

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI**

In the Matter of Union Electric Company d/b/a       )  
Ameren Missouri's 2014 Infrastructure                )  
Inspection Annual Report.                                )       Case No. EO-2015-\_\_\_\_\_

**UNION ELECTRIC COMPANY d/b/a  
AMEREN MISSOURI'S 2014 INFRASTRUCTURE  
INSPECTION ANNUAL REPORT**

**COMES NOW**, Union Electric Company, d/b/a Ameren Missouri, and in compliance with 4 CSR 240-23.020(3)(C) submits the attached report.

Respectfully submitted,

**UNION ELECTRIC COMPANY,  
d/b/a AMEREN MISSOURI**

/s/ Wendy K. Tatro

**Wendy K. Tatro**, # 60261

Director and Assistant General Counsel

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Dated: July 1, 2015

## **CERTIFICATE OF SERVICE**

I hereby certify that copies of the foregoing have been electronically mailed to all counsel of record this 1<sup>st</sup> day of July, 2015.

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*/s/ Wendy K. Tatro*

Wendy K. Tatro



## Ameren Missouri 4 CSR 240-23.020 Electrical Corporation Infrastructure Standards Annual Inspection Report for Calendar Year 2014

### Introduction

This document is Union Electric (dba Ameren Missouri) Company's annual report detailing its compliance with Missouri Public Service Commission Rule 4 CSR 240-23.020, Electrical Corporation Infrastructure Standards (referred to in the remainder of this document as "the Rule"). This annual report is required by Section (3) (C) of the Rule which states, "*Each electrical corporation subject to this rule shall file...an annual report detailing its compliance with this rule during the prior calendar year....*" This report details the results of the infrastructure inspections conducted in calendar year 2014.

### Definitions

For the purposes of this report, the following definitions shall apply:

1. Patrol – A simple visual inspection, of applicable electrical corporation equipment and structures, which is designed to identify obvious structural problems and hazards. Patrols may be carried out in the course of other electrical corporation business.
2. Visual Inspection – A careful visual examination of equipment and structures designed to identify structural problems, hazards, and defective or improperly operating equipment. Equivalent to "Detailed Inspection" as defined in Section (2) (B) of the Rule.
3. Ground Line Inspection – A complete intrusive inspection of overhead poles whereby the pole is excavated to a depth of 18 to 24 inches, tested for internal and external decay, treated with a preservative, and then backfilled. Equivalent to "Intrusive Inspection" as defined in Section (2) (C) of the Rule.
4. Overhead Equipment – Equipment used in the operation of the transmission and distribution system mounted on overhead poles including, but not limited to, conductors, transformers, fuses, switches, insulators, and lightning arresters.
5. Underground Pad-Mounted Equipment – Underground Residential Distribution (URD) system equipment including single phase and three phase pad-mounted transformers, pad-mounted switchgear, junction boxes, non-traffic rated vaults, and pedestals. Equivalent to "Underground-direct buried and conduit" and the equipment noted under Note 3 on the table entitled, "Electrical Corporation System Inspection Cycles (Maximum Intervals in Years)" included with the Rule.
6. Transmission System – That portion of the Ameren Missouri system operated at voltages of 100 kilovolts (kV) and above.
7. Distribution System – That portion of the Ameren Missouri system operated at voltages below 100kV.
8. Streetlights – Automatically controlled lighting for lighting of streets, alleys, walkways, and other thoroughfares open to and reserved for general public use when such lighting facilities are operated and maintained as an extension of Ameren Missouri's distribution system as described in Service Classification 5(M). This definition does not apply to lighting installed on public or private premises for the purpose of providing area or security lighting (i.e., "dusk-to-dawn" lights), customer-owned street and outdoor lighting as described in Service Classification 6(M), and incandescent municipal streetlighting or private streetlighting described under Service Classifications 7(M) and 8(M).



## Transmission System Inspections

Ameren Missouri conducted inspections on its Transmission System during calendar year 2014 as required by Missouri Public Service Commission Rule 4 CSR 240-23.020, Electrical Corporation Infrastructure Standards. The inspections conducted, as well as the deficiencies discovered and repaired as a result of these inspections, are described below.

### Transmission Circuits Inspected in 2014:

Inspection Type	Inspections Scheduled	Inspections Completed	Inspections Not Completed
“Patrol”	140	140	0
“Detailed”	13	13	0
Ground Line	13	13	0

The results of the lines inspected are summarized as follows:

### Results of Inspections

Component	Number Inspected	Number Requiring Repairs	%
Wood Poles	3,714	39	1.050%
Wood Structures	14,645	12	0.082%
Non-Wood Structures	5,637	3	0.053%
Conductors*	20,282	2	0.010%
Insulators*	20,282	0	0.000%

The numbers of components requiring repairs in the period are summarized below:

Component	Number Requiring Repairs in the Period	Number of Repairs Completed in the Period	%	Number of Repairs Not Completed in the Period	%
Wood Poles	7	0	0.0%	7	100.0%
Wood Structures	1	0	0.0%	1	100.0%
Non-Wood Structures	1	1	100.0%	0	0.0%
Conductors*	1	0	0.0%	1	100.0%
Insulators*	0	0	0.0%	0	0.0%

\*Note: Because Ameren Missouri’s Transmission System Inspection Program is carried out on a per line basis and only those components which required repair are recorded, the number of



individual conductors and insulators inspected is not recorded. The number of wood structures (which includes poles) and non-wood structures inspected will be used as the reference for the percentage of equipment requiring corrective action in this annual report.

The following equipment was not repaired as scheduled:

Component	Component Number	Reason Repairs Not Completed	Date Repairs Will be Completed
Wood Pole	CALF-OVTN#272	Delayed due to contractor availability	04/30/2015
Wood Pole	CALF-OVTN#303	Delayed due to contractor availability	04/30/2015
Wood Pole	CALF-OVTN#322	Delayed due to contractor availability	04/30/2015
Wood Pole	MONT-OVTN#670	Delayed due to contractor availability	04/30/2015
Wood Pole	SPCK-SUBT#14	Delayed due to contractor availability	04/30/2015
Wood Pole	SPCK-SUBT#14	Delayed due to contractor availability	04/30/2015
Wood Pole	STOD-RCHL#328	Delayed due to contractor availability	04/30/2015
Wood Structure	JU154829	Deferred to coincide with larger project on same line	05/31/2015
Conductor	JU149444	Outage availability	12/31/2015



The following equipment was scheduled for repairs outside the reporting period:

Component	Total Number Requiring Repairs Outside the Reporting Period	Number of Open Repairs Outside the Reporting Period	Corrective Action Scheduled Complete			Percent of Equipment in Need of Corrective Action, but with a Scheduled Date Beyond the Reporting Period
			2015	2016	Later	
Wood Poles*	32	32	0	12	20	100.0%
Wood Structures*	11	11	0	11	0	100.0%
Non-Wood Structures*	2	2	0	2	0	100.0%
Conductors*	1	1	0	1	0	100.0%
Insulators*	0	0	0	0	0	0.0%

\*Note: Wood pole changes scheduled beyond 2015 are being deferred to coincide with the NERC ground clearance study and remediation effort. The NERC effort is expected to be completed by the end of 2018. Other repair activities deferred beyond 2015 are low priority items such as monitoring structures near creeks that could wash out.



### Distribution System Inspections

Ameren Missouri conducted inspections on its Distribution System during calendar year 2014 as required by Missouri Public Service Commission Rule 4 CSR 240-23.020, Electrical Corporation Infrastructure Standards. The inspections conducted, as well as the deficiencies discovered and repaired as a result of these inspections, are described below.

#### Distribution Circuits and Components Inspected in 2014

Inspection	Inspection Units	Inspections Scheduled	Inspections Completed	Inspections Not Completed
Overhead Visual*	Circuit	429	429	0
Overhead Ground Line*	Circuit	277	277	0
Capacitors	Equipment	2,701	2,701	0
Voltage Regulators	Equipment	544	544	0
Underground Patrol* #	Circuit	335	335	0
Underground Detailed* #	Circuit	375	375	0
Network Vaults##	Equipment	160	158	2
Manholes	Equipment	1569	1569	0
Other Underground Structures**	Equipment	118	118	0

\*Note: Streetlight inspections were performed in conjunction with Overhead Visual and Ground Line inspections, as well as the Underground Patrol and Detailed inspections.

\*\*Note: Other Underground Structures include Indoor Rooms and Manhole Transformers.

#Note: During the Underground Patrol and Detailed circuit inspections, Ameren Missouri inspectors encountered various obstructions that prevented inspection of some individual pieces of equipment such as pad-mounted transformers. The obstructions encountered were customer facilities such as fences or landscaping in close proximity to equipment, thereby preventing its full inspection. Many of these situations require negotiations with customers to determine the best remedy for the customer and Ameren Missouri. Ameren Missouri has resolved most of the issues and continues to work with customers to resolve the remaining obstructions in order to complete the inspections of the equipment.

##Note: There were two (2) Network Vault inspections delayed into January 2015 due to customer obstructions.



The results of the inspections are summarized as follows:

Results of Inspections

Component	Number Inspected	Number Requiring Repairs	Percentage
Poles/Towers	179,838	7,524	4.2%
Lightning Arresters*	179,838	689	0.4%
Crossarms*	179,838	2,752	1.5%
Crossarm Braces*	179,838	1,229	0.7%
Fuses*	179,838	42	0.0%
Insulators*	179,838	2,769	1.5%
Overhead Transformers*	179,838	13,185	7.3%
Conductors*	179,838	566	0.3%
Switches*	179,838	20	0.0%
Guy Wires*	179,838	11,222	6.2%
Grounding*	179,838	6,601	3.7%
Anchors*	179,838	50	0.0%
Minor Hardware*#	179,838	21,202	11.8%
Reclosers*	179,838	18	0.0%
Sectionalizers*	179,838	1	0.0%
Capacitors	2,701	376	13.9%
Voltage Regulators	544	47	8.6%
UG Pad-Mounted Equipment**	38,569	5,156	13.4%
Vaults	160	22	13.8%
Manholes	1,569	114	7.3%
Other Underground Structures***	118	0	0.0%
Streetlights	53,745	2,556	4.8%

\*Note: Because Ameren Missouri's Distribution System Circuit Inspection and Ground Line Inspection programs were performed on a per circuit basis and only those components which required repair were recorded, the numbers of these individual devices inspected were not recorded. For these components, the number of poles where problems were identified divided by the number of poles inspected was used as the reference for the percentage of equipment requiring corrective action. Where the actual number of components inspected, such as voltage





regulators and capacitors could be ascertained, these numbers were used to calculate the percentage of equipment requiring corrective action.

#Note: Minor Hardware includes risers, pins, jumpers, connectors, splices, terminations, and spacer cable brackets.

\*\*Note: Underground Pad-Mounted Equipment includes pad-mounted transformers, switchgear, junction boxes, non-traffic rated vaults, and pedestals.

\*\*\*Note: Other Underground Structures includes indoor rooms and manhole transformers.

The numbers of components requiring repairs in the period are summarized below:

Component	Number of Repairs Scheduled in the Period	Number of Repairs Completed in the Period	%	Number of Repairs Not Completed in the Period	%
Poles/Towers	855	855	100.0%	0	0.0%
Lightning Arresters	21	21	100.0%	0	0.0%
Crossarms	143	143	100.0%	0	0.0%
Crossarm Braces	76	76	100.0%	0	0.0%
Fuses	2	2	100.0%	0	0.0%
Insulators	124	124	100.0%	0	0.0%
Overhead Transformers	520	520	100.0%	0	0.0%
Conductors	60	60	100.0%	0	0.0%
Switches	2	2	100.0%	0	0.0%
Guy Wires	635	635	100.0%	0	0.0%
Grounding	188	188	100.0%	0	0.0%
Anchors	1	1	100.0%	0	0.0%
Minor Hardware	853	853	100.0%	0	0.0%
Reclosers	0	0	100.0%	0	0.0%
Sectionalizers	0	0	100.0%	0	0.0%
Capacitors	113	113	100.0%	0	0.0%
Voltage Regulators	25	25	100.0%	0	0.0%
UG Pad-Mounted Equipment	2,078	2,078	100.0%	0	0.0%
Vaults	0	0	100.0%	0	0.0%
Manholes	7	7	100.0%	0	0.0%
Other Underground Structures	0	0	100.0%	0	0.0%
Streetlights	2,094	2094	100.0%	0	0.0%

All equipment repairs required in the reporting period were completed in the period.



The following equipment was scheduled for repairs outside the reporting period:

Component	Total Number Requiring Repairs Outside the Reporting Period (Completed or Scheduled)	Number of Open Repairs Outside the Reporting Period	Corrective Action Scheduled To Be Completed			Percent of Equipment in Need of Corrective Action, but with a Scheduled Date Beyond the Reporting Period
			2015	2016	Later	
Poles/Towers	6,669	2,875	2875	0	0	43.1%
Lightning Arresters	668	390	390	0	0	58.4%
Crossarms	2,609	1,560	1560	0	0	59.8%
Crossarm Braces	1,153	708	708	0	0	61.4%
Fuses	40	20	20	0	0	50.0%
Insulators	2,645	1,579	1579	0	0	59.7%
Overhead Transformers	12,665	6,822	6822	0	0	53.9%
Conductors	506	244	244	0	0	48.2%
Switches	18	9	9	0	0	50.0%
Guy Wires	10,587	5,686	5,686	0	0	53.7%
Grounding	6,413	3,573	3573	0	0	55.7%
Anchors	49	24	24	0	0	49.0%
Minor Hardware	20,349	11,084	11084	0	0	54.5%
Reclosers	18	12	12	0	0	66.7%
Sectionalizers	1	1	1	0	0	100.0%
Capacitors	263	110	110	0	0	41.8%
Voltage Regulators	22	10	10	0	0	45.5%
UG Pad-Mounted Equipment	3,078	604	600	4	0	19.6%
Vaults	22	22	0	0	22	100.0%
Manholes	107	107	0	0	107	100.0%
Other Underground Structures	0	0	0	0	0	0.0%
Streetlights	462	36	36	0	0	7.8%

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d/b/a Ameren Missouri's 2014                     )  
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   )  
Case No. EO-2015-\_\_\_\_\_


**AFFIDAVIT OF DAVID N. WAKEMAN**

STATE OF MISSOURI     )  
   ) ss  
CITY OF ST. LOUIS     )

David N. Wakeman, being first duly sworn on his oath, states:

1. My name is David N. Wakeman. I work in the City of St. Louis, Missouri, and I am employed by Union Electric Company d/b/a Ameren Missouri as Senior Vice President, Operations & Technical Services.

2. I hereby swear and affirm that I am the individual who sponsors the attached report filed in accordance with 4 CSR 240-23.020; that said report was prepared under my direction and supervision; that if inquiries are made as to the facts, I would respond as therein set forth; and that the aforesaid is true and correct to the best of my knowledge, information, and belief.

  
\_\_\_\_\_  
David N. Wakeman

Subscribed and sworn to before me this 30<sup>th</sup> day of Jan, 2015.

  
\_\_\_\_\_  
Notary Public

My commission expires:

2-21-18

