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MAY 20 1987

Mr. Frank Czigler
Environmental Department
S & W Waste Inc.
115 Jacobus Ave
South Kearny, New Jersey 07032

Dear Mr. Czigler:

This letter responds to your request for assistance on identifying whether certain solvents are covered under the F001 through F005 hazardous waste listings, and for clarification on the applicability of the land disposal restrictions final rule (51 FR 40572, November 7, 1986). I apologize for the delay in responding to your correspondence. After the new regulations were promulgated the Agency received numerous requests for guidance.

Each of the questions raised in your letter is restated below and followed by the appropriate response.

1. "Since the December 31, 1985 definition of the EPA waste types F001 through F005, the following solvents have been added to the listing but are not listed in table CCWE-CONSTITUENT IN WASTE EXTRACT (F.R./Vol.51, No. 216/11-7-86/Page 40642):

1,1,2-Trichloroethane
2-Ethoxyethanol
2-Nitropropane
Benzene

If these solvents are to be included in the list of wastes restricted from land disposal, what maximum concentrations in waste extract are the treatment standards expressed as?"

-- The November 7, 1986 final rule does not include treatment standards for these four newly listed F001 through F005 spent solvents. Provisions under RCRA section 3004(g)(4) require the Agency to make a determination within 6 months whether to subject newly listed hazardous wastes to the land disposal prohibitions. However, the statute does not impose an automatic prohibition if the Agency misses the deadline. EPA expects to make land disposal restriction determinations

pertaining to these solvent wastes in association with the scheduled listed wastes (51 FR 19300, May 28, 1986).

2. "Are wastes generated by laboratories as a result of analytical and research work, where the listed solvents are used for their solvent properties, (e.g., solvents used in liquid chromatography, rinsing paraffin off tissue culture slides, in ion exchange columns, in layer separation, in distillation, as final step of organic synthesis, in re-crystallization, etc.) regulated?"

-- Yes. Under the approach promulgated in the final rule, F001-F005 listed solvents are subject to the land disposal restrictions. If an analytical or research laboratory generates these restricted wastes, the wastes must be managed in accordance with 40 CFR part 268. In order for a solvent waste to be covered by the F001-F005 spent solvent listings the waste must be generated as a result of the solvent being used for its "solvent" properties, that is, its ability to solubilize (dissolve) or mobilize other constituents (e.g. solvents used in degreasing, cleaning, fabric scouring; as diluents, extractants, reaction and synthesis media). In the case of solvent mixtures, the mixture must contain, before use, a total of ten percent or more (by volume) of one or more of the solvents listed in F001, F002, F004, or F005. Wastes that meet these criteria are covered by the spent solvent listings and as such, are subject to the November 7, 1986 final rule.

3. "Are rags contaminated with listed solvents that were used for their solvent properties (e.g., in clean-up work) excluded from F001 through F005 listing and/or the November 8th regulations? This same question was posed to the RCRA-Hot Line, and the following answer was received:

"If the solvents are poured onto the surface to be cleaned, then the contaminated rags used in the clean-up fall into the F001 through F005 listing. If the solvents are poured onto the rags that are to be used in the clean-up, then the resultant dirty rags DO NOT fall into the F001 through F005 listing."

-- Technically, the interpretation of the regulations that you received from the RCRA Hotline is correct. The F001-F005 solvent listing includes certain halogenated and non-halogenated solvents when spent. A solvent is considered spent when it has been used and is no longer fit for use without being re-generated, reclaimed, or otherwise reprocessed. Therefore, when solvents are applied to a surface or machinery (and used for their solvent properties), then cleaned-off with rags, the solvents are spent and the contaminated rags are covered by the

F001-F005 listing. When solvents are applied directly to a rag prior to use, the solvent at that time is not spent and the rags are not covered by the spent solvent listing.

As a practical matter, however, in each of these scenarios, the contaminated rags would be basically identical in constituent make-up and would pose similar hazards. Furthermore, land disposal facilities (which are ultimately responsible for verifying that only wastes meeting the treatment standards are land disposed) would not be able to distinguish between rags used to cleanup spent solvents from other rags contaminated with solvent. As a result, these facilities may choose not to accept rags contaminated with solvents unless they meet the treatment standards. In light of these considerations, we recommend that any rags contaminated with listed solvents be managed as hazardous wastes.

4. "Are dry cleaning filters used to separate solid fines out of the F001 through F005 listed solvents exempted?"

-- No. If F001 through F005 listed solvents are treated using dry cleaning filters to separate out solid fines, the resultant waste filters are also F001-F005 hazardous waste. In accordance with the "derived from" rule (40 CFR 261.3(c)(2)(i)), any solid waste generated from treatment, storage, or disposal of a hazardous waste is a hazardous waste. Thus, used filters from the treatment of spent solvents is designated as an F001-F005 waste and is subject to the land disposal restrictions.

5. "Does the process of thinning a paint for its subsequent use in the painting of a surface remove the paint from an non-F001 through F005 category (as being a commercial product) to being an F001 through F005 waste (due to solvent having been used as a diluent) if a part of the thinned paint is later disposed of as a waste?"

-- Process wastes containing solvents where the solvent is an ingredient in the formulation of a product are not covered by the spent solvent listings. In this specific case, the addition of solvent to a paint product constitutes the formulation of a modified paint product. The Agency does not recognize a distinction between paints that contain solvents and paint where solvents have been added. Therefore, thinned paint (as described in the above case) that is later discarded as a waste would not be covered under the F001-F005 spent solvent listings.

4. "Need clarification regarding the F003 solvent listing:

(a) Are we to understand the phrase, "...All spent solvent mixtures/blends containing, before use, ONLY the above spent non-halogenated solvents..." as listed under the F003 hazardous waste number listing (In F.R./Vol.

50, No. 251 /Tuesday 12-31-85/page 53319) to mean that the solvent mixture must consist (before use) 100% of one or more of the non-halogenated solvents (as listed in F.R. under F003 listing). In other words, if there is any non-F003 solvents, (i.e., ethanol, mineral spirits), or other contaminant (i.e., water, oil, etc.) in the solvent mixture/blend (before use), then the waste effluent of the process would not fall under the F003 listing."

-- In order for a waste to meet the criteria of an F003 spent solvent mixture/blend it must include, before use, only solvent constituents listed under the F003 hazardous waste code, or must contain, before use, one or more of the F003 non-halogenated solvents and a total of ten percent or more of solvent constituents covered under Hazardous Waste numbers F001, F002, F004, and F005. Therefore, as you correctly stated, if the solvent mixture/blend contains (before use) other solvents such as ethanol, or mineral spirits, the spent solvent would not be considered a listed waste, in particular an F003 waste. However, the Agency does not intend to exclude such mixture from regulation where non-F003 constituents are present as contaminants in the virgin products.

(b) "As we understand it, if a solvent mixture/blend is used for its solvent properties (e.g., in cleaning out a reactor) and it is made up (before use) of less than 10 percent F001, F002, and F005 solvent constituents and greater than 90 percent but less than 100 percent F003 listed solvent(s), then the resultant waste does not fall into any of the F001 through F005 hazardous waste listing(s). Is the above a correctly interpreted example?"

-- Your interpretation of the solvent mixture provisions as they apply to the scenario described in the above question is correct. If a solvent mixture/blend (before use) contains F003 listed solvents and F001, F002, F004, and F005 solvent constituents, it would not constitute a listed hazardous waste (unless the total of all F001, F002, F004, and F005 constituents meet the ten percent threshold). Although such waste streams are not listed wastes, these solvents may be regulated under RCRA if they exhibit one or more of the characteristics of hazardous waste (i.e., corrosivity, ignitability, EP toxicity or reactivity).

(c) "An often asked question by our clients is described in the following example. Please indicate whether it exhibits a correct interpretation of the D001 characteristic waste type in light of the newly defined F003 listing.

A batch reactor vessel is used in a production process. After each batch, the reactor must be thoroughly cleaned out with pure xylene. As a resource recovery/conservation measure, the clean-out effluent ("contaminated xylene") is regenerated by distillation. The

regenerated xylene is re-used as reactor cleaning stock; and the still bottoms residue must be disposed of as a hazardous waste, classified as EPA WASTE TYPE D001 according to the generator, since it exhibits characteristics of EPA-ignitability."

-- According to the information provided in your example, the xylene is used solely for the purpose of cleaning out the batch reactor vessel and is not a reactant or ingredient in a production process. As such, the pure xylene has been used for its solvent properties and would be considered an F003 spent solvent when it can no longer be used without further processing. Still bottoms generated from the distillation of the spent xylene also would be designated as an F003 solvent waste in accordance with the listing description, not as EPA Hazardous Waste No. D001.

7. "RCRA Hot-Line gave us the following example. Are they correct?"

(a) "A paint reactor is cleaned out between batches with 100 percent xylene. The resulting solution is pumped into a holding tank in which the solids settle out. According to the RCRA Hot-Line, the Solids do not fall into any of the F001 through F005 waste listings because the xylene is still considered 100 percent technical grade and is to be re-used after the solids are removed. If the bottom sludge/solids are found to exhibit characteristics of EPA-ignitability would they be correctly classified as D001 waste? When is the xylene considered contaminated or spent? If it is considered contaminated after the first "wash out", and used for subsequent washes, should the resultant sludge be classified as an F001 through F005 listed waste or a D001 characteristic waste?"

- The example described above is an incorrect interpretation of the F001-F005 spent solvent listing. Regardless of whether the bottom sludge/solids removed from the holding tank exhibit the characteristic of ignitability, such wastes would be incorrectly classified as EPA Hazardous Waste No. D001. The pure xylene would become "contaminated" when it comes in contact with the paint or other impurities. Therefore, the xylene would be considered contaminated after its use during the first "wash-out" of the paint reactor. As mentioned in earlier responses, such solvents would be considered spent when they are no longer used without being regenerated, reclaimed, or otherwise reprocessed. Thus, the contaminated xylene placed into the holding tank would constitute an F001-F005 "spent" solvent because the xylene is regenerated by allowing the solids to settle out. The bottom sludge/solids accumulated and removed from the settling unit also would constitute an F001-F005 listed waste based on the "derived from" rule (40 CFR 261.3(c)(2)(i)).

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(b) "If the tank is washed with a mixture of 90 percent xylene 10 percent mineral spirits, is the resulting sludge an F001 through F005 listed waste?"

-- If the solvent mixture/blend used to clean out the paint reactor contained, before use, 90 percent xylene and 10 percent mineral spirits, the spent solvent waste would not meet the criteria of a listed hazardous waste (on the basis described above under question 6(a)). The resulting bottom sludge/solids would be correctly classified as a D001 hazardous waste if they exhibit the characteristic of ignitability.

8. "As specified in 40 CFR 261.32, "...solvent washes and sludges ..." resulting from ink formulation are properly classified as EPA waste type K086. Does this K086 classification hold true in light of the most recent definition of the F001 through F005 hazardous waste listings? If a waste meets both waste category requirements, that of a waste from a specific source and also that of an F001 through F005 - non specific source, which waste classification takes precedence?"

-- In cases where tubs and equipment used in ink formulation are washed by solvents, and the solvents used in the washes are included under the F001-F005 listings, the resultant solvent-wash wastes are considered hazardous wastes under the applicable spent solvent listings, as well as, the K086 listing (as indicated in the January 12, 1981, Background Document). Such wastes must be managed in accordance with the RCRA regulations applicable to both waste classifications. In consideration of the November 7, 1986, final rule, these solvent-wash wastes would be subject to the prohibitions and would be required to meet the applicable treatment standards prior to disposal in a Subtitle C facility.

I hope this information adequately addresses your concerns. Please feel free to contact William Fortune, of my staff at (202) 475-6715, if you have further questions on this matter.

Sincerely,

Jacqueline W. Sales, Chief
Regulation Development Section

RO 11249