

Sawdust used as land-fill in the construction of roads

In 1970, the Western Federal Products Laboratory (WFPL) of the federal Department of the Environment was approached by the British Columbia Department of Highways for advice on the possible use of sawdust as stable land-fill during the construction of an interchange on the Trans-Canada Highway, where a 30-inch high-pressure natural-gas pipeline crossed underneath one of the proposed approach roads. Normal aggregate road-fill was considered too heavy and a risk to the underlying gas pipeline. The use of sawdust was considered as a light and inexpensive substitute. Since the Department of Highways had no previous experience in the use of sawdust above the water-table, a co-operative experiment with the WFPL was undertaken.

The use of wood-preserving chemicals to prevent the biological breakdown of the sawdust was considered. However, no such chemicals are totally resistant to leaching by water. Since the proposed interchange was flanked by fresh-water drainage ditches on prime arable farm land, the use of toxic chemical preservatives was discounted. For the same reasons, the use of fire retardants to prevent possible spontaneous combustion was also excluded.

Since all evidence in the field of biodegradation of wood indicates that under anaerobic conditions the degradation of wood is very slow, it was concluded that good service from sawdust would be possible under such conditions.

In autumn of 1970, some 1,000 cubic yards of mixed old and new hardwood sawdust was used in a 75-foot-long portion of approach road to a depth of about nine feet. This sawdust was compacted and covered entirely over the top surface and edges with heavy-duty polyethylene sheet. A surface layer of sand was added and then a temporary road surface. Thermocouples for temperature measurement were installed within the sawdust at various positions and also tubes for the extraction of gas samples. Subsequently, regular temperature recordings and gas analyses for carbon dioxide and methane were done by the WFPL.

Temperatures within the sawdust-fill decreased during the autumn and spring

'Mrs. Markham' at O'Keefe Centre



Honor Blackman

Honor Blackman and Dame Cicely Courtneidge headlined a cast of nine international stars in the British comedy hit *Move Over Mrs. Markham*, which began a two-week run on April 2 at the O'Keefe Centre in Toronto. The play first opened at London's Vaudeville Theatre on March 17, 1971, and enjoyed a run of two years.

Move Over Mrs. Markham, involves three sets of couples, an amorous, eccentric dog-fancier, an interior decorator, and a prim and proper authoress. The three couples all want to use the luxurious penthouse flat of publisher Philip Markham and his wife Joanna, for romantic escapades. The comedy results from the ensuing chaos. The play is directed by John Chapman, who, together with Ray Cooney, wrote the script.

Appearing with Miss Blackman and Dame Cicely were Terence Alexander,

Peter Byrne, Elspet Gray, Trevor Bannister, Bryan Coleman, Anna Dawson and Ann Kennedy.

Honor Blackman, who plays Mrs Markham, is probably best known as co-star of the popular TV series *The Avengers*. Her film roles vary from seductive judo-throwing in *Goldfinger* to a sensitive portrayal in *The Virgin and the Gypsy*. Her latest appearances have been in two West End thrillers, *Wait Until Dark* and *Who Killed Santa Claus?*

Dame Cicely Courtneidge appeared in revues throughout the 1920s and '30s. Her credits include stage shows *Under Your Hat*, *Something in the Air*, *The Bride Comes Back*, and *Her Excellency*, and such films as *The Ghost Train*, *Those Magnificent Men in Their Flying Machines*, *Spider's Web*, and *The L-Shaped Room*. In 1951, she received the C.B.E., and in 1972 she was created Dame of the British Empire. She published her autobiography, *Cicely*, in 1953.



Cicely Courtneidge

of 1971-72 and only showed slight increases during the summer of 1972, following normal ambient temperature changes. At no time was there any indication of high energy biological activity.

Carbon dioxide and methane levels within the sawdust increased rapidly and then stabilized. These results indicated complete restriction of aerobic activity and the development of methane-producing micro-organisms. From these observations, it was concluded that biodegradation of the sawdust was proceeding only very slowly and that no immediate settling due to its loss of density and compaction

would occur. Without further experimentation, no estimate of the long-term stability of such a road system could be made, but further sites will be considered and tested as the need arises.

The application of sawdust as road or land-fill, using this anaerobic technique developed and tested by the Western Forest Products Laboratory, has considerable potential in future city development. It could also remove the rapidly-increasing problem facing the lumber industry of what to do with and how to utilize its fast-accumulating hog-fuel. The importance of this latter problem and its solution is, at present, under consideration.