Annual Report
2012 Vegetation Management Report
4 CSR 240-23.030
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2012 Vegetation Management Report

6(C).
Summary of the information required in subsection 6(B).

Currently, Empire contracts with seven contractors to assist in maintaining the vegetation on the system. They include:

- 11 ACRT utility foresters plan and inspect the work performed.
- 62 Wright Tree Service employees under the supervision of Afton Stanko, Project Manager. 26 two-man bucket/manual crews, 2 mower crews, 3 Jarraff crews, and 1 grapple truck.
- 16 Shade Tree Service employees supervised by Nathan McCullough. 7 two-man bucket crews; and an additional mini bucket to provide assistance as needed.
- Application Specialties performs herbicide and TGR application. Jim Clark is owner and manages 8 employees.
- Mid Central Contractors, Kenny Singer Construction, and N-D Mand, LLC operates special mechanical clearing equipment on select right-of-way situations.

There were no incidents of safety hazards or accidents resulting in death or serious injury in 2012.

6(C)1.
Expenditures for vegetation management in the preceding year of 2012:
$12,349,660.82

6(C)2.
Vegetation management's budget for the current year of 2013:
$13,013,693.80

6(C)3.
Circuits, completion dates and miles trimmed in the preceding year.
See Exhibit A and Exhibit B, which depicts completion schedules for 2012. Details are documented through work plans, weekly timesheets and invoices. Empire will furnish any copies upon request.

6(C)4.
Circuits, miles scheduled for the current year:
See Exhibit C and Exhibit D, which depicts schedules for 2013.

6(C)5.
Total Distribution miles for the system and corresponding classification between rural and urban: The total distribution miles on EDE's system are 5,572; classified as 1,757 Urban Miles and 3,815 Rural Miles.

8(A,B,C).Highlights of Empire's public education and outreach program for 2012 consisted of :

- Continue to maintain and update tree related information on the website.
- Volunteer to help Habitat for Humanities with site vegetation clearing and tree recommendation on their projects as a means of showing the Right Tree Right Place concept.
- Participated with two communities, Joplin and Duquesne in their Arbor Day Celebrations. Ideal events to visit with the public and use handouts for proper placement and care of trees. Also, supplied a half dozen trees for the Arbor Day planting in Parr Hill Park, Joplin.
- Produced commercial in regards to Empire's commitment to safety and reliability.
- Sent out bill stuffer regarding proper maintenance for reliable service.
- Assisted Rotary Club of Joplin and Webb City with approximately 15 tree plantings of utili-friendly trees in Miracle Field. This ball park is specifically designed to enable handicapped kids play ball and access playground equipment.
- Empire has maintained our Tree Line USA certification for the third year. This is a designation that we will strive to keep as on-going involvement with the public; and annual contractor and employee education.
- Maintenance planners are delivering ISA (International Society of Arboriculture) brochure on the *Benefits of Trees* in conjunction with their door cards. Our website reinforces our cooperation with International Society of Arboriculture by offering another 13 of their brochures simply by requesting this information online.
- Our planners are encouraged to achieve ISA Arborist Certification and encouraged to participate in local Missouri Community Forestry Council events,
- Assisted an Ozark Elementary Science class by supplying wood chips for their outdoor classroom.
- Wood chips are available to the public by request on the website.
- A public workshop at the Arboretum covering the concept of the Arboretum, pruning young trees and the benefits of wood chips as mulch. This was a hands-on workshop, which allowed us to help the city out with some maintenance of the arboretum.

4(F)2. A copy of our current Distribution System Vegetation management Policy and Procedures Manual is attached. Our standards remain the same as the previous years with the addition of TGR specifications.

4(F)5. Vegetation management had no filings of its transmission lines with the FERC, a regional reliability organization, or the NERC.

EXHIBIT A

6 (B) and (C). Summary of Information for Vegetation Management Plan 2012

DISTRIBUTION System -- Vegetation Management Plan 2012

Circuit ID	Area	Sub	Sub Name	State	Maint Schedule	2012 Scheduled Miles	2012 Completed Miles	Conventional Completion Date	Conventional: Trims	Conventional: Removals	Conventional: Brush	Completion Date: Mech	Completion Date: Foliar/Basal	Completion Date: TGR
3771	212	377	Quapaw - Eagle Picher	OK	4	67.9	67.9	12/8/2012	•	•	•	6/16/2012	8/17/2012	3/19/2012
3772	212	377	Quapaw - Eagle Picher	OK	4	1.5	1.5	8/17/2012	•	•	•	-	8/18/2012	n/a
3773	212	377	Quapaw - Eagle Picher	OK	4	16.7	16.7	8/17/2012	•	•	•	4/30/2012	8/19/2012	n/a
6601	212	66	Scammon - South	KS	6	49.5	49.5	5/12/2012	•	•	•	6/11/2012		6/11/2012
2781	212	278	Galena - Northeast	KS	6	0.6	0.6	8/4/2012	•			6/30/2012		-
2782	212	278	Galena - Northeast	KS	6	54.1	54.1	8/11/2012	•	•	•	10/1/2012		4/30/2012
2913	212	291	Baxter Springs - 12th Street	KS	6	12.6	12.6	12/8/2012	•	•	•	9/18/2012		10/30/2012
4441	212	444	Sherwin	KS	6	0.4	0.4	n/a			•	n/a	n/a	n/a
1227	214	59	Joplin - 26th Street	MO	4	19.3	19.3	10/27/2012	•	•	•		1/10/2013	10/3/2012
1261	214	258	Gateway	MO	4	4.0	4.0	3/12/2012	•	•	•	5/29/2012	11/25/2011	7/12/201
1263	214	258	Gateway Drive	MO	4	15.3	15.3	8/17/2012	•	•	•		12/27/2011	2/28/2012
1264	214	258	Gateway Drive	MO	4	3.9	3.9	2/25/2012	•		•	n/a	2/29/2012	4/30/2012
4301	214	430	Joplin - 32nd & Oliver	MO	4	4.5	4.5	2/25/2012	•	•	•	n/a	4/30/2012	4/30/2012
4304	214	430	Joplin - 32nd & Oliver	MO	4	1.3	1.3	2/25/2012	•	•	•	n/a	2/26/2012	4/30/2012
4471	214	447	Pillsbury	MO	4	0.8	0.8	3/3/2012	•	•	•	n/a	-	4/30/2012
3892	214	389	Joplin - Southwest	MO	6	10.1	10.1	8/17/2012	•	•	•	10/1/2012	11/1/2012	9/4/2012
3893	214	389	Joplin - Southwest	MO	6	37.0	62.0	11/5/2012	•	•	•	11/12/2012	9/7/2012	11/1/2012
1102	215	110	Joplin - Oronogo Junction	MO	4	12.3	12.3	3/3/2012	•	•	•	n/a	1/30/2012	4/30/2012
4173	215	417	Joplin - Fir Road	MO	4	5.5	5.5	5/26/2012	•	•	•	-	1/30/2012	5/30/2012
4321	215	432	Oakalnd - North	MO	4	0.6	0.6	11/30/2012	•	•	•	-	-	-
4322	215	432	Oakalnd - North	MO	4	2.0	2.0	2/11/2012	•	•	•	-	7/15/2011	4/30/2012
4362	215	436	Webb City - Cardinal	MO	4	7.3	7.3	1/28/2012	•	•	•	-	12/27/2011	3/7/2012
3662	215	366	Carl Junction - Northeast	MO	6	59.5	59.5	8/31/2012	•	•	•	7/17/2012	10/18/2012	3/30/2012
3663	215	366	Carl Junction - Northeast	MO	6	29.1	29.1	1/26/2012	•	•	•	11/19/2011	5/19/2011	3/30/2012
4172	215	417	Joplin - Fir Road	MO	6	53.2	53.2	10/6/2012	•	•	•	8/4/2012	-	9/5/2012
2963	216	296	Neosho - Rocketdyne 69 KV	MO	4	0.3	0.3		•	•	•	7/16/2011	-	10/5/2012
3752	216	375	Seneca - East	OK	4	21.4	21.4	12/22/2012	•	•	•	2/11/2012	9/7/2012	2/15/2013
4141	216	414	Southwest City	MO	6	**	13.9	8/1//12	•	•	•	1/21/2012	7/2/2012	10/1/2012
4142	216	414	Southwest City	MO	4	15.8	15.8	10/13/2012	•	•	•	11/20/2012	9/13/2012	11/2/2012
1312	216	131	Diamond - H.T.	MO	6	49.3	49.3	9/8/2012	•	•	•	8/28/2012	11/30/2012	5/30/2012

EXHIBIT A

DISTRIBUTION System -- Vegetation Management Plan 2012								Conventional				Completion Date		
Circuit ID	Area	Sub	Sub Name	State	Maint Schedule	2012 Scheduled Miles	2012 Completed Miles	Conventional Completion Date	Trims	Removals	Brush	Mech	Foliar/Basal	TGR
1311	216	131	Diamond - H.T.	MO	6		23.4	12/29/2012	•	•	•	11/20/2012	1/8/2013	-
3221	216	322	Anderson - Southwest	MO	6	33.7	*	*				-	-	-
3981	216	398	Neosho - East	MO	6	74	*	*				-	-	-
3991	216	399	Wanda - South	MO	6	55.4	*55.4*	2/18/2012	•	•	•	7/3/2011	11/26/2012	3/30/2012
7002	216	700	Gravette	AR		28.4	28.4	1/17/2012	•	•	•	5/16/2011	7/20/2012	3/30/2012
3121	209	312	Ozark Dam - Powersite	MO	4	16.6	16.6	3/10/2012	•	•	•	12/24/2011	12/10/2012	5/1/2012
3872	209	387	Hollister - East	MO	4	12.0	12.0	4/28/2012	•	•	•	5/19/2012	11/30/2012	5/1/2012
4101	209	410	Forsyth - North	MO	4	13.2	13.2	12/22/2012	•	•	•	4/28/2012	11/30/2012	-
4136	209	413	Branson - Southwest	MO	4	2.5	2.5	10/13/2012	•	•	•	10/28/2011	5/9/2012	4/1/2012
4137	209	413	Branson - Southwest	MO	4	10.1	10.1	11/10/2012	•	•	•	2/24/2012	2/4/2013	4/1/2012
4334	209	433	Gretna	MO	4	4.7	4.7	4/7/2012	•	•	•	4/20/2012	-	5/1/2012
4383	209	438	Riverside	MO	4	6.2	6.2	7/14/2012	•	•	•	2/25/2012	10/18/2012	-
4385	209	438	Riverside	MO	4	6.9	6.9	11/17/2012	•	•	•	2/24/2012	-	4/1/2012
4386	209	438	Riverside	MO	4	3.0	3.0	6/30/2012	•	•	•	1/9/2012	5/9/2012	4/1/2012
2952	209	295	Reeds Spring - 161 KV	MO	6	8.5	8.5	10/27/2012	•	•	•	6/22/2012	-	4/1/2012
3122	209	312	Ozark Dam - Powersite	MO	6	29.6	*	2/23/2013	•	•	•	1/25/2013	12/10/2012	-
2211	211	221	Billings - Northeast	MO	4	19.9	19.9	11/17/2012	•	•	•	8/31/2012	-	11/14/2012
1241	211	124	Aurora - H.T.	MO	6	28.8	*28.8*	12/22/2012	•	•	•	12/22/2012	-	2/6/2013
1522	211	152	Monett - H.T.	MO	6	15.8	*15.8*	11/17/2012	•	•	•	1/21/2012	-	5/9/2012
1523	211	152	Monett - H.T.	MO	6	54.2	54.2	5/5/2012	•	•	•	4/13/2012	-	6/12/2012
2622	211	262	Albatross	MO	6	11.9	11.9	3/9/2012	•	•	•	6/22/2012	-	5/1/2012
4372	211	437	Marionville - North	MO	6	41.3	41.3	12/29/2012	•	•	•	5/4/2012	-	5/12/2012
2491	213	249	Boston - East	MO	6	14.5	14.5	7/28/2012	•	•	•	9/14/2012	-	9/11/2012
3041	213	304	Caplinger	MO	6	3.2	3.2	7/21/2012	•	•	•	5/18/2012	-	9/11/2012
4181	213	418	Stockton City	MO	6	**	20.3	7/28/2012	•	•	•	-	1/28/2013	-
3232	213	323	Brighton - East	MO	6	19.1	19.1	9/8/2012	•	•	•	10/15/2012	-	11/19/2012
1141	217	114	Nixa - North	MO	4	12.1	12.1	5/26/2012	•	•	•	6/1/2012	-	10/5/2012
3302	217	330	Ozark - Northwest	MO	4	10.7	10.7	8/25/2012	•	•	•	6/1/2012	-	9/7/2012
3693	217	369	Willard	MO	6	6.2	6.2	5/26/2012	•	•	•	7/14/2012	1/28/2013	10/5/2012
3971	217	397	Fair Grove - South	MO	6	19.1	*19.1*	5/12/2012	•	•	•	3/23/2012	5/21/2012	10/5/2012
4343	217	434	Ozark Southeast	MO	6	**	*34.9*	12/15/2012	•	•	•	10/6/2012	2/22/2013	2/1/2013
						1118.0	1097.6							

Miles moved to 2013

*** Miles moved up to 2012 for reliability reasons.*

Miles in green reflect a change in the amount of miles in that circuit since last years report

Herbicide work is typically the final step and may or may not occur in the same year and therefore is not reflected as part of the scheduled miles.

EXHIBIT B

6 (B) and (C). Summary of Information for Vegetation Management Plan 2012

Transmission System -- Vegetation Management Plan 2012

Line #	NERC	KV	State	From -- Expanded	To -- Expanded	2012 Scheduled Miles	2012 Completed Miles	Date Completed
06-0		69	K	SUB 271 - BAXTER SPRINGS WEST	SUB 291 - BAXTER SPRINGS 12TH ST.	5.60	5.6	4/21/2012
06-0		69	KO	SUB 271 - BAXTER SPRINGS WEST	SUB 404 - HOCKERVILLE	4.00	4	4/21/2012
06-0		69	O	SUB 428 - FAIRLAND SOUTHWEST	SUB 363 - FAIRLAND WEST	1.70	1.7	4/21/2012
06-0		69	O	SUB 377 - QUAPAW (EAGLE PICHER)	SUB 404 - HOCKERVILLE	2.40	2.4	4/21/2012
06-0		69	K	SUB 377 - QUAPAW (EAGLE PICHER)	SUB 363 - FAIRLAND WEST	19.10	19.1	4/21/2012
06-2		69	O	SUB 381 - COMMERCE NORTH	SUB 381 - COMMERCE NORTH	3.60	3.6	5/14/2012
25-0		69	M	SUB 59 - JOPLIN 26TH ST.	SUB 64 - JOPLIN 10TH ST.	1.60	1.6	1/14/2012
26-0		69	M	SUB 262 - ALBATROSS	SUB 338 - HEATONVILLE CHEROKEE	4.80	4.8	12/29/2012
26-0		69	M	SUB 262 - ALBATROSS	SUB 351 - MOUNT VERNON EAST	5.60	5.6	12/29/2012
26-0		69	M	SUB 121 - ASH GROVE H.T.	SUB 260 - LAWRENCEBURG SHELL	11.60	11.6	12/29/2012
26-0		69	M	SUB 121 - ASH GROVE H.T.	SUB 445 - WILLARD	6.68	6.68	12/29/2012
26-0		69	M	SUB 355 - AURORA WEST	SUB 420 - MT. VERNON EAST	10.00	10	12/29/2012
26-0		69	M	SUB 260 - LAWRENCEBURG SHELL	SUB 338 - HEATONVILLE CHEROKEE	6.80	6.8	12/29/2012
26-0		69	M	SUB 351 - MOUNT VERNON EAST	SUB 420 - MT. VERNON EAST	0.80	0.8	12/29/2012
26-2		69	M	SUB 364 - RESCUE EXPLORER	SUB 262 - ALBATROSS	7.20	7.2	11/10/2012
27-1		69	K	SUB 94 - COLUMBUS SOUTHEAST	SUB 271 - BAXTER SPRINGS WEST	7.20	7.2	3/31/2012
30-6		69	M	SUB 376 - MONETT CITY SOUTH J2	SUB 383 - MONETT	9.20	9.2	12/29/2012
30-7		69	M	SUB 311 - MONETT CITY	SUB 376 - MONETT CITY SOUTH J2	0.38	0.38	12/22/2012
30-7		69	M	SUB 311 - MONETT CITY	SUB 311 - MONETT CITY	0.40	0.4	12/22/2012
30-7		69	M	SUB 352 - MONETT CITY NORTH	SUB 352 - MONETT CITY NORTH	0.40	0.4	12/22/2012
30-7		69	M	SUB 352 - MONETT CITY NORTH	SUB 311 - MONETT CITY	1.20	1.2	12/22/2012
30-7		69	M	SUB 352 - MONETT CITY NORTH	SUB 383 - MONETT	2.80	2.8	12/22/2012
30-7		69	M	SUB 376 - MONETT CITY SOUTH J2	SUB 376 - MONETT CITY SOUTH	0.40	0.4	12/22/2012
30-7		69	M	SUB 376 - MONETT CITY SOUTH J2	SUB 416 - MONETT CITY EAST	1.20	1.2	12/22/2012
30-7		69	M	SUB 416 - MONETT CITY EAST	SUB 390 - PURDY SOUTH	8.80	8.8	12/22/2012
30-8		69	M	SUB 416 - MONETT CITY EAST	SUB 416 - MONETT CITY EAST	0.40	0.4	12/22/2012
36-0		69	K	SUB 167 - RIVERTON	SUB 339 - GULF JAYHAWK	2.16	2.16	1/17/2012
39-0		69	M	SUB 114 - NIXA NORTH	SUB 170 - NICHOLS ST.	13.60	13.6	12/31/2012
39-0		69	M	SUB 114 - NIXA NORTH	SUB 415 - BLACKHAWK JCT.	4.80	4.8	12/31/2012
39-0		69	M	SUB 312 - POWERSITE	SUB 410 - FORSYTH NORTH	3.20	3.2	12/31/2012
39-0		69	M	SUB 410 FORSYTH NORTH	SUB 434 - OZARK SOUTHEAST	26.00	2.4	12/31/2012
39-0		69	M	SUB 330 - OZARK NORTHWEST	SUB 415 - BLACKHAWK JCT.	2.40	2	12/31/2012
39-0		69	M	SUB 330 - OZARK NORTHWEST	SUB 434 - OZARK SOUTHEAST	2.00	26	12/31/2012
79-0		161	M	SUB 124 - AURORA H.T.	SUB 383 - MONETT	**11.50**		-
82-0		161	MK	SUB 110 - ORONOGO JCT.	SUB 452 - RIVERTON	13.40	13.4	12/22/2012
83-0		161	M	CARTHAGE	SUB 109 - ATLAS JCT.	8.20	8.2	1/23/2012
92-0		161	M	SUB 389 - JOPLIN SOUTHWEST	SUB 422 - JOPLIN 24TH & CONNECTICUT	7.16	7.16	5/14/2012
92-0		161	M	SUB 391 - JOPLIN SOUTHEAST	SUB 422 - JOPLIN 24TH & CONNECTICUT	2.80	2.8	5/14/2012
Total miles						221.08	209.58	

* Moved to 2013 .

Herbicide work is typically the final step and may or may not occur in the same year and therefore is not reflected as part of the scheduled miles.

EXHIBIT C

Empire District Electric Company

Distribution System - Vegetation Management Plan 2013

Circuit ID	Area	Sub	Sub name	State	Maint. Schedule	2013 Scheduled Miles
2951	209	295	Reeds Spring - 161 KV	MO	6	39.9
3122	209	312	Ozark Dam - Powersite	MO	6	29.6
3314	209	331	Branson - North	MO	4	6.0
3873	209	387	Hollister - East	MO	4	12.3
3878	209	387	0	MO	4	17.0
1242	211	124	Aurora - H.T.	MO	4	7.2
3593	211	359	Republic - East	MO	4	5.3
3594	211	359	Republic - East	MO	4	9.3
3903	211	390	Purdy - South	MO	6	13.3
4601	211	460	Pierce City	MO	6	45.8
2511	213	251	Golden City	MO	6	22.6
2621	213	262	Albatross	MO	6	89.6
3081	213	308	Humansville - West	MO	6	26.7
3675	213	367	Bolivar - Southeast	MO	4	4.8
4091	213	409	Buffalo - North	MO	4	19.6
4182	213	418	Stockton City	MO	4	21.9
4312	213	431	Bolivar - South	MO	4	7.3
4313	213	431	Bolivar - South - Breaker	MO	4	20.5
6141	213	614	Greenfield	MO	6	38.3
6142	213	614	Greenfield	MO	6	28.4
3301	217	330	Ozark - Northwest	MO	4	2.6
3303	217	330	Ozark - Northwest	MO	4	10.5
3692	217	369	Willard	MO	6	11.8
3702	217	370	Strafford	MO	4	11.6
4153	217	415	Black Hawk Junction	MO	4	17.8
2711	212	271	Baxter Springs - West H.T.	KS	6	59.7
2712	212	271	Baxter Springs - West H.T.	OK	4	41.0
2783	212	278	Galena - Northeast	KS	6	30.3
2912	212	291	Baxter Springs - 12th Street	OK	4	25.1
2991	212	299	Chetopa - City	KS	6	0.5
3391	212	339	Gulf - Jayhawk Plant	KS	6	2.3
452	214	284	Joplin - 5th Street	MO	4.0	0.1
453	214	284	Joplin - 5th Street	MO	4.0	1.0
454	214	284	Joplin - 5th Street	MO	4.0	1.7
455	214	284	Joplin - 5th Street	MO	4.0	0.7
456	214	284	Joplin - 5th Street	MO	4.0	0.5
1272	214	341	Joplin - Northwest	MO	6.0	1.2
1273	214	341	Joplin - Northwest	MO	4.0	8.7
1282	214	360	Joplin - Northeast	MO	4.0	12.4
1284	214	360	Joplin - Northeast	MO	4.0	10.0
1451	214	145	Joplin - West 7th Street	MO	4.0	10.8
1452	214	145	Joplin - West 7th Street	MO	6.0	22.4
1453	214	145	Joplin - West 7th Street	MO	4.0	20.4
1454	214	145	Joplin - West 7th Street	MO	4.0	14.3
2921	214	292	0	MO	6.0	37.1
3894	214	389	Joplin - Southwest	MO	4.0	13.2
3913	214	391	Joplin - Southeast	MO	4.0	20.1
4223	214	422	Joplin - 24th Street	MO	4.0	9.4
4303	214	430	Joplin - 32nd & Oliver	MO	4.0	21.2
4475	214	447		MO	4.0	1.1
145D	214	145	Joplin - West 7th Street	MO	6.0	0.1
1051	215	105	Webb City - Tom Street	MO	4	17.1
1081	215	108	Carthage - Northwest	MO	6	4.3
1083	215	108	Carthage - Northwest	MO	6	1.3
1084	215	108	Carthage - Northwest	MO	6	1.2
1842	216	184	Neosho - South Junction	MO	6	15.6
3221	216	322	Anderson - Southwest	MO	4	33.7
3261	216	326	Decatur - North	AR	6	0.3
3262	216	326	Decatur - North	AR	6	0.00
3471	216	347	Granby - North	MO	6	15.9
3921	216	392	Decatur - South	AR	6	12.5
3981	216	398	Neosho - East	MO	6	74.0
4432	216	443	Noel City	MO	6	17.6
4433	216	443	Noel City	MO	6	0.49
4651	216			MO	6	0.03
4661	216			MO	6	0.01
	Total Miles					1078.5

EXHIBIT D

Empire District Electric Company

Transmission System -- Vegetation Management Plan 2013

Line #	NERC	KV	State	From -- Expanded	To -- Expanded	2013 Scheduled Miles
26-4		69	M	SUB 121 - ASH GROVE H.T.	SUB 368 - DADEVILLE EAST	15.60
31-0		69	MK	SUB 59 - JOPLIN 26TH ST.	SUB 167 - RIVERTON	6.40
32-0		69	MK	SUB 100 - JOPLIN 2ND ST.	SUB 372 - JOPLIN 2ND & DIVISION	1.14
32-0		69	M	SUB 64 - JOPLIN 10TH ST.	SUB 145 - JOPLIN WEST 7TH	2.40
32-0		69	M	SUB 64 - JOPLIN 10TH ST.	SUB 284 - JOPLIN EAST 5TH ST.	0.80
32-0		69	M	SUB 100 - JOPLIN 2ND ST.	SUB 284 - JOPLIN EAST 5TH ST.	0.40
32-0		69	M	SUB 360 - JOPLIN NORTHEAST	SUB 372 - JOPLIN 2ND & DIVISION	2.80
32-1		69	M	SUB 372 - JOPLIN 2ND & DIVISION	SUB 372 - JOPLIN 2ND & DIVISION	0.40
79-0		161	M	SUB 124 - AURORA H.T.	SUB 383 - MONETT	11.50
80-0		161	M	SUB 124 - AURORA H.T.	SUB 295 - REEDS SPRING	20.51
80-0		161	M	SUB 331 - BRANSON NORTH	SUB 412 - BRANSON NORTHWEST	1.10
80-0		161	M	SUB 412 - BRANSON NORTHWEST	SUB 424 - AEC REEDS SPRING	7.60
80-0		161	M	SUB 295 - REEDS SPRING	SUB 424 - AEC REEDS SPRING	1.50
Total miles						72.15

SERVICES YOU COUNT ON

Title: Distribution System Vegetation Management Policy and Procedures Manual	Revision: D	Author: Scott Mackey 3/22/2013

Approval Signatures and date:

Director of System Performance

Vice President of Commercial Operations

Applicable Standards: Missouri PSC Rules effective Aug 9, 2008

Revision	Date	Changes	Approved By
A	8/9/2008	Formalized existing documentation	McGarrah, Palmer
B	3/1/2009	Review in conjunction with our new tree trimming contracts. See letter dated Jan 30, 2009.	McGarrah, Palmer
C	3/15/2012	Annual Review – no changes.	Wallace, Penning
D	3/22/2013	Annual Review – The addition of TGR specifications. See 2.2.4 and Appendix 8.	Wallace, Penning

These policies and procedures apply to all overhead Empire District Electric Company distribution power lines, from 120V to 25kV.

This manual supersedes all previous manuals, specifications and guidelines for line clearance and vegetation management work at Empire District Electric Company March 22, 2013.

Table of Contents

Safety Policy

Section 1.0

All crews performing vegetation management work on or near Empire District Electric Company facilities or rights-of-way shall follow approved safety guidelines and procedures. All contractors performing work for Empire District Electric Company shall comply with all applicable governmental safety and health regulations and the safety and health provisions of their contract.

All contractors must also, at all times, be aware of the nature and characteristics of Empire District Electric Company's electric facilities before work begins. Contractors shall understand that electric facilities must remain energized during the performance of work unless special arrangements are made with an authorized Empire District Electric Company representative.

The following procedures pertain to contractors performing vegetation management work for Empire District Electric Company:

- The contractor shall obtain from Empire District Electric Company full information as to the voltage of its circuits before starting the work.
- The contractor shall at all times conduct work in a manner to safeguard the public from injury and property from damage.
- The contractor must use all necessary protection for its employees and the public and guard against interference with normal operation of the circuits. If, in the judgment of the contractor's general foreman/supervisor, it is hazardous to prune or remove trees with the circuits energized, the contractor must contact an authorized Empire District Electric Company representative(s). If appropriate, Empire District Electric Company will provide the necessary protective materials or de-energize circuits to ensure the safe pruning or removal of the tree(s).
- Should the contractor knock down or come into contact with Empire District Electric Company conductors (power lines), the contractor must notify Empire District Electric Company immediately and take the necessary protective measures. All contractor-caused electric service interruptions are subject to repair at the contractor's expense. This would include any damage to customers' property, including any electrical damage.
- In the event a contractor becomes aware of any dangerous, broken, loose or faulty Empire District Electric Company line facilities in the normal course of its line clearance performance, the contractor shall promptly advise Empire District Electric Company as to the exact pole location(s) and nature of the condition found.

General Guidelines

Section 2.0

2.1 – EXPLANATIONS OF TERMS AND METHODS

2.1.1 Qualified Line Clearance Tree Trimmer:
Personnel who meet the qualifications of "line clearance tree trimmer and/or trimmer trainee" as defined by OSHA 1910.269, ANSI Z133.1 and any other applicable federal, state or local, laws, codes, or regulations.

2.1.2 Distribution (<=25kV) Pruning Cycle:
Empire District Electric Company uses a scheduled pruning cycle to prune trees on lines in rural and urban areas. The company will schedule certain critical feeder lines as often as necessary to ensure reliability.

2.1.3 Trimming Around Primary and Secondary Wires:
Empire District Electric Company will identify and schedule for maintenance, any trees that are a hazard or potential hazard to the supply or reliability of primary or secondary power lines. Qualified line clearance tree trimmers under direction of Empire District Electric Company or its agents are to perform selective tree-branch removal to prevent or correct hazardous situations that may result in outages or endanger life or property. They are to make field judgments as to what amount of clearance is necessary to obtain reliability. They are to look for obvious situations such as deflected wires, branches rubbing insulated wires and broken or hanging tree branches.

2.1.4 Pole-to-House and Street Light Service Wires:
Pole-to-house and street light service wires should only be pruned if a branch is significantly pushing against or is lying on the wire.

2.1.5 General Guidelines for Tree/Conductor Clearance:
The exact amount of clearance needed to maintain reliability depends on the type of tree, its location and condition, and the type of power line and its voltage, as well as many other factors. Empire District Electric Company and its contractors will consider all factors when deciding how much clearance is necessary.

Empire District Electric Company and its representatives will use their professional judgment in determining what these clearances will be in each situation, based on the proposed maintenance cycle for the area in which they are working. The maintenance cycle is dependent upon electric reliability requirements of the system.

2.1.6 Circuit Prioritization and Scheduling:
During a year, circuits are prioritized based on the following factors:

• Reliability – The circuits due to be trimmed for any given year are ranked based on customer minutes interrupted by tree-related causes. Circuits that have the highest numbers of customer minutes interrupted by tree growth outages are scheduled first.

- Last Trim Date – Circuits are scheduled based on the last trim date. The oldest are weighted over the earliest.
- Customers Affected – Circuits are ranked by customer count. Circuits with high numbers of customers or circuits with critical customers are ranked higher.
- Current Vegetation Conditions – The current vegetation conditions on a circuit will be used to prioritize it. Customer requests for tree trimming are also taken into consideration when determining the current vegetation conditions of a circuit.
- Other – Other factors that are considered when scheduling are circuit load, customer complaints, and political issues.

Circuits are first scored based on reliability data, last trim date, and the current vegetation conditions. Then other factors are considered to refine the rankings. Prioritization of a circuit may change based on any of these factors. For scheduling strategy, see Appendix 6.

2.1.7 Pruning

Tree pruning is the selective removal of branches that are not an adequate distance from the power lines, or that will grow too close to the power lines within the next maintenance cycle.

Trees are pruned to provide adequate clearance from Empire District Electric Company facilities. As a general rule, trees should be pruned to improve or re-establish the clearance provided from all previous tree maintenance performed.

Some factors to consider before pruning include:

- The growth rate of the tree species (how fast the branches grow back);
- The wood strength of the tree species (what is the chance of the branch breaking under the load of strong wind, snow, or ice);
- The voltage conducted by the line (the hazard presented by the branch contacting the line; the higher the voltage, the greater the hazard);
- Tree removal considerations. In some cases, it may be preferable to remove the tree. For example, when repeated severe pruning is necessary or when the tree is declining and unsafe;
- Limbs overhanging Empire District Electric Company facilities. Remove or shorten dangerous limbs – those overhanging limbs with a high potential for breaking or bending into Empire District Electric Company conductors due to ice, snow or wind loading (be aware of included bark at the branch bark ridge);ANSI-A300 procedures and techniques will be followed

2.1.8 – Manual/Mechanical Removal of Vegetation

2.1.8.1 -- Removal Considerations for trees where ownership can be determined

- Remove all tall-growing trees within the width of the right-of-way.
- Remove all tall-growing brush that has the potential to grow closer than the minimum clearance specified for a specific voltage line.
- Remove all brush and vines around poles and other EMPIRE equipment.
- All trees and brush should be cut as close to the ground as practical.
- Remove all fast-growing and undesirable tree species.
- Remove all second growth from stumps cut on previous pruning cycles.
- Remove all trees that present an obvious or potential hazard to Empire District Electric Company facilities.

2.1.8.2 -- Removal Considerations for trees where ownership cannot be determined and are either 6"- 11.9" DBH trees with original crown or Trees that have been topped or otherwise improperly pruned as defined by ANSI A-300 (Part 1)-2001 Pruning

- All considerations on section 2.1.8.1.
- Unmarketable fencerow trees that currently lack ability to be beneficial shade.
- Trees located in such a manner that ANSI A-300 (Part 1)-2001 Pruning cannot be followed while attaining clearances set in this documents Appendix 2.
- Edge trees of no market value that yield no additional benefit due to adjacent or otherwise available shade to livestock.
- Trees located in areas not manicured, accessible and inaccessible alleys in town, or not associated with a residence.

Stumps should be treated with herbicide to prevent re-sprouting.

2.1.9. Hazard Trees

Trees that are located beyond the edge of the right-of-way, that have a high probability of failure and are of sufficient height to contact the conductors and/or structures and guy wires, if they were to fall in that direction, are classified as hazard trees, and should be considered for removal.

Conditions could include but are not limited to the following:
Dead or dying leaning trees
Weak branches
Shallow root system
Root failure
Internal
decay
Canker or canker root
Bug infestation

2.1.10 – Right-of-way Screens

Right-of-way screens are strips or areas of trees and brush purposely left on the right-of-way in certain areas where it is required by federal, state and/or local laws or regulations and/or it is desirable to reduce the visual impact of the cleared right-of-way to the general public. Along certain roads and other areas frequented by the public, screens of trees may be left on the right-of-way so the natural tree line is not interrupted by the cleared right- of-way, and to reduce the "corridor" appearance of a cleared right-of-way. Screens should be composed of low-growing trees and shrubs that will not normally grow to conductor height.

2.2 - EMPIRE DISTRICT ELECTRIC COMPANY SCHEDULED TREE PRUNING

2.2.1 Procedure

Empire District Electric Company or its agents will inspect trees near power lines scheduled for maintenance and determine which trees should be pruned, removed and/or treated. Attempts will be made to notify homeowners or residents before pruning is done.

2.2.2 Limb and Branch Disposal

Empire District Electric Company/Empire District Electric Company contract crews will dispose of all debris resulting from their tree and pruning operations that are small enough to be fed through a chipper unless different arrangements have been made with the homeowner or resident. Wood too large to be chipped shall be cut and stacked at the site unless the homeowner requests the wood be removed.

2.2.3 Brush Removal

Brush is defined as a tall-growing tree stem that is less than 6 inches in diameter at breast height. Brush will be removed rather than pruned.

2.2.4 TGR Application

Empire District Electric Company and its agents will apply TGR following pruning to applicable trees. The specifications are lined out in the tables in Appendix 8.

2.3 - EMPIRE DISTRICT ELECTRIC COMPANY SCHEDULED TREE REMOVAL

2.3.1 Removal Procedure

Empire District Electric Company and its agents will inspect the trees near power lines scheduled for maintenance and determine which trees should be removed. If a tree is a candidate for removal, the homeowner or resident will be contacted and asked to authorize Empire District Electric Company and its contractors to remove the tree as low to the ground line as possible (See Section 2.10, Customer Contact).

2.3.2 Tree Disposal
Empire District Electric Company/Empire District Electric Company contract crews will dispose of all debris small enough to feed through a chipper resulting from their tree removal and pruning operations unless different arrangements have been made with the homeowner or resident. Wood too large to be chipped shall be cut and stacked at the site unless the homeowner requests the wood be removed.

2.3.3 Stumps
Empire District Electric Company and its contract crews will NOT grind out stumps, unless special arrangements have been agreed upon. All stumps shall be treated with an approved herbicide unless a property owner has requested that the stump not be treated or if the herbicide label warns against treatment of stumps in particular situations.

2.4 – CUSTOMER REQUESTED TREE PRUNING POLICY

Empire District Electric Company will promptly respond to legitimate request related to tree/right-of-way maintenance, assign a priority level for scheduling and inform the property owner of the results of the investigation. Empire District Electric Company will decide if the work requested will benefit the overall safety and reliability of the electric system and its customers and the general public.

Empire District Electric Company shall adhere to the following guidelines:

- Document all request using a standard Customer Request Form.
- Screen all request by phone by asking questions
  such as: o Do you have power?
  o Do your lights blink?

- Field inspect the request that cannot be resolved by phone. If no one is home when the field inspection occurs, provide door-hanger that notifies customer of the decision that was made and if the work will be completed, deferred or denied. This practice can increase efficiency for field investigations that are completed when property owners are not at home.

2.4.1 Procedure
When a customer requests Empire District Electric Company to prune a tree away from pole-to-pole lines, the company will send out a representative to make a determination of any potential hazards that exist. If it is determined that a potential hazard does exist, Empire District Electric Company will schedule a crew to perform all necessary pruning and/or removal.

If the tree is not a potential hazard, Empire District Electric Company will inform the customer that the tree will be re-evaluated when that particular area is scheduled for maintenance.

2.4.2 Limb and Branch Disposal
If it is determined that a potential hazard does exist, Empire District Electric Company/Empire District Electric Company contract crews will dispose of all debris small enough to feed through a chipper resulting from their tree removal and pruning operations unless different arrangements have been made with the homeowner or resident. Wood too large to be chipped shall be cut and stacked at the site unless the homeowner requests the wood be removed. If the tree is not a potential hazard and pruning and/or removal is still agreed to, the disposal of the debris is the responsibility of the property owner unless otherwise agreed to in writing.

2.5 – CUSTOMER TREE REMOVAL

2.5.1 Procedure
When a customer wants to remove a tree and Empire District Electric Company's facilities make it hazardous for the customer or customer's agent to accomplish the work, Empire District Electric Company will do one of the following:

- Temporarily drop the conductors while the customer or customer's agent performs the work. To make arrangements, call the Empire District Electric Company Customer Service Center at (800) 206-2300.
- Prune or remove the portion of the tree that is contributing to the hazard.
- A Empire District representative will inspect the request within five working days

Note: Empire District Electric Company will not remove trees to clear house (pole–to-house), or street light service wires.

2.5.2 Tree Disposal
When Empire District Electric Company prunes or removes trees at the customers' request, the disposal of the debris is the responsibility of the property owner unless otherwise agreed to in writing.

2.6 –CUSTOMER PRUNING WITH EMPIRE DISTRICT ELECTRIC COMPANY ASSISTANCE

2.6.1 Procedure
When a customer desires to prune a tree close to Empire District Electric Company lines for reasons other than line clearance, and it is hazardous to complete the work, Empire District Electric Company will do one of the following after customer notification:

- Temporarily drop the conductors while the customer or customer's agent performs the work. To make arrangements, call the Empire District Electric Company Customer Service Center at 800-206-2300.

- Prune or remove the portion of the tree that is creating the hazard.

Note: In all cases, the decision on which course of action to take will be determined by a Empire District Electric Company representative after consultation with the customer.

2.6.2 Limb and Branch Disposal
When Empire District Electric Company assists the customer to prune or remove trees at a customer's request, the disposal of the debris is the responsibility of the property owner unless otherwise agreed to in writing.

2.7 – CUSTOMER PRUNING NEAR EMPIRE DISTRICT ELECTRIC COMPANY FACILITIES

2.7.1 Procedure
When a customer desires to prune trees near Empire District Electric Company lines, the following conditions must be met:

- Only qualified line-clearance tree trimmers and/or trimmer trainees are allowed within 10 feet of any energized conductors (OSHA 19 10.269 and ANSI ZI33.1 and any other applicable federal, state or local laws, codes or regulations). Qualified line-clearance tree trimmers will do all pruning around Empire District Electric Company facilities.
- Empire District Electric Company must be notified in advance of the customer's agent performing the work.

2.7.2 Limb and Branch Disposal
Clean up and disposal of all limbs, branches and debris resulting from this clearing operation are the responsibility of the property owner.

2.8 – TREE PRUNING AND REMOVAL DURING STORMS

2.8.1 Procedure
When trees fail or branches break during storms, and they make contact with or cause failure of Empire District Electric Company facilities, Empire District Electric Company will do the necessary pruning or removal to clear its facilities and restore power.

Note: Due to the emergency conditions that exist during storms, Empire District Electric Company and its contract crews may not be able to contact all customers before pruning or cutting trees. Crews may make a courtesy knock on the customer's door to let them know that work will be performed at that location.

2.8.2 Disposal
If Empire District Electric Company and its contract crews prune or remove trees following storm emergencies, all limbs and logs will be left on the customer's premises. The disposal of limbs and/or logs is the responsibility of the property owner.

2.9 – PRUNING AND REMOVAL OF DISEASED TREES

2.9.1 Pruning

Where trees are encountered that are suspected of being diseased (Dutch elm disease, oak wilt, etc.) the customer should be notified and a determination made as to whether the tree should be pruned. If the customer is not willing to agree the tree is diseased, Empire District Electric Company will refrain temporarily from pruning the tree, if possible, until symptoms are more visible or the hazard is too great. Contract crews should report the matter to their supervisor.

2.9.2 Removal

When diseased trees are near Empire District Electric Company lines, Empire District Electric Company and its contract crews will do one of the following: Prune the trees to clear Empire District Electric Company facilities; Temporarily drop the conductors while the customer or customer's agent removes the tree. For a temporary line drop, customers should contact Empire District Electric Company Customer Service Center at 800-206-2300.

2.9.3 Disposal

Should a tree be condemned by a municipal jurisdiction as having Dutch elm disease, oak wilt or another tree disorder, Empire District Electric Company has no responsibility for the removal or disposal of the tree except when the tree is located on property owned by Empire District Electric Company. Removal and disposal of diseased trees is the responsibility of the property owner.

2.10 – CUSTOMER CONTACT POLICY

2.10.1 – Scheduled Pruning/Removal

An Empire District Electric Company agent or Empire District Electric Company representative will attempt to contact each customer/homeowner whenever possible before pruning any trees or in accordance with any pending special conditions mandated by an appropriate regulatory body.

For normal pruning:

An Empire District Electric Company representative or agent will knock on the door to talk with the homeowner and explain the necessary pruning. If no one is home, a notice will be left on the door.

If the homeowner does not contact Empire District Electric Company, the contract trimming crew will to do the necessary pruning. Before starting the line clearance work, the contract trimming crew will attempt a courtesy contact with the property owner by knocking on the door.

If the pruning is necessary and the homeowner refuses permission, the crew will turn the matter over to the work planner. If the planner is unable to develop concurrence with the customer regarding the necessary pruning, the planner will notify appropriate Empire District Electric Company representative.

Pruning on public property:
When pruning involves trees on public property or rights-of-way, it is recommended that the Empire District Electric Company representative or agent contact the appropriate public agency to discuss any special concerns. (Example: Contact a city forester or parks department before pruning boulevard trees). It is the line clearance trimming contractor's responsibility to acquire any licensing required by municipalities for the pruning of trees.

For tree removal:
Before removing a tree, homeowners will be contacted and informed of the necessary work. Empire District Electric Company representative or agent will secure a signed permit before starting the work unless otherwise approved by Empire District Electric Company. When property ownership cannot be determined the approved agents assigned by EDE will be allowed to authorize by signature removal of trees defined in section 2.1.8.2 for that site to the utility line clearance contractor.

2.10.2 – Customer-Requested Pruning/Removal
Emergency and hazardous conditions will be addressed immediately.
If the pruning has been agreed to over the phone, (for normal pruning) the crew will make a courtesy knock on the door before starting the work.
If the work requires written permission (tree removal), the crew will follow the same procedure as outlined for scheduled work.

2.10.3 – Storm Work
Due to emergency conditions that occur during a storm, Empire District Electric Company and its contractors will prune and remove trees necessary to restore power without contacting every homeowner.

A courtesy knock will be made at each customer site to inform them of the work being done, however, *the work will proceed even if the customer is not home.*

Herbicide Use Policy (Distribution)

Section 3.0

3.1 – SAFETY AND REGULATIONS

All herbicides shall be applied in strict compliance with all federal, state and local laws and regulations. This includes, but is not limited to: transporting, handling and chemical container disposal.

All herbicide and treatment methods used by the contractor shall have prior approval by Empire District Electric Company.

Any crew member applying herbicides must be supplied with the appropriate protective gear, current label and Material Safety Data Sheet (MSDS) for the product being applied. It is the contractor's responsibility to provide all necessary materials, including chemicals and safety gear, unless specifically indicated as being provided by Empire District Electric Company.

The contractor is responsible for the proper disposal or recycling of all herbicide containers.

A reasonable attempt to notify homeowners adjacent to the application area of necessary work should be made by the contractor performing the applications. An Empire District Electric Company representative or agent may attempt to contact homeowners before starting the work when ownership can be determined during planning. If ownership cannot be determined without property research work will be performed as planned.

3.2 – APPLICATION OF HERBICIDE

3.2.1 Requirements and Precautions

- Do not apply herbicides outside the easement right-of-way boundaries except in cases where no right-of-way width has been established in the easement.
- All herbicide treatment shall be performed in a responsible manner that will reflect the best interests of the property owner and Empire District Electric Company. If a property owner should object to any of the herbicide treatments, the operation shall immediately be discontinued on that property until any differences are resolved.
- Cut off all vines ascending all poles and guy wires at the height of reach.
- Herbicide may be applied to foliage of brush under 10 feet tall.
- Herbicide may be applied to foliage of trees over 10 feet tall as approved and directed by the assigned Empire District Electric Co. employee or representing agent.
- The Contractor shall furnish all mixing materials and application equipment and shall be responsible for transporting, handling, mixing, and application of chemicals used in the immediate operation unless

otherwise directed by the manager of Vegetation Control.

- The Contractor shall comply with all State and Federal Laws and Regulations pertaining to Herbicide Applications and any other licensing or regulatory requirements.
- The Contractor shall only use herbicide solutions that contain dye according to label recommendations for basal and stump applications unless approved by Empire District Electric Company or its representatives.
- The Contractor shall guarantee a minimum ninety percent (90%) stump control per span, as determined during the growing season following the treatment. Spans not meeting these specifications shall be re-treated by the Contractor at the Contractor's expense to achieve the proper mortality. The Contractor shall guarantee a minimum of ninety-five percent (95%) mortality of brush stems per span for all foliage or basal applications. Mortality must be achieved within eighteen (18) months following treatment. Spans not meeting these specifications shall be retreated at the Contractor's expense to achieve the proper mortality.

In chemical application work, the Contractor shall have the right to skip any portion of a line when, in the opinion of the Contractor, damage to crops, orchards, or ornamental plantings may result from drift. Any skips shall be reported to the appropriate inspector or supervisor.

3.3 – REPORTING PESTICIDE INCIDENTS

When a spill is reported the contractor general foreman should determine the type of chemical and amount of spillage along with the containment efforts that were made. Then the general foreman should notify the proper state or federal agencies if necessary. Any spill, leak, fire or other accident involving pesticides *must be reported immediately* to the proper line clearance supervisor. All damage from such leaks or spills are the responsibility of the contractor.

Tree Replacement

Section 4.0

4.1 – GENERAL GUIDELINES

Repeated pruning of unmanageable trees can lead to increased utility rates for Empire customers. It may be preferable to remove and replace certain trees that pose a particular hazard to the power lines. Fast-growing, tall trees directly under power lines are an example. They grow back quickly into the wires and can cause repeated outages. Poplars, elms, willows and silver maples are some fast-growing trees that need frequent pruning near power lines.

Communities

Empire District Electric Company is willing to cooperate with communities in applying for tree-planting grants from the state and federal government. Empire District Electric Company may provide funds to purchase trees, or labor to remove existing trees, or both depending on the circumstances.

Property Owners

Empire District Electric Company works with homeowners to identify trees that are good candidates for replacement. The tree must be near Empire District Electric Company power lines and must require repeated pruning to keep the lines clear. The power line must be at least a primary circuit. Empire District Electric Company will remove the existing tree and provide assistance in replacing the tree. The planting and care of the new tree is the responsibility of the property owner, unless other arrangements are made.

Empire District Electric Company reserves the right to decide under what circumstances trees will be replaced (at the expense of Empire District Electric Company). The replacement tree must be a low-growing variety, or it must be planted a sufficient distance away from power lines as to not require future line clearance pruning, if it is a tall-growing variety.

Appendices

1. Major Tree Species and Growth Rates
2. Guideline for Line Clearances
3. Natural Pruning
4. What is a Tree
5. Scheduling Strategies
6. Plant the right tree in the right place
7. TGR Specifications
8. Definitions

Appendix 1

MAJOR TREE SPECIES AND GROWTH RATES

Common Name	Scientific Name	Growth Rate
Aillanthus	Ailianthus Altissima	F
Ash, White	Fraxinus Americana L.	F
Ash, Green	Fraxinus Pennsylvanica	F
Basswood	Tilia american L.	M
Birch	Betula Nigra L.	F
Black Walnut	Juglans Nigra	F
Boxelder	Acer negundo L.	F
Bradford Pear	Pyrus calleryiana	F
Buckeye	Aesculus	S
Catalpa	Catalpa bignonioides	M
Cherry	Prunus scrotina	F
Cottonwood	Populus deltoides	F
Dogwood	Cornus florida L.	S
Eastern Redcedar	Juniperus Virginiana	S
Elm	Ulmusspp.	F
Ginkgo	Gilkgo biloba	M
Hackberry	Celtis occidentalis	M
Hickory	Caryatexana	M
Honey locust	Gleditsia triacanthos	F
Hybrid Maples	Amur	M
Kentucky Coffee Tree	Gymnocladus dioica L.	M
Locust	Robinia pseudo-acacia L.	F
Mimosa	Albizia Julibrissin Durazz	F
Mulberry	Morus spp.	F
Osage Orange	Maclura poynifera	M
Pear	Pyrus communis L.	F
Pin Oak	Quercuspalustris	F
Pine	Pinus spp.	S
Poplar	Populus alba L.	F
Post Oak	Quercus stellata	S
Red Bud	Cercis canadensis	S
Red Oak	Quercus rubra	M
Sassafrass	Sassafrass albidum nees	F
Silver Maple	Acer Saccharinum	F
Sugar maple	Acer saccharum	S
Sweetgum	Liquid ambar styraciflua L.	F
Sycamore	Aplatanus occidentalis	F
White Oaks	Quercus alba L.	M

Appendix 2

The following guidelines (TABLE 1) for tree clearances may apply at the time of line clearance tree maintenance to protect the wires under normal operating conditions. Special clearances may be needed at times because of field conditions. Additional allowance should be made for wires that will sag due to hot weather or swing sideways in strong winds.

Table 1.

Recommended Line Clearances (in feet)

Clearance From Trees	Rate of Growth	Secondary Cable (120-480 V)	Open Wire Secondary (120-480 V	Primary Voltage Single-Phase	Primary Voltage Three-Phase
SIDE	Slow	2 (c)	2 (c)	8 (c)	10 (c)
	Fast	4 (c)	6 (c)	12 (c)	15 (c)
OVER	Slow	2	2	15 (a)	Remove all
	Fast	4	6	15 (a)	overhang
UNDER	Slow	3	8	8	10
	Fast	4	10	12	14

Site Considerations:

(a) Remove all hazardous overhang, and all overhang within 15 feet of the conductors that could contact them if weakened or broken. Remove all overhang over 3-phase lines.

(b) Remove all trees that could grow into, or fall into the lines.

(c) Large tree trunks or major limbs of established trees may be allowed to remain as close as 4 feet from the conductors if all of the following are true:

- Movement of either the conductor or the tree will not result in contact between the tree and the conductor.
- The tree is not easily or readily climbed without the use of ladders or specialized climbing equipment.
- There is no evidence of re-growth or sprouting from the tree trunk toward the line.

Appendix 3

Natural Pruning (to direct growth away from wires)

Natural pruning is a method by which branches are cut at a suitable parent limb back toward the center of the tree. The cut should be made as close as possible to the branch collar at the branch base, however the branch collar should not be injured or removed. Every branch has a branch bark ridge that separates the branch from the main stem. The cut should be made on the outer side of the ridge. If the cut is made on the inner side of the branch bark ridge, a "larger" wound will result that may inhibit the trees ability to naturally compartmentalize the wound, increasing wound closure time and the risk of entry for microorganisms. This method of pruning is sometimes called "drop-crotching", "directional trimming" or "lateral trimming." Large branches should be removed to laterals at least one-third the diameter of the branch being removed. Natural pruning is especially adapted to the topping of large trees where a great deal of wood must be removed.

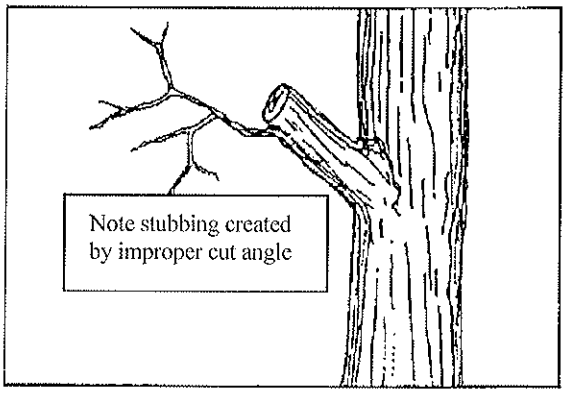
In natural pruning, almost all cuts are made with a saw, and very little pole pruning works is required. This results in a natural looking tree when finished, even if a large amount of wood has been removed. However, a hydraulic or manual pole pruner is required to trim those smaller laterals that cannot be properly trimmed using the pole saw and each crew shall be equipped with the necessary hydraulic pruners for lift crews and manual pruners for climbing crews.

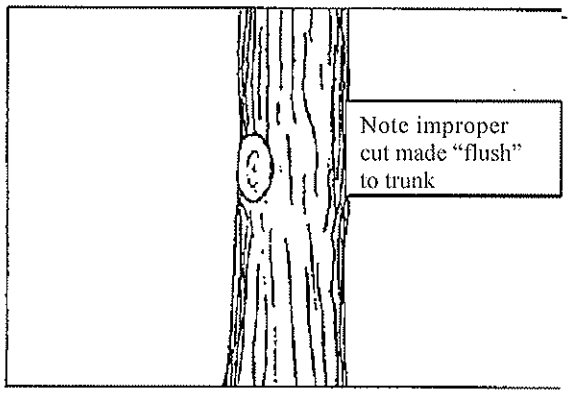
Natural pruning is also directional pruning, since it tends to guide the growth of the tree away from the wires. Stubbing or pole-clip clearance, on the other hand, tends to promote rapid sucker growth right back into the conductors. It is important to remember is that natural pruning does work, and that two or three trimming cycles done in this manner will bring about an ideal situation for both the utility and the tree owner. Most shade trees lend themselves easily to this type of pruning.

Natural pruning techniques should be used for top pruning, side pruning, under pruning, and combinations as described on the following pages.

Natural Pruning Details

Improper Trimming Techniques



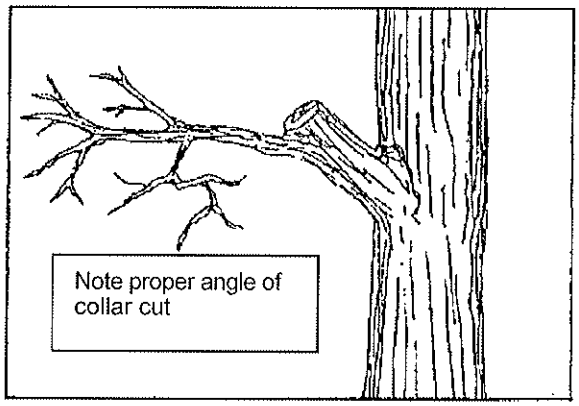


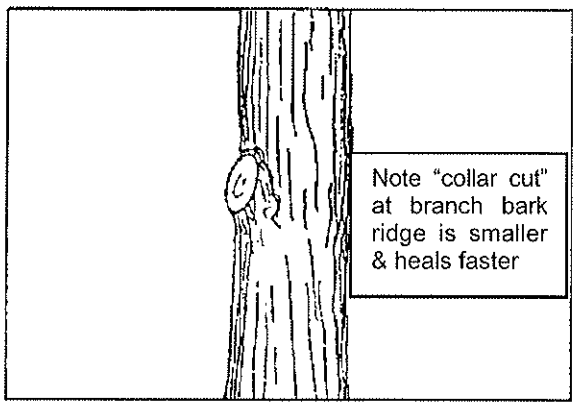
Details of improper trimming and proper natural pruning techniques are shown here. The branch at left above was cut back to a lateral that is too small. Branches should be cut back to a lateral that is at least one-third the size of the branch being removed as shown at left below. If a proper lateral is not available, the branch should be cut back to the trunk. Note that the remaining limb should be trimmed in a manner that meets the minimum clearance requirements while "training" it to grow away from the conductors. When limbs growing toward the conductors cannot be trimmed to meet these requirements, they should be removed back to the trunk of the tree.

The cut shown at right above is an improper flush cut where the branch collar was removed. The cut at right below shows the proper method to remove the branch at the trunk, leaving the branch collar but not a stub.

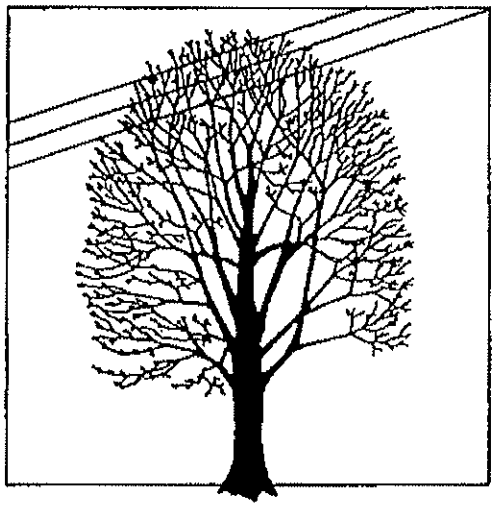
The CONTRACTOR shall remove all past stubbing, correctly trimming these limbs back to a lateral one third the size of the parent limb, or removing them back to the trunk of the tree, to promote proper healing. Removal back to the trunk will be the preferred method when it would create a "cleaner" appearance and minimize future re-growth and trimming.

Proper Pruning Techniques



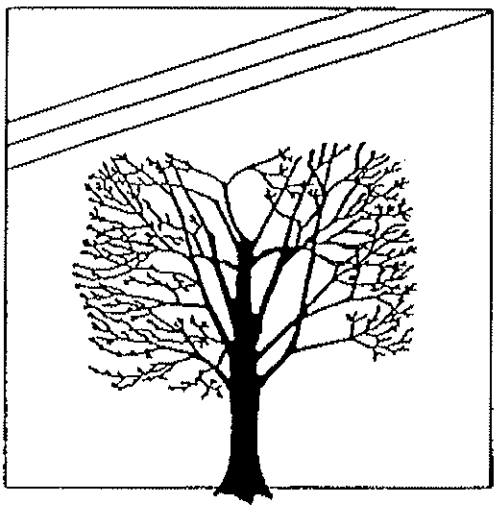


1. TOP PRUNING



Before Top Pruning

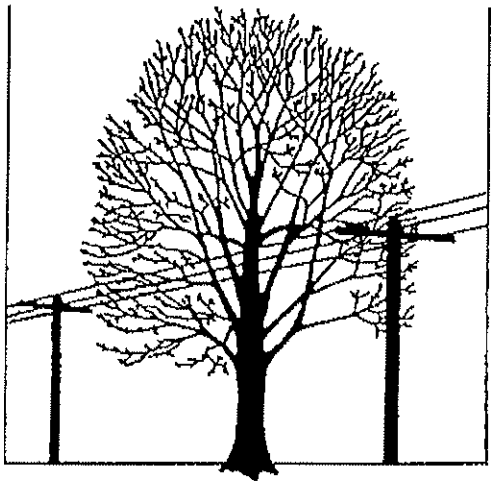
After Top Pruning



Top pruning involves cutting back large portions of the upper crown of the tree. Top pruning is often required where a tree is located directly beneath a line. The main leader or leaders are cut back to a suitable lateral. (The lateral should be at least one-third the diameter of the limb being removed.) While most cuts should be made with a saw; a hydraulic or manual pole pruner is still required to properly prune the small lateral limbs that cannot be properly pruned using a pole saw.

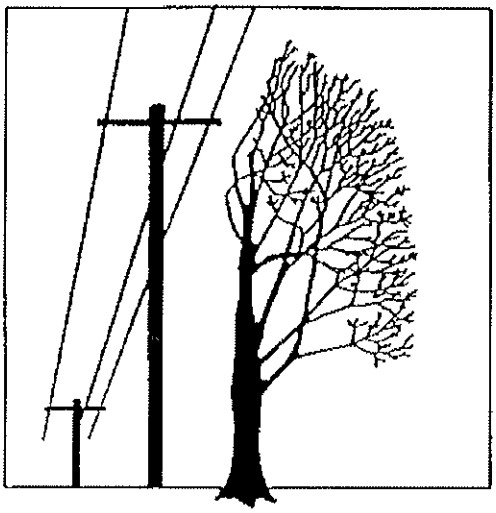
For the sake of appearance and to limit the amount of regrowth, it is best not to remove more than one-fourth of the crown when top pruning. In certain species, removal of too much of the crown may result in death of the tree.

Top trimming is generally required to address the situation where a tall growing tree has been planted or grown underneath the lines. Top trimming should NOT be used on those trees that are located partially under the line, where part of the tree could be trained to grow away from and/or beside the line, specifically required by the property owner. Side trimming is discussed in the next section.



Before Side Pruning

After Side Pruning
Rural – R/W areas



2. SIDE PRUNING IN NON-RESIDENTIAL R/W AREAS

In non-residential or rural right-of-way situations side pruning consists of cutting back or removing the side branches that are threatening the conductors from ground to sky. Side pruning is required where trees are growing adjacent to utility lines. Limbs should be removed at a lateral branch or the main trunk wherever possible to minimize future re-growth. All branches beneath the conductors should be removed to prevent them from growing up into the lines. Avoid unsightly notches in the tree, if possible.

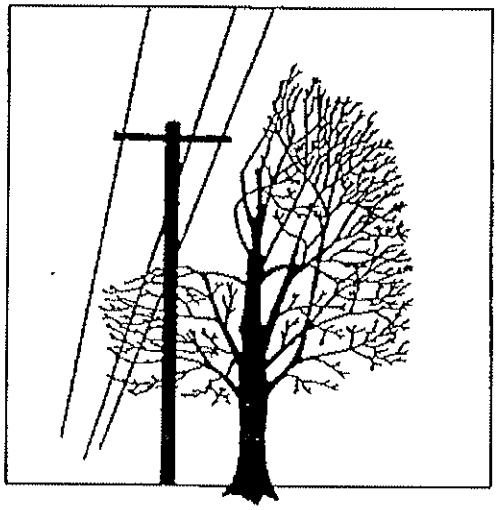
3. SIDE PRUNING IN RESIDENTIAL AREAS

In residential situations, where the tree to be trimmed is part of a lawn or landscape setting it is often necessary to leave a "shelf" of branches below the phone cable level, or at least 10 – 12 feet below the primary level. While this is NOT a preferred trimming

method, it is commonly required in residential areas in order to maintain as much of the natural appearance, screening and shade value of the tree as possible. Trees that would require excessive trimming or create serious visual impacts for the property owner should be candidates for removal.

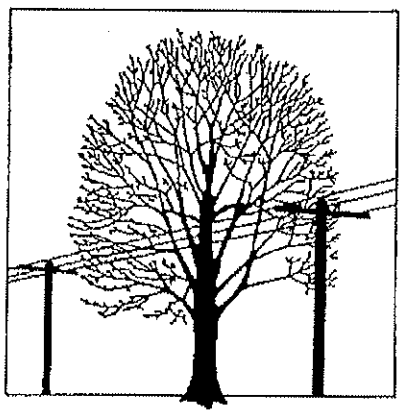
When shelf trimming is performed the remaining branches shall be trimmed so as to train them to grow out flat, or down and away from the conductors. Branches growing up, toward the overhead conductors should be removed or trimmed to laterals growing away from the wires.

After Side Pruning Residential Areas

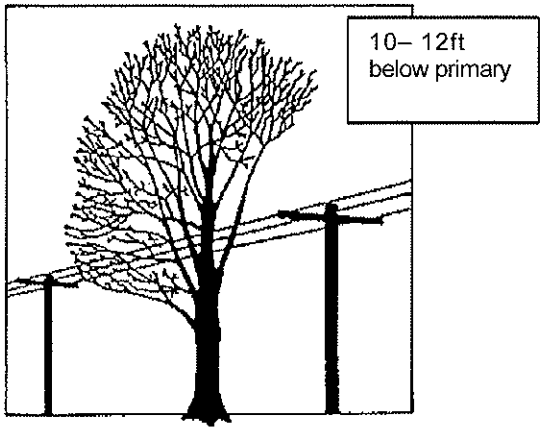


4. UNDER PRUNING

Under pruning involves removing the lower limbs of the tree to allow wires to pass below the tree crown. All cuts should be made as close as possible to the branch bark ridge at the branch collar, to avoid leaving unsightly stubs. The natural shape of the tree is retained in this type of pruning, and the tree can continue its normal growth. Overhangs shall be trimmed as required by this specification in Exhibit C Table 1, the species of tree, location. All dead branches above the wires shall be removed, regardless of height, since this dead wood could easily break off and cause an interruption.



Before Under Pruning



After Under Pruning

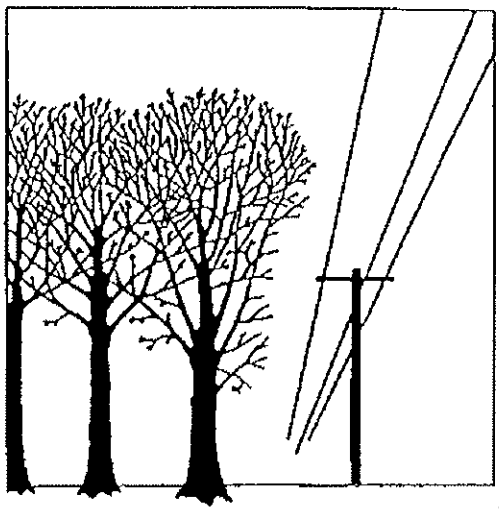
5 COMBINATIONS

It may be necessary to combine several pruning types in order to achieve a good-looking job and to obtain adequate clearances.

Improper Trimming Methods

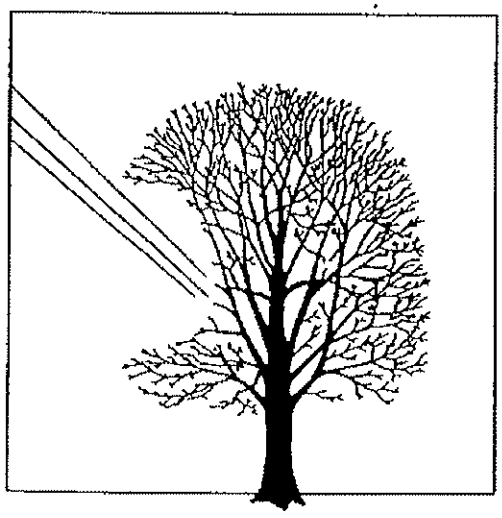
6. SIDE TRIM STUBBING

This is done by stubbing off portions of limbs along the side of the tree to obtain clearance. Cutting off portions of limbs (leaving stubs) to obtain clearance creates many fast-growing suckers that become a serious line clearance problem. Corrective pruning will be required to eliminate and repair past stubbing practices when they are encountered.



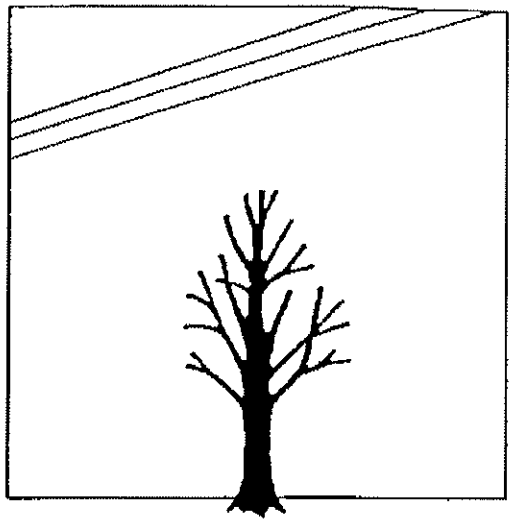
7. "SHAPING" AROUND LINES

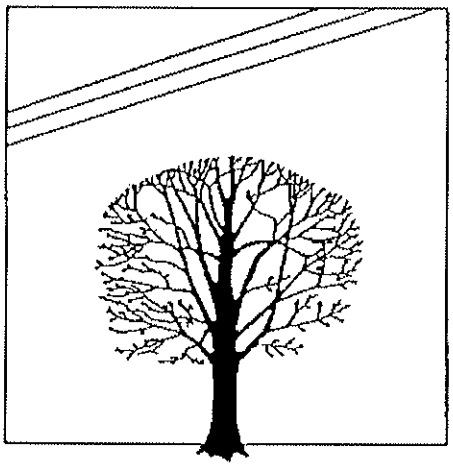
This is done by trimming limbs in an arc to obtain clearance. This unsightly method of trimming leaves branches above the conductors that could bend or break.



8. POLLARDING

This is done by stubbing off major limbs to greatly reduce the size of the tree crown. The result is not only unsightly, but promotes a multitude of fast-growing suckers that sprout from the stubs. The combination of stubbing and re-sprouting leads to weak limb attachments, disease and decay, which then lead to a serious reliability and line clearance problem.





9. ROUNDING OVER

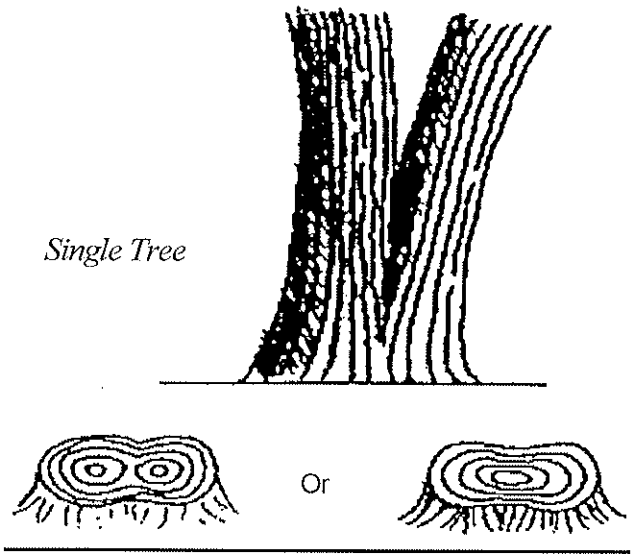
Rounding over (or shearing) is done by making many small cuts so that the tree top is sheared in a uniform line. This creates an unhealthy tree condition and results in rapid regrowth of suckers directly toward the electric conductors.

When a round over is done using a pole saw the trimmer usually leaves numerous stubs, rather than following drop crotch and directional trimming principles. This stubbing commonly leads to decay, disease and rapid re-growth. This condition is unacceptable, except when mandated by customer requirements, and even then should be a last resort.

When a round over must be done, it shall be completed using the proper hydraulic or manual pruning tools, following the proper collar cut procedures. Stubbing is unacceptable. The Owner's Representative shall be notified before a round over is performed.

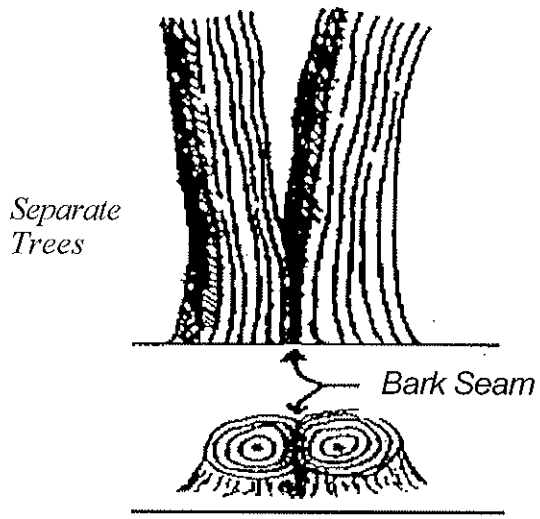
Appendix 4

What is a Tree



1. SINGLE-STEM TREE IDENTIFICATION

A tree that splits above ground line and has a visible included bark seam down to the ground line is considered a single tree.



2. MULTI-STEM TREE IDENTIFICATION

A tree that splits at ground line is considered multiple trees. A tree that splits above ground line, but has a visible included bark seam down to the ground line is considered separate trees.

Appendix 5

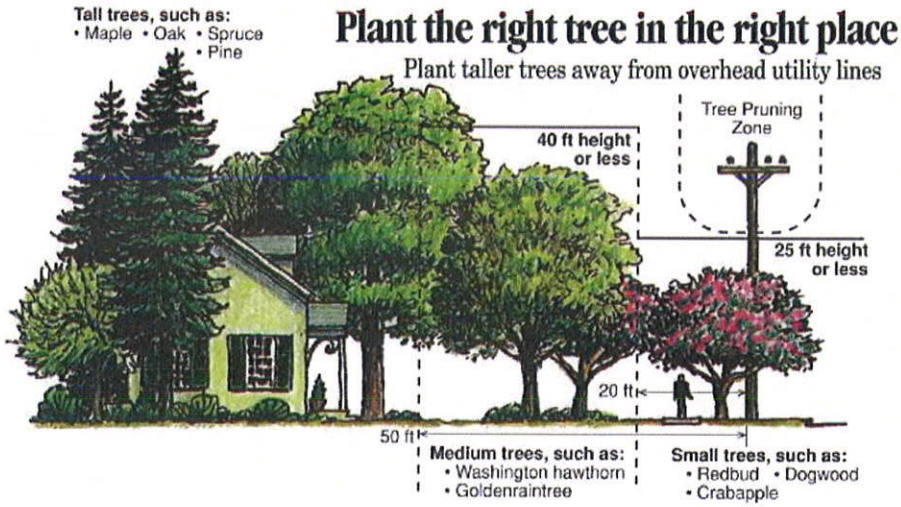
Empire Line Clearance Scheduling Strategy

The following table summarizes the Empire line clearance scheduling strategy. Individual circuits may be accelerated or deferred based on assessment of field conditions and operating performance.

Feeder Description	Primary Cycle Length (Years)	Mid-cycle Inspection/selective Tree Maintenance (Years)
Residential Feeder Multi-phase	4	2
Rural Feeders	6	3

** The above schedule will be utilized unless otherwise directed by the appropriate regulatory body*

Appendix 6


Tall trees, such as:
• Maple • Oak • Spruce
• Pine
Plant the right tree in the right place
Plant taller trees away from overhead utility lines
Tree Pruning Zone
40 ft height or less
25 ft height or less
20 ft
50 ft
Medium trees, such as:
• Washington hawthorn
• Goldenraintree
Small trees, such as:
• Redbud • Dogwood
• Crabapple

Appendix 7

Specifications for TGR Application (4-year cycle circuits)

Voltage Class	DBH class	Trees to be treated		
		Trees located within 10 feet of the nearest conductor or w/o spec. clearance or "Directional Pruning"	Trees located within 15 feet of the nearest conductor w/o or spec. clearance or "Directional Pruning"	Trees located within 20 feet of the nearest conductor or w/o spec. clearance or "Directional Pruning"
Distribution	**R1**	F, M	F,M	F
	R2	F, M	F,M	F
	R3	F, M	F	F
	R4	F, M	F-- under 40" DBH	F-- under 30" DBH
	Other	Special conditions may cause a need to treat certain trees not covered by this specification. The applicator should submit a request to treat that tree and turn it in to be approved by the Empire Coordinator responsible for work in that area.		

Empire District Electric Distribution TGR Application Standards Species Table

Fast Regrowth (F)	**Med. Regrowth (M) Spp. Not to Treat**	**Spp. Not to Treat**
Aillanthus	Basswood	Bald Cypress
Ash	Catalpa	Blackjack oak
Birch	Ginko	Cedar
Boxelder	Hackberry	Fir
Cherry	Hickory	Hemlock
Cottonwood	Hybrid Maples	Holly
Elm	Kentucky Coffee Tree	Magonolia
Locust	Osage Orangw	Pine
Mimosa	Red Oaks	Post Oak
Mulberry	White Oaks	Spruce
Pear	Other Maples	Walnut
Poplar	**Slow Regrowth(s)**	Pecan
Sassafrass	Buckeye	Fruit
Silver Maple	Dogwood	**Other Trees Not to Treat**
Sweetgum	Red Bud	Trees in decline
Sycamore	Sugar maple	Obviously stressed trees
Bradford Pear		Trees side-trimmed with 33% more than min.clearance

Specifications for TGR Application (6-year cycle circuits)

Voltage Class	DBH class	Treat trees measured by the off-set of the tree base to the nearest line		
		Trees located within 10 feet of the nearest conductor or w/o spec. clearance or "Directional Pruning"	Trees located within 15 feet of the nearest conductor or w/o spec. clearance or "Directional Pruning"	Trees located within 20 feet of the nearest conductor or w/o spec. clearance or "Directional Pruning"
Transmission	all	**Treat all trees trimmed durring routine cycle**		
Distribution	**R1**	F,M	F,M	F
	R2	F,M	F,M	F
	R3	F,M	F,M	F
	R4	F, M	F-- under 40" DBH	F-- under 30
	Other	Special conditions may cause a need to treat certain trees not covered by this specification. The applicator should submit a request to treat that tree and turn it in to be approved by the Empire Coordinator responsible for work in that area.		

Empire District Electric Distribution TGR Application Standards Species Table

Fast Regrowth (F)	**Med. Regrowth (M)**	**Spp. Not to Treat**
Ailianthus	Basswood	Bald Cypress
Ash	Catalpa	Blackjack oak
Birch	Gingko	Cedar
Boxelder	Hackberry	Fir
Cherry	Hickory	Hemlock
Cottonwood	Hybrid Maples	Holly
Elm	Kentucky Coffee Tree	Magonolia
Locust	Osage Orange	Pine
Mimosa	Red Oaks	Post Oak
Mulberry	White Oaks	Spruce
Pear	Other maples	Walnut
Poplar	**Slow Regrowth(s)**	Pecan
Sassafrass	Buckeye	Fruit
Silver Maple	Dogwood	**Other Trees Not to Treat**
Sweetgum	Red Bud	Trees in decline
Sycamore	Sugar maple	Obviously stressed trees
Bradford Pear		Trees side-trimmed with 33% more than min.clearance

Specifications for TGR Application (continued)- Definitions

Spec. Clearance *– Required minimum clearance to be attained at the time of utility line clearing maintenance as defined by Empire District Electric Company's Distribution System Vegetation Management Policy and Procedures Manual dated 3/22/2013 and Transmission Vegetation Management Plan dated 9/20/2011.*

Directional Pruning *– Attitudinal angle of remaining growth of a tree following utility line clearance. The desired result is to have the entire portion of the tree remaining to be growing away from the lines and be outside the minimum required specified clearance near the wire zone*

Wire Zone *– Pertaining to TGR application, wire zone refers to the portion of a tree that due to re-sprout potential on trimmed portions of the crown is in the elevation above ground to be within the minimum required specification clearance at the time of maintenance utility line clearing work.*

Appendix 8

DEFINITIONS

The following words and phrases shall have the definitions set forth below when used in these specifications:
basal treatment - Herbicide application covering the entire stem to approximately 18 inches above the soil.

brush - a woody plant that is manageable by herbicide application due to setting or tree species less than 6 inches DBH, that is not part of an existing tree, and that may reach the conductor at maturity.

brush unit - one square foot of brush-covered ground. A 1,000 square foot pricing unit of brush may consist of partial units scattered throughout the electrical corridor. Brush area shall be measured at the drip line.

brush work – trimming, clearing brush and applying a herbicide to the cut stems, or only applying herbicide to brush.

clearance - the distance between the nearest portion of a tree or other vegetation and the conductors.

coniferous - any of the cone-bearing trees or shrubs, mostly evergreens.

DBH - "diameter at breast height" – the diameter of individual tree trunks or individual stems of brush measured at a point 4.5 feet above the ground.

deciduous - any perennial plant that sheds its leaves annually at the end of a growing season.

demand tree trimming - trimming or removing trees on a customer requested or emergency basis. Also may include tree work associated with line construction projects. This is typically required when trees have grown into the conductors, or are close to the conductors, and have created a potentially dangerous situation. This may also include special trimming or chipping work when requested by EMPIRE. Only EMPIRE authorized representatives may assign customer requested, demand tree work.

directional pruning - a form of natural pruning used to encourage tree regrowth away from the conductor. It is accomplished by removing limbs growing toward the conductors entirely at the branch collar near the trunk of the tree, or by pruning to lateral branches that are at least one-third the diameter of the limb being cut and are growing away from the conductor. (References: Dr. Alex Shigo and/or ANSI A300)

drop-crotching - is a crown reduction technique in which a tree trimmer makes proper pruning cuts at crotches, removing the larger limb and favoring the smaller. For electric line clearance, the trimmer would remove limbs growing toward the conductors and favor those growing away from the conductors. This usually results in a "V" shaped appearance of the tree crown and is frequently referred to as "V-trimming". See definition of "natural pruning" for further description.

evergreen - any plant that retains its leaves/needles year-round.

foliar herbicide application - the application of a herbicide to the leaves or needles of a target plant.

hazard trees - trees that are located off the right of way, have a high probability for failure and are of sufficient height to contact the conductors and/or structures and guy wires if they were to fall in that direction, and should be cleared. Conditions could include but are not limited to the following: Dead, dying or diseased, leaning trees, weak branches, shallow root system, root failure, internal decay, canker or canker root.

herbicide - a chemical pesticide used to control, suppress, or kill plants.

Make-safes – the practice of cutting only the portion of a tree that encroaches beyond air insulation distance as required by NESC for work to be performed by companies not line clearance certified. This work does not include the chipping or removal of the resulting debris and will be performed at the direction of EMPIRE personnel.

mechanical per lineal foot, one side – A pricing unit used to describe pruning solid side wall of trees, on one side of the lines, where it is not practical to designate individual trees and is practical and appropriate to use mechanical tree trimming equipment.

natural pruning - a method by which branches are cut to the branch collar at a suitable parent limb, the trunk of the tree, or an appropriately sized lateral branch. This method of pruning is sometimes called "drop-crotching", "proper pruning", the "Shigo method" or "lateral trimming."

non-mechanical per lineal foot, one side – A pricing unit used to describe pruning solid side wall of trees, on one side of the lines, where it is not practical to designate individual trees and is not practical or appropriate to use mechanical tree trimming equipment.

preventative maintenance - trimming or removing vegetation on a systematic basis typically by, but not limited to, circuit or grid, and in a manner intended to achieve system reliability.

pruning - the removal of dead, dying, diseased, interfering, objectionable, and/or weak branches of trees or shrubs using proper arboricultural techniques.

removal - completely cutting to the ground or as close to the ground as obstructions do not inhibit an entire tree and applying herbicide to the cut stump.

right-of-way - a distribution right-of-way, an easement, a EMPIRE easement, or any other corridor of land paralleling, on both sides, an overhead distribution line, and in respect of which EMPIRE has certain rights.

rounding over - the making of many small cuts so that a tree underneath the conductors is rounded over in a uniform curve. This creates an unhealthy tree condition and results in rapid regrowth directly back toward the electrical conductors. This is not an acceptable practice.

safety zone work – removing all overhang and cutting back limbs to a minimum clearance of 10 feet from the energized conductor.

selective herbicide - a herbicide that, when applied to a mixed population of plants, will control specific species without injury to others.

shearing - the making of many small cuts so that a tree adjacent to the conductors is sheared in a uniform line. This is not a generally acceptable practice.

show-up site – site where CONTRACTOR crews receive work assignments.

side pruning - using natural pruning methods to cut back or removing side branches that are threatening the conductors; required where trees are growing adjacent to conductors.

stump treatment - applying an approved herbicide to the outer ring (cambium) portion of the stump to reduce or eliminate re-growth.

sucker growth - the re-growth within the tree that originates near the cuts made during the previous trimming.

the property - any work site associated with this contract.

topping - cutting back the upper crown of a tree to a uniform horizontal line, leaving multiple stubs. This is an improper and unacceptable trimming technique except where specified to reduce a hazard. Usually applies to make-safes and top and spray applications.

tree - a perennial plant with a woody trunk measuring at least six (6) inches DBH, and having one set of annual rings at ground level or more than one set of annual rings not separated by included bark. Trees that grow adjacent to one another and share an apparent common base completely separated by "included bark" are considered to be distinct trees. "Included bark" is bark that is included within the wood of a tree, or
between the woody stems of separate trees, creating a physical separation between the trees.

tree size classifications - tree diameter as measured at breast height
(DBH): 6" to 11.9", 12" to 17.9", 18" to 23.9", and 24" and greater

tree crown - the upper portion of the tree; the branches or leaf area.

trimming - cutting back tree branches or shrubs to shape or reduce the size of the tree or shrub.

V-trim - using natural pruning methods to cut back large portions of the upper crown of a tree. This is required when trees are located directly beneath a conductor. Also known as crown reduction pruning or drop crotching.

vegetation - all the plant (flora) life in a particular region; a plant community, assemblage, or aggregation with distinguishable characteristics.

AFFIDAVIT

State of Missouri)
)ss
County of Jasper)

I, Martin O. Penning, having been duly sworn upon my oath, state that I am the Vice President of Commercial Operation of The Empire District Electric Company (Empire), that I am duly authorized to make this affidavit on behalf of Empire, and that the matters and things stated in the foregoing are true and correct to the best of my information, knowledge and belief.

Martin O. Penning

Vice President of Commercial Operation

Subscribed and sworn before me this 26TH day of March, 2013

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

JANET L. HUNLEY
My Commission Expires
September 20, 2015
Jasper County
Commission #11243846

Janet L. Hunley

Notary Public