NHPUC Docket DE 15-417
Public Service Company of New Hampshire d/b/a Eversource Energy
Company Response to NHPUC Staff report dated December 13, 2016

Staff Recommendation 1: The Company should take immediate actions to incorporate into training programs the recognitions and aftereffects of this accident, emphasizing with the clearest of instructions and importance of following the existing policies applicable for its line crews, supervisors, managers and subcontractors to recognize and consider broken crossarms to be a failure of critical equipment, requiring an immediate call to the Eversource Customer Care number. This is information that should be reported immediately, essentially alerting Customer Care of the potential, if not immediate safety risk, triggering the appropriate prioritization and scheduling of a prompt repair or replacement action. The risk of a line inspection report that documents important potential safety related risks of being misplaced, or otherwise forgotten before it is received by Customer Care, must be mitigated immediately.

Eversource is in compliance with this recommendation, having performed the following actions:

A. Created the attached "Focus on Safety" document which was distributed to all NH supervisory employees on Friday, January 20, 2017. This information was also reviewed as part of the daily Operations conference call on January 23, 2017. Local supervisors in each AWC are responsible for rolling this information out to their employees. Completion of this communication is tracked through the Company's *Document Notification and Tracking* (DNAT) system. All recipients have acknowledged receipt of this document as of February 3, 2017.
B. This Focus on Safety document was covered with all contractors working on the Company's electric system on January 24, 2017.
C. This Focus on Safety has been incorporated into Damage Assessment training as of February 1, 2017. This training must be completed annually by employees with a primary or secondary assignment of Damage Assessor in the Emergency Response organization.
D. Created new policy EO-1182 to place emphasis on the proper reporting of dangerous situations. A copy of this policy is attached. This policy has been published with an effective date of January 27, 2017.

Staff Recommendation 2: Appendix A should be more clearly identified with ED-3032 and include the Eversource name in the header or footer of the page (or appropriate operating company name, if not standardized), the "Effective Date", "Revision Date", and "Approved By" information, similar to what is provided on pages 1 through 5. Lastly, language should be inserted in the corrective action table to clearly classify a broken crossarm as an example of a P1 risk, requiring immediate repair or replacement.

Eversource is in compliance with this recommendation, having incorporated Appendix A directly into a revised ED-3032 policy, including the Eversource name in the footer, the effective date of 1/11/17, and approved by M. D. Geaumont, Director of Field Operations. Note that the policy has been re-numbered to EO-1181. Since this is the initial release of this newly re-numbered policy, there is no revision date. Lastly, a broken crossarm is identified at a Priority 1 item (example d), requiring immediate replacement. A copy of EO-1181 is attached.

NHPUC Docket DE 15-417
Public Service Company of New Hampshire d/b/a Eversource Energy
Company Response to NHPUC Staff report dated December 13, 2016

Staff Recommendation 3: Re. EMP 5.45.1 Table 1 ROW Maintenance. The time interval should be revised from the condition-based "as required" to the time-directed "annual", to be consistent with ED-3032, Section VIII. A. Annual ROW Patrols.

Eversource is in compliance with this recommendation. The revision to chapter 5.45 incorporating the annual requirement into Note 1 of Table 1 has been published with an effective date of January 31, 2017. A copy of the revised chapter is attached.

Staff Recommendation 4: Eversource should provide the explicit details and language used in M8-MT-3001 into ED-3032 or alternatively clearly reference how and when M8-MT-3001 is applied to the sub transmission system inspections.

Eversource is in compliance with this recommendation. Since Transmission Maintenance document M8-MT-3001 does not apply to Distribution circuits and equipment, the reference has been removed from Policy ED-3032 (now EO-1181). A copy of EO-1181 is attached.

Staff Recommendation 5: Eversource should extend its public outreach efforts to include those facilities with campus-like settings including county complexes, educational facilities such as universities, community colleges, prep schools, and large institutions such as hospitals with auxiliary onsite medical office buildings and other health care facilities. Its Fires and Wires training which is traditionally provided to Fire Departments and Emergency Responders can be applied to these facilities where Security Departments, Facilities Departments and Buildings/Grounds Maintenance responsibilities are in place.

Eversource is working to expand it public outreach to provide Fires and Wires training. Progress to date:

- Meeting with NH Police Standards and Training Council on February 1st to review existing training and discuss process for delivering Electric Hazard Awareness Training through the NH Police Academy (State, Local, University, and Conservation officers)
- Made contact with NH Department of Public Works and working to set up meeting to discuss strategy around establishing and delivering training for state and local DPW
- Confirmed representation at 2017 New Hampshire Emergency Dispatcher's Conference. Awaiting confirmation of delivery of revised Electrical Hazard Awareness program.
- Contacted and awaiting response from Facility Masters on presentation opportunities at March 2017 conference. Conference information has been posted with confirmed dates and location.

Staff Recommendation 6: The Company's training and maintenance procedures should include a section that provides more detailed instructions for field inspectors to collect some level of measurable data related to the condition of wooden crossarms. The collected data should somehow scale, or classify the level of deterioration. This field inspection data should be entered into the Cascade data base when the inspection notes are turned in to ESCC (or the AWC). The procedure should follow NESC guidelines that will allow the Company to efficiently perform analysis of the data to determine and compare the current structural strength of each crossarm to NESC requirements. A section should be added to the appropriate field inspection form(s) for the purpose of collecting this data on each crossarm. Results of the assessment of deterioration of crossarms and related structures, using NESC guidelines, should be efficiently collected, documented in Company inspection and maintenance reports and entered into the Cascade database.

To date, Eversource has been unable to find a way to measure crossarm strength for in-service crossarms. The Company is reaching out to other utilities through the Edison Electric Institute to determine if and how other companies are inspecting distribution crossarm strength.

The Company would be interested in developing a pilot crossarm inspection program, funded through the Reliability Enhancement Program (REP) which Eversource would like to continue, to perform Unmanned Aerial Vehicle inspections and/or a traditional climbing inspection for crossarms on poles located within distribution rights-of-way.

Staff Recommendation 7: The Company shall review its procedures for adequacy related to Line Maintenance Policy and Procedure M8-MT-3001, Section 4.1 Aerial Line Patrol and Subsections 4.1.3, specific to assigning an observer to conduct each aerial patrol, and 4.1.6, specific to broken crossarms and decayed/rotted pole tops. Staff believes the procedures and training related to ED 3032 policy need to be closely examined and strengthened. One method is to incorporate M8-MT-3001 language of aerial patrols and other type of patrols.

Eversource is in compliance with this recommendation. The specific language referenced from M8-MT-3001 Section 4.1 Aerial Line Patrol and Subsections 4.1.3, specific to assigning an observer to conduct each aerial patrol, and 4.1.6, specific to broken crossarms and decayed/rotted pole tops has been incorporated into the newly issued EO-1181 (formerly ED-3032). A copy of EO-1181 is attached.

Reporting Hazards or Unsafe Conditions

Please review and share within five business days

Overview

When we think about safety, it's often our personal safety—our gear, the steps we take to complete a task, completing a thorough job briefing.

But we always need to be mindful of our colleagues, customers and the public, ensuring that our job sites and equipment are kept safe and secure. This is particularly important when an imminent danger may be present.

Reporting Unsafe, Emergency Conditions

Any time you see a condition that may place your fellow employees or the public in imminent danger, that situation must be reported immediately. We treat these situations as trouble locations, similar to a service interruption, so that immediate steps can be taken to remedy the situation.

Examples include:

- Broken crossarms
- Electrical wires down
- Broken poles

What to Do

If you see an unsafe condition with immediate danger, report it right away as follows:

- NH Operations: (603) 634-2400
- Other Departments/Contractor: 1-800-662-7764

Once you have reported, please stand by at that location to protect the public until the situation is resolved.

If it is a non-emergency situation, please report to Customer Care at the toll free number above so that the situation is documented to be tracked until repaired.

If you have any questions about this Focus on Safety, or how to report unsafe conditions, please speak with your supervisor or local Eversource safety professional.

Thank you for your commitment to Safety First and Always

I. PURPOSE

This procedure is intended to codify the requirements for reporting situations on the Company's electric system which may place employees or members of the public in imminent danger.

II. AREAS/PERSONS AFFECTED

All Eversource NH employees and contractors working on the Company's electric system.

III. POLICY

It is company policy that any time a condition is noted which places employees or the public in imminent danger, the situation must be reported as a trouble location similar to a power outage so that immediate steps can be taken to remedy the situation.

IV. DEFINITIONS

Emergency situation – A condition which would likely result in serious injury or death if not corrected immediately. Examples include broken crossarms, electrical conductors on the ground, and broken poles which have not been temporarily braced.

Non-Emergency situation – An abnormal condition for a system or piece of equipment which, if not repaired, could result in an emergency situation within a reasonable period of time. Examples include cracked crossarms, conductors off insulators, and trees resting on primary conductors.

V. EMPLOYEE SAFETY & HEALTH HANDBOOK

No

Should a copy of this procedure be inserted into the functional area's employee safety & health handbook?

VI. OVERVIEW

Any employee or contractor working for the company must report abnormal/unsafe conditions as documented below to ensure the situation is recorded and tracked until repaired.

VII. PROCEDURE

A. Emergency situations

RESPONSIBILITY	ACTION
Electric Operations	1. Contact the System Operations Center at

employees	(603) 634-2400 and relay the details of the emergency situation. 2. Remain on site to protect the public until the situation is addressed and the scene controlled.
All other employees and contractors	1. Contact the Customer Care at 1- 800-662-7764 and request that a trouble ticket be entered. Provide your contact information so that the System Operations Center can contact you for additional information. 2. Remain on site to protect the public until the situation is addressed and the scene controlled.
System Operations Center	1. Contact the individual reporting the situation to determine the resources required to effect repairs. 2. Dispatch crew(s) as required to make the situation safe.

B. Non-emergency situations

RESPONSIBILITY	ACTION
Electric Operations employees	Contact the System Operations Center at (603) 634-2400 and relay the details of the situation.
All other employees and contractors	Contact the Customer Care at 1-800-662-7764 and request that a trouble ticket be entered.
System Operations Center	Enter the information into the Outage Management System for tracking purposes

VIII. EO-XXXX REVISION HISTORY

Revision Number	Date	Reason
Rev 0	01/23/2017	Original issue

IX. APPENDIX

EO-1181 Distribution ROW Line Patrols

I. PURPOSE

This procedure supplements EMP 5.45 Right of Way Inspection, OP-0030 Emergency Patrols and Actions for Line Faults, and provides guidance for reports of required repairs within Distribution Rights of Way.

II. AREAS/PERSONS AFFECTED

- Field Engineering and Design
- Electric Operations
- Field Operations

III. REFERENCES

- OP-0030 - Emergency Patrols and Actions for Line Faults
- ED-3018 – Circuit Patrols
- Cascade
- Prioritizing Distribution Corrective Action (Appendix A)
- EMP 5.45 Right of Way Inspection
- EMP 6.45 Right of Way Inspection – Maintenance Instructions

IV. DEFINITIONS

A. **ROW-Right Of Way** - A continuous parcel of land, either leased or owned by Eversource NH, that has one or multiple overhead distribution lines.
B. **ESCC** – Electric System Control Center
C. **Cascade** – Database to record, track and trigger distribution ROW line patrols and repairs.
D. **EMP** – Eversource Maintenance Program which specifies distribution equipment to be maintained, the maintenance cycle and provides instructions for performing the specified maintenance.

V. EMPLOYEE SAFETY AND HEALTH HANDBOOK

No

Should a copy of this procedure be inserted into the functional area's safety and health handbook?

VI. POLICY

To improve reliability and safety, it is the policy of Eversource NH:

I. To patrol and make repairs as required of all overhead Distribution **ROW** lines via ground level inspection or aerial inspection as specified in EMP Chapter 5.45 Right of Way Inspection.

II. To patrol and make repairs as required for temporary unexplained protective device operations as specified in OP- 0030.

III. To acknowledge, record, investigate and repair required all reports from field personnel of equipment or situations needing repair.

VII. OVERVIEW

The Supervisor of Electric Operations will coordinate the inspection and repairs within Eversource NH Rights of Way.

VIII. PROCEDURE

A. ANNUAL ROW PATROLS

Manager of Transmission Construction & Maintenance organization, or assigned designee, shall initiate annual patrols of all 34.5, 12.47 and 4 kV ROW lines.

RESPONSIBILITY		ACTION
Manager - Transmission Construction & Maintenance/Designee	1.	Review Cascade preventative inspection report for line additions or deletions. Request input from Manager - Field Engineering and Design and prioritize patrol locations. Check with Transmission or Vegetation Management to determine if patrol synergies can be achieved.
Supervisor – Electric Operations	2.	Plan, arrange, and coordinate patrols. Assign an observer to conduct each aerial patrol
Construction Representative/Designee	3.	Complete line patrol of all distribution ROW lines annually and record any abnormalities on a voice recording device, handheld computer, or by written notes. Situations found that are an immediate safety hazard such as broken crossarm or decayed/rotten pole tops or which may cause an immediate outage to the line should be reported to Customer Experience as a trouble ticket at 1-800-662-7764.
Construction Representative/ Admin. Assistant/Rep A – Records/Ops Support	4.	Enter patrol date and documented items for repair into Cascade. Generate a Maintenance (MX) order for repairs.
Supervisor – Electric Operations	5.	Schedule and prioritize repairs using the “Prioritizing Distribution Corrective Action”, Appendix A.

B. EMERGENCY ROW PATROLS

For permanent faults on 34.5 kV distribution lines during daylight hours, an immediate patrol is required by the appropriate AWC unless the fault location is known.

For permanent faults on any 34.5 kV distribution lines during other than daylight hours an immediate patrol at road crossings and other accessible locations will be ordered when customers are out of service. If the location of the line fault cannot be positively identified, arrangements shall be made to have personnel in the field at daybreak to initiate patrol of the entire line.

For transient faults on 34.5 kV distribution lines, cause unknown, the appropriate AWC will be notified of the line operation immediately or if the AWC is unstaffed, at the earliest opportunity. The AWC will foot patrol within the next business day, or, if appropriate, request a helicopter patrol be initiated on the next weather permitting business day. Upon completion of the patrol, the AWC will notify the ESCC the date performed and the findings of the patrol. The DIR will be updated to include the patrol dates and results.

RESPONSIBILITY		ACTION
ESCC – System Operational Supervisor	1.	Report to the AWC Field Supervisor – Lines or Supervisor – Distribution Lines, or regional On Call Coordinator, that a ROW line patrol is needed to identify a fault location.
Supervisor – Electric Operations	2.	For a transient fault, perform within 24 hours a foot patrol, or if line is inaccessible, request of Supervisor – Electric Operations that a helicopter patrol be initiated. Perform repairs as required to ROW Standards and report results by e-mail to Manager - Field Engineering and Design and Supervisor – ESCC Operations Support.
Supervisor – Electric Operations	3.	For a permanent fault, perform immediate foot patrol, or if line is inaccessible, request of Supervisor – Electric Operations that a helicopter patrol be initiated. Report results to the ESCC dispatcher and coordinate with the ESCC repairs as required to ROW Standards.

C. REPORTS OF REPAIRS NEEDED

Situations found within Distribution Rights of Way that are an immediate safety hazard or may cause an immediate outage to the line should be reported to Customer Experience as a trouble ticket at 1-800-662-7764. All other situations and findings of damaged equipment should be reported to the Supervisor – Electric Operations. Regardless of the method of communication, a follow-up e-mail to the Supervisor with a copy to the Manager - Field Engineering and Design will be made. The Supervisor – Electric Operations

will acknowledge the e-mail and provide an estimated time frame to investigate and perform repairs if required.

RESPONSIBILITY		ACTION
Employee reporting situation or equipment needing repair	1.	Report immediate safety and potential outage situations to Customer Experience at 1-800-662-7764. All other situations, report to Supervisor – Electric Operations with a follow-up e-mail copied to the Manager - Field Engineering and Design.
Supervisor – Electric Operations	2.	Acknowledge to the employee reporting that the communications has been received; provide a time frame for investigation and possible repairs as required.
Construction Representative	3.	Enter into Cascade an MX order for repairs as appropriate. Contact local Environmental Coordinator for major wetland impacts.
Supervisor – Electric Operations	4.	Schedule and prioritize repairs using the "Prioritizing Distribution Corrective Action", Appendix A.

IX. APPENDIX

Appendix A – Prioritizing Distribution Corrective Action

X. EO-1181 REVISION HISTORY

Revision Number	Date	Reason
Rev 0	01/11/17	Original issue, reference ED-3032

Appendix A

Prioritizing Distribution Corrective Action

When in the process of performing scheduled maintenance, if conditions are found that cannot be corrected at that time, it will be necessary to schedule corrective maintenance for a future return to the site. Scheduling these repairs will be prioritized as follows:

1. **Correct immediately** – work to completion (failure of system component that results in interruption of customer load or poses an immediate threat to safety, health, or the environment.
2. **Correct within 0 – 4 weeks*** - Significant threat to public safety, health, or the environment.
3. **Correct within 4 – 8 weeks*** - Potential effect on system reliability.
4. **As scheduled in the work management system*** - Work that is planned, scheduled, and executed in accordance with normal work schedule.
5. **Dependent activity** – Lowest priority work which is typically scheduled concurrent with another major activity such as a scheduled capital improvement project, a substation outage, or other similar activity. Track item to completion.

*NOTE: Existing priorities defined in TD procedures shall be included within these priorities but are not superseded by them. For example priority reject poles fall within priority 1 but are still required to be made safe or replaced within ten (10) business days per TD 953.

Priority	Examples
1	a) Failure of a system component that results in interruption of customer load or poses an immediate threat to safety, health, or the environment b) Downed pole, displaced phase, secondary or neutral. c) Leaking distribution transformers d) Broken crossarm
2	a) Priority reject pole repairs (made safe) b) Emergency infrared survey results c) Correction of switch failures
3	a) Serious infrared survey results b) Correction of equipment essential to system reliability, i.e. lightning arresters
4	a) Minor infrared survey results b) Pole top capacitor repair/replacement c) Pole reject – normal replacement d) Decayed/rotten crossarm e) Decayed/rotten pole top
5	a) Pole reinforcement or replacement on circuit with scheduled upgrade b) NESC code violations from overhead inspections

EVERSOURCE MAINTENANCE PROGRAM	Document Number: **5.45** **Rev. 4** Document Name: **Right of Way Inspection**
Owner Name:	Henry J. Matuszak
SME Name:	Costantino A. Dangelo
Effective Date:	January 31, 2017

Approvals:

Connecticut:
Name: Charles E. Fontenault
Title: Director – Division Operations
Date Signed: **5-02-2015**

Eastern Massachusetts:
Name: Donald M. Boudreau
Title: Director – Electric Operations
Date Signed: 4-30-2015

New Hampshire:
Name: Marc Geaumont
Title: Director – Field Operations
Date Signed: **5-06-2015**

Western Massachusetts:
Name: Bliss A. Young
Title: Director – Operations
Date Signed: **5-03-2015**

Transmission:
Name: Michael McKinnon
Title: Director – Transmission Construction Test & Maintenance
Date Signed: **5-02-2015**

Operations Services:
Name: Michael G. Waggoner
Title: Director – Engineering Services
Date Signed: **5-01-2015**

Ensure you are using the current revision by verifying it against the controlled electronic copy located on the Distribution Engineering Standards Bookshelf or the Regulated Businesses Policies and Procedures Lotus Notes Database.

5.45 Right of Way (ROW) Inspection

General Description

Periodic inspections of distribution rights of way are required to establish preventative requirements to maintain safe and reliable service.

For purpose of this chapter, Rights of Way are defined as “three phase distribution, sub transmission or transmission circuits which are not located on public roads and are normally accessible only by four wheel drive, off-road vehicles, helicopters or pedestrian access.”

NOTE: Since some inspections can expose personnel to energized lines or high voltage circuits and equipment, and may include inspection and repair, a qualified person should be assigned to this work. This assumes that they are both properly trained to protect both themselves and the public, and to respond to those emergencies that may arise during inspections.

NOTE: All specific maintenance requirements that are followed by a triangle symbol “▲” are explained in the Maintenance Basis Documentation section of this chapter.

Facilities/Equipment

ROW patrol or simple visual inspections consists of walking, driving, aerial patrol or using equipment to identify obvious structural problems and hazards that include, but are not limited to the following:

- Leaning power poles
- Damaged equipment enclosures
- Vandalism
- Tree / Vegetation encroachments

In cases where a patrol notices that a problem exists or identifies a condition that warrants a more thorough or rigorous inspection, the patrol may then include situations where structures are opened as necessary, and individual pieces of equipment carefully observed and their condition noted and recorded.

5.45.1 Inspection and Maintenance Activity Schedules

Table 1 – ROW Maintenance Intervals

ROW Maintenance Schedule	Interval
PM Task	
Condition Monitoring	N/A
Time Directed	
Condition-Based	
Routine Inspection (**Note 1**)	A/R
Make or schedule repairs for any conditions found during Routine Inspection.	A/R
Failure Finding	
Report any failures into the EFRS (Equipment Failure Reporting System), UPER, or appropriate system.	A/R
Note any problems or expected failures onto the appropriate form.	A/R

In **Table 1**, the intersection of the row and column indicate the inspection or maintenance interval for the equipment in the column heading. For example, the interval for a Routine Inspection is 1Y (or 1 year).

The abbreviations used for the intervals are:

Y = Year, i.e. 2Y = 2 Years

N/A = Not Applicable

A/R = As Required

NOTE 1: Routine Inspections are subject to O&M budgetary limitations. When funding or other resources become available, every effort should be made to perform these inspections on an annual basis. Annual inspections of ROW lines are required in NH in accordance with the NHPUC.

5.45.2 Maintenance Categories

CONDITION MONITORING

N/A

TIME DIRECTED

5.45.2.1 Routine Inspection

EMP Instruction 6.45 provides a list of all ROW items to inspect and instructions on how to perform the inspection. Clearly, the list will vary depending on the equipment specifics and locations and should therefore be viewed as a 'generic' patrol expectation. It is understood that a ground level inspection cannot clearly detect all defects and that an aerial inspection will be needed to verify suspected findings after they are reported.

See Instruction 6.45 for detail inspection requirements.

5.45.3 Failure Finding

Report all failed equipment found during the ROW inspection so that failure histories can be established, and necessary maintenance/repair be scheduled to restore equipment to good operating condition.

5.45.4 Maintenance Basis Documentation

The maintenance activities and their schedules are based on industry experience, manufacturer's recommendations, feedback from the service technicians, and the subject matter expert, who is an Engineer for Distribution Engineering and Design.

Requirement	Basis
Routine Inspection	It is recommended that the Right of Way be inspected at one year intervals to ensure that equipment is still securely mounted, is accessible, secure from intrusion, and in good operating condition. The 1Y interval, when funding is available, has been used by Eversource and has proven to provide satisfactory reliability.

5.45.5 Condition-based monitoring:

N/A

5.45.6 Summary of Changes

Revision 1 – Effective Date: **July 15, 2011**
Related Feedback – Working Group Discussion

1.	Deleted detail steps as they are now part of NUMM Instruction 6.45.
2.	Changed SME to Costantino Dangelo.

Revision 2 – Effective Date: **August 6, 2014**
Related Feedback – Line Working Group Mtg of **01-17-13**

1.	Clarified definition of Rights of Way.

Revision 3 – Effective Date: **June 6, 2015**
Related Feedback – MS-0385, MSSC Mtg of **12-08-14,**

1.	Changed Routine Inspection from annual to As Required.
2.	Changed Approver names on the Signature page, as required
3.	Incorporated the following global replacements: • NU Maintenance Manual replace by Eversource Maintenance Program • CL&P Replaced by Eversource Connecticut • WMECO replaced by Eversource Western Massachusetts • PSNH replaced by Eversource New Hampshire • NSTAR replaced by Eversource Eastern Massachusetts • NUMM replaced by EMP

Revision 4 – Effective Date: **January 31, 2017**

1.	Added requirement to perform annual ROW inspection in NH as specified by the NHPUC to **NOTE 1**.