

Illinois Commerce Commission
Assessment of AmerenCIPS'
Reliability Report and Reliability Performance
for Calendar Year 2006

Pursuant to 83 Illinois Administrative Code 411.140

December 19, 2007

1. Executive Summary

Pursuant to Section 16-125 of the Illinois Public Utilities Act and the Commission's electric reliability rules in 83 Illinois Administrative Code, Part 411, Central Illinois Public Service Company d/b/a AmerenCIPS (AmerenCIPS) filed its annual electric reliability report for calendar year 2006 on June 1, 2007. It filed a revised report on July 26, 2007, to correct a non-compliant item in its initial report. This document details Staff's assessment of AmerenCIPS' 2006 reliability report and Staff's evaluation of AmerenCIPS' reliability performance for calendar year 2006.

AmerenCIPS' company-wide System Average Interruption Frequency Index (SAIFI) performance in 2006 was nearly 48% worse than it reported for 2005, and it was the second highest of all the reporting Illinois utilities. At 754 minutes (12.57 hours), AmerenCIPS' reported 2006 company-wide Customer Average Interruption Duration Index (CAIDI) performance was 6.7 times that reported for 2005 and was also the second highest reported by the reporting Illinois utilities. The severe July wind storms and the November/December ice storm were major contributors to both of these statistics in 2006.

AmerenCIPS should follow through with its action plans listed in its Supplemental Report (as a minimum) in an effort to prevent those customers who experienced interruptions in excess of the service reliability targets in each of the last three or more years from exceeding the targets again. In the extreme cases, the reliability targets were exceeded for 33 of those customers for six consecutive years, and the targets were exceeded for an additional ten customers for seven consecutive years. **It is imperative that AmerenCIPS do whatever is necessary to prevent this continuation of poor reliability for those customers.**

Throughout this report, Staff has taken into consideration the extreme wind storms of July 2006 and the extreme ice storm of November/December 2006 that struck AmerenCIPS' service territory. While it is understandable that AmerenCIPS' reliability statistics were impacted greatly by these extreme weather events beyond its control, it is not clear to what degree the electric facility damage caused by the storms and the resulting number of customer interruptions and duration of customer interruptions would have been lessened if AmerenCIPS had performed its system maintenance, including tree trimming, better. Staff believes that while the improvement in reliability performance due to better system maintenance before the storms hit would likely have been small in AmerenCIPS' case in 2006, any improvement is very important for the masses of impacted customers during those times. AmerenCIPS should assure that it performs its system maintenance, including tree trimming, to a high level to mitigate the effects of future weather events like it experienced in 2006.

AmerenCIPS listed weather as the most predominant cause of customer interruptions in 2006, causing 56.97% of its total customer interruptions. AmerenCIPS reported forestry problems as the cause for only 3.70% of the total customer interruptions, though Staff believes that many of the interruptions attributed to weather were also tree related. While

noting significant improvement from a few years ago, Staff found the quality of AmerenCIPS' tree trimming program to be erratic in ten communities served by AmerenCIPS (see Attachment "T") and on the circuits inspected in 2007. Trimming was well done in several areas, but there were several to many trimming problems in other areas. There is a need for improvement. In addition to maintaining a four-year trim cycle, as AmerenCIPS has committed to do, it also needs to assure compliance with 2002 NESC Rule 218 by assuring that all trees near its lines throughout its service territory are trimmed such that there will be no tree contacts with its energized primary¹ conductors before it returns to trim them again.

Staff discovered NESC violations on AmerenCIPS circuits at thirty-one (31) locations this year (see Attachment "N") and has learned that there may be several thousand more. The violations noted by Staff are more than it has noted for any utility in prior years. All of the safety code violations pose a threat to public safety and many of them threaten service reliability as well. There should not continue to be² so many NESC violations in AmerenCIPS' electric system. While AmerenCIPS has been responsive in resolving these issues when discovered by Staff, it needs to take full responsibility for finding and addressing these problems in a timely manner throughout its electric system and in preventing the occurrence of them in the first place.

To address the timeliness of Ameren's correction of its NESC violations once they are discovered, Staff and Ameren have worked together to develop Ameren's NESC Corrective Action Plan dated October 31, 2007. In this action plan, Ameren has committed that its normal ongoing process for resolution of all NESC violations will be for it to correct the violations that pose an imminent danger to public or employee safety within 24 hours and all others within 90 days of its becoming aware of them. The exception to Ameren's normal ongoing process, due to the huge volume of NESC violations known and estimated to already exist in Ameren's electric system, is that a one-time "catch up" program will be allowed for certain violations thought not to be as time critical as most others. This "catch up" program will apply only to downguys (from the utility's pole to the ground) or overhead guys (from pole to pole) that are not properly grounded or insulated, but are fully intact, in good condition, and not expected to fail during the next 5 years. The "catch up" program will allow 12 months from time of discovery for Ameren to resolve these specific cases. This one-time "catch up" program will cease on December 31, 2011, after which time the resolution of all NESC violations will fall under Ameren's normal ongoing process described earlier. More details of the Ameren NESC violations issue are provided in Section 7E of this report.

Staff found fewer structural problems than normal during its inspections of AmerenCIPS circuits this year, probably due to storm repairs already made (including many new poles

¹ The term "primary", as used in this report in relation to electrical facilities, refers to a circuit with a nominal voltage of 2,400 volts or more.

² The phrase "should not continue to be" acknowledges that many NESC violations are known to exist in Ameren's electric systems, have been there for many years, and all of them should be identified and eliminated. Concurrently, Ameren should assure that no new NESC violations are being created.

and crossarms). Staff did note needs for attention to several other problems on some of AmerenCIPS' worst performing and other circuits inspected this year, including the need for more animal guards on some circuits. Many of these problems, while not necessarily causes of poor performance in 2006, will have adverse effects on reliability and public safety in the future if not corrected. (Photos of some of the structural problems found are included in this report, and summaries of problems noted by Staff on AmerenCIPS circuits inspected this year are included as Attachments "A" through "L"). AmerenCIPS should perform field inspections of all circuits on a regular basis and correct the problems found which can significantly affect reliability or public safety.

AmerenCIPS listed several ongoing corporate, operating, and maintenance activities that the company is doing to improve reliability, summarized in Section 9 of this report. These are positive steps toward reliability improvement.

AmerenCIPS reported that all remedial work on worst performing circuits described in its 2005 reliability report has been completed.

While the above discussion covers the most significant items in a general way, a total of six specific recommendations are included in this Staff report, summarized in Section 12.

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2. Introduction

Beginning with the year 1999, and at least every three years thereafter, 83 Illinois Administrative Code Part 411.140 requires the Commission to assess the annual reliability report of each jurisdictional entity and evaluate its reliability performance. Code Part 411.140 requires the Commission evaluation to:

- A) Assess the reliability report of each entity.
- B) Assess the jurisdictional entity's historical performance relative to established reliability targets.
- C) Identify trends in the jurisdictional entity's reliability performance.
- D) Evaluate the jurisdictional entity's plan to maintain or improve reliability.
- E) Include specific identification, assessment, and recommendations pertaining to any potential reliability problems and risks that the Commission has identified as a result of its evaluation.
- F) Include a review of the jurisdictional entity's implementation of its plan for the previous reporting period.

This document provides Staff's assessment of the annual reliability report covering calendar year 2006 filed by Central Illinois Public Service Company d/b/a AmerenCIPS (AmerenCIPS) on June 1, 2007 (revised and re-filed on July 26, 2007), and Staff's evaluation of AmerenCIPS' reliability performance for calendar year 2006. This report is organized to include all of the above listed requirements.

3. AmerenCIPS' 2006 Customer Base and Service Territory

As of December 31, 2006, AmerenCIPS provided electric service to 393,564 electric distribution customers in Illinois.

AmerenCIPS' service territory covers more than 20,000 square miles throughout 74 counties in central and southern Illinois. The majority of AmerenCIPS' customer base is located in rural areas, evidenced by providing service to 7% of the state's population while covering over 35% of its surface area.

4. AmerenCIPS' Electric Distribution System

AmerenCIPS' electric distribution system consists of approximately 13,200 miles (89.2%) of overhead conductor and 1,600 miles (10.8%) of underground circuits. AmerenCIPS reported that it has a total of 1,129 electric distribution circuits.

Code Part 411.120(b)(3)(G) requires the utilities to report on the age of their distribution facilities. Because of different depreciation structures remaining in place for each company, AmerenCIPS reported this information separately for the previous AmerenCIPS and the previous AmerenUE-Illinois.

For the previous AmerenCIPS, AmerenCIPS estimates that the average ages of its distribution equipment range from 3.8 years (for underground services) to 26.9 years (for structures and improvements), with an average age of 17.9 years for poles, towers, and fixtures, and 19.1 years for line transformers. The remaining average distribution equipment (accounting) lives range from 6.8 years (for station equipment) to 55.9 years (for underground conduit), with an average remaining life of 17.1 years for poles, towers, and fixtures, and 10.9 years for line transformers.

For the previous AmerenUE-Illinois, AmerenCIPS estimates that the average ages of its distribution equipment range from 12.0 years (for underground services) to 40.9 years (for structures and improvements), with an average age of 20.5 years for poles, towers, and fixtures, and 33.2 years for line transformers. The remaining average distribution equipment (accounting) lives range from 6.8 years (for line transformers) to 58.8 years (for underground conduit), with an average remaining life of 13.5 years for poles, towers, and fixtures, and 15.1 years for station equipment.

See Tables 18 and 19 (page 71) in AmerenCIPS' annual reliability report for more details.

5. Assessment of AmerenCIPS' 2006 Reliability Report

Central Illinois Public Service Company d/b/a AmerenCIPS (AmerenCIPS) filed its annual electric reliability report for calendar year 2006 on June 1, 2007, as required by Section 16-125 of the Public Utilities Act and the Commission's electric reliability rules in 83 Illinois Administrative Code, Part 411. AmerenCIPS filed a revised annual reliability report on July 26, 2007, to correct a non-compliant item by including information omitted from the initial report.

AmerenCIPS' revised reliability report contains the information necessary to comply with the requirements of Code Part 411.120(b)(3). The report is generally well organized, with the information sequenced to follow the pattern of Code Part 411. This makes it less difficult to find information in the report. AmerenCIPS described several specific projects intended to improve system reliability.

AmerenCIPS' initial report was non-compliant with the reporting requirements specified in the Code in one respect:

- AmerenCIPS' plan for future investment and reliability improvements (pages 61-62), included years 2007-2009, but not 2010 (three years following the year in which the report was filed) as required by Code Part 411.120(b)(3)(A)(ii).

This non-compliant item was addressed in AmerenCIPS' revised reliability report filed July 26, 2007.

6. AmerenCIPS' Historical Performance Relative to Established Reliability Targets

Code Part 411.140(b)(4)(A-C) establishes electric service reliability targets that jurisdictional entities (utilities) must strive to meet. These targets specify limitations on customer interruptions as well as hours of interruption that a utility must strive not to exceed on a per customer basis. Code Part 411.120(b)(3)(L) requires each utility to provide a list of every customer, identified by a unique number, who experienced interruptions in excess of the service reliability targets, the number of interruptions and interruption duration experienced in each of the three preceding years, and the number of consecutive years in which the customer has experienced interruptions in excess of the service reliability targets.

In April 2004, AmerenCIPS, along with all other regulated Illinois electric utilities, agreed to report on all interruptions (controllable and uncontrollable) as defined in Code Part 411.20 in relation to the service reliability targets for the reporting periods of 2003 through 2007, and to include the specific actions, if any, that the utility plans or has taken to address the customer reliability concerns.

The customer service reliability targets are listed in Table 1.

Table 1
CUSTOMER SERVICE RELIABILITY TARGETS

Immediate primary source of service operation voltage	Maximum number of interruptions in each of the last three consecutive years	Maximum hours of total interruption duration in each of the last three years
69kV or above	3	9
Between 15kV & 69kV	4	12
15kV or below	6	18

In its 2006 reliability report, AmerenCIPS reported that the following numbers of customers in each of the above categories exceeded the service reliability targets in each of the three preceding years:

	<u>Frequency</u>	<u>Duration</u>
• 69kV or above:	None	None
• Between 15kV & 69 kV:	None	None
• 15kV or below:	13	1,379

None of the 13 customers for which the frequency target was violated were also in the duration violation category. The total number of AmerenCIPS customers for which one or both of the reliability targets were violated in 2006 was therefore 1,392.

It is notable that the 1,392 AmerenCIPS customers exceeding the reliability targets in 2006 is 1.68 times the number (830) reported in AmerenCIPS' 2005 reliability report. Of the 1,392 total violations, a total of 1,308 (94.0%) were in the former AmerenUE-Illinois territory, with only 84 (6.0%) in the rest of AmerenCIPS. All of the 1,308 former AmerenUE customers exceeded the 18-hours interruption duration target in each of the past three years, consistent with AmerenUE's poor Customer Average Interruption Duration Index (CAIDI) history.

The breakdown of AmerenCIPS reliability target violations by number of consecutive years reported for year 2006 is shown in Table 2a. Similar data reported by AmerenCIPS for year 2005 is provided in Table 2b for comparison.

Table 2a (2006 data)
AmerenCIPS CUSTOMERS EXCEEDING RELIABILITY TARGETS

Consecutive Years	Former AmerenUE Customers	Former AmerenCIPS Customers	Total AmerenCIPS Customers
3	614	59	673
4	460	19	479
5	191	6	197
6	33	0	33
7	10	0	10
3 or more yrs. totals:	1308	84	1392

Table 2b (2005 data)
AmerenCIPS CUSTOMERS EXCEEDING RELIABILITY TARGETS

Consecutive Years	Former AmerenUE Customers	Former AmerenCIPS Customers	Total AmerenCIPS Customers
3	483	79	562
4	215	6	221
5	46	0	46
6	0	1	1
7	0	0	0
3 or more yrs. totals:	744	86	830

AmerenCIPS investigated each of the reported reliability target violations and determined the causes for the service interruptions. Most of the customer interruptions in 2006 which resulted in reliability target violations were attributed to the major wind storms in July and the major ice storm in November/December. AmerenCIPS' reported actions taken and planned to address these problems seem reasonable. The number of violations that have occurred for more than three consecutive years is growing, however, especially for the former AmerenUE customers. Note that 694 customers in that group have experienced interruptions exceeding the service reliability targets for four or more consecutive years. In the extreme cases, the reliability targets were exceeded for 33 of those customers for six consecutive years, and the targets were exceeded for an additional ten customers for seven consecutive years. **It is imperative that AmerenCIPS do whatever is necessary to prevent this continuation of poor reliability for those customers.**

It is also noteworthy that AmerenCIPS reported that 9,417 of its customers experienced more than six interruptions in 2006, which was 69% more than 5,562 customers in this category in 2005. In the extreme cases, a total of 745 AmerenCIPS customers experienced more than ten interruptions in 2006, compared to 11 customers in 2005. While Staff understands that the major storms were to blame for most of these extreme cases of customer interruptions in 2006, AmerenCIPS should make every effort to prevent an upward trend of this data from the historical data prior to 2006. See Section 8 of this report for more information on this, including trends of AmerenCIPS customers experiencing high numbers of interruptions.

7. Analysis of AmerenCIPS' Year 2006 Reliability Performance

A. Statistical Reliability Data

Table 3 shows AmerenCIPS' company-wide reliability indices for calendar year 2006 compared to the other five reporting Illinois electric utilities. This data indicates that AmerenCIPS was the second highest (second worst) in the six utility group in terms of both average frequency of system interruptions (SAIFI) and average frequency of customer interruptions (CAIFI) in 2006, exceeded only by AmerenIP in both categories.

At 754 minutes (12.57 hours), AmerenCIPS reported the second highest (second worst) average duration of customer interruptions (CAIDI) in the six utility group, also exceeded only by AmerenIP in 2006.

Table 3
ILLINOIS UTILITY RELIABILITY INDICES
CALENDAR YEAR 2006

	SAIFI	CAIDI (minutes)	CAIFI
AmerenCILCO	1.61	489	2.37
AmerenCIPS	2.04	754	2.68
AmerenIP	2.53	1,545	3.07
ComEd	1.43	149	2.18
MidAmerican	1.8905	87.48	2.3851
Mt. Carmel	1.9	223.71	1.94

SAIFI: System Average Interruption Frequency Index. This represents the average interruption frequency for all customers on the electric system, including customers who had no interruptions (total customer interruptions divided by total system customers).

CAIDI: Customer Average Interruption Duration Index. This represents, for the group of customers that actually had one or more interruptions, the average interruption duration.

CAIFI: Customer Average Interruption Frequency Index. This represents the average interruption frequency for the group of customers that had interruptions. A CAIFI index much higher than SAIFI suggests that subsets of customers experienced significantly more frequent interruptions than the overall system average.

Note: The comparison of company-wide reliability indices for Illinois electric utilities should indicate relative reliability levels achieved. The reader of this report should, however, keep in mind that each Illinois electric utility has a unique electric system, a unique group of customers, and a unique method of defining, recording, and reporting the interruption data. These differences make precise utility-to-utility comparisons difficult.

Table 4 shows a breakdown of fifteen causes of sustained customer interruptions by cause category, as reported by AmerenCIPS for year 2006. The total number of interruptions ("events") reported for 2006 is up 54.1% from the same data reported for year 2005 (12,012 events), and up 29.2% from the 14,328 events reported for AmerenCIPS and AmerenUE-Illinois combined for year 2004. The total number of customer interruptions went up 43.0% from 2005, and up 20.3% from the combined total in 2004.

AmerenCIPS reported that the highest percentages of customer interruptions in 2006 were caused by weather (56.97%) and overhead equipment (9.07%). Animals (6.17%) and "Intentional" (5.94%) were the next leading causes. AmerenCIPS listed trees as the cause for only 5.74% of the events and 3.70% of the customer interruptions in 2006, though Staff believes that many of the interruptions attributed to weather were also tree related. Staff found the quality of tree trimming to vary greatly from location to location in ten communities served by AmerenCIPS (see Attachment "T") and on the AmerenCIPS circuits inspected in 2007. Since tree trimming in several areas was particularly bad and not consistent with other well done areas, there is a considerable need for improvement in AmerenCIPS' vegetation management program. See subheading "D" later in this section for more discussion.

Table 4
TOTAL INTERRUPTIONS BREAKDOWN BY CAUSE

Interruption Cause Category	Events	Customers Interrupted	Percent of Events	Percent of Customer Interruptions
Animal Related	1,952	53,482	10.55%	6.17%
Customer	68	9,267	0.37%	1.07%
Intentional	1,721	51,513	9.30%	5.94%
Jurisdictional Entity / Contractor Personnel Errors	106	15,956	0.57%	1.84%
Loss of Supply	42	1,822	0.23%	0.21%
Other	934	14,509	5.05%	1.67%
Overhead Equipment Related	2,501	78,587	13.52%	9.07%
Public	424	31,812	2.29%	3.67%
Substation Equipment Related	39	26,385	0.21%	3.04%
Transmission	23	20,305	0.12%	2.34%
Tree Related	636	13,423	3.44%	1.55%
Tree Related – Tree Broken	426	18,654	2.30%	2.15%
Underground Equipment Related	397	11,474	2.15%	1.32%
Unknown	1,102	25,732	5.96%	2.97%
Weather	8,134	493,807	43.96%	56.97%
TOTALS:	18,505	866,728	100.00%	100.00%

B. Worst Performing Circuits Data

Code Part 411.120(b)(3)(I)&(J) requires the reporting utility to list its worst performing circuits (subsection I) and then state (subsection J) what corrective actions are planned to improve those circuits' performance. Table 5 shows the AmerenCIPS circuits with the highest (worst) reliability indices for 2006. The bolded values in the SAIFI, CAIFI, and CAIDI columns represent the indices that caused the circuit to be a worst performer.

Table 5
AmerenCIPS CIRCUITS WITH HIGHEST SAIFI, CAIFI, & CAIDI
CALENDAR YEAR 2006

<u>Substation</u>	<u>Circuit</u>	<u>SAIFI</u>	<u>CAIFI</u>	<u>CAIDI</u> (minutes)
Lake-4	302002	1.27	1.27*	7261
Lake-4	302004	1.68	1.68*	6331
Airport	308005	1.46	1.46*	6410
Fosterburg (West & SW of Fosterburg)	310053	5.19	5.19*	2027
Belt Line	315005	0.24	1.00	7948
Powhatan	327002	4.51	4.51*	1628

(continued)

Table 5 (continued)
AmerenCIPS CIRCUITS WITH HIGHEST SAIFI, CAIFI, & CAIDI
CALENDAR YEAR 2006

<u>Substation</u>	<u>Circuit</u>	<u>SAIFI</u>	<u>CAIFI</u>	<u>CAIDI</u> (minutes)
Washington Park	335002	1.62	1.62*	7062
Washington Park	335003	4.55	4.55*	2832
Broadview	338005	1.13	1.15	6889
Rosemont	341002	2.85	2.85*	6203
Lansdowne	342004	5.35	5.35*	1525
Fairview	343001	1.13	1.40	7276
Haydite	344002	4.99	4.99*	1437
Edgemont	346001	0.77	1.00	9518
Edgemont	346002	5.44	5.44*	1665
Gale (Olive Branch & rural)	S34527	4.61	4.61*	352
West Frankfort (West Frankfort, Pershing, Plumfield, & rural)	T06503	4.96	4.97	237
Rural Albion (Rural Albion to Grayville)	X03533	7.13	7.13	92
Gibson City West	X75571	4.79	4.79*	361
Taylorville West	Y93003	0.39	1.00	6303

Notes: Fifteen of the twenty AmerenCIPS worst performing circuits in 2006 were in the former AmerenUE-Illinois service territory.

Gale Circuit S34527 was also a worst SAIFI performer in 1999.

** Ameren reported that it changed CAIFI to equal SAIFI for these circuits because “indices are based upon end-of-year customer counts which can vary significantly due to circuit reconfiguration.”*

C. Circuit Inspections

As part of his review of AmerenCIPS' 2006 reliability, Staff's Senior Electrical Engineer Jim Spencer inspected the four AmerenCIPS worst performing circuits which have their circuit numbers indicated in bold in Table 5. Staff also performed a partial re-inspection of a 2005 selected circuit (Circuit K65221-- Rural Springfield, Glenarm, Pawnee, & rural), inspections of two other selected circuits in Pawnee (Circuits V19002 & V19001), and spot-checks of prior-year or newly discovered current-year circuit problems on the following five circuits and one 34.5 kV line:

- 34.5 kV Line 061-74 (National City)
- Circuit 333001 (National City)
- Circuit S09520 (Hurst)
- Circuit U05595 (Astoria, Summum, & rural)
- Circuit U99515 (East of Mason City)
- Circuit Y97514 (South of Champaign)

Staff also inspected the following four AmerenCIPS “next-worst SAIFI” circuits:

- Canal Circuit 324002 (Granite City & unincorporated Madison County)
- Bethany Circuit 312002 (Godfrey & rural)
- N. Marblehead Circuit V01002 (Quincy, Marblehead, & rural)
- Paris High Street Circuit Y51506 (Paris, Vermilion, & rural)

In addition to the above circuit inspections, Staff performed random inspections of tree trimming conditions in ten communities served by AmerenCIPS. Details of these tree trimming inspections are provided in Attachment “T” to this report and are summarized later in this section under subheading “D”.

Ameren Services, AmerenCIPS, or AmerenIP personnel accompanied Jim Spencer, Staff’s Senior Electrical Engineer, on nine of these seventeen circuit inspections and on tree trimming inspections in seven of the ten communities inspected. All Ameren personnel were very cooperative and helpful in accomplishing the work. Bev Hall, Ameren’s Reliability Engineering Specialist, was especially helpful to Staff in providing the needed circuit maps and other requested information, in coordinating Ameren’s participation in the inspections, and by her own participation in seven AmerenCIPS circuit inspections and tree trimming inspections in five communities.

The field inspections allow Staff to verify that work was performed on the circuits as reported by the utilities and to see if there are any apparent reasons for poor performance of these circuits. Staff also notes any problems with the facilities it observes which may pose a threat to future service reliability or to public safety. For example, Staff looks for poor tree trimming practices, broken poles, split crossarms, damaged electrical devices, etc.

Summaries of items noted by Staff during the field inspections of the selected AmerenCIPS distribution circuits this year are included in this report as Attachments “A” through “L”. *(As mentioned to AmerenCIPS when providing them with a copy of these summaries in August 2007, the summary for each of the circuits inspected represents typical observations noted by ICC Staff during the field inspections and is not intended to represent all of the problems or potential problems that may exist on each circuit. Also, Staff’s inspections are not intended to take the place of the more thorough, detailed inspections that should be performed periodically by the utility company.)*

There were some mapping errors and some cases where roads and/or towns were not labeled on the circuit maps provided by AmerenCIPS again this year, but these problems were much fewer than in prior years. AmerenCIPS should continue its efforts to improve its circuit maps and make them more user friendly.

Gale 12 kV Circuit S34527 was an AmerenCIPS worst performing circuit in 2006 (SAIFI of 4.61), serving Olive Branch and a rural area to the edge of Tamms. This was also a

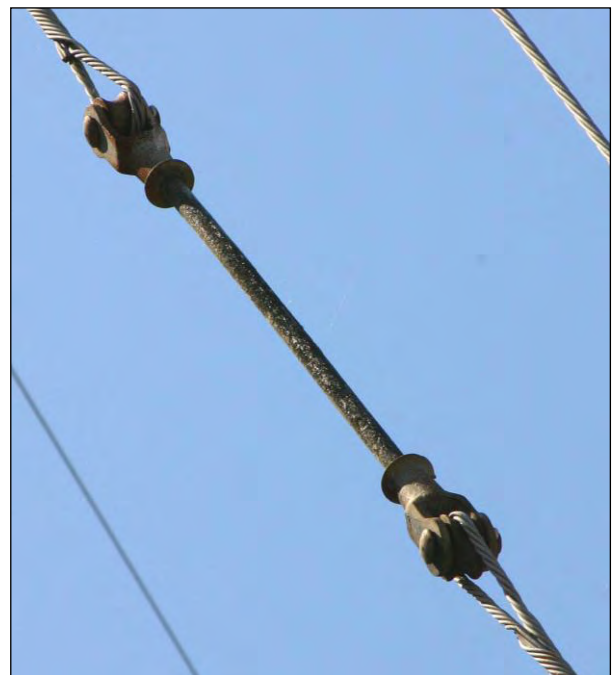
worst performing circuit in 1999 and a next-worst SAIFI circuit in 2002. AmerenCIPS attributed 43% of the customer interruptions on this circuit in 2006 to weather, with an additional 22% of the interruptions attributed to broken trees. Five feeder outages occurred in 2006, caused by 1) a public vehicle accident, 2) galloping conductors, 3) intense lightning, 4) a faulty solid-blade switch, and 5) a tree branch across all three overhead conductors. Staff inspected this circuit on March 3, 2007, noting that tree trimming and animal guarding were well done, with some evidence of recent trimming. The structural problems included ten poles with notable woodpecker damage. **Staff noted NESC guying violations at six locations, and Ameren should look for others on this circuit.** (See subheading “E” later in this section for more discussion of the NESC violations.) Much of the circuit is underbuilt on a 69 kV line, and several sections are cross-country. There were some mapping errors, and some of the roads and the town of Olive Branch were not labeled on the circuit maps provided. Staff’s inspection notes for this circuit are summarized on Attachment “A”, and Figures 1 through 4 show some of the circuit problems noted.

Figure 1 (Photo 07-CIP1282)

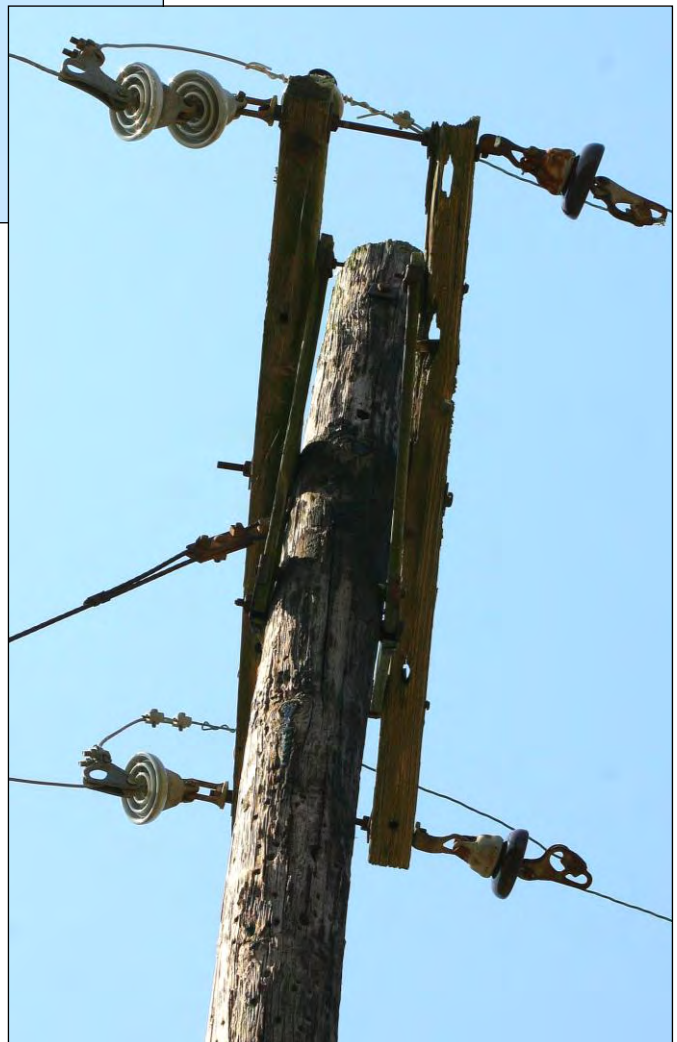
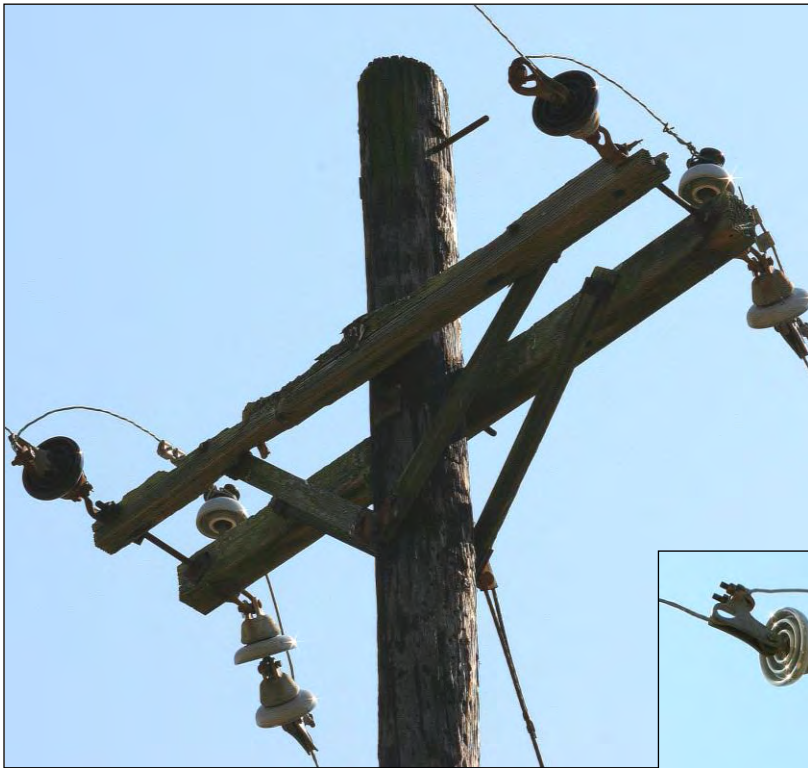
**10(+) woodpecker holes in 69 kV structure w/ 12 kV underbuild & tap
Circuit S34527, Str. 230 (69 kV Line 608), east of Gale Substation**



**Figure 2 (Photo 07-CIP1286)
Charred 69 kV strain insulators
(in both lower 69 kV downguys)
Circuit S34527, Pole A3185, east side of
Bean Ridge Rd., east of Gale Substation**



Figures 3 & 4 (Photos 07-CIP1290 & 07-CIP1292)
Badly deteriorated crossarm
Circuit S34527, south of Old Diswood Rd., northeast of Olive Branch



Rural Albion Circuit X03533 was an AmerenCIPS worst performing 12 kV circuit in 2006, with the highest SAIFI (7.13) of all AmerenCIPS circuits. It serves a rural area from Albion south to Grayville. 85% of the customer interruptions in 2006 were attributed to thunderstorms, after which AmerenCIPS replaced nearly every lightning arrester, installed an additional line recloser, and upgraded the substation recloser. During its inspection of this circuit on March 8, 2007, Staff noted that the trees were well trimmed except for one span on the customer side of a primary meter point. Staff saw no animal guards on the circuit. There were many woodpecker holes in at least twenty-three (23) poles, but few other structural problems. Much of this circuit is underbuilt on a 69 kV line, and several sections are cross country. **Staff noted NESC guying violations at four locations.** See Attachment “B” for a summary of Staff’s inspection notes, and Figures 5 through 7 for photos of some of the problems noted.

Figure 5 (Photo 07-CIP1298)

**Several (14+) large woodpecker holes in pole
Circuit X03533, Spruce Ln. (Rd. 600E), south of Albion & northwest of Grayville**

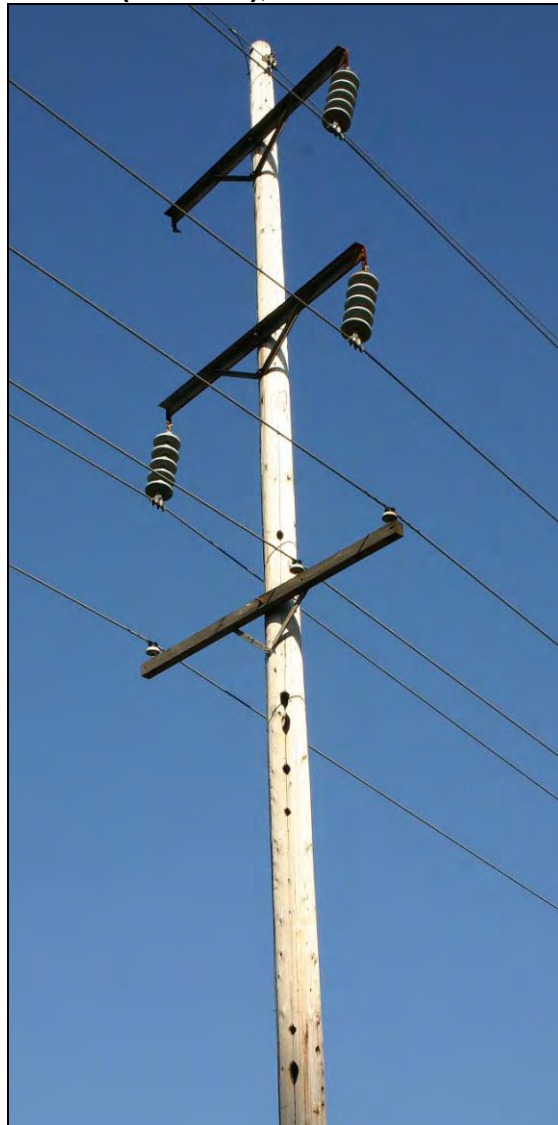


Figure 6 (Photo 07-CIP1302)

**Five ungrounded 69 kV & 3- 12 kV overhead guys without properly placed strain insulators
(NESC Guying Violations)**

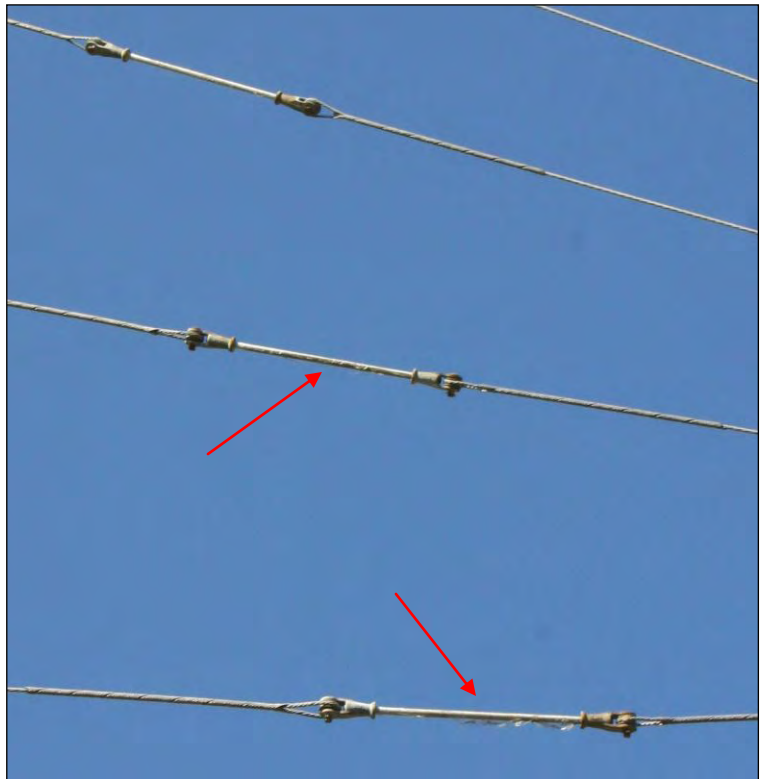
Circuit X03533, NW corner of Rds. 600E & 357N, south of Albion



Figure 7 (Photo 07-CIP1301)

**Deteriorated guy strain insulators
in overhead guys**

**Circuit X03533, NW corner of
Rds. 600E & 357N, south of Albion**



AmerenCIPS' Canal Circuit 324002 is a 4 kV circuit serving a small northern portion of Granite City and a small unincorporated area of Madison County west of Granite City. While not on AmerenCIPS' worst performing circuits list for 2006, this circuit was one of AmerenCIPS' next twenty worst SAIFI circuits, with a SAIFI of 4.10. Staff inspected this circuit on March 13, 2007, noting that tree trimming and the structures looked good, but there were several missing guy markers³. No animal guards were noted, but most of the transformers were CSP ("completely self-protected"). Several line sections were inaccessible. **Staff noted NESC guying violations at three locations.** Staff's field notes are summarized on Attachment "C", and Figures 8 through 11 show some of the circuit problems noted.

Figure 8 (Photo 07-CIP1319)

**Two ungrounded 34 kV downguys without properly located strain insulators
(NESC Guying Violations)
Circuit 324002, Waterworks Rd. north of I-270, west of Granite City**



³ Guy markers are devices placed on the ground end of downguys for the purpose of making the downguys more readily visible to pedestrian or vehicular traffic. The absence of these markers can increase the risk of physical injury to the public and increase the risk of damage to the utility's line the downguy is attached to if the unmarked downguy is hit by pedestrian or vehicular traffic.

Figure 9 (Photo 07-CIP1320)

**Two ungrounded 34 kV downguys with inadequate height of strain insulators
(NESC Guying Violations)**

Circuit 324002, Waterworks Rd. at Illinois American Water Co., west of Granite City



Figure 10 (Photo 07-CIP1308)

**Vines up a downguy & into the primary & fused cutout
Circuit 324002, Chouteau Place Rd., west of Granite City**



Figure 11 (Photo 07-CIP1311)
**Vegetation hanging from a tree
and into the primary
Circuit 324002, Chouteau Place Rd.,
west of Granite City**



Fosterburg Circuit 310053 was an AmerenCIPS worst performing 12 kV circuit in 2006, with a SAIFI of 5.19. It was a next-worst performing circuit in 2003, and serves a rural area in Foster Township west and southwest of Fosterburg. AmerenCIPS attributed 86% of the customer interruptions in 2006 to weather, primarily a result of the July and November storms. Staff noted some tree trimming problems at the time of its inspection on March 13, 2007. The structures, including guying, looked generally good, but eighteen (18) missing guy markers were noted. Staff also noted many animal guards. A summary of Staff's inspection notes is on Attachment "D". Figure 12 shows an example of a tree trimming problem southwest of Fosterburg.

Figure 12 (Photo 07-CIP1325)
Pine trees into primary, with burning, & broken limb on primary
Circuit 310053, Hill Creek Lane, southwest of Fosterburg



Bethany Circuit 312002 was another of AmerenCIPS' next-worst SAIFI circuits in 2006, with a SAIFI of 4.05. This 4 kV circuit serves an eastern portion of Godfrey and a small rural area east and northeast of Godfrey. Tree trimming and animal guarding looked good when Staff inspected this circuit on April 19, 2007. A few structural problems were noted. There were some mapping errors, including the nominal circuit voltage being shown incorrectly (12 kV instead of 4 kV) on the circuit maps. Staff's inspection notes are summarized on Attachment "E".

AmerenCIPS Circuit V18553 is a 12 kV circuit which serves a rural area south of Springfield, Glenarm, a small western portion of Pawnee, and a rural area between Glenarm and Pawnee. This circuit is also the source for two 4 kV circuits (V19001 and V19002) in Pawnee. Circuit V18553 was chosen for inspection in 2006 because of a report of three poles falling over in recent years. Staff performed a partial re-inspection of this circuit on May 3, 2007, visiting the location of an NESC railroad crossing violation and several significant structural problem locations noted during the prior year's inspection. During the partial re-inspection in 2007, Staff verified that AmerenCIPS had resolved the NESC violation noted in 2006 and had corrected a majority of the other problems at the locations chosen for re-inspection. Several of the needed corrections have not been made, however, and Staff also noted several new problems. Staff's notes of this partial re-inspection are summarized on Attachment "F", with the 2007 notes shown in blue and red font. Figure 13 shows one of the problems Staff noted last year that AmerenCIPS chose not to correct, and Figure 14 shows one of the new problems Staff noted during this year's inspection.

Figure 13 (Photo 07-CIP1440)

**Broken wood brace (second brace split) & bad pole top (noted in 2006 but not corrected)
Circuit V18553, E. Glenarm Rd., east of Glenarm**



Figure 14 (Photo 07-CIP1437)

**Broken wood brace (road side)
Circuit V18553, Old Route 66, just east of Glenarm**

