentation and work papers, of its costs for implementing the safety standards. The filing shall include the following elements: (i) identification and justification of the extent to which the costs are incremental to the utility's existing programs and procedures; (ii) an explanation of the extent to which the costs are incremental to the utility's responsibility and obligation under Public Service Law §65(1) to provide safe and adequate service; (iii) a demonstration that the costs satisfy the three-prong test for deferral accounting; (iv) a description of the provisions of

the utility's current rate plan as it relates to these activities; (v) a proposal of the type of cost recovery the utility is seeking (if contemporaneous recovery instead of deferral authorization is sought, the rationale for such recovery shall be provided); and (vi) an exposition of the potential rate and bill impacts to customers.

6. The issues raised by the City of New York in its comments dated July 9, 2004 and October 4, 2004 regarding the electric service it receives from Consolidated Edison Company of New York, Inc. are transferred to Case 04-E-0572, Consolidated Edison Company of New York, Inc. – Electric Rates and shall be addressed by the Administrative Law Judge presiding over that proceeding in the manner he deems appropriate.

7. To the extent any party's comments and proposals have not been accepted or incorporated into the safety standards, they are denied.

8. This proceeding is continued.

By the Commission,

(SIGNED) JACLYN A. BRILLING
Secretary

ELECTRIC SAFETY STANDARDS

SECTION 1: DEFINITIONS

(a) Utilities – The term "utilities" includes all investor-owned and `municipal electric corporations subject to the Commission's jurisdiction that own or operate transmission or distribution facilities, whether fully or lightly regulated. As appropriate, the term also includes companies subject to our jurisdiction that own or operate electric generating facilities within the State, whether fully or lightly regulated

(b) Electric facilities – The term “electric facilities” means and refers to all electric plant, as that term is defined in Public Service Law §2(12), that is used to modulate, transmit, and/or distribute electricity, or is related to its modulation, transmission, and/or distribution. The term “overhead facilities” generally includes the electric facilities that are part of a utility’s overhead distribution system (e.g., the system that serves rural areas and includes towers, poles, and aerial cable and conductors). The term “underground facilities” generally includes the electric facilities that are part of a utility’s underground distribution system (e.g., the system that serves urban areas and includes manholes, service boxes, and underground cable and conductors).

(c) Stray Voltage –The term “stray voltage” means voltage conditions on electric facilities that should not ordinarily exist. These conditions may be due to one or more factors, including, but not limited to, damaged cables, deteriorated, frayed or missing insulation, improper maintenance, or improper installation.

(d) Streetlights – The term “streetlights” means and includes utility- and municipal-owned streetlights located on, along, or adjacent to public thoroughfares and areas and traffic signal poles and devices; it does not include privately-owned light fixtures, such as those located in private parking lots.

(e) Stray Voltage Testing – The process of checking an electric facility for stray voltage using a hand-held device capable of reliably detecting and audibly and/or visually signaling voltage in the range of 8 to 600 volts.

(f) Inspection – A careful and critical examination of an electric facility by a qualified individual to determine the condition of the facility and the potential for it to cause or lead to safety hazards or adverse effects on reliability.

ELECTRIC SAFETY STANDARDS

SECTION 2: NATIONAL ELECTRIC SAFETY CODE COMPLIANCE

(a) The installation, construction, maintenance, and operation of electric facilities shall comply with the latest version of the National Electric Safety Code (NESC), except where a utility's practices, procedures, and protocols are more stringent.

(b) Utilities are not required to retrofit their existing facilities to comply with the latest version of the NESC, unless the latest version of the NESC requires a retrofit.

(c) To the extent that projects currently being constructed do not comply with the NESC or a utility's more stringent standards, exemption from compliance will be considered on a case-by-case basis.

(d) If a utility believes that it cannot satisfy any provision of the NESC for a valid technical reason, it may petition the Commission for an exemption from compliance with that provision.

SECTION 3: STRAY VOLTAGE TESTING

(a) Stray voltage testing shall be conducted on all electric facilities that are capable of conducting electricity and are publicly accessible. Testing is not required on customer meters and customer-owned facilities, except municipal-owned streetlights.

(b) Stray voltage testing shall be conducted on all streetlights.

(c) For underground electric facilities that are publicly accessible, including, but not limited to, manholes, service boxes, and transformer vaults, stray voltage testing shall be conducted on the exposed surfaces of the facilities.

(d) Stray voltage testing of streetlights shall be conducted when the light is activated (i.e., at night).

(e) Stray voltage testing shall be conducted on an annual basis.

(f) If a streetlight to which a utility provides service is owned by another entity, and that entity conducts stray voltage testing meeting these safety standards, the utility may substitute that testing program for its own, provided the utility can certify the other entity's results.

(g) All equipment used for stray voltage testing must be certified by an independent test laboratory as being able to reliably detect voltages of 8 to 600 volts.

(h) Any facility for which the testing device indicates the presence of voltage shall be guarded by the utility immediately and continuously until the utility has eliminated the stray voltage and made the area safe. The utility must take corrective action irrespective of whether the stray voltage is determined to be caused by its own or a customer-owned facility.

(i) In each instance where stray voltage is determined to be caused by a utility-owned facility, best efforts shall be used to effect a permanent repair of the facility as soon as possible, but not later than 45 days after discovery of the stray voltage condition. A temporary repair to the facility may remain in place for more than 45 days only in extraordinary circumstances, and in such event the utility shall periodically perform site visits the monitor the condition of the temporary repair. All exceptions must be identified and justified as part of the reporting requirements under Section 9.

(j) In instances where stray voltage is determined to be caused by customer-owned equipment, the area must be immediately made safe. The utility shall immediately notify the customer or a responsible person associated with the premises or the customer-owned facility of the unsafe condition and the need for the customer to arrange for a permanent repair to the customer's equipment.

SECTION 4: INSPECTIONS

(a) Inspections shall include, at a minimum, visual examination of towers, poles, guy wires, risers, overhead cables and conductors, transformers, breakers, switches, and other aboveground equipment and facilities, and of the interior of manholes, service boxes, vaults, and other underground structures. Where debris or water is found in an underground structure, it must removed before commencing the inspection so that all of the facilities in the structure, and the structure itself, may be fully inspected.

(b) Inspection of equipment should be performed in a manner that allows the inspector to examine its components, except those that are ordinarily encased in sealed compartments. Utilities need not perform destructive testing as part of this inspection program, except as otherwise required by their more intensive inspection procedures.

(c) When a visual inspection indicates the need for a more intensive examination, the utilities shall perform infrared testing and/or other inspection procedures.

(d) When an inspection reveals a hazardous condition or other problem, whether related to stray voltage or otherwise, the utility must make all repairs necessary to eliminate the condition.

(e) All electric facilities shall be inspected at least once every five years. Certain facilities may warrant shorter inspection cycles.

(f) Each utility shall develop and implement a formal inspection program that complies with these safety standards.

ELECTRIC SAFETY STANDARDS

(g) Inspections conducted during routine maintenance and other work not directly related to the inspection program may count as an inspection visit, provided that the inspection is performed using the same safety and reliability criteria and to the same extent as would otherwise be required under these standards. Inspections occurring during these field visits must be properly documented and certified.

(h) This inspection requirement is intended to complement, not supplant, the inspections any utility already performs; to the extent a utility's inspection program is broader or more intensive than the program described herein, the utility should continue to follow its own program.

(i) The testing and inspection programs may be combined, where practical and feasible, provided the synergy satisfies all the requirements contained within these safety standards.

SECTION 5: QUALITY ASSURANCE

Each utility shall develop a quality assurance program to ensure timely and proper compliance with these safety standards.

SECTION 6: RECORDKEEPING

(a) Each utility shall develop procedures and protocols to track the stray voltage testing dates and results for each electric facility.

(b) Each utility shall develop procedures and protocols to track the inspection dates and results for each electric facility.

(c) These records shall be kept in a manner that is readily accessible and searchable, continuously updated, and subject to review and audit by Staff and the Commission.

SECTION 7: CERTIFICATION

(a) Written certification of the completion and results of every stray voltage test and inspection undertaken and that all unsafe conditions identified have been remediated shall be made by an appropriate utility employee.

(b) The President or officer of each utility with direct responsibility for overseeing stray voltage testing shall provide an annual certification to the Commission that the utility has tested all of its publicly accessible electric facilities and all streetlights.

ELECTRIC SAFETY STANDARDS

(c) The President or officer of each utility with direct responsibility for overseeing facility inspections shall provide an annual certification to the Commission that the utility is in compliance with its inspection program and has inspected the requisite number of electric facilities. Additionally, at the end of five-year inspection cycle, the officer shall certify that all of the utility's electric facilities have been inspected at least once.

(d) Each utility shall maintain its written certifications and other documentary proof of its testing and inspections at its corporate office located within the State of New York. These documents shall be available to the public for review upon request and without conditions.

SECTION 8: NOTIFICATION REQUIREMENTS

Each utility shall comply with the Event Notification Requirements attached hereto.

SECTION 9: REPORTING REQUIREMENTS

(a) Each utility shall file a report, within 45 days of the date these safety standards take effect, that provides: (i) the details of its voltage testing program; (ii) the details of its inspection program; (iii) the safety criteria it will apply as part of each program; (iv) an inspection schedule that demonstrates how the utility will comply with the requirement to inspect all of its electric facilities at least once every five years; (v) the details of its quality assurance program; (vi) its plans to train its employees and contractors to perform the testing and inspections; and (vii) a description of any research and development activities the utility is conducting or plans to conduct related to stray voltage and safety issues.

(b) Each utility shall file a comprehensive report by January 15 each year that:

1. details the results of stray voltage tests and inspections conducted over the 12-month period ending November 30 of the prior calendar year;
2. addresses the performance mechanism specified in Section 10;
3. contains the certifications described in Section 7;
4. discusses the analyses undertaken on the causes of stray voltage within the utility's electric system, the conclusions drawn therefrom, the preventative and remedial measures identified, and the utility's plans to implement those measures; and
5. includes all other information that is pertinent to the issues addressed by the safety standards.

ELECTRIC SAFETY STANDARDS

SECTION 10: PERFORMANCE MECHANISM

(a) The annual performance target for stray voltage testing shall be 100% of all electric facilities and streetlights that must be tested. Facilities that are inaccessible and which pose no risk to public health and safety will not be considered in the determination of whether the target has been achieved.

(b) Failure to achieve the annual performance target for stray voltage testing shall result in a rate adjustment of 75 basis points.

(c) The annual performance target for inspections shall be based on the percentage of the average number of electric facilities that must be inspected each year in order to comply with the five-year inspection cycle. That is, the target is based on the one-fifth of the total number of the utility's electric facilities. The specific targets will be as follows:

First year inspection goal	85%	of annual target
Second year inspection goal	90%	of annual target
Annual inspection goal thereafter	95%	of annual target
Fifth year inspection goal	100%	of all facilities to be inspected

(d) Failure to achieve the annual performance target for inspections shall result in a rate adjustment of 75 basis points.

EVENT NOTIFICATION REQUIREMENTS

ALL NOTIFICATIONS SHALL BE MADE WITHIN ONE HOUR OF AN INCIDENT OR EVENT UNLESS OTHERWISE SPECIFIED.

I. System Control - Reports of Impending Emergencies, Emergencies, and Load Curtailment

A. Requests for curtailed electric use, voltage reductions, and load shedding initiated to maintain the adequacy of the electric system and significant bulk supply outages or accidents of consequence are to be reported to the Office of Electricity and Environment by telephone. The specific items to be brought to the Office's attention are as follows:

1. Any decision to issue a request for customer reduction in use of electricity. The Office of Electricity and Environment is to be notified at the time of decision to issue any such request.

2. Any action to maintain the adequacy of the bulk electric system by reducing firm customer loads by voltage reductions, manual switching, operation of automatic load shedding devices, or any other means. The Office of Electricity and Environment is to be notified at the time of decision to take such action.

3. Any bulk supply outage that has, or could have, a significant impact on the utility's electric system or the state-wide system.

B. The following information is to be included in the reports:

1. For Items I.A.1. and I.A.2., the utility shall provide the approximate area(s) affected, the time(s) of the action, the time(s) and/or an estimate of the time(s) of restoration of normal service (or cancellation of a customer request), an estimate of the amount of load reduction expected or load interrupted, and the number of customers affected if load is interrupted.

EVENT NOTIFICATION REQUIREMENTS

2. For Item I.A.3., the utility shall provide a description of the incident and events leading to its occurrence, the time of occurrence, the system(s) affected, and an evaluation of the effect on the system(s).

II. Loss of Electric Service

A. Written reports of electric service interruptions of five minutes or more are required by 16 NYCRR Part 97. Such reports are to be prepared in accordance with the regulations and submitted to the Office of Electricity and Environment.

B. Additionally, telephone notice is to be made for each of the following events:

1. Loss of electric service to 5,000 customers or more lasting 30 minutes or more.

2. Any loss of a distribution system network.

C. Telephone notice of these events occurring after business hours shall be made no later than 8:30 a.m. of the next business day, unless they receive significant media attention, in which case notice shall be provided within one hour.

D. The following information should be provided in the telephone notice:

1. The approximate territory affected.

2. The date and time of the incident causing the interruption.

3. The expected duration of the interruption.

4. If restored at the time of the call, the date and time of restoration.

5. The number of customers affected and amount of load involved.

6. A listing of any critical services affected.

EVENT NOTIFICATION REQUIREMENTS

7. A description of the incident and its cause.

8. Any follow-up actions planned.

III. Reports of Personal Injury Accidents

A. Written and telephone reports of electric system personal injury accidents and deaths are required by 16 NYCRR Part 125. This requirement applies to all electric system accidents that result in injury or death to a non-employee and/or inpatient hospitalization or death to an employee or contractor employed by the utility, including accidents that occur at generating plants. There is no exception for vehicular accidents.

B. All electric shock incidents shall also be reported regardless of whether there was a verifiable injury or not. Electric shock incidents involving animals shall also be reported.

C. All written and telephone reports are to be made in accordance with the regulations and the following requirements and submitted to the Office of Electricity and Environment.

1. Reports for accidents, except those involving a fatality or major media attention, occurring after business hours shall be made no later than 8:30 a.m. of the next business day.

2. The written reports shall be made using the Department's standard form and may be submitted via e-mail or fax.

3. The telephone reports should include the following information:

a. The location of the accident.

b. The date and time of the accident.

c. Whether or not the injured party is a utility employee or contractor.

d. A description of the injuries sustained and the status of the injured party.

e. A description of the accident and its cause.

f. The time the utility received notification of the incident.

g. The time the first utility personnel arrived at the scene.

h. The time qualified utility personnel arrived at the scene (i.e., personnel capable of addressing any safety hazard).

i. Whether response operations were affected until utility personnel arrived.

IV. Unusual Events

A. Major Events

Immediate telephone notification is to be made for major events associated with a utility's electric system that will likely result in considerable media attention. Examples of major events include, but are not limited to, load shedding, catastrophic storm emergencies, boiler explosions, or nuclear radiation releases.

Immediate telephone notification is also to be made whenever a utility's corporate emergency command center (e.g., storm center) becomes operational.

B. Media Attention

Incidents involving utility facilities that are likely to receive attention from the news media are to be immediately reported by telephone. Examples of such events include, but are not limited to, fires, manhole explosions, equipment damage of $1 million or more, and nuclear plant incidents.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service Commission held in the City of Albany on June 15, 2005

COMMISSIONERS PRESENT:

William M. Flynn, Chairman
Thomas J. Dunleavy
Leonard A. Weiss
Neal N. Galvin

CASE 04-M-0159 – Proceeding on Motion of the Commission to Examine the Safety of Electric Transmission and Distribution Systems.

ORDER ON PETITIONS FOR REHEARING AND WAIVER

(Issued and Effective July 21, 2005)

BY THE COMMISSION:

INTRODUCTION

In the aftermath of the tragic death of a New York City resident in January 2004, we began an investigation into Consolidated Edison Company of New York, Inc.'s (Con Edison) procedures to ensure the public's safety.[1] Because the information gathered as part of our investigation demonstrated that stray voltage concerns are not limited to Con Edison's service territory, we broadened the scope of the proceeding to consider the need for and appropriateness of statewide measures. On January 5, 2005, we adopted a set of statewide safety standards that apply to the electric utilities subject to our jurisdiction.[2] In the Safety Order, we took positive, proactive steps towards ensuring the

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[1] Case 04-M-0159, Safety of Consolidated Edison Company of New York, Inc.'s Electric Transmission and Distribution Systems, Order Instituting Proceeding, Requiring Additional Testing and Any Necessary Repair and Report on Status of Electric System (issued February 11, 2004).

[2] Case 04-M-0159, supra, Order Instituting Safety Standards (issued January 5, 2005) (Safety Order).

safety of the public from stray voltage and enhancing electric utility reliability in the State of New York. The safety standards include: (1) annual stray voltage testing of electric facilities accessible to the public, using qualified voltage detection devices; (2) inspections of utility electric facilities on a minimum of a five-year cycle; (3) recordkeeping, utility officer certification, and reporting requirements; and (4) adoption of the National Electric Safety Code as the minimum standard governing utility construction, maintenance, and operations. The safety standards also require that where a utility finds stray voltage, it must immediately make the facility safe and repair it within a short time period. We also adopted a performance mechanism to ensure that the utilities maintain proper focus on safety and comply with the safety standards. The utilities were required to file implementation plans within 45 days after the Safety Order was issued.

On February 4, 2005, we received a joint petition for rehearing from Central Hudson Gas & Electric Corporation (Central Hudson), New York State Electric & Gas Corporation (NYSEG), Niagara Mohawk Power Corporation (Niagara Mohawk), and Rochester Gas and Electric Corporation (RG&E) (collectively, the "Upstate Utilities"); a petition for rehearing from Orange and Rockland Utilities, Inc. (O&R); and, a separate petition for rehearing from NYSEG and RG&E. The Upstate Utilities and O&R state that the time frame given to perform stray voltage testing is not adequate and request extension of the deadline for completion. The Upstate Utilities and O&R also question the inclusion of fiberglass handholes in the inspection process. They raise concerns regarding cost recovery and the certification process and dispute the performance mechanism. NYSEG and RG&E seek reconsideration of the Safety Order's treatment of cost recovery for associated expenditures.

Additionally, Niagara Mohawk, Central Hudson, NYSEG, and RG&E filed petitions seeking waivers of compliance with the November 30, 2005 completion date for stray voltage testing established in the Safety Order. Each of the utilities instead request August 30, 2006 as the deadline for completion of stray voltage testing on all publicly accessible electric facilities.

In this Order, we modify the initial schedule for stray voltage testing of some facilities for electric utilities other than Con Edison. All utilities, however, are still required to complete testing on underground facilities and streetlights in accordance with the Safety Order.[3] Additionally, we clarify the certification requirements and eliminate the need for interior inspections of fiberglass handholes. The requests for modifications of the performance mechanism and cost recovery requirements are denied. Finally, we adopt some additional refinements to the safety standards.

SUMMARY OF PETITIONS FOR REHEARING

Upstate Utilities

Schedule for Stray Voltage Testing

Pursuant to the Safety Order, electric utilities are required to conduct tests for stray voltage on all publicly accessible electric facilities by November 30, 2005. The Upstate Utilities state that such testing can be performed within urban settings, but they argue that the timetable set is impractical for the non-urban portions of their service territories. They cite the large geographic areas that need to be tested, approximately 50,000 square miles overall, in comparison to Con Edison's 630 square mile system.[4] They indicate that the effort needed to test the remote and sparsely populated regions will dwarf the effort to test the urban networks in their territories. For Niagara Mohawk alone, over 64,000 circuit miles would need to be traversed and in excess of 800,000 stray voltage tests would need to be conducted in less than one year. With respect to the potential risks in non-urban areas, they claim that "[t]here is no demonstration that the risks associated with stray voltage in the Upstate Utilities' service territories is in any way comparable to the risk in a dense urban network" (p. 5). The Upstate Utilities indicate

[3] As used herein, the term “streetlights” has the same definition as in the Safety Order.

[4] Central Hudson provides service in territory that covers 2,812 square miles, NYSEG, 18,359 square miles, Niagara Mohawk, 24,500 square miles, and RG&E, 2,700 square miles.

that, according to the 2000 U.S. Census data, the population densities for the downstate urban areas are between 10,000 and 230,000 persons per square mile, and densities in the upstate areas are between 40 and 80 persons per square mile. Therefore, they claim that the risk posed to pedestrians in their territories is a small fraction of the risk in the downstate regions and this differential supports prioritizing stray voltage testing based on population density.

The Upstate Utilities express concerns regarding startup or implementation of the program, claiming that such efforts will make it difficult to meet the schedule for stray voltage testing in 2005. They state that time is needed to design programs for stray voltage testing, inspections, and quality assurance before any field work can occur. Additionally, the utilities must develop systems for recordkeeping, field collection, tracking and reporting, as well as conduct appropriate training for employees and contractors prior to testing. They also state that they need to acquire certified test equipment, produce maps outlining the overhead and underground distribution facilities, transmission facilities, and streetlighting systems, and supply the materials to the testers. They note that certain tasks need to take place sequentially (e.g., procedures must be developed before training), which further extends the process.

They assert that completion of the startup tasks will take several months at a minimum and contend that it is not reasonable to expect voltage testing as well as safety inspections to begin prior to May 2005. They view the identification of the location of facilities that require testing to be an overwhelming task, particularly for streetlights owned by municipalities. In addition, they claim that identification of municipally-owned facilities has required them to ask and await a response from each municipality as to the locations of the municipality's facilities requiring stray voltage testing. Absent this information, the Upstate Utilities claim that they would need to walk or drive every road of each municipality within their respective service territories to identify non-utility owned facilities. This information gathering process is out of their control, the Upstate Utilities continue, and could delay stray voltage testing of these facilities. They assert that we did not consider these limitations nor the differences in non-urban systems

compared to dense urban networks when we established the stray voltage testing schedule in the Safety Order.

As a result, the Upstate Utilities seek to extend the deadline for stray voltage testing of certain facilities located in sparsely populated and low pedestrian traveled areas, referred to as "Remotely Accessible Areas," past the date specified in the Safety Order. However, they did not specify a uniform time frame to complete that testing. Instead, they propose to provide utility-specific information in their individual implementation plans, based on each utility's evaluation of its service territory and resources. They state that this proposal would still require them to meet the November 30, 2005 requirement for facilities outside the Remotely Accessible Areas. In their opinion, such an approach would allow the utilities time to design and implement testing and inspection programs properly and perform testing in the higher risk areas by the end of the first year. Additionally, they contend that the time extension for Remotely Accessible Areas would not force them to assign qualified personnel to conduct stray voltage testing and divert these resources from other utility work. Finally, they assert their requested delay would not compromise public safety.

The Upstate Utilities also express concern that the testing must be performed every year, indefinitely. They ask that we confirm that we will consider the results of the programs to determine the appropriate extent of future testing.

Performance Mechanism

The Upstate Utilities dispute our authority to enforce the performance mechanism included in the Safety Order. They contend that the performance mechanism is contrary to Public Service Law (PSL) §25, contravenes separation of powers, is inconsistent with due process, and contains rate adjustments that are arbitrary and capricious. They argue that the performance mechanism is unnecessary, in general, to ensure that they make an effort to comply with the Safety Order.

They contend that we do not have authority to impose penalties other than those identified in PSL §25. The Safety Order indicates that the performance mechanism is designed to operate in a similar fashion as those found in multi-year rate plans. The

Upstate Utilities, however, assert that performance mechanisms included as part of multi-year rate plans are agreed to voluntarily as part of a joint proposal. They continue that we cannot diverge from the penalty structure in PSL §25 without the utilities' consensual agreement.

They further contend that the punitive nature of the performance mechanism is unmistakable and should not be considered an incentive mechanism for ratemaking purposes. Labeling the performance mechanism a ratemaking adjustment does not change its administrative penalty nature, and, as defined, the potential revenue adjustments are penalties, not ratemaking adjustments. The Upstate Utilities argue that the performance mechanism is directly contrary to the PSL §25 because it is intended to punish the utilities for failure to comply with the standards. They claim this contradiction between the Safety Order and statutory requirements makes the performance mechanism unlawful because it violates the separation of powers doctrine.

The Upstate Utilities also argue that the performance mechanism is inconsistent with the due process allowed when a utility violates a Commission order. They claim that the Safety Order is self-executing and fails to provide notice, opportunity for hearing, or right to a jury. They contend that this is inconsistent with the statutory schemes of PSL §§24 and 26, and that fundamental requirements of due process. They also indicate that utilities should have the right to a jury trial, given the magnitude of the rate adjustment.

Additionally, the Upstate Utilities assert that the two rate adjustments are arbitrary and capricious and that the performance mechanism lacks a rational basis because it is disproportionate and does not reflect any degree of non-compliance (i.e., missing tests on only one or most facilities results in the same rate adjustment). The structure fails to consider exculpatory factors and does not recognize good faith efforts to comply with the Safety Order. The Upstate Utilities claim the performance mechanism would not withstand judicial scrutiny.

Cost Recovery

The Upstate Utilities raise several concerns about the methodology for cost recovery as they implement the Safety Order. They contend that certain language in the Safety Order is in need of clarification. They do not understand why the Safety Order denies requests for cost recovery when none of the companies filed such a request. If our intent was to pre-determine cost recovery requests in the Safety Order, they continue, it would be void because statutorily required procedures, such as a hearing, were not followed.

The Upstate Utilities are also concerned that our restatement in the Safety Order of the three-part test we typically apply in evaluating deferral requests supercede provisions of their rate plans. Most troubling to them is that the Safety Order specifies that requests not meeting the three elements of the traditional process would not be favorably considered. They object to requirements that alter rate plans, particularly given that we did not find the rate plans unjust or unreasonable. The Upstate Utilities state that no notice was provided to them indicating that rate implications were being considered as part of this proceeding. They also claim that, pursuant to PSL §66, we are obligated to hold hearings prior to imposing new ratemaking provisions, but that no such hearings were held prior to the issuance of the Safety Order. The Upstate Utilities argue that it would be unlawful to supercede the rights and procedures established in rate plans without following the requirements of PSL §§66 and 72. They therefore seek clarification of our intent regarding rate recovery and relationship of the Safety Order to their rate plans.

Certification Requirements

The Safety Order requires utility executives to certify compliance with the safety standards on an annual basis. The Upstate Utilities contend that none of their executives could reasonably certify that all of its facilities, as well as all applicable municipal streetlights, had been tested. They ask that the language be clarified to require an executive to state that the stray voltage testing program was implemented and that the executive is not aware of facilities that were not tested, except those identified as missed

for sensible reasons. This certification would be based on an executive's knowledge, information, and belief.

Inspection of Fiberglass Handholes

The Upstate Utilities explain that fiberglass handholes and services boxes are underground structures where services for a few customers are connected to a distribution line. The structures are sealed, not routinely accessed, and not exposed to road salt, vibration, or other factors that typically lead to stray voltage conditions. Due to their fiberglass composition, they are non-conductive; therefore, even if the insulation on a distribution line, service, or connection deteriorates, contact between the exposed wire and the structure would not present a risk of shock to the public.

The Upstate Utilities also claim that routine access will likely cause damage to the boxes, and this would be inconsistent with the Safety Order because it does not require destructive testing. For these reasons, they seek to exclude such structures from interior examination as part of the inspection program. As to external inspections, they recommend that each utility specify its own protocols.

NYSEG and RG&E

In a separate petition, NYSEG and RG&E seek reconsideration of the Safety Order's discussion of cost recovery associated with the implementation of the safety standards. The companies seek approval to recover, as part of their next rate filings, incremental costs associated with complying with the Safety Order. They state that the broad scope of the Safety Order and potentially substantial costs and resource burdens to comply with it were not considered when they negotiated their rate plans. The companies argue that the Safety Order alters the balance in the rate plans and contend that it would be inappropriate to treat such costs through the general recovery provisions in the rate plans. They assert that their multi-year rate plans allow for the deferral of costs due to mandatory regulatory changes, such as those contained in the Safety Order, without consideration of the standard test for considering deferrals.

O&R

O&R questions the schedule established for stray voltage testing and inspections. The company states that the startup time and logistics with labor, program development, acquiring equipment, and training will significantly impede compliance in the first year. O&R estimates the startup time to be a minimum of six months, which leaves five months to perform the testing and inspections. In its opinion, there is insufficient time to comply with the Safety Order in 2005 due to the large volume of facilities that require testing and inspections. As a result, O&R proposes completion of half of the voltage testing by the end of 2005. It also proposes a reduction in the percentage of facilities to be inspected annually from the required 20% to 10% for the first year. The company would adhere to the original annual testing process and inspection schedule in subsequent years. This would include completing inspections on its entire system within five years.

O&R also argues that the performance mechanism is arbitrary and unwarranted. The company notes that a 150 basis point adjustment for non-compliance would likely be in excess of 10% of its yearly earnings. Additionally, requesting full compliance (i.e., testing all facilities) is unrealistic and a poor approach to satisfy our objectives. O&R remarks that the all-or-nothing approach may compel the company to diminish other important programs to avoid a rate adjustment. The company contends that the performance mechanism is illegal because it does not conform to PSL §25. O&R further contends that we must adhere to the judicial process rather than imposing punitive economic sanctions. The company notes that the statutory scheme in PSL §25 allows for full due process rights, in contrast to the automatic revenue adjustment in the Safety Order. Therefore, O&R requests that the performance mechanism be rejected.

For many of the same reasons propounded by the Upstate Utilities, O&R seeks to exclude fiberglass handholes from the inspections. O&R also raises a concern about potential damage to the handholes if opened repeatedly. O&R states that exposing the handholes for inspection could lead to future damage and may increase customer complaints because these facilities have become incorporated into the landscape. In

contrast to the Upstate Utilities, though, O&R seeks to exclude such structures from both internal and external inspections.

The Safety Order requires that utilities must immediately and continuously guard a facility when stray voltage is detected until it is made safe, irrespective of who owns the facility. In cases involving customer-owned equipment, utilities are required to contact a responsible person associated with the premises to inform them of the need to take corrective actions. O&R states that, unlike situations involving utility-owned facilities, the company does not have the authority to require others to guard and repair facilities. Therefore, O&R seeks clarification with respect to its responsibilities to protect a customer-owned facility in the event stray voltage is detected. The company points out that its obligation to make a situation safe may present a more hazardous situation, such as de-energizing a traffic signal. O&R proposes that, in cases where termination of service is not reasonable, it be allowed to use barrier protection and signage to fulfill its obligation to guard a facility. Also, the company recommends that the requirement only obligate it to make a good faith effort to contact a customer. O&R is concerned that, absent clarification, it could face additional liability exposure.

Finally, O&R proposes the institution of a program to immediately begin collecting and evaluating data related to stray voltage. Once sufficient data has been gathered and evaluated, it expects the safety standards to be modified to account for exposure differences between its systems and urban underground systems used in New York City. To expedite potential changes to the stray voltage testing requirements, the company recommends undertaking this effort concurrently with the mandated testing and inspection programs. O&R states that the program should include an independent review of available data, evaluations of the effectiveness of the standards, which would take into account various system designs, and generation of detailed technical reports. The company proposes that the New York State Energy Research and Development Authority (NYSERDA) coordinate the program and involve industry experts, in addition to utility representatives and Department of Public Service Staff (Staff).

SUMMARY OF WAIVER REQUESTS

The Safety Order required all utilities subject to our jurisdiction to file implementation plans within 45 days after the Order's issuance. Because we had not acted upon the Upstate Utilities' petition for rehearing before the deadline for filing the plans, Central Hudson, Niagara Mohawk, NYSEG and RG&E filed requests for waiver of the November 30, 2005 completion date for stray voltage testing.[5] The waiver requests present the same arguments as those contained in the Upstate Utilities' petition for rehearing and further support their contention that the initial schedule in the Safety Order is unattainable. Each of the waiver requests seeks an extension until August 30, 2006 to complete stray voltage testing on all facilities. None of the implementation plans filed by these utilities indicate that an initial round of stray voltage testing would be completed by November 30, 2005.

Niagara Mohawk claims that it would not be feasible to complete testing over all of its service territory in the time frame outlined in the Safety Order. The company argues that stray voltage testing should be prioritized on a basis that reflects the relative risks associated with physical proximity of facilities to population densities. Therefore, Niagara Mohawk segregated its circuits based on the distance between customer meters. The company indicates that circuits with less than an average of 100 yards between customers would be considered generally accessible and tested for stray voltage first. It commits, however, to completing stray voltage testing in generally accessible areas by November 30, 2005. The remaining circuits, primarily located in sparsely-populated areas, would be considered "Remote" and tested once the company has completed stray voltage testing on its generally accessible circuits. In addition, the

[5] O&R did not file a waiver request because its implementation plan indicated it would comply with the Safety Order's requirement of completing all stray voltage testing by November 30, 2005. The company indicated to Staff that it would initiate stray voltage testing in Rockland County and highly populated communities in Orange and Sullivan Counties.

company stated that access to facilities on these remote circuits would be difficult during winter months, defined as December through March, inclusive.

Like Niagara Mohawk, Central Hudson commits to complete a certain amount of stray voltage testing by November 30, 2005. The company developed a schedule based on a system-wide analysis of its existing inventory of facilities subject to testing requirements. Central Hudson indicates that it would begin its stray voltage testing on facilities served by underground network systems in its higher population density areas (i.e., Poughkeepsie, Newburgh, and Kingston). The company estimates that stray voltage testing would be completed by November 30, 2005, on approximately 150,000 facility locations, including, but not limited to, its underground network systems. Central Hudson also cites access issues and personal safety concerns during the winter months.

NYSEG and RG&E state that they would ensure completion of stray voltage testing by November 30, 2005 in "all areas where the public is likely to contact equipment that could transmit stray voltage" (p. 3). They do not, however, specify the method proposed for identifying these locations. The companies have subsequently indicated to Staff that they would begin stray voltage testing in urbanized areas and urban clusters, as defined by the U.S. Census Bureau. Using Census data from 2000, NYSEG and RG&E identified areas within their territories meeting the population density criteria, such as Rochester, Binghamton, Ithaca, and Elmira. The companies are of the opinion that the public is highly unlikely to come into contact with the facilities scheduled for stray voltage testing after November 2005.

SUMMARY OF PUBLIC COMMENTS

In accordance with State Administrative Procedure Act §202(1), notice of the petitions for rehearing was published in the State Register on February 23, 2005. Notice of the waiver requests was published in the State Register on March 23, 2005. Comments were received from Roger M. Lane, the City of New York (City), the New York State Consumer Protection Board (CPB) and Assemblyman Ryan Scott Karben. We also received a comment from a concerned citizen via the Department's Web site.

Roger M. Lane

Mr. Lane states that he has entered into an agreement with Con Edison that requires the company to undertake an aggressive stray voltage program that may be more stringent than our requirements. He is concerned that modifications to the Safety Order based on the petitions for rehearing may affect his agreement with Con Edison.[6]

Based on his experience with Con Edison's ability to start a stray voltage program, Mr. Lane states that there is no reason, either financial or operational, for other utilities to delay the startup or extend the time period to complete their stray voltage programs and that granting any such delays could increase the risk of injuries to the public. Mr. Lane also argues that it is inappropriate to eliminate the performance mechanism. While he acknowledges Con Edison's good faith efforts, he is convinced that substantial rate adjustments are an appropriate means to ensure compliance.

The City of New York

The City's comments were limited to responding to the Upstate Utilities' request to place conditions on their annual testing certification. It interprets the utilities' request as seeking a blanket exemption from any potential liability or rate adjustment should their testing prove to be inadequate. The City asserts that the Upstate Utilities failed to establish any error of law or fact that warrants altering the approved certification requirement. It contends that it is reasonable to expect and require utilities to account for stray voltage testing of their electric facilities by having the president or officer with direct responsibility for the stray voltage testing certify that the testing has taken place. For these reasons, the City argues that the Upstate Utilities' request is without merit and should be rejected.

[6] The agreement between Mr. Lane and Con Edison is a private matter between those parties. It was not approved by us, and therefore has no bearing on our determinations in this matter.

The City also notes that Con Edison did not file a petition for rehearing. Therefore, it continues, to the extent we grant rehearing of any aspect of the Safety Order, we should not modify the requirements imposed on Con Edison.

Consumer Protection Board

In the petitions for rehearing, the utilities claim they could not begin to plan and implement testing and inspections until the Safety Order was issued on January 5, 2005. CPB points out that, on July 30, 2004, the Staff Proposal recommended new testing and inspection requirements that would be applied uniformly to all electric utilities. The Staff Proposal also described in detail testing and inspection requirements. CPB states that the Safety Order issued on January 5, 2005 did not differ in any material way from the Staff Proposal. Therefore, CPB asserts that more could have been done by the utilities to prepare for the upcoming Safety Order. CPB states, however, that thoroughness and accuracy are at least equally important as speed in ensuring that the safety standards achieve the fundamental objective of protecting the public. CPB recommends that we consider the merit of each utility's plans on an individual basis and require that the utilities catch up with the annual testing schedule as soon as possible. CPB also proposes that the testing and inspection efforts start with the facilities known to have the highest probability of potentially dangerous conditions.

CPB disagrees with the utilities' proposed testing plans, arguing that all the people of New York State are entitled to receive safe utility service whether they live in densely or lightly populated areas. Therefore, the safety standards should be applied uniformly until sufficient data exists to justify modification. CPB urges that the inspection and testing requirements should not be weakened based on untested assumptions as to the safety risks, which may or may not exist in a given geographic region. CPB recommends that we consider proposals to modify inspection and testing requirements for particular regions or facilities only when sufficient information is available to demonstrate that the changes maintain safety and are cost effective.

While the utilities contend that the performance mechanism is unlawful, CPB affirms that, under PSL §66, we have power over the ratemaking policies of electric

utilities. CPB contends that our decision was rational and that the performance mechanism is indeed a valid exercise of our authority. CPB also submits that utilities are free to request a hearing, should a rate adjustment be imposed.

Although CPB agrees that, in general, the performance mechanism is proper, it is concerned that the mechanism's application could produce unfair results in some cases. CPB indicates inconsistencies between Appendix A and the body of the Safety Order in regard to the application of the rate adjustments as an absolute or potential consequence for failure to meet a performance target. CPB prefers the language used in the body of the Safety Order, recommending that we should maintain flexibility, rather than employing an all-or-nothing approach. By doing so, we can consider circumstances, where appropriate, that may not require a full 75 basis point rate adjustment.

CPB argues that the utilities' position on cost recovery lacks merit and that the utilities should be required to satisfy the three part test prior to receiving any cost recovery for complying with the Safety Order. CPB asserts that the necessity of the Safety Order demonstrates that utilities were not fully satisfying their obligation to provide safe and adequate service. CPB, however, states that "it does not imply that adequate levels of safety were unachievable under existing rate regimes, or that the cost of complying with the safety standards adopted by the Commission is inherently incremental to existing rates" (p. 10). Therefore, CPB believes that it is appropriate to place the burden of proof on the utilities to show through filings that existing rates do not account for costs to comply with the Safety Order.

CPB recommends that we maintain and clarify the certification requirement. CPB states that it is appropriate to require certification of the utilities' testing and inspection programs by a utility official. CPB concedes, though, that placing officials in a position of certifying to a level of knowledge that they could not be expected to achieve would not be useful. Therefore, CPB proposes that officials should certify that due diligence has been exercised to comply with the Safety Order and assure the accuracy of the information contained in the certificate.

Finally, CPB acknowledges that the issue of inspecting fiberglass handholes is a technical one and should be resolved based on an examination of available information. CPB is not opposed to exempting fiberglass handholes from the Safety Standard requirements provided that, in the event of a failure, the handholes would not pose a stray voltage shock hazard and the inspection process itself does not generate unnecessary costs and/or reduce the safety of the enclosures.

Assemblyman Ryan Scott Karben

Assemblyman Karben agrees that we should modify the Safety Order to recognize the differences in population and equipment throughout the State. He opposes, however, the dramatic extension of the stray voltage testing schedule sought by the utilities. He states that comprehensive and regular inspections of our electrical infrastructure are essential and urges us to work with the utilities to establish a practical schedule for a vigorous testing program. Assemblyman Karben contends that, although some changes may be warranted, we should not compromise the effectiveness of the safety standards by allowing an indefinite time for testing or eliminating the rate adjustments for noncompliance.

Other Comments

A concerned citizen completed a consumer comment form on the Department's Web site regarding this matter. The individual said it was "outrageous" that utilities are requesting extensions and removal of the performance mechanism on a matter of the "utmost importance" to public safety. The commenter expressed concern for the overall public safety throughout the State and accused the utilities of not doing their part. Therefore, the individual recommends that we ensure that the public safety is not jeopardized when we consider the utilities' requests.

DISCUSSION

Electric utilities operating in New York State have the responsibility under PSL §65(1) to furnish safe and adequate service. The utilities are also responsible for managing their electric systems in compliance with PSL §65(1) and must satisfy their obligation to operate and maintain their infrastructure in a safe manner. The Safety Order

clarifies that the utilities must address this responsibility by conducting stray voltage testing and inspections in an efficient manner to mitigate danger to public health, welfare, and safety. Compliance with the stray voltage testing and inspection programs resides entirely within the utilities' control, and their senior management must commit sufficient resources to perform adequate programs and take the necessary actions to ensure a safe and reliable electric system.

Initial Schedule for Stray Voltage Testing

We recognize that the development and implementation of a stray voltage testing program is an enormous undertaking, requiring commitment of a substantial workforce.[7] Since stray voltage testing programs are new requirements, limited resources may be available for conducting these tests.[8] Staff reports that there is also considerable competition among utilities for the services of contractors capable of carrying out the stray voltage test programs. Consequently, we acknowledge the need for time to establish a sufficient quantity of trained personnel to perform stray voltage testing.

Also, the Safety Order requires that voltage testing devices be capable of measuring between 8 and 600 volts. At the time the Safety Order was issued, only two test devices were certified as meeting this requirement. Each device relied on a sensitivity adjustment to meet the low end of the voltage range. Recently, a new testing device capable of meeting these measurements without relying on a sensitivity adjustor has become available. Although the new device was recently put on the market, the

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[7] For example, when Con Edison performed its initial stray voltage testing, it employed over 1,000 contractor employees and company personnel.

[8] The training necessary to perform stray voltage testing is not formidable, but adequate and proper training is necessary to assure performance of testing in a safe and competent manner.

manufacturer has been unable to satisfy the resulting demand for it by utilities and contractors.[9]

The utilities also allege that the development of data management systems to properly document the stray voltage testing and inspection activities will take longer and is more involved than anticipated. Staff reports that, in the case of Con Edison, development of data management systems lagged initial stray voltage testing activities. As a result, recordkeeping in the later stages of stray voltage testing was significantly improved, in comparison to the early testing phases.

The utilities further contend that the task of identifying the facilities to be tested is formidable and takes time. We acknowledge that identification of the municipal facilities to be tested involves a considerable effort and is a consideration in developing a reasonable time for completion of the initial round of stray voltage testing. Some utilities note that they intend to contact municipalities within their service territories in an effort to obtain information concerning the location of streetlights; the ability of the municipalities to commit the necessary resources to obtain the information may have an impact on time required for the initial testing. Although it is reasonable to use other sources for identifying publicly accessible facilities, the identification of all such facilities is the utilities' responsibility, and the utilities, not the municipalities, will be held accountable for testing those facilities.

Based on the information before us, it appears that some utilities may not be placing sufficient emphasis on locating these facilities within their service territories and are primarily relying on other parties to provide them with such information. While we encourage cooperative practices, the responsibility for identifying all publicly accessible facilities for testing should not be delegated to the municipalities.

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[9] We do not recommend or promote any particular manufacturer's products, and the utilities are each responsible for choosing appropriate devices for stray voltage testing. Nevertheless, we understand that many utilities are interested in purchasing this new product and the challenges caused by its lack of availability.

Separately, the arguments presented by the utilities are insufficient to justify modifying the schedule. However, based on the totality of the arguments presented and because the circumstances described by the utilities may affect the achievement of the overall goal of our Safety Order, reconsideration of the schedule is warranted.

Since January 2005, the utilities have made significant strides in implementing changes to their operating practices to comply with the Safety Order. As CPB notes, however, since July 2004, the utilities have been aware of the possibility that we would impose safety standards and of the general composition of the standards. More initiative or basic ground work to prepare for the new standards would have facilitated a quicker and more efficient implementation of the stray voltage testing programs. A thorough, well thought-out testing program, however, will provide maximum public benefit.

The Safety Order noted that the utilities would need to commit some period of time in the first year to fulfill startup requirements. Staff's investigation indicates that this process is taking longer than originally anticipated. If the utilities rush implementation of their stray voltage testing programs to meet the November 30 deadline, it may result in inaccuracies and oversights and compromise the overall goal of the safety standards. Additionally, to comply with the November 30 deadline, the utilities may, inappropriately, divert a significant portion of their resources from other important capital projects and maintenance activities to perform stray voltage tests.[10] A properly planned and implemented stray voltage testing program, performed in conjunction with scheduled capital and maintenance work, is in the best interest of the public. For all of the above reasons, modifications to the initial schedule for stray voltage testing are warranted. We, therefore, grant the petitions for rehearing in part.

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[10] The utilities are advised that we will not countenance any excuse that other work was delayed due to compliance with the Safety Order. The utilities are obligated to timely and properly perform all work necessary to provide safe and adequate service to their customers.

Schedule Adjustment Criteria

O&R proposes completion of 50% of the stray voltage testing by November 30, 2005. The Upstate Utilities propose that the modification of the schedule be based upon accessibility of areas in their service territories and testing of Remotely Accessible Areas after November 30, 2005. Each utility specified different approaches to define such areas within its implementation plan. While the Upstate Utilities argue that population densities support their position that urban areas are more hazardous and should be assigned first priority in the initial stray voltage testing program, they have not offered any data to support this position.[11] Since insufficient information is available to support an evaluation of risk in urban versus rural areas and assign priorities, we concur with CPB that it is inappropriate to differentiate on the basis of this distinction in establishing a stray voltage schedule.

As indicated in the Safety Order and in reports received by the Department over the past year or so, numerous instances of stray voltage are associated with streetlights. Staff's monitoring of stray voltage testing by Con Edison and Niagara Mohawk indicates that the incidence of stray voltage associated with streetlights is much higher than on other types of electric facilities. This information, coupled with the accessibility of streetlights, provides a basis for differentiation of these facilities. Accordingly, we require completion of stray voltage testing of streetlights by November 30, 2005.

[11] Niagara Mohawk submitted a report on the incidence of stray voltage by geographic distribution with its waiver request. Although the stated conclusion in the report is that there is greater risk to the public in high population density areas, the data presented therein shows no difference in the incidence between urban and rural settings.

Electric facilities served by underground utility systems are also often located in high pedestrian traffic areas. It is therefore reasonable for utilities to conduct testing of these publicly accessible facilities by November 30, 2005 as well.[12]

Based upon the implementation plans filed, we expect the utilities to complete stray voltage testing on roughly half of their systems this year. While we will not formally impose this level as a requirement, we strongly encourage the utilities to exceed this level by the end of 2005 and to complete their first cycle of stray voltage testing as soon as practical. Given the circumstances presented, the proposed date of August 30, 2006 for completing the first round of testing for all of the utilities' publicly accessible facilities appears to be reasonable and is approved. This time extension shall also apply to municipal and lightly regulated electric corporations; it will not apply to Con Edison because it already has an established annual stray voltage testing program.[13]

Inspections Schedule

Unlike stray voltage testing, utilities routinely inspect their facilities to ensure proper operating conditions. While the Safety Order imposes new regulations on the inspection process, they are not burdensome. Additionally, by giving the utilities more time to complete the initial round of stray voltage testing and relaxing the requirements for inspecting fiberglass handholes, as discussed later in this Order, there is no reason why each utility could not meet the inspection target. Therefore, the inspection program need not be modified, and O&R's request is denied.

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[12] This does not necessarily include all subdivisions using underground residential distribution (URD) facilities. Each utility shall determine the appropriate schedule for testing URD facilities based on its assessment of the exposure of such facilities to the public and other pertinent considerations. URD facilities assessed as having high priority should be tested by November 30, 2005.

[13] Although we are extending the schedule for the first round of stray voltage testing, the January 15 reporting requirements specified in the Safety Order are not similarly affected.

Inspection of Fiberglass Handholes

The Safety Order excepted only those facilities that are ordinarily encased in sealed compartments from the inspection requirement. The Upstate Utilities seek to exclude the requirement to open fiberglass handholes and leave it up to each utility as to how to include them in their respective inspection programs. O&R, however, seeks to exclude fiberglass handholes from the inspection requirements entirely.

Utilities have used fiberglass handholes for decades in residential developments where the electrical service is supplied underground. There are numerous pad-mount transformers located throughout these subdivisions to step down the voltage to residential usage levels. Customers are either served directly from the transformer or via a fiberglass handhole located adjacent or near to the transformer.[14] A typical fiberglass handhole serves two or three customers. The handholes are open-bottom structures with fiberglass covers that lie on top of or fit tightly into recessed openings in the base and are secured with bolts.[15] The handholes are initially installed at grade level for easy access to the service connections; in many cases, though, handholes are buried or hidden by growth over the years of plantings or other landscaping. The electrical connections within the handholes are rubber covered and the actual cable connections are bolted together and heat shrunk for insulated and waterproof connections. None of the utilities inspect these facilities on a regular basis; they are opened when a customer outage or other problem occurs.

Staff analyzed electrical service outage data pertaining to the use of the fiberglass handholes in residential locations. Of these nearly 13,000 fiberglass handhole locations, six outages occurred inside handholes in 2003 and 16 outages occurred inside

[14] The transformers and handholes are generally located within ten feet of the roadway and on or near the property lines of the customers served.

[15] The Upstate Utilities claim that the inspections have the potential to damage the "seals" of the fiberglass handholes by having them opened and closed repeatedly. This claim lacks merit because fiberglass handholes do not make use of a gasket or other measure as a seal between the enclosure and its cover.

handholes in 2004.[16] Additionally, Staff conducted field inspections on fiberglass handholes with various installation time frames. The inspections did not reveal any problems with the cables or connection points.

Based on this information, requiring the utilities to open and inspect the interior of fiberglass handholes would not significantly improve reliability and is not necessary to ensure protection of the public from stray voltage. It is unnecessary for the utilities to allocate the extra time and cost required for the inspection of the fiberglass handholes throughout each of their service territories. Further, as the utilities explain, the structures are non-conductive and are not generally exposed to road salt and vibration. These circumstances support a finding that fiberglass handholes present little risk of shock and do not pose safety concerns or stray voltage hazards.[17] Therefore, fiberglass handholes are excluded from the interior inspection requirements.

The utilities should, however, make reasonable efforts to examine fiberglass handholes when conducting inspections on other facilities located in the same general areas (e.g., pad-mount transformers). We expect the utilities to be observant of damage to the structures (e.g., cracked or broken covers) or other deficiencies that compromise the integrity of the handholes and may cause or lead to a safety or reliability problem. The utilities are not required to maintain separate records for each handhole location unless problems are identified; inspection records based on the pad-mount transformer location are sufficient. This exception to the safety standards does not apply to any handhole and/or similar underground structure that is made of electrically conductive material.

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[16] The majority of outages at these locations relate to failed or damaged cable buried in the ground. They are not accessible for inspection; and, thus, they were excluded from the study.

[17] Staff also found that inspections or routine access of these handholes would not cause damage to the handholes as the petitioners claimed.

Certification Requirements

The Safety Order requires the president of each utility or the officer that directly oversees the utility's stray voltage testing program to submit a written statement certifying the testing of all publicly accessible facilities and streetlights; a similar requirement is imposed with respect to the inspection program. The utilities contend that the term "all" as part of the certification requirements places unrealistic obligations on their executive to have personal knowledge of the testing and inspection status on each and every facility. Additionally, the utilities raise concerns with respect to inadvertently omitting tests on some non-utility owned or operated streetlights.

The certifications are designed to ensure accountability within each utility for the stray voltage testing and the inspection programs. We expect each utility to allocate and commit the resources necessary to properly and fully design, implement, and carry out the testing and inspection programs. We also expect each utility to make a good faith effort to identify, test and inspect, as appropriate, all facilities in its service territory. An appropriate quality assurance program must also be in place to confirm that each utility is in compliance with the safety standards.

While the City is correct that the utilities did not satisfy the requirements for rehearing of this issue under 16 NYCRR §3.7(b), it is appropriate to clarify the certification requirements in order to avoid confusion or problems in the future. We agree with CPB's notion of what is expected of the utilities' officers as part of the certification process. Utility presidents and other executives need to exercise due diligence and proper oversight to ensure the accuracy and effectiveness of the programs throughout the year. They must also take ownership of the responsibilities for complying with the safety standards. The written certifications are intended to reflect these goals and obligations. Accordingly, we clarify that the certification requirement shall be based on each utility president's or other officer's knowledge of the program and the manner in which it is performed.

Cost Recovery

Many of the utilities' arguments center on the idea that our Safety Order establishes cost recovery rules for implementing safety standards that supercede the cost recovery procedures established in individual utility rate plans. The source of this concern appears to be the statement that we will apply our traditional three-prong approach to evaluating deferral requests and our requirement that utilities demonstrate that their costs related to implementing the enhanced safety standards satisfy that approach.[18] This general area of concern, however, is based on a narrow reading of our Safety Order that is not consistent with our intent.

The Safety Order recognizes that there were a number of contextual considerations affecting the determination of a reasonable cost recovery level for implementing the safety standards. These include the extent to which utilities already perform some of these activities, the three elements of the approach we traditionally use to evaluate deferral requests, and various provisions of each utility's rate plan. As a result, we directed that each utility seeking cost recovery make a filing that addresses these considerations and contains a specific cost recovery proposal. We emphasized the need to consider the traditional criteria for evaluating deferrals. Our recognition of potential overlaps between rate plan provisions and the traditional criteria formed the basis for providing utilities the opportunity to develop and file their own rate recovery proposals. Thus, there is no basis for the utilities' concerns.

Moreover, in the Safety Order, we emphasized that cost recovery would be provided only if a utility can demonstrate that it is incurring costs that are incremental to those incurred in the provision of its existing programs and procedures. We believe this particular demonstration is a key element of any utility cost recovery request. As a result, it is imperative that each utility seeking cost recovery clearly show that the costs

[18] The three-prong test for according an item deferral accounting treatment includes: (1) the item must be incremental to current rates; (2) the amount must be material to the utility's earnings; and (3) the utility cannot be over earning.

associated with compliance with the safety standards are incremental and are not the product of the use or reallocation of existing resources already reflected in rates.[19]

Performance Mechanism

The Upstate Utilities and O&R contend that we erred as a matter of law in adopting a performance mechanism that includes a revenue adjustment applicable upon failure to meet the annual testing and inspection requirements. They assert that the performance mechanism is akin to the imposition of penalties and that we do not have statutory authority to impose penalties for noncompliance with our orders. Alternatively, they argue that the revenue adjustment amounts established in the performance mechanism are arbitrary and punitive. The utilities' arguments for these positions are the same as those presented in their earlier comments on the Staff Proposal; they were addressed in the Safety Order and that response need not be repeated. The performance mechanism is an appropriate device to ensure compliance with the safety standards. While the majority of the utilities' allegations lack merit, we recognize that some clarifications are warranted and that, due to changes in the safety standards discussed in other sections of this Order, the performance mechanism must be modified.

Adoption of the Performance Mechanism Is Within Our Statutory Authority

The utilities assert that the performance mechanism is the same as a penalty under PSL §25, and that a penalty cannot be imposed via a Commission order. The provisions of PSL §25 do not apply here because the performance mechanism is not the same as a penalty. Rather, it is an adjustment to the rate of return to reflect inadequate service.

All of the investor-owned electric utilities are operating their businesses pursuant to multi-year, performance-based rate plans. While the specific details of the

[19] The utilities' claim that we were required to hold a hearing on the cost recovery issue prior to issuing the Safety Order is erroneous. The provisions of PSL §66 did not require a formal hearing prior to considering this matter. Inasmuch as we did not change the provisions of any utility's rate plan, as discussed above, we need not and will not discuss the other legal issues the utilities raised regarding this issue.

rate plans vary, they generally contain provisions that: (1) set levels for earnings sharing that are higher than the earnings levels upon which revenue requirements were established; (2) provide for deferrals of certain incremental costs and expenses; and (3) permit the utilities' shareholders to increase earnings over the term of the rate plans through various actions and activities that increase revenues and/or decrease costs. For example, many utilities have reduced the sizes of their workforces from the levels upon which rates were established. We have approved or adopted these rate plans because they ensure that the utilities' customers receive just and reasonable rates and safe and adequate service as required by PSL §65(1) while encouraging improvements in efficiency and productivity.

If the balance between a utility's customers and shareholders is altered, such that customers' benefits are diminished, the utility's rate plan may no longer comport with the requirements of PSL §65(1). Under those circumstances, we have an obligation to either step in and restore the balance or take such other steps that are necessary to ensure that customers' rights are reestablished. That exercise of our responsibility is fully consistent with our statutory ratemaking authority under PSL Article 4. If, by comparison, we find that a utility has violated a specific provision of the Public Service Law, our regulations, or one of our orders, we have a choice of remedies. We could exercise our ratemaking authority to address the violation. In doing so, there is no penalty; rather, there is a redistribution of revenues/earnings between customers and shareholders. In addition, PSL Article 1 provides for penalties to be levied by the courts pursuant to that Article.

Given this background, the utilities are incorrect in their contentions that we are precluded from reconsidering or modifying rate plans once they are adopted.[20] They are also erroneous in their contentions that, absent the utilities' consent, we may not adopt adjustment mechanisms within the context of performance-based rate plans. As noted above, each rate plan contains a variety of mechanisms that balance the rights and interests of customers and shareholders, some of which allow the utilities to increase their earnings, while others reduce their earnings in the event that certain thresholds or targets are not achieved. Combined, these mechanisms establish basic parameters that help define, in operative terms, the utilities' service to their customers; consequently, the mechanisms do not constitute penalties for failure to comply with a specific statute, regulation, or order. Similarly, the performance mechanism serves to establish the acceptable parameters of the utilities' provision of safe service to their customers.

The performance mechanism is not intended to, and does not, penalize the utilities for violating the Safety Order.[21] Rather, in accordance with our ratemaking authority under PSL Article 4, the mechanism prospectively provides that utilities failing to provide safe service to their customers are not permitted as high a rate of return. Utilities may fulfill their obligations to provide safe and adequate service and retain the opportunity to stabilize, and perhaps increase, their earnings, or they may face financial consequences resulting from failure to comply with the safety standards. As we noted in the Safety Order, the responsibility for operating and maintaining a safe electric system rests entirely with the utility and its management.

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[20] To the extent the Upstate Utilities suggest that their rate plans are equivalent to contracts and that they have contractual rights in their rate plans, the suggestion lacks merit. Rate plans are not contracts; rate setting is a legislative act, not an action governed by contract law. We have continuing authority over utility rates and may, in accordance with the provisions of the Public Service Law, revise any utility rate plan during its term as necessary or appropriate.

[21] As a separate matter, if we find that a utility violates the requirements of the Safety Order, we may decide to commence penalty and/or enforcement actions against that utility pursuant to PSL §§25 and 26.

The utilities' contentions that they have or may be denied due process as a result of the adoption of this performance mechanism is without merit. The utilities have been accorded adequate notice and a reasonable opportunity to be heard during the course of this proceeding. The Public Service Law and constitutional due process requirements do not mandate that the utilities automatically be given a formal trial-type evidentiary hearing before adoption, implementation, or application of the performance mechanism.

The Safety Order and the performance mechanism do not suggest that any utility has acted or may act in a criminal manner, subject to criminal penalties. The Safety Order establishes minimum testing and inspection standards to improve the safety of the electric system and provide additional assurance to the public. The performance mechanism serves to provide proper incentives to the utilities to avoid failing to achieve these minimum standards. Of course, each utility is obligated to take other actions necessary to effectively carry out its responsibility to operate and maintain its facilities.

For the foregoing reasons, the Upstate Utilities' reliance on NYS Assn. of Nurse Anesthetists v. Novello, 189 Misc.2d 564 (Sup. Ct. Albany Co. 2001) is misplaced. We have not attempted to supplant the jurisdiction of the courts and there is no separation of powers issue. Further, because the performance mechanism was adopted in accordance with our authority and obligations under PSL Article 4, the Safety Order is not an ultra vires decision. The Upstate Utilities' reliance on People v. Whitridge, 144 A.D. 486 (1st Dept. 1911) is also unavailing. The facts and issues in that proceeding are separate and distinct from those at issue in this matter, and, as discussed herein and in the Safety Order, the performance mechanism is not intended to punish any utility. O&R's reliance on Miller v. NYS Dept. of Taxation and Finance, 263 A.D.2d 604 (3d Dept. 1999) is inapposite. That case dealt with a management/labor dispute and the demotion of an agency employee. The facts, circumstances, and applicable law in that case are separate and distinct from those applicable here and are not controlling.

The Amount at Issue is Not Arbitrary

In their comments on the Staff Proposal, the utilities argued that the amount of revenue adjustment was arbitrary and unreasonable. We rejected those arguments in the Safety Order, explaining that the amounts were set at levels in excess of the estimated costs of compliance, thereby averting the possibility that a utility may determine that it is more economic to pay the adjustment than comply with the safety standards.[22]

As to the concerns about the standard of "full compliance" with the testing and inspection requirements, we recognize that perfection is likely unachievable. It is not our intent to impose a revenue adjustment for an insignificant omission. The utilities are directed to conduct stray voltage testing and inspection programs designed to test all and inspect approximately 20% of their facilities annually. Although the utilities are required to fully implement the programs, waivers are available in extraordinary circumstances.

The revenue adjustment would apply if a utility failed to design or implement either or both of the testing and inspection programs properly. For example, if a utility designed its program to test only 80% of its poles on an annual basis, the revenue adjustment would apply. If a utility's inspection program is designed to inspect 20% of its facilities each year and the utility chooses to withhold full or partial funding for or dedicate an insufficient level of resources to the program, the revenue adjustment would apply. If we determine, based on Staff's audit of a utility's records and after appropriate procedures, that the utility has improperly certified compliance, the revenue adjustment will apply.

The utilities argue that the performance mechanism may cause them to defer other operation and maintenance activities. As we discussed in the Safety Order, the utilities are required by PSL §65(1) to operate and maintain their electric systems safely and adequately. The Safety Order provides consideration of requests for recovery of incremental expenses associated with implementing the safety standards. Thus, the utilities are required to obtain sufficient resources to carry out general operation and

[22] Safety Order, pp. 39-41.

maintenance activities and to comply with the safety standards. For example, if the utilities determine that they need to hire additional employees or contractors to accomplish all activities, there are no prohibitions to their doing so. Accordingly, we reject as unfounded and meritless the utilities' contentions that they will have to drain resources from other programs to ensure compliance here.

The modifications to the testing schedule for 2005 impact the performance mechanism because the revenue adjustments are proportional to the costs required to comply with the requirements. Therefore, the revenue adjustment applicable to stray voltage testing for the first year is reduced by 50%, or 37.5 basis points. This modification applies to all utilities except Con Edison because the stray voltage schedule change did not apply to that company. The revenue adjustment will remain unchanged from that outlined in the Safety Order for subsequent years.

Customer-Owned Facilities

The Safety Order requires that, in instances where stray voltage is detected, utilities notify the customer and immediately and continuously guard the facility until it is made safe, irrespective of who owns the facility causing the stray voltage. O&R's claims were considered before we issued the Safety Order, and we find no reason to reconsider our decision on this aspect of the Order.

There are a multitude of scenarios involved with customer-owned equipment, and the actions necessary to protect the public from exposure to stray voltage emanating from such equipment will vary and are best determined on a case-by-case basis. Accordingly, it is not appropriate to prescribe what those actions should be, or conversely, what they need not include, or to specify how a utility should contact the customer about the unsafe condition. Each utility is required to exercise its reasonable judgment, based upon its experience and responsibility to guard against dangerous conditions that may affect the public safety, to take the actions necessary to protect the public, and to minimize the safety risk.

Other Matters

Notification Requirements

The Safety Order requires the utilities to notify Staff of various events involving their systems, including outages and accidents. The Order also specifies the manner in which such notifications are to be made. In implementing these requirements, Staff reports that the expansive use of personal digital assistants and other devices make possible electronic notifications that may be more effective and useful than telephone calls. For example, electronic notifications result in the creation of records of the information provided and can be more easily and quickly disseminated to appropriate personnel.

Providing Staff some flexibility in and facilitating the communication of information related to the events enumerated in Appendix B of the Safety Order is appropriate. Therefore, we authorize the Director of the Office of Electricity and Environment to prescribe the specific manner of providing notice to the Department, except where the manner of notification is specified in 16 NYCRR §125.4, and correspondingly modify the Event Notification Requirements. In all other aspects, the requirements remain the same. The modified version of the requirements is attached hereto as Appendix B.

Technical Evaluation Program

O&R proposes a technical evaluation program to collect and evaluate data related to the stray voltage testing, with NYSERDA managing the study. All of the utilities filing petitions for rehearing commented on the need for future stray voltage testing to be based on the results of the programs.

It is our intent to continuously monitor and evaluate the effectiveness and design of the safety standards. While the utilities may submit independent analyses for our review and potential use in determining if future modifications to the testing and

inspection programs are warranted, we do not find it necessary to establish a formal technical evaluation program, separate from Staff's monitoring and evaluation efforts.[23]

Applicability of Modifications

The City stated that, because Con Edison did not file a petition for rehearing, any modifications to the safety standards adopted in this Order should not apply to Con Edison. We reject this proposal. To the extent that we are modifying the basic provisions of the safety standards, and unless otherwise stated, the modified standards apply to all utilities.

CONCLUSION

The Safety Order adopted safety standards that were a major step in improving the safety of the public and enhancing electric utility reliability. The modifications discussed in the body of this Order and reflected in Appendix A are made to ensure stray voltage testing is conducted in a responsible manner. All comments submitted were considered, and our decisions balance the interest and needs of the utilities, ratepayers, and the public.

The Commission orders:

1. The petitions for rehearing of Central Hudson Gas & Electric Corporation, New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation, Rochester Gas and Electric Corporation, and Orange and Rockland Utilities, Inc. are granted in part, to the extent discussed in the body of this Order, and are otherwise denied.

2. The petitions for waiver are moot based on modifications to the safety standards discussed in the body of this Order.

[23] The utilities should not interpret this discussion as authorization to commission, and seek recovery for, extensive or expensive analyses of the safety standards.

3. This proceeding is continued.

By the Commission,

(SIGNED) JACLYN A. BRILLING
Secretary

CASE 04-M-0159 APPENDIX A

ELECTRIC SAFETY STANDARDS

SECTION 1: DEFINITIONS

(a) Utilities – The term "utilities" includes all investor-owned and municipal electric corporations subject to the Commission's jurisdiction that own or operate transmission or distribution facilities, whether fully or lightly regulated. For publicly accessible facilities, the term also applies to lightly regulated electric companies subject to our jurisdiction, including those that own or operate electric generating facilities within the State, as appropriate.

(b) Electric facilities – The term “electric facilities” means and refers to all electric plant, as that term is defined in Public Service Law §2(12), that is used to modulate, transmit, and/or distribute electricity, or is related to its modulation, transmission, and/or distribution. The term “overhead facilities” generally includes the electric facilities that are part of a utility’s overhead distribution system (e.g., the system that serves rural areas and includes towers, poles, and aerial cable and conductors). The term “underground facilities” generally includes the electric facilities that are part of a utility’s underground distribution system (e.g., the system that serves urban areas and includes manholes, service boxes, and underground cable and conductors).

(c) Stray Voltage –The term “stray voltage” means voltage conditions on electric facilities that should not ordinarily exist. These conditions may be due to one or more factors, including, but not limited to, damaged cables, deteriorated, frayed or missing insulation, improper maintenance, or improper installation.

(d) Streetlights – The term “streetlights” means and includes utility- and municipal-owned streetlights located on, along, or adjacent to public thoroughfares and areas and traffic signal poles and devices; it does not include privately-owned light fixtures, such as those located in private parking lots.

(e) Stray Voltage Testing – The process of checking an electric facility for stray voltage using a hand-held device capable of reliably detecting and audibly and/or visually signaling voltage in the range of 8 to 600 volts.

(f) Inspection – A careful and critical examination of an electric facility by a qualified individual to determine the condition of the facility and the potential for it to cause or lead to safety hazards or adverse effects on reliability.

SECTION 2: NATIONAL ELECTRIC SAFETY CODE COMPLIANCE

(a) The installation, construction, maintenance, and operation of electric facilities shall comply with the latest version of the National Electric Safety Code (NESC), except where a utility’s practices, procedures, and protocols are more stringent.

(b) Utilities are not required to retrofit their existing facilities to comply with the latest version of the NESC, unless the latest version of the NESC requires a retrofit.

(c) To the extent that projects currently being constructed do not comply with the NESC or a utility's more stringent standards, exemption from compliance will be considered on a case-by-case basis.

(d) If a utility believes that it cannot satisfy any provision of the NESC for a valid technical reason, it may petition the Commission for an exemption from compliance with that provision.

SECTION 3: STRAY VOLTAGE TESTING

(a) Stray voltage testing shall be conducted on all electric facilities that are capable of conducting electricity and are publicly accessible. Testing is not required on customer meters and customer-owned facilities, except municipal-owned streetlights.

(b) Stray voltage testing shall be conducted on all streetlights.

(c) For underground electric facilities that are publicly accessible, including, but not limited to, manholes, service boxes, and transformer vaults, stray voltage testing shall be conducted on the exposed surfaces of the facilities. Handholes that are constructed of fiberglass or other non-conductive materials need not be tested.

(d) Stray voltage testing of streetlights shall be conducted when the light is activated (i.e., at night).

(e) Stray voltage testing shall be conducted on an annual basis.

(f) If a streetlight to which a utility provides service is owned by another entity, and that entity conducts stray voltage testing meeting these safety standards, the utility may substitute that testing program for its own, provided the utility can certify the other entity's results.

(g) All equipment used for stray voltage testing must be certified by an independent test laboratory as being able to reliably detect voltages of 8 to 600 volts.

(h) Any facility for which the testing device indicates the presence of voltage shall be guarded by the utility immediately and continuously until the utility has eliminated the stray voltage and made the area safe. The utility must take corrective action irrespective of whether the stray voltage is determined to be caused by its own or a customer-owned facility.

(i) In each instance where stray voltage is determined to be caused by a utility-owned facility, best efforts shall be used to effect a permanent repair of the facility as soon as possible, but not later than 45 days after discovery of the stray voltage condition. A temporary repair to the facility may remain in place for more than 45 days only in extraordinary circumstances, and in such event the utility shall periodically perform site visits the monitor the condition of the temporary repair. All exceptions must be identified and justified as part of the reporting requirements under Section 9.

(j) In instances where stray voltage is determined to be caused by customer-owned equipment, the area must be immediately made safe. The utility shall immediately notify the customer or a responsible person associated with the premises or the customer-owned facility of the unsafe condition and the need for the customer to arrange for a permanent repair to the customer's equipment.

SECTION 4: INSPECTIONS

(a) Inspections shall include, at a minimum, visual examination of towers, poles, guy wires, risers, overhead cables and conductors, transformers, breakers, switches, and other aboveground equipment and facilities, and of the interior of manholes, service boxes, vaults, and other underground structures. Where debris or water is found in an underground structure, it must be removed before commencing the inspection so that all of the facilities in the structure, and the structure itself, may be fully inspected. Fiberglass handholes used in underground residential distribution systems are exempt from the interior inspection requirement.

(b) Inspection of equipment should be performed in a manner that allows the inspector to examine its components, except those that are ordinarily encased in sealed compartments. Utilities need not perform destructive testing as part of this inspection program, except as otherwise required by their more intensive inspection procedures.

(c) When a visual inspection indicates the need for a more intensive examination, the utilities shall perform infrared testing and/or other inspection procedures.

(d) When an inspection reveals a hazardous condition or other problem, whether related to stray voltage or otherwise, the utility must make all repairs necessary to eliminate the condition.

(e) All electric facilities shall be inspected at least once every five years. Certain facilities may warrant shorter inspection cycles.

(f) Each utility shall develop and implement a formal inspection program that complies with these safety standards.

(g) Inspections conducted during routine maintenance and other work not directly related to the inspection program may count as an inspection visit, provided that the inspection is performed using the same safety and reliability criteria and to the same extent as would otherwise be required under these standards. Inspections occurring during these field visits must be properly documented and certified.

(h) This inspection requirement is intended to complement, not supplant, the inspections any utility already performs; to the extent a utility's inspection program is broader or more intensive than the program described herein, the utility should continue to follow its own program.

(i) The testing and inspection programs may be combined, where practical and feasible, provided the synergy satisfies all the requirements contained within these safety standards.

SECTION 5: QUALITY ASSURANCE

Each utility shall develop a quality assurance program to ensure timely and proper compliance with these safety standards.

SECTION 6: RECORDKEEPING

(a) Each utility shall develop procedures and protocols to track the stray voltage testing dates and results for each electric facility.

(b) Each utility shall develop procedures and protocols to track the inspection dates and results for each electric facility.

(c) These records shall be kept in a manner that is readily accessible and searchable, continuously updated, and subject to review and audit by Staff and the Commission.

SECTION 7: CERTIFICATION

(a) Written certification of the completion and results of every stray voltage test and inspection undertaken and that all unsafe conditions identified have been remediated shall be made by an appropriate utility employee.

(b) The President or officer of each utility with direct responsibility for overseeing stray voltage testing shall provide an annual certification to the Commission that the utility has exercised due diligence in carrying out a plan designed to meet the stray voltage testing requirements, including quality assurance, and, to the best of the officer's knowledge, the utility has tested all of its publicly accessible electric facilities and streetlights, except those identified in the January 15 report.

(c) The President or officer of each utility with direct responsibility for overseeing facility inspections shall provide an annual certification to the Commission that the utility has exercised due diligence in carrying out a plan designed to meet the inspection requirements, including quality assurance, and, to the best of the officer's knowledge, the utility has inspected the requisite number of electric facilities. Additionally, at the end of five-year inspection cycle, the officer shall certify that the utility has exercised due diligence in carrying out a plan designed to meet the inspection requirements, including quality assurance, and, to the best of the officer's knowledge, the utility has inspected all of its electric facilities during the previous five year period, except those identified in the January 15 report.

(d) Each utility shall maintain its written certifications and other documentary proof of its testing and inspections at its corporate office located within the State of New York. These documents shall be available to the public for review upon request and without conditions.

SECTION 8: NOTIFICATION REQUIREMENTS

Each utility shall comply with the Event Notification Requirements attached hereto.

SECTION 9: REPORTING REQUIREMENTS

(a) Each utility shall file a report, within 45 days of the date these safety standards take effect, that provides: (i) the details of its voltage testing program; (ii) the details of its inspection program; (iii) the safety criteria it will apply as part of each program; (iv) an inspection schedule that demonstrates how the utility will comply with the requirement to inspect all of its electric facilities at least once every five years; (v) the details of its quality assurance program; (vi) its plans to train its employees and contractors to perform the testing and inspections; and (vii) a description of any research and development activities the utility is conducting or plans to conduct related to stray voltage and safety issues.

(b) Each utility shall file a comprehensive report by January 15 each year that:

1. details the results of stray voltage tests and inspections conducted over the 12-month period ending November 30 of the prior calendar year;
2. addresses the performance mechanism specified in Section 10;
3. contains the certifications described in Section 7;
4. discusses the analyses undertaken on the causes of stray voltage within the utility's electric system, the conclusions drawn there from, the preventative and remedial measures identified, and the utility's plans to implement those measures; and
5. includes all other information that is pertinent to the issues addressed by the safety standards.

SECTION 10: PERFORMANCE MECHANISM

(a) The annual performance target for stray voltage testing shall be 100% of all electric facilities and streetlights that must be tested. Facilities that are inaccessible and which pose no risk to public health and safety will not be considered in the determination of whether the target has been achieved.

(b) Failure to achieve the annual performance target for stray voltage testing shall result in a rate adjustment of 75 basis points.

(c) For the first year of stray voltage testing, the performance target shall be 100% of all streetlights and electric facilities served by underground utility systems. Failure to achieve this performance target shall result in a rate adjustment of 37.5 basis points.

(d) The annual performance target for inspections shall be based on the percentage of the average number of electric facilities that must be inspected each year in order to comply with the five-year inspection cycle. That is, the target is based on the one-fifth of the total number of the utility's electric facilities. The specific targets will be as follows:

First year inspection goal	85%	of annual target
Second year inspection goal	90%	of annual target
Annual inspection goal thereafter	95%	of annual target
Fifth year inspection goal	100%	of all facilities to be inspected

(e) Failure to achieve the annual performance target for inspections shall result in a rate adjustment of 75 basis points.

EVENT NOTIFICATION REQUIREMENTS

ALL NOTIFICATIONS SHALL BE MADE WITHIN ONE HOUR OF AN INCIDENT OR EVENT UNLESS OTHERWISE SPECIFIED

I. System Control - Reports of Impending Emergencies, Emergencies, and Load Curtailment

A. Requests for curtailed electric use, voltage reductions, and load shedding initiated to maintain the adequacy of the electric system and significant bulk supply outages or accidents of consequence are to be reported to the Office of Electricity and Environment. The specific items to be brought to the Office's attention are as follows:

1. Any decision to issue a request for customer reduction in use of electricity. The Office of Electricity and Environment is to be notified at the time of decision to issue any such request.

2. Any action to maintain the adequacy of the bulk electric system by reducing firm customer loads by voltage reductions, manual switching, operation of automatic load shedding devices, or any other means. The Office of Electricity and Environment is to be notified at the time of decision to take such action.

3. Any bulk supply outage that has, or could have, a significant impact on the utility's electric system or the state-wide system.

B. The following information is to be included in the reports:

1. For Items I.A.1. and I.A.2., the utility shall provide the approximate area(s) affected, the time(s) of the action, the time(s) and/or an estimate of the time(s) of restoration of normal service (or cancellation of a customer request), an estimate of the amount of load reduction expected or load interrupted, and the number of customers affected if load is interrupted.

2. For Item I.A.3., the utility shall provide a description of the incident and events leading to its occurrence, the time of occurrence, the system(s) affected, and an evaluation of the effect on the system(s).

II. Loss of Electric Service

A. Written reports of electric service interruptions of five minutes or more are required by 16 NYCRR Part 97. Such reports are to be prepared in accordance with the regulations and submitted to the Office of Electricity and Environment.

B. Additionally, notice is to be made for each of the following events:

1. Loss of electric service to 5,000 customers or more lasting 30 minutes or more.

2. Any loss of a distribution system network.

C. Notice of these events occurring after business hours shall be made no later than 8:30 a.m. of the next business day, unless they receive significant media attention, in which case notice shall be provided within one hour.

D. The following information should be provided in the notice:

1. The approximate territory affected.

2. The date and time of the incident causing the interruption.

3. The expected duration of the interruption.

4. If restored at the time of the call, the date and time of restoration.

5. The number of customers affected and amount of load involved.

6. A listing of any critical services affected.

7. A description of the incident and its cause.

8. Any follow-up actions planned.

III. Reports of Personal Injury Accidents

A. Written and telephone notification of electric system personal injury accidents and deaths are required by 16 NYCRR Part 125. This requirement applies to all electric system accidents that result in injury or death to a non-employee and/or inpatient hospitalization or death to an employee or contractor employed by the utility, including accidents that occur at generating plants.

B. All written and telephone reports are to be made in accordance with the regulations and the following requirements and submitted to the Office of Electricity and Environment.

1. Reports for accidents, except those involving a fatality or major media attention, occurring after business hours shall be made no later than 8:30 a.m. of the next business day.

2. Written reports shall be made using the Department's standard form and may be submitted via e-mail or fax.

3. Telephone reports should include the following information:

a. The location of the accident.

b. The date and time of the accident.

c. Whether or not the injured party is a utility employee or contractor.

d. A description of the injuries sustained and the status of the injured party.

e. A description of the accident and its cause.

f. The time the utility received notification of the incident.

g. The time the first utility personnel arrived at the scene.

h. The time qualified utility personnel arrived at the scene (i.e., personnel capable of addressing any safety hazard).

i. Whether response operations were affected until utility personnel arrived.

IV. Report of Shock Incidents and Motor Vehicle Accidents

A. All electric shock incidents that do not involve personal injuries shall also be reported.

B. Electric shock incidents involving animals shall be reported.

C. Motor vehicle accidents involving utility facilities and/or utilities vehicles in which there is a personal injury shall be reported.

D. All reports of these incidents are to be submitted to the Office of Electricity and Environment. The Director of the Office of Electricity and Environment shall prescribe the manner in which the reports are to be provided.

E. Reports for incidents occurring after business hours shall be made no later than 8:30 a.m. of the next business day.

F. The reports should include the following information:

1. The location of the incident.

2. The date and time of the incident.

3. Whether or not the party who was shocked or injured, as appropriate, is a utility employee or contractor.

4. A description of the condition of the affected party, and, as appropriate, of the injuries sustained.

5. A description of the incident and its cause.

6. The time the utility received notification of the incident.

7. The time the first utility personnel arrived at the scene.

8. The time qualified utility personnel arrived at the scene (i.e., personnel capable of addressing any safety hazard).

9. Whether response operations were affected until utility personnel arrived.

V. Unusual Events

A. Major Events

Immediate notification is to be made for major events associated with a utility's electric system that will likely result in considerable media attention. Examples of major events include, but are not limited to, load shedding, catastrophic storm emergencies, boiler explosions, or nuclear radiation releases.

Immediate notification is also to be made whenever a utility's corporate emergency command center (e.g., storm center) becomes operational.

B. Media Attention

Incidents involving utility facilities that are likely to receive attention from the news media are to be reported immediately. Examples of such events include, but are not limited to, fires, manhole explosions, equipment damage of $1 million or more, and nuclear plant incidents.

VI. Manner of Notification

Except where otherwise noted above, the Director of the Office of Electricity and Environment shall prescribe the manner in which notice to Staff is to be provided.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service Commission held in the City of Albany on December 10, 2008

COMMISSIONERS PRESENT:

Garry A. Brown, Chairman
Patricia L. Acampora
Maureen F. Harris
Robert E. Curry, Jr.

CASE 04-M-0159 - Proceeding on Motion of the Commission to Examine the Safety of Electric Transmission and Distribution Systems.

CASE 06-M-1467 - Petition of Orange and Rockland Utilities, Inc. to Modify Its Stray Voltage Testing Program.

ORDER ADOPTING CHANGES TO ELECTRIC SAFETY STANDARDS

(Issued and Effective December 15, 2008)

BY THE COMMISSION:

The Commission's Electric Safety Standards have been in place since January 2005. Through experience and lessons learned over the past three years, Staff has identified several areas in the standards that require clarification and elaboration. As a result, Staff proposed revisions that encompass several necessary modifications, including a calendar year testing cycle and standard testing and reporting requirements to provide for consistent application of the standards statewide. On July 8, 2008, a Notice Soliciting Comments was issued seeking input on Staff's proposed revisions (initial proposal). Where appropriate, the initial proposal has been modified based on comments received and adopted herein.

In addition, in a petition dated November 30, 2006, Orange & Rockland Utilities, Inc. (ORU) requested that the Commission modify the Electric Safety Standards contained in Case 04-M-0159 to relax the testing standards for the company. ORU

requested that the current annual stray voltage testing cycle for overhead and underground facilities (with the exception of streetlights) be revised to a five-year cycle to coincide with the facility inspection program. We conclude that the data compiled for the first three years of the testing program on a statewide basis indicates that instances of stray voltage continue to be found sufficiently often and therefore the testing intervals should not be extended at this time. Therefore, we deny ORU's petition.

BACKGROUND

On January 5, 2005, the Commission adopted a set of Electric Safety Standards that established proactive steps for ensuring the safety of the public from stray voltage and enhancing the reliability of the electric system in the State of New York. The Electric Safety Standards include: (1) annual stray voltage testing of electric facilities accessible to the public using qualified voltage detection devices; (2) inspections of utility electric facilities on a minimum of a five-year cycle; (3) recordkeeping, certification, quality assurance and reporting requirements; and (4) adoption of the National Electric Safety Code as the minimum standard governing utility construction, maintenance, and operations. The standards also require that where a utility finds stray voltage, it must immediately make the facility safe and repair it within 45 days.

In a July 2005 Order, the Commission modified certain aspects of the Electric Safety Standards in response to a joint petition for rehearing from Central Hudson Gas & Electric (Central Hudson), New York State Electric & Gas (NYSEG), National Grid, and Rochester Gas & Electric (RGE), and individual petitions from NYSEG, RGE and ORU. It extended the date for testing of overhead distribution and transmission facilities, including substations, to August 31, 2006, for electric utilities other than Con Edison. All utilities, however, were still required to complete testing on underground facilities and streetlights by November 30, 2005. Additionally, the

requirements for certification of the test results by a company officer were clarified and the need for interior inspections of fiberglass handholes[1] was eliminated.

THE ORU PETITION

On November 30, 2006, ORU filed a petition for a waiver from performing stray voltage testing on distribution and transmission facilities annually. Instead, ORU proposes that it test for stray voltage on these facilities as part of its five-year inspection programs, and continue testing streetlights on an annual basis. From the data compiled for the first three years of the testing program, we find that new instances of stray voltage have been found in each year that testing has been done. Moreover, the data from the most recent year of testing do not reflect a trend such that the level of risk from stray voltage is reduced to the point that a relaxation of the testing program such as is sought by O&R would be granted. Therefore, we deny ORU's petition.

SUMMARY OF ISSUES

In response to the July 8, 2008 notice, several parties filed formal comments. The six major electric utilities filed comments collectively (Joint Utilities) and individually. In general, the individual utility comments support the positions presented by the Joint Utilities, but did present additional proposals for consideration. In addition, several other parties filed comments, including the Jodie S. Lane Public Safety Foundation (Lane Foundation), the New York State Consumer Protection Board (CPB), the City of Yonkers, the New York City Department of Transportation, the Town of Huntington, and Power Survey Corporation (the company that offers mobile stray voltage detection services). Where comments were directly germane to the published notice, they have been addressed. If, in our estimation, the remainder provide an improvement to the standards they were analyzed and adopted where appropriate.

[1] Fiberglass handholes are utilized on underground residential distribution systems as splice points for electric service conductors.

The following sections describe the areas of concern with respect to the Electric Safety Standards. Each section addresses Staff's initial proposed revisions, comments received by parties, and a discussion including the final recommendations. Appendix A contains the final revisions of the standards.

Stray Voltage Testing Equipment and Detection Range

Staff Proposal

Staff proposed revising the definition of Stray Voltage Testing found in Section 1, paragraph (e) as follows:

> The process of checking an electric facility for stray voltage using a hand-held device capable of reliably detecting and audibly and/or visually signaling voltage in the range of ~~8~~ 4.5 to 600 volts.

In practice, all of the investor-owned utilities and many of the municipal electric utilities chose to use a handheld device (HD detector), with a certified voltage range from 5 to 600 V, with a tolerance of +/- 10%. Experience with this device revealed that it is capable of indicating the presence of voltage below the 4.5 volt rating. Staff recommended that the required voltage range of the detector be revised to reflect the certified rating of the equipment currently being utilized.

Summary of Comments

Joint Utilities takes issue with Staff's proposal, and they propose an alternative value of 6 V, which they contend is consistent with the tolerances included in the manufacturer's documentation for the hand held device most widely used for this testing. They also claim this revision would be consistent with the detection capability of the mobile stray voltage detector currently used by Con Edison in its secondary network distribution system. The Joint Utilities takes issue with Staff's proposal because 4.5 V represents the best accuracy of the detectors rather than the certified rating with a tolerance range and proposes an alternative value of 6 V. It contends the 6 V is

consistent with the tolerances included in the manufacturer's documentation for the hand held device most widely used for this testing.

Discussion

The Joint Utilities correctly indicate that the threshold values for the HD detector are 5 to 600 V, with a tolerance of +/- 10%, yielding a lower threshold value of 5.5 V on the high end. Upon consideration, it seems that Staff's initial recommendation is overly aggressive, particularly with respect to the possibility that additional manufacturers of testing devices may be entering the market, and a threshold value at that level may impede competitors from providing their services to the utilities. Staff also reports that the manufacturer of the mobile testing device confirms Joint Utilities contention that the 6 V value is consistent with its specifications. As a result, we will adopt this value and revise the standards to reflect this change.[2]

The point offered by the Joint Utilities with respect to mobile testing raises an issue that we will address now. Mobile testing is utilized by Con Edison in a wide swath of its secondary network distribution system in addition to the manual testing currently required in the standards. Earlier this year, Con Edison filed a petition, including a testing report prepared by an independent and certified testing facility, seeking approval to use the mobile detector exclusively to comply with the testing requirements contained in the standards and forgo manual testing in areas where the mobile testing can be performed successfully. Staff evaluated the petition and requested that additional testing be done to allay concerns about the mobile detector's capability under certain conditions, and also to verify its ability to detect voltage less than 5 V. The requested supplemental testing has been performed, and a report was submitted by the independent and certified testing facility. Staff's concerns about the capabilities and performance of the mobile testing technology have been addressed. To ensure that the standards are updated to reflect the advances in available technology, we will take this

[2] See page 1 of Appendix A, Section 1, paragraph (e). For consistency, Section 3, paragraph (g) will also be revised to reflect the lower value of 6 V (p.2).

opportunity to also revise the definition of Stray Voltage Testing and delete the reference to "hand held" testing, thus eliminating the limitation that testing with hand held devices is the only acceptable method to achieve compliance with the standards.

Definition of Finding and Mitigation Requirements

Staff Proposal

Staff proposed new definitions of "Finding" and "Mitigation" in Section 1 and revising Section 3, paragraph (h) to require mitigation of all findings, as follows:

> Section 1(f) Findings – Any confirmed voltage reading on an electric facility greater than or equal to 1V measured using a volt meter and a 500 ohm shunt resistor.
>
> Section 1(g) Mitigation – Necessary actions performed by the utility to effectively eliminate the stray voltage findings.
>
> Section 3(h) - Any facility for which ~~the testing device indicates the presence of voltage~~ a finding is discovered shall be guarded by the utility immediately and continuously until the utility has eliminated the stray voltage and made the area safe. The utility must ~~take corrective action~~ perform mitigation irrespective of whether the stray voltage is determined to be caused by its own or a customer-owned facility. Mitigation shall be completed on any voltage findings.

As the safety standards are currently structured, there is no formal definition for what should be considered, in practice, a stray voltage condition that would require action on the part of the utility. Currently Con Edison, as part of its testing protocol when utilizing the mobile detection system, identifies and attempts to mitigate any findings greater than or equal to 1V, and the Staff proposal was based on that protocol.

Summary of Comments

The Joint Utilities contend that the Staff proposal to define a stray voltage finding as any reading greater than or equal to 1 V measured using a volt meter and a 500

ohm shunt resistor, and that all findings be mitigated, is too aggressive and essentially unworkable. They argue that 1 V readings are sometimes attributable to neutral currents and induced voltages and are inherently safe and part of a normally functioning electric distribution system. Several industry experts are cited who state that voltages at this level are below the threshold that should be considered dangerous. OSHA Standard 1910.333 is cited, which implies that voltage levels of 25 V or less are not harmful. The Joint Utilities also quote the order from the original Commission decision in January 2005 that the detection of 8 V may not pose an immediate safety hazard. The issue of the additional cost of mitigating or attempting to mitigate these cases is also cited. As an alternative, they propose a new threshold of 4.5 V, which is consistent with current practice for the utilities, and eliminating the 1-4.4 V reporting band from the tabular information captured in Appendix B of the initial proposal. The Lane Foundation is in agreement with the proposed change as presented in the original notice, and recommends that the finding must be mitigated or proven safe by engineering analysis.

The Joint Utilities propose the deletion of the final two sentences of Section 3(h), claiming that the manner in which it is currently constructed is redundant when taken in context with Section 3(i) and Section 3(j), and will lead to confusion for any party seeking guidance from the standards.

Discussion

As stated by Joint Utilities in their formal comments, their current practice is to mitigate any findings at 4.5 V or above. However, Staff reports that Con Edison in actual practice makes a reasonable effort to effectively eliminate the stray voltage condition but does not always achieve a reading of 1 V or less after mitigation on each energized structure that is discovered. Joint Utilities comments regarding neutral currents and induced voltages are reasonable and cannot be dismissed. The possibility that readings less than 1 V may be attributable to these factors and cannot be truly eliminated is legitimate, and in our view this fact must be accounted for. On the other hand, we do believe that findings at this level should not simply be ignored, and that a reasonable effort must be made to address the situation. In our view, the additional safety margin

afforded by the revised threshold of 1 V is adequate to justify the more aggressive testing and mitigation requirements. For the sake of pedestrian safety, we will adopt the definition of "Finding" with the 1 V threshold as contained in the original notice, but will add "streetlight" (see Appendix A, page 1, Section 1 paragraph (f)) to confirm the original intent and provide consistency with paragraph 3(b) which requires stray voltage testing on streetlights. However, to acknowledge the possibility that all findings at the 1 V level may not be fully mitigated through corrective actions on the part of the utility, we will define Mitigation as "corrective actions" to "address" rather than "effectively eliminate" the finding (See Appendix A, page 1, Section 1, paragraph (g)). In conjunction with this revision and to enable Staff to track all instances where utilities are unable to fully mitigate findings, we will also require utilities to perform a voltage reading after all mitigation efforts are completed and record that information in Attachment 1 of Appendix A. Additionally, for any case where the voltage reading after mitigation is 1 V or more, the utilities will provide a detailed report on the mitigation efforts undertaken for the particular electric facility or other energized structure (See Appendix a, page 6, Section 9, paragraph (4)).

Upon further examination, it does appear that portions of Section 3, paragraph (h) are redundant in context with subsequent paragraphs contained in this section. The Joint Utilities are correct in their assertion that utility responsibility is fully addressed in the subsequent paragraphs, and we will remove the second sentence from this paragraph. However, we find that the proposal to clarify that mitigation efforts shall be completed on any stray voltage findings is necessary to clarify our intent and should remain (See Appendix A, page 2, Section 3, paragraph (h)).

Additional Testing to Determine the Extent of Stray Voltage

Staff Proposal

Staff proposed adding a new Section 3, paragraph (i), as follows:

> In the event of a finding on an electric facility during stray voltage testing, the utility shall test for stray voltage on all metallic structures that are capable of conducting electricity within a minimum 30 foot radius of the electric facility.

As the safety standards are currently structured, utilities are only required to test their own facilities, plus streetlights that may be owned by other entities. Results from Con Edison's use of the mobile detection vehicle referenced above have demonstrated that this testing regimen does not capture the full extent of the stray voltage issue. Con Edison's testing yields findings that include any structure that is capable of conducting electricity and not just utility assets. The revisions propose that, when a voltage finding is discovered on a facility during manual testing, the utility must widen its test area to include any adjacent metallic structures (handrails, benches, etc.) within 30 ft. of that point, regardless of ownership. Staff proposed this requirement to give a more accurate representation of the magnitude of the problem and the hazards it presents to the public.

Summary of Comments

The Joint Utilities claim that mandating a 30 ft. testing radius will entail safeguarding an area in excess of 2800 square feet, which will be especially difficult to accomplish in urban areas where personnel may have to cross streets several times to complete their tasks. As an alternative, the Joint Utilities propose a 10 ft. testing radius. It also requests that, if this requirement is adopted, that it be restricted to publicly accessible facilities.

The Lane Foundation states that the requirement in the proposal to test metallic structures is inadequate. It claims that, based on 2008 testing data for Con Edison, the most frequently energized object other than streetlights is sidewalks. For that

reason, the Lane Foundation proposes that the revisions should not be restricted to metallic structures.

Discussion

The Joint Utilities' point with respect to personnel safety is appropriate. Although it is not the intent of the Safety Standards to sacrifice worker safety for pedestrian safety, we do believe that an increase in the extent of testing is warranted to gain an understanding of and to compile and document the effects of stray voltage conditions on adjacent structures. Although identifying the root cause of the conditions is without question the first priority, identifying other manifestations of these problems is vital to ensuring pedestrian safety. Con Edison's experience utilizing the mobile testing equipment (in densely populated urban environment) and successfully testing all structures in a wide area to pinpoint the root cause of the problem indicates that its protocol can be implemented in other areas of the state, particularly in light of the fact that the testing landscape will be considerably less populated with non-utility structures. Therefore, we will adopt the original recommendation of a 30 ft. testing radius. In addition, it is not the intent of the standards to mandate that utilities test facilities on private property or that are inaccessible to pedestrians, and the standards will be revised to confirm that fact. Again, we will add "streetlights" for consistency with paragraphs 1(f) and 3(b).

The Lane Foundation's comments with respect to non-metallic structures, such as sidewalks, are valid. Con Edison's history utilizing the mobile stray voltage detector indicates that non-metallic structures or surfaces can conduct electricity. As a result, we will revise the standards (See Appendix A, page3, Section 3, paragraph (j)) to eliminate the reference to metallic structures, thus requiring testing of all structures and sidewalks.

Mobile Testing

Summary of Comments

While no formal standards were proposed regarding mobile testing, we did request input from parties on the efficacy of utilizing mobile stray voltage technology on a statewide basis as part of the July 8, 2008 Notice Soliciting Comments.

The Lane Foundation states that the mobile detector is demonstrably superior and has been proven effective in finding energized objects through its use in Con Edison's territory. It goes on to claim that mobile testing is less expensive than manual testing while at the same time yielding a considerably larger pool of potentially dangerous conditions that would have been overlooked through manual testing.

The Joint Utilities report that field demonstrations in areas where overhead distribution is prevalent have indicated that mobile testing is not accurate due to interference created by the overhead facilities. It also contends that there are no specifications that clearly state the required distance from overhead facilities that guarantee accurate results. They also state that there is a significant cost involved for areas outside of New York City, in that mobilization expenditures would be exorbitant relative to the small areas that would be subject to the testing.

CPB recommends that we order the utilities to conduct at least one mobile survey of their underground systems within 90 days, and that the results should be reported to interested parties and used to determine the extent to which the technology should be more broadly used. It believes that it is imperative that the technology be applied statewide to enhance public safety.

Discussion

Con Edison has been utilizing the mobile testing technology extensively for the last several years with good results with thousands of energized objects being identified through its use. In urban areas exclusively comprised of underground distribution systems, the technology is clearly more efficient in identifying potentially hazardous conditions, and Con Edison will continue in its current efforts. As stated earlier, we are accepting the mobile stray voltage detection technology as an alternative

to manual testing and meeting the definition of stray voltage testing for compliance with the standards. The Joint Utilities points regarding the limitations of the technology in areas where overhead distribution exists, however, are well taken. To our knowledge, no formal or controlled lab or field testing has been completed to confirm the effects of overhead facilities on the capabilities of the detector. Consequently, we find it is premature to order the use of the mobile detector in all areas of underground distribution on a statewide basis. In a similar vein, we find that CPB's suggestion is impractical given the limitations on the technology and the fact that only one company is able to provide the service at this time. However, recognizing the experience of Con Edison, we believe the other utilities also must employ the technology in specific areas of their systems where the mobile survey is effective. Therefore, we order the utilities[3] to conduct mobile stray voltage detection surveys of their underground electric distribution systems, in appropriate areas[4] of cities with a population of at least 50,000 (based on the results of the 2000 census), during calendar year 2009 to positively identify those areas that can be effectively surveyed. The testing shall continue annually thereafter until further direction from the Commission. This testing will meet the annual requirement under the standards for those areas. Based on the effectiveness and results of these surveys, we will further consider whether we should make additional modifications to the standards.

Repair of Deficiencies Identified by the Inspection Process

Staff Proposal

The inspection component of the Electric Safety Standards (Section 4 of Appendix A) was developed to ensure utilities are checking their facilities for safety and reliability concerns. The original language was focused on establishing procedures and

[3] Except for Con Edison which we have previously ordered to conduct twelve complete mobile inspection surveys annually.

[4] Areas where interference from overhead facilities is not anticipated.

protocols to perform visual inspection on all facilities on a routine basis. The current standards do not require repair actions in response to inspections, unless stray voltage is found. As a result, Staff recommended expanding the order to require utilities to repair and track activities taken in response to deficiencies found during the inspection process. Additionally, Staff recommended that deficiencies be prioritized or graded based on the expected period for repair at the time of the inspections. To ensure consistency across utilities, Staff recommended that utilities prioritize deficiencies using a common system with defined repair times ranging from one week to two years (defined in greater detail later). Staff also recommended detailed reporting to capture deficiencies by equipment affected (e.g., poles, transformers, cable), priority levels, whether repair actions have been taken, and the timeliness of the repair activities in relation to the assigned priority levels. The initial proposal included the following language in Appendix A:

Section 4:

> (j) As part of the inspection process, deficiencies identified shall be categorized by the time period for the repair based on the severity of the condition. Utilities will prioritize deficiencies by three categories: Level I – repair as soon a possible but not longer than one week, Level II – repair within 6 months of discovery, or Level III – repair within two years. When prioritizing deficiencies, utilities should carefully account for the safety and operational effects should the facility fail prior to repair.
>
> (k) Utilities are expected to permanently repair deficiencies identified by the inspection program within the priority time period established during the inspection.

Section 6:

> (c) Each utility shall develop procedures and protocols to track the permanent repairs made based on inspection data and whether the repairs were made in the appropriate timeframe. An inventory of outstanding repairs by priority level should also be maintained.

Summary of Comments

The Lane Foundation states that the concept of a common prioritization system makes sense, but the criterion used to rank deficiencies are not apparent and should not be left up to the utilities. Con Edison, Central Hudson, and ORU do not

support ranking deficiencies with a common priority system and claim that a common system would not account for operational differences between electrical systems. Each of these utilities, however, offers comments on Staff's proposal should a common system be mandated.

With respect to how long companies should have to repair deficiencies, all commentors agree with the one week timeframe for Level I conditions. Con Edison, National Grid, Central Hudson, and ORU, however, propose changing the duration for repair from six months to one year for Level II deficiencies and from two years to three years for Level III deficiencies. NYSEG and RGE also support changing Level II from six months to one year, but were agreeable to the two years for Level III deficiencies. National Grid stated that it would be agreeable to Staff's proposed time periods if the order included expectations for repair completion of 95%, 90%, and 85% for Level I, II, and III, respectively. Con Edison and the Joint Utilities indicated the need to acknowledge that the time requirements should not apply under extraordinary circumstances or when circumstances outside the control of a utility prevent a repair from occurring.

Con Edison proposed the addition of a new ranking, which would defer the repair of the deficiency until it is performed as part of a system upgrade. Con Edison claims that its resources would be stretched to its maximum capacity if the Company has to repair all deficiencies within Staff's recommended two year timeframe while continuing to perform other maintenance and mandated work. By allowing deficiencies to be identified without a specific repair timeframe, Con Edison states it would avoid diverting resources from higher priority work to meet arbitrary repair targets. National Grid also proposed that the time for repair be measured against when a work order is created. National Grid claims that the Level I and II timeframes permits a reasonable amount of time for design and construction only after a work order is created and that requiring repair based on dates other than the work order would put unnecessary administrative burden on its work management system.

Comments received generally support the tracking and reporting on repair activities. The Lane Foundation states that the tracking of repair activities is essential. The Joint Utilities, as well as Con Edison, National Grid, and Central Hudson state that tracking of repairs should not be done on a retroactive basis. Finally, for clarification purposes, the Joint Utilities, Con Edison, and the Lane Foundation suggest modifications to the reporting language and/or structure of Appendix D in the initial proposal.

Discussion

To date, the utilities have been performing inspections as required. Repair activities based on the information collected during these inspections, however, varies. Discussions among Staff and the utilities also determined that a separation exists between the inspection results and the work order systems used for repair. While the utilities seem to be picking up critical and intermediate work, there previously was little assurance that low level conditions would be repaired in a timely manner. We believe that requiring utilities to track and report repair activities will promote the correction of minor problems before they deteriorate or outright fail and decrease the overall soundness of electric systems.

For years, utilities have been using rating systems to grade deficiencies found during inspections. The systems, however, are mostly unique to individual companies and inconsistent with respect to when or if repair actions are required. For instance, four of the six major utilities' rating systems use low numbers to prioritize high level conditions. Central Hudson's and ORU's systems, however, use high numbers to prioritize high level conditions. For these two utilities, the low level numbers are used to capture discrepancies that require no repair action or simply require future monitoring. As a result, continuing with the current priority rating methodologies maintains disorder and makes benchmarking performance across utilities difficult. Therefore, we will adopt a common system for prioritizing repairs as described below. We also agree with comments received that the standards should clarify, to the extent possible, what the priority levels represent.

We agree with Con Edison's comments that the Electric Safety Standards should state that a Level I classification represents an actual or imminent safety hazard to the public or poses a serious and immediate threat to the delivery of power. With respect to repair durations, Level I priorities will be repaired as soon as possible but no longer than one week as stated in the initial proposal. Critical safety hazards present at the time of the inspection shall be guarded until the hazard is mitigated.

Level II priorities represent conditions that are likely to fail prior to the next inspection cycle and represent a threat to safety and/or reliability should a failure occur prior to repair. Based on comments received, we believe it is appropriate that utilities be given up to one year to repair Level II priorities. By extending the time frame contained in the initial proposal from six months to one year, utilities will be able to properly manage repair activities, including obtaining permits and scheduling prearranged outages if needed, in a more effective manner. Given this additional allowance, however, we expect utilities to grade more stringently on deficiencies that are on the border between Level II and Level III.

Staff reported its review of repair work for low level deficiencies indicated a reluctance of the utilities to send crews to repair these conditions individually. For efficiency, utilities would often delay repair work until it was subsumed as part of a larger project or a sufficient amount of other work activities were needed in the vicinity to justify sending a crew to that area. These policies result in significant numbers of deficiencies going unaddressed with some remaining through multiple inspections. Waiting indefinitely for more items to fail before addressing a deficiency is not acceptable.

The standards are being modified to state that deficiencies prioritized as Level III do not present immediate safety or operational concerns and would likely have minimum impact on the safe and reliable delivery of power if they do fail prior to repair. While these deficiencies are not critical, they still need to be addressed. We will adopt the three year timeframe as proposed in the comments to ensure these minor conditions are addressed appropriately. The three years will allow utilities the opportunity to

perform the work in a cost efficient manner while still ensuring these repairs are being made.

As previously summarized, Con Edison proposed that a fourth level be used for repairs that would be repaired as part of system upgrades. Under Con Edison's proposal, utilities have the opportunity to indefinitely delay repair of deficiencies that should be addressed by stating the deficiencies will be covered by a system upgrade. We recognize a benefit to noting conditions that exist on the system but do not require repair within five years (i.e., the next required inspection). Therefore, a Level IV will be added to allow utilities to track conditions for monitoring purposes. Evaluation of conditions identified as Level IV should also promote proactive maintenance activities and capital replacement programs.

Given the diversity in equipment, potential safety hazards, and degrees of degradation, it is not practical to list all criteria used to classify discrepancies as part of the Electric Safety Standards. Utility inspectors shall estimate the amount of time that it will take for the damaged equipment to adversely affect public safety or the reliability of the utility system based on training and experience. To help ensure personnel are properly identifying and categorizing deficiencies, we shall require details about training requirements and activities be provided as part of the annual report. Additionally, utilities shall provide Staff a copy of training materials and manuals, and inspection procedures and protocols.

The utilities will also be expected to complete repairs within the designated repair timeframe based on the date of inspection. By doing so, the repair of deficiencies will not be delayed due to processes to communicate information to work order systems. Additionally, we believe that the timeframes identified provide adequate leeway for utilities to complete repairs while managing unanticipated events. Therefore, we see no need to modify the proposal to excuse the timeliness of repairs due to extraordinary circumstances or when circumstances outside the control of a utility prevent a repair from occurring.

Detailed reporting and tracking of the inspection and repair activities is vital to ensuring compliance with the Electric Safety Standards. Additionally, information gathered by this process will be beneficial when evaluating the appropriateness of capital projects, maintenance programs, and associated budgets during rate cases or other reviews. Comments received state that the tracking of repairs should not be done on a retroactive basis or require the utilities to manipulate previously collected data into the common priority levels. While we agree, in part, with the utilities, we also believe that we should not abandon the tracking of deficiencies already identified and not yet repaired. Therefore, beginning in 2009, we will require detailed reporting (Attachment 3 of Appendix A). Utilities are also required to provide historic inspection findings and repair activity on those findings based on priority systems in place at the time of discovery. To the extent practical, the reporting should follow the structure outlined in Attachment 3 of Appendix A. Finally, the language and structure of Attachment 3 of Appendix A will be modified as proposed by the Joint Utilities and the Lane Foundation and to comport with Staff's recommended changes discussed above.

Temporary Repairs

Staff Proposal

In certain circumstances, such as following a vehicular accident or a storm, a temporary repair may be made to restore service or maintain public safety until the utility has the available personnel or materials necessary to make a permanent repair. As part of its monitoring of the inspection programs, Staff reported it witnessed locations where temporary repairs were made to facilities but never followed-up with permanent repairs. Similar instances were also identified by Staff as part of other work activities. Additionally, Staff reports that discussions with the utilities indicate that most did not have effective ways to track temporary repairs. As a result, Staff recommended that utilities be required to develop adequate systems to track temporary repairs on their system for both new repairs and those found during the inspections process.

To ensure timely repairs, Staff recommended that when temporary repair is made or a previously completed temporary repair is discovered during an inspection by the utility, best efforts shall be used to permanently repair the facilities within 45 days. Staff's recommendation indicated that temporary repairs may remain in place for more than 45 days only in extraordinary circumstances, which includes major storms that require significant repair activity. The utility would also be required to perform periodic site visits to monitor the condition of temporary repairs that extend beyond 45 days and justify these exceptions. Finally, Staff recommended the utilities develop procedures and protocols to track temporary repairs and whether permanent repairs were made within 45 days. The initial proposal included the following language of Appendix A:

Section 4:

> (l) When a temporary repair is located during an inspection or made by the company, best efforts shall be used to affect a permanent repair of the facility within 45 days. A temporary repair to the facility may remain in place for more than 45 days only in extraordinary circumstances, which may include major storms that require significant repair activity. In such event, the utility shall periodically perform site visits to monitor the condition of the temporary repair. All exceptions must be identified and justified as part of the reporting requirements under Section 9.

Section 6:

> (d) Each utility shall develop procedures and protocols to track temporary repairs made on the system and whether these locations were permanently repaired within 45 days after making or locating a temporary repair.

Summary of Comments

Con Edison states that the recommendations regarding temporary repairs should be rejected because temporary repairs are necessitated by conditions that are often not in the utilities' control, are constructed to be durable, and the duration of temporary repairs is unpredictable due to the condition and the availability of resources vis-à-vis system operating priorities. Con Edison claims that reporting and justifying temporary repairs that extend beyond the 45 day is unreasonably burdensome and intrusive on the Company's discretion to manage its operations and resources. Con Edison also states that programs within its Reliability Performance Mechanism (RPM) already account for

temporary repairs that involve public safety and the 45 day requirement is unreasonable and arbitrary compared to existing RPM requirements.

The Joint Utilities proposes extending the time to complete permanent repairs from 45 days to six months to allow time to plan a permanent repair, obtain equipment and/or permits, and schedule the repair. Con Edison states that if a requirement for temporary repairs is established, it should only apply to conditions that present a safety hazard or an impending impact on reliability and that utilities be given at least six months to perform a permanent repair. Both the Joint Utilities and Con Edison indicate that utilities should be allotted a time period to implement a system to accurately track temporary repairs.

Discussion

While it is clear that temporary repairs must be completed in some cases to restore service to customers or stabilize damaged facilities, utilities should not rely upon these measures for extended and indefinite periods of time. It is unsettling that most utilities do not have effective ways to track temporary repairs. Given Staff's findings and the lack of awareness about temporary repairs that exist on electric systems, we believe it is appropriate to establish requirements regarding temporary repairs as part of the standards.

Comments received raise valid concerns with respect to a utility being able to plan a permanent repair, obtain equipment and/or permits, and schedule the repair in an efficient manner. Con Edison refers to its RPM as a basis for changing the timeframe to perform temporary repairs. Con Edison's RPM programs require permanent repairs to at least 90% of the facilities anywhere from 30 to 90 days, with a six month requirement to finalize all temporary repairs. Con Edison's RPM should not be viewed as a substitute for the standards regarding temporary repairs. The RPM was designed for issues specific to Con Edison and are not necessarily reflective of statewide concerns. Additionally, the percentages and timeframes specified in Con Edison's RPM were established at levels to impute negative revenue adjustments for unacceptable performance.

To alleviate concerns about planning, scheduling and material acquisitions, we will change the allowed timeframe for permanent repairs from Staff's recommended 45 days to 90 days (See Appendix A, page 4, Section 4, paragraph (l)). We believe that a 90-day period is adequate, particularly because the standards already allow for extended repair time given extraordinary circumstances, such as significant repair activity following a major storm. Given that many situations where temporary repairs exist longer than 90 days will have a common cause (e.g. major storm), we do not agree that reporting and justifying these situations will be burdensome.

Implementation Period for Changes to the Visual Inspection Program

Summary of Comments

The Joint Utilities, Con Edison, and ORU indicate that utilities should be allotted a time period to implement systems to make repairs in response to inspection findings and/or systems to accurately track temporary repairs and their permanent repair. Con Edison offers that the repair requirements should not apply until January 1, 2010, which coincides with the beginning of the second five-year inspection cycle.

Discussion

While we understand that process changes will be needed to comply with the revised recommendations, most of the changes are to correct sizable gaps and are overdue. Delaying the application of such changes merely to allow utilities to develop automated systems is inappropriate. We are confident that utilities have the ability to either develop systems timely or establish systems to be used on a temporary basis until permanent solutions are determined. Utilities may also restructure the use of current IT systems to bridge the gap until they develop and implement new systems. Therefore, we reject the proposal to delay the application of the revised standards until 2010.

Stray Voltage Testing and Inspection Cycles

Staff Proposal

Currently utilities have one year to complete all stray voltage testing and visually inspect at least 20% of their facilities. The 12-month cycle is from December 1

to November 30 the following year. The utilities are also required to file an annual report by January 15th of each year documenting their findings. Staff's initial proposal was to change the annual testing and inspection testing to a calendar year and modify the due date of the annual report to February 15 of each year.

Discussion

The non-calendar cycle has resulted in misinterpretation and inconsistent or conflicting data in both Staff reports and those produced by utilities. On several occasions, Staff reported it has had to reconcile discrepancies or provide documentation supporting its computations. To avoid future confusion, we shall modify the testing and inspection requirements to be performed on a calendar year basis and require the annual report be moved to February 15 to account for the shift in the cycle end date. Given the latest 12-month cycle ended in November 2008, however, annual reports for this cycle shall be submitted by January 15, 2009, as previously required. Stray voltage tests and inspections performed in the month of December 2008 may be applied to the 2009 calendar cycle. The annual report for the 2009 calendar cycle, however, shall specifically segregate the December 2008 results.

Quality Assurance

Staff Proposal

Section 5 of Appendix A requires utilities to have a quality assurance program to ensure compliance with the program. As part of the initial proposal, Staff recommended that the quality assurance program be independent of the stray voltage testing and inspections programs.

Discussion

Good quality assurance programs provides confidence that all activities are performed satisfactory and in compliance with the requirements. The quality assurance programs used to monitor stray voltage testing and inspections have been improving and evolving since the inception of the Electric Safety Standards. Staff reports that it has been working with the utilities to separate the personnel and departments responsible for

performing the stray voltage testing and inspections from those who perform the quality assurance activities. This effort has resulted in increased confidence that substandard performances are being identified and rectified. As a result, we shall adopt Staff's proposal to require independence in the quality assurance programs. The management and personnel performing quality assurance activities shall be separate from those performing required stray voltage testing and inspection activities. Additionally, we believe it is appropriate to expand the order at this time to specifically detail areas that are to be addressed by the quality assurance programs for clarification purposes.

With regard to inspections, we shall require the quality assurance program be developed to ensure that inspections are being performed on all facilities and that deficiencies are being properly identified and categorized for repair. The quality assurance program should also verify that permanent repairs are made in response to inspections performed and the timeliness of the repair. The results of the quality assurance programs shall be provided in the annual reports.

CONCLUSION

The requirements of the Electric Safety Standards have resulted in the identification of locations with sizable stray voltage levels where mitigation was necessary to maintain public safety, and the standards remain an effective means to ensure the safe and reliable operation of the electric system. Through experience and lessons learned over the past three years, several areas have been identified in the standards that require clarification and elaboration. These modifications to the Electric Safety Standards are made after considering comments submitted and balancing the interests and needs of the utilities, their ratepayers, and the public.

The Commission orders:

1. The standards discussed in the body of this Order and detailed in Appendix A are adopted.

2. The November 30, 2006 petition filed by ORU seeking a waiver from performing stray voltage testing on distribution and transmission facilities annually is denied.

3. All utilities, with the exception of Con Edison, shall complete an initial mobile stray voltage detection survey of their underground electric distribution systems, in appropriate areas of cities with a population of at least 50,000 (based on the results of the 2000 census), during calendar year 2009 to positively identify those areas that can be effectively surveyed, and annually thereafter until further Commission action.

4. Con Edison shall continue to conduct twelve complete mobile stray voltage surveys annually until directed otherwise by the Commission.

5. This proceeding is continued.

By the Commission,

(SIGNED) JACLYN A. BRILLING
Secretary

ELECTRIC SAFETY STANDARDS

SECTION 1: DEFINITIONS

(a) Utilities – The term "utilities" includes all investor-owned and municipal electric corporations subject to the Commission's jurisdiction that own or operate transmission or distribution facilities, whether fully or lightly regulated. As appropriate, the term also includes companies subject to our jurisdiction that own or operate electric generating facilities within the State, whether fully or lightly regulated.

(b) Electric facilities – The term “electric facilities” means and refers to all electric plant, as that term is defined in Public Service Law §2(12), that is used to modulate, transmit, and/or distribute electricity, or is related to its modulation, transmission, and/or distribution. The term “overhead facilities” generally includes the electric facilities that are part of a utility’s overhead distribution system (e.g., the system that serves rural areas and includes towers, poles, and aerial cable and conductors). The term “underground facilities” generally includes the electric facilities that are part of a utility’s underground distribution system (e.g., the system that serves urban areas and includes manholes, service boxes, and underground cable and conductors).

(c) Stray Voltage –The term “stray voltage” means voltage conditions on electric facilities that should not ordinarily exist. These conditions may be due to one or more factors, including, but not limited to, damaged cables, deteriorated, frayed or missing insulation, improper maintenance, or improper installation.

(d) Streetlights – The term “streetlights” means and includes utility- and municipal owned streetlights located on, along, or adjacent to public thoroughfares and areas and traffic signal poles and devices; it does not include privately-owned light fixtures, such as those located in private parking lots.

(e) Stray Voltage Testing – The process of checking an electric facility for stray voltage using a device capable of reliably detecting and audibly and/or visually signaling voltage in the range of 6 to 600 volts.

(f) Findings – Any confirmed voltage reading on an electric facility or streetlight greater than or equal to 1V measured using a volt meter and a 500 ohm shunt resistor.

(g) Mitigation –Corrective actions performed by the utility to address the stray voltage findings.

(h) Inspection – A careful and critical examination of an electric facility by a qualified individual to determine the condition of the facility and the potential for it to cause or lead to safety hazards or adverse effects on reliability.

APPENDIX A

SECTION 2: NATIONAL ELECTRIC SAFETY CODE COMPLIANCE

(a) The installation, construction, maintenance, and operation of electric facilities shall comply with the latest version of the National Electric Safety Code (NESC), except where a utility's practices, procedures, and protocols are more stringent.

(b) Utilities are not required to retrofit their existing facilities to comply with the latest version of the NESC, unless the latest version of the NESC requires a retrofit.

(c) To the extent that projects currently being constructed do not comply with the NESC or a utility's more stringent standards, exemption from compliance will be considered on a case-by-case basis.

(d) If a utility believes that it cannot satisfy any provision of the NESC for a valid technical reason, it may petition the Commission for an exemption from compliance with that provision.

SECTION 3: STRAY VOLTAGE TESTING

(a) Stray voltage testing shall be conducted on all utility facilities that are capable of conducting electricity and are publicly accessible. Testing is not required on customer meters and customer-owned facilities, except municipal-owned streetlights.

(b) Stray voltage testing shall be conducted on all streetlights.

(c) For underground electric facilities that are publicly accessible, including, but not limited to, manholes, service boxes, and transformer vaults, stray voltage testing shall be conducted on the exposed surfaces of the facilities.

(d) Stray voltage testing of streetlights shall be conducted when the light is activated (i.e., at night).

(e) Stray voltage testing shall be conducted on an annual basis.

(f) If a streetlight to which a utility provides service is owned by another entity, and that entity conducts stray voltage testing meeting these safety standards, the utility may substitute that testing program for its own, provided the utility can certify the other entity's results.

(g) All equipment used for stray voltage testing must be certified by an independent test laboratory as being able to reliably detect voltages of 6 to 600 volts.

(h) Any facility for which a voltage finding is discovered shall be guarded by the utility immediately and continuously until the utility has performed mitigation and made the area safe. Mitigation shall be completed on any stray voltage findings.

(i) In instances where a stray voltage finding is determined to be caused by customer-owned equipment, the area must be immediately made safe. The utility shall immediately

notify the customer or a responsible person associated with the premises or the customer-owned facility of the unsafe condition and the need for the customer to arrange for a permanent repair to the customer's equipment.

(j) In the event of a finding on an electric facility or streetlight during stray voltage testing, the utility shall test for stray voltage on all publicly accessible structures and sidewalks within a minimum 30 foot radius of the electric facility or streetlight.

(k) In each instance where stray voltage is determined to be caused by a utility-owned facility, best efforts shall be used to effect a permanent repair of the facility as soon as possible, but not later than 45 days after discovery of the stray voltage condition. A temporary repair to the facility may remain in place for more than 45 days only in extraordinary circumstances, and in such event the utility shall periodically perform site visits the monitor the condition of the temporary repair. All exceptions must be identified and justified as part of the reporting requirements under Section 9.

SECTION 4: INSPECTIONS

(a) Inspections shall include, at a minimum, visual examination of towers, poles, guy wires, risers, overhead cables and conductors, transformers, breakers, switches, and other aboveground equipment and facilities, and of the interior of manholes, service boxes, vaults, and other underground structures. Where debris or water is found in an underground structure, it must be removed before commencing the inspection so that all of the facilities in the structure, and the structure itself, may be fully inspected.

(b) Inspection of equipment should be performed in a manner that allows the inspector to examine its components, except those that are ordinarily encased in sealed compartments. Utilities need not perform destructive testing as part of this inspection program, except as otherwise required by their more intensive inspection procedures.

(c) When a visual inspection indicates the need for a more intensive examination, the utilities shall perform infrared testing and/or other inspection procedures.

(d) When an inspection reveals a hazardous condition or other problem, whether related to stray voltage or otherwise, the utility must make all repairs necessary to eliminate the condition.

(e) All electric facilities shall be inspected at least once every five years. Certain facilities may warrant shorter inspection cycles.

(f) Each utility shall develop and implement a formal inspection program that complies with these safety standards.

(g) Inspections conducted during routine maintenance and other work not directly related to the inspection program may count as an inspection visit, provided that the inspection is performed using the same safety and reliability criteria and to the same extent as would

otherwise be required under these standards. Inspections occurring during these field visits must be properly documented and certified.

(h) This inspection requirement is intended to complement, not supplant, the inspections any utility already performs; to the extent a utility's inspection program is broader or more intensive than the program described herein, the utility should continue to follow its own program.

(i) The testing and inspection programs may be combined, where practical and feasible, provided the synergy satisfies all the requirements contained within these safety standards.

(j) As part of the inspection process, deficiencies identified shall be categorized by the time period for the repair based on the severity of the condition. When prioritizing deficiencies, utilities should carefully account for the safety and operational effects should the facility fail prior to repair. Utilities will prioritize deficiencies by three categories:

> Level I – repair as soon a possible but not longer than one week. A Level I deficiency is an actual or imminent safety hazard to the public or poses a serious and immediate threat to the delivery of power. Critical safety hazards present at the time of the inspection shall be guarded until the hazard is mitigated.
>
> Level II – repair within one year. A Level II deficiency is likely to fail prior to the next inspection cycle and represent a threat to safety and/or reliability should a failure occur prior to repair.
>
> Level III – repair within three years. A Level III deficiency does not present immediate safety or operational concerns and would likely have minimum impact on the safe and reliable delivery of power if it does fail prior to repair.
>
> Level IV – condition found but repairs not needed at this time. Level IV is used to track atypical conditions that do not require repair within a five year timeframe. This level should be used for future monitoring purposes and planning proactive maintenance activities.

(k) Utilities are expected to permanently repair deficiencies identified by the inspection program within the priority time period established for its classification. All repair time periods are based on the initial date of discovery.

(l) When a temporary repair is located during an inspection or made by the company, best efforts shall be used to affect a permanent repair of the facility within 90 days. A temporary repair to the facility may remain in place for more than 90 days only in extraordinary circumstances, which may include major storms that require significant repair activity. In such event, the utility shall periodically perform site visits to monitor the condition of the temporary repair. All exceptions must be identified and justified as part of the reporting requirements under Section 9.

SECTION 5: QUALITY ASSURANCE

Each utility shall develop a quality assurance program to ensure timely and proper compliance with these safety standards. The quality assurance program shall be independent of the stray voltage testing and visual inspection programs. The management and personnel performing quality assurance activities shall be separate from those performing the required stray voltage testing and inspections.

(a) With regard to inspections, the quality assurance program should ensure that inspections are being performed on all facilities and that deficiencies are being properly identified and categorized for repair. The program should also verify that permanent repairs are made and the timeliness of the repairs.

SECTION 6: RECORDKEEPING

(a) Each utility shall develop procedures and protocols to track the stray voltage testing dates and results for each electric facility.

(b) Each utility shall develop procedures and protocols to track the inspection dates and results for each electric facility.

(c) Each utility shall develop procedures and protocols to track the permanent repairs made based on inspection data and whether the repairs were made in the appropriate timeframe. An inventory of outstanding repairs by priority level should also be maintained.

(d) Each utility shall develop procedures and protocols to track temporary repairs made on the system and whether these locations were permanently repaired within 90 days after making or locating a temporary repair.

(e) These records shall be kept in a manner that is readily accessible and searchable, continuously updated, and subject to review and audit by Staff and the Commission.

SECTION 7: CERTIFICATION

(a) Written certification of the completion and results of every stray voltage test and inspection undertaken and that all unsafe conditions identified have been remediated shall be made by an appropriate utility employee.

(b) The President or officer of each utility with direct responsibility for overseeing stray voltage testing shall provide an annual certification to the Commission that the utility has tested all of its publicly accessible electric facilities and all streetlights.

© The President or officer of each utility with direct responsibility for overseeing facility inspections shall provide an annual certification to the Commission that the utility is in compliance with its inspection program and has inspected the requisite number of electric facilities. Additionally, at the end of five-year inspection cycle, the officer shall certify that all of the utility's electric facilities have been inspected at least once.

(d) Each utility shall maintain its written certifications and other documentary proof of its testing and inspections at its corporate office located within the State of New York. These documents shall be available to the public for review upon request and without conditions.

SECTION 8: NOTIFICATION REQUIREMENTS

Each utility shall comply with the Event Notification Requirements attached hereto.

SECTION 9: REPORTING REQUIREMENTS

(a) Each utility shall file a comprehensive report by February 15 each year that:

1. details the results of stray voltage tests and inspections conducted over the 12-month period ending December 31 of the prior calendar year;

2. addresses the performance mechanism specified in Section 10;

3. contains the certifications described in Section 7;

4. contains a breakdown of the voltage findings in a tabular format as detailed in Attachment 1; for all findings that result in a reading of 1 V or more after completion of mitigation efforts, the utilities shall provide a detailed report on those efforts;

5. contains a breakdown of the shock reports received from the public as detailed in Attachment 2;

6. discusses the analyses undertaken on the causes of stray voltage within the utility's electric system, the conclusions drawn there from, the preventative and remedial measures identified, and the utility's plans to implement those measures;

7. describes the priority levels used to gauge the severity of a deficiency, including repair timeframes, and details the requirements for training personnel to properly identify and categorize deficiencies**;**

8. contains a breakdown of facilities to be inspected, unique inspection conducted per year, and the cumulative number of unique inspections conducted to meet the five year requirement;

9. contains a breakdown of the deficiencies found, permanent repair actions taken by year, whether the repair was completed within the required timeframe, and the number of

deficiencies awaiting repair. The information should be provided on a yearly basis by priority level and by equipment groupings as detailed in Attachment 3;

10. contains a review and analysis of the inspection results. Areas of concern should be identified along with remedial actions or future plans to alleviate inadequacies in current programs or assets;

11. describes the quality assurance program and provides the results from quality assurance activities conducted during the year; and

12. Includes all other information that is pertinent to the issues addressed by the safety standards.

SECTION 10: PERFORMANCE MECHANISM

(a) The annual performance target for stray voltage testing shall be 100% of all electric facilities and streetlights that must be tested. Facilities that are inaccessible and which pose no risk to public health and safety will not be considered in the determination of whether the target has been achieved.

(b) Failure to achieve the annual performance target for stray voltage testing shall result in a rate adjustment of 75 basis points.

(c) The annual performance target for inspections shall be based on the percentage of the average number of electric facilities that must be inspected each year in order to comply with the five-year inspection cycle. That is, the target is based on the one-fifth of the total number of the utility's electric facilities. The specific targets will be as follows:

First year inspection goal 85% of annual target

Second year inspection goal 90% of annual target

Annual inspection goal thereafter 95% of annual target

Fifth year inspection goal 100% of all facilities to be inspected

(d) Failure to achieve the annual performance target for inspections shall result in a rate adjustment of 75 basis points.

APPENDIX A

ATTACHMENT 1

Summary of Voltage Findings

	Initial Readings				Readings after Mitigation		
	1-4.4 V	4.5-24.9 V	> 25 V	Totals	< 1 V	1 V-4.4 V	>4.5 V
Distribution Facilities							
Pole							
Ground							
Guy							
Riser							
Other							
Underground Facilities							
Service Box							
Manhole							
Padmount Switchgear							
Padmount Transformer							
Vault – Cover/Door							
Pedestal							
Other							
Street Lights / Traffic Signals							
Metal Street Light Pole							
Traffic Signal Pole							
Control Box							
Pedestrian Crossing Pole							
Other							
Substation Fences							
Fence							
Other							
Transmission (Total)							
Lattice Tower							
Pole							
Ground							
Guy							
Other							
Miscellaneous Facilities							
Sidewalk							
Gate/Fence/Awning							
Traffic Sign							
Scaffolding							
Bus Shelter							
Fire Hydrant							
Phone Booth							
Traffic Control Box							
Water Pipe							
Riser							
Other							

ATTACHMENT 2

Summary of Shock Reports from the Public

I.	**Total shock calls received:**	
	Unsubstantiated	
	Normally Energized Equipment	
	Stray Voltage:	
	Person	
	Animal	
II.	**Injuries Sustained/ Medical Attention Received**	
	Person	
	Animal	
V.	**Voltage Source:**	
	Utility Responsibility	
	Issue with primary, joint, or transformer	
	Secondary Joint (Crab)	
	SL Service Line	
	Abandoned SL service line	
	Defective service line	
	Abandoned service line	
	OH Secondary	
	OH Service	
	OH Service neutral	
	Pole	
	Riser	
	Other	
	Customer Responsibility	
	Contractor Damage	
	Customer Equipment/Wiring	
	Other Utility/Gov't Agency Responsibility	
	SL Base Connection	
	SL Internal Wiring or Light Fixture	
	Overhead Equipment	
VI.	**Voltage Range:**	
	1.0V to 4.4V	
	4.5V to 24.9V	
	25V and above	

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Distribution																
Overhead Facilities	**2009**			**2010**			**2011**			**2012**			**2013**			
Priority Level	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	
Repair Expected	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	
Poles																
Pole Condition																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Grounding System																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Anchors/Guy Wire																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Cross Arm/Bracing																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Riser																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Distribution (cont.)															
Overhead Facilities	**2009**			**2010**			**2011**			**2012**			**2013**		
Priority Level	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
Repair Expected	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**
Conductors															
Primary Wire/Broken Ties															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Secondary Wire															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Neutral															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Insulators															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Pole Equipment															
Transformers															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Cutouts															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Distribution (cont.)																
Overhead Facilities	**2009**			**2010**			**2011**			**2012**			**2013**			
Priority Level	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	
Repair Expected	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	
Lightning Arrestors																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Other Equipment																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Miscellaneous																
Trimming Related																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Other																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Overhead Facilities Total																
Total																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Transmission															
Transmission Facilities	**2009**			**2010**			**2011**			**2012**			**2013**		
Priority Level	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
Repair Expected	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**
Towers/Poles															
Steel Towers															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Poles															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Anchors/Guy Wire															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Crossarm/Brace															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Grounding System															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Transmission (cont.)															
Transmission Facilities	**2009**			**2010**			**2011**			**2012**			**2013**		
Priority Level	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
Repair Expected	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**
Conductors															
Cable															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Static/Neutral															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Insulators															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Miscellaneous															
Right of Way Condition															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Other															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Transmission FacilitiesTotal															
Total															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Underground															
Underground Facilities	**2009**			**2010**			**2011**			**2012**			**2013**		
Priority Level	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
Repair Expected	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**
Underground Structures															
Damaged Cover															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Damaged Structure															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Congested Structure															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Damaged Equipment															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Underground (cont.)															
Underground Facilities	**2009**			**2010**			**2011**			**2012**			**2013**		
Priority Level	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
Repair Expected	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**
Conductors															
Primary Cable															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Secondary Cable															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Neutral Cable															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Racking Needed															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Miscellaneous															
Other															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Underground Facilities Total															
Total															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Pad Mount Transformers															
Pad Mount Transformers	**2009**			**2010**			**2011**			**2012**			**2013**		
Priority Level	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
Repair Expected	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**
Pad Mount Tansformers															
Damaged Structure															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Damaged Equipment															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Cable Condition															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Oil Leak															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Off Pad															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Lock/Latch/Penta															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Pad Mount Transformers (cont.)															
Pad Mount Transformers	**2009**			**2010**			**2011**			**2012**			**2013**		
Priority Level	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
Repair Expected	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**
Miscellaneous															
Other															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Pad Mount Total															
Total															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Streetlights															
Overhead Facilities	**2009**			**2010**			**2011**			**2012**			**2013**		
Priority Level	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
Repair Expected	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**
Streetlight															
Base/Standard/Light															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Handhole/Service Box															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Service/Internal Wiring															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Access Cover															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Miscellaneous															
Other															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Streetlight Total															
Total															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Level IV Conditons										
Overhead Facilities	**2009**		**2010**		**2011**		**2012**		**2013**	
	Number of Conditions Found	**Number of Conditions Repaired**	**Number of Conditions Found**	**Number of Conditions Repaired**	**Number of Conditions Found**	**Number of Conditions Repaired**	**Number of Conditions Found**	**Number of Conditions Repaired**	**Number of Conditions Found**	**Number of Conditions Repaired**
Overhead Facilities										
Pole Condition										
Pole Condition										
Grounding System										
Anchors/Guy Wire										
Cross Arm/Bracing										
Riser										
Conductors										
Primary Wire/Broken Ties										
Secondary Wire										
Neutral										
Insulators										
Pole Equipment										
Transformers										
Cutouts										
Lightning Arrestors										
Other Equipment										
Miscellaneous										
Trimming Related										
Other										
Overhead Facilities Total										
Transmission Facilities										
Towers/Poles										
Steel Towers										
Poles										
Anchors/Guy Wire										
Crossarm/Brace										
Grounding System										
Conductors										
Cable										
Static/Neutral										
Insulators										
Miscellaneous										
Right of Way Condition										
Other										
Transmission Facilities Total										

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Level IV Conditons (cont.)										
Overhead Facilities	**2009**		**2010**		**2011**		**2012**		**2013**	
	Number of Conditions Found	**Number of Conditions Repaired**	**Number of Conditions Found**	**Number of Conditions Repaired**	**Number of Conditions Found**	**Number of Conditions Repaired**	**Number of Conditions Found**	**Number of Conditions Repaired**	**Number of Conditions Found**	**Number of Conditions Repaired**
Underground Facilities										
Underground Structures										
Damaged Cover										
Damaged Structure										
Congested Structure										
Damaged Equipment										
Conductors										
Primary Cable										
Secondary Cable										
Neutral Cable										
Racking Needed										
Miscellaneous										
Other										
Underground Facilities Total										
Pad Mount Transformers										
Underground Structures										
Damaged Structure										
Damaged Equipment										
Damaged Cable										
Oil Leak										
Off Pad										
Lock/Latch/Penta										
Miscellaneous										
Other										
Pad Mount Transformer Total										
Streetlights										
Streetlight										
Base/Standard/Light										
Handhole/Service Box										
Service/Internal Wiring										
Access Cover										
Miscellaneous										
Other										
Streetlight Total										
Total Level IV Conditions										
Overall Total										

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process							
Year	**Prority Level / Repair Expected**		**Deficiencies Found (Total)**	**Repaired In Time Frame**	**Repaired - Overdue**	**Not Repaired - Not Due**	**Not Repaired - Overdue**
2009	I	Within 1 week					
	II	Within 1 year					
	III	Within 3 years					
	IV	N/A					
2010	I	Within 1 week					
	II	Within 1 year					
	III	Within 3 years					
	IV	N/A					
2011	I	Within 1 week					
	II	Within 1 year					
	III	Within 3 years					
	IV	N/A					
2012	I	Within 1 week					
	II	Within 1 year					
	III	Within 3 years					
	IV	N/A					
2013	I	Within 1 week					
	II	Within 1 year					
	III	Within 3 years					
	IV	N/A					

EVENT NOTIFICATION REQUIREMENTS

ALL NOTIFICATIONS SHALL BE MADE WITHIN ONE HOUR OF AN INCIDENT OR EVENT UNLESS OTHERWISE SPECIFIED

I. System Control - Reports of Impending Emergencies, Emergencies, and Load Curtailment

A. Requests for curtailed electric use, voltage reductions, and load shedding initiated to maintain the adequacy of the electric system and significant bulk supply outages or accidents of consequence are to be reported to the Office of Electric, Gas and Water. The specific items to be brought to the Office's attention are as follows:

1. Any decision to issue a request for customer reduction in use of electricity. The Office of Electric, Gas and Water is to be notified at the time of decision to issue any such request.

2. Any action to maintain the adequacy of the bulk electric system by reducing firm customer loads by voltage reductions, manual switching, operation of automatic load shedding devices, or any other means. The Office of Electric, Gas and Water is to be notified at the time of decision to take such action.

3. Any bulk supply outage that has, or could have, a significant impact on the utility's electric system or the state-wide system.

B. The following information is to be included in the reports:

1. For Items I.A.1. and I.A.2., the utility shall provide the approximate area(s) affected, the time(s) of the action, the time(s) and/or an estimate of the time(s) of restoration of normal service (or cancellation of a customer request), an estimate of the amount of load reduction expected or load interrupted, and the number of customers affected if load is interrupted.

2. For Item I.A.3., the utility shall provide a description of the incident and events leading to its occurrence, the time of occurrence, the system(s) affected, and an evaluation of the effect on the system(s).

II. Loss of Electric Service

A. Written reports of electric service interruptions of five minutes or more are required by 16 NYCRR Part 97. Such reports are to be prepared in accordance with the regulations and submitted to the Office of Electric, Gas and Water.

B. Additionally, notice is to be made for each of the following events:

1. Loss of electric service to 5,000 customers or more lasting 30 minutes or more.

2. Any loss of a distribution system network.

C. Notice of these events occurring after business hours shall be made no later than 8:30 a.m. of the next business day, unless they receive significant media attention, in which case notice shall be provided within one hour.

D. The following information should be provided in the notice:

1. The approximate territory affected.

2. The date and time of the incident causing the interruption.

3. The expected duration of the interruption.

4. If restored at the time of the call, the date and time of restoration.

5. The number of customers affected and amount of load involved.

6. A listing of any critical services affected.

7. A description of the incident and its cause.

8. Any follow-up actions planned.

III. Reports of Personal Injury Accidents

A. Written and telephone notification of electric system personal injury accidents and deaths are required by 16 NYCRR Part 125. This requirement applies to all electric system accidents that result in injury or death to a non-employee and/or inpatient hospitalization or death to an employee or contractor employed by the utility, including accidents that occur at generating plants.

B. All written and telephone reports are to be made in accordance with the regulations and the following requirements and submitted to the Office of Electric, Gas and Water.

1. Reports for accidents, except those involving a fatality or major media attention, occurring after business hours shall be made no later than 8:30 a.m. of the next business day.

2. Written reports shall be made using the Department's standard form and may be submitted via e-mail or fax.

3. Telephone reports should include the following information:

   a. The location of the accident.

   b. The date and time of the accident.

   c. Whether or not the injured party is a utility employee or contractor.

   d. A description of the injuries sustained and the status of the injured party.

   e. A description of the accident and its cause.

   f. The time the utility received notification of the incident.

   g. The time the first utility personnel arrived at the scene.

   h. The time qualified utility personnel arrived at the scene (i.e., personnel capable of addressing any safety hazard).

   i. Whether response operations were affected until utility personnel arrived.

IV. Report of Shock Incidents and Motor Vehicle Accidents

A. All electric shock incidents that do not involve personal injuries shall also be reported.

B. Electric shock incidents involving animals shall be reported.

C. Motor vehicle accidents involving utility facilities and/or utilities vehicles in which there is a personal injury shall be reported.

D. All reports of these incidents are to be submitted to the Office of Electric, Gas and Water. The Director of the Office of Electric, Gas and Water shall prescribe the manner in which the reports are to be provided.

E. Reports for incidents occurring after business hours shall be made no later than 8:30 a.m. of the next business day.

F. The reports should include the following information:

1. The location of the incident.

2. The date and time of the incident.

3. Whether or not the party who was shocked or injured, as appropriate, is a utility employee or contractor.

4. A description of the condition of the affected party, and, as appropriate, of the injuries sustained.

5. A description of the incident and its cause.

6. The time the utility received notification of the incident.

7. The time the first utility personnel arrived at the scene.

8. The time qualified utility personnel arrived at the scene (i.e., personnel capable of addressing any safety hazard).

9. Whether response operations were affected until utility personnel arrived.

V. Unusual Events

A. Major Events

Immediate notification is to be made for major events associated with a utility's electric system that will likely result in considerable media attention. Examples of major events include, but are not limited to, load shedding, catastrophic storm emergencies, boiler explosions, or nuclear radiation releases.

Immediate notification is also to be made whenever a utility's corporate emergency command center (e.g., storm center) becomes operational.

B. Media Attention

Incidents involving utility facilities that are likely to receive attention from the news media are to be reported immediately. Examples of such events include, but are not limited to, fires, manhole explosions, equipment damage of $1 million or more, and nuclear plant incidents.

VI. Manner of Notification

Except where otherwise noted above, the Director of the Office of Electric, Gas and Water shall prescribe the manner in which notice to Staff is to be provided.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service Commission held in the City of Albany on June 17, 2010

COMMISSIONERS PRESENT:

Garry A. Brown, Chairman
Patricia L. Acampora
Maureen F. Harris
Robert E. Curry, Jr.
James L. Larocca

CASE 10-E-0271 - In the Matter of Examining the Mobile Testing Requirements of the Electric Safety Standards.

ORDER REQUIRING ADDITIONAL MOBILE STRAY VOLTAGE TESTING

(Issued and Effective July 21, 2010)

BY THE COMMISSION:

In December 2008, we ordered all electric utilities to complete an initial mobile stray voltage detection survey of their underground electric distribution systems, in appropriate areas of certain large cities,[1] during calendar year 2009 to confirm those areas that can be effectively surveyed using that technology.[2] The December 2008 order stated that the annual mobile testing requirement for those cities will continue until changed by the Commission. The affected utilities determined the cities to be surveyed pursuant to the order to be Buffalo, Syracuse, Utica, Albany, Schenectady, Niagara Falls (National Grid); Yonkers, White Plains, New Rochelle, Mount Vernon

[1] These are incorporated cities with populations of at least 50,000 based on the results of the 2000 census.

[2] Case 04-M-0159 - Proceeding on Motion of the Commission to Examine the Safety of Electric Transmission and Distribution Systems, Order Adopting Changes to Electric Safety Standards (issued December 15, 2008)("December 2008 order").

(Consolidated Edison Company of New York, Inc., or "Con Edison"); and Rochester (Rochester Gas and Electric). All of the mobile scan surveys were completed by the end of 2009 and the testing result reports were filed with the Commission.

On April 22, 2010, a Notice Soliciting Comments (Notice) was issued in Case 04-M-0159 which included a preliminary recommendation that one mobile scan be completed in calendar year 2010 in the following cities: Albany, Niagara Falls, Yonkers, White Plains, New Rochelle and Rochester, and that two mobile scans be completed in Buffalo. No additional scans were recommended for Syracuse, Utica, Schenectady, and Mount Vernon. Comments were received in response to the Notice from the Jodie S. Lane Public Safety Foundation (JSLPSF), the New York State Consumer Protection Board (CPB), the Power Survey Company,[3] and National Grid. After review of the comments received, we conclude that the testing will be conducted as recommended in the Notice.

BACKGROUND

Results of Testing

The National Grid survey scanned 3,229 miles – 1,444 miles of which were in Buffalo - and found 2,870 energized objects, 2,803 of which were street lights and traffic signals. National Grid's facilities comprised 2,698 of the 2,870 energized objects; the remaining 172 were privately owned, and 2,677 (of the 2,870) were located in Buffalo. Rochester Gas and Electric's survey scanned approximately 800 miles and found 161 energized objects, 140 of which comprised street lights/traffic signals. The Con Edison survey scanned 232 miles and found 75 energized objects, 47 of which comprised street lights/traffic

[3] Power Survey Company is the contractor that performed the mobile scans for the utilities.

signals. The Appendix attached to this order provides additional detail on the testing results.

Comments of the JSLPSF

The JSLPSF submitted comments on the results of the mobile scans, which were later supplemented by comments in response to the Notice. The JSLPSF maintains that mobile scanning is superior to manual scanning at detecting energized objects and costs less per detection than manual scanning. It also claims that pedestrian shock risks are worse in every upstate city relative to New York City.

First, JSLPSF initially recommended that Buffalo be scanned 12 times in 2010, White Plains and Yonkers be scanned three times, while Albany, Rochester, Niagara Falls, Schenectady, New Rochelle, Utica, Syracuse, and Mount Vernon be scanned two times. In its comments in response to the Notice the JSLPSF recommended that the annual mobile scans be increased substantially, to 12 for all cities except Mount Vernon (five), Schenectady (four), and Utica (three). The recommendation for Syracuse remained at three. The only reason given for its change of position was a stated goal of achieving "safety parity" with New York City.

With respect to Buffalo, JSLPSF states that the density of energized objects detected per mile is 11.9 times greater than in New York City, and that the single mobile scan conducted in 2009 detected more energized objects than the total number detected by National Grid's manual testing process for its entire service territory in the last five years. It further states that, with only a single mobile scan in 2009, pedestrians in Buffalo are exposed to energized objects 12 times longer than in New York City, given the 12 times per year scanning frequency in New York City. By multiplying the density of energized

objects by its asserted additional duration of exposure, JSLPSF concludes that pedestrians are approximately 140 times more likely to receive a shock in Buffalo than in New York City. For other cities, JSLPSF says that "when more energized objects are detected year over year the number of scans should double up to a max of 12." Comparing the number of shock reports received by National Grid relative to Consolidated Edison supports the need for more frequent testing, says JSLPSF, because its calculations indicate the shock rate in National Grid's territory to be 7.9 times greater than in Con Edison territory.[4]

Second, the JSLPSF states that several "population centers" were omitted from the mobile scanning requirements simply because they were not incorporated as cities as specified in the order. It states that incorporation status is irrelevant in this context and that those areas should be scanned in 2010.

Third, the JSLPSF states that manual scanning is ineffective and should only be used when mobile scanning cannot be used.

Fourth, the JSLPSF recommends requiring all large utilities to provide additional details in their shock reports. It contends that the data compiled and submitted by the utilities as required by the safety standards is insufficient in detail and not easily accessible to outside parties.

Finally, the JSLPSF contends that the Commission should modify the safety standards so that the potential negative rate adjustments for non-compliance apply to mobile as

[4] For National Grid, 124 shocks where stray voltage was confirmed, divided by an estimated population of 1.5 million yields 82.7 shocks per million. For Con Edison, 84 shocks divided by an estimated population of 8 million yields 10.5 shocks per million, and a National Grid/Con Edison ratio of 7.9 (82.7/10.5).

well as manual testing.[5] It asserts that applying the current incentive mechanism is ineffective since manual testing only accounted for 7% of stray voltage detections in New York City, while the remaining 93% were attributable to the mobile testing program.

Comments of Power Survey Company

Power Survey Company is currently the sole source vendor for mobile testing in New York State. It supports the JSLPSF's request for 12 scans in Buffalo and recommends that the Commission act as promptly as possible due to the "unjustified hazard" presented to the Buffalo residents. Power Survey Company also submitted an analysis prepared by Industrial Economics, Inc. (IE) which compared the results of Power Survey Company's mobile scan of Buffalo in October 2009 to the results of a "partial scan" that Power Survey Company conducted from April 29, 2010 to May 5, 2010. IE concluded, based on the results of the partial scan and a comparison to past results for New York City, that the detection rate in Buffalo is likely substantially greater than that of New York City, not an anomaly, and, indicative of a continuing shock hazard.

Comments of CPB

In general CPB endorses the JSLPSF position. It also contends that the existing data presents a compelling need for frequent testing in Buffalo and that frequent mobile testing makes economic sense.

According to CPB, two sets of data demonstrate that 12 scans per year are necessary in Buffalo. First, it points out that the JSLPSF website shows approximately 500 new energized

[5] The Safety Standards provide for a rate adjustment of 75 basis points if 100% of an operator's electric facilities and streetlights are not tested annually.

objects discovered each month via mobile scanning on the Con Edison system, which is evidence of the continuing deterioration of Con Edison's infrastructure. CPB also points out that the number of reported shocks for Con Edison has declined since 2004, which it claims directly correlates to the increased frequency of mobile scanning.

Second, CPB reiterates JSLPSF's arguments regarding duration of exposure and density of energized objects in Buffalo as being analogous to the situation confronting Con Edison with its deteriorating infrastructure. It also repeats the JSLPSF arguments with respect to the comparative shock rate in Buffalo relative to New York City, and notes the results of the partial scan provided by Power Supply Company.

Concerning the economics of mobile testing, CPB contends that the prices offered by the current sole source vendor of this service will be considerably lower in the future due to experience gained from the first round of testing, and that the cost of the testing pales in comparison to the expenditures involved in settling a wrongful death lawsuit.

Comments of National Grid (NG)

National Grid concurs with the Staff recommendation for two mobile scans to be conducted in Buffalo in 2010, one in Albany and Niagara Falls, and, no additional scans required for Syracuse, Utica and Schenectady. It states that the Staff recommendation strikes an appropriate balance between public safety and cost to ratepayers. National Grid did, however, request clarification as to whether future mobile testing in upstate cities is being required in place of, or in addition to, manual testing.

DISCUSSION

As explained in the April 22, 2010 Notice,

> ". . .manual and mobile testing processes and their results cannot be compared on a one-to-one basis, as the manual process is exclusively focused on utility assets and street/traffic lights, while the mobile process does not limit itself to these facilities. Mobile testing detects stray voltage on customer-owned and other facilities that are not the primary focus of the Commission's safety standards."[6]

As the JSLPSF stresses, pedestrian safety is the primary focus of our requirements for stray voltage testing. The testing mandated by the Electric Safety Standards requires that all utility facilities (including street lights and traffic signals, regardless of ownership) be tested for stray voltage. When the manual testing method is used, a handheld detector is brought into direct contact with the facility being tested for the presence of stray voltage (street/traffic light, manhole/service box cover, or any other utility facility). If the handheld detector indicates the presence of voltage a voltmeter is used to obtain an actual voltage reading. If this results in a finding of stray voltage, all publicly accessible structures within a minimum 30 foot radius of the facility will also be tested for stray voltage.[7]

The mobile testing method does not exclusively focus on utility facilities. It uses a vehicle mounted electric field detector to scan a large swath of the landscape for any field disturbances from any possible source. Mobile testing cannot be

[6] Notice, p. 3.

[7] The Electric Safety Standards define a finding as any confirmed voltage reading on an electric facility or streetlight greater than or equal to 1 volt using a volt meter and a 500 ohm shunt resistor (December 2008 order, Appendix A, p.1).

used in areas where there are overhead electric lines because of the electrical field interference that the lines generate. When the mobile detector indicates the presence of an electrical field the equipment operators stop the vehicle and conduct a further investigation using a handheld field detector to pinpoint the source. They will then use a voltmeter to test the suspected source of the stray voltage, as well as any other structures in the area that may possibly be impacted. Manual testing focuses on utility facilities and street/traffic lights, while mobile testing, where it can be used, will detect stray voltage from any source and regardless of the underlying cause (utility vs. customer facilities), and regardless of its bearing on pedestrian safety. The mobile testing process typically results in a higher rate of stray voltage detections, compared to manual testing, particularly with low voltage (less than 4.5 volt) conditions. Consequently, the results obtained with manual and mobile testing are not directly comparable, and caution must be used in drawing conclusions regarding the comparative effectiveness of the two testing methods in enhancing pedestrian safety.

Likewise, with respect to shock report data, caution and a careful evaluation is needed to understand the extent to which shock reports appear to correlate with the rate of stray voltage findings. Such an evaluation needs to consider what facilities those shock reports are associated with, whether they are in the pedestrian pathway, and whether the source would be discovered using either manual or mobile testing. The points advanced by the parties rely on the total number of shock calls received, without regard for the source or location of the actual problem. As discussed in more detail below with respect to National Grid, the total number of shocks reported by the companies includes incidents where a voltage reading was

substantiated. However, many of these calls were related to customer premises wiring and customers calling in to report that they received shocks from their appliances, shower head, or other conductive surfaces within the premises. The utility will respond, diagnose the problem, and make the situation safe. However, incidents such as these should not be included in a calculation of shock rates related to stray voltage testing, as they would not be detected by either manual or mobile testing and do not present any potential threat to pedestrian safety. Therefore, recognition of the comparative abilities and limitations of manual versus mobile testing is critical to evaluating their results and relative effectiveness at enhancing pedestrian safety, and caution must be used in drawing conclusions.

The JSLPSF is correct that the test results, when analyzed on an energized-object-per-mile basis, are higher in Buffalo compared to New York City. That is cause for concern. However, the JSLPSF analysis, comparing the initial mobile survey results for Buffalo and the mature survey results for New York City, needs to be viewed in perspective. New York City has been mobile scanned approximately once per month since April 2008 (more than 30 times in total) in consideration of the history of findings since mobile scanning was initiated in 2005. Thus, there have been many opportunities over the years to find and fix problems in New York City. To expect that the initial results for the single scan in Buffalo in 2009 should dictate a testing frequency comparable to New York City's after several years of testing is not reasonable. The detection rate derived from the first scan in Buffalo is more likely a result of a

backlog of conditions that have gone undetected in the past but have now been identified.[8]

In addition, if the actual hazard in Buffalo were that much greater than in New York City, we would expect that this would be reflected in the shock report data. By calculating the shock rate for the entire National Grid service territory, and using that to justify increased scanning in the City of Buffalo, JSLPSF failed to recognize that a number of the shock reports did not originate in Buffalo and not all shock reports where voltage was substantiated involved utility facilities or facilities the utility is responsible for. The vast majority occurred on customer facilities which would not have been discovered by the mobile testing. For example, in 2009, 86 of the 124 National Grid total shock reports where stray voltage was confirmed were attributed to non-utility facilities. Of those 86, 82 were traced to defective customer equipment/wiring within the premises and therefore not accessible to pedestrians; two were due to contractor damage; and, two were traced to municipal utility facilities.

In addition, of eight shocks in Buffalo reported to National Grid by the public during the two year period since June 2008 that involved utility facilities or streetlights and confirmed stray voltage, only one was identified as associated with a company facility in the pedestrian pathway. Subsequently

[8] There is also a discrepancy in JSLPSF's analysis of shock reports in National Grid's territory compared to Con Edison's. It used customer count when normalizing the data for National Grid, but population in its analysis for Con Edison. Using population rather than customer count for National Grid results in a shock rate of 41.3 per million people (124 shocks / 3 million people). Comparing this to Con Edison's shock rate of 10.5 per million people (84 shocks / 8 million people), National Grid's shock rate is 3.9 (41.3 / 10.5) times greater, rather than 7.9 times greater as calculated by JSLPSF.

it was determined that the service was defective resulting in the structure becoming energized. The remaining seven shock reports in Buffalo caused by utility facilities were not in the pedestrian pathway (they were on customer facilities/equipment) and resulted mainly from issues related to overhead service which would not be detected by manual or mobile testing. While the rate of shock reports are valuable in assessing the need for continued testing, the analyses performed by CPB and JSLPSF do not appear to justify a requirement for 12 mobile scans per year in Buffalo at this time.

National Grid reported that its high detection rate in Buffalo was primarily due to an antiquated street lighting distribution system and that it has initiated a cable replacement program to upgrade the underground distribution system in the city of Buffalo, including cable serving streetlights. An objective of performing two mobile surveys in Buffalo in 2010 is to determine if the detection rate declines or not. As stated previously, the results of the first-time mobile scan in 2009 may reflect conditions that have gone undetected in the past, but have now been identified.

We note that the scans conducted by Con Edison were gradually ramped up from a single scan in 2005 to the current level of 12 in 2008. That approach allowed for a baseline to be established and for the filtering out of potentially anomalous results. We agree with JSLPSF that an increase in "year-over-year" results could indicate that increased testing is needed. However, we do not have "year-over-year" results for Buffalo, because only one year of mobile testing has been completed. Thus, ratcheting from a single scan to 12 scans would be premature at this point. Rather, we are requiring in this Order that the number of mobile scans per year in Buffalo be increased from one to two mobile tests in 2010. The results of these

tests will be analyzed to determine whether the rate at which mobile scans are conducted in the future should be adjusted.

With respect to JSLPSF's argument that the utilities should be required to test more population centers with populations greater than 50,000[9], the primary consideration in determining whether mobile testing might be a feasible alternative to manual testing is whether a significant portion of the distribution system is underground.[10] The areas cited by JSLPSF are suburban centers that do not contain a preponderance of underground distribution similar to more urban areas of Buffalo, Syracuse or Albany. Notwithstanding, pursuant to the December 2008 order, the utilities have the option of utilizing mobile testing as an alternative to normal testing in any area where they may determine it to be effective. If the utilities select mobile testing in place of manual testing the performance mechanism would apply. The utilities are still required to attest, as detailed in the safety standards, that all publicly accessible electric facilities have been tested. Thus, the performance mechanisms will apply to the mobile testing process when used for compliance with the standards.

The JSLPSF comment that the shock report data submitted by the utilities is inadequate is beyond the scope of the Notice Soliciting Comments. Notwithstanding, the data being provided by the utilities satisfies our current needs. We note that the reporting form was issued for comment when the safety standards were revised in 2008 and no objections were raised. In addition, National Grid has also provided a detailed listing of all the shock reports received in its 2009 filing, including

[9] Included would be Cheektowaga, Tonawanda, Brentwood, Hempstead, Levittown, and Irondequoit.

[10] Mobile testing cannot be utilized effectively in areas with overhead distribution due to interference from those facilities.

dates and locations. And, it is also our understanding that JSLPSF receives detailed information on shock reports from Con Edison at regular intervals. Therefore, we are not going to change the reporting requirements at this time.

Staff reports that it was not informed of Power Survey Company's plan to conduct a "partial scan" in Buffalo and does not have the full results to perform any meaningful analysis. The report was missing basic information, such as the address or locations of the stray voltage findings and the specific facilities tested. We cannot base our decision to increase the mobile scan testing in Buffalo on partial scan results that lack basic data and have not been fully analyzed.[11]

JSLPSF contends that the cost per detection is considerably less for mobile versus manual testing, citing National Grid's results from 2009 wherein the cost per detection was $1,865 (mobile) vs. $7,719 (manual). Unfortunately, this is not an "apples-to-apples" comparison. This evaluation does not account for differences in the voltage level of the detections using the two methods[12] and is skewed by the fact that manual testing is focused on utility facilities and street/traffic light facilities. National Grid expended $4.4 million in 2009 to test its entire system via the manual method as opposed to $6.1 million for its mobile testing in cities. Efficiencies gained in New York City utilizing mobile testing in a large-scale urban application may not manifest themselves in smaller

[11] It is also our understanding that the results were not contemporaneously provided to National Grid, which challenges the credibility of Power Survey's assertion that the results are as dramatic as it claims. If so, it should have promptly informed National Grid so that any necessary corrective actions could have been taken.

[12] The testing methods utilized in mobile testing typically lead to a higher number of low voltage findings.

settings such as Buffalo where underground distribution is not as prevalent and the economies of scale are not as pronounced. In general, the cost of the mobile testing in certain geographical areas is currently significantly greater than manual testing, although the costs of the mobile testing should decrease over time as more options become available to the utilities.

National Grid seeks clarification on whether future mobile testing in upstate cities is being required in place of, or in addition to, manual testing. It does not plan to conduct manual testing in any areas where it is ordered to conduct mobile testing, and will count this testing as meeting the annual electric safety standards reporting requirements.[13] We do not expect National Grid to complete both testing methods in the designated testing areas. But, historic results and costs of the manual testing in these areas must be reported to allow Staff and the company to compare and assess the testing methods going forward.

The Commission orders:

1. For 2010, and continuing thereafter, unless changed by subsequent order of the Commission, affected utilities shall complete two mobile stray voltage scans in Buffalo and one each in Yonkers, White Plains, Albany, Niagara Falls, Rochester, and New Rochelle.

2. Reports compiling the results of these tests shall be filed with the Secretary of the New York State Public Service Commission (Commission's Secretary), within 45 days after completion of the mobile scans or February 15, 2011, whichever is earliest, and in each subsequent year. The filings will

[13] December 2008 order, Appendix A, Section 9.

include the historic results and costs associated with the manual testing program in each area.

3. The Secretary at her sole discretion may extend the deadlines set forth in this order.

4. This proceeding is continued.

By the Commission,

Jaclyn A. Brilling

Digitally Signed by Secretary
New York Public Service Commission

JACLYN A. BRILLING
Secretary

Appendix 1

City	Miles Scanned	Findings < 4.5V	Findings > 4.5V	Cost
Rochester	800	98	63	$520,000
RGE Totals	***800***	***98***	***63***	***$520,000***
Mt. Vernon	26	1	1	$13,000
New Rochelle	54	3	7	$31,000
White Plains	83	16	13	$58,000
Yonkers	69	18	16	$55,000
Con Edison Totals	***232***	***38***	***37***	***$157,000***[14]
Albany	396	55	46	$730,000
Buffalo	1,444	1,816	861	$3,000,000
Niagara Falls	265	46	8	$825,000
Schenectady	192	3	10	$320,000
Syracuse	611	6	6	$780,000
Utica	321	5	8	$462,000
National Grid Totals	***3,229***	***1,931***	***939***	***$6,100,000***

[14] Con Edison's costs were considerably lower due to the fact that they own the testing vehicles and were only required to contract for labor to perform the testing.

Commission 1-7

Request:

Please state whether in the past 5 years the Company was ordered by any state or local authorities or agencies, including public utilities or public service commissions, to take any action(s) to mitigate stray or contact voltage or dangerous conditions caused by stray or contact voltage, and if so, please describe the specific mandate(s) issued against the Company.

Response:

Please see response to Commission 1-6.

Prepared by or under the supervision of: Legal Department

Commission 1-8

Request:

Please state whether any judgments have been entered against the Company for injuries or damages resulting from stray or contact voltage in this state or any states in which the Company is licensed to operate, and if so, please provide the specific details of any such judgments and the jurisdiction(s) in which the judgment(s) was/were entered.

Response:

There have been no judgments entered against the Company during the past five years.

Prepared by or under the supervision of: Legal Department