UTILITY POLE RECYCLING: PAST EVENTS AND FUTURE DIRECTIONS

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Summary

In recent years, Bell Canada has established a recovery program for its preservative-treated wooden poles. This corporate program, which is under continuous development, achieved a recovery level of better than 60% in 1997. The result in question was achieved through implementation of various operational and management activities designed to ensure maximum participation by all employees whose jobs involve managing the various treated lumber pieces withdrawn from service. One fact emerges from all the data gathered over the years: a treated lumber recovery and management program must, of necessity, include training activities to ensure that all employees—whether associated directly or indirectly with the withdrawal and replacement of treated lumber poles to be scrapped—are accountable for their activities.

1. Introduction

Preservative-treated lumber is the material most commonly used for electrical and telecommunications network overhead structures, for two reasons: first, its cost and, second, its structural qualities (Stephens et al., 1996), which allow such operations as drilling a number of holes to attach the various equipment items required for distribution networks without affecting section capacity.

A few years ago, used treated lumber poles and pieces reaching the end of their service life were not covered through a special recovery or disposal program. This lumber was in fact directly recovered by contractors or individuals that reused it in various ways. Only undesirable lumber was required to be disposed of in dry landfill sites by user companies. Today, although the regulations are not uniform from one province to the next, treated lumber is not regarded by the authorities as hazardous waste. The Government of Quebec specifically exempts treated lumber from its regulations on hazardous materials (MEF [Department of Environment and Wildlife], 1997). However, treated lumber must be managed responsibly so as to minimize potential impacts on the receiving environment (MEF, 1998).

In this legal and regulatory context and in view of growing public concern, Bell Canada was led to review its management process covering its treated lumber poles destined for scrap, in order to comply with these new requirements while also minimizing impacts on its

activities and associated legal liability. In recent years, Bell has gradually introduced a corporate program for recovery of treated lumber, based on the results of various research and development activities with which the Company was directly or indirectly associated. Although the Strategic Options Process covering the treated lumber industry, which was launched in 1994 under the guidance of Environment Canada, has not been completed, Bell believes that the likely final recommendations will merely reinforce the Company's prior decisions concerning the need to control the final fate of used treated lumber withdrawn from use. Thus, control over one of the phases in the life cycle of treated lumber is enhanced by recovering and managing poles and pieces.

2. Methodology

The results presented in this paper are based on the annual data compilation exercises carried out by Bell Canada Environmental Services since introduction of the first used preservative-treated lumber management policy in 1992. The data come from the Company's various internal groups, including the operational groups, provisioning, accounting, and suppliers of products and services. This means that each data source is compared and checked with another data source in order to confirm the accuracy of the results.

With this monitoring and control program for used lumber withdrawn from service it is possible to document the fate of lumber pieces. It is also possible to monitor Bell's performance in the area of recovery of its own treated lumber.

3. Results and Discussion

Since the early 1990s, Bell Canada's efforts to recover treated lumber have been organized in the form of various research, development and operational management activities. The present "Results and Discussion" section sets out, in chronological sequence, the projects and activities of this type that have led the Company to improve its recovery performance or influence policy with regard to selection of options.

In 1992, Bell Canada began to implement its used treated lumber recovery program with the introduction of its first Corporate policy, which focused specifically on reuse of poles and introduced a form for completion when lumber was donated to the public. It also included information on prohibited uses of treated lumber. However, this effort did not include monitoring tools to record volumes of reused lumber or monitor the final destination of donated poles.

In late 1993, the pole recovery program (for pole pieces longer than 8 feet) was introduced. Under this program, poles withdrawn from service began to be recovered, shipped and stored on the premises of the service supplier for the purpose of eventual resizing for reuse.

In this way, Bell Canada recovered 7% (see Figure 1) of poles withdrawn from service, or approximately 600 tons of lumber (see Table 1). This initiative followed release of the Cooper report (1993), which established that treated lumber withdrawn from service by user companies had the required potential and qualities for reuse.

In 1995 Bell Canada updated its used treated lumber management policy by prohibiting donations of lumber pieces to the public and providing a formal process for their return to the initial supplier. In the course of the Company's routine activities, once the volume of used poles to be returned is sufficient, the supplier is advised and coordinates their shipment with delivery of new poles. This minimizes shipping costs.

In addition, also during 1995, a budget for specific disposal of lumber pieces shorter than 8 feet in length (i.e. shorter than the minimum commercial length) was allocated to the operational groups. This allocation was transferred to Environmental Services in 1996 in order to centralize management and coordinate all these operations, in contrast to the two previous regional systems. As a result of this centralization it was possible to reconcile the data for the two provinces concerning disposal in landfill sites (see Figure 2).

At the same time, the joint treated lumber recycling demonstration project showed that it was possible to resize poles into commercial lumber (Duchesne et al., 1996). This project was also followed by a demonstration of the potential for converting treated lumber and scrap to energy in a cement plant (Duchesne et al., 1997).

No specific operational activities were carried out under the treated lumber recovery program in 1997. However, the substantial increase in the 1997 recovery results in Ontario (see Figure 1) intrigued program managers. This performance is apparently linked to implementation of the "Internal Environmental Evaluation Program", which focuses on environmental management of activities associated with network construction and modernization. Training courses were given to Quebec personnel in 1994 and 1995 and to Ontario personnel in 1996, 1997 and 1998 (see Figure 3). The training includes information on recovery of treated lumber.

In 1998, management of treated lumber withdrawn from use at Bell Canada is a component of the renewal plan.. The goal is to incorporate recovery of all treated lumber pieces in the Company's integrated centers for recyclable and hazardous materials. In this way, all material for disposal will be recovered in centers installed within work centers. This improvement phase should also include recycling and reuse of the lumber, as well as generation of energy from cutting wastes, pieces unsuitable for reuse and pieces that are too short. Bell's aim is to minimize final disposal of treated lumber in landfill sites, as recommended by the MEF (1998). Finally, enhancement of the lumber management program will need to include coordination of the following activities: updating of Corporate policy, information and training, tools to monitor activities and performance, and verification activities.

4. Conclusion

Bell Canada's experience in recent years in the area of management of treated lumber withdrawn from service has been marked by various operational activities and research and development projects designed to produce solutions. The improvement in the Company's recovery performance indicates that an effective management program must be comprehensive and include management of all types of waste, and that the program must be capable of adapting to new external data such as changes in regulations. In addition, a program of this type must of necessity include various components, including a Corporate policy, an information and training program, implementation of monitoring tools, etc. Ideally, it will be administered centrally but will also have local agents responsible for coordinating activities in the various centers.

5. Literature

Cooper, P.A.; 1993; *"Reuse and Recycling of Preservative Treated Utility Poles for Transportation Related Applications";* Final Report for Ministry of Transportation of Ontario; Project 22249

Duchesne, M., C. Goyer and R. Hausler; 1996: "Programme de gestion intégrée du bois traité - Phase 1: Recyclage du bois traité au pentachlorophénol"; Prepared for: Ciment St-Laurent, Les poteaux LPB, Bell Canada, Hydro-Québec, Canadian National, Canadian Pacific Rail and Environment Canada; 18 November 1996.

Duchesne, M., C. Goyer and R. Hausler; 1997; "Programme de gestion intégrée du bois traité - Phase 2: Valorisation énergétique des poteaux traités au pentachlorophénol et des traverses traitées à la créosote"; Prepared for: Ciment St-Laurent, Les poteaux LPB, Bell Canada, Hydro-Québec, Canadian National, Canadian Pacific Rail and Environment Canada; 25 April 1997.

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Ministère de l'environnement et de la faune du Québec (MEF); 1997; *"Regulation Respecting Hazardous Materials and Amending Various Regulatory Provisions";* Order in Council 1310-97, 8 October 1997 (1997) G.O., p. 5199.

Stephens, R.W., G.E. Brudermann, D.E. Konasewich and J.D. Chalmers; 1996; *"Wood Preservation SOP - Socioeconomic Background Study"*; Prepared for Environment Canada, Regulatory Economic Assessment Branch; Draft of the final report.

Table 1: Quantities of poles removed from use and quantities recovered

	Quantity of poles removed (tons)		Quantity of poles recovered (tons)	
	Quebec	**Ontario**	**Quebec**	**Ontario**
1992	4500	5200	-	-
1993	4500	4200	500	100
1994	3400	2800	1400	300
1995	4300	2800	1600	200
1996	2900	1800	1900	400
1997	3100	1700	1700	1200
1998*	3200	1100	1300	500

* Data for 1998 are preliminary results for the first three quarters of the year, including increased replacement activities caused by the January 1998 ice storm.

Figure 1: Treated lumber recovery performance

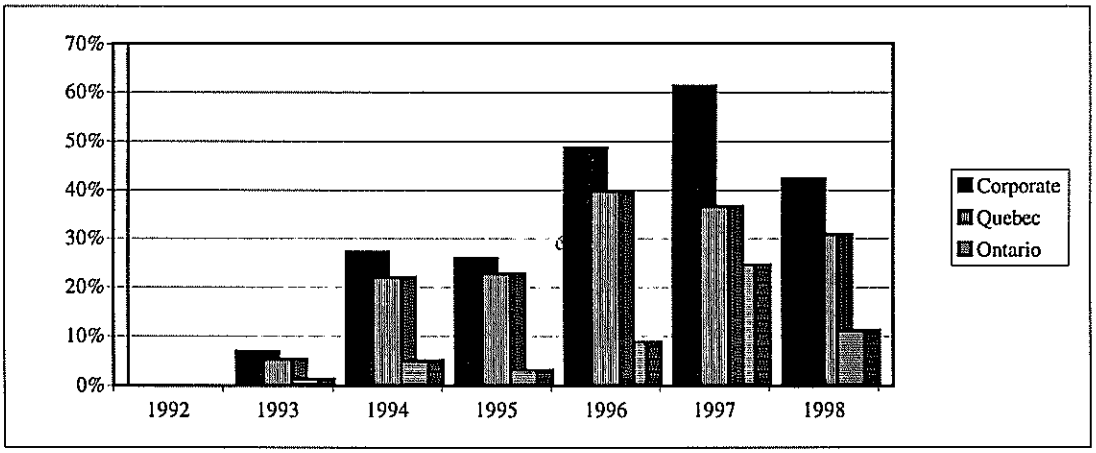

Figure 2: Final destinations of treated lumber (percentages)

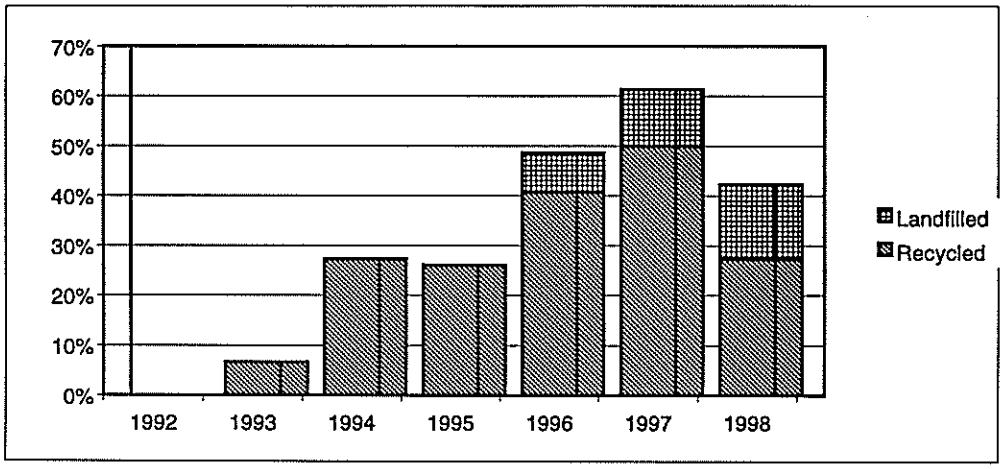

Figure 3: Recovery performances (by province)