



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

OCT 18 2005

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

Ronald E. Ney Jr., PhD
5446 Sir Churchill Drive
Leesburg, Florida 34748

Dear Dr. Ney:

Thank you for your letter of September 27, 2005, regarding the use of methods 8081A for organo-chlorine pesticides, method 8310 for other pesticides, and method 6010 for metals. In your letter, you asked several questions regarding the use of these methods. Your questions have been reviewed by the OSW's Methods Team. Please keep in mind that SW-846 methods are developed for the RCRA program, and though in many situations they may be appropriate for use, the office of Pesticide Programs develops methodologies that are appropriate for their program needs and may prefer their use.

The team has prepared the following responses to your questions:

Method 8081A for Organo-chlorine

1. Q- Will this method be adequate to extract and determine pesticide residues (residues meaning parent and degradates) (degradates to include any degradation mechanism = all inclusive) from muck soil and what would be its percent accuracy? If this method cannot be used for enforcement purposes, what method(s) does OPP recommend for tolerances and screening?

A) - No. It will not be adequate for extraction of pesticides and residues, because it is not an extraction method. It is simply a GC/ECD determinative method. It may be adequate for use as a determinative method, provided that appropriate sample preparative and clean-up methods are properly selected and used. Accuracy and precision of any method used are based on the determination as to whether it can achieve the performance criteria specified in a properly executed systematic planning document, e.g., a quality assurance project plan (QAPP), sampling and analysis plan (SAP), etc. The method may be appropriate for use as a determinative method for enforcement purposes provided that appropriate sample preparative and clean-up methods are used and the methods can meet the required performance criteria for the application. Questions on Office of Pollution Prevention (OPP) recommendations or issues should be directed to OPP.

2. Will this method be adequate to extract and determine soil bound residues (parent and degradates), residues bound to organic matter or organic carbon?

A) - No. As previously mentioned, it is not an extraction method. See the response to question 1.

3. Q- Will this method be adequate to extract and determine pesticide residues (residues meaning parent and degradates) (degradates to include any degradation mechanism = all inclusive) from fish, other animals, and plants and what would be its percent accuracy? If this method cannot be used for enforcement purposes, what method(s) does OSW recommend for tolerances and screening?

A) -No. This method will not extract residues, because it is only a determinative method. See the response to question 1. Unless more detailed information is provided as to target analytes, specific matrices, analytical action levels, and precision and accuracy requirements, OSW cannot make any definitive recommendations as to which methods to use.

4. Q- Will this method be adequate to extract and determine residues that are lipid soluble?

A)- No. It is not an extraction method. It may be appropriate as a determinative method. See responses to Questions 1 and 3.

5. What is the percent accuracy of SW-846 8081A to analyze pesticide residues in muck soil, plants and animals for enforcement purposes?

A)-This cannot be determined from the information provided. It depends on the nature of the analytes, matrix and the sample preparative and clean-up methods to be used. It also depends on the analytical QC performance criteria established for the project.

6. Was this method validated using radiotracer chemicals fortified in soil and age in soil (aged in soil for at least a month) prior to extraction of chemicals from soil?

A)-No. This is a determinative method. The techniques described by the inquiry would be used in the validation of sample preparative methods, not determinative methods.

Method 8310 for other pesticides analysis

1) Q- Will this method be adequate to extract and determine pesticide residues (residues meaning parent and degradates) (degradates to include any degradation mechanism = all inclusive) from muck soil and what would be its percent accuracy? If this method cannot

be used for enforcement purposes, what method(s) does OPP recommend for tolerances and screening?

A) - No. It will not be adequate for extraction of pesticides and residues, because it is not an extraction method. It is simply an HPLC determinative method. It may be adequate for use as a determinative method, provided that appropriate sample preparative and clean-up methods are properly selected and used. Accuracy and precision of any method used are based on the determination as to whether it can achieve the performance criteria specified in a properly executed systematic planning document, e.g., a quality assurance project plan (QAPP), sampling and analysis plan (SAP), etc. The method may be appropriate for use as a determinative method for enforcement purposes provided that appropriate sample preparative and clean-up methods are used and the methods can meet the required performance criteria for the application. Questions on OPP recommendations or issues should be directed to OPP.

- 2) Will this method be adequate to extract and determine soil bound residues (parent and degradates), residues bound to organic matter or organic carbon?

A) -See response to Question 1.

- 3) Q- Will this method be adequate to extract and determine pesticide residues (residues meaning parent and degradates) (degradates to include any degradation mechanism = all inclusive) from fish, other animals, and plants and what would be its percent accuracy? If this method cannot be used for enforcement purposes, what method(s) does OSW recommend for tolerances and screening?

A) -No. This method will not extract residues, because it is only a determinative method. See the response to question 1. Unless more detailed information is provided as to target analytes, specific matrices, analytical action levels, and precision and accuracy requirements, OSW cannot make any definitive recommendations as to which methods to use.

- 4) Q- Will this method be adequate to extract and determine residues that are lipid soluble?

A)- No. It is not an extraction method. It may be appropriate as a determinative method. See responses to Questions 1 and 3.

- 5) What is the percent accuracy of SW-846 8310 to analyze pesticide residues in muck soil, plants and animals for enforcement purposes?

A)-This cannot be determined from the information provided. It depends on the nature of the analytes, matrix and the sample preparative and clean-up methods to be used. It also depends on the analytical QC performance criteria established for the project.

- 6) Was this method validated using radiotracer chemicals fortified in soil and age in soil (aged in soil for at least a month) prior to extraction of chemicals from soil?

A)-No. This is a determinative method. The techniques described by the inquiry would be used in the validation of sample preparative methods, not determinative methods.

Method 6010 for analysis of metals

- 1) Q) - Will this method be adequate to extract and determine mercury, methyl mercury and lead from muck soils? If this method cannot be used for enforcement purposes, what method(s) does OPP recommend for screening?

A)- No. It will not be adequate for extraction of metals, because it is not an extraction method. It is simply an ICP determinative method for metals, including total mercury (not methyl mercury) and lead. Accuracy, and precision of detection of any method used are based on the determination as to whether it can achieve the performance criteria specified in a properly executed systematic planning document, e.g., a quality assurance project plan (QAPP), sampling and analysis plan (SAP), etc. The method may be appropriate for use as a determinative method for enforcement purposes for total mercury (not methyl mercury) and lead provided that appropriate sample preparative method is used and the methods can meet the required performance criteria for the application. Questions on OPP recommendations or issues should be directed to OPP.

- 2) Q) - Will this method be adequate to extract and determine mercury, methyl mercury and lead from fish, other animals and plants? If this method cannot be used for enforcement purposes, what method(s) does OSW recommend for screening?

A)- No. This method will not be appropriate for extraction of metals, because it is only a determinative method. See the response to question 1. For total mercury and methyl mercury, you may use a new SW-846 Method 3200; for total lead, you may use Method 3052 for extraction and Methods 7010, 6010 or 6020. Unless more detailed information is provided as to analytical action levels, and precision and accuracy requirements, OSW cannot make any definitive recommendations as to which methods to use.

- 3) Q) - what is the percent accuracy of SW-846 8310 to analyze for metals in muck soil, plants and animals for enforcement purposes?

A)- Method 8310 is used to determine the concentration of certain polynuclear aromatic hydrocarbons (PAH) in ground water and wastes, not for metals. We assume it was a typo and you meant SW-846 6010. The percent of accuracy depends on the nature of the analytes, matrix and the sample preparative and determinative methods to be used. It also depends on the analytical QC performance criteria established for the project.

4) Was this method validated using radiotracer chemical fortified in soil and age in soil (aged in soil for at least a month) prior to extraction of chemicals from soil?

A)- Yes. Method 3200 or Method 3052 coupled with Method 6800 may be used for extraction and definitive analysis of total mercury and methyl mercury or total lead, respectively. Method 6800 determines totals and elemental species using isotope dilution mass spectrometry (IDMS) and speciated isotope dilution mass spectrometry (SIDMS).

If you need more specific information, your staff may contact Kim Kirkland of my staff at 703-308-0490 to set up a meeting.

Sincerely yours,


Matt Hale, Director
Office of Solid Waste