EVALUATING LINE CLEARING CREWS[1]

by James E. Miller

Abstract. In 1971, the Manager of Public Service Company of Colorado ordered an evaluation of all line clearing contractors that were under contract to the Company to determine which contractor was doing the best job for the Company. Various reports, forms, guidelines and procedures were developed to accomplish this task. Within reasonable limitations, it is now possible to grade the various line clearing contractors and individual crews with a degree of confidence.

Purpose

The purpose of a crew evaluation is to evaluate the line clearing program to determine the contractors and individual crews that are operating most effectively and economically and also to present reliable data and sound recommendations to Management for appropriate action. To make sound and fair decisions, Management requires dependable data. General information and personal opinion cannot be relied upon alone to make important decisions, such as terminating contractor X's agreement and giving his crews to contractor Y.

Audits, Forms and Procedures

General information, such as 20 trees trimmed on July 18 on Main Street between 2nd and 44th Avenue, is sufficient to process a contractor's invoice, but this same information is not enough detail to make a field evaluation and audit of the work. The information must be accurate and detailed enough for the utility representative to locate the exact trees that were trimmed on July 18. As an example, 2 trees trimmed at 1804 Main Street, 6 trees trimmed at 2036 Main Street, and so on. A form, the *Weekly Tree Work Audit*, was developed for recording this information (see Appendix). The cost per tree is meaningless if the crew leader records inaccurate and inflated work progress figures.

Standard appraisal forms were developed to record the crew's dependability, public relations, quality and qualtity of work and other specific problems (see Apopendix).

Public Service Company of Colorado's first formal evaluation of their line clearing contracts was in June 1971. This evaluation pointed out the fact that the Company had as many rough spots to smooth out as the contractors. As an example, service dispatchers, general line foremen, and anyone driving a Company vehicle were all coordinating the tree crew's work, resulting in considerable latitude in methods used and results achieved. Field operations demonstrated a need for higher level planning and coordination. In the words of one superintendent, "We rely upon the expertise and dedication of our line clearing contractor to supply us with an effective and economical line clearing program." His faith was misplaced.

The evaluation indicated that a few of the contractor's weak spots included supervision, which varied from average to none at all. Crews were traveling too many miles from the headquarters location to the work location. The headquarters location should be moved closer to the job. In addition, crews were traveling too many miles from one job to another on special assignments, which means lower production unless carefully scheduled. The tree removal program varied from fair to none at all with some crews. The method of line clearing varied from crew to crew and included stubbing, round over and very little drop crotch trimming.

At the time of the first evaluation, the Company did not have written standards or guidelines for the line clearing program. Because of the widespread operation of the Company, it is very difficult to control the quality and quantity of line clearing work performed by each individual crew. In order to secure the best line clearance possible, and to assist the contractors and division superintendents in carrying out the Company's policy, concise guidelines and standards had to be set forth to standardize the line clearing operation.

[1]Presented at the International Shade Tree Conference in Detroit, Michigan in 1975.

Guidelines

The first step taken by the Company to standardize the operation was to rewrite all line clearing agreements with the various contractors. One paragraph states, *To perform the work in a workmanlike manner, according to standards provided by the Company . . . .* This statement made it mandatory for guidelines to be written by the Company and followed by the contractors.

A *Manual of Standard Line Clearing Practices* was assembled from various sources. The Manual includes guidelines for tree removal, stump spraying, methods of tree trimming for line clearance, special requests for assistance from private contractors and property owners, overhanging limbs, line clearing during storms, general work procedure, and other operating problems.

Conclusions

Without an evaluation program and with line clearing crews and equipment contracted on an hourly basis, there is little incentive for contractors to correct undesirable conditions. A utility pays the same price for a crew that does not produce adequate line clearance as is paid for a good crew. The same statement can be made for equipment, new versus old. There appears to be very little competition between contractors to out-produce the next contractor. The only competition is to get more crews and equipment on the system than the next contractor. With an accurate audit, a uniform and fair crew evaluation that is also reliable and firm, and a Management that is dedicated to reliable electric service and also to improving the overall efficiency of the line clearing operations, the utility will see competition between contractors in both quality and quantity of work.

Even with an accurate work progress audit, there is no reliable measure of production. While the number of loads of debris, number of trees trimmed and removed, is not necessarily a measure of a crew's production, it is an indication of production. As a direct result of the Company's Line Clearing Crew Evaluation Program that attempts to include production as an important factor, we have reduced the number of men and equipment (any vehicle that requires a license to operate on public highways) required to trim the system from 61 men and 61 pieces of equipment in 1971 to 52 men and 46 pieces of equipment in 1975, a reduction of 9 men and 15 pieces of equipment. This reduction was made while continuing to improve the overall efficiency of the line clearing operations and, at the same time, continuing to provide our customers with high quality, reliable electric service.

In 1975, it is estimated the reduction in men and equipment will save the Company approximately $250,000. In 1969 and 1970, the annual line clearing budget was increasing about 17 percent each year. In 1971, Management started taking a very close look, via the evaluation, at the overall line clearing program. The evaluation, combined with a Management that did not hesitate to "rock the boat" for the best interest of the customers and stockholders, held the line clearing costs at about $900,000 in 1971, 1972 and 1973. The line clearing program was caught up in inflation in 1974. While holding the line on the line clearing budget for three years, the Company's quality electric service to its customers was not reduced.

Line Clearing Expenses 1968-1975
(Rounded off to the nearest $1,000)

	Dollars	Percent Increase (Decrease) over Previous Year
1968	$653,000	
1969	763,000	16.8
1970	897,000	17.5
1971	904,000	.7
1972	896,000	(.8)
1973	892,000	(.4)
1974	965,000	8.1
1975	1,061,000 (Est.)	10.0 (Est.)

Management's firm decision to hold the line on inflation and plain good business practices (evaluation) has saved the Company about $1,000,000 since the inception of the program in 1971.

Public Service Company of Colorado
Denver, Colorado

APPENDIX

Weekly Tree Work Audit

WEEKLY TREE WORK AUDIT Week Ending 7-19-75

FOR DIVISION FILE Foreman: Chavez -202

Walk in, or (Bucket truck) (Circle one) FILE: Shriders For P.S.Co. Use Tree Company: Y

Date	Detailed Locations	Type	Trim	Removed	Load Chips	Logs	Code
7-14	1075 Kingston	Pri.	8				A
3 Man	" "	L	1				"
Crew	1045 "	Pri		2			"
	Gordons Nursery (14 Mi. R.T.)				1		
	1095 Kingston	Pri	1				A
	1035 "	"	1				"
	995 Joliet	"	1				"
	1067 "	"	1				"
	9861 E. 8th Ave.	Sec.	3				"
			(16)	(2)	(1)		
7-15	12980 W. 32nd. Ave	Sec	4				E
2 Man	1192 Forest Ct.	Pri	2	3			C
	County Dump (22 Mi R.T.)					1	
	1328 Field Ct.	Pri	3				A
	1872 Glen Ellen	Sec	1				"
			(10)	(3)		(1)	
7-16	1204 Estes	Sec	4				A
3 Man	1196 "	Pri	1				"
	1338 "	"	1				"
	1006 Bell	"	1				"
	1054 "	"	2				"
	1491 Hoyt (Customer 6 Mi R.T.)				1		

Type: Pri.-Primary Sec.-Secondary L.-Loops, S.L.-Street Light

Code: A - Area Maintenance E - Emergency Maintenance C - Construction

Line Clearing Crew Evaluation Report (Unscheduled)

PUBLIC SERVICE COMPANY OF COLORADO

LINE CLEARANCE CREW EVALUATION REPORT

— UNSCHEDULED —

Contractor Y Division Southern

Crew Leader Chavez - 202 Date August 1, 1975

Headquarters Location 8th and I-270 Crew Organization 3 Man Bucket

Work Location S. Monroe and 6th Ave. (Miles 4 R.T.)

PRINCIPAL CONSIDERATIONS	Below Average 1	2	SATISFACTORY (#4 Average) 3	4	5	Above Average 6	7	
1. Customer Relations (based on at least three contacts) Permissions, work site clean-up, sells customer on company's interest in trees, courtesy, and attitude of crew leader					X			
2. Dependability								
a. Call-in of accurate work location				X				
b. Skips			X					
3. General Appearance of Line Clearance (based on inspection of ten consecutive trees)								
a. Dropcrotch (directional)				X				
b. Flush cuts			X					
c. Stubs, rips, hangers?				X				
4. Quality of Line Clearance								
a. 2 years clearance				X				
5. a. Tree Removal* (2, 4, 6, 8, 10, 12, 14%)								11
b. Use of stump spray							X	
c. Adequate line clearing permission in advance of work?			X					
d. Chip and wood disposal in accordance with manual?				X				
			9	20	5		7	11

TOTAL 52 (Average 44)
Best Rating - Highest Total

* Based on one week's production.

Line Clearing Crew Evaluation Report (Annual) Principal Considerations

PUBLIC SERVICE COMPANY OF COLORADO

LINE CLEARANCE CREW EVALUATION REPORT

ANNUAL EVALUATION

Contractor Y Division Southern

Crew Leader Chavez - 202 Date December 3, 1974

Headquarters Location 32nd Avenue and I-70 Crew Organization Bucket - 3 Man

Work Location 1700 Block Youngfield (Miles 2 R.T.)

PRINCIPAL CONSIDERATIONS	Below Average 1	2	SATISFACTORY (#4 Average) 3	4	5	Above Average 6	7
1. Customer Relations (based on at least three contacts) Permissions, work site clean-up, sells customer on company's interest in trees, courtesy, and attitude of crew leader				X			
2. Dependability							
a. Call-in of accurate work location					X		
b. Skips			X				
3. General Appearance of Line Clearance (based on inspection of ten consecutive trees)							
a. Dropcrotch (directional)					X		
b. Flush cuts				X			
c. Shaping trees (conventional dropcrotch)				X			
d. Stubs, rips, hangers?				X			
4. Quality of Line Clearance							
a. 2 years clearance			X				
b. Overhang removal						X	
5. a. Tree Removal (2, 4, 6, 8, 10, 12, 14%)			X				
b. Use of stump spray	X						
c. Stump low enough				X			
d. Adequate line clearing permission in advance of work?		X					
e. Chip and wood disposal in accordance with manual?					X		
f. Trade off tree work not encouraged?				X			
g. Turn in skips, tree houses, potential distribution trouble spots, non line clearing report?					X		
h. Door knob permission slips or equivalent?							X
	1	2	9	24	20	6	7

TOTAL 69 (Average 68)
Best Rating - Highest Total

Dependent Considerations

ANNUAL EVALUATION

DEPENDENT CONSIDERATIONS	Below Average 1	2	SATISFACTORY (#4 Average) 3	4	5	Above Average 6	7
1. Safety: Hard hats, goggles (when operating chipper), traffic cones, warning signs, safe working conditions					X		
2. General Appearance of Personnel				X			
a. I.D. card							X
3. Condition of Vehicular Equipment							
a. Average age (years) ('72, '72, '68)				X			
b. Housekeeping				X			
c. Glass, tires, paint and contractor identification (Dirty truck)			X				
4. Condition of Tools and Equipment							
a. Chain saws					X		
b. Serviceable sprayer (stump spray)	X						
c. Hand tools, ropes, saddles, and tool storage						X	
	1		3	12	10	6	7

TOTAL 39 (Average 36)
Best Rating-Highest Total

REMARKS: Crew Y-202 is an industrious crew that should spread their work to more trees. The crew makes too many cuts on a tree that has nothing to do with line clearing. The time and labor that the extra cuts take should be applied to other trees for line clearance.

				AVG. COST
Trees trimmed in period	Jan. 1, 1974 to Dec. 31, 1974	Total trees trimmed	4,682	$10.96
Trees removed in period	" " " to " " "	Total trees removed	248	$27.79
Loads of debris in period	" " " to " " "	Total loads of debris	204	

Chip Truck 21 Cubic Yards

Bucket Truck 14 Cubic Yards

Estimated Cubic Yards of debris 3,800

Percent of Tree Count Removed 5.03

JEM:B/N
Date: 6/25/71
Revised: 2/5/73

Line Clearing Proficiency Graph