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August 31, 2012

Luly 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
Docket 4237

To the Commission:

We are Nancy and Anthony Green, the parents of Deanna Camille Green, who was killed by contact voltage, at age 14, in Baltimore, Maryland. Since that terrible day we have worked to honor the memory of our daughter and to appeal in her name for the adoption and implementation of strong and effective rules and practices to prevent other families from enduring the immeasurable loss we have suffered.

We were pleased to see that the Public Utilities Commission has moved promptly in Docket 4237 to adopt the needed administrative standards and to review the filings of compliance by the affected electric utility. We thank this Commission and its staff for their efforts to address this silent and invisible threat within the State of Rhode Island, and we appreciate this opportunity for to us to present our comments.

Contact voltage is a lethal hazard. Detecting it requires the accurate scanning of thousands of structures and surfaces in a dynamic environment. As is the case with airport screening, security checkpoints, and food and drug testing, the accuracy of detection technologies employed is paramount. We are living proof that failure to detect even a single instance can result in human fatality. In recognition of the lethal nature of contact voltage, it is imperative that utilities employ proven technologies for contact voltage testing.

The proposed "Contact Voltage Program" filed by National Grid for its operating company, Narragansett Electric Company on August 17, 2012, must be **rejected** to the extent that it proposes to use mobile survey equipment to include "NARDA 8950 Stray Voltage Detection System"[1]. The National Grid Program must be denied or approved only on a condition that the voltage survey detection systems used not include the demonstrably unreliable NARDA model 8950.

The NARDA 8950 Stray Voltage Detection System (NARDA system) has been repeatedly shown to be unreliable and ineffective in locating contact voltage hazards. We will present information on five key areas of concern regarding the NARDA system, any one of which is sufficient for rejection of the NARDA system, and which collectively provide an overwhelming basis for not allowing use of the NARDA system to satisfy contact voltage testing requirements in Rhode Island. We urge you to reject any plan that includes the use of the NARDA system for each of the following reasons:

[1] National Grid's Proposed Contact Voltage Testing Program, section 4(a), page 13

1. Field testing performed by Con Edison shows that the NARDA system misses more than 67% of known energized objects
2. A head-to-head trial of the NARDA system and the SVD-2000 shows that more than 80% of energized objects were missed by the NARDA system
3. After evaluating and field testing the NARDA system, New York Utilities will not use it
4. The NARDA system is not certified by the Underwriters Laboratory as National Grid has claimed
5. National Grid has no further need to evaluate technologies, and cannot be trusted to do so

1. Field testing performed by Con Edison shows that the NARDA system misses more than 67% of known energized objects

Over the past few years, several New York electric utilities, including National Grid, have reviewed or tested the NARDA system as an alternative to the benchmark SVD-2000 system[2] provided by Power Survey Company. The experience in New York makes clear that the NARDA system does not meet the reasonable standards for mobile voltage scanning expected by the New York PSC and by utilities operating in New York City (Con Edison), Rochester (RG&E) or in Buffalo by National Grid itself.

Attached to this letter, we provide a copy Con Edison's evaluation report on the NARDA system. This report which was presented to the New York State Public Service

[2] The SVD-2000 System is currently used in major cities including Buffalo, Toronto, Rochester, Baltimore, Seattle and New York City.

Commission (NYSPSC) describes Con Edison's unsatisfactory experience with the NARDA 8950 system. The attached Con Edison report entitled *"Factors influencing Con Edison's current position on the NARDA 8950 System"* noted, in part, that:

- Preliminary field tests indicated that there were objects that the NARDA 8950 was unable to detect.
- Objects at high voltage can have low field strengths and could be missed by the NARDA system.
- In Con Edison's field trials, the NARDA 8950 failed to detect electric fields at 67% of **known** locations that were detected with SVD-2000.
- Power Survey has provided Con Edison with data on the electric field strengths of items that they [Power Survey] detect. More than 80% would be missed by NARDA.
- November 2010 NARDA indicated that they experienced difficulty detecting energized streetlights.

Con Edison found that it could not use the NARDA system because it did not meet the necessary performance criteria. The conclusion of Con Edison's report summarized their experience with the system: *"Con Edison has observed a large difference in performance and felt this was enough evidence to cancel larger scale field trial."*

Several months later Con Edison reported, "*Con Edison purchased several [NARDA 8950] units for evaluation...To date, we have not incorporated these units into our mobile contact voltage testing program because we have not been able to achieve results*

similar to that of the existing mobile detection technology."[3] Con Edison has reported no progress since then.

2. A head-to-head trial of the NARDA system and the SVD-2000 shows that more than 80% of energized objects were missed by the NARDA system

In 2010, RG&E used the NARDA system to survey the City of Rochester, NY for Contact Voltage. Shortly after the conclusion of that survey, RG&E developed concerns that the NARDA system had missed the majority of contact voltage hazards present at the time of contracted test. To address their concerns, RG&E retained Power Survey to conduct a re-scan of Rochester using the proven SVD-2000 technology. The results of the re-test confirmed that the NARDA System failed to detect over 300 objects at a variety of voltages up to 120 volts. On July 28, 2011, RG&E submitted a final report[4] to the NYSPSC with test data from both surveys. The report states that the NARDA system only detected 40 instances of Contact Voltage, while the subsequent re-scan by Power Survey uncovered 365 Contact Voltage Hazards. This report supports Con Edison's conclusion that the NARDA system misses more energized hazards than it finds. We also provide a copy of an email[5] from RG&E to the NYSPSC staff and New York Utilities, including National Grid. The email confirms that *"it is our intention to discontinue use of NARDA equipment until all issues surrounding its use are resolved."* These "*issues*" have still not been resolved.

[3] Con Edison 2010 Contact Voltage Test and Facility Inspection Annual Report
[4] 2011 RG&E Mobile Stray Voltage Testing Report, July 27, 2011 (Revised July 28, 2011)
[5] RG&E e-mail dated March 31, 2011 to NYS PSC Staff and New York Utilities

3. After evaluating and field testing the NARDA system, New York Utilities will not use it

The collective negative experiences with the NARDA system were reviewed by the NYSPSC in 2011[6,7,8], and in its formal order dated June 23, 2011, the NYSPSC states that the concern over possible use of the NARDA 8950/10 system "appears to be moot" because none of the utilities (including National Grid), would consider use of the NARDA technology.[9]

4. The NARDA system is not certified by the Underwriters Laboratory as National Grid has claimed

The recent National Grid Program filing states[10] that, "*NARDA 8950 has been certified by Underwriters Laboratories.*" This is not true. Underwriters Laboratories was simply witness to a flawed and heavily criticized test designed and executed by NARDA employees. In the test report, Underwriters Laboratories ("UL") confirms that they were only invited to "*witness*" the private performance test done by NARDA and its employees. As far as we are aware, no attempt has even been made by NARDA to claim the certification status that is evidenced by authorized use of the "*UL Mark.*" As Underwriters Laboratory proudly states, "*UL and its affiliates have different programs available for testing on-site such as witness testing programs and client test programs.*"

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[6] Case 04-M-0159, The Jodie S. Lane Public Safety Foundation Comments, March 23, 2010

[7] Case 04-M-0159, Power Survey Company Comments, March 23, 2011

[8] Case 04-M-0159, The Jodie S. Lane Public Safety Foundation Comments, April 21, 2011

[9] Case 10-E-0271, Proceeding on Motion of the Commission to Examine the Mobile Testing Requirements of the Safety Standards, Pages 7 - 8.

[10] National Grid's Proposed Contact Voltage Testing Program, section 4(a), page 13

"The only way to determine if a product has been certified by UL is to look for the UL Mark on the product itself."[11]

In addition, NARDA's report fails to include any real world field testing of the system. Variables in the real world, such as road vibrations, weather, operator variation and urban congestion dramatically impact the performance of detection systems. The NARDA report concludes that the system can detect 100% of energized objects. Fortunately, The Commission has available the results of real world testing performed by Con Edison in New York City and Rochester Gas and Electric in Rochester, New York, which clearly demonstrate that the NARDA System failed to detect over 300 objects at a variety of voltages up to 120 volts. Rather than finding 100% of energized objects as NARDA concludes, the NARDA system only detected 20% of energized objects in the real world. The NARDA in-house testing did not simulate real world conditions and should therefore be rejected.

Furthermore, There is no evidence that the NARDA 8950 has ever been **certified** to perform as a mobile contact voltage scan tool by any qualified Independent Testing Laboratory (ITL) qualified by UL, or accredited under the standards of the American Association for Laboratory Accreditation (A2LA), the ISO/IEC 17025, the NTA or any other recognized authority accrediting independent testing programs.

[11] http://www.ul.com

5. National Grid has no further need to evaluate technologies, and cannot be trusted to do so.

In National Grid's August 17, 2012 letter to The Commission, the company discusses their plan to perform a pilot survey to compare the relative performance of the NARDA 8950 and Power Survey SVD-2000. National Grid would like The Commission to believe that their knowledge of these two systems in limited. In reality:

- National Grid purchased three NARDA systems in 2010. National Grid has owned those systems for nearly three years, has evaluated them, and has determined them to be unsuitable for testing in New York.

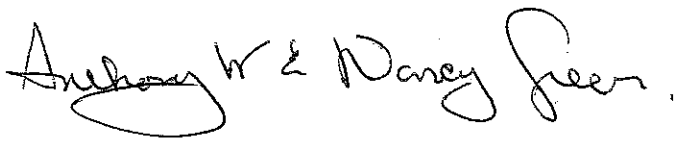
- National Grid's experience with the Power Survey SVD-2000 is also significant. National Grid has contracted Power Survey annually, since 2009, to test in various New York cities. In total, the SVD-2000 has detected over 6,000 of National Grid's contact voltage hazards.

Today, National Grid's program plan implies minimal knowledge of the two systems and their relative performance. This is simply inaccurate. We understand that National Grid has already performed a competitive evaluation of the systems in New York, but has chosen not to provide the results to this Commission. Given National Grid's depth of experience and knowledge of these two technologies, any attempt to perform a limited and uncontrolled technology evaluation can only be interpreted as an

attempt to obfuscate the fact that the NARDA system is grossly inadequate for this application.

In conclusion, we wish to make clear that that we have no interest in the use of any particular commercial product. We welcome the adoption of any technology that can effectively identify contact voltage threats in the pedestrian pathway. It is clear however, that the NARDA system is inadequate. Failure to detect contact voltage hazards bears life or death consequences. We know this firsthand. The intended goal of a contact voltage testing is to prevent injury or the tragic and unnecessary loss of a loved one. The use of inferior technology provides the public with no measurable improvement in safety, only a false sense of security. It conflicts with the stated mission of the Commission to provide safe service, and lastly, it tarnishes a legacy of improved public safety that the death of our daughter and the countless other children and victims of contact voltage could have otherwise left behind.

Respectfully yours,



Anthony W. and Nancy Green

Enclosures:

Con Edison Report "*Factors influencing Con Edison's current position on the NARDA 8950 System*"

Case 04-M-0159, The Jodie S. Lane Public Safety Foundation Comments, March 23, 2010

Con Edison's 2010 Contact Voltage Test and Facility Inspection Annual Report, February 15, 2011

Case 04-M-0159, Power Survey Company Comments, March 23, 2011

Rochester Gas and Electric e-mail to NYSPSC and New York Utilities, March 31, 2011

Case 04-M-0159, The Jodie S. Lane Public Safety Foundation Comments, April 21, 2011

Case 10-E-0271, Proceeding on Motion of the Commission to Examine the Mobile Testing Requirements of the Safety Standards, June 23, 2011

Rochester Gas and Electric's 2011 Mobile Stray Voltage Testing Report, July 27, 2011, Revised July 28, 2011.

Factors influencing Con Edison's current position on the NARDA 8950 System

Four factors have driven our decision not to pursue further field testing of the NARDA 8950 System

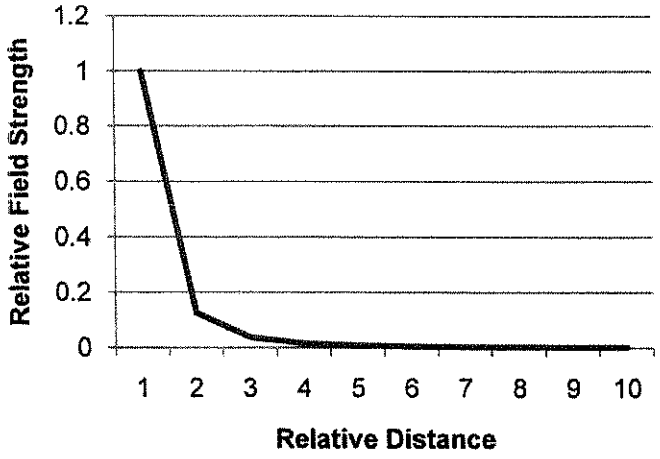
- The introduction of the system resulted in a price reduction for Con Edison
- Our preliminary field tests indicated that there were objects that the NARDA 8950 was unable to detect
- Power Survey has provided Con Edison with some data on the electric field strengths of items that they detect. More than 88% would be missed by NARDA
- On two occasions NARDA indicated that they had observed sensitivity issues relative to Power Survey

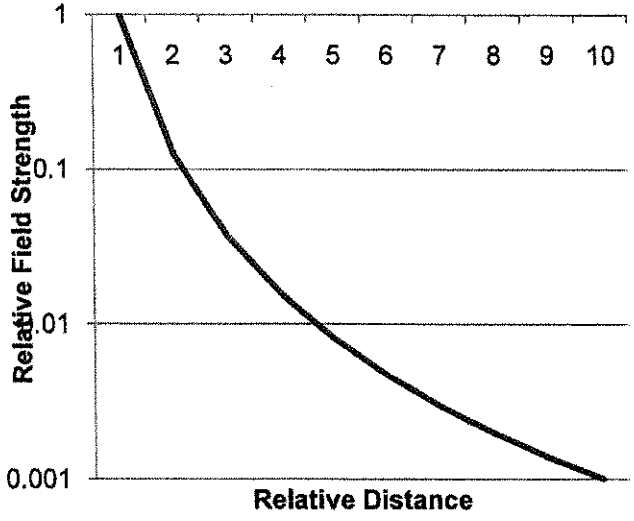
Electric Field Primer

- Electric fields are measured in Volts/meter
- Electric field strength for a given object is a function of two things
  - Voltage
  - Distance^3
- Object geometry also plays a major role

Electric Field Primer

- Field strength falls off by the cube of distance, voltage is linear
  - Doubling the distance reduces signal strength by a factor of 8 (87.5% reduction)
  - At 5 times the distance signal is reduced by more than 99%
  - Half the voltage and the signal strength is reduced by 50%





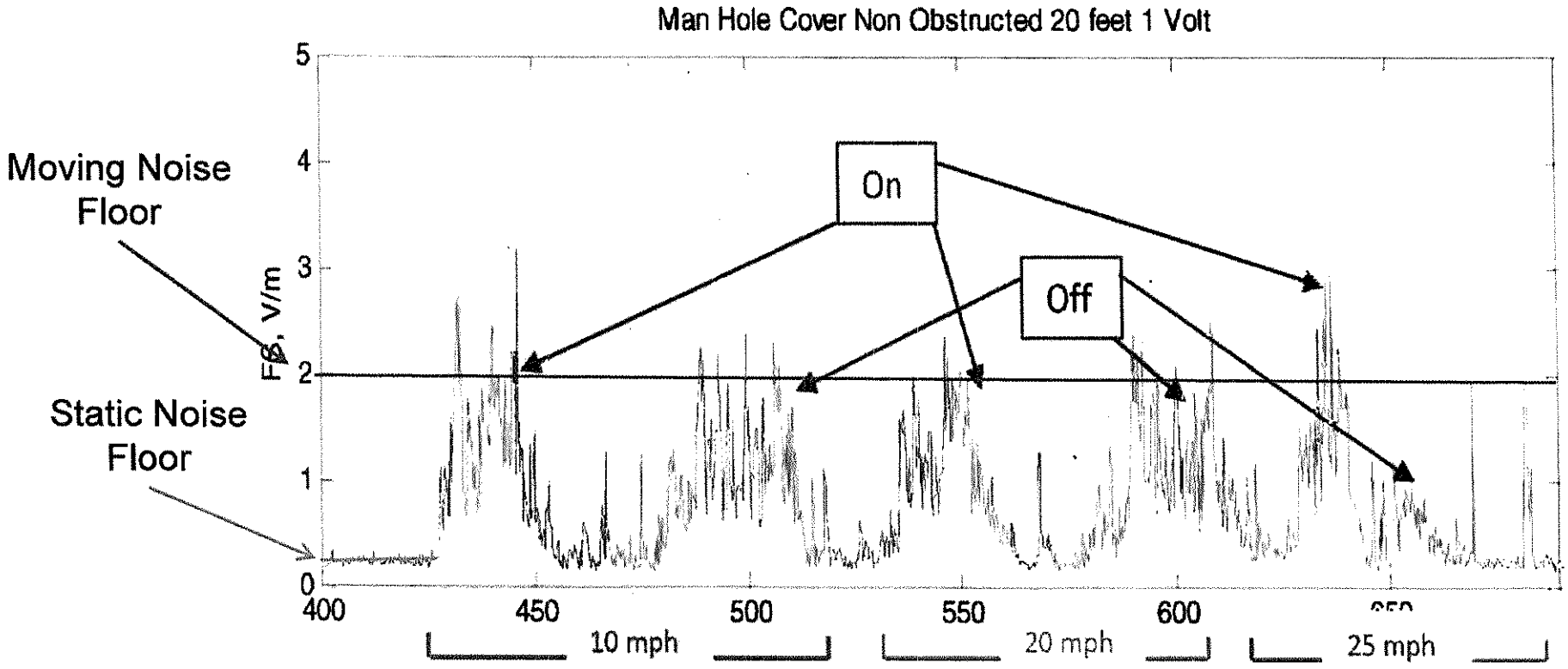
Electric Field Detection Primer

- Both the SVD-2000 and the NARDA 8950 system are parallel plate electric field meters
- All detectors have a noise floor
- The noise floor is the measure of the signal created from the sum of all the noise sources and unwanted signals within a measurement system
  - Consider your ability to hear a whisper in a quite room versus a loud stadium

Electric Field Detection Primer

- Signals that are below the noise floor cannot be differentiated from noise
- SVD-2000 has unpublished noise floor but from data appears to be less than 0.070 V/m
- NARDA EFA-300 sensor has a published noise floor of 0.140 V/m when the sensor is static
- NARDA 8950 System has noise floor, when moving, of approximately 2 V/m based on charts from NARDA

Estimating the NARDA Noise Floor



- Found by averaging noise level when the "target" was off

Other observations on mobile detectors

- NARDA sensor is sensitive to vibration from bumps and potholes on the road
- EPRI handheld sensor shows similar response to bumps and potholes
- SVD filters or dampens these events
- To avoid false positives from these events the user may opt to increase the detection threshold, reducing the number of detections

Con Edison Pricing

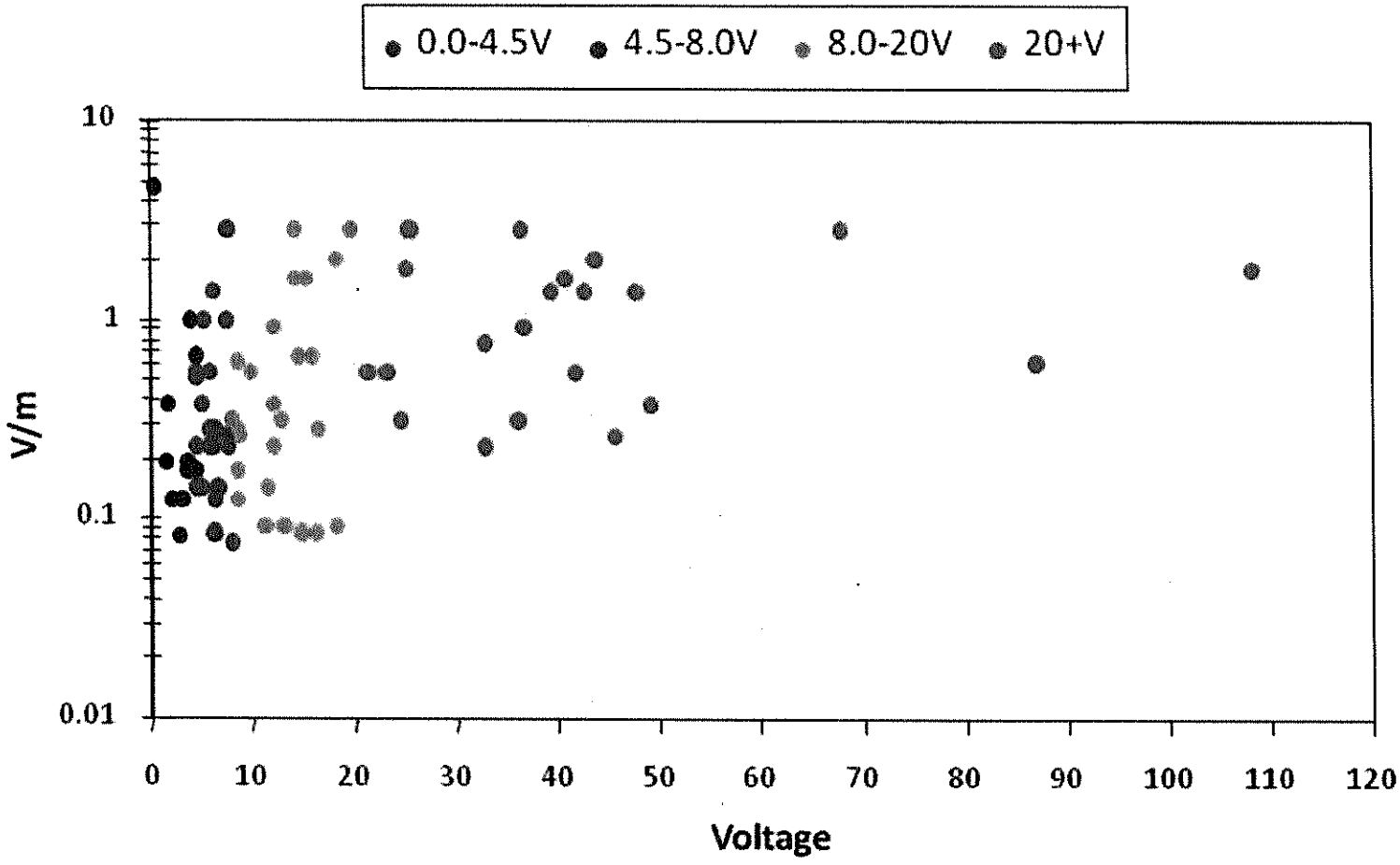
- Con Edison is the only utility in the state that owns their own mobile contact voltage detectors
- Contract to operate and maintain vehicles is competitively bid
- Power Survey pricing is similar to Con Edison labor rate
- Pricing from other contractors to perform field trials of NARDA device were similar to Power Survey Pricing to operate SVD
- Market pressure from NARDA device helped to reduce cost of mobile testing for Con Edison

Con Edison Field Trials

- Most recent field trials indicated that the NARDA 8950 failed to detect electric fields at 4 of 6 (67%) of **known** locations that were detected with SVD-2000.
- Searching for unknown locations is more difficult.

Location	Structure	Voltage	NARDA Confirmed	SVD 2000 Confirmed
Midtown	Traffic Light	1.7 Volts	No	Yes
E 59th St and 1st Ave	Transformer Grating	2.0 Volts	No	Yes
Westside	Metal Grate	1.4 Volts	No	Yes
Midtown	Scaffolding	6.0 Volts	Yes	Yes
Midtown	Bus Shelter	13 Volts	No	Yes
Queens	House Railing	2.1 Volts	Yes	Yes

Data from Power Survey

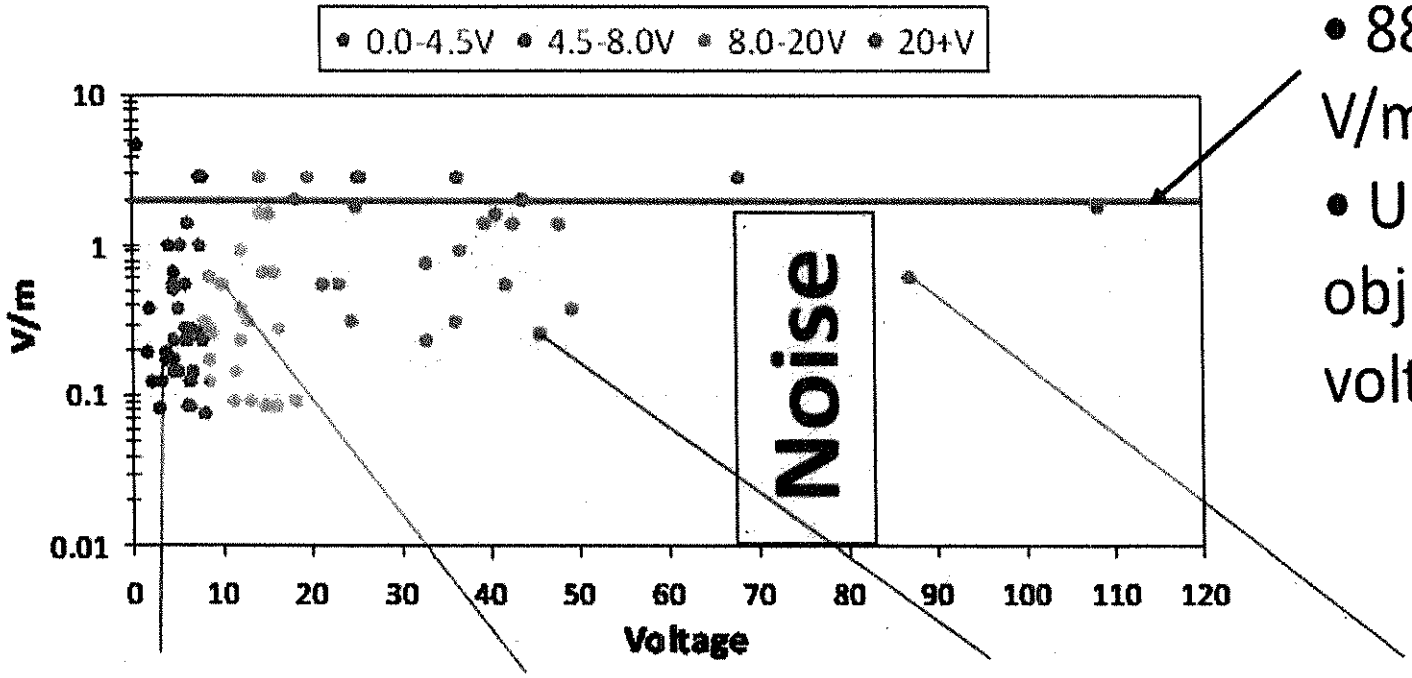


- Data collect by Power Survey indicates that many objects are below 2 V/m at all voltage levels

Communications from NARDA

- November 2010 NARDA indicated that they experienced difficulty detecting energized streetlights (at 4V) in the field
- In Mid-April NARDA stated in their filing to the PSC that they supported the 0.070 v/m standard proposed in Maryland
- In Late-April NARDA communicated that the 8950 system could not meet the 0.070 v/m standard proposed in Maryland.

Putting it together



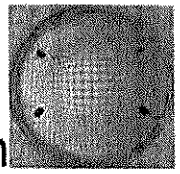
- 88% are below 2 V/m
- Undetectable objects at all voltage levels

Manhole

4V

5ft

0.19 V/m



Scaffold

10V

12ft

0.55 V/m

Streetlight

46V

15ft

0.26 V/m

Sidewalk

86V

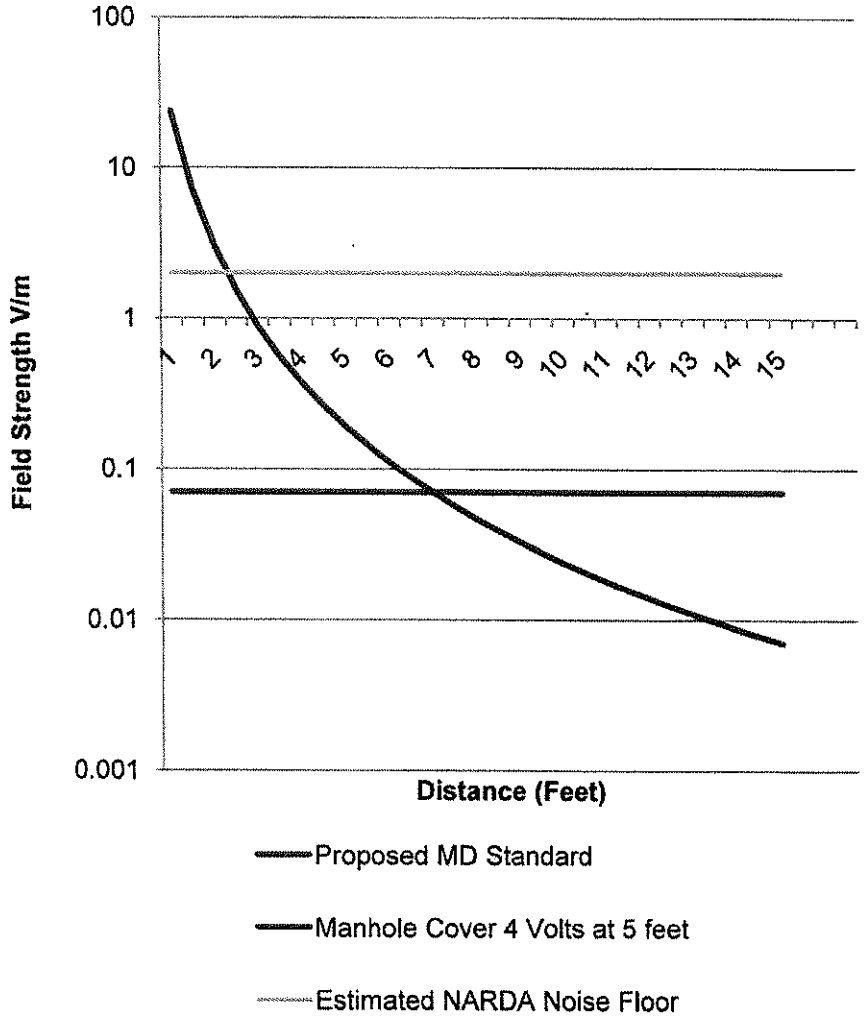
17ft

0.6 V/m

Effect of distance on real world objects

Manhole Cover Example

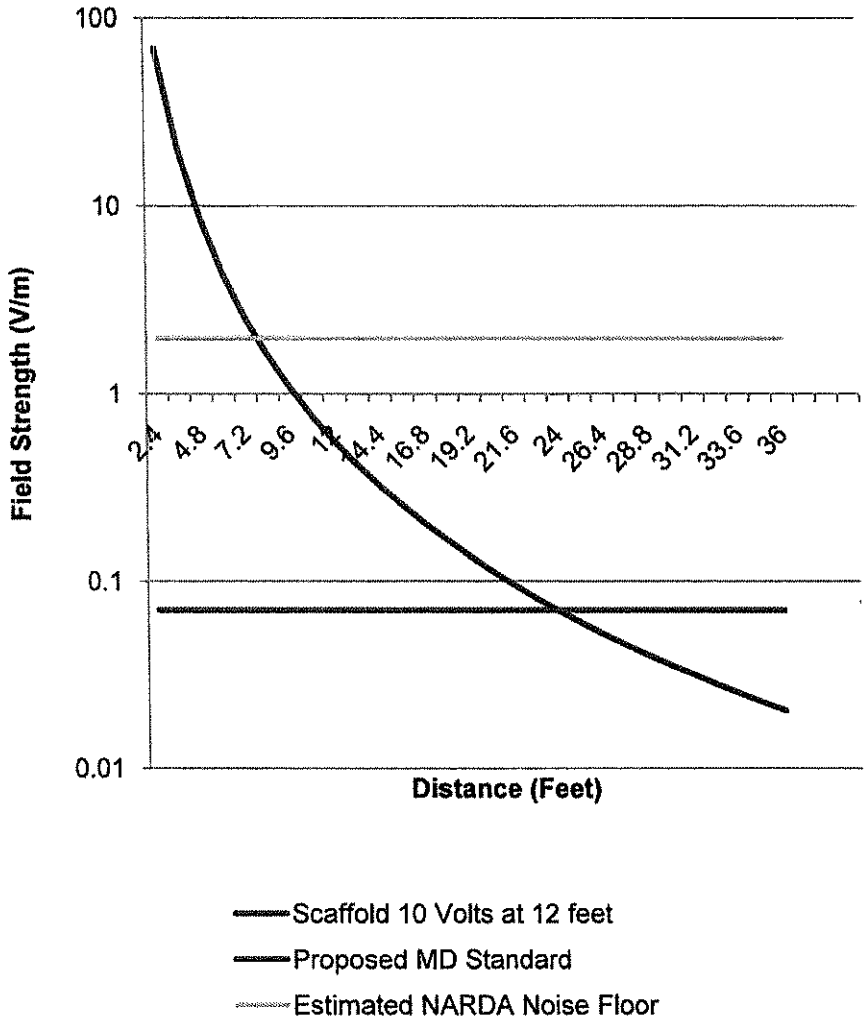
- Originally detected at 4 volts from 5 feet away
- At approximately 2.25 feet the e-field would be **below** the estimated 2.0 V/m NARDA noise floor
- Under MD Standard the e-field from this object would be **below** the noise floor at approximately 7 feet



Effect of distance on real world objects

Scaffold Example

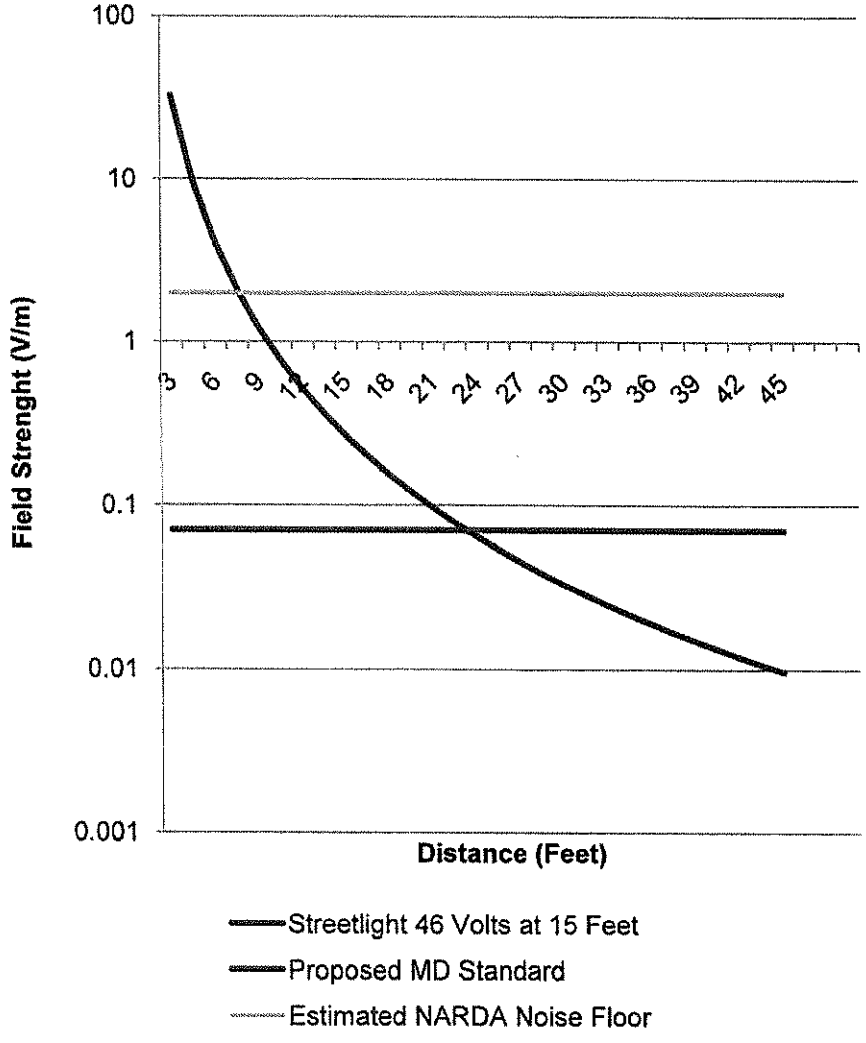
- Originally detected at 10 volts from 12 feet away
- At approximately 8 feet the e-field would be **below** the estimated 2.0 V/m NARDA noise floor
- Under MD Standard the e-field from this object would be **below** the noise floor at approximately 24 feet



Effect of distance on real world objects

Streetlight Example

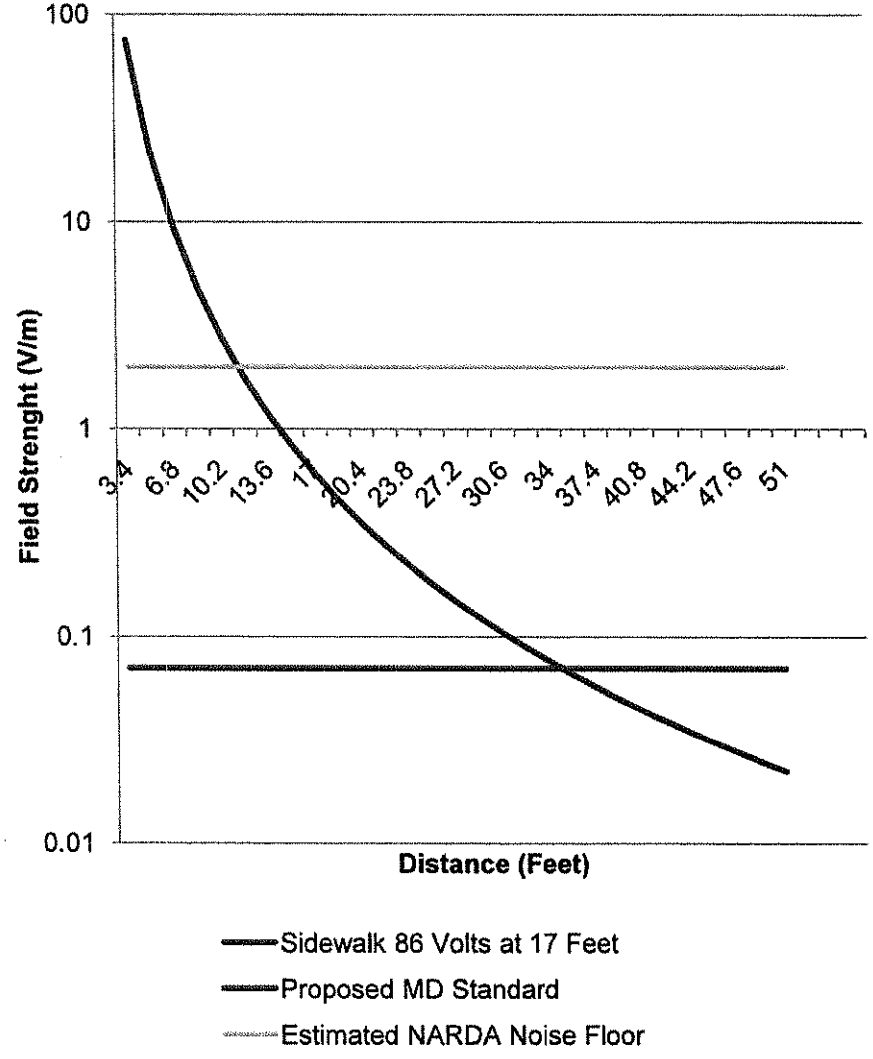
- Originally detected at 46 volts from 15 feet away
- At approximately 7.5 feet the e-field would be **below** the estimated 2.0 V/m NARDA noise floor
- Under MD Standard the e-field from this object would be **below** the noise floor at approximately 23 feet



Effect of distance on real world objects

Sidewalk Example

- Originally detected at 86 volts from 17 feet away
- At approximately 12 feet the e-field would be **below** the estimated 2.0 V/m NARDA noise floor
- Under MD Standard the e-field from this object would be **below** the noise floor at approximately 35 feet



Conclusion

- No one has assembled a comprehensive set of data on field strengths of energized objects in the urban environment
- Distance is the most significant factor in field strength
- Even objects at high voltages can have low field strengths
- The 0.070 V/m standard proposed in Maryland is an arbitrary level and more data is required to determine if it is the proper threshold.

Conclusion

- NARDA has indicated that they support the 0.070 V/m standard and that they cannot meet that specification
- Power Survey has provided data showing that at the current sensitivity the NARDA device misses 86% of the energized objects
- In a limited field trial Con Edison found that the NARDA device could not detect 67% of the **known and confirmed** energized objects
- Limited additional cost savings in near term with this technology for Con Edison
- Con Edison has observed a large difference in performance and felt this was enough evidence to cancel larger scale field trial

The Jodie S. Lane Public Safety Foundation
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March 23, 2010

The Honorable Jaclyn A. Brilling, Secretary
State of New York
Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

RE: Case 04-M-O159

Dear Secretary Brilling:

The possibility of a competitive system to detect stray voltage in the public landscape is an important topic and I support qualified competition. To that end, I have been supplied with the attached test report generated by L3/Narda for the purpose of petitioning certification of their 8950 sensor. The submission of this test report as sole basis for a petition to certify this product is very troubling.

If a competitive system is developed, in the interest of pedestrian safety, it is imperative the NYPSC do everything in its power to assure the competitive system is complete, field ready, thoroughly tested, and every assurance is made the findings using said system will be **greater than or equal to** those achieved with the current benchmark system.

The L3 8950 test report was written by the manufacturer of the system, not an accredited independent testing laboratory which is expressly in conflict with NYPSC requirements.

This test report also does not indicate proven performance in the field.

> The NYPSC safety standard requires that a system must be capable of detecting 6 volts and tested by an independent accredited laboratory. NYPSC staff was closely involved with the certification testing of the SVD2000 and provided the basis for definition of the specific test methods and requirements applied in the certification testing process. Applying identical testing and field experience to emerging technologies is essential to ensuring pedestrian safety and providing a level playing field in this competitive environment.

Certification of the SVD2000 took place after the start of and during the course of 2 years of repetitive field operation of 15 examples of the SVD2000 system. The thousands of road miles and thousands of stray voltage findings along the way bolstered confidence in the performance of the SVD2000.

In the interest of pedestrian safety, the NYPSC must require this same level of proven field performance and satisfaction of testing requirements as the requirement for certification of any mobile system.

An acceptable stray voltage detection system will have the following characteristics, currently missing from this submission:

- System level design [a mobile system designed to detect stray voltage]
- Independent lab test
- Test report written by accredited laboratory
- Extensive field testing observed by independent laboratory
- Documented operator processes and training
- Double blind comparison testing to the benchmark system
- Adherence to the basic laws of physics

The 8950 sensor is not a complete system. [Narda admits "we feel confident that Narda can finalize the system with adequate packaging and software features that further improve usability."]

The sensor tested is simply is a piece of scientific measurement apparatus… a sensor, not a stray voltage detector, not a stray voltage detection system. As pedestrian safety is at stake, clearly much more development, testing and evaluation needs to be done before consideration can be given to a sensor for NYPSC certification and general widespread use.

The test report does not cover real world use of the proposed system

Through the course of 2 years, requirements were generated by NYPSC staff, and addressed in independent lab tests, prior to certification of the SVD2000.
The testing covered many aspects of system operation including but not limited to:

- Effects of weather
- Effects of a variety of obstructions
- Background Noise level in city environment
- Sensitivity of the detection system
- Effects of interference sources such as neon and Christmas lights
- Variations from operator to operator

None of these parameters are addressed in the Narda test report.

The test report does not compare the proposed system to the current benchmark, the SVD2000.

To date, the efforts of ConEdison have shown a marked improvement in public safety through repetitive scanning with the benchmark SVD2000 system. Other utilities throughout New York State have just begun to embark on such improvements in their cities through an initial scan using the SVD2000.

Will the proposed 8950 sensor detect more instances of stray voltage than the current system? How can the PSC certify a new detection system when its ability to detect is not compared to the existing methodology?

A double blind comparison must be implemented to determine the relative effectiveness at detecting stray voltage of each system.

There is something very wrong with the data generated during these tests as it clearly appears to defy the laws of physics!

For example, a manhole cover energized at 6V and located 20' away from the sensor will not produce the signal level of 6.65 V/m as detailed in the report beginning on page 4. The appendix of the report explains that a 1V/m signal would be generated from a pair of parallel plates spaced 1m apart with the sensor placed between those plates. With 6V on those same plates, field strength of 6V/m would be generated. A manhole cover located approximately 7m away from the sensor cannot generate 6.65 V/m. Field strength diminishes with distance squared. At the 7m distance, the manhole cover would generate tenths of a volt per meter, certainly not volts per meter. The stated numbers in the report can be likened to perpetual motion. You are getting more out than you are putting in. This phenomenon repeats in every table of the report.

The criteria for detection is never defined in the report, nor is it stated how those decisions are made.

The graphical data plots field strength vs. time. Since that appears to be the only output, I must assume when field strength exceeds some value, detection is recorded. The report states a background noise of 0.156 V/m was used to set a baseline reading, but the data shows that an **un-energized manhole cover** produces a signal of approximately 3 V/m. The criteria for detection are not stated and in order to operate effectively, a system must provide enough information to the user to make good decisions. This needs to extend to actual users, not simply laboratory engineers. Tests must be performed to ensure the average user of the system can detect energized structures as pedestrian safety is at stake.

In summary the proposed 8950 sensor is:

- Incomplete
- Its performance in the field is unknown
- Real world complications of weather, operator variation etc were not evaluated
- Its real world performance relative to the benchmark SVD2000 is unknown
- The test report was not written by an independent lab
- The report indicates results that appear to defy the laws of physics
- The trigger for stray voltage detection is not defined

The L3/Narda test report for the 8950 sensor does not prove that its capability to detect stray voltage is equal to or better than the current benchmark system, SVD2000.

NYPSC certification must be denied!

Regards,

Roger M. Lane
Director, Jodie S. Lane Public Safety Foundation

2010

CONTACT VOLTAGE TEST and FACILITY INSPECTION ANNUAL REPORT

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

Report on the results of contact voltage tests and facility inspections

for the period beginning January 1, 2010 and ending on December 31, 2010

February 15, 2011

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I. Background

The New York State Public Service Commission's ("PSC" or "Commission") Electric Safety Standards ("Safety Standards"), issued on January 5, 2005 in Case 04-M-0159, with subsequent revisions issued on July 21, 2005 and December 15, 2008, require utilities to conduct an annual system-wide contact (stray) voltage detection program and a five-year equipment inspection program to mitigate contact (stray) voltage risks to the public and promote reliability.

The term "stray voltage" is historically associated with neutral-to-earth voltage (NEV) encountered by farm livestock at contact points. Stray voltage is a natural phenomenon that can be found at low levels between two contact points at any property where electricity is grounded.[1] In recent years, the term "contact voltage" has been used to describe voltage resulting from abnormal power system conditions associated with low voltage secondary system faults.

This report describes Consolidated Edison Company of New York, Inc's ("Con Edison" or "the Company") contact voltage detection program and equipment inspection program conducted in 2010.

II. Company Overview

Con Edison is an investor owned utility that provides electric service to approximately 3.2 million customers in a service area of approximately 660 square miles within New York State encompassing New York City and most of Westchester County. The Company operates an electric transmission and distribution ("T&D") system that provides a high level of reliability in a very dense urban environment.

- Distribution
  a. Underground –The underground system has approximately 308,000 manholes, service boxes, and transformer vaults and above ground, pad mounted structures; 24,369 miles of underground duct; 30,428 underground transformers; and approximately 93,733 miles of underground cable including primary, secondary and service cables. Underground network cables operating at primary voltages of 27 kV and 13.8 kV supply 30,428 underground transformers that step the primary voltages down to 120/208 distribution voltages that are used by customers.

[1] Electrical systems — both farm systems and utility distribution systems — are grounded to the earth to ensure safety and reliability. Inevitably, some current flows through the earth at each point where the electrical system is grounded and a small voltage develops. This voltage is called neutral-to-earth voltage (NEV). When NEV is found at animal contact points, it is frequently called stray voltage. Stray voltage is this small voltage that is measured between two points that livestock can simultaneously touch. If these points are simultaneously contacted by an animal, a current will flow through the animal. See, http://www.wisconsinpublicservice.com/business/farm_voltage_questions.aspx#whatis

b. Overhead – The overhead system includes: 155 auto loops, 7 - 4 kV multi-bank substations, 243 – 4 kV unit substations, approximately 284,000 Con Edison or Verizon-owned poles, and approximately 34,000 miles of overhead wires including primary, secondary, and services. Cables operating at primary voltages of 33 kV, 27 kV, 13.8 kV, and 4 kV supply 47,324 overhead transformers that step the primary voltages down to 120/208/240 distribution voltages that are used by customers.

c. Streetlights –Con Edison does not own, install, or maintain streetlights and traffic signals within its service territory. The New York City Department of Transportation (NYCDOT) and the local Westchester municipalities primarily own the streetlights and traffic signals in New York City and Westchester County. There are approximately 185,000 metal pole street lights, of which approximately 44,000 are metal pole traffic signals, within Con Edison's service territory. Con Edison cables and structures directly supply electricity to approximately 120,500 of these streetlights and traffic signals.

- Transmission
  a. Underground – The underground transmission system delivers power at 69 kV, 138 kV, and 345 kV to various switching substations and area substations. The underground system has approximately 2,900 manholes and approximately 720**Error! Reference source not found.** circuit miles of cable.
  b. Overhead - The overhead transmission system consists of 138 kV and 345 kV high voltage cable supported on towers and poles on rights-of-way located for the most part, north of New York City and terminating in Westchester County where the underground transmission system begins.
- Substations and Unit Substations
  There are 39 transmission substations, 62 area substations, 243 unit substations, and 11 Public Utility Regulating Stations (PURS).

III. Company Facilities

Structure Categories

Approximately 778,000 individual facilities in Con Edison's service area must be tested for the presence of contact voltage each year. Approximately 593,000 of these facilities must be inspected every five years. These facilities are broken down into the following five categories:

- **Overhead Distribution** – There are approximately 284,000 distribution pole structures that support electric facilities in Con Edison's overhead distribution system. Distribution overhead facilities are included in both the contact voltage and inspection programs. The contact voltage testing criteria include all utility-owned or joint use wooden poles with utility electrical facilities

located on public thoroughfares or customer property, including backyards or alleys. Contact voltage tests are performed on all wooden poles with metallic attachments, such as, ground wires, ground rods, anchor guy wires, riser pipes, or any electrical equipment within reach of the general public.

- **Underground T&D and Underground Residential Distribution** – There are approximately 308,000 underground facilities in Con Edison's T&D systems. A subsurface structure is defined as any manhole (MH), service box (SB), transformer vaults (V,VS), transformer manholes (TM), customer boxes (CB), buried boxes (BB), injunction boxes (IJ), P-Boxes (PB), and T-Tap boxes and switchgears specifically associated with Underground Residential Distribution systems ("URD"). These facilities are tested in either the manual and mobile contact voltage testing program and are included in the facility inspection program. The contact voltage testing criteria include all subsurface structures, including above ground, pad-mounted structures.

- **Street Lights and Traffic Signals** – There are approximately 185,000 metal pole street lights, of which approximately 44,000 are traffic signals, within Con Edison's service territory. Streetlights and traffic signals are included in the contact voltage testing program only. Area and street lighting that is privately owned is not included in the contact voltage testing program, as per the Safety Standards. Con Edison does not own any metal pole streetlights, and therefore, these structures are not included in the facility inspection program. The contact voltage testing criteria include all municipally owned metal pole streetlights, traffic signals, and pedestrian crosswalk signals located on publicly accessible thoroughfares and areas that are directly supplied by the Company. All contact voltage testing of street lights is performed at night while the fixtures are energized.

- **Substations** – Con Edison operates and maintains substations at 101 locations and PURS substation facilities at 11 locations (some locations contain more than one facility). Con Edison's substations and PURS stations are included in both the contact voltage program and the facility inspection program. The contact voltage testing criteria consist of perimeter fencing and other electrically conductive materials where such materials are accessible to the general public. These materials include but are not limited to fences, doors, roll-up gates, metallic delivery boxes, dielectric fluid delivery ports and Siamese connections.

- **Unit Substations** – Con Edison operates and maintains 7 – 4kV multi bank and 243 – 4kV unit substations. Con Edison's 4kV multi-bank and unit stations are included in both the contact voltage program and the facility inspection program. The contact voltage testing criteria consist of perimeter fencing and other electrically conductive materials where such materials are accessible to the general public. These materials include but are not limited to fences, doors, roll-up gates, metallic delivery boxes, and Siamese connections.

- **Overhead Transmission** –Con Edison's overhead transmission system includes 1,212 individual poles or towers. These transmission structures support circuit voltages of 69 kilovolts and greater. Structures that support circuits of lower voltage in addition to the transmission voltage levels are included in this category. All transmission structures are included in both the contact voltage and facility inspection programs. The contact voltage testing criteria include all structures, guys, and down leads attached to these structures.

IV. Contact Voltage Testing Program

The Safety Standards require that Con Edison complete annual contact voltage testing by December 31 each year.

During the annual period ending December 31, 2010, Con Edison tested for contact voltage on all its T&D facilities with publicly accessible components capable of conducting electricity. In addition, Con Edison tested for contact voltage on all municipally owned metallic streetlights and traffic signals that are located on thoroughfares or areas that are publicly accessible and are directly supplied with electricity by the Company.

In addition, and in compliance with the Safety Standards, Con Edison:

- Immediately safeguarded and /or mitigated all voltage findings greater than or equal to 1.0 volt. The Company uses its best efforts to repair within 45 days all Company-owned equipment determined to have caused a voltage finding. Those that exceed 45 days are periodically monitored and tracked to completion. In instances where the contact voltage finding was determined to be caused by equipment that is not owned by Con Edison, the Company, after making the area safe, notified a responsible person associated with the premises of the unsafe condition and the need for the owner to arrange for a permanent repair.
- Tested all publicly accessible structures, streetlights, sidewalks and metal objects within a 30 foot radius of an energized structure, or contact voltage finding greater than or equal to 1.0 volt.
- Responded to, investigated and mitigated positive findings of shock incidents reported by the public.

Training

Con Edison manages its contact voltage testing program and uses both Company field personnel and contractor forces to conduct the testing of utility owned electric facilities and municipal streetlights.

Training for the contact voltage testing program consists of an eight hour class at our training facility for contractor forces as well as on the job training, performed by Supervisors, for Company field forces. The training is based on Company

specifications on how to properly test an electric facility for contact voltage. Topics covered in the training are:

- The PSC Safety Standards
- Scope of the contact voltage testing program
- Performing the test and completing the testing form
- Data entry process
- Status of contact voltage testing to annual goal
- Abnormal systems conditions to be reported
- Performance mechanism

Underground Distribution Contact Voltage Testing

Of the total population of approximately 308,000 underground facilities, 163,637 fielded for manual testing. The remaining facilities were tested under the mobile contact voltage program. Of the 163,637 underground facilities visited during manual testing, 3,666 did not require contact voltage testing due to inaccessibility, structures taken out of service, or customer owned structures.

Inaccessible underground facilities include:

a. Locked Gate/Fence – Structures behind locked gates and fences that are not accessible to the public, i.e., facilities located in fenced areas owned by other utilities, such as, Water Companies.
b. Company Property – Structures located on Company property, such as substations, are accessible only to Company personnel and authorized contractors.
c. Construction – A structure located within a construction site. These structures are accessible only to construction personnel.
d. Buried – A structure below grade that requires excavation to access the structure.
e. Vaults – Structures located inside buildings. These structures are accessible only to Company and building maintenance personnel.
f. Highway – Structures located on highways and on exit and entrance highway ramps. The performance of contact voltage testing would constitute an unacceptable risk to the employee.

Overhead System Contact Voltage Testing

Based on the initial overhead system inspection performed in 2005, there were approximately 284,000 overhead facilities (Con Edison or Verizon owned) found and inspected. This population of approximately 284,000 was the initial population used for creating the Company's Contact Voltage Testing Database for overhead system facilities. Out of the initial 284,000, approximately 6000

facilities have since been marked "test not required" in the testing database because they no longer exist on the system, or because they are wood poles that have no attached appurtenances capable of conducting electricity; their electrically conductive appurtenances are not accessible to the public (pre-wired wood); the facilities are enclosed in fiberglass (non-conductive materials); the facilities are de-energized; and / or the facilities are deemed inaccessible to the public.

For each annual testing cycle, all facilities are checked on each mapping plate and in the field to ensure that conditions have not changed on facilities marked "test not required" in the past. In 2010, the population of Company owned overhead facilities that were fielded for manual testing was 279,117. Of the 279,117 overhead facilities visited in 2010 to be tested for contact voltage, 3,646 did not require contact voltage testing because of the reasons stated below.

Inaccessible overhead facilities include:

a. Locked Gate/Fence – Structures behind locked gates and fences that are not accessible to the public, i.e., facilities located in fenced areas owned by other utilities, such as, Water Companies.
b. Company Property – Structures located on Company property, such as substations, are accessible only to Company personnel and authorized contractors.
c. Construction – A structure located within a construction site. These structures are accessible only to construction personnel.
d. Highway – Structures located on highways and exit and entrance highway ramps. The performance of contact voltage testing would constitute an unacceptable risk to the employee.
e. Rail Road – Structures behind railroad fences or on a railroad right-of-way.

Streetlight and Traffic Signal Contact Voltage Testing

Of the total population of approximately 185,000 streetlight and traffic signal facilities, approximately 128,000 facilities to which the Company directly supplies electric service were required to be tested manually. The remaining facilities were tested under the mobile contact voltage program. Of the facilities visited, 245 did not require contact voltage testing because these structures were not publicly accessible.

Inaccessible streetlights and traffic signals include:

a. Construction – A structure located within a construction site. These structures are only accessible to construction personnel.
b. Restricted Access – Structures located within areas with active public improvement efforts or the World Trade Center.

Underground Transmission Contact Voltage Testing

There are approximately 2,900 underground transmission facilities that comprise the Company's underground transmission system. Of the approximately 2,900 underground transmission facilities, 1,367 facilities did not require contact voltage testing because these structures were not publicly accessible.

Inaccessible transmission facilities include:

a. Construction – A structure located within a construction site. These structures are only accessible to construction personnel.
b. Con Edison Property – Structures located on or adjacent to Con Edison properties which are secured from the public via fencing or other barriers and are inaccessible to the public.
c. Bridges – Structures located on bridges, such as bridge joints
d. Buried - A structure below grade that requires excavation to access the structure

Overhead Transmission Contact Voltage Testing

Con Edison visited and tested all of the 1,212 overhead transmission facilities on the Company's overhead transmission system.

Mobile Contact Voltage Testing

In accordance with the PSC's "Order Establishing Rates for Electric Service," issued March 25, 2008 in Case 08-E-0539, Con Edison performed 12 underground system scans using mobile contact voltage detection technology. In accordance with the PSC's "Order Adopting Changes to Electric Safety Standards," issued December 15, 2008 in Case 04-M-0159, the 12 underground system scans must be performed between January 1st and December 31st of each calendar year. In addition, Con Edison performed one underground system scan using mobile contact voltage detection technology in 4 cities with a population of at least 50,000 in Westchester County in 2010. These cities are New Rochelle, Yonkers, White Plains and Mount Vernon.

Results of the 2010 Contact Testing Program

The results of the 2010 Contact Testing Program are provided the following appendixes to this report:

- Appendix 1, titled "Contact Voltage Testing Summary"
- Appendix 2a, titled, "Summary of Energized Objects - Mobile Testing"
- Appendix 2b, titled, "Summary of Energized Objects - Manual Testing + Other"

- Appendix 3, titled, "Summary of Shock Reports from the Public."

IV. Facility Inspection Program

The Safety Standards require Con Edison to visually inspect at least 20% of its facilities annually, and inspect 100% of its electric facilities every five years. In addition, the Safety Standards require that defective equipment found during an inspection be repaired. In accordance with the Safety Standards, Con Edison uses the following severity levels to establish priority for repairs and scheduling:

- Level I – Repair as soon as 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.

In accordance with the Safety Standards, when a temporary repair is located during inspection or performed by the Company, best efforts are put forth to make a permanent repair of the facility within 90 days. Temporary repairs that remain on the system for more than 90 days are due to extraordinary circumstances, i.e. storms, and require extensive repair activity.

Training

Con Edison manages its inspection program and uses both Company field personnel and contractor forces to conduct the inspection of utility owned electric facilities.

Training of the contractor force utilized to perform inspections on our overhead system consists of classes at our learning facility as well as on the job training performed by Contractor Supervisors who have attended a train the trainer session with a Con Edison Subject Mater Expert (SME). For Company field forces, the training is based on Company specifications on how to properly inspect an electric facility which is learned through their promotional classes, as well as on the job training performed by their Supervisor.

In addition to the above, the Secondary System Analysis section of Distribution Engineering conducted train-the-trainer sessions in each of the major workout locations since the inception of the program. The participants included the managers, planners, and supervisors of the crews that would be performing the inspections. The Secondary System Analysis Team has also conducted various training seminars at all of the major work out locations which included the following topics:

- The PSC Safety Standards
- Scope of the inspection
- Completing the inspection form
- Data entry process
- Status of inspections to annual goal
- Repairs pending
- Accounting of the inspection
- Performance mechanism

In addition to the train-the-trainer sessions, an E-Learning training module was developed. This training module can be accessed from any computer on the Con Edison network. This class is also part of the curriculum in career advancement for new mechanics.

Results of the 2010 Facility Inspection Program

The results of the 2010 Facility Testing Program and associated facility repairs are provided in Appendix 4, titled "Summary of Deficiencies and Repair Activity Resulting from the Inspection Process."

VI. Annual Performance Targets

Con Edison performed the required contact voltage testing and facilities inspections in accordance with the requirements of the Safety Standards.

In compliance with the Safety Standards, Con Edison has met the annual performance target for contact voltage testing of 100% of publicly accessible electric facilities and streetlights and traffic signals supplied directly from Con Edison's distribution system for the annual period ending December 31, 2010.

In compliance with the Safety Standards, Con Edison has met the first-year performance target for inspection of 20% of its electric facilities for the five-year period ending December 31, 2014. In 2010, Con Edison inspected 24.3% of its overall population of electric facilities. The percentages of inspections by structure category are summarized in the table below.

Facility Inspection Program Results

Category	Actual Cumulative Inspected as of 2010
Overhead Distribution	31.47%
Overhead Transmission	100%
Underground / URD Distribution	16.92%
Underground Transmission	25.12%
Substation and PURS Facilities	23.21
Unit Substations	100%
Company-owned Streetlights*	0

* Con Edison does not own streetlight facilities. These facilities are owned by the City of New York and municipalities located in Westchester County.

5-Year Inspection Performance Summary

The following tables provide the cumulative percentages of inspections by structure category over the current five-year (2010-2014) inspection cycle.

Overhead Distribution Facilities

Inspection Year	Unique Number of Overhead Distribution Structures Inspected	% of Overall Facilities Inspected (Cumulative)
2010	85,124	31.47%
2011		
2012		
2013		
2014		

Overhead Transmission Facilities

Inspection Year	Unique Number of Overhead Transmission Facilities Inspected	% of Overall Facilities Inspected (Cumulative)
2010	1212	100%*
2011		
2012		
2013		
2014		

* Con Edison inspects the entirety of its overhead transmission system once a year

Underground Distribution and URD Facilities

Inspection Year	Unique Number of Underground / URD Facilities Inspected	% of Overall Facilities Inspected (Cumulative)
2010	47,017	16.92%
2011	0	
2012	0	
2013	0	
2014	0	

Underground Transmission Facilities

Inspection Year	Gross Number of Underground Transmission Facilities Inspected (Gross Inspections)	% of Overall Facilities Inspected (Cumulative)
2010	542	25.12%*
2011	0	
2012	0	
2013	0	
2014	0	

*Con Edison inspects its underground transmission system at multiple intervals, all less then 5 years. The data above captures all inspections performed. The total number of underground transmission facilities to be inspected is 2158.

Substation Facilities (including PURS)

Inspection Year	Unique Number of Substation Facilities (including PURS)	% of Overall Facilities Inspected (Cumulative)
2010	26	23.21%
2011	0	
2012	0	
2013	0	
2014	0	

Unit Substation Facilities

Inspection Year	Unique Number of Unit Substation Facilities Inspected	% of Overall Facilities Inspected (Cumulative)
2010	243	100%
2011	0	
2012	0	
2013	0	
2014	0	

VII. Certifications

Pursuant to Section 7 of the Safety Standards, the president or officer of each utility with direct responsibility for overseeing contact voltage testing and facility inspections shall provide an annual certification to the Commission that the utility has, to the best of his or her knowledge, exercised due diligence in carrying out a plan, including quality assurance, that is designed to meet the contact voltage testing and inspection requirements, and that the utility has:

- Tested all of its publicly accessible electric facilities and street lights, as referred to in the body of the February 15 Report, and

- Inspected the requisite number of electric facilities.

The certifications are attached as Exhibit 1 of this report.

VIII. Analysis of Causes of Findings and Contact Voltage

All New York State utilities prepare an inventory of all Findings and report on the number of these Findings each year. Section 1(f) of the Safety Standards defines a Finding as "[a]ny confirmed voltage reading on an electric facility or streetlight greater than or equal to 1 volt measured using a volt meter and 500 ohm shunt resistor." Section 1(c) defines Stray Voltage (referred to herein as Contact Voltage) as "[v]oltage 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."

Although not all findings are due to contact voltage, NYS Utilities are required to report on all findings, regardless of whether or not the voltage is normal to the operating system. In 2010, 4,717 sources of contact voltage were found as a result of all methods of detections; approximately 92% of these findings were detected by the Mobile Contact Voltage Testing Program.

In accordance with the Safety Standards requirements, when a finding is discovered on an electric facility or streetlight during manual contact voltage testing, the Company performs contact voltage testing on all publicly accessible structures, streetlights and sidewalks within a minimum 30 foot radius of the electric facility or streetlight. Of the 305 findings identified by manual contact voltage testing and mitigated, 10 were a result of the 30-foot radius testing.

Contact voltage findings resulted from a variety of conditions including deterioration of conductors and insulation, damaged neutrals and connections, and defective customer equipment. The following table contains a breakdown of the 2010 causes of contact voltage findings that were Con Edison responsibility:

2010 Contact Voltage Finding by Source Con Edison Responsibility	
Source of Contact Voltage	**Con Ed**
Service	364
Streetlight Service	196
Streetlight Con Edison Neutral	466
Main	236
Secondary Burnout	112
Service Con Edison Neutral	181
Crab	83
Main Con Edison Neutral	82
Abandoned Service	38
Sump Pump	42
Abandoned SL Service	21
Overhead Streetlight Service Neutral	11
Corroded Riser	8
Overhead Service	14
Overhead Service Neutral	10
Overhead Streetlight Service	10
Shunt	3
Overhead Secondary	1
Defective Transformer Equipment	1
Overhead Primary	2
Defective Riser Bonding	2
Total	**1883**

The following table contains a breakdown of the 2010 causes of contact voltage findings that were the responsibility of entities other than Con Edison ("Non Con Edison Responsibility"):

2010 Contact Voltage Finding by Source – Non Con Edison Responsibility	
Source of Contact Voltage	**Non Con Edison**
Defective Customer Equipment	553
Defective Contractor Equipment	31
Defective Pigtail	1
Dept. of Transportation (DOT) Streetlight Neutral	1362
Internal City Streetlight Wiring	832
Loose Connection at Lamp Base	34
Open Ended Control Wiring	13
Contractor or Customer Damage	8
Total	**2834**

Mitigation through Detection

Four factors affect the likelihood that a member of the public or animal could experience a shock, referred to here as Electric Shock Reports (ESRs). These factors are the number of energized structures (ENEs), the duration of a mobile system scan, the voltage levels associated with the ENEs, and the population density. A table containing the breakdown of ESRs reported to Con Edison during 2010 can be found in Appendix 3.

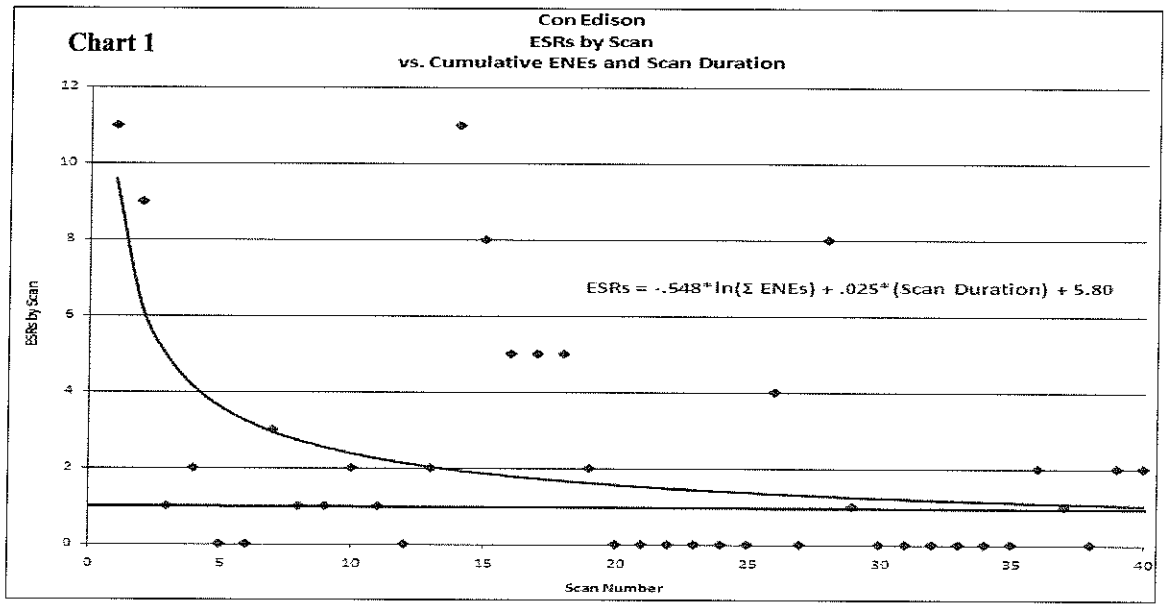
Since the likelihood of an ESR will increase or decrease in proportion to the total number of energized structures, the detection and repair of identified sources of contact voltage is the principal mitigation effort for reducing ESRs. Each completed repair effectively represents a mitigation of possible ESRs. As these repairs accumulate over time, the potential ESRs decrease accordingly.

Additionally, conducting more mobile system scans annually has the positive effect of reducing the possibility of a member of the public or animal coming in contact with an energized structure because more contact voltage conditions would be detected and mitigated.

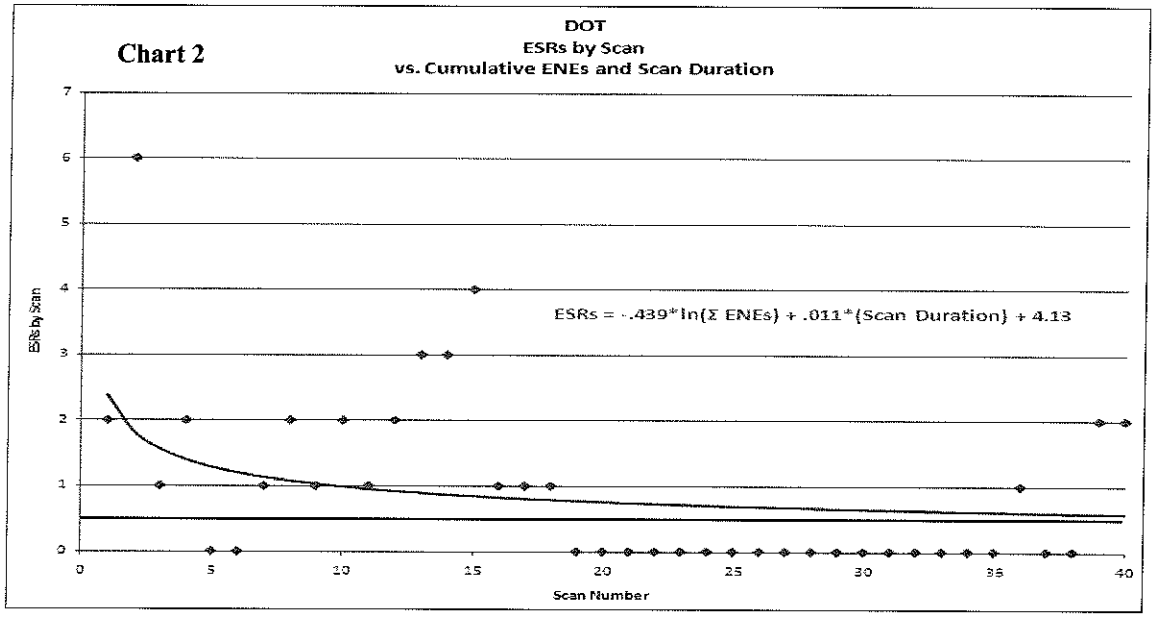
Although both ENE voltage levels and population density are recognized as contributory factors in ESR occurrences, these two factors are not subject to control such that they can be meaningfully incorporated into ESR or Generation Rate analyses.

Based on these considerations, the following analyses demonstrate the reduction in ESRs realized through continued ENE elimination. A separate analysis is carried out for each of the three major system elements that could contribute to an ESR: Con Edison, DOT, and Customer Equipment (Public Access).

The reduction of ESRs associated with Con Edison's equipment appears on Chart 1. The duration of scans is 30-35 days per scan. If we continue a comparable ENE repair rate and scan duration in 2011, we can expect ESRs at this scan duration level to fall to approximately 1 per scan. This prediction is consistent with the 2010 actual results of 15 shocks due to Con Edison responsibility.

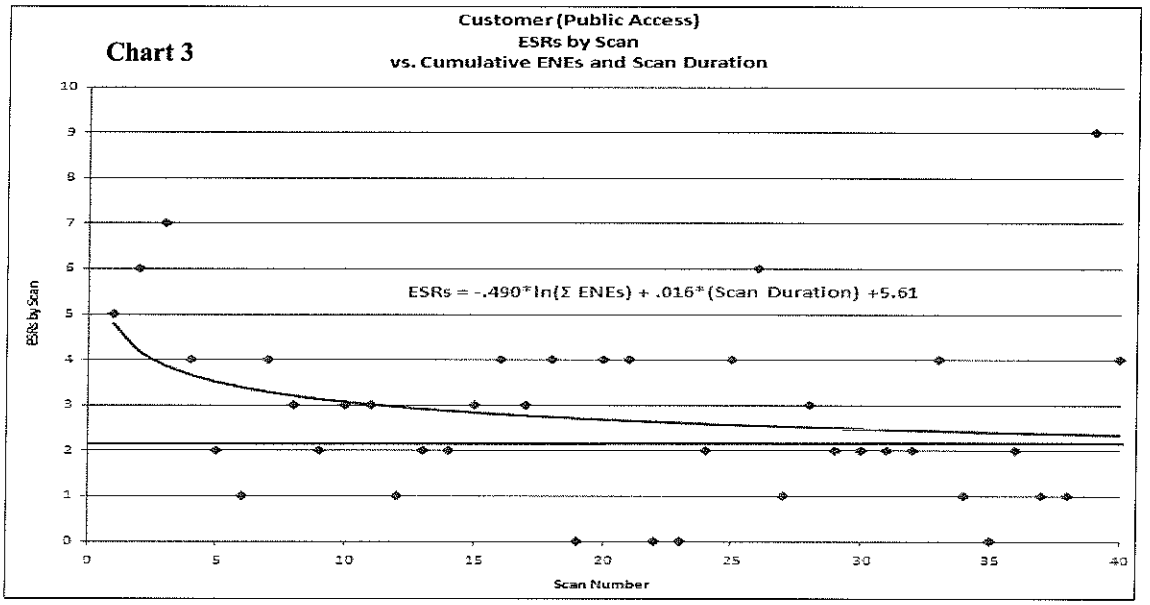


The reduction of ESRs associated with the DOT appears on Chart 2. The duration of scans is 30-35 days per scan. If we continue a comparable ENE repair rate and scan duration in 2011, we can expect ESRs at this scan duration level to be approximately 1 every two scans. This demonstrates marginal improvement over current scan durations. In 2010 there was 1 shock associated with DOT equipment failures. This result is better than predicted, and is likely the result of various programs implemented by both DOT and Con Edison to mitigate shocks.



The reduction of ESRs associated with Customer Equipment (Public Access) appears on Chart 3. The duration of scans is 30-35 days per scan. If we continue

a comparable ENE repair rate and scan duration in 2011, we can expect ESRs to remain at 2 per scan with no significant reduction anticipated below that level in the near future. These ESRs appear essentially insensitive to changes in scan duration at this point in time. The actual performance indicates that these shock events are less sensitive to our mitigation efforts then we initially projected. In 2010, we responded to 43 validated shock reports on publicly accessible customer equipment, this is 32 % higher than predicted by the model.



IX. Analysis of Inspection Results

Inspection Breakdown

Facility Inspection Program	2010	2011	2012	2013	2014	5-Year Cumulative Unique Inspections	Percent Completed
Distribution - Underground/URD	47,017					47,017	16.92%
Distribution - Overhead	85,124					85,124	31.47%
Transmission – Underground*	542					542	25.12%
Transmission - Overhead	1212					1,212	100.00%
Substations	23					23	22.77%
PURS Facilities	3					3	27.27%
Unit Substations	243					243	100.00%
Total	134,164	0	0	0	0	134,164	24.30%

*Gross inspections performed. Con Edison inspects its underground transmission system at multiple intervals, all less than 5 years. The data above captures all inspections performed.

Overhead Distribution Structures

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies
85,124	12,715	14.94%

*Breakdown of Locations with Deficiencies***

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	63	0.24%
2	2,128	7.97%
3	11,959	44.79%
4	12,553	47.01%
Total:	26,703	100.00%

Overhead Transmission Facilities

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies
1212	180	15%

*Breakdown of Locations with Deficiencies***

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	2	0.16%
2	82	6.66%
3	112	9.10%
4	1035	84.08%
Total:	1231	100.00%

Underground Distribution and URD Facilities

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies
47,017	21,376	45%

*Breakdown of Locations with Deficiencies***

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	20,626	21%
2	8,200	8%
3	15,796	16%
4	52,540	54%
Total:	97,162	100%

** Locations may have multiple deficiencies.

Streetlights

Con Edison does not own streetlight facilities. Streetlight facilities in the Company's service area are owned by the City of New York and municipalities located in Westchester County

Repair of Deficiencies

During 2010, the company repaired 98% of the Level I's defects found, 59% of the Level II's defects found, 18% of the Level III's defects found and 10% of the level IV's defects found during 2010. Thus, 63% of the defects found in 2010 were repaired in 2010. A correction has been made to Level 1 repairs identified in 2009 in Appendix 4 of this report. In 2009, the database associated with our Safety Inspection Program (EDIS) captured and reported as found in 2009 all Level 1 defects found prior to 2010. The report now reflects Level 1 repairs found only in 2009. All these repairs are completed.[2] As of January 1, 2010, a total of 316 Level 1 repairs identified in 2010 were reported as open and overdue in the Underground, Overhead, and URD programs. The largest portion of those repairs is in our Underground Program (307 repairs). 296 of the 307 repairs reflected as overdue and open in our Underground Program deal with structure damage. This was created by a specification change which allows the inspector to classify structure damage repairs into two categories (Level 1 repair or Level 4 repair) based on severity. We are currently re-fielding these Level 1 repairs to make sure they were properly identified and if so make repairs. We are doing the same for the 9 Level 1 repairs reported as open and overdue associated with our Overhead Program and URD Program

As of February 11, 2011, 229 Level 1 are reported as open and overdue in the Underground, Overhead, and URD programs. These include 224 of repairs associated with the Underground Program, with 222 of those repairs dealing with structure damage.

As of January 1, 2010, a total of 608 level 2 repairs identified in 2010 were reported as open and overdue in the Underground, Overhead, and URD programs. As of February 11, 2011, 348 Level 2 repairs identified in 2010 in the Underground, Overhead, and URD programs were reported as open and overdue with the majority being in our URD Program. We are in the process of making these repairs.

[2] Our database associated with our URD program identified 10 Level 1 repairs open from 2009. Upon reviewing these repairs, most appear to be completed in the field, but are not reflected as closed in our database. We are having field forces re-inspect these units to ensure completion. The majority of these repairs are either locks not installed or concentric neutrals not connected.

Temporary Repairs

Our inspection database, identifies temporary repairs that have remained in place more than 90 days as shown in the following chart:

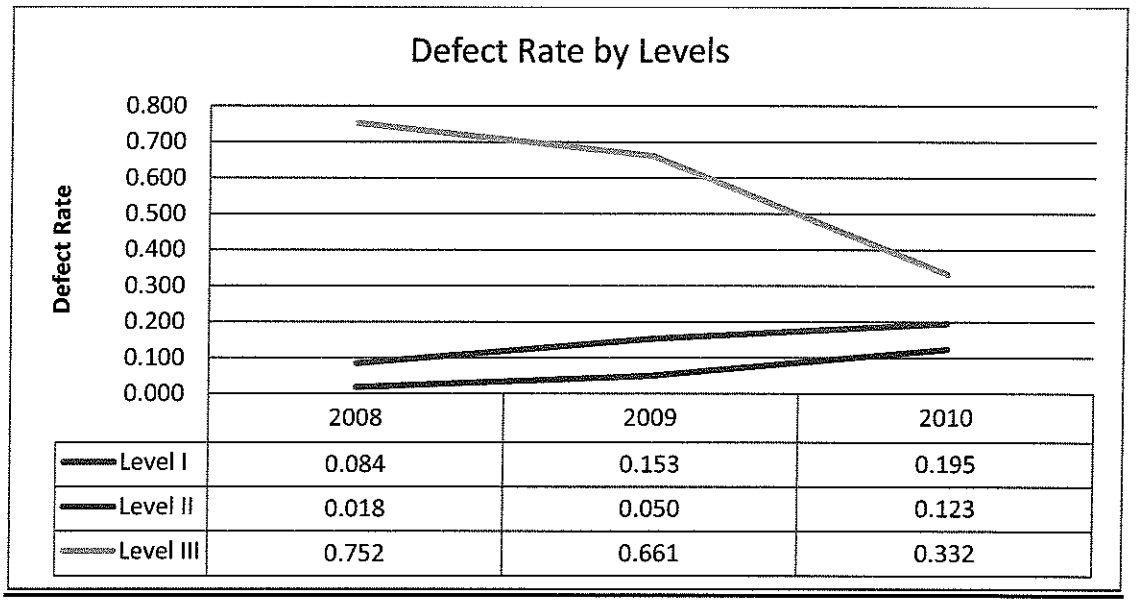
	Level I	Level II	Level III
Underground Distribution	0	205	181
Overhead Distribution	2	1	3
URD	12	8	0

There are two Level I temporary repairs on the overhead system, both are leaking aerial joints that have been "bagged" to prevent them from leaking. These sections of aerial cable are now awaiting replacement. The majority of the 12 level I temporary repairs on the URD system are structural defects and transformer off base, these twelve temporary are being scheduled for permanent repairs.

The majority of Level 2 and 3 temporary repairs were made during the first year of the second cycle (2010) prior to the crew leaving the work site. We are in the process of making these repairs permanent within the one and three year periods applicable to correction of Level II and Level III conditions, respectively.

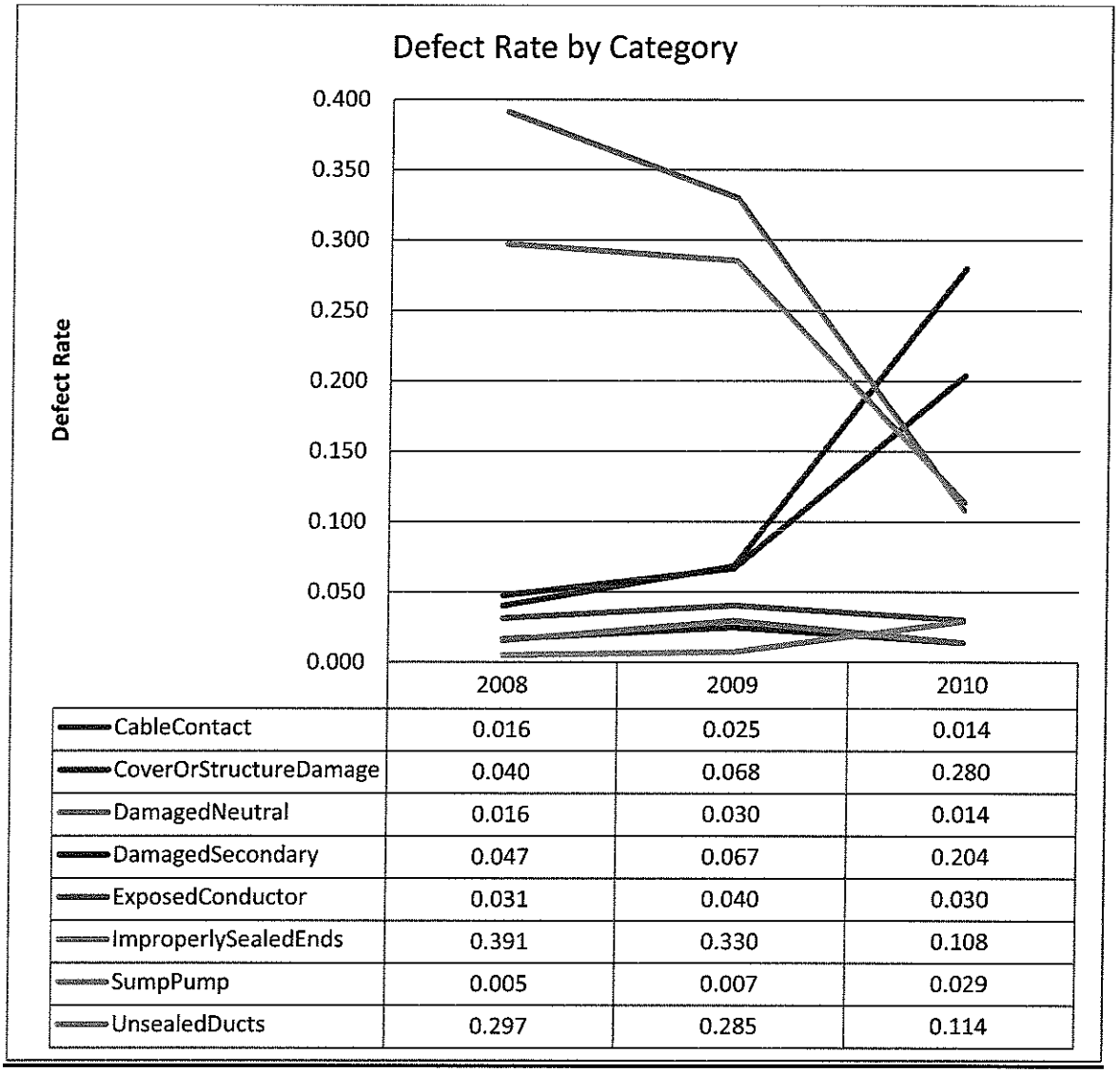
Analysis of Repairs Found

The chart below shows the number of defects found per inspection:



	2008	2009	2010
Level I	0.084	0.153	0.195
Level II	0.018	0.050	0.123
Level III	0.752	0.661	0.332

The defect found ratio can be broken down further, by type of repair:



	2008	2009	2010
CableContact	0.016	0.025	0.014
CoverOrStructureDamage	0.040	0.068	0.280
DamagedNeutral	0.016	0.030	0.014
DamagedSecondary	0.047	0.067	0.204
ExposedConductor	0.031	0.040	0.030
ImproperlySealedEnds	0.391	0.330	0.108
SumpPump	0.005	0.007	0.029
UnsealedDucts	0.297	0.285	0.114

Since 2008, we have made changes to our inspection program, the major change being moving from a tiered structure (prior to 2009) for categorizing repairs to a level based system. In doing so, when comparing 2008 to 2009 and 2010, repair categories do not directly translate to a specific level, which slightly skews our defect ratios. We have grouped these shared repairs (prior to 2009 Tier 2, and after 2009 Level 2 and 3) using our knowledge of and the intent of our specification changes.

For most categories, we see a minor decrease in defect rate from 2009 to 2010. Two categories that we see a major decrease in defect rate are unsealed ducts and improperly sealed ends. In 2009, we included the sealing of ducts and improperly sealed ends as a Level 1 repair. This resulted in a significant reduction of these types of defects being found in 2010 (as shown in the graph above). We also saw an upward spike in a few categories.

During the first 3 years of the prior cycle; cover damage and structure damage was captured in one category. A specification change was made in late 2009 that enabled the inspector to identify these repairs as two separate repairs. This lead to a spike in rate detected during the 2010 program. This also holds true for damaged secondary cable; the rate increase seen in 2010 results from a change in our inspection report form in late 2009 which allows the inspector to report repairs needed to the secondary service, crabs, and removal of split bolt connectors.

In 2010, we also saw an increase in sump pump defects (sump pump not working) found. This can be attributed to vaults that currently have an older model sump pump installed. In 2008, the Company changed the specification when purchasing sump pumps to a model which has a more robust seal system which would extend the life of the pump when cycling. The majority of the failed units identified in the 2010 inspection program were sump pumps of the prior vintage. As we find and remove these older pumps, we are replacing them with the new model.

X. Quality Assurance

The Safety Standards require electric companies to develop a quality assurance program to "ensure timely and proper compliance with these safety standards." Con Edison has developed a comprehensive quality assurance program to address the contact voltage testing and facility inspections requirements. The quality assurance program includes:

- Contact voltage testing of underground distribution structures including Underground Residential Distribution (URD), overhead distribution structures and municipality owned streetlights
- Contact voltage testing of transmission and substation facilities
- Facility inspections of underground distribution, URD, and overhead distribution structures
- Facility inspections of transmission facilities and substation facilities

This section addresses Con Edison's quality assurance program for the aforementioned contact voltage testing and facility inspections.

Quality Assurance Measures Instituted: Contact Voltage Testing of Underground Distribution Structures, Overhead Distribution Structures, and Municipality Owned Streetlights

Con Edison developed a quality assurance plan to ensure that contact voltage testing was performed as specified. The reliability and error design parameters used were:

95% reliability within a ±10% relative precision level and satisfy established industry sample design criteria.

1200 quality assurance checks are required to achieve a 95% confidence rate with a ±10% overall error that the contact voltage tests were conducted in accordance with Company specifications.

Specification EO-10315 (Quality Assurance of the Contact (Stray) Voltage and Periodic Distribution Structure Safety Inspection Programs) calls for 1200 quality assurance checks to be performed on the contractor contact voltage testing. The quality assurance checks are randomly selected from a database of all contact voltage tests and includes a field test for contact voltage. Con Edison performed 400 quality assurance checks of the underground distribution structures including underground residential distribution (URD), 400 quality assurance checks of overhead distribution structures and 400 quality assurance checks of municipality owned streetlights. Contact voltage was not found during any of these quality assurance reviews. In addition to the 1200 quality assurance checks discussed above, Con Edison also conducted Random Quality Assurance reviews of "work in progress."

Quality Assurance Measures Instituted: Contact Voltage Testing of Transmission and Substation Facilities

In accordance with CE-ES-1043, a planner in Transmission Line Maintenance who has knowledge and expertise in overhead transmission, but who did not perform or directly supervise the contact voltage testing, conducted quality assurance inspections at locations on various transmission lines for overhead transmission facilities. Contact voltage was not found during any of these quality assurance reviews

Con Edison performed several types of quality assurance on the underground transmission contact voltage-testing program. Contractors, who also performed testing on underground distribution structures, performed the contact voltage testing of underground transmission facilities. Following this contact voltage testing, Con Edison Construction Management personnel performed audits at several locations. Contact voltage was not found during any of these quality assurance reviews

Substations Operations Methods and Procedures group performed quality assurance for the substation contact voltage-testing program. The quality assurance consisted of a documents search, records review, as well as physical contact voltage testing. Separate records were created for each quality assurance audit. Contact voltage was not found during any of these quality assurance reviews

Quality Assurance performed a quality review on a randomly selected sample of unit substations. Contact voltage was not found during any of these quality assurance reviews

These QA checks confirmed the accuracy of the results from the Contact voltage-testing program.

Quality Assurance Measures Instituted: Inspections of Underground Distribution Structures and Overhead Distribution Structures

A Central Quality Assurance group (QA) was established to oversee work done on the underground electrical system. QA observes specification compliance of the underground inspection program. EO-10315 (Quality Assurance of the Contact Voltage and Periodic Distribution Structure Safety Inspection Programs) establishes standards for the QA program in order to ensure that the underground structure inspections are performed in accordance with the Safety Standards and Con Edison's specifications. The reliability and error design parameters used were:

95% reliability within a ±10% relative precision level and satisfy established industry sample design criteria.

800 quality assurance checks are required to achieve a 95% confidence rate with a ±10% overall error that the inspections were conducted in accordance with Company specifications.

Con Edison employees from the centralized quality assurance department conduct the quality assurance for each of the Company's operating regions. These employees are experienced cable splicers, linemen and mechanics that have been trained in facility inspection and the quality assurance specifications.

The quality assurance personnel performed a complete re-inspection of 400 underground and 400 overhead faculties. The results of the randomly selected facilities are compared with the results to the previous inspected facilities. Deficiencies identified during quality assurance reviews are communicated to field crews, supervisors, planners, and managers who have been required to reinforce inspection procedures with field crews.

Quality Assurance Measures Instituted: Transmission and Substation Facility Inspections

Company specifications CE-SS-6830 (Low and Medium Feeder Pressure Periodic Inspection Procedure) and CE-SS-6045 (Inspection and Preventive Maintenance and Contact Voltage Testing of Pipe Type Cable Systems) require that quality assurance inspections of randomly selected transmission manholes be performed. These randomly selected manholes are re-inspected or re-tested by trained and knowledgeable employees who did not perform or directly supervise this work.

Substation Operations' quality assurance program consists of periodic document reviews and field observations to ensure that 100% of the required contact voltage tests and a minimum of 20% of the Safety and Reliability Inspections of Substation facilities will be completed by December 31 of each year and that the testing and inspections are properly conducted.

Quality assurance was performed by members of the SSO Methods and Procedures group and consisted of a documents search, records review, and physical critical visual inspection. Critical visual inspection quality assurance was performed. Separate inspection records were created for each quality assurance audit. In addition, all inspection and follow-up work order documentation was reviewed. Work orders are entered into our work management system and processed by appropriate personnel. These work orders are tracked closely until all repairs are completed. All personnel are trained on proper reporting and referral of repairs identified during facility inspections. The quality assurance inspections yielded results indicating that the original inspections were performed in accordance with the applicable specifications.

XI. Other Pertinent Information

In 2010 Con Edison contracted Columbia University Center for Computer Learning to perform an analysis of the impact of the Inspection program on secondary events. The study was performed on a representative subset of approximately 52,000 structures. The researchers at Colombia University grouped the structures into 8 categories based on attributes of the structure. The categories are as follows:

Category 1:

- Top 5000 ranked structures in the targeting model (9.57% of structures)
- Consists of 1,189 manholes and 3,811 service boxes
- Average number of cables per manhole is 81.72 (versus 38.27 overall)
- Average number of cables per service box is 47.45 (versus 23.16 overall)

Category 2:

- Manholes with more than 70 cables, except those in Category 1 (N=2,136; 4.09% of structures)
- Consists of manholes within rank 5001-39566 of targeting model, hence none appear in the bottom 24.3% of the targeting model
- Statistically significant impact, and large effect, of Level 1 repairs in reducing likelihood of future events, in contrast to other manholes
- Lower rate of clean inspections(inspections with no repairs or follow up repairs reported) than other manholes

Category 3:

- Service boxes with 21 to 30 cables, and with service phase cables, and with no service cables installed in the 60s, except those in Category 1 (N=6200; 11.86% of structures)
- Relatively low rate of clean inspections
- Statistically significant impact, and modest effect, of Level 1 repairs in reducing likelihood of future events; a greater effect than for other service boxes with 21-30 cables

Category 4:

- Service boxes with 21 to 30 cables, and either no service phase cables or service phase cables and service cables installed in the 60s, except those in Category 1 (N=3,715; 7.11%), and: Service boxes with 30 to 50 cables, not in Category 1 (N=4450; 8.51%). Combined total: 8,165 structures; 15.62%
- Lower rate of clean inspections, and less strong effect of Level 1 repairs, than for other service boxes with 21 to 30 cables, or 30-50 cables

Category 5:

- Service boxes with 1 to 20 cables, and with service phase cables, and with no service cables installed in the 60s, except those in Category 1 (N=8,303; 15.89% of structures)
- Lowest rate of clean inspections (24.15%; probably a one-time effect)
- Statistically significant, but modest effect, of Level 1 repairs in reducing likelihood of future events (probably a one-time effect); a greater effect than for other service boxes with 1-20 cables

Category 6:

- Service boxes with 1 to 20 cables, and either no service phase cables or service phase cables and service cables installed in the 60s, not in Category 1 (N=9,201; 17.60%)
- Lower rate of clean inspections, and less strong effect of Level 1 repairs, than for other service boxes with 1 to 20 cables

Category 7:

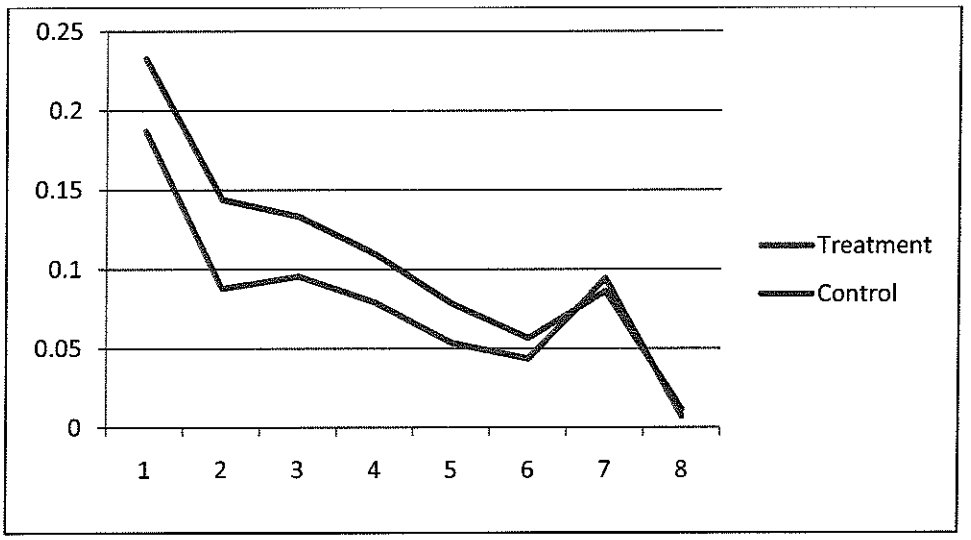
- Service boxes with more than 50 cables, not in Category 1 (N=258; 0.5% of structures)
- Lower rate of clean inspections than manholes, higher than other service boxes
- No significant impact of Level 1 repairs in reducing likelihood of future events.
- Manholes with 1 to 69 cables, not in Category 1 (N=8,316; 15.91%)
- No significant impact of Level 1 repairs in reducing likelihood of future events and manholes with 1 to 69 cables, not in Category 1 (N=8,316; 15.91%)
- High rate of clean inspections

Category 8:

- Manholes and service boxes with no secondary cable (N=4,689; 8.97% of all structures)
- No significant impact of Level 1 repairs on reducing future incidence of events
- High rate of clean inspections

They then considered the relative risk of an event occurring in control and treatment groups. The treatment group was a subset of the data which had been inspected.

The conclusion of the study was that, as a result of the inspection program approximately 1,300 events across all 8 categories were avoided over a 5 year period. Of the 1,300 events approximately 200 were smoking manholes. The remaining 1,100 events were other secondary conditions such as flickering lights, energized objects, etc. The study did not detect a reduction in manhole fires and explosions as a result of the inspection program.



The benefit derived from the inspection of the 52,000 structures studied was a reduction in probability between the treatment group (blue) and the control group (red) of about 5% for categories 1, 2 and 3 with less of an impact on categories 4,5, and 6. Categories 7 and 8 showed no significant impact. This translates to a reduction of approximately 1300 secondary events from the inspection of 52,000 structures.

Using this new data, we are examining ways to optimize our testing and inspection programs to minimize cost and maximize our impact on public safety.. For example, from a cost benefit perspective, the average cost per structure inspection (assuming that 50% of the structures in a given cycle are targeted) is ten times more than the cost per ENE detected by way of using our mobile detection technology. This implies that using our mobile technology effectively can detect ENEs which can lead to underground secondary events at a substantially lower cost than our current inspection programs. We are examining the use of increased mobile scanning coupled with decreased inspections, as a way of optimizing the cost benefits of our mobile scan versus our targeted inspection programs as a way to increase public safety and maximize cost savings.

On February 17, 2010, L-3 Communications, Narda Microwave-East (Narda) formally performed testing on a newly developed mobile contact voltage device, the 8950 System. Under the observation of Underwriter Laboratories (UL), this new device was reported to have the capabilities of detecting contact voltage greater than 2 VAC, at distances of up to 20 feet and at a speed of up to 25 mph.

Con Edison purchased several units for evaluation. Data collected will be used for comparative analysis between the capability of this new device and that of our present mobile technology. To date, we have not incorporated these units into our mobile contact voltage testing program because we have not been able to achieve results similar to that of the existing mobile detection technology. We are continuing to work with the manufacture and EPRI to improve this device.

In late 2009, Con Edison began using hand-held oscilloscopes to take 3rd harmonic measurements as a diagnostic method. High 3rd harmonic content is associated with non-linear loads. Studies have indicated the 3rd harmonic contents of energized objects due to contact voltage is usually less than 10% for secondary phase faults and greater than 10% for secondary neutral faults. The harmonic byproduct distorts the waveform and causes harmonic voltages to travel back through other parts of a power distribution system, such as the neutrals. This information is used to assist crews in mitigating contact voltage. We have taken this technology even further. In conjunction with EPRI and a technology manufacturer, Con Edison is testing a more user friendly prototype of the

oscilloscope. This new tool will be a simplified version using LED lights to indicate secondary low voltage neutral or phase faults.

Appendix 1: Summary of Contact Voltage Testing

	Total System Units Requiring Testing	Units Completed	Percent Completed	Units with Voltage Found (>= 1.0v)	Percent of Units Tested with Voltage (>= 1.0v)	Units Classified as Inaccessible
Distribution Facilities	283,859	284,637	100.27%	17	0.006%	3,646
Yearly Update	283,859	284,637	100.27%	17	0.006%	
Underground Facilities	163,637	163,844	100.13%	1	0.001%	3,237
Yearly Update	163,637	163,844	100.13%	1	0.001%	
Street Lights / Traffic Signals	120,273	120,534	100.22%	285	0.236%	245
Yearly Update	120,273	120,534	100.22%	285	0.236%	
Asset Tested Mobile	175,291	175,291	100.00%	416	0.237%	0
Yearly Update	175,291	175,291	100.00%	416		
Substation Fences	392	392	100.00%	3	0.765%	0
Yearly Update	392	392	100.00%	3	0.765%	
Transmission (69kV and Above)	1,329	1,329	100.00%	0	0.000%	0
Yearly Update	1,329	1,329	100.00%	0		
TOTAL	744,781	746,027	100.17%	722	0.000%	7,128
Yearly Update	744,781	746,027	100.17%	722	0.000%	0

Appendix 2a : Summary of Energized Objects - Mobile Testing

conEdison, inc.

	2010 Year				Jan 1, 2010 - Dec 31, 2010		
	Initial Readings				Readings after Mitigation		
	1.0V - 4.4V	4.5V - 24.9V	> 25 V	Totals	<1.0V	1.0V - 4.4V	> 4.5V
Distribution Facilities	11	5	0	16	16	0	0
Pole	8	4	0	12	12	0	0
Ground	0	0	0	0	0	0	0
Guy	2	0	0	2	2	0	0
Riser	0	0	0	0	0	0	0
Other	1	1	0	2	2	0	0
Underground Facilities	388	133	26	547	547	0	0
Service Box	25	7	1	33	33	0	0
Manhole	362	125	25	512	512	0	0
Padmount Switchgear	0	0	0	0	0	0	0
Padmount Transformer	0	0	0	0	0	0	0
Vault – Cover/Door	1	1	0	2	2	0	0
Pedestal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Street Lights / Traffic Signals	2,011	783	325	3,119	3,119	0	0
Metal Street Light Pole	624	393	261	1,278	1278	0	0
Traffic Signal Pole	1271	349	54	1,674	1674	0	0
Traffic Control Box	23	5	1	29	29	0	0
Pedestrian Crossing Pole	92	34	9	135	135	0	0
Other	1	2	0	3	3	0	0
Substation Fences	0	0	0	0	0	0	0
Fence	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Transmission (Total)	0	0	0	0	0	0	0
Lattice Tower	0	0	0	0	0	0	0
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Miscellaneous Facilities	3,539	1,498	387	5,424	5424	0	0
Sidewalk	18	13	2	33	33	0	0
Gate/Fence/Awning	858	405	130	1,393	1393	0	0
Traffic Sign	242	101	20	363	363	0	0
Scaffolding	68	17	18	103	103	0	0
Bus Shelter	26	31	2	59	59	0	0
Fire Hydrant	92	24	1	117	117	0	0
Phone Booth	6	2	1	9	9	0	0
Control Box	6	1	0	7	7	0	0
Water Pipe	2	0	0	2	2	0	0
Riser	0	0	0	0	0	0	0
Other	2221	904	213	3,338	3338	0	0
Totals	5,949	2,419	738	9,106	9,106	0	0

Data collected through December 31, 2010

Appendix 2b: Summary of Energized Objects* - Manual Testing + Other

conEdison, inc.

	2010 Year						
	Initial Readings				Readings after Mitigation		
	1.0V - 4.4V	4.5V - 24.9V	> 25 V	Totals	<1.0V	1.0V - 4.4V	> 4.5V
Distribution Facilities	9	4	6	19	19	0	0
Pole	3	3	3	9	9	0	0
Ground	0	0	0	0	0	0	0
Guy	2	0	0	2	2	0	0
Riser	4	1	3	8	8	0	0
Other	0	0	0	0	0	0	0
Underground Facilities	5	4	7	16	16	0	0
Service Box	4	2	0	6	6	0	0
Manhole	1	1	1	3	3	0	0
Padmount Switchgear	0	0	0	0	0	0	0
Padmount Transformer	0	0	0	0	0	0	0
Vault – Cover/Door	0	1	4	5	5	0	0
Pedestal	0	0	1	1	1	0	0
Other	0	0	1	1	1	0	0
Street Lights / Traffic Signals	93	183	74	350	350	0	0
Metal Street Light Pole	43	98	58	199	199	0	0
Traffic Signal Pole	41	60	8	109	109	0	0
Traffic Control Box	0	6	1	7	7	0	0
Pedestrian Crossing Pole	9	19	7	35	35	0	0
Other	0	0	0	0	0	0	0
Substation Fences	1	2	0	3	3	0	0
Fence	1	2	0	3	3	0	0
Other	0	0	0	0	0	0	0
Transmission (Total)	3	0	0	3	0	3	0
Lattice Tower	3	0	0	3	0	3	0
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Miscellaneous Facilities	24	19	13	56	56	0	0
Sidewalk	0	0	0	0	0	0	0
Gate/Fence/Awning	1	2	2	5	5	0	0
Traffic Sign	0	1	0	1	1	0	0
Scaffolding	2	0	0	2	2	0	0
Bus Shelter	1	0	0	1	1	0	0
Fire Hydrant	2	0	0	2	2	0	0
Phone Booth	0	0	0	0	0	0	0
Control Box	0	0	0	0	0	0	0
Water Pipe	0	1	1	2	2	0	0
Riser	0	0	2	2	2	0	0
Other	18	15	8	41	41	0	0
Totals	135	212	100	447	444	3	0

Data collected through December 31, 2010

Appendix 3 : Summary of Shock Reports from the Public		
2010	**Quarterly Update** Oct 1, 2010 - Dec 31, 2010	**Yearly Total**
I. Total shock calls received:	**33**	**178**
Unsubstantiated	18	106
Normally Energized Equipment	1	13
Substantiated Stray Voltage	14	59
Details of Substantiated Stray Voltage Events :		
# of Persons	8	42
# of Animals*	6	18
II. Injuries Sustained	**0**	**0**
Utility Responsibility :		
Person	0	0
Animal	0	0
Non Utility Responsibility :		
Person	0	0
Animal	0	0
Unsubstantiated :		
Person	0	0
Animal	0	0
III. Medical Attention Received	**2**	**11**
Utility Responsibility :		
Person	0	1
Animal	0	0
Non Utility Responsibility :		
Person	0	1
Animal	0	0
Unsubstantiated :		
Person	2	8
Animal	0	1
IV. Voltage Source:	**13**	**58**
Utility Responsibility :		
Issue with primary, joint, or transformer	0	0
Secondary joint (Crab)	1	2
SL service Line	0	1
Abandoned SL service line	0	0
Defective service line	0	2
Abandoned service line	2	9
OH Secondary	1	1
OH Service	0	0
OH Service neutral	0	0
OH SL Service	0	0
OH SL Service neutral	0	0
Pole	0	0
Riser	0	0
Other	0	0
Customer Responsibility :		
Contractor damage	1	5
Customer equipment/wiring	7	37
Other Utility/Gov't Agency Responsibility :		
SL Base Connection	0	0
SL Internal wiring or light fixture	1	1
Overhead equipment	0	0
V. Voltage Range:	**14**	**59**
1.0V to 4.4V	2	6
4.5V to 24.9V	6	19
25V and above	6	34
No Reading	0	0

Data collected through December 31, 2010

*2 Animals were shocked in one event

Appendix 4 : Summary of Deficiencies and Repair Activity Resulting from the Inspection Process

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			4,272			5,130									
Repaired in Time Frame			3,822			67									
Repaired - Overdue			0			0									
Not Repaired - Not Due			450			5,063									
Not Repaired - Overdue			0			0									
Anchors/Guy Wire															
Number of Deficiencies			34			391									
Repaired in Time Frame			12			5									
Repaired - Overdue			0			0									
Not Repaired - Not Due			22			386									
Not Repaired - Overdue			0			0									
Cross Arm/Bracing															
Number of Deficiencies		123			435										
Repaired in Time Frame		118			25										
Repaired - Overdue		1			0										
Not Repaired - Not Due		0			410										
Not Repaired - Overdue		4			0										
Riser															
Number of Deficiencies			617			731									
Repaired in Time Frame			588			3									
Repaired - Overdue			0			0									
Not Repaired - Not Due			29			728									
Not Repaired - Overdue			0			0									

Conductors																
Primary Wire/Broken Ties																
Number of Deficiencies	3	337	4,862	27	1,189	5,033										
Repaired in Time Frame	3	274	4,135	5	319	622										
Repaired - Overdue	0	55	0	16	0	0										
Not Repaired - Not Due	0	0	727	0	870	4,411										
Not Repaired - Overdue	0	8	0	6	0	0										
Secondary Wire																
Number of Deficiencies			29			548										
Repaired in Time Frame			26			17										
Repaired - Overdue			0			0										
Not Repaired - Not Due			3			531										
Not Repaired - Overdue			0			0										
Neutral																
Number of Deficiencies		185			19											
Repaired in Time Frame		185			5											
Repaired - Overdue		0			0											
Not Repaired - Not Due		0			14											
Not Repaired - Overdue		0			0											
Insulators																
Number of Deficiencies		108			414											
Repaired in Time Frame		107			42											
Repaired - Overdue		0			0											
Not Repaired - Not Due		0			372											
Not Repaired - Overdue		1			0											
Pole Equipment																
Transformers																
Number of Deficiencies	4			33												
Repaired in Time Frame	3			18												
Repaired - Overdue	1			14												
Not Repaired - Not Due	0			0												
Not Repaired - Overdue	0			1												
Cutouts																
Number of Deficiencies				3												
Repaired in Time Frame				1												
Repaired - Overdue				2												
Not Repaired - Not Due				0												
Not Repaired - Overdue				0												

Lightning Arrestors																
Number of Deficiencies		33			71											
Repaired in Time Frame		33			3											
Repaired - Overdue		0			0											
Not Repaired - Not Due		0			68											
Not Repaired - Overdue		0			0											
Other Equipment																
Number of Deficiencies			95			126										
Repaired in Time Frame			70			13										
Repaired - Overdue			0			0										
Not Repaired - Not Due			25			113										
Not Repaired - Overdue			0			0										
Miscellaneous																
Trimming Related																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Other																
Number of Deficiencies		1,293														
Repaired in Time Frame		1,293														
Repaired - Overdue		0														
Not Repaired - Not Due		0														
Not Repaired - Overdue		0														
Overhead Facilities Total																
Total																
Number of Deficiencies	7	2,079	9,909	63	2,128	11,959										
Repaired in Time Frame	6	2,010	8,653	24	394	727										
Repaired - Overdue	1	56	0	32	0	0										
Not Repaired - Not Due	0	0	1,256	0	1,734	11,232										
Not Repaired - Overdue	0	13	0	7	0	0										

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			41			42									
Repaired in Time Frame			25			42									
Repaired - Overdue															
Not Repaired - Not Due			16												
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		51			60										
Repaired in Time Frame		51			60										
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															

Conductors																
Cable																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Static/Neutral																
Number of Deficiencies	1			1												
Repaired in Time Frame	1			1												
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Insulator																
Number of Deficiencies			17	1		17										
Repaired in Time Frame			17	1		17										
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Miscellaneous																
Right of Way Condition																
Number of Deficiencies		18			20	39										
Repaired in Time Frame		18			20	39										
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Other																
Number of Deficiencies					2	14										
Repaired in Time Frame					2	14										
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Transmission Facilities Total																
Total																
Number of Deficiencies	1	69	58	2	82	112										
Repaired in Time Frame	1	69	42	2	82	112										
Repaired - Overdue	0	0	0	0	0	0										
Not Repaired - Not Due	0	0	16	0	0	0										
Not Repaired - Overdue	0	0	0	0	0	0										

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		2,058			1,607										
Repaired in Time Frame		831			372										
Repaired - Overdue		1,106			0										
Not Repaired - Not Due		0			1,235										
Not Repaired - Overdue		121			0										
Damaged Structure															
Number of Deficiencies			5,951	325		10,619									
Repaired in Time Frame			2,313	12		242									
Repaired - Overdue			0	9		0									
Not Repaired - Not Due			3,638	8		10,377									
Not Repaired - Overdue			0	296		0									
Congested Structure															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Damaged Equipment															
Number of Deficiencies	8	14	2,283	62	198	260									
Repaired in Time Frame	5	12	2,275	40	81	79									
Repaired - Overdue	3	2	0	18	0	0									
Not Repaired - Not Due	0	0	8	1	117	181									
Not Repaired - Overdue	0	0	0	3	0	0									
Conductors															
Primary Cable															
Number of Deficiencies															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															

Secondary Cable																
Number of Deficiencies		4,993	12,631		3,716	4,726										
Repaired in Time Frame		3,339	9,039		2,837	2,519										
Repaired - Overdue		1,604	0		0	0										
Not Repaired - Not Due		0	3,592		879	2,207										
Not Repaired - Overdue		50	0		0	0										
Neutral Cable																
Number of Deficiencies		8,481			1,006											
Repaired in Time Frame		7,422			661											
Repaired - Overdue		1,030			0											
Not Repaired - Not Due		0			345											
Not Repaired - Overdue		29			0											
Racking Needed																
Number of Deficiencies																
Repaired in Time Frame																
Repaired - Overdue																
Not Repaired - Not Due																
Not Repaired - Overdue																
Miscellaneous																
Other																
Number of Deficiencies	108,186	309		20,064	1,049											
Repaired in Time Frame	108,186	11		19,871	608											
Repaired - Overdue	0	127		184	0											
Not Repaired - Not Due	0	0		1	441											
Not Repaired - Overdue	0	171		8	-											
Underground Facilities Total																
Total																
Number of Deficiencies	108,194	15,855	20,865	20,451	7,576	15,605										
Repaired in Time Frame	108,191	11,615	13,627	19,923	4,559	2,840										
Repaired - Overdue	3	3,869	0	211	0	0										
Not Repaired - Not Due	0	0	7,238	10	3,017	12,765										
Not Repaired - Overdue	0	371	0	307	0	0										

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 Transformers															
Damaged Structure															
Number of Deficiencies		229		17	194										
Repaired in Time Frame		11		8	48										
Repaired - Overdue		45		9	1										
Not Repaired - Not Due				0	145										
Not Repaired - Overdue		173		0											
Damaged Equipment															
Number of Deficiencies		7			31										
Repaired in Time Frame		1			5										
Repaired - Overdue		1			0										
Not Repaired - Not Due					26										
Not Repaired - Overdue		5			0										
Cable Condition															
Number of Deficiencies	116	44	9	10	275										
Repaired in Time Frame	111	5	0	8	127										
Repaired - Overdue		4	0	1	0										
Not Repaired - Not Due			9	0	148										
Not Repaired - Overdue	5	35	0	1											
Oil Leak															
Number of Deficiencies	1	1		3	2										
Repaired in Time Frame				3	2										
Repaired - Overdue				0	0										
Not Repaired - Not Due				0	0										
Not Repaired - Overdue	1	1		0	0										
Off Pad															
Number of Deficiencies				13											
Repaired in Time Frame				10											
Repaired - Overdue				2											
Not Repaired - Not Due				0											
Not Repaired - Overdue				1											

Lock/Latch/Penta																
Number of Deficiencies	11			42												
Repaired in Time Frame	5			42												
Repaired - Overdue	2			0												
Not Repaired - Not Due				0												
Not Repaired - Overdue	4			0												
Miscellaneous																
Other																
Number of Deficiencies	469	10		90	122	191										
Repaired in Time Frame	469			87	95	45										
Repaired - Overdue				3	0	0										
Not Repaired - Not Due				0	27	146										
Not Repaired - Overdue		10			0	0										
Pad Mount Total																
Total																
Number of Deficiencies	597	291	9	175	624	191										
Repaired in Time Frame	585	17	0	158	277	45										
Repaired - Overdue	2	50	0	15	1	0										
Not Repaired - Not Due	0	0	9	0	346	146										
Not Repaired - Overdue	10	224	0	2	0	0										

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Streetlights

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
Streetlights															
Base/Standar/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

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	108,799	108,783	6	0	10
	II	Within 1 year	18,294	13,711	3,975	0	608
	III	Within 3 years	30,841	22,322	0	8,519	0
	IV	N/A	36,254	16,293	N/A	19,961	N/A
2010							
	I	Within 1 week	20,691	20,107	258	10	316
	II	Within 1 year	10,410	5,312	1	5,097	0
	III	Within 3 years	27,867	3,724	0	24,143	0
	IV	N/A	66,128	6,505	N/A	59,623	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					

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Level IV Conditions

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	Number of Conditions Repaired
Overhead Facilities										
Pole Condition										
Pole Condition	7,194	6,930	10,853	3						
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	4,374	3,977	1,700	6						
Overhead Facilities Total	11,568	10,907	12,553	9						
Transmission Facilities										
Tower/Poles										
Steel Towers	44	0	50	0						
Poles	0	0	0	0						
Anchors/Guy Wire	0	0	0	0						
Crossarm/Brace	0	0	0	0						
Grounding System	37	10	46	10						
Conductors										
Cable	157	0	185	14						
Static/Neutral	6	3	7	1						
Insulators	184	12	316	14						
Miscellaneous										
Right of Way Conditions	169	4	259	25						
Other	290	145	172	30						
Transmission Facilities Total	887	174	1,035	94						
Underground Facilities										
Underground Structures										
Damage Covers										
Damage Structures			5,102	25						
Congested Structures			2018	94						
Damage Equipment										
Conductors										
Primary Cable										
Secondary Cable										
Neutral Cable										
Racking Needed	23,785	5,202	13,033	1,592						
Miscellaneous										
Other			31,832	4,352						
Underground Facilities Total	23,785	5,202	51,985	6,063						
Pad Mount Transformers										
Underground Structures										
Damage Structures										
Damage Equipment										
Damage Cable										
Oil Leak										
Off Pad										
Lock/Latch/Penta										
Miscellaneous										
Other	14	10	555	339						
Pad Mount Transformers Total	14	10	555	339						
Streetlights										
Streetlights										
Base/Standar/Light										
Handhole/Service Box										
Service/Internal Wiring										
Access Cover										
Miscellaneous										
Other										
Streetlight Total										
Total Level IV Conditions										
Overall Total	36,254	16,293	66,128	6,505						

Exhibit 1

Certification of Contact Voltage Testing

Robert Schimmenti, on this 14th day of February 2011, certifies as follows:

1. I am Vice President of Consolidated Edison Company of New York, Inc. ("Con Edison" or "the Company").

2. I am responsible for overseeing Con Edison's contact voltage testing program, and in that capacity I have monitored the Company's contact voltage testing program during the twelve months ended December 31, 2010 ("the twelve month period"). During the twelve-month period, Con Edison instituted and diligently carried out a program designed to meet the contact voltage testing requirements of the Public Service Commission's Safety Standards, issued in Case 04-M-0159, Proceeding Instituting Safety Standards.

3. To the best of my knowledge, information, and belief, during the twelve month period, Con Edison identified and tested for contact voltage (i) all publicly accessible electric facilities owned by the Company, and (ii) all publicly accessible streetlights and traffic signals located in public thoroughfares in the Company's service territory and directly supplied by the Company as identified through a good faith effort by the Company, except for such facilities that are identified in the Company's Annual Report, submitted herewith.

Robert Schimmenti

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Certification of Inspections

Robert Schimmenti, on this 14th day of February 2011, certifies as follows:

1. I am Vice President of Consolidated Edison Company of New York, Inc. ("Con Edison" or "the Company").

2. I am responsible for overseeing Con Edison's electric facility inspection program, and in that capacity I have monitored the Company's inspection program during the twelve months ended December 31, 2010 ("the twelve-month period"). During the twelve-month period, Con Edison instituted and diligently carried out a program designed to meet the inspection requirements established by the Public Service Commission's Safety Standards, issued in Case 04-M-0159, Proceeding Instituting Safety Standards.

3. To the best of my knowledge, information, and belief, Con Edison has visually inspected the requisite number of electric facilities during the twelve-month period, including the requirement to have conducted a visual inspection of at least 20% of its electric facilities through December 31, 2010.

Robert Schimmenti

Power Survey Company
25 Campus Drive
Kearny, NJ 07032
P: 973-344-7116
F: 973-344-8577

March 23, 2011

Hon. Jaclyn A. Brilling, Secretary
Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

RE: Case 04-M-0159
Proceeding on Motion of the Commission To Examine the
Safety of Electric Transmission and Distribution Systems

Dear Secretary Brilling:

Rochester Gas & Electric [RGE] used the Narda 8950/10 "Mobile Stray Voltage Detection System" to perform its 2010 mobile survey of Rochester, NY for underground electrical hazards. Using the Narda device, unfortunately, a huge number of real pedestrian hazards went undetected, placing the public at risk.

RGE detected just 40 energized structures using the Narda device in 2010. Power Survey Company conducted a concurrent head-to-head survey of the RGE territory using the SVD 2000 and found 251 energized structures, some of which were energized at full line voltage. Power Survey, in the interest of public safety, immediately offered the comprehensive results of this survey to RGE. The repair status of these additional hazards is unknown, but clearly without the use of the SVD 2000 to identify the location of the hazards, pedestrians, pets and children would have been the only method of detection for these dangerous electrical faults.

In the Rochester survey, Narda's 8950/10 device demonstrated an 84% false negative rate. This poses a great danger to the citizens of NY State and a startling and direct conflict with Narda's test report and marketing claims. RGE used the Narda device on the basis of compliance with the requirement of it being "mobile" and a test report which detailed a single day of laboratory testing performed by the device manufacturer. The report concluded that the Narda device can reliably detect voltages down to 2 VAC from a distance of 30ft at speeds of 25mph. RGE's field use of the device proved the report's conclusion to be patently false, as the system failed to detect at least 211 energized objects, 172 of which were greater than 2 VAC, and some of which were over 100 V.

Why Did the Narda device fail to detect at lease 84% of the Energized Structures in the Field?

The performance of the Narda 8950/10 is deficient because its noise floor is entirely too high to allow detection of the very weak electric fields produced by energized objects in an urban landscape. Even extremely dangerous structures energized with over 100 V will often produce electric fields far below 2 V/m. Such objects went undetected by the Narda device in Rochester.

The noise floor of the device is the level of signal reported by the device when rolling down a road absent of energized structures. A detection device will only be able to detect signals that are larger than its noise floor.

Narda's first test run shows that with no energized structure present, the device returns about 2 V/m. Figure 1, taken from p8 of the test report, illustrates this. The Narda sensor is unable to detect signals smaller than 2V/m while operating at any speed.

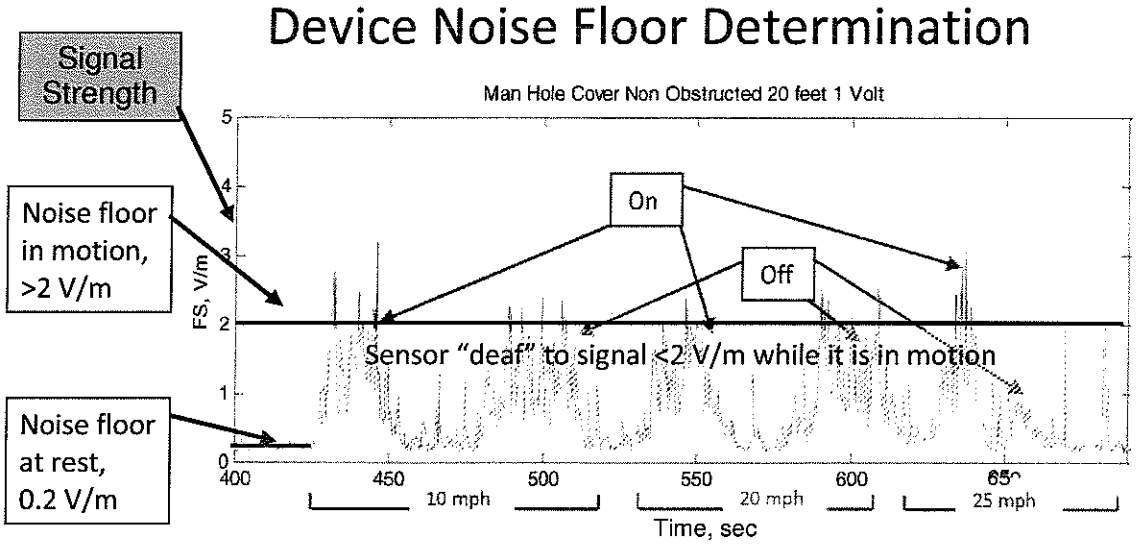

Figure 1 Narda signal strength with substitute structures "Off" is the level of noise produced by the system, vehicle, road vibrations, etc. and is the minimum detectable signal strength, or Noise Floor.

In practice, the bulk of the energized objects found in real world distribution systems produce signals in the range of 0.1 to 1 V/m. Only a small percentage of real world energized objects exceed the 2V/m noise floor of the Narda device and are detectable by that device.

Furthermore, the test report filed by Narda is fatally flawed because real energized structures were not used, referenced, or compared with the performance of the device. The only documented performance data in the report

comes through the use of *substitute structures* intended to represent a street light and manhole cover. The substitute structures produced signal levels that were on average 6 times greater than the weak signals produced by real world energized structures. Since the substitute structures are unrealistic, the conclusions of the report are also unrealistic and inaccurate.

No steps were taken to ensure the substitute structures fairly represented real world structures and they may have been intentionally enhanced to generate larger than normal signals.

Figure 2 (on page 4) compares the Narda device noise floor with two important data groups. The blue data group at the left represents the signals generated by Narda's substitute structures. The orange data group at the right represents a random sample of 86 real energized structures detected in New York using similarly calibrated test equipment and actual manhole covers and streetlights encountered in the public landscape. The substitute structures emit much stronger electric field sources than all but a handful of real energized objects. Also, a majority of the real energized objects emit signals well below the Narda device noise floor and would thus be invisible to the Narda device. To be more precise, 88% of the real world samples emitted below 2 V/m, giving us a rough idea of just how many real hazards the Narda device would miss in a real-world field test. This estimate is validated by the experience of RGE in Rochester, NY, where 84% of the energized structures were undetected.

Why do the substitute structures generate such large signals?

The signal level emitted by any structure and picked up by a sensor will depend upon 3 simple terms:

- Voltage on the energized structure
- Physical size of the energized structure
- Distance between the sensor and the energized structure

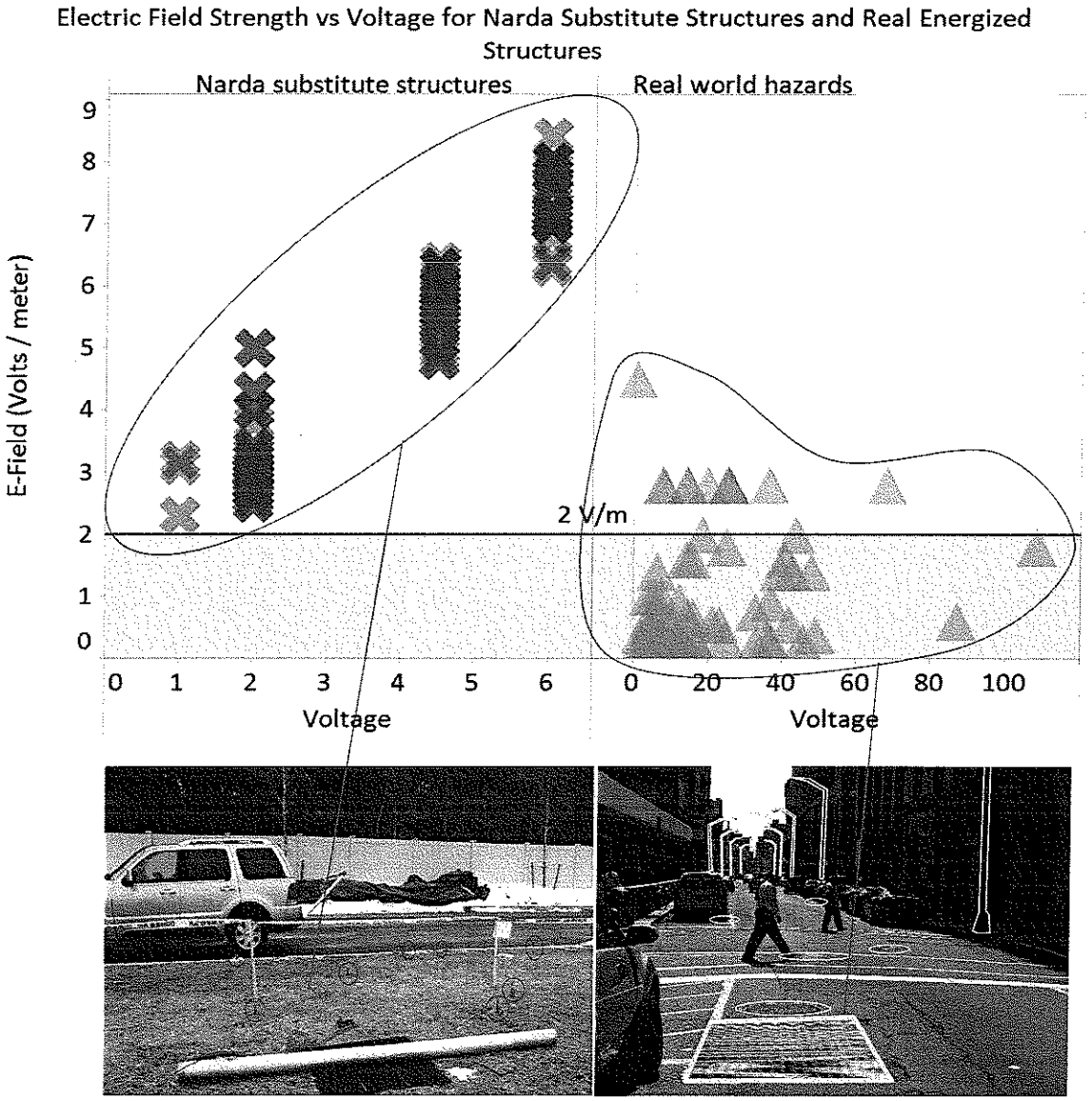

Figure 2 Comparison of E-field levels emitted by Narda substitute structures and real world energized structures. Narda recorded 105 passes, avg field of 5.1V/m, median 5.5V/m. Real sample of 86 energized objects had avg field of 0.85 V/m, median 0.38 V/m.

A careful review of the photograph on page 16 of the report (and displayed in Figure 3 below) shows why the signals generated by the substitute structures are far larger than those generated by real world energized structures. The substitute structure in this photo (long pipe), and in fact all substitute structures used during testing, is directly connected (via yellow wire highlighted in blue) to a ground rod driven into the earth. This effectively energizes the earth around it, and boosts the electric field level produced. What's more, Narda installed additional conductors (highlighted in green) and ground rods (circled in red) around the test area and along the curb of the test range in close proximity to the Narda 8950. These are either directly or indirectly energized by the voltage applied to the substitute structure.

Figure 3 Photo from p 16 of L3 [Narda] test report, showing an array of added electrodes and ground rods added which boost the E-field signal from the substitute structure (Legend added)

The effect of this additional hardware is a large increase in the signal picked up by the sensor for two primary reasons. First, the additional hardware effectively increases the size of the substitute structure. It now includes the group of ground rods and the earth around them. Secondly, the additional hardware reduces the distance between the device and the substitute structure. While the pipe in the photograph may be 30 feet away from the sensor, the additional ground rods and wires are clearly much closer. The effects of these objects were clearly known by Narda's technicians performing the test, as they demonstrated repeatedly that

the presence of a metallic object (a van) between the substitute structure and the sensor increased the signal received by the sensor.

The presence of the additional wires and ground rods shown in the photograph represents either intentional steps to fraudulently increase signals picked up by the Narda 8950/10 or incompetence. No matter the reasons, the signal values used in the generation of the Narda test report are entirely too large to represent real world conditions.

Previous Comments of the Jodie S. Lane Public Safety Foundation

The Jodie S. Lane Public Safety Foundation [JSLPSF] warned of the inaccuracies and limitations of the Narda report and device in a letter submitted to the NYS PSC shortly after Narda submitted its report. In that letter, the JSLPSF emphasized the following salient points:

- The L3 [Narda] 8950 test report was written by the manufacturer of the system, not an accredited independent testing laboratory, in conflict with NYS PSC requirements
- Test indicates no proof of field performance
- Test does not simulate real world use of the system
- Sensor was not compared with the current benchmark, the SVD 2000
- Data from [Narda] test range are irreconcilable with E-field measurements from real energized structures in the real world environment

After extensive review of the Narda report and the real world comparison survey data, it is clear that the JSLPSF's concerns were valid. In the interest of public safety, we recommend the Commission prohibit use of the Narda 8950/10 to satisfy the mobile testing requirement.

The report was written by L3 and "observed" by employees of Underwriter's Laboratories [UL] with no evidence of UL experiment design, UL approval (such as a UL report number), or any description of the report signers' expertise or experience with electric field measurement or calibration. We presented these concerns to Underwriters Laboratories. Despite the report's claims of traceability and transparency, UL refused to provide any comment or explanation. UL's silence shows little concern for the danger a grossly inadequate contact voltage detection device presents to the citizens of NY State.

NYS PSC Acceptance of Mobile Detection Technology

In the order issued and effective December 15, 2008 regarding Case 04-M-0159, the Commission revised and updated the Electric Safety Standards in light of lessons learned in the previous 4 years. Perhaps the most significant change was the required testing of upstate cities with mobile testing technology for the detection of energized objects in the public right-of-way. The Order makes clear

that this change is the result of "Con Edison's experience utilizing the mobile testing equipment" and the fact that "the technology is clearly more efficient in identifying potentially hazardous conditions."[1]

As of December 2008, Con Edison's experience was the successful detection and repair of over 10,000 energized objects in the public right of way in just 3 short years. The "technology" was the patented SVD 2000, designed specifically to detect faults in the 60Hz AC underground distribution system. The SVD 2000 was also subjected to a series of detailed field and laboratory tests, some specifically at the direction of the Staff, conducted by an accredited independent lab, showing its ability to reliably detect voltages down to 4.5VAC in the urban field environment. Clearly, the 2008 Commission's precedent, conservative method of acceptance of "the mobile testing equipment" referred to the SVD 2000 and was based on:

1. Broad field experience showing superior performance over 2-3 year timeframe

AND

2. Third party accredited lab testing (not self-certified) of stray voltage equipment proving reliable detection of 6V or greater[2]

Since 2008, Con Edison and other NY utilities have found and repaired thousands more hazards using the SVD 2000 technology and incidents of public shock have continued to decline dramatically.

"Mobile technology" is a broad descriptor, but the Commission's intent was clear. "The mobile testing equipment" referred to a specific proven technology. Other "mobile" technologies tried were not accepted for statewide use, including a skateboard fitted with brass ground brushes, a golf cart with ground contacts, and two wooden trailers fitted with electric field sensors. It was the successful field experience of the SVD 2000, combined with four independently conducted (not simply observed) accredited lab tests, which led to eventual acceptance by

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[1] NYS PSC "Order Adopting Changes to the Electric Safety Standards," issued and effective Dec. 15, 2008
p. 10 "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"
p. 11 "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."
p. 12 "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 to conduct mobile stray voltage detection surveys 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. 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."
[2] NYS PSC, "Electric Safety Standards (as amended 8/2008)" Sec 1(e), Definition of Stray Voltage Testing

the Commission. The Commission has an opportunity to uphold the Electrical Safety Standards which implies that "the mobile testing technology" is one proven by successful field trials, and is not just any sensor placed on wheels. Use of the Narda device for compliance with the Electric Safety Standards should be prohibited as it has failed to detect even 20 percent of hazards detectable by the existing benchmark system.

Field trials conducted by Con Edison concluded that "[Narda 8950/10 devices] have not been able to achieve results similar to that of the existing mobile detection technology."[3] The "existing mobile technology" referred to by Con Edison and the Commission is the SVD 2000, which is the benchmark proven by field performance and extensive and qualified independent laboratory testing. The lessons learned from Con Edison's experience represent a valuable record of industry best practices.

Measures need to be taken such that the Commission's intent is not misinterpreted. The Narda test report which is on the Commission's website specifically requests certification. There are no documents on the website indicating what action, if any, the Commission/Staff took with respect to the Narda test report and the request. Since the Commission Staff was very active in ensuring the effectiveness of the SVD2000, it stands to reason that similar scrutiny should be applied to any technology put forth for protecting the public from the hazards of contact voltage. The use of unproven copy-cat technology without field demonstration and benchmarking should be prohibited. Any competing technology should perform equally or better than this benchmark if it is to be aligned with the Commission's Order and its stated goal of improved pedestrian and pet safety.

Narda has further taken advantage of the Commission's good intent by leveraging the safety standard in their marketing of this device:

> "The system was recently tested and witnessed by an independent engineering firm to secure the utility company certification needed to perform testing in New York State."
> (http://narda-sts.us/index.php?m=News)
>
> "..independently witnessed testing performed by Narda and **publicly filed**, proved the validity of our system's detection capability up to 20 MPH. (emphasis added)"
> (http://www.narda-sts.us/products_strayvoltage_detection.php)

Based on the lack of successful field testing, inadequate lab testing, and failure to detect real hazards in a head-to-head test against the benchmark system, the

[3] Con Edison, "2010 Contact Voltage Test and Facility Inspection Annual Report" filed February 15, 2011, p. 30.

Commission should not accept the Narda device as a competent solution for contact voltage detection.

Standards Enforcement

A voltage hazard detection device with a false negative rate in excess of 84% is dangerous.

We hope that the Commission will review the evidence and act in the public's interest; block the use of the Narda device, which is incapable of adequately performing its intended purpose of protecting pedestrians and pets from electric shock and electrocution.

Respectfully submitted,

Connie O. Hughes
Vice President, Regulatory Affairs

-----Original Message-----
From: gavin_nicoletta@dps.state.ny.us [
mailto:gavin_nicoletta@dps.state.ny.us]
Sent: Tuesday, March 29, 2011 10:36 AM
To: Ballard, Dennis; Smith, Jennifer R; Sullivan, Kevin; Stuart Habebuth; Ross Cox
Cc: michael_scott@dps.state.ny.us; steven_blaney@dps.state.ny.us; patrick_maher@dps.state.ny.us
Subject: Mobile Stray Voltage Testing Equipment

Please refer to the attached letter that was filed by Power Survey Company regarding its mobile stray voltage detection system compared to equipment produced by others. It appears that there are issues that need to be addressed with the performance of the Narda system. Con Edison obviously has broad experience with mobile stray voltage testing and has indicated that the Narda device does not yield similar results.

Also, regarding the testing that was conducted in Rochester, please indicate what actions have been taken by RGE to address energized structures detected by Power Survey in addition to those that were found using the Narda device. It is expected that the company has taken appropriate action to mitigate the conditions.

(See attached file: Power Survey Letter_3.23.11.pdf)

Gavin Nicoletta
Chief, Safety Section
NYS Department of Public Service
3 Empire State Plaza
Albany, NY 12223
518-486-2496

Patrick Maher/OEGW/NYSDPS

04/29/2011 09:49 AM

To Gavin Nicoletta/OEGW/NYSDPS@NYSDPS, Steven Blaney/OEGW/NYSDPS@NYSDPS
cc
bcc
Subject Fw: Rochester Contact Voltage Survey
This document IS flagged as a record

FYI

---- Forwarded by Patrick Maher/OEGW/NYSDPS on 04/29/2011 09:49 AM ----

Paul Emerson/OEGW/NYSDPS

04/28/2011 04:24 PM

To Patrick Maher/OEGW/NYSDPS@NYSDPS
cc
Subject Fw: Rochester Contact Voltage Survey

Pat,

Just checked my inbox and found this from Tom. FYI.

Paul C. Emerson
OEGW – Electric Safety
716-847-3418 ofc
716-238-5735 cell
paul_emerson@dps.state.ny.us

Please think green before printing this email.

---- Forwarded by Paul Emerson/OEGW/NYSDPS on 04/28/2011 04:21 PM ----

Thomas Catanese <tcatanese@powersurveyco.com>

04/28/2011 12:00 PM

To "paul_emerson@dps.state.ny.us" <paul_emerson@dps.state.ny.us>
cc
Subject RE: Rochester Contact Voltage Survey

Paul:

Just got back from vacation. As you requested, attached please find the data from our Rochester scan in October/November of 2010.

Best Regards,

The Jodie S. Lane Public Safety Foundation
116 Pinehurst Ave. F12
New York, NY 10033
646.260.4925

April 21, 2011

The Hon. Jaclyn A. Brilling, Secretary
Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

RE: Case 04-M-0159 -- Proceeding on Motion of the Commission To Examine the Safety of Electric Transmission and Distribution Systems

Use of NARDA 8950/10 Equipment

Dear Ms. Brilling:

The Jodie S. Lane Public Safety Foundation submits for filing the Motion of the Jodie S. Lane Public Safety Foundation to reject use of NARDA 8950/10 equipment in the above referenced proceeding and any related proceedings.

If you have any questions, please contact me at 646.260.4925.

Respectfully submitted,

Jacob Lane
Jodie S. Lane Public Safety Foundation

RE: Case 04-M-0159 -- Proceeding on Motion of the Commission To Examine the Safety of Electric Transmission and Distribution Systems

MOTION OF THE JODIE S. LANE PUBLIC SAFETY FOUNDATION
TO REJECT USE OF NARDA 8950/10 EQUIPMENT

Based upon the information provided in this document, and, pursuant to 16 NYCRR section 3.6 of the rules of the Public Service Commission ("PSC"), the Jodie S. Lane Public Safety Foundation respectfully requests the Commission to reject the filing submitted by NARDA/L3 requesting certification of the 8950/10 sensor device for performing the mandated contact voltage mobile detection surveys set forth in the PSC's Electric Safety Standard, as directed in an Order dated December 15, 2008.

Further, the JSLPSF requests that electric distribution companies in New York State be prohibited from using the NARDA 8950/10 as acceptable test equipment to complete the mandated contact voltage mobile detection surveys.

Background:

On March 23, 2010 the Jodie S. Lane Public Safety Foundation ("JSLPSF") submitted comments strongly urging the PSC not to certify the NARDA device based on serious concerns with the certification process and highly suspect testing results. We are alarmed that these deficiencies were not addressed and the device was used to perform the 2010 mobile contact voltage survey of Rochester, NY. The recent filing by Power Survey documents what an irresponsible decision this was by providing evidence of the NARDA's sub-standard performance. Use of the NARDA device should be discontinued and the PSC should implement the recommendations outlined in our previous comments. This will help ensure compliance with the Safety Standard and is clearly in the best interest of public safety.

Our comments of March 23, 2010 warned the PSC and the New York utilities that NARDA's device was inadequate. To summarize our previous comments:

- Tests to certify the device were incomplete
- Performance in the field was unknown
- Real world complications like the effects of weather, operator variation, etc. were not evaluated
- Performance relative to the benchmark SVD2000 was not evaluated
- The criteria for detection of stray voltage were not defined
- The test report was not written by an independent lab and the report indicated results that appeared to defy the laws of physics

Discussion:

Power Survey's recent filing provides ample documentation of the NARDA's ineffectiveness. When compared with the benchmark SVD2000 **the NARDA device failed to detect at least 84% of the energized objects in Rochester.** Given a proper certification process, NARDA's inferiority would have been obvious and the decision to not put the device in the field would have been clear. Instead, the population of Rochester was used as a test subject.

NARDA's response to Power Survey's filing does not address the fundamental issue: the NARDA device has not been proven equally or more effective than the benchmark SVD2000. Without a true double-blind field comparison of both these devices and their respective procedures for stray voltage detection, the claim that the NARDA is "the best answer to the Stray Voltage problem" is entirely unsupported.

Moreover, heralding the NARDA as a "low cost solution" that "will save New York taxpayers millions" is misguided. Cost-effectiveness, measured as a ratio of dollars per stray voltage detection, is the appropriate, public-safety oriented metric. The mobile survey using NARDA's device in Rochester detected 40 incidents of stray voltage and cost $93,000. A ratio of $2,325 per detection demonstrates that the NARDA is actually *less* cost-effective than the SVD2000. In reaction to our previous filling regarding their test report, the NARDA response states that "the display of field strength numbers on NARDA's display are for reference only, they cannot indicate actual field strength." This statement is preposterous. What is the point of a test report describing the performance of a device that measures field strength when you cannot evaluate the reported field strength data?

Con Edison, far and away the most experienced utility in the field of stray voltage detection,

has rejected NARDA because it cannot match the SVD2000's performance. The PSC has expanded the use of mobile testing precisely because of the documented effectiveness of the SVD2000. It defies logic, and the intent of the PSC's Electric Safety Standard, that alternate mobile scanning technology would be permitted which does not at least replicate the performance of this benchmark. The competitive addition of new scanning technologies should provide incentive to improve effectiveness and thus diminish the risk to the pedestrian. Permitting the use of the NARDA device does just the opposite.

Conclusion:

The results of Power Survey's documented field trial unequivocally demonstrate that the NARDA functions well below the PSC's standards and the existing benchmark. Rochester's citizens have been placed in harm's way and exposed to hundreds more shock and electrocution hazards than would have been present if proven and properly tested, vetted, and certified technology had been used. Further inaction could lead to further adoption of inferior technology, expanding that risk to millions more pedestrians.

The JSLPSF urges the PSC to act immediately. Failure of the PSC to monitor the use of appropriate equipment is unacceptable. The NARDA device must be banned and new detection technologies must be benchmarked and proven to be at least as effective as the current standard for stray voltage detection prior to use.

Respectfully submitted,

Jacob Lane
Jodie S. Lane Public Safety Foundation
Dated: April 21, 2011

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service Commission held in the City of Albany on June 16, 2011

COMMISSIONERS PRESENT:

Garry A. Brown, Chairman
Patricia L. Acampora
Maureen F. Harris
James L. Larocca

CASE 10-E-0271 - Proceeding on Motion of the Commission to Examine the Mobile Testing Requirements of the Safety Standards.

ORDER REQUIRING ADDITIONAL MOBILE STRAY VOLTAGE TESTING

(Issued and Effective June 23, 2011)

BY THE COMMISSION:

INTRODUCTION

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 positively identify those areas that can be effectively surveyed using that technology.[2] According to that order, the annual mobile testing requirement for those cities would continue thereafter until further Commission action. A subsequent assessment by the affected companies indicated that the following cities were to be surveyed under the requirements

[1] These are comprised of incorporated cities with a population of at least 50,000 (based on the results of the 2000 census).

[2] Case 04-E-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)

detailed in the order: Buffalo, Syracuse, Utica, Albany, Schenectady, Niagara Falls (National Grid, or "NG"); Yonkers, White Plains, New Rochelle, Mount Vernon (Consolidated Edison Company of New York, Inc., or "Con Edison"); and Rochester (Rochester Gas & Electric, or "RG&E").

The results of the mobile surveys conducted in 2009 were presented to the Commission at its June 2010 session and, after review and consideration of those results, we ordered that one mobile scan be completed in calendar year 2010 for Yonkers, White Plains, Albany, Niagara Falls, Rochester, and New Rochelle, and that two mobile scans be completed in Buffalo.[3] No additional scans were required for Mount Vernon, Schenectady, Syracuse, and Utica. As in the prior year, reports were submitted to Staff compiling the results of the testing.

An examination of this 2010 data indicates that another round of testing in these areas is warranted, consistent with that conducted in 2010.

BACKGROUND

Results of Testing

In Buffalo, National Grid scanned a total of 1,382 miles in June 2010 and 1,235 miles in October 2010.[4] The company found 931 energized objects (measured at 1 V or greater) in June and 837 in October, for a total of 1,768. Street light poles accounted for 1,700 of the total detections, and traffic signal poles and control boxes accounted for 45. In addition, 1,281 of

[3] Case 10-E-0271, Proceeding on Motion of the Commission to Examine the Mobile Testing Requirements of the Electric Safety Standards, Order Requiring Additional Mobile Stray Voltage Testing (issued July 21, 2010).

[4] Variances in mileage are attributable to the same crews performing both scans and optimizing routes during the second scan, resulting in less overlap.

the total findings were measured at less than 4.5 V.[5] All repairs to NG facilities were completed within the 45 day time frame, and all issues related to privately owned assets have been made safe. For comparison's sake, a mobile scan conducted in the fall of 2009 resulted in 2,677 energized objects, 2,527 on street light poles and 91 on traffic signal poles.

In Albany, 218 miles were scanned yielding 217 energized objects, 139 of which were below 4.5 V. Almost all of the findings, 213, were on street lights/ traffic signals. Mobile testing conducted in 2009 resulted in 101 total findings. In Niagara Falls, 38 miles were scanned, resulting in 11 energized objects compared to 54 in 2009. The repairs to National Grid facilities were completed within the 45 day time frame, and all issues related to privately owned assets have been made safe.

RG&E scanned a total of 495 miles and found a total of 40 energized objects, 39 of which comprised street lights/ traffic signals. Of the 40 findings, 27 were measured at less than 4.5 V. All repairs to RG&E facilities were completed within the 45 day time frame. The testing conducted in 2009 yielded 161 findings.

Con Edison scanned a total of 236 miles in White Plains, Yonkers, New Rochelle and Mount Vernon and found a total of 94 energized objects, 45 of which comprised street lights/traffic signals. All repairs were completed within the 45 day time frame. Of the 94 findings, 46 were measured at less than 4.5 V. The testing conducted in 2009 yielded 75 findings in these four cities.

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[5] 4.5 V is the lower detection limit of the manual testing device currently utilized by the utilities. Readings below this level would not be detected during the manual testing program.

The total cost for performing the mobile testing, including repairs, was provided in the company reports, and the expenditures amounted to $4.8 million for NG, $93,000 for RG&E, and $91,000 for Con Edison.[6]

CPB MOTION AND FILED COMMENTS

On February 23, 2011, the NYS Consumer Protection Board (CPB) [7] filed a motion requesting that the Commission direct NG to increase the number of mobile scans in the City of Buffalo from two to six. As a result of CPB motion, a SAPA notice was posted in the *State Register* on April 13 and comments were received as detailed below.

CPB justifies the increased testing by noting that the number of energized objects per street mile is significantly greater in Buffalo than in New York City, and that energized objects are left unaddressed for a longer period of time in Buffalo as a result of the disparity in testing frequency.

On March 16, 2011, NG responded to CPB's motion stating that the reported shock data does not indicate a greater hazard in Buffalo compared to New York City. National Grid's data reveals 16 shocks in 2010, as compared to 45 in 2009. Of the 16, five were attributable to NG facilities, and only one was in the pedestrian pathway. National Grid also states that CPB's entire argument is predicated on comparing Buffalo to New York City. It states that in the Mobile Testing Order, the Commission recognized that New York City has been scanned once per month since April 2008, and a comparison of the results of mobile scans in Buffalo to the mature survey results in New York

[6] The relatively low cost for Con Edison is attributable to the fact that the company owns the testing vehicles and was only required to provide for contracted labor.

[7] The CPB role has been assumed by the NYS Department of State, Division of Consumer Protection, Utility Intervention Unit.

City is inappropriate. National Grid states it is premature at this point to increase beyond two mobile scans in Buffalo, and that two scans strikes the appropriate balance between public safety and cost to ratepayers.

On March 23, 2011, Power Survey Company, the provider of mobile stray voltage testing services used by all operators in 2009 and all except RG&E in 2010, filed comments requesting that the Commission block the use of the equipment utilized by RG&E. Power Survey Company states that the scan of Rochester was being performed with a different contractor using new equipment, the NARDA 8950/10 Mobile Stray Voltage Detection System. According to Power Survey Company, it performed a survey concurrent with the survey using the NARDA equipment which yielded 251 energized objects compared to only 40 found using the NARDA equipment. Power Survey Company claims that this demonstrates that the NARDA device is unable to adequately perform its intended purpose. In addition, Power Survey Company asserts that given its sensitivity levels the NARDA device is unable to detect "[e]ven extremely dangerous structures energized with over 100 V because they will often produce electric fields far below 2V/m."

On April 13, 2011, NARDA filed a response to Power Survey Company's claims. NARDA points out that Power Survey Company provided no details regarding its 251 findings in its comments, nor any scientific proof or facts to support its claims that electric fields at low levels can produce extremely dangerous conditions on accessible structures.

On April 24, the Jodie S. Lane Public Safety Foundation (JSLPSF) submitted a petition similar in nature to the Power Survey Company petition, requesting that the NARDA device be banned until new detection technologies can be benchmarked and their effectiveness clearly demonstrated.

On May 27, 2011, the WNY Citizens Against Puppy Mills submitted comments in support of CPB's motion to increase the number of mobile scans in Buffalo. It states that it is concerned with the safety and welfare of ours and other companion animals, and that the deterioration of the general infrastructure in the United States has posed an increasing danger of shock and electrocution to the family pet as well as young children on our city streets.

Also on May 27, 2011, Mr. and Mrs. Anthony W. Green and David A. Rivera filed comments supporting CPB's motion. The Greens are parents who lost a daughter to electrocution from a contact voltage incident in Baltimore, Maryland and Mr. Rivera is a member of the Common Council of the City of Buffalo.

On May 31, 2011, comments were received in support of the CPB motion from People United for Sustainable Housing (PUSH), a community-based organization principally committed to the development of affordable housing for the people of Buffalo, New York. CPB also filed comments on May 31 reiterating the points of their previous motion.

And, by letter filed on June 8, 2011, Assemblywoman Crystal Peoples-Stokes expressed her support for CPB's request to increase testing in Buffalo.

DISCUSSION

In examining the results of the mobile testing, the City of Albany experienced a significant increase, from 101 findings in 2009 to 217 in 2010. Yonkers and New Rochelle also experienced increases, although not at the level seen in Albany. All other areas tested experienced a decline in the total number of findings from 2009 to 2010. In Buffalo, the area of greatest concern from last year, this decline was especially significant. Whether this decline is attributable to NG's ongoing underground

cable replacement program or due to eliminating conditions that had been present for some time, but had not been discovered until the first round of testing, remains to be determined. We are reluctant to draw conclusions from the limited testing performed thus far and given some of the apparent volatility in the number of findings in the testing completed to date. We will require an extension of the existing requirements for at least an additional year. This will provide further data, potentially allowing trends to emerge, which would allow us to make a more informed determination on the efficacy of mobile testing going forward.

CPB acknowledges that the testing results indicate a substantial decline in findings in the City of Buffalo from 2009 to 2010, from 2,677 to a total of 1,768 from the two scans conducted in 2010, a 34% decrease. Its contention that the number of energized objects per street mile is significantly higher in Buffalo versus New York City raises some concerns. However, it should be noted that 70 to 75 percent of the energized objects found measured 4.5 volts or less. Further, the shock report data as reported by NG in its response to CPB's motion does not support a contention that the public is exposed to greater hazards. The lack of shock incidents in Buffalo, in conjunction with the decrease in findings, indicates that an increase in the mobile scanning frequency is not warranted at this time.

With respect to the claims of Power Survey Company and JSLPSF, that RG&E missed a substantial number of energized objects by employing the NARDA device and the Commission should not allow its use, that issue appears to be moot.[8] It is our understanding that both RG&E and National Grid will be employing

[8] Moreover, we note that the Commission does not approve the specific equipment that may be used to conduct testing pursuant to the Electric Safety Standards.

Power Survey Company to conduct the mobile scans in 2011. Therefore, no utility in New York State will be using the NARDA device for compliance with mobile testing requirements in 2011. However, we do anticipate the development of new testing devices and the refinement of mobile testing alternatives.

The Commission orders:

1. For 2011 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, 2012, whichever is earliest, and in each subsequent year. The filings shall include the historic results and costs associated with the manual testing program in each area.

3. The Consumer Protection Board's motion to increase the number the number of mobile scans in the City of Buffalo from two to six is denied.

4. The Secretary at her sole discretion may extend the deadlines set forth in this order.

5. This proceeding is continued.

By the Commission,

JACLYN A. BRILLING
Secretary

RG&E

July 27, 2011

VIA ELECTRONIC SERVICE

Honorable Jaclyn A. Brilling
Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223

Re: Case 10-E-0271- In the Matter of Examining the Mobile Testing Requirements of the Electric Safety Standards

Dear Secretary Brilling:

Pursuant to the Public Service Commission's Order Requiring Additional Mobile Stray Voltage Testing, Case 10-E-0271- In the Matter of Examining the Mobile Testing Requirements of the Electric Safety Standards, issued and effective July 21, 2010, Rochester Gas and Electric Corporation herewith submits its 2011 Mobile Stray Voltage Testing Report.

If you have any questions regarding the report, please contact Kevin Sullivan, Manager - Maintenance Engineering - Electric Maintenance Delivery at (585) 724-8226.

Respectfully submitted,

Lori A. Cole
Manager - Regulatory & Tariffs
Rates and Regulatory Economics Dept.

Enclosure

Rochester Gas and Electric Corporation

Report of Findings from the Mobile Detection Program
Case 10-E-0217

July 27, 2011

A. Background

Pursuant to the Public Service Commission's *Order Requiring Additional Mobile Stray Voltage Testing* ("Order"), Case 10-E-0271 - In the Matter of Examining the Mobile Testing Requirements of the Electric Safety Standards, issued and effective July 21, 2010, Rochester Gas and Electric Corporation ("RG&E") submits its 2011 Mobile Stray Voltage Testing Report.

On February 16, 2011 RG&E contracted with Power Survey Company, 25 Campus Drive, Kearny, NJ to perform mobile stray voltage testing in the City of Rochester for 2011. In accordance with the Order, RG&E's 2011 Mobile Stray Voltage Testing obligation consists of one mobile scan within the City of Rochester. This year's scan is the third scan RG&E has performed in the City of Rochester pursuant to a single scan in each of years 2009 and 2010.

B. The Mobile Scan of Rochester

On March 23, 2011 Power Survey filed a letter to the New York State Public Service Commission ("PSC") expressing concerns they had on RG&E's 2010 mobile testing effort and the specific testing equipment used. In their filing, Power Survey indicated they conducted an independent scan of the same area using their SVD 2000 equipment and claimed to have found 251 energized objects. In responding to Power Survey's claim of finding 251 potentially energized objects, RG&E directed Power Survey to first re-scan these 251 energized objects before starting on the comprehensive scan of the City of Rochester.

On April 18, Power Survey began mobile testing in Rochester by targeting the 251 energized objects they found in 2010, followed by a full system scan of the entire City of Rochester. The field testing effort lasted for 5 weeks and began at darkness each night in order to assure all street light circuits were energized. City agencies were given advanced notice of the event to prepare for any questions or concerns residents of the city might have. Upon conclusion of field testing, all data was received and validated as of June 8, 2011. Results of the 2011 scan can be found in section D below.

C. Mobile Testing Procedure

Power Survey performed mobile testing utilizing their company test procedures with various ground reference points, which included fire hydrants, manhole covers, and street signs. These ground reference points can be at various distances up to 100 feet from the energized object.

In addition to the mobile detection services provided by Power Survey, RG&E provided a full time support team to assist Power Survey which included a Field Coordinator, and two electricians. The Field Coordinator followed along independently collecting GPS coordinates of the nightly routes traveled and on all hot structures found. The Coordinator documented the ground reference points used at each structure, as well as all false hits.

The GPS data was acquired to provide positional attributes to structures with detected voltages and to ensure all structures and streets reported by Power Survey were complete. The Field Coordinator ensured all documented voltage reads were accurate, and all energized objects found to be energized at 4.5 volts or greater were immediately made safe and turned over to the appropriate owner for repair.

Under the direction of the Field Coordinator, the two electricians were utilized to ensure that unnecessarily lengthy wait times were not incurred due to the anticipated high incidence of findings on the mobile detection program, and to isolate all energized objects.

D. Mobile Testing Results

The mobile scan of the City of Rochester included approximately 27,102 testable structures. An undocumented number of additional structures were scanned in an effort to re-test 251 specific assets identified by Power Survey as being energized in 2010. In total, Power Survey scanned 782 miles on 495 street miles and the results for this effort are as follows:

Mobile Testing Summary of Events		
Total Number of Events	365	
Below 4.5 Volts	316	86.6%
Greater or Equal to 4.5 And Less Than 25 Volts	39	10.7%
Greater or Equal to 25 And Less Than 100 Volts	7	1.9%
Greater or Equal to 100 Volts	3	0.8%

Of all 316 findings below 4.5 volts, a large percentage of detections were below 2 volts. The table below categorizes all the low voltage findings into smaller voltage classes to illustrate the specific findings.

Breakdown Of Voltages Below 4.5 Volts		
Total Number of Events < 4.5 volts	316	
1-1.9 volts	203	64.2%
2-2.9 volts	82	25.9%
3-4.4 volts	31	9.8%

E. Analysis

Power Survey had originally reported a total of 380 findings. RG&E determined that 9 objects were duplicates and another 6 structures were located in the Town of Irondequoit and not in the City of Rochester boundaries. These 6 structures are owned by RG&E and have all been mitigated.

Final results of the mobile scan confirmed 365 energized objects. All stray voltage findings greater or equal to 4.5 volts were immediately made safe to the public and turned over to the appropriate owner to execute permanent repair. As a result of immediately safeguarding any findings equal to or greater than 4.5 volts, 2 energized objects were cleared immediately.

All energized objects below 4.5 volts were immediately safeguarded and have been turned over to the City of Rochester for further investigation and to conduct permanent repairs.

F. Mobile Testing Historical Summary

Historical detections and costs incurred from the Mobile Testing efforts are demonstrated below along with a cost comparison for performing manual stray voltage testing in the exact same areas.

Test Year	Total Number of Detections	Company Test Procedure Used	Mobile Program Costs	Manual Program Costs
2011	118	**Power Survey	$ 80,000	$ 129,000
2010	40	*RG&E	$ 93,000	$ 129,000
2009	161	*RG&E	$ 520,000	$ 135,000

*RG&E's test procedure is within four (4) feet of the structure
**Power Survey's test procedure is within one-hundred (100) feet of the structure

G. Observations

In prior testing years 2009, as well as in 2010, mobile testing in the City of Rochester was performed following RG&E's test procedure using a ground reference point within four (4) feet of the structure (touch potential). This year, Power Survey conducted mobile testing using their company test procedure which was based on using a ground reference point where ever a clean ground could be found. Power Survey did not believe in driving a reference ground within 4 feet of the energized object, or in testing for touch potential. They would search for a clean, un-energized reference ground to take a voltage read. In many cases, the ground references used were in varying distances up to 60 feet from the source, and more than one clean reference ground would be utilized per energized object. RG&E believes this ground reference procedure of utilizing long grounding conductors may actually increase the chances of picking up induced voltages from other sources. The majority of findings this year were in the 1-1.9 volt range, many in areas where induction may be probable. The effect of this procedure increases the number of findings, and can lead to misconceptions making it difficult to draw any substantial conclusions from year to year trending. This procedure would account for the significant amount of findings reported this year as compared to the previous 2 years.

Appendix A

2011 Mobile Summary of Energized Objects

RG&E	Initial Readings				Readings after Mitigation		
	1- 4.4V	4.5- 24.9V	>25 V	Totals	< 1V	1- 4.4V	>4.5V
Distribution Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Pole				0			
Ground				0			
Guy				0			
Riser				0			
Other				0			
Underground Facilities	**1**	**3**	**0**	**4**	**4**	**0**	**0**
Service Box				0			
Manhole	1	1	0	2	4		
Padmount Switchgear				0			
Padmount Transformer				0			
Vault-Cover/Door				0			
Pedestal				0			
Other		2	0	2			
Street Lights/Traffic Signals	**304**	**25**	**9**	**338**	**33**	**0**	**0**
Metal Street Light Pole	256	17	9	282	26		
Traffic Signal Pole	37	6	0	43	6		
Pedestrian Crossing Pole	0	0	0	0			
Traffic Control Box	0	1	0	1			
Other	11	1	0	12	1		
Substation Fences	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fence				0			
Other				0			
Transmission (Total)	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lattice Tower				0			
Pole				0			
Ground				0			
Guy				0			
Other				0			
Miscellaneous Facilities	**17**	**11**	**1**	**29**	**16**	**0**	**0**
Sidewalk				0			
Gate/Fence/Awning	1	1	0	2			
Control Box	0	0	1	1	1		
Scaffolding				0			
Bus Shelter				0			
Fire Hydrant				0			
Phone Booth				0			
Water Pipe (Cap)	1	0	0	1			
Riser				0			
Other*	15	10	0	25	15		
Totals	**322**	**39**	**10**	**371**	**53**	**0**	**0**

*Including but not limited to a rain gutter drain, tree guard, street signs, parking meters, metal door, bridge joint, and patches of dirt

RG&E

July 28, 2011

VIA ELECTRONIC SERVICE

Honorable Jaclyn A. Brilling
Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223

Re: Case 10-E-0271- In the Matter of Examining the Mobile Testing Requirements of the Electric Safety Standards

Dear Secretary Brilling:

Pursuant to the Public Service Commission's Order Requiring Additional Mobile Stray Voltage Testing, Case 10-E-0271 - In the Matter of Examining the Mobile Testing Requirements of the Electric Safety Standards, issued and effective July 21, 2010, Rochester Gas and Electric Corporation submitted its 2011 Mobile Stray Voltage Testing Report on July 27, 2011.

Following submittal, the Company found that there was a number error in the matrix on Page 4, Section F. This number has been changed from 118 to 365. Attached please find an updated Page 4 to the 2011 Mobile Stray Voltage Testing Report.

If you have any questions regarding the report, please contact Kevin Sullivan, Manager - Maintenance Engineering - Electric Maintenance Delivery at (585) 724-8226.

Respectfully submitted,

Lori A. Cole
Manager - Regulatory & Tariffs
Rates and Regulatory Economics Dept.

Enclosure

F. Mobile Testing Historical Summary

Historical detections and costs incurred from the Mobile Testing efforts are demonstrated below along with a cost comparison for performing manual stray voltage testing in the exact same areas.

Test Year	Total Number of Detections	Company Test Procedure Used	Mobile Program Costs	Manual Program Costs
2011	365	**Power Survey	$ 80,000	$ 129,000
2010	40	*RG&E	$ 93,000	$ 129,000
2009	161	*RG&E	$ 520,000	$ 135,000

*RG&E's test procedure is within four (4) feet of the structure
**Power Survey's test procedure is within one-hundred (100) feet of the structure

G. Observations

In prior testing years 2009, as well as in 2010, mobile testing in the City of Rochester was performed following RG&E's test procedure using a ground reference point within four (4) feet of the structure (touch potential). This year, Power Survey conducted mobile testing using their company test procedure which was based on using a ground reference point where ever a clean ground could be found. Power Survey did not believe in driving a reference ground within 4 feet of the energized object, or in testing for touch potential. They would search for a clean, un-energized reference ground to take a voltage read. In many cases, the ground references used were in varying distances up to 60 feet from the source, and more than one clean reference ground would be utilized per energized object. RG&E believes this ground reference procedure of utilizing long grounding conductors may actually increase the chances of picking up induced voltages from other sources. The majority of findings this year were in the 1-1.9 volt range, many in areas where induction may be probable. The effect of this procedure increases the number of findings, and can lead to misconceptions making it difficult to draw any substantial conclusions from year to year trending. This procedure would account for the significant amount of findings reported this year as compared to the previous 2 years.