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NATIONAL WATER QUALITY LABORATORY TECHNICAL MEMORANDUM 1996.07

May 22, 1996

To: Assistant Chief Hydrologist for Technical Support
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Assistant Chief, Office of Water Quality
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From: Peter F. Rogerson, Chief
National Water Quality Laboratory
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Subject: Qualification of Data for Five Compounds on Laboratory Schedules 2050 and 2051

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Revision: None

SCOPE

The National Water Quality Laboratory (NWQL) has been reporting data for Schedules 2050 and 2051 since spring 1993. Five compounds on these schedules have been identified as "for qualitative use only" because they were poorly recovered by the analytical method. The quantitations for these compounds are considered to be unreliable, and the data should be used only for qualitative identification purposes. Data for the following compounds must be qualified: 1-Naphthol, Chlorthalonil, Dichlobenil, DNOC, and Esfenvalerate.

BACKGROUND

In spring 1993, the NWQL began analyzing samples using Schedules 2050 and 2051. The analytical method is classified as "provisional" because it was not approved and published. In winter 1994, a review committee composed of National Water Quality Assessment (NAWQA) Program and NWQL representatives started reviewing the quality-control data for this provisional method. The purpose of the committee was to develop a guidance document for the use of quality-control data and for the interpretation of environmental data.

The NAWQA/NWQL Quality-Assurance Committee for Schedules 2050/51 Pesticide Analyses Method issued a memorandum in spring 1995; the subject was "Guidance on the use of Quality-Control Data and Interpretation of Environmental Data for Schedules 2050/51--Pesticide Analysis by Solid-Phase Extraction/High-Performance Liquid Chromatography." In this memorandum, the committee identified five compounds that were more variable and poorly recovered by the method than other compounds. The committee recommended that the data for these five compounds be used only for qualitative identification purposes.

Detections for these compounds are highly reliable when they are made, but the numerical concentration associated with a detection is not reliable because of poor recovery and high variability. Nondetections are unreliable because the poor recovery results in a high potential for false nondetections; that is, samples in which compounds were actually present but not detected by the analytical method.

The open-file report validating the method is being prepared, and it will include the committee's recommendation concerning the five compounds.

DISCUSSION AND CONCLUSIONS

The NWQL will qualify all data greater than the reporting limit for 1-Naphthol, Chlorthalonil, Dichlobenil, DNOC, and Esfenvalerate by designating the data as "estimated." All positive identifications currently in the data base have been qualified with an "E" to indicate that the quantitation is estimated. All new data for the five compounds will be reported to the data base with an "E" qualifier.

The method detection limit (MDL) will continue to be used as the default value to report nondetection. The concentrations, in micrograms per liter, are as follows:

1-Naphthol	<0.007
Chlorthalonil	<0.035
Dichlobenil	<0.020
DNOC	<0.035
Esfenvalerate	<0.019

Recovery and variability are part of the MDL determination, so the MDL is still valid as a default minimum reporting level (MRL). Detections less than the MDL will continue to be reported.

Supersedes: None

Key Words: Laboratory Schedule 2050, Laboratory Schedule 2051, 1-Naphthol, Chlorthalonil, Dichlobenil, DNOC, and Esfenvalerate

Distribution: See above plus the Netnews USGS.labnews & .waterquality; WRD Secretaries; Field and Project Offices; Hydrologic Technicians; and <http://www.wq1.cr.usgs.gov/>

Effects on data base: Concentrations of five compounds determined in Schedules 2050/2051 should be considered "estimated" only.

Definitions:

MDL The method detection limit is defined as the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix [reagent water] containing the analyte (U.S. Environmental Protection Agency, 1992).

MRL The minimum reporting level is equal to the lowest reported concentration of an analyte by a given method.

Reference:

U.S. Environmental Protection Agency, 1992, Primary drinking-water regulations, maximum contaminant levels (appendix B of part 136, Definition and procedure for the determination of the method detection limit--Revision 1.11): U.S. Code of Federal Regulations, Title 40, parts 100-149, revised as of July 1, 1992, p. 565-567.