UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

June 14, 1990

MEMORANDUM

SUBJECT: RCRA Waste Classification of Laboratory Standards

FROM: David Bussard, Director
Characterization and Assessment Division (OS-330)

TO: Howard Wilson, Manager
Environmental Compliance Program
Environmental Health and Safety Division (PM-273)

This is in response to your memorandum of March 1, 1990, in which you requested that we provide clarification for the classification of wastes generated in laboratories. Specifically, you presented examples relevant to the preparation of laboratory standards using substances regulated under 40 CFR 261.33(e) and (f) (the P and U lists).

1) QUESTION: In the preparation of performance evaluation (PE) samples containing P or U-listed chemicals, an aliquot of the sample is taken and diluted 100 - 1000 fold to a final volume of one liter of water or solvent before analysis. The first question related to this scenario is whether the PE sample is a commercial chemical product (CCP) or is eligible for exclusion as a sample. Second, if the PE sample is indeed considered a commercial chemical product, you inquired whether the dilution of the PE sample before analysis is considered "use."

For example, organic semi-volatile PE samples to be analyzed for SDWA and NPDES certification will contain toxaphene (P123). Would the disposal of excess analytical solution be considered P123, D015 (if over 0.5 mg/L),D002 (if pH < 2), or a combination of the above?

ANSWER: Such samples are regulated as commercial chemical products provided that they have only one active ingredient. In the example you provided, the formulation consists of water plus the CCP as the sole active ingredient and, therefore, the excess analytical solution is correctly classified as EPA Hazardous Waste No. P123.

(2) QUESTION: In the preparation of laboratory standards, P and U-listed chemicals are mixed with water, acids, bases, or solvents. The resulting standard solution are disposed of when there is an

excess, when they have exceeded their shelf life, or when they have been contaminated (not through use). The disposal of these waste standard solutions bring about several waste classification questions.

2A) QUESTION: Are these waste standard solutions P or U-listed wastes in cases in which the P/U listed solute is dissolved in water, acidic/basic solutions, organic solvents, or homogeneously mixed in an inert medium such as soil?

> ANSWER: The answer in all these situations is "yes." Dissolving or diluting these chemical products to make laboratory standards (in lieu of buying such solutions) does not constitute use of these chemicals. The Federal Register notice which describes the sole active ingredient rule (§261.33 (d)) refers to the fact that many of the compounds listed under §261.33 (e) and (f) are frequently dissolved in solvents, preservatives, and the like, but this fact does not detract from the material's meeting the listing description (see 45 FR 78529, November 25, 1980). Assuming that there is a sole active ingredient (or, in this case, analyte), the mixtures you describe in your question meet the listing description in 40 CFR 261.33 even if the solvent (s) used are also listed in §261.33.

2B) QUESTION: If in the preparation of standards an acid or base is used as the solvent for a P or U-listed chemical and the final solution is corrosive, is the solution, upon disposal, D002 or D004 - D017 if it exceeds the EP Toxicity criteria, or a P/U-listed waste? For example, the atomic absorption analysis of arsenic requires the preparation of a standard with arsenic trioxide. Specifically, 1.32 g of As_2O_3 (P012)analytical reagent grade) is dissolved in one liter of distilled water, and several milliliters of concentrated nitric acid are added for preservation. Would the correct waste classification be P012, D004, or D002 (if pH < 2) or a combination thereof?

> ANSWER: This situation is similar to the previous question. The solution you describe definitely meets the listing description for P012. Even if the waste is classified as a listed waste, waste generators should furnish information regarding whether the waste also exhibits any hazardous waste characteristics. There are several reasons for this: 1) safety of personnel at these facilities; 2) There are restrictions in §5264 and 265 regarding various characteristic wastes (e.g., reactivity and ignitability) in landfills or surface impoundments; and 3) The Land Disposal Restrictions program requires such knowledge to comply with Part 268 standards. (See 55 FR 22520 - 22720, June 1, 1990.) Although Federal law does not require that all applicable waste codes be placed on the hazardous waste manifests, Land Disposal Restrictions regulations will require that all waste codes be reported for the purposes of meeting LDR provisions. (See 40 CFR 268.7.) In addition, many state agencies may have more stringent rules concerning proper manifesting of wastes in which listing and characteristic waste codes apply.

2C) QUESTION: In the preparation of quality control solutions, commercial chemical products (either in liquid or solid form) are dissolved in an organic solvent. Because the organic solvent is used for its solvent properties (i.e., to solubilize mobilize, or dissolve other chemical substances), any excess or expired solutions should be disposed of with the spent solvent hazardous waste identification number. Is this correct?

For example, if a solution of 0.01 g aldrin (P004) and 0.01 g dieldrin (P037) dissolved in 100 mL of methanol is to be disposed of would the waste be classified as F003 and P037 and P004? The methanol, in this case, is used to solubilize the pesticide constituents, and the waste, therefore, meets the spent solvent listing.

ANSWER: The above statements are not correct. The answer to these questions is just like the answer to question 2A. Assuming that there is only one active ingredient (i.e., analyte or solute), the excess or expired solutions should be given the applicable commercial chemical product hazardous waste identification number under §261.33 no matter how many solvents are used (even if the solvents themselves are listed in §261.33). In the above example, more than one active ingredient exists, therefore the solution does not meet any listing description at this time. Additionally, when a solvent is used to formulate a compound or product (such a CCP), neither the solvent nor the formulated product meets the listing description for spent solvents. (See 50 FR 53315, December 31, 1985.) The disposed solution would have to be tested for hazardous waste characteristics, and would probably fail the ignitability (D001) characteristic.

3) QUESTION: Laboratories prepare many reagents with P and U-listed chemicals. During the analysis of polychlorinated dibenzo-p-dioxins and dibenzofurans, a reagent containing methylene chloride/methanol/benzene (75:20:5) is used. Upon disposal of excess reagent, would the mixture be identified as U080 (methylene chloride/CCP), U154 (methanol/CCP), U019 (benzene/CCP), F002 (methylene chloride/solvent), F003 (methanol/solvent), or F005 (benzene/solvent)?

ANSWER: None of the above. If any one P or U-listed chemical is dissolved in this reagent for the purpose of analysis, the discarded unused reagent would carry the waste code of that particular solute. (See answers to 2A and 2C.) From the description of the reagent you provided above, the unused reagent would be hazardous only if it exhibits a hazardous characteristic. This particular reagent would probably exhibit the characteristic of ignitability (D001). Please note that this waste also would be EP toxic for benzene when the newly promulgated organic Toxicity Characteristic becomes effective in September, 1990.

Thank you for your inquiry. If you have any further questions, please contact Ron Josephson of my staff at 475-6715.

cc: Waste Management Division Directors, Regions I - X
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