THE HISTORY OF THE RCRA SOLID WASTE METHODS COMPENDIUM (SW-846) AND ITS APPLICATION PHILOSOPHY

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Overview

- Background information on RCRA
- How "Characteristics" led to RCRA methods
- Birth of SW-846
- Philosophy of RCRA methods
- Birth of National Environmental monitoring Conference (NEMC)

Background

- When Congress enacted the Resource Conservation & Recovery Act (RCRA), in 1976, it subdivided the universe of solid wastes into two classes – Subtitle D solid wastes which would remain regulated by States and Subtitle C or hazardous solid waste which would be regulated by the Federal government.
- A solid waste is a hazardous waste if it exhibits one or more properties or characteristics (i.e., ignitability, corrosivity, reactivity, or toxicity).
- Congress left the job of defining what the properties toxicity, reactivity, ignitability, or corrosivity actually meant.

Defining Subtitle C Characteristics

- EPA decided to define the properties of a hazardous waste by adopting the philosophy that, if a waste was mismanaged, and such mismanagement would result in harm to human health or the environment, then such a waste should be "hazardous".

- When looking at what would constitute mismanagement, EPA looked at the, then, common ways that industrial wastes were disposed of and employed those scenarios to model mismanagement.

Defining Subtitle C Characteristics

- The Characteristics are all defined in terms of test procedures.
- The specified test procedure (e.g., the Extraction Procedure toxicity Characteristic) defines the property.
- These properties are what are termed "method defined parameters".

Need for Conventional Analytical Methods

- When the Characteristic testing procedures were proposed, they were incorporated into 40CFR261, similar to how the drinking and wastewater methods are part of the SDWA and CWA programs.
- Soon after proposing the characteristics, EPA was asked: how does one analyze the EP extract for the toxicants?
- The calls kept coming and people pointed to the existing water and air programs and how they published methods to be employed in conducting the required testing.

Development of SW-846

- So we caved and a team of people from EPA and States was organized to look at each required analysis and to select appropriate analytical methods based on their best scientific judgement.
- The result of this team's work was Test Methods for Evaluating Solid Waste or SW-846.
- Since one can never be sure that a given method would always work, and yield accurate results on any given sample, the methods were issued as guidance. If one had no idea how to analyze for a particular analyte, SW-846 gave them some ideas.

Development of SW-846

- However, some tests actually define the property and are termed Method Defined Parameters (MDP).
- For example, the Toxicity Characteristic Leaching Procedure (TCLP) is an integral part of the hazardous waste definition and cannot be modified by the user.
- MDP tests are thus part of the regulations and not guidance.

Growth of SW-846

- Due to the requirements of the Administrative Procedures Act, it normally takes EPA a long time to issue new methods.
- As a result, the technology innovation community started asking for their new technologies to be added to SW-846.
- As long as they demonstrated that the technology worked on real world RCRA samples, we elected to do so since it meant that new technologies could obtain faster acceptance by the environmental community.

Application Philosophy

- RCRA covers a tremendously wide variety of types of samples including liquids, solids, and gases).
- Once the sample is extracted and the extract cleaned up, what the initial matrix was is not important. Whether the initial sample was a wastewater sample or a treatment sludge or a solidified material, at this point the GC, GC/MS, ICP, etc. does not care what the original sample looked like.
- As a result, in SW-846 methods are split apart.

Application Philosophy

- Sample extraction or preparation procedures are, thus, in one section of SW-846, extract cleanup procedures in another section, and analytical finishes in another.
- The user selects the appropriate set of procedures based on the sample's physical and chemical characteristics and the analytes of interest.
- The total "analytical method" is thus the extraction + cleanup + determinative procedures.

National Environmental Monitoring Conference

- Started in 1984 as the ***Waste Testing and Quality Assurance*** Symposium (WTQA).
- Purpose was to serve as a forum for all sectors of our community to get together and share new of upcoming activities and actions, problems that people are encountering, and possible solutions to those problems in a non-regulatory environment.

National Environmental Monitoring Conference

- Held in Washington to make it easy for EPA officials to participate.
- Held in middle of summer because no one wants to come to DC in summer and hotels are much cheaper.
- About 1500 folks came to first conference.
- For many years, Gail Hansen and I chaired the conference.

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