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RCRA METHODS AND QUALITY ASSURANCE ACTIVITIES (NOTES)

DEC 20 1984

MEMORANDUM - Number 4

SUBJECT: Notes on RCRA Methods and QA Activities

FROM: David Friedman, Manager
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TO: Addressees

We appreciate your comments and suggestions in response to my previous RCRA Methods and QA Activities memos. This memo will address several of the topics suggested in recent correspondence:

- RCRA Laboratory Evaluation Program
- Standard Methods for Ground Water Testing
- Methods 3030 - Acid Digestion of Oils, Greases, and Waxes
- Waste Analysis Plans Guidance Manual
- Reactivity Evaluations for Solid Waste

RCRA Laboratory Evaluation Program

The Office of Solid Waste (OSW) appreciates the cooperation of those Regional Laboratories that participated in the pilot Laboratory Evaluation Program (LEP) that OSW conducted during this past spring and summer. Now that the mechanics of the program have been worked out, the RCRA LEP is being officially implemented and expanded to include all EPA Regional Laboratories and OSW contractors.

Since the Superfund program has also established a LEP as part of the CERCLA QA program, OSW and the Office of Emergency and Remedial Response (OERR) will consolidate samples to minimize

the impact on participating laboratories wherever possible. The differing needs of the two programs, however, will sometimes prevent such a consolidation.

During FY 85, each laboratory will receive four sets of check samples. Each set will consist of two samples to be analyzed by different methods.

Standard Methods Proposed For Testing Hazardous Waste Facilities' Ground Water

OSW recently proposed adopting a set of mandatory standard test methods to improve the quality of ground-water monitoring at licensed hazardous waste facilities. It is expected that such standardization would also help speed up the permit process by making the application evaluation process easier.

The rulemaking of which this proposal is a part has five objectives: 1) make the analysis and sampling methods in EPA Publication "Test Methods for Evaluating Solid Waste" (SW-846) mandatory for all testing and monitoring activities required under Subtitle C or RCRA; 2) consolidate in SW-846 all methods necessary for Subtitle C testing; 3) eliminate certain requirements for groundwater testing in those limited circumstances where the constituent being tested for immediately converts to another substance upon contact with water, or where no testing method has been developed to detect the constituent in question; 4) allow the limited use of SW-846 methods for compliance monitoring screening purposes; and 5) introduce the concept of hierarchical testing that in certain cases may reduce the number of tests required to determine whether classes of Appendix VIII compounds are present.

As it stands now, hazardous waste facilities must sometimes develop their own test methods to identify particular hazardous constituents because EPA has not formally specified which of a number of methods in considers acceptable. Federal and State environmental officials must then approve these methods as part of the facility permitting process. Since in the absence of mandatory testing requirements Federal or State environmental offices may develop differing requirements for acceptable test methods, monitoring requirements and results may vary from Region to Region (and State to State).

This proposed rule will allow permitting officials to quickly evaluate permit request since all necessary methods will be contained in a single manual. More important, by consolidating test methods, it will be easier for the regulated community to apply for and be granted hazardous waste permits. For smaller facilities in particular, this proposal will help assist them in meeting RCRA's permit requirements. In addition to easing the permitting process, using standard methods for all monitoring will better enable the Agency to determine the quality of the data and to follow environmental quality trends.

Although EPA has prepared a series of draft guidance documents which give some general information on monitoring methods, no one document has hitherto listed all the sampling and analysis methods that are specifically acceptable to OSW. The proposed regulation proposes a number of new testing methods and consolidates them into its existing test methods manual.

As noted above, the new standards also would save time and costs, while maintaining environmental standards, by eliminating groundwater testing for those chemicals that immediately decompose in ground water. The proposed regulations would also reduce unnecessary testing by allowing facilities monitoring their ground water to test for the absence of certain classes of chemical wastes, instead of testing for each individual chemical within a class. For example, if a facility tests its ground water for halogens and it finds none, then it would not have to test for each variety of halogen listed in the regulations.

The proposed regulation appeared in the Federal Register Oct. 1, 1984, at 49 FR 38786.

Analytical Report on Method 3030 - Acid Digestion of Oils, Greases and Waxes

In response to Region V's comments (May 1984), we initiated a task to examine EPA Method 3030 for its applicability to the analysis of barium, lead, mercury, and selenium in waste oils and to formulate any modifications necessary to produce satisfactory analyses.

The digestion of four waste oil samples by EPA Method 3030

gave very low recoveries for barium, lead, and mercury. Selenium could not be determined in the digest due to severe interference by sulfuric acid with the graphite furnace technique. The initial heating step of Method 3030 produces a large quantity of charred material which is not digested by the latter steps. Barium is precipitated as barium sulfate. This accounts for the absence of barium in the samples and lack of recovery. The Method 3030 digestion procedure was judged to be unsuitable for the determination of any of these metals. We recommend that Method 3050 be used for the digestion of barium, lead, mercury, and selenium.

Waste Analysis Plans Guidance Manual

Waste Analysis Plans Guidance Manual is intended to assist both permit applicants and reviewers/writers in the preparation and evaluation of waste analysis plans. The manual explains the RCRA regulations that require a waste analysis plan and provides a recommended approach, including checklists to ensure completion of the plans. It presents sample waste analysis plans for various hazardous waste management scenarios.

Although a waste analysis plan should demonstrate to EPA or State-permitting officials that the facility operator knows what information is needed to operate the facility properly and has in place a program to gather the necessary information, there is no specific required format for the plan. However, the manual suggest that the plan be organized around the following four questions:

- What are the specific wastes or types of wastes that will be managed within each process?

- What are the specific waste parameters that have to be quantified in order to satisfy the data needs?

- What are the waste-associated properties that are of concern in ensuring safe and effective management (e.g., Btu content, \ water)?

- How will the necessary data be obtained, including a description of the sampling and analysis procedures and attendant quality control/quality assurance

procedures to be carried out by the permittee?

In addition to providing checklists to assure the completeness of the plan (and sample plans covering a variety of hazardous waste management scenarios) the manual puts forth such concepts as "boundary condition" and "tolerance limits." "Boundary conditions" gives the maximum and minimum values of waste properties which, if exceeded, would alert the operator that the waste does not meet its typical properties and requires further attention before acceptance. "Tolerance limits" are those characteristics of a waste or waste mixture that a waste management process can handle while maintaining permit compliance. The manual also discusses the selection of waste parameters, the need of periodic recharacterization of hazardous wastes, the performance of shipment screening by offsite facility operators, and procedures for waste sampling, analysis, and quality assurance/quality control.

The manual, can be ordered from the Government Printing Office as document #55-000-00244-4, at a cost of $5.50. The address is as follows:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
(202) 783-3238

Reactivity Evaluations for Solid Waste

In cooperation with the U.S. Department of Transportation and the United Nations Group of Experts on Explosives, the Bureau of Mines has been conducting research on the development of tests designed to determine whether a substance has explosive properties. These tests are currently under consideration for international standardization and are called the U.S. Gap Test and the U.S. Internal Ignition Test. The Bureau of Mines has proposed that these tests are suitable to determine the properties described in 40 CFR 261.23 (a)(6) and (7) which defines a solid waste as having the characteristics of reactivity if it has, among others, any of the following properties:

(a)(6) Capable of detonation or explosive reaction if subjected to a strong initiation source or if heated under confinement.

(a)(7) Readily capable of detonation, explosive decomposition, or reaction at standard temperature and pressure.

The methods were the subject of a single laboratory at the Bureau of Mines Laboratory in Pittsburgh, PA, using waste samples from processing waste treatment facilities. In addition, a series of standard explosives were obtained and evaluated for use in calibrating the tests.

A report summarizing the single laboratory evaluation should be available for review early in 1985.

Symposium

A symposium on RCRA test methods and Quality Assurance is being planned for July 24-26, 1985 in Washington, D.C.. Topics to be included are: Organic and Inorganic Analytical Methods, Hazardous Waste Identification Characteristics, Quality Assurance, and Sampling. More information will be included in our next issue.