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SECONDARY LEACHATE COLLECTION AND REVOMAL SYSTEMS - FML TOP LINERS

April 30, 1987

MEMORANDUM

SUBJECT: Performance of FML Top Liners and Secondary Leachate Collection and Removal Systems

FROM: Walter DeRieux, Environmental Engineer
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TO: Les Otte, Chief
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This memo summarizes actual field information on the design and performance of 1) top liners consisting of a flexible membrane (FML) and 2) leachate collection and removal systems between the liners.

The first facility is in the eastern central portion of the country. The facility has two surface impoundments units which utilize a minimum technology double liner system with a granular leachate collection and removal system between the liners. The top liner consist of a 60 mil High Density Polyethylene (HDPE) FML underlain by a granular media leachate collection and removal system which is in turn underlain by a composite bottom liner. Both surface impoundment units were constructed about 2 years ago, are 1/2 acre in size each and liquid depth is approximately 20 feet.

During the first 6-8 months of operation approximately 15-30 gallons of liquid were removed each week. During the 6-8 month period of the volume of liquid removed diminished and clarity of the removed liquid improved. Liquid removed from between the liners was analyzed for chemical constituents. The TOC concentration of the liquid ranged from 10-40 ppm. Pond influent during this period of time averaged about 400 ppm of TOC. After this 6-8 month period to the present no liquid was detected between the liners.

The second facility is located in the southwest and consist

of 32 surface impoundments units. These units were constructed during the mid 80's. The impoundments consist of a minimum technology double liner system with the top liner being 100-mil HDPE and the bottom liner is of a composite design which is constructed with a 100-mil HDPE immediately adjacent to a low permeability soil liner. Leachate between the liners is

collected in a 4.0-mil geo-net connected to drainage pipes. It was reported that no top liner leakage was detected in the leak detection system after the units went on-line. The leak detection system is located between the liners.