



Control Number: 32182



Item Number: 209

Addendum StartPage: 0



2008 NOV 26 AM 9:53

BRAZOS ELECTRIC POWER COOPERATIVE, INC.
2404 LaSalle Avenue • P.O. Box 2585
Waco, Texas 76702-2585
(254) 750-6500

PUBLIC UTILITY COMMISSION
FILING CLERK

November 24, 2008

Filing Clerk
Public Utility Commission of Texas
1701 N. Congress Avenue, Room G-113
P.O. Box 13326
Austin, Texas 78711-3326

RE: Project No. 32182 – *PUC Investigation of Methods to Improve Electric and Telecommunications Infrastructure to Minimize Long Term Outages and Restoration Costs Associated with Gulf Coast Hurricanes*

TO THE FILING CLERK:

Enclosed for filing is the original and ten (10) paper copies of Brazos Electric Power Cooperative, Inc.'s (Brazos Electric) vegetation management practices report voluntarily submitted in response to a directive issued on October 15, 2008 by the Public Utility Commission of Texas in the above entitled and number project, requesting certain information.

By way of explanation, Brazos Electric does not maintain any transmission lines located within ten miles or within ten miles to fifty miles of the Coast and therefore makes no filing as to coastal facilities inventory.

Please place your "received" stamp upon the additional copy forwarded with this letter and filing and return it to my office in the enclosed, self-addressed stamped envelope. Thank you for your help with this.

If you have any questions regarding the attached report, please feel free to contact us.

Yours truly,

Johnny York
Vice President - Transmission

JY/vmd
Encl.

BRAZOS ELECTRIC COOPERATIVE VEGETATION MANAGEMENT PRACTICES

OBJECTIVE

Insure high voltage transmission line rights of way are free of vegetation that could contact an energized conductor within the normal and emergency ratings of each line based on clearances described in the IEEE Standard 516-2003 (Guide for Maintenance Methods on Energized Power Lines) Table 5.

COMPLIANCE STANDARDS

Federal Energy Regulatory Commission (FERC)
North American Electric Reliability Counsel (NERC)
Electric Reliability Council of Texas (ERCOT)
Rural Utility Service (RUS Bulletin 1730-1)
Brazos Electric Power Cooperative Safety Manual (Section 7 Tree Trimming)
National Electric Safety Code (ANSI Standard C2)
Occupational Safety and Health Association (OSHA 1910.)
Texas Health and Safety Code (Texas Statute Title 9 Chapter 752)

MILES OF LINE

345KV Lines - 97 miles
138KV Lines - 1160 miles
69KV Lines - 1340 miles
Total - 2597 miles

INSPECTIONS

Aerial inspections annually
Foot Patrols annually

CONTROL METHODS

Hand cutting and pruning
Machine clearing for complete tree or brush removal
Herbicide treatment

FREQUENCY

Clearing by machine as needed and determined by annual inspections.
Hand cutting and pruning as needed and determined by annual inspections.
Herbicide treatment as needed and determined by annual inspections.

PROCEDURES

Brazos Electric Cooperative utilizes a combination of contractors and Brazos crews to perform vegetation management. Hand cutting and pruning is done in areas where complete tree or brush removal is not allowed such as residential areas, commercial areas and orchards. Typically the hand cutting and pruning is done as needed and determined by annual inspections. Equipment used will consist of bucket trucks, chippers, trailers for hauling debris and various hand cutting tools. Machine cutting is done primarily using a hydro-ax type machine that grinds the vegetation into chips that are left on the ground for mulch. The machines grind the tree stumps to ground level but leave the stump and root system for erosion control. The soil is essentially undisturbed. In some areas flail type mowers are used typically in rural areas containing small brush. Herbicide treatment is usually done after regrowth begins allowing for the control of undesirable tall growing trees and allowing grass, forbs and other herbaceous plants to grow reducing the need for reclearing and treatment.

Table 5—Example of detailed calculations for MAID 60 Hz. Energized work, without tools in the air gap, when the transient overvoltage factors (T) is not known in meters

Voltage in kilovolts phase to phase	Distance in meters	
	Phase to ground	Phase to phase
72.6–121	0.75	1.09
138–145	0.90	1.31
161–169	1.05	1.52
230–242	1.57	2.28
345–362	2.88	4.18
500–550	4.48	6.90
765–800	6.24	10.22

NOTES

- 1—These distances take into consideration the highest transient overvoltage an employee will be exposed to on any system with air as the insulating medium and the maximum voltages shown.
- 2—Values are based on altitudes below 900 m. See Table 1 for correction factors for higher altitudes. It is not necessary to correct for atmospheric conditions.
- 3—Table distances do not include a factor for inadvertent movement. See 7.2 for inadvertent movement considerations. These factors must be added to the values to obtain the total MAD.
- 4—The clear live tool length should be equal to or exceed these values for the indicated voltage ranges.
- 5—The data used to formulate this table was obtained from test data taken with standard atmospheric conditions. Standard atmospheric conditions are defined as temperatures above freezing, wind less than 24 kilometer per hour, unsaturated air, normal barometer, uncontaminated air, and clean and dry insulators. If standard atmospheric conditions do not exist, extra care must be taken.
- 6—Data for this table was obtained from Table 7 and Table 11.
- 7—For values in feet, see Table D.3.

Brazos Electric Power Cooperative, Inc. ("Brazos") conducts annual foot patrols of all of the transmission lines owned by it. Brazos has four line crews that have the responsibility for patrolling the lines in their area. During the patrols information is recorded for the amount and height of the vegetation along the line for each span of the line. For tall vegetation the distance from the conductor is recorded along with the location of the vegetation relative to the line. The location of the vegetation is described as being within the prescribed easement or to the side of the easement. The data is entered into a database and used to develop the schedule for vegetation maintenance for the next cycle.

Brazos conducts annual aerial patrols of all of the transmission lines owned by it. The patrols are conducted by a contract aerial inspection company using a fixed wing aircraft. Brazos typically sends a lineman with the pilot to document vegetation that may need investigating. The pilot records the vegetation in the electronic GPS navigation system and provides Brazos an electronic report. The report is used in conjunction with the foot patrol report to develop the schedule for vegetation maintenance for the next cycle.