

July 01, 2019

***VIA ELECTRONIC FILING***

Mr. Morris Woodruff, Secretary  
Missouri Public Service Commission  
P.O. Box 360  
Jefferson City, MO 65102

**RE: Commission Rule 4 CSR 240-23.020, Electrical Corporation Infrastructure Standards**

Dear Judge Woodruff:

Pursuant to Missouri Public Service Commission ("Commission") Rule 4 CSR 240-23.020(3)(C), The Empire District Electric Company, a Liberty Utilities Company ("Liberty-Empire") hereby submits its 2018 Reliability Compliance Report. As noted in the report, some values are subject to change. Due to software concerns, Liberty-Empire would like to re-review its infrastructure inspection data and verify its accuracy. Within 14 days of this initial submission, Liberty-Empire will submit a revised report or inform the Commission that a revised submission is not necessary.

Please do not hesitate to contact me with any questions, and please bring this filing to the attention of the Commissioners and the appropriate Commission personnel.

Sincerely,

*Diana Carter*

Enclosures

cc: Office of the General Counsel  
Office of the Public Counsel

**2018 Reliability Compliance Report  
Submitted to Missouri Public Service Commission**



**Liberty Utilities®**  
EMPIRE DISTRICT

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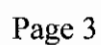
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Sherrif Blalock  
Notary Public



## **Introduction**

The Empire District Electric Company's (Liberty-Empire) system reliability department and maintenance program comply with the requirements of Missouri's Electrical Infrastructure Standards, Rule 4 CSR 240-23.020. The system reliability department is in its tenth full year of operation and continues to improve the process of managing infrastructure inspections, corrective action monitoring, data management, and reporting necessary to comply with 4 CSR 240-23.020. Liberty-Empire anticipates the infrastructure inspection program will continue to evolve during the first full inspection cycle. This evolution is necessary to streamline the inspection processes, data collection, maintenance crew collaboration, and reporting documentation.

Osmose Utility Services, Inc. (Osmose) is currently contracted to perform infrastructure inspections on Liberty-Empire facilities. They have been inspecting Liberty-Empire facilities since 2008. Liberty-Empire utilizes its own personnel to perform detail inspections on padmounted equipment, three-phase reclosers, capacitors, and regulators. Liberty-Empire contracted with Hot Shot Services, Inc. (Hot Shot) to perform an annual aerial patrol inspection of the transmission system and an infrared inspection of equipment on the transmission system. Liberty-Empire also utilizes a work management software solution (Maximo) to maintain records and track the progress associated with the infrastructure inspections and corrective actions.

## **Compliance Statement**

Liberty-Empire has complied with the rules established in the State of Missouri's Electrical Corporation Infrastructure Standards, 4 CSR 240.23-020, for the 2018 calendar year.

## 2018 Inspection Plan Summary

### Distribution

Liberty-Empire completed patrol inspections on 40,015 overhead components, 3,891 streetlight components and 3,253 underground components in 2018 using the services of Osmose. Liberty-Empire completed detail inspections on 38,574 overhead components and 3,204 streetlight components using the services of Osmose. Liberty-Empire completed detail inspections on 6,569 underground components in 2018 using Liberty-Empire's own personnel. Liberty-Empire completed 14,395 intrusive inspections in 2018 using the services of Osmose.

Liberty-Empire does not have the data from one circuit's scheduled underground detail distribution inspection (8 components) and one circuit's scheduled underground patrol inspection (10 components) in 2018. The inspections were completed; however, the data has not been delivered from the vendor. If this data cannot be recovered from the vendor, the circuits will be re-inspected in 2019.

Distribution 2018 Inspection Plan Summary					
Inspection Type	Facility Type	Components	Inspections Planned for 2018	Inspections Completed During 2018	Inspections Not Completed in 2018
Patrol	Overhead Circuits, Structures, & Equipment	Poles, Transformers, Capacitors, Regulators, Reclosers, Switches	40,015	40,015	0
	Streetlight System	Structures	3,891	3,891	0
	Underground Structures & Equipment	Sectionalizing Cabinets, Vaults, Transformers, Switches	3,253	3,243	10
Detail	Overhead Circuits, Structures, & Equipment	Poles, Transformers, Capacitors, Regulators, Reclosers, Switches	38,574	38,574	0
	Streetlight System	Structures	3,204	3,204	0
	Underground Structures & Equipment	Sectionalizing Cabinets, Vaults, Transformers, Switches	6,569	6,561	8
Intrusive	Wood Poles	Poles	14,395	14,395	0

## Transmission

Liberty-Empire completed an aerial patrol inspection on 15,361 poles out of the 15,361 poles that were planned to be inspected, using the services of Hot/Shot Infrared Inspections. Using the services of Osmose, Liberty-Empire completed 4,529 detail inspections and 1,675 intrusive inspections.

Transmission 2018 Inspection Plan Summary					
Inspection Type	Facility Type	Components	Inspections Planned for 2018	Inspections Completed During 2018	Inspections Not Completed in 2018
Patrol	Overhead Structures & Equipment	Poles	15,361	15,361	0
Detail	Overhead Structures & Equipment	Poles, Switches	4,529	4,529	0
Intrusive	Overhead Structures & Equipment	Poles	1,675	1,675	0

## 2018 Work Order Rating Summary

Liberty-Empire has developed a voluntary priority rating system to classify corrective actions and provide appropriate remediation schedules. The priority rating system allows Liberty-Empire to balance its resources to remediate corrective actions in a timely and economical manner while improving the service reliability to its customers. Only items identified during the course of infrastructure inspections will be rated using this system. A listing of the priority ratings description and corresponding scheduling period are detailed in the table below.

Priority Rating	Description	Corrective Action Scheduling Period
5	Emergency/Safety/Load Limiting/Customer Outage	Immediate
4	Urgent/May Affect Load	180 days
3	Time Critical/Seasonal	365 days
2	Routine/Non-Critical	365 days
1	Project/Operational Improvements	Empire's discretion

### Distribution

Distribution 2018 Work Order Rating Summary – Count							
Inspection Type	Facility Type	Components	Priority 5	Priority 4	Priority 3	Priority 2	Priority 1
Patrol	Overhead Circuits, Structures, & Equipment	Poles, Transformers, Capacitors, Regulators, Reclosers, Switches	0	56	0	1,309	0
	Underground Structures & Equipment	Sectionalizing Cabinets, Vaults, Transformers, Switches,	0	3	0	22	0
Detail	Overhead Circuits, Structures, & Equipment	Poles, Transformers, Capacitors, Regulators, Reclosers, Switches	0	67	0	1,396	0
	Underground Structures & Equipment	Sectionalizing Cabinets, Vaults, Transformers, Switches,	7	16	0	101	0
Intrusive	Wood Poles & Equipment	Poles	8	48	0	2,014	0



Distribution 2018 Work Order Rating Summary – Percentage							
Inspection Type	Facility Type	Components	Priority 5	Priority 4	Priority 3	Priority 2	Priority 1
Patrol	Overhead Circuits, Structures, & Equipment	Poles, Transformers, Capacitors, Regulators, Reclosers, Switches	0%	3%	0%	97%	0%
	Underground Structures & Equipment	Sectionalizing Cabinets, Vaults, Transformers, Switches,	0%	12%	0%	88%	0%
Detail	Overhead Circuits, Structures, & Equipment	Poles, Transformers, Capacitors, Regulators, Reclosers, Switches	0%	5%	0%	95%	0%
	Underground Structures & Equipment	Sectionalizing Cabinets, Vaults, Transformers, Switches,	6%	13%	0%	81%	0%
Intrusive	Wood Poles & Equipment	Poles	1%	2%	0%	97%	0%

## Transmission

Transmission 2018 Work Order Rating Summary – Count							
Inspection Type	Facility Type	Components	Priority 5	Priority 4	Priority 3	Priority 2	Priority 1
Patrol	Overhead Structures & Equipment	Poles	0	284	0	0	0
Detail	Overhead Structures & Equipment	Poles & Switches	0	0	0	0	0
Intrusive	Overhead Structures & Equipment	Poles	0	2	0	220	0

Transmission 2018 Work Order Rating Summary – Percentage							
Inspection Type	Facility Type	Components	Priority 5	Priority 4	Priority 3	Priority 2	Priority 1
Patrol	Overhead Structures & Equipment	Poles	0%	100%	0%	0%	0%
Detail	Overhead Structures & Equipment	Poles & Switches	0%	0%	0%	0%	0%
Intrusive	Overhead Structures & Equipment	Poles	0%	1%	0%	99%	0%

## 2018 Corrective Action Summary

### Distribution

Liberty-Empire will continue to immediately correct safety hazards or malfunctioning equipment discovered during inspections. 1,623 work orders resulting from the inspections were completed in 2018. Another 1,519 work orders were completed in 2019. The remaining 3,917 work orders are planned to be completed by December 31, 2019.

Distribution 2018 Corrective Action Summary – Count							
Inspection Type	Facility Type	Components	Corrective Action Planned in 2018	Corrective Action Completed in 2018	Corrective Action Incomplete in 2018	Corrective Action Completed in 2019	Corrective Action to Complete in 2019
Patrol	Overhead Circuits, Structures, & Equipment	Poles, Transformers, Capacitors, Regulators, Reclosers, Switches	2,672	401	2,271	40	2,231
	Underground Structures & Equipment	Sectionalizing Cabinets, Vaults, Transformers, Switches	73	71	2	0	2
Detail	Overhead Circuits, Structures, & Equipment	Poles, Transformers, Capacitors, Regulators, Reclosers, Switches	1,546	569	977	139	838
	Underground Structures & Equipment	Sectionalizing Cabinets, Vaults, Transformers, Switches	146	43	103	9	94
Intrusive	Wood Poles & Equipment	Poles	2,622	539	2,083	1,331	752

\*Due to software concerns the values in the chart are subject to change upon reevaluation.

Inspection Type	Facility Type	Components	Corrective Action Planned in 2018	Corrective Action Completed in 2018	Corrective Action Incomplete in 2018	Corrective Action Completed in 2019	Corrective Action to Complete in 2019
Patrol	Overhead Circuits, Structures, & Equipment	Poles, Transformers, Capacitors, Regulators, Reclosers, Switches	2,281	15%	85%	1%	83%
	Underground Structures & Equipment	Sectionalizing Cabinets, Vaults, Transformers, Switches	73	97%	3%	0%	3%
Detail	Overhead Circuits, Structures, & Equipment	Poles, Transformers, Capacitors, Regulators, Reclosers, Switches	1,458	37%	63%	9%	54%
	Underground Structures & Equipment	Sectionalizing Cabinets, Vaults, Transformers, Switches	42	29%	71%	6%	64%
Intrusive	Wood Poles & Equipment	Poles	1,665	21%	79%	51%	29%

\*Due to software concerns the values in the chart are subject to change upon reevaluation. .

## Transmission

Liberty-Empire will continue to immediately correct safety hazards or malfunctioning equipment discovered during inspections. Ten (10) work orders resulting from the inspections were completed in 2018. Another 71 work orders were completed in 2019. The remaining 450 work orders are planned to be completed by December 31, 2019.

Transmission 2018 Corrective Action Summary							
Inspection Type	Facility Type	Components	Corrective Action Planned in 2018	Corrective Action Completed in 2018	Corrective Action Incomplete in 2018	Corrective Action Completed in 2019	Corrective Action to Complete in 2019
Patrol	Overhead Structures & Equipment	Poles	284	3	281	6	275
Detail	Overhead Structures & Equipment	Poles & Switches	0	0	0	0	0
Intrusive	Overhead Structures & Equipment	Poles	247	7	240	65	175

\*Due to software concerns the values in the chart are subject to change upon reevaluation.

Transmission 2018 Corrective Action Summary							
Inspection Type	Facility Type	Components	Corrective Action Planned in 2018	Corrective Action Completed in 2018	Corrective Action Incomplete in 2018	Corrective Action Completed in 2019	Corrective Action to Complete in 2019
Patrol	Overhead Structures & Equipment	Poles	284	1%	99%	2%	97%
Detail	Overhead Structures & Equipment	Poles & Switches	0	0%	0%	0%	0%
Intrusive	Overhead Structures & Equipment	Poles	223	3%	97%	26%	78%

\*Due to software concerns the values in the chart are subject to change upon reevaluation.