



Your Touchstone Energy® Cooperative 

## SYSTEM INSPECTION PLAN

Document Information		
Current Revision	Review Cycle	Subject to External Audit
Rev. 4.0	As-Needed	Yes

Big Rivers Corporate Approvals		
Prepared By	Tim Tapp	
Approval - Supervisor	N/A	
Approval - Dept. Manager	N/A	
Approval - Vice President	Mike Chambliss	10/24/14

Revision Information				
Number	Date	Notes	Revised by	Approved
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Related Standards	Requirements	Documents	Comments
COM-001-1			
FAC-003-1			
PRC-005-1			

Document Approval Checklist	
Task	Date Completed
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# **ENERGY TRANSMISSION AND SUBSTATION DEPARTMENT**

## **SYSTEM INSPECTION PLAN**

### **MAINTENANCE SUMMARY**

The Energy Transmission and Substation Department's primary responsibility is the maintenance of equipment and facilities in the Big Rivers Electric transmission system. The department is broken down into four functional areas: Transmission Lines, Right-of-Way, Substation Maintenance, and Metering and Communications.

### **WOOD POLE INSPECTION (5 year cycle)**

Big Rivers' inspection plan for its transmission line structures is organized into a five year cycle with approximately 20% of the system inspected annually. The first five year cycle consists of visual inspection and sounding of the wood. Suspected decay and voids are repaired and the pole is fumigated. The next five year cycle is more comprehensive with a repeat of the visual inspection and sounding of the pole to the top. Additionally, the pole top is treated and capped. Insulators and cross arms are inspected and hardware is tightened. Woodpecker damage is repaired. The pole butt is bored, fumigated, and treated below ground line. The inspection process continues on a five year cycle basis with each inspection type completed once every ten years.

### **STEEL STRUCTURES (5 year cycle)**

Steel structures are inspected on the same five year cycle as the wood poles. These structures are checked to ensure that the ground wire(s) are still attached, that nothing is loose (by doing a visual), and any corrosion is cleaned and the structure surface is painted with corrosion-inhibiting paint. Concrete foundations are inspected for any abnormalities. The rust preventive protective coating to steel poles above and below the ground line applied at the factory is checked for damage and any defects are repaired with new coating material.

### **SUBSTATION AND MICROWAVE SITE INSPECTIONS (every other month)**

Inspections are made every other month on each substation and microwave site. Checklists of the inspected areas are completed. Visual inspection is made of all fences, locks, lighting, transformers, circuit breakers, building, and other major facilities. Water is drained from all circuit breaker compressed air tanks. Counters, oil and gas levels, and winding temperature readings are recorded. Battery chargers are checked along with specific gravity in station battery test cells. Minor repairs are made as needed during each inspection. Larger problems are documented and repaired on the basis of a follow-up maintenance request.

### **MICROWAVE TOWER INSPECTIONS (every 6 months)**

Inspections are performed every 6 months on each microwave tower. Checklists of the inspections are completed. Visual inspections of towers, anchors, lighting, and guying are completed. Any problems are thus documented and repaired on the basis of a follow-up maintenance request.

### **AERIAL LINE PATROL (bi-annual)**

Aerial inspections are performed on the entire system a minimum of two times in a calendar year. These inspections include visual checks for both line and right-of-way maintenance issues. Ground inspections are performed independently of the aerial inspection. Right-of-way ground inspections for lines operated at 69kV are performed every 4 years and lines above 69 kV are inspected annually. Aerial inspection results are documented in writing. Potential problems are investigated through a follow-up ground inspection to determine if corrective actions are needed. Documented problems are repaired on the basis of a follow-up maintenance request.

### **INFRARED INSPECTION (annual cycle)**

Infrared inspections of the energized conductors in all system substations are performed on an annual basis. Inspection results are documented in writing and picture form in an inspection report. Documented problems are repaired on the basis of a follow-up maintenance request.

### **RADIO-CONTROLLED SWITCHING INSPECTION (every other month)**

Motor-operated transmission line switches are inspected and operational checks performed every other month. The radio equipment and, switch operator is checked for functional problems and battery condition. Checklists of the inspections are completed. The functional switch operation is accomplished by performing the operation remotely from Energy Control.

### **UTILITY BUILDING INSPECTIONS**

Inspections are made annually of Utility building for compliance with safety codes. Checklists of the inspected areas are completed and dated. Visual inspection is made of all roofs, floors, doors and locks, lighting, and for other items that are safety hazards. All items that need repairing are reported to the building manager after each inspection. All repairs are documented when completed.