**Paul E. Haering** Vice President Engineering & Environmental Services



February 14, 2011

RE: Case 04-M-0159

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

Dear Secretary Brilling,

Enclosed, for filing with the Commission, is one (1) original and five (5) copies of Central Hudson Gas and Electric's "Stray Voltage Test and Facility Inspection Annual Report for 2010" in compliance with the Safety Standards Order 04-M-0159 of January 5 and July 21, 2005 and December 15, 2008 for Stray Voltage Testing and Inspection.

This report details the completion status of Central Hudson's Stray Voltage Testing and Facility Inspection program for the period from January 1, 2010 through December 31, 2010. The program efforts in 2010 have resulted in the testing and/or inspection of over 240,000 devices. Central Hudson successfully completed all required stray voltage testing and inspection activities for all facility categories: Overhead Distribution, Manholes and Pull Boxes, Pad Mounted Equipment, Substation Fences, Streetlights and Traffic Signals, and Overhead Transmission.

There were fifty (50) stray voltage conditions identified as defined by the Safety Standards definition of stray voltage, "voltage conditions on electric facilities that should not ordinarily exist." This represents a failure rate of 0.02% of all facilities tested for stray voltage. In 2010, stray voltage was not found on manholes, pullboxes, transmission structures, and substation fences.

We look forward to working with the Commission Staff to further analyze the results of this complete round of stray voltage testing to explore opportunities to better align the program testing requirements with our significantly low failure rate. Communications concerning this matter should be directed to Pete Harpolis – Director of Electric System Planning and Reliability via email at PHarpolis@cenhud.com or by phone at 845-486-5830.

Sincerely,

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RCL Enclosures Cc: Michael Worden – NYS PSC Christian Bonvin – NYS PSC Gavin Nicoletta – NYS PSC

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# **CENTRAL HUDSON GAS AND ELECTRIC CORPORATION**

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# **STRAY VOLTAGE TESTING**

And

# **FACILITY INSPECTIONS**

Report

On the results of the

2010 Stray Voltage Testing and Facility Inspections

February 15, 2011

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## I.Background

The New York State Public Service Commission's ("PSC" or "Commission") Electric Safety Standards Order issued on January 5, 2005 (Case 04-M-0159), with subsequent revisions issued on July 21, 2005 and December 15, 2008 (collectively referred to herein as the "Safety Standards" or "Order"), require electric utilities in New York State to test annually all of their publicly accessible transmission facilities, distribution facilities, as well as municipally owned traffic signals and streetlights for stray voltage and to inspect utility owned electric facilities every five years.

This report describes Central Hudson's stray voltage detection program and equipment inspection program conducted in 2010.

# II.Company Overview

Central Hudson Gas & Electric Corporation is a regulated transmission and distribution utility that provides electric service to approximately 300,000 customers in a service area of approximately 2,600 square miles in eight counties of New York State's Mid Hudson River Valley. Central Hudson's service territory extends north from the suburbs of metropolitan New York City to the Capital District of Albany.

Central Hudson owns substations having an aggregate transformer capacity of 5,300 MVA. Central Hudson's electric transmission system consists of 629 pole miles of line. The electric distribution system consists of 7,302 pole miles of overhead lines and 1,371 trench miles of underground primary lines.

## III. Stray Voltage Testing Program

During the twelve-month period ending December 31, 2010, stray voltage testing was completed on all of Central Hudson's publicly accessible transmission and distribution facilities that are capable of conducting electricity along with all Company and non-Company owned metallic streetlights and traffic signals. Central Hudson also tested all publicly accessible facilities within thirty feet of a component found to have an elevated voltage in accordance with the Order.

In addition, as required by the Order, Central Hudson:

a. Immediately safeguarded and/or mitigated all stray voltages ≥ 1.0 Volt. In instances where the stray voltage finding was determined to be caused by equipment not owned by Central Hudson, the area was immediately made safe and the municipalities, customers, or responsible parties associated with the premises were notified of the unsafe condition and the need for them to arrange for a permanent repair. Voltage findings that were caused by a Central Hudson owned facility were immediately safeguarded and/or mitigated. All permanent repairs were completed within 45 days, except in extreme circumstances.

- b. Tested all publicly accessible structures and sidewalks within a 30 foot radius of the electric facility or streetlight where there was a voltage finding  $\geq 1.0$  Volt.
- c. Central Hudson responded to and investigated all shock incidents reported by the public and mitigated positive findings.

All of the facilities that are included in Central Hudson's Stray Voltage Testing Program were visited. Of the 241,057 facilities visited, 1,523 locations did not have a stray voltage test performed because their electrically conductive appurtenances were deemed to be inaccessible. Inaccessible locations were defined in the Order as locations that have locked gates/fences, are located in dangerous terrain, or are located on limited access highways.

## **Stray Voltage Mitigation Efforts**

Central Hudson identified a total of 299 locations with voltage readings greater to or equal to 1 volt. 50 of the locations were found to have stray voltage as defined in the Order and mitigated. The remaining 249 locations were classified as naturally occurring voltages.

Central Hudson was not required by the Order to perform mobile detection of its system between January 1, 2010 and December 31, 2010. Therefore, Central Hudson did not perform any mobile system scans during this time period.

## IV. Facility Inspection Program

The Order requires Central Hudson to visually inspect 100% of its electric facilities every five years. This equates to inspecting approximately 20% of these facilities annually.

Central Hudson visually inspects its transmission system on a five year-cycle in accordance with the Order.

The distribution system visual inspection is conducted on a three-year cycle which exceeded the requirements of the Order. Beginning in 2011 the distribution inspection cycle will be transitioned to a five year cycle.

In accordance with Order, Central Hudson uses the following severity levels to report deficiencies to the PSC and establish priority for repairs and scheduling:

<u>Level I</u> – 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.

<u>Level II</u> – 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.

<u>Level III</u> – 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.

<u>Level IV</u> – Condition found but repairs are 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 PSC requirements, 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; such as storms, require extensive repair activity, and have special requirements. Central Hudson began tracking temporary repairs during the 2009 calendar year. Results from this tracking have been compiled and described in Appendix 5 of this report.

# V. <u>Company Facilities</u>

# Structure Categories

Based on the requirements of the Order, Central Hudson has identified approximately 241,057 individual electric facilities that require testing for the presence of stray voltage. The Order also requires Central Hudson to inspect 20% of its facilities annually. These facilities are broken down into four main categories as follows:

<u>Distribution Overhead</u> – The testing criteria for distribution overhead includes all utility owned or joint use wooden poles with utility electrical facilities that are located on public thoroughfares or customer property, including backyards and alleys. There are approximately 210,087 distribution pole structures in Central Hudson's service territory. Stray 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. Distribution overhead facilities are included in both the stray voltage and inspection programs.

<u>Underground Facilities</u> – The testing criteria for underground facilities is comprised of subsurface structures, including above ground, pad-mounted structures. There are 14,531 underground facilities that comprise Central Hudson's system. Within this total are approximately 1,345 manholes and pullboxes and approximately 13,186 pad-mounted structures. Included in the underground facilities are padmount switchgear cases, padmount transformer cases, electric utility manhole covers, submersible transformer

covers, electric utility handhole covers, network vaults and grates. These facilities are included in both the stray voltage and facility inspection programs.

<u>Streetlights and Traffic Signals</u> – The testing criteria for street lights and traffic signals includes all metal pole streetlights, traffic signals, and pedestrian crosswalk signals located on publicly accessible thoroughfares. There are approximately 5,486 metal pole streetlights and approximately 831 traffic signals within Central Hudson's service territory. This total includes 187 metal pole streetlights owned by Central Hudson with the balance of the equipment owned by various municipalities. All stray voltage testing of streetlights is performed at night while the fixtures are energized. Pursuant to the Order, area and street lighting that is privately owned is not included in the stray voltage testing program. All Company-owned streetlights are included in the facility inspection program.

<u>Transmission Structures</u> – The testing criteria for transmission structures includes all structures, guys, and down grounds attached to the structures. There are approximately 8,673 individual poles/towers that comprise Central Hudson's transmission system. Transmission structures support circuit voltages of 69 kilovolts and above. Transmission poles as described above, with distribution underbuild, are included in this transmission category. Transmission structures are included in both the stray voltage and facility inspection programs.

<u>Substation Fences</u> – The testing criteria for substation fences consists of testing the fencing on the outside of the substation. There are approximately 104 substation fences in Central Hudson's territory. All substation fences are included in the stray voltage testing program.

# VI. Annual Performance Targets

Central Hudson performed the required stray voltage testing and facilities inspections in accordance with the requirements set forth in the Order.

In compliance with the Order, Central Hudson has met the annual performance target for stray voltage by testing 100% of the publicly accessible electric facilities and streetlights/traffic signals for the twelve month period ending December 31, 2010.

In addition, Central Hudson has met the performance target for facility inspections by inspecting more than 20% of its electric facilities during the one year period ending December 31, 2010 as defined in the Order. The results are summarized in the tables below:

Central Hudson Gas & Electric Corporation	Total System Units Requiring Testing	Units Completed	Percent Completed
Distribution Facilities	210,087	210,087	100.00%
Underground Facilities Non-URD	14,531 1,345	<b>14,53</b> 1 1,345	100.00% 100.00%
Street Lights / Traffic Signals	6,317	6,317	100.00%
Substation Fences	104	10.4	100.00%
Transmission (69kV and Above)	8,673	8,673	100.00%
TOTAL	241,057	241,057	100.00%

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# Facility Inspection Program Results

Category	PSC Order Requirement	Actual Cumulative Inspected
Overhead Distribution	20%	35.57%
Overhead Transmission	20%	32.50%
Underground	20%	26.17%
Pad-mounted Transformers	20%	54.01%
Streetlight	100%	100%

# 5-Year Inspection Performance Summary

**Overhead Distribution Facilities** 

Central Hudson performed inspections on overhead distribution facilities on a three-year cycle in 2010.

Inspection	Overhead Distribution	% of Overall System	% of Overall System
Year	Structures Inspected	Inspected (Yearly)	Inspected (Cumulative)
2010	74,735	35.57%	35.57%

# **Overhead Transmission Facilities**

Central Hudson performed inspections on overhead transmission facilities on a five year cycle in 2010 with the exception of the 345 kV transmission lines, which are on a yearly cycle.

Inspection	Overhead Transmission	% of Overall System	% of Overall System
Year	Facilities Inspected	Inspected (Yearly)	Inspected (Cumulative)
2010	2,823	32.5%	32.5%

# Manholes and Pullboxes

Central Hudson performed inspections on manholes and pullboxes on a three-year cycle in 2010.

Inspection	Manholes and Pullboxes	% of Overall System	% of Overall System
Year	Facilities Inspected	Inspected (Yearly)	Inspected (Cumulative)
2010	352	26.17%	26.17%

# Padmount Transformers

Central Hudson performed inspections on padmount transformers on a three-year cycle in 2010.

Inspection	Padmount Transformers	% of Overall System	% of Overall System
Year	Inspected	Inspected (Yearly)	Inspected (Cumulative)
2010	7122	54.01	54.01%

# <u>Streetlights</u>

Central Hudson performs inspections on Company-owned streetlights yearly in conjunction with stray voltage testing. As stray voltage technicians perform stray voltage testing, they also perform a visual inspection of the streetlights.

Inspection	Streetlights Inspected	% of Overall System	% of Overall System
Year		Inspected (Yearly	Inspected (Cumulative)
2010	187	100%	100%

## VII. <u>Certifications</u>

Pursuant to Section 7 of Appendix A of the Order, the President or Officer of each utility with direct responsibility for overseeing stray 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 stray voltage testing and inspection requirements, and that the utility has:

- Tested all of its publicly accessible electric facilities and street lights/traffic signals, 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 Stray Voltage

All New York State utilities compile an inventory of all findings and report on the number of these findings each year. Section 1(f) of the December 15, 2008 Order defines a finding as "any confirmed voltage reading on an electric facility or streetlight  $\geq 1$  volt measured using a volt meter and 500 ohm shunt resistor." Section 1(c) defines Stray Voltage as "voltage conditions on electric facilities that should not ordinarily exist. These conditions may be due to one or more factors, including, but not limited to, damaged cables, deteriorated, frayed, or missing insulation, improper maintenance, or improper installation."

To distinguish between a hazardous situation and a naturally occurring situation, a handheld oscilloscope meter is utilized by field forces to classify these situations. By looking at the total harmonic distortion of a voltage waveform and the breakdown of the harmonics, in addition to the condition of the location, the proper actions can be taken.

If there is a non-naturally occurring voltage present, then the wave form will appear as a perfect 60 Hz sinusoidal wave with 10% or less total harmonic distortion. These voltages result from a variety of conditions including: deterioration of conductors; age of equipment; exposure to the elements; and various customer related issues. These voltages should not exist on normally operating electric facilities and are considered to be stray voltages per the Order definition in Section 1(c).

Section 3(h) of the Order requires "Mitigation shall be completed on any stray voltage findings." Through the efforts of the Stray Voltage testing program, Central Hudson has been able to repair these issues and mitigate the danger associated with these elevated voltages.

When examining a naturally occurring voltage on a handheld oscilloscope, high harmonic content from different frequencies (generally 180 HZ and 300 Hz) will cause distortion in the voltage waveform. Causes of these voltages include, but are not limited to, naturally occurring neutral to earth voltages (as part of a multi-grounded WYE power system); poor soil grounding conditions; load balance between phases; long low voltage single phase circuit spurs with high current loads; capacitive coupling; and/or proximity to transmission lines. Since all of these voltage sources are considered part of a normally operating electrical distribution system, they do not require mitigation per the Order.

Although not all findings are due to stray voltage, utilities are required to report on all findings, regardless of whether or not the voltage is normal to the operating system. It has been established that 83.3% of the findings identified in this year's testing effort are normal to the operating system, and not due to stray voltage. Inclusion of these naturally occurring voltages in the findings gives the perception that there are more potentially hazardous voltage findings than actually exist. True hazardous voltages have been identified and mitigated through the stray voltage testing program.

In accordance with the PSC requirements, when a finding was discovered on an electric facility during stray voltage testing, the Company performed stray voltage testing on all publicly accessible structures and sidewalks within a minimum 30 foot radius of the electric facility or streetlight. No publicly accessible structures with stray voltage were identified as a result of the 30-foot radius testing.

## IX. Analysis of 2010 Inspection Results

## **Discussion of Inspection Findings/Repairs**

During the inspection process, two or more deficiencies can be reported at a single location during an inspection. Since it is impossible to correlate the number of deficiencies reported to the number of locations with deficiencies, this data has been tabulated separately.

The most common level of deficiencies found in Central Hudson's service territory were Level IV conditions, 17,195 out of the 21,408 total (80.32%). The 3 most common deficiencies all involve overhead distribution poles.

These deficiencies are Broken Ground Moldings (7,196; 41.85% of priority level IV deficiencies), Missing Guy Guards, (5,086; 29.5% of priority level IV deficiencies), and Tags Missing (1,806; 10.5% of priority level IV deficiencies).

Currently, Central Hudson is utilizing tree trimming crews and other contract employees to reduce the number of Level IV deficiencies. As a tree trimming crew is working in an area, the crew is installing missing guy guards on the circuit. Specific Guy guard replacements are also being issued to contract employees. To address the broken ground

moldings, Central Hudson is utilizing stray voltage technicians to replace the broken ground molding. Finally, to address the missing pole tags, a pilot program was launched to replace pole tags as field inspectors perform overhead pole inspections.

Central Hudson maintains a good response time to Level I deficiencies. There were 4 Level I deficiencies that were repaired and reclassified outside of the allotted time frame. Central Hudson strives to repair Level I deficiencies within 24 hours of discovery.

Three locations were initially identified as having a phase wire on the cross arm. Upon foreman review it was determined that the wire on the cross arm was a neutral wire. Since these wires are not energized, they did not present an immediate threat to reliability and public safety, therefore were given a lower priority of repair. All three locations were repaired within (3) weeks. The fourth Level I was identified as a severely leaning pole, upon a foreman review it was determined that it was not a level I repair. However, the crew made a repair as an added precaution and a work order is currently in process.

For the remainder of the high priority work (Level II and III deficiencies), Central Hudson sends a qualified representative to each location to validate the condition identified and determine what kind of repairs are needed at the facility. For these higher priority deficiencies, either a dispatch order will be opened or a work order will need to be created. After the work order or dispatch order is created, the repairs can be scheduled. Repairs are scheduled based on severity and concentration in a geographic area. Resources are utilized to maximize the amount of repairs completed in a given area or district.

In addition to working on the deficiencies found during the 2010 calendar year, Central Hudson also worked on the backlog of deficiencies found in prior years. Through efficient use of resources and personnel, Central Hudson reduced the backlog of uncompleted high priority (Level II and Level III) deficiency repairs by 61.7% (4377 out of 7,089 Repair Orders).

#### **Overhead Distribution Structures**

	Table of	Locations with Deficiencies	
Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies	% Locations w/ Deficiencies Requiring Repair in 1 year
74,735	17,350	27.29%	1.1%

Priority Rating	Number of Deficiencies	% Deficiencies Found
I	39	0.19%
II	152	0.74%
III	3,509	17.21%
IV	16,695	81.86%
Total:	20,395	100%

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# **Overhead Transmission Facilities**

Table	of Locations	with Deficiencies	

Locations	Locations	% Locations	% Locations w/ Deficiencies
Inspected	w/ Deficiencies	w/ Deficiencies	Requiring Repair in 1 year
2,823	141	4.99%	2.84%

## Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
Ι	0	0.00%
II	4	1.69%
III	191	80.94%
IV	41	17.37%
Total:	236	100%

### Manholes and Pullboxes

## Table of Locations with Deficiencies

Locations	Locations	% Locations	% Locations w/ Deficiencies
Inspected	w/ Deficiencies	w/ Deficiencies	Requiring Repair in 1 year
352	49	13.92%	4.08%

## Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
I	1	1.43%
II	1	1.43%
III	18	25.71%
IV	50	71.43%
Total:	70	100%

## Padmount Transformers

Table of Locations with Deficiencies

Locations	Locations	% Locations	% Locations w/ Deficiencies
Inspected	w/ Deficiencies	w/ Deficiencies	Requiring Repair in 1 year
7,122	683	9.59%	

#### Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
I	52	7.36%
II	38	5.37%
III	208	29.42%
IV	409	57.85%
Total:	707	100%

#### <u>Streetlights</u>

Locations	Locations	% Locations	% Locations w/ Deficiencies
Inspected	w/ Deficiencies	w/ Deficiencies	Requiring Repair in 1 year
187	0	0.00%	0.00%

Table of Locations with Deficiencies
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riority Rating I II III	Number of Deficiencies	% Deficiencies Found		
I	0	N/A		
II	0	N/A		
III	0	N/A		
IV	0	N/A		
Total:	0	100%		

#### Breakdown of Locations with Deficiencies

## X. Quality Assurance

Central Hudson continues to utilize an external auditor to perform its QA/QC program to review the effectiveness and accuracy of the stray voltage testing and facility inspection programs and their associated activities. The external auditor reports directly to Central Hudson's Internal Auditing Department and submit audit reports simultaneously to the Internal Auditing Department and the Program Manager for review. If any findings are found, an action plan is assembled to address the concerns identified by the external auditor. This audit resulted in specific improvements to the various processes, which have contributed toward increasing program efficiency and accuracy as well as reducing potential for future errors. The QA/QC program calls for several types of audits and for constant feedback with respect to the data collection and processing. The various audits cover personnel training, field testing and inspection procedures and practices, testing and inspection records, and field trailing audits.

For 2010, to date there were two audits of field-testing and inspection activities, one audit of the initial training, and one audit of test data records. In addition, a comprehensive year-end audit for the 2010 records is currently being processed. The completed audits indicate that all significant activities associated with the stray voltage testing and facilities inspection programs were conducted in accordance with established protocols. The external auditor's findings resulted in zero issues that required formal remedial action plans.

Opportunities for improvements have lead to minor changes that were either implemented immediately or are currently being implemented. Opportunities presented to Central Hudson for improvement primarily centered on documentation of training.

## XI. Other Pertinent Information

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Central Hudson continues to participate in the NYS Residential Stray Voltage Committee Activities, and through EPRI membership, continues to ensure that the best operational, construction and maintenance practices are being utilized. Central Hudson also participates with the New York State Utilities and the PSC in discussing issues and opportunities regarding both Stray Voltage Testing and Facility Inspections.

During 2010, Central Hudson continued working closely with EPRI in the utilization of a handheld oscilloscope meter to analyze the harmonic content of voltages found during Stray Voltage testing. Through this collaborative effort, EPRI has been able to prepare documentation identifying the sources of voltage found in the field. By identifying the source of the voltage, technicians are able to determine if a voltage is naturally occurring relative to the operation of an electrical distribution system or due to stray voltage.

Appendix 1: Stray Voltage Testing Summary – 2010

Central Hudson Gas & Electric Corporation	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	210,087	210,087	100.00%	283	0.135%	968
Underground Facilities Non-URD	14,531 1,345	14,531 1,345	100.00% 100.00%	5 0	0.034% 0.000%	131 23
Street Lights / Traffic Signals	6,317	6,317	100.00%	6	0.095%	27
Substation Fences	104	104	100.00%	0	0.000%	0
Transmission (69kV and Above)	8,673	8,673	100.00%	5	0.058%	397
TOTAL	241,057	241,057	100.00%	299	0.124%	1,523

Findings will include naturally occurring and stray voltages. Of the 299 locations with voltages 50 locations were mitigated due to stray voltage and are shown included in this number.

## Appendix 2A: Summary of Stray Voltage Findings - 2010

The table below shows Central Hudson's Stray Voltage Mitigation efforts. Of the 299 locations with findings of 1 Volt or greater, 50 locations were mitigated to less than 1 Volt and were found to have stray voltage caused by the deterioration of conductors, contact voltage, or broken equipment. The remaining 249 voltage findings were deemed to have been caused by a natural source and therefore did not require mitigation. For a complete breakout of energized objects see Appendix 2B.

		Initial Re	adings		R	eadings after Mit	igation
Central Hudson Ges & Electric Corporation	1V to 4.4V	4.5V to 24.9V	25V and Over	Totals	<1V	1V to 4.4V	4.5V and Over
Distribution Facilities	41	1	1	43	43		-
Pole	-	-	-	-	-	-	-
Ground	7	1	-	8	8	-	-
Guy Riser	33	-		33	33	-	-
Other	1	-	1	2	2	-	-
Underground Facilities	-	1		1	1	-	-
Handhole / Pull box	-	-			-	-	
Manhole	-	-	-	-		_	-
Padmount Switchgear	-	-	- 1	-	•	-	-
Padmount Transformer	-	1	-	1	1	-	-
Vault - Cover/Door	•	-	- 1	·	-	-	-
Pedestal	-	-	-	-	-	-	-
Other	•	-	-		-	-	
Street Lights / Traffic Signals	1	4	1	6	6	-	-
Metal Street Light Pole Traffic Signal Pole	1	4		6	6	-	-
Control Box	-				-		-
Pedestrian Crossing Pole	-	-	-		-	-	-
Other - NOT LISTED	-	-	- 1	- 1	-	-	-
Substation Fences	-	-	-	-	-	-	-
Fence	-	-	-	-	-	-	-
Other	-	-	-	-	•	-	-
Transmission (69kV and Above)	-	-	-	-	-	-	-
Lattice Tower	•	-	-		-	-	-
Pole	-	-	-	-	-	-	-
Ground Guy	-	-			-	-	•
Other	-	-			-	-	-
Miscellaneous Facilities	-	-	-	-	-	-	
Sidewalk	-	-	- 1	.	-	-	-
Gate/Fence/Awning	-	-	-	· ·	-	-	-
Control Box	-	-	-	-	•	-	-
Scaffolding	-	-		-	-	-	-
Bus Sheiter	-	-	-	-	-	-	•
Fire Hydrant	-	-	-	· ·	-	-	-
Phone Booth Water Pipe	-	-			•		-
Riser	-	-	-		•	-	-
Other	-	- 1	- 1		-	-	-

## Appendix 2B: Summary of Energized Objects - 2010

The table below shows the summary of energized objects. Of the 299 locations with findings of 1 Volt or greater, 50 of the locations were mitigated to 1 Volt or less and were found to have stray voltage caused by the deterioration of conductors, contact voltage, and/or broken equipment.

The table below has a complete breakout of findings along with distinctions between naturally occurring voltage and stray voltage discovered through the Stray Voltage Testing Program.

		Initial R	eadings		Voltage Type				
Central Hudson Gas & Electric Corporation	1V to 4.4V	4.5V to 24.9V	25V and Over	Totals	Naturally Occurring	Stray Voltage	Mitigated Locations (<1 Volt)		
Distribution Facilities	274	7	2	283	240	43	43		
Pole	-	-	-	-	-	-	-		
Ground	65	4	-	69	61	8	8		
Guy	196	3	-	199	166	33	33		
Riser	12	-	1	13	11	2	2		
Other	1	-	1	2	2	-	-		
Underground Facilities	4	1	-	5	4	1	1		
Padmount Switchgear	3	1	-	4	3	1	1		
Other	1	-	-	1	-	-			
Street Lights / Traffic Signals	1	2	3	6	-	6	6		
Metal Street Light Pole	1	2	3	6	-	6	6		
Traffic Signal Pole	-	-	-	-	-	-	-		
Transmission (69kV and Above)	5	-	-	5	5	-	•		
Lattice Tower	-	-	-	-	-	-	-		
Ground	5			5	5	-			
Grand Total	284	10	5	299	249	50	50		

	Central Hudson Gas & Electric Corporation	Yearly Total
1.	Total Shock Calls Received:	30
	Unsubstantiated	2
	Normally Energized Equipment	5
	Stray Voltage:	
	Person	23
	Animal	
11.	Injuries Sustained/Medical Attention Received	1
	Person	1
	Animal	
III.	Voltage Source:	23
	Utility Responsibility	
	Issue with primary, joint, or transformer	
	Secondary Joint (Crab)	
	SL Service Line	
	Abandoned SL Service Line	
	Defective service line	1
	Abandoned service line	
	OH Secondary	
	OH Service	
	OH Service neutral	1
	Pole	
	Riser	
	Other	4
	Customer Responsibility	
	Contractor damage	
	Customer Equipment / Wiring	8
	Other Utility / Gov't Agency Responsibility	
	SL Base Connection	
	SL Internal Wiring or Light Fixture	
	Overhead Equipment Other	9
n/		23
IV.	Voltage Range:	<b>23</b> 12
	Unrecorded/Below 1V	8
	1.0V to 4.4V	
	4.5V to 24.9V	3
L	25V and above	

# Appendix 3: Summary of Shock Reports from the Public – 2010

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Appendix 4: Summary of Deficiencies and Repair Activity Resulting from the Inspection Process – 2010

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<b>Overhead Facilities</b>		2009			2010			2011			2012		2013		
Priority Level	1	11	III	1	II	ILI	I		111	I	11	111	I	ll	11)
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 Years
						Potes	<u>.</u>								
ole Condition															
Number of Deficiencies	4	48	369	4	54	440	-	-	-	•	4	-	-	-	-
Repaired in Time Frame	4	22	148	3	33	291	-	-	-	•	4	-	-	-	-
Repaired - Overdue	-	6	-	1	-	-	-	-	-	-	-	+	-	-	-
Not Repaired - Not Due	-	8	221	•	21	149	-	-	-	-	•	-	-	-	-
Not Repaired - Overdue	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-
irounding System															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	~	-	
Repaired in Time Frame	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	_	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	~	-	-	-	-	-	•	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
nchors/Guy Wire										·					,
Number of Deficiencies	-	-	634	-	-	524	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	-	2 <del>9</del> 5	-	•	342	-	-	-	-	-	-	-	-	1 -
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	339	-	-	182	-	-	-	-	-	-	-	-	- 1
Not Repaired - Overdue	-		-	-	-	-	-	-	<b>I</b> .	-	-	-	-		<u> </u>

<b>Overhead Facilities</b>		2009			2010			2011			2012			2013	
Priority Level	I	<b>I</b>	10		11		1	II	<b>I</b> II	I	11	HI	1	11	1
Repair Expected	Within 1 Week	Within 1 Year	Within 3 Years	Within 1 Week	Within 1 Year	Within 3 Years	Within 1 Week	Wilhin 1 Year	Within 3 Years	Within 1 Week	Within 1 Year	Within 3 Yeara	Wähin 1 Week	Within 1 Year	Within 3 Years
ross Arm/Bracing				·											
Number of Deficiencies	2	7	23	1	8	31	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	2	6	6	1	7	17	•	-	-	-	-	-	•	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Not Repaired - Not Due	-	-	17	+	1	14	-	-	-	-	-	~	-	-	-
Not Repaired - Overdue	-	1	-	-	~	-	-	-	-	-	-	-	-	-	-
iser						-									
Number of Deficiencies	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	1	-	-	-	-	-	-	-	-	•	-	-	-	-	-
Repaired - Overdue	•	-	-	•	-	-	-	-	-	ł	-	-	-	-	-
Not Repaired - Not Due		-	-	•	-	ŀ	4	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	3	•	-	-	-	-	-	-	-
					Co	onductor	6								
rimary Wire/Broken Ties															
Number of Deficiencies	27	8	80	21	19	69	•	-	-	-	•	-	-	-	•
Repaired in Time Frame	27	4	35	18	19	57	-	-	-	-	-	-	-	-	-
Repaired - Overdue	+	-	~	3	-	-	1	-	-	-	•	-	-	-	-
Not Repaired - Not Due	•	3	45	-	-	12	ŀ	•	-	-	-	-	-	-	-
Not Repaired - Overdue	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-

Summary of De	ficien	cies a	nd Rep	air Ac	tivity F	Resulti	ng fro	m the	Inspec	tion P	rocess	s - Dist	ributio	on	
<b>Overhead Facilities</b>		2009			2010			2011			2012			2013	
Priority Level	1	1		I	H	Î		Î	Ī	1	ll	111	1	ll	111
Repair Expected	Within 1 Week	Within 1 Year	Within 3 Years	Within 1 Week	Within 1 Year	WithIn 3 Years	Within 1 Weak	Within 1 Year	Within 3 Years	Within 1 Week	Within 1 Year	Within 3 Yeara	Within 1 Week	Within 1 Year	Within Years
Secondary Wire															
Number of Deficiencies	2	-	22	1	-	20	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	2	-	8	1	-	17	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	~	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	14	-	-	3	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Neutral															
Number of Deficiencies	•	÷	22	-	-	15	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	1	-	8	-	-	13	-	-	-	-	-	~	-	-	-
Repaired - Overdue	•	-	-	•	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	•	14	•	-	2	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	1		-	-	-		-	-	-	-	-	-
Insulators															
Number of Deficiencies	1	•	20	1	11	12	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	1	•	6	1	9	12	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	14	-	2	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-		4	-	-	-	-	-	-	-	-	-	-
					Pole	Equipm	ent								
Transformers															
Number of Deficiencies	•	-	21	-	1	17	-	-	-	-	-	-	~	-	-
Repaired in Time Frame	-	-	12	+	1	13	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Overhead Facilities		2009			2010			2011		1	2012			2013	
Priority Level		lł	111	Ι	H	111	Ι	}	111	I	11	())	I	II	
Repair Expected	Within 1 Week	Within 1 Year	Within 3 Years	Within 1 Week	Within f Year	Within 3 Years	Within 1 Week	Within 1 Year	Within 3 Years	Within 1 Week	Within 1 Year	Within 3 Years	Withia 1 Week	Within 1 Year	Within Year
Not Repaired - Not Due	-	-	9	•	•	4	-	-	-	-	•	-		-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-
touts															
Number of Deficiencies	-	34	-	-	19	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	34	-	-	18	-	-	-	-	•	+	-	-	-	-
Repaired - Overdue	•	-	-	-	-	-	-	-	-	-	•	-		-	-
Not Repaired - Not Due	•	-	-	•	1	-	-	-	-	-	•	-	•	-	
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	•	
htning Arrestors															
Number of Deficiencies	-	-	4	-	•	7	-	-	-	-	-	-	-	•	-
Repaired in Time Frame	•	-	-	-	-	-	-	-	-	-	•	-	-	-	·
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	•	-	-	-	
Not Repaired - Not Due	-	-	4	-	-	7	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	•	-	-	-	-	-	-	-	-	-	-	
er Equipment															
Number of Deficiencies	•	-	-	-	-	~	-	~	-	-	-	-	-	-	
Repaired in Time Frame	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Not Repaired - Not Due	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<u> </u>
Not Repaired - Overdue	-	-	-	-	-	-	-	-		-	-	-	~	-	<u> </u>

Summary of De	ficien	cies aı	nd Rep	air Ac	tivity F	Resulti	ng fro	m the	Inspec	tion P	roces	s - Dist	ributic	on	
Overhead Facilities		2009			2010			2011			2012			2013	
Priority Level	Ι		111	I		111	1	11	111	1	- 11	181	I	ll	(1)
Repair Expected	Wilhin 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 Year <del>s</del>	Wäthin 1 Week	Within 1 Year	Within 3 Years
					Mis	cellaneo	us								
Trimming Related						·									
Number of Deficiencies	4	25	1,583	9	37	2,360	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	4	15	1,501	9	28	1,723	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	3	-	-	•	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	1	82	-	9	637	-	- 1	-	-	-	-	-	-	-
Not Repaired - Overdue	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-
Other					•				8	•		2	•		<b></b>
Number of Deficiencies	-	5	28	2	3	14	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	4	16	2	3	7	-	~	-	-	-	-	-	-	-
Repaired - Overdue	-	1	-	-	-	-	-	-	-	-	-	-	-	-	I -
Not Repaired - Not Due	-	-	12	-	-	7	-	-	-	-	-	-	~	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	~	-	-
				0	verhead	I Faciliti	es Tota	1							
Total															
Number of Deficiencies	41	127	2806	39	152	3509	-	-	-	-	-	-	-	•	-
Repaired in Time Frame	41			35	118	2492	-	-	-	-	-	-	-	1	-
Repaired - Overdue	-	10		4	-	-	-	-	-	-	-	-	-	+	-
Not Repaired - Not Due	-	12	771	-	34	1017	-	-	-	-	-	-	-	+	-
Not Repaired - Overdue	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-

Summary of Defi	cienci	es an	d Repa	ir Acti	vity R	esultin	g fron	n the l	nspect	ion Pr	ocess	- Tran	smiss	ion	
Transmission Facilities		2009			2010			2011			2012			2013	
Priority Level	l	11	IN	I		111	1			I	11	111	1	11	
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
					Tov	vers/Pol	ês								
Steel Towers															
Number of Deficiencies	•	-	-	-	-	15	-	-	-	-	•	-	-	-	-
Repaired in Time Frame	-	-	-	-	-	-	-	- 1	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poles															
Number of Deficiencies	-	3	31	- 1	2	50	-	-	-	-	- 1	-	i -	- '	- I
Repaired in Time Frame	-	2	13	-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-
Not Repaired - Not Due	. –	1	18	-	2	50	-	-	-	-	-		-	-	
Not Repaired - Overdue	-	-	-	-	-	-	-			-	-	-	-	-	-
Anchors/Guy Wire							1						Ì		
Number of Deficiencies	-	1 -	112	<b>i</b> .	•	108	- 1	i -	-	i .	-	-		-	-
Repaired in Time Frame		-	5	-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-			-	•	-	-	-	-	-	-	
Not Repaired - Not Due	-	-	107	-	-	108		-	-	-	-	-	-	-	
Not Repaired - Overdue	-	-		-	-	-	-	-	-			-	-	-	•
Crossarm/Brace			· · · · · ·												
Number of Deficiencies	•		-	-	-	6	-	<u>+</u>			-	-		- · ···	 •
Repaired in Time Frame	-	-	-	-	-		-	-		-	-	-	-		
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-		_	-	-
Not Repaired - Not Due	•	-	-	-	-	6	-	-	-	-			-	-	•
Not Repaired - Overdue	-	-	-	-	-	-	-	-		-	-	-	_	_	-
Grounding System															
Number of Deficiencies	-	-	-	-	-	1	-	-					•		
Repaired in Time Frame	-	_	-	-	-	-			-	-	-	-	-		
Repaired - Overdue	-	-	-	-	-	•	-	-	-	-	-		-		
Not Repaired - Not Due	-		-	-	-	1	-	-		-	-	-			-
Not Repaired - Overdue	-	-		-	-	-				-	-	-		-	-

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Summary of Defi	cienci	ies and	d Repa	ir Acti	ivity R	esultin	g fron	n the li	nspect	ion Pr	ocess	- Tran	smiss	ion	
Transmission Facilities		2009			2010			2011			2012		<u> </u>	2013	
Priority Level	I	11	111	I	ll	III		I		I	11	tit	1	11	
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
			•		Co	nductor	S								
Cable															
Number of Deficiencies	-	-		-	-	•	-	-			-	-	-	-	-
Repaired in Time Frame	-	-	-	-	-	-	-	-	-	-	-	-	-		•
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Not Repaired - Not Due	-		-		-	-	-	-	-		-		-	-	-
Not Repaired - Overdue	-	-	-	-	-	•	-	-		-	-	•	-		 •
Static/Neutral															
Number of Deficiencies	•					-	-			-	-				
Repaired in Time Frame	-	_ 1	_ `	i -	i -	-	-		-	-	-	-	_	-	_
Repaired - Overdue	-	-		-	-	-	-	-	-			-	-	• • • • • •	
Not Repaired - Not Due	-	-			-	-	-			-	-	-			
Not Repaired - Overdue	-	_	-	-	-	-	-	-				-			
Insulators															
Number of Deficiencies	-	1	4	İ -	-	<sup>°</sup> 1	_	_	-		-	-		-	_
Repaired in Time Frame	-	1	2	-	-	•	-	-	-	-	-	-	-	-	
Repaired - Overdue	-				-	-	-	-	-		-	-		• • • • •	
Not Repaired - Not Due	-	-	2		-	1	-		-	-	-				
Not Repaired - Overdue	-		-	-	-	-	-	-	-	-	-	-	_	-	
					Mis	cellaneo	us								
Right of Way Condition															
Number of Deficiencies		-	1	• • • • • • • •	2	10			• •				-		
Repaired in Time Frame	-	-				•	-	-···	•	- · ·					
Repaired - Overdue					-						_				·····
Not Repaired - Not Due	-	-	1		2	10	_		-		-				 -
Not Repaired - Overdue	-	-		-		-	-	-		-					-
Other															
Number of Deficiencies	-		71	-	-		-				-	• • •			
Repaired in Time Frame	-	-	-	-	-		-	-			-		-		•
Repaired - Overdue	-	-		-	-	-	-					-	 -	_	
Not Repaired - Not Due	-	-	71	-			-			-		-		-	
Not Repaired - Overdue	-	-		-	-	-	-	-					-		

Transmission Facilities		2009			2010			2011			2012			2013	
Priority Level	I	[]	111	I	l I	III	ŀ	11	= []]	l			l	- 11	
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
				Trai	nsmiss	ion Faci	litiesTo	tal							
Total															ł
Number of Deficiencies	-	4	219	-	4	191	-	-	-	-	•	-	•	-	-
Repaired in Time Frame	-	2	20	-	-	-	-	-	-	-		-	-	-	-
Repaired - Overdue	-	1	4	-	-	-	-	-	-	-	-	•	-	-	-
Not Repaired - Not Due	-	1	199	-	4	191	-	-	-	-	-	-	-		-
Not Repaired - Overdue		t						+							······································

Underground Facilities		2009			2010			2011			2012			2013	
Priority Level		l II		-	11	111	1	l II	- 111	I	II	181	1	il	
	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
Repair Expected		1007	Turio .			ound Str		···	(COID	HEER	TCui		HUCA	i Cui	TCara
Damaged Cover					ondorgn										
Number of Deficiencies	-	4	1	-	-	2	-	-	-	-	-	-		-	-
Repaired in Time Frame	-	2	-	-	-	-		_	-	-	-	-	•	-	
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	1	1	-	-	2	-	-	-	_	-	_	-	-	
Not Repaired - Overdue	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Damaged Structure													_		L
Number of Deficiencies	-	2	10	1	1	4	-	-	-	-	-	-	•	-	-
Repaired in Time Frame	-	1	2	1	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	8	-	1	4	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Congested Structure															
Number of Deficiencies	-	-	-	•		-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	•	-	-	•	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	•	~	-	•	-	ŀ	-	-	-	-	-	-	-	÷	-
Not Repaired - Not Due	-	-	-	-	-	-	ł	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	•	•	-	-	-	-	-	-	
Damaged Equipment															
Number of Deficiencies	•	-	-	-	-	1	-	•	1	-	-	-	-	-	-
Repaired in Time Frame	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	•	-	-	-	-	٢	-	-	-	-	•	-	-	-	-
Not Repaired - Not Due	-	•	-	-	-	1	-	-	-	-	-	•	-	-	•
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-		-	-	

Underground Facilities		2009			2010			2011			2012			2013	
Priority Level	I		111	1	- 11		1	11	111	I	H	- 111	1	li li	- 411
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
					Co	onductor	5					·			
Primary Cable												•			
Number of Deficiencies		-	2	•	-	3	-	-	-	-	-	~	-	-	-
Repaired in Time Frame	-	-	1	•	-	2	•	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	1		-	1	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	1	•	-	1	-	-	-	-	-	•	1	~	-	-	-
Secondary Cable															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	÷	-	
Repaired in Time Frame	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Not Repaired - Not Due	-	-	+	*	-	_	-	-	-	-	-	-	-	-	
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Neutral Cable							•								
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	+	-	-	-	-	~	-	-	-	÷	•	-
Not Repaired - Not Due	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Racking Needed															
Number of Deficiencies	-	3	1	-	-	6	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	3	-	-	-	-	-	-	-	-	-	-	-	- 1	-
Repaired - Overdue	~	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	1	-	-	6	-	-	-	-	-	-	-	•	-
Not Repaired - Overdue	_	-	_	_	-	_									-

Underground Facilities		2009			2010			2011			2012			2013	
Priority Level	I	II	161	1		181	1	I	[]]	I	- II		1	1	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
					Mis	cellaneo	us								
Other															
Number of Deficiencies	-	-	5	-	-	2	-	-	-	-	1	•	-	•	-
Repaired in Time Frame	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	4	-	-	1	~	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	ł	-	-	-
				Und	dergrou	nd Facil	itiesTo <sup>-</sup>	tal							
lotal															
Number of Deficiencies	-	6	18	1	1	18	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	3	4	1	-	3	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	1	14	-	1	15	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	2	-		-	-	~	_	-	-	-	_	-	-	

<b>Overhead Facilities</b>		2009			2010			2011			2012			2013	
Priority Level	1	- 11		I	- 11	[]]	Ī	H	[]]	I				li li	
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
				F	Pad Mou	nt Transf	iormers							-	
Damaged Structure															
Number of Deficiencies	19	•	1	13	1	3	-	-	-	-	•	-	-	-	-
Repaired in Time Frame	19		1	13	-	2	-	-	-	-	•	-	-	-	-
Repaired - Overdue		•	-	•	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	-	•	1	1	•	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	1	-	•	-	-	-	-	-	-	-	-	-	-	-
Damaged Equipment															
Number of Deficiencies	-	-	9	•	•	45	-	-	-	4	-	-	-	-	-
Repaired in Time Frame	ŀ	-	7	•	1	16	-	-	-	•	-	-	-	-	-
Repaired - Overdue	÷	-	-	•	-	0	•	-	_	•	-	-	-	-	-
Not Repaired - Not Due	-	-	2	-	-	29	+	-	-	-	•	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-		-	-	-	-	-	-	-	-
Cable Condition															
Number of Deficiencies	-	-	-	ŀ	10	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	-	-	•	6	-	-	-	+	-	-	-	-	-	-
Repaired - Overdue	-	-	-	•	•	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dil Leak								_							
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-
Repaired in Time Frame	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	_	-	_	_		_									-

<b>Overhead Facilities</b>		2009			2010			2011			2012			2013	
Priority Level	1	- 11		1	0	ill		II	- 11	1	- 11	HI	1		- 111
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	Withln 1 Week	Within 1 Year	Within 3 Years
Off Pad															
Number of Deficiencies	21	3	-	36	19	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	21	2	-	36	18	-	-	•	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	•	-	•	~	-	~	-
Not Repaired - Not Due	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-		-	-	-	-	-	-	-	-	-
Lock/Latch/Penta											<u> </u>		1	L	L
Number of Deficiencies	1	-	-	2	-	-	-	-	-	-	-	_	-	-	-
Repaired in Time Frame	1	-	-	2	-		-	-			_	-			-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	_	-	-	-	-	-	-	-	-	-	-
					Mis	cellaneo	us								
Other				-									· •		الكاكل زياجي وال
Number of Deficiencies	-	-	110	1	8	160	-		-		-	-	<u> </u>	-	-
Repaired in Time Frame	-	-	16		5			-		-	-	-			-
Repaired - Overdue	-	-	-	-	-	_	-	-	~		-	_	-	-	-
Not Repaired - Not Due	-	-	94	-	3	57	-	-	-	-		-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	~	-	-	-
				• • •	Pad I	Mount T	otal							•	<u>.</u>
Fotal															
Number of Deficiencies	41	3	120	52	38	208	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	41	2	24	52	29	121	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	•	1		-	9	87	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-		-												-

<b>Overhead Facilities</b>		2009			2010			2011			2012			2013	
Priority Level	Ī	li	li)	1	11	111	1	- 11	- 111	1	H	111	1	11	III
Repair Expected	WithIn 1Wi	ek Within 1 Year	Within 3 Years	Within 1 Week	Within 1 Year	Within 3 Years	Within 1 Wesk	Within 1 Year	Within 3 Years	Within 1 Week	Within 1 Year	Within 3 Years	Within 1 Week	Within 1 Year	Within Years
······································						Streetli	ght					•		<u>.</u>	
Base/Standard/Light															
Number of Deficiencies	-	-	-	-	-	-	- 1	-	-	*	•	-	-	-	-
Repaired in Time Frame	-	-	-	-	-	-	- 1	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
landhole/Service Box		-													
Number of Deficiencies	-	-	•	- 1	-	-	-	-	-	-	-	-	-	-	•
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	-	-	-	-	-	-	-	-	-	- 1	-	-	-	-	•
Repaired in Time Frame	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	- 1	-	-	-	-	-	-	-	•
Not Repaired - Not Due	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Mi	scellan	eous								
)ther															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Repaired in Time Frame	-	-	-	- 1	-	-	l -	-	-	-	-	-	-	-	
Repaired - Overdue	-	-	-	l -	-	-	<b>-</b>	-	-	-	-	-	-	-	
Not Repaired - Not Due	-	-	*	-	-	-	-	-	-	-	-	-	-	-	
Not Repaired - Overdue	-	-	-	- 1	-	-	- 1	-	-	-	-	-	-	-	-

Summary	of D	efic	iencies	s and R	Repair /	Activity	Resu	ting fr	om the	Inspec	tion Pr	ocess	- Stree	tlights		
<b>Overhead Facilities</b>	2009			2010		2011		2012			2013					
Priority Level		Î		II.)	1	11		I	11	III	1	ti	111	I	il	u
Repair Expected	Within	1 Wesk	Within 1 Year	Within 3 Years	Within 1 Week	Within 1 Year	Within 3 Years	Within 1 Week	Within 1 Year	Within 3 Years	Withtn 1 West	Within 1 Year	Within 3 Years	Within 1 Week	Within 1 Year	Within Years
	-					Str	eetlight	Total								
Total																
Number of Deficiencies		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Overhead Facilities	20	09	20	10	20	11	20	12	20	13
	Number of Conditions Found	Number of Conditions Repaired								
			Overhe	ad Facili	ies					
Poles Condition									· · · ·	
Pole Condition	7	2	1,916	50	-	-	-	-	-	-
Grounding System	6,375	3,063	8,496	6,856	-	-	-	-	-	-
Anchors/Guy Wire	13,066	1,459	6,236	2,721	-	-	-	-	-	-
Cross Arm/Bracing	-	~	-	-	-	-		-	-	-
Riser	-	-	-	-	-	-	-	-	-	-
Conductors										
Primary Wire/Broken Ties	-	-	-	-	-	-	-	-	-	-
Secondary Wire	-	-	-	-	-	-	-	-	-	-
Neutral	-	-	~	-	-	-	-	-	-	-
Insulators	-	-	-	-	-	-	-	-	-	-
Pole Equipment										
Transformers	-	-	43	6	-	-	-	-	-	-
Cutouts	-	-	-	-	-	-	-	-	-	-
Lightning Arrestors	-	-	-	-	-	-	-	-	-	-
Other Equipment	-	-	-	-	-	~	-	+	-	-
Miscellaneous	·····									
Trimming Related	-	-	-	-	-	-	-	-	-	-
Other	2,791	2,791	4	-	-	-	-	-	-	-
Overhead Facilities Total	22,239	4,694	16,695	9,633	-	-	-	-	-	-

<b>Overhead Facilities</b>	2009		2010		2011		2012		2013	
	Number of Conditions Found	Number of Conditions Repaired								
			Transmis	sion Fac	ilities					1
Tower /Poles									_	
Steel Towers	-	-	-	-	-	-	-	-	-	-
Poles	76	1	5	-	-	-	-	•	-	-
Anchors/Guy Wire	99	4	12	-	-	-	-	-	-	-
Crossarm/Brace	10	3	7	-	-	-	-	-	-	-
Grounding System	-	-	2	-	-	-	-	-	-	-
Conductors										
Cable	6	-	-	-	-	-	-	-	-	-
Static/Neutral	-	-	-	-	-	-	-	-	-	*
Insulators	3	2	2	-	-	-	-	-	-	-
Miscellaneous										
Right of Way Condition	1	-	7	~	-	-	-		-	-
Other	171	17	6		*	•	-	-	-	•
Transmission Facilities Total	366	27	41	-	-	-	-	-	-	-

<b>Overhead Facilities</b>	20	09	20	10	20	11	20	12	20	13
	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired						
		<u> </u>	Undergr	ound Faci	ilities	I		,		
Underground Structures										
Damaged Cover	3	-	5	-	-	-	-	_	-	-
Damaged Structure	4	-	-	-	-	-	-	-	-	-
Congested Structure		-	-	-	-	-	-	-	-	-
Damaged Equipment	-	-	2	-	-	-	-	-	-	-
Conductors										
Primary Cable	35	-	-	-	-	-	-	_	-	-
Secondary Cable	-	-	-	-	÷	-	-	-	-	-
Neutral Cable	-	-	-	-	-	-	-	-	-	-
Racking Needed	7	-	-	-	-	-	-	-	-	-
Miscellaneous	<b>_</b>	·	<b>.</b>			•	•	· · · · · · · · · · · · · · · · · · ·		
Other	10	5	43	10	-	-	-	-	-	-
Underground Facilities Total	59	5	50	10	-	-	•	-	-	-
			Pad Mour	nt Transfo	rmers					
Underground Structures										
Damaged Structure	-	-	2	-	-	-	-	-	-	-
Damaged Equipment	-	-	-	-	-	-	-	-	-	-
Damaged Cable	-	-	-	-	-	-	-	+	-	-
Oil Leak	-	-	-	-	-	-	-	-	-	-
Off Pad	•	-	-	-	-	-	-	-	-	
Lock/Latch/Penta	-	-	-	-	-	÷	-	-	-	-
Miscellaneous										
Other	198	178	407	4	-	-	-	-	-	-
Pad Mount Transformer Total	198	178	409	Δ	_	_				-

Overhead Facilities	2009		2010		2011		2012		2013	
	Number of Conditions Found	Number of Conditions Repaired								
			Str	eetlights					<b></b>	
Streetlights		<u></u>								
Base/Standard/Light	-	-	-	-	-	-	-	-	-	-
Handhole/Service Box	-	-	-	-	~	-	-	-	-	-
Service/Internal Wiring	-	-	-	-	-	-	-	-	-	-
Access Cover	-	-	-	-	-	-	-	-	-	-
Miscellaneous										
Other	-	-	-	-	-	-	-	-	-	-
Streetlight Total	-	-	-	-	-	+	•	•	•	-
	n		<b>Total Lev</b>	el IV Con	ditions					
Overall Total	22,862	4,904	17,195	9,647	-	-	-	-	-	-

Year		riority Level / pair Expected	Deficiencies Found	Repaired in Time Frame	Repaired - Overdue	Not Repaired - Not Due	Not Repaired - Overdue
2009	1	Within 1 Week	82	82	0	0	(
2009	11	Within 1 Year	140	92	11	15	22
2009	10	Within 3 Years	3,163	2,083	0	1,080	(
2009	IV	N/A	22,862	4,904	N/A	17,958	N/#
2010	1	Within 1 Week	92	88	4	0	(
2010	FI	Within 1 Year	195	140	0	55	(
2010	ui	Within 3 Years	3,926	2,616	0	1,310	(
2010	١V	N/A	17,195	9,647	N/A	7,507	N//
2011	I	Within 1 Week					
2011	U	Within 1 Year					
2011		Within 3 Years					
2011	IV	N/A					
2012	1	Within 1 Week					
2012	0	Within 1 Year					
2012	- 111	Within 3 Years					······································
2012	١٧	N/A					
2013	1	Within 1 Week					
2013	11	Within 1 Year					
2013	Ш	Within 3 Years					
2013	١٧	N/A					

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## **Appendix 5: Temporary Repairs**

Central Hudson began tracking temporary repairs on a formal basis in 2009. The process of tracking temporary repairs throughout all divisions in Central Hudson is a complex one requiring interfacing of multiple systems and coordination of several organizations. Currently, the tracking method is a labor intensive, manual process for temporary repairs found through the stray voltage testing program. Central Hudson decided to utilize stray voltage technicians to collect and populate the initial inventory since they visit every facility annually.

Overall, Central Hudson has completed permanent repairs on 66 out of 83 locations (80%). Of the repairs completed, 59 were completed within the 90 day time frame stated in the Order (71.1%).

Many factors contributed to temporary repairs being completed outside of the 90 day window. In addition, the process of getting a work order created, estimate generated, and obtaining highway permits can cause the permanent repair to be completed outside of the 90 day time frame. Similar to deficiencies identified during inspections, qualified personnel are prioritizing temporary repairs based on circuit reliability and public safety.

Once a temporary condition is identified, the Company re-evaluates the location and determines if additional safeguards are required to protect the interest of the public, and does so immediately. Other conditions outside of Central Hudson's control have also caused delays such as; weather, field conditions, equipment rentals, and available load capacity due to switching requirements.

A process for automating notifications for temporary repairs is currently being developed. In the spirit of the Order, Central Hudson was successful in identifying temporary repairs, creating an inventory, and reducing the number of outstanding temporary repairs in field.

**Exhibit 1: Certifications** 

# CERTIFICATION ISTRAY VOLTAGE TESTING

STATE OF NEW YORK

) ) ss.: )

Paul E. Haering, on this 12th day of February 2011, certifies as follows:

- I am the Vice President, Engineering & Environmental Services of Central Hudson Gas and Electric (the "Company"), and in that capacity I make this Certification for the annual period ending December 31<sup>st</sup>, 2010 based on my knowledge of the testing program adopted by the Company in accordance the Public Service Commission's Orders issued and effective January 5, July 21, 2005, and December 15, 2008 in Case 04-M-0159 (collectively the "Orders"), including the Quality Assurance Program filed by the Company with the Commission.
- 2. In accordance with the requirements of the Orders, the Company developed a program designed to test (i) all of the publicly accessible electric facilities owned by the Company ("Facilities") and (ii) all streetlights located in public thoroughfares in the Company's service territory ("Streetlights"), as identified through a good faith effort by the Company, for stray voltage (the "Stray Voltage Testing Program").
- 3. I am responsible for overseeing the Company's Stray Voltage Testing Program and in that capacity I have monitored the

Company's Stray Voltage Testing Program during the twelve months ended December 31<sup>st</sup>, 2010 (the "Twelve-Month Period").

- 4. I hereby certify that, to the best of my knowledge, information and belief, the Company has implemented and completed its Stray Voltage Testing program for the Twelve Month Period. Except for untested structures that are identified as temporarily inaccessible in the Company's Annual Report, submitted herewith, the Company is unaware of any Facilities or Streetlights that were not tested during the Twelve-Month Period.
- 5. I make this certification subject to the condition and acknowledgment that it is reasonably possible that, notwithstanding the Company's good faith implementation and completion of the Stray Voltage Testing Program, there may be Facilities and Streetlights that, inadvertently, may not have been tested or were not discovered or known after reasonable review of Company records and reasonable visual inspection of the areas of the service territory where Facilities and Streetlights were known to exist or reasonably expected to be found.

Paul & Darmy

Sworn to before me this <u>/4</u> day of February, 2011

Notary Public:

Gary J Courtney Notary Public, State of New York No. 01C06140228 Qualified in Dutchess County My Commission Expires January 23, 20

# CERTIFICATION [FACILITY INSPECTIONS]

STATE OF NEW YORK ) ) COUNTY OF DUTCHESS )

) ) ss.: )

Paul E. Haering, on this 12th day of February 2011, certifies as follows:

- I am the Vice President, Engineering & Environmental Services of Central Hudson Gas and Electric (the "Company"), and in that capacity I make this Certification for the annual period ending December 31<sup>st</sup>, 2010 based on my knowledge of the inspection program adopted by the Company in accordance the Public Service Commission's Orders issued and effective January 5, July 21, 2005, and December 15, 2008 in Case 04-M-0159 (collectively the "Orders"), including the Quality Assurance Program filed by the Company with the Commission.
- 2. The Company has an inspection program that is designed to inspect all of its electric facilities on a five-year inspection cycle, as identified through a good faith effort by the Company ("Facilities"), in accordance with the requirements of the Orders (the "Facility Inspection Program").
- I am responsible for overseeing the Company's Facility
  Inspection Program and in that capacity I have monitored the
  program during the twelve months ended December 31<sup>st</sup>,
  2010 (the "Twelve-Month Period").

4. I hereby certify that, to the best of my knowledge, information and belief, the Company has implemented and completed its Facility Inspection Program to inspect approximately 20 % of its Facilities during calendar year 2010, in order to comply with the five-year inspection cycle required under the Orders. I further certify that, to the best of my knowledge, information and belief, the Company has inspected 100% of its Facilities for the five-year period ended December 31, 2010.

land & Doening

Sworn to before me this *H* day of February, 2011

Notary Public:

Gary J Courtney Notary Public, State of New York No. 01C06140228 Qualified in Dutchess County My Commission Expires January 23, 20