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DELISTING REGULATORY STANDARDS FOR FREON

SEP 3 1987

C.N. Spalaris
Technical Director
Quadrex Recycle Center
109 Flint Road
Oak Ridge, TN 37830-7033

Dear Mr. Spalaris:

I have received your letter requesting a definition of the maximum concentration limit for freon (trichloro trifluoroethans) in still bottoms that would be non-hazardous. I have performed a calculation using the Organic Leaching Model (OIM) and the Vertical and Horizontal Spread (VHS) model in order to reach a general conclusion about the relative hazard posed by the disposal of a freon-containing still bottom in a landfill.

The regulatory standard for 1, 1, 2-trichloro-1, 2, 2trifluoroethane that is in the current use of delisting purposes is 1050 mg/1 (in water), a relatively high value that suggests a low toxicity to humans. Based on a rough approximation of waste volume, Mr. Morse gave you a cut off of 6000 mg/1. This was likely based on a reasonable worst-case where there may be a large amount of waste. In this instance, the VHS model would assign a dilution of only 6.3 times to the water leachate, allowing a concentration of about 6,600 mg/1 in the still bottom leachate. By keeping the total content of 1, 1, 2-trichloro-1, 2, 2-trifluoroethane in the actual waste below 6,600 ppm (i.e., 6000 ppm) any potential leaching problem would be circumvented.

Since you generate a small volume of waste (<475 tons/yr.), the VHS model would assign a dilution factor of about 32.3 to your waste, which means that your still bottom leachate could contain almost 34,000 mg/1 of 1, 1, 2-trichloro-1, 2, 2-trifluoroethane and still pass the VHS evaluation. Because, 1, 1, 2-trichloro1, 2, 2-trifluoroethane is only slightly soluble in water (170 mg/1), the total content of this compound in the still bottoms themselves could approach 100% and still pass the Agency's evaluation.

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Please keep in mind that other chlorinated fluorocarbons may manifest significantly different solubilities and/or toxicities, which could lead to different model results for those compounds.

Since you mentioned your concern for continued compliance with limits on landfilled wastes, I have forwarded a copy of your letter (and my response) to Steve Weil, Chief of EPA's Land Disposal Restrictions Branch, for his office to answer separately. They may be able to identify any potential problems with the land disposal of your freon still bottoms in conjunction with the Agency's on-going program of land disposal restrictions.

I hope this has addressed your concerns. If you have further questions, please call me at (202) 382-4783.

Sincerely

Original Document signed

Scott J. Maid
Variances Section (WE-563)

cc: Steve Weil