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United States Environmental Protection Agency
Washington, D.C. 20460
Office of Solid Waste and Emergency Response

John C. Chambers
McKenna & Cuneo
1575 Eye Street N.W.
Washington, D.C. 20005

Dear Mr. Chambers:

This letter responds to your January 15, 1993 request for an EPA determination regarding the regulatory status of disulfide oil produced by your client, Merichem Company, and which is burned in a sulfuric acid furnace. Based on the information contained in your letter and information provided in the March 9, 1993 meeting between you, Mr. Kirby Boston and members of my staff, I concur with your view that the disulfide oil used in the manufacture of sulfuric acid is not a solid waste.

In reaching this determination, we evaluated many aspects of both Merichem's process that produces the disulfide oil and the use of the material in the production of sulfuric acid. There are several aspects of this situation that appear to have RCRA implications, many of which focus on the regulatory distinction between a by-product and a co-product. An analysis of these aspects will illustrate this point.

To begin, differentiating between a by-product and a product (including a co-product) is sometimes difficult and involves consideration of many factors. The disulfide oil, and its subsequent usage, have characteristics of both a by-product and a co-product. For example, the Agency generally considers a product to be a material that is fit for end use (or which requires only minimal processing to become usable). A material that must itself be further processed would generally be considered a by-product. While Merichem has stated that the disulfide oil is a product fit for end use in the production of sulfuric acid because of its sulfur content, the Agency would normally consider such "use" to be better characterized as further processing, in which case the material is more like a by-product. However, other factors must

also be considered and weighed before a final determination is made because this material does not fit neatly into any single category.

In evaluating the disulfide oil as a by-product material being reclaimed, the material would not represent a typical situation because it provides both material value (sulfur content) and fuel value (an average of 16,000 BTU/lb) in its use as a feedstock.

Because of this characteristic, the regulatory status (by-product v. co-product) of the material has particular importance. Under current regulations (see Table I in 40 CFR 261.2), a characteristic by-product that is reclaimed (or used as an ingredient) is not a solid waste. However, a characteristic by-product that is burned for energy recovery is a solid waste and subject to regulation as a hazardous waste, subsequently requiring a RCRA permit for an industrial furnace to be able to burn the by-product. And, while you have stated that the main purpose of burning the disulfide oil is as a raw material providing sulfur value, it would seem that, because the sulfuric acid manufacturer has more to gain from its use as a fuel, the disulfide oil would more appropriately be considered a material burned for energy recovery.

In evaluating the material as a product (or, more specifically, a co-product), the disulfide oil provides Merichem with revenues and is managed to prevent release (i.e., it is managed as a valuable commodity). As for its marketability, the disulfide oil is uniquely suited for its use as a feedstock in the manufacture of sulfuric acid, providing both energy and material value. As such, the disulfide oil appears to have a guaranteed market. Based on the information you provided, the only Appendix VIII constituents present in the disulfide oil are those commonly found in commercial fuels, thus raising little concern of unforeseen hazardous contaminants being burned. And, as you have indicated, the disulfide oil must meet product specifications as required by the sulfuric acid manufacturer.

After considering all of the above factors, the Agency has determined that the disulfide oil does not meet the definition of solid waste when used in the manufacture of sulfuric acid (although its use is not necessarily limited to sulfuric acid manufacturing). Therefore, the burning of the disulfide oil would not require a RCRA permit. This determination is also based on the understanding

that the material will continue to be handled to prevent releases and otherwise managed in a manner indicative of a product.

I hope this letter adequately addresses your concerns. As you know, State regulatory programs may be more stringent than the federal program. Therefore, I suggest you also get confirmation of the regulatory status of the disulfide oil from the appropriate State regulatory agencies. Thank you for your interest in the RCRA program.

Sincerely,
Jeffrey D. Denit
Deputy Director
Office of Solid Waste