



IN REPLY REFER TO:

United States Department of the Interior

U.S. GEOLOGICAL SURVEY

Box 25046 M.S. 407

Denver Federal Center

Denver, Colorado 80225

NATIONAL WATER QUALITY LABORATORY TECHNICAL MEMORANDUM 1996.03

March 20, 1996

To: Assistant Chief Hydrologist for Technical Support
Regional Hydrologists
Chief, Office of Water Quality
Assistant Chief, Office of Water Quality
Acting Chief, NAWQA
Chief, National Water Information System
Area Hydrologists
District Chiefs
Regional Water-Quality Specialists
Assistant Regional Hydrologists for NAWQA
District Water-Quality Specialists
Chiefs, NAWQA Study Units
Chief, Ocala Project Office
Chief, Yucca Mountain Project Office
QA Manager, Yucca Mountain Project
Chief, Branch of Technical Development & Quality Systems
Employees, National Water Quality Laboratory

From: Peter F. Rogerson, Chief
National Water Quality Laboratory
Branch of Analytical Services

Subject: Change of Reporting Levels for National Water Quality Laboratory Analytical Schedule 1359--Carbamate Pesticides by Liquid/Liquid Extraction and Liquid Chromatographic Analysis

Author: Ronald W. Brenton, Organic Program (303)467-8215 (RBRENTON)

Revision: None

PURPOSE

The purpose of this memo is to change the reporting levels for all of the pesticides on Laboratory Schedule 1359 from 0.5 µg/L to the qualitatively identifiable method detection limits (MDLs) as determined in 40 Code of Regulations (CFR) 136 Appendix B. MDLs are determined statistically using the standard deviation from the analysis of seven spiked reagent water samples. Sometimes

this value is below the limit of the instrument's ability to make a qualitative identification. In such instances, the MDL is raised to a value that can be qualitatively identified by the instrument. In other cases, the MDL is above the instrument's qualitative identification level. If the instrument identifies a compound below the MDL, the value will be reported as "less than the MDL." The MDLs are an order of magnitude lower than the current (1996) method reporting limits.

BACKGROUND

The National Water Quality Laboratory (NWQL) has been analyzing water samples for carbamate pesticides by methylene chloride extraction and liquid chromatography since about June 1987. When the analysis was introduced, all pesticides were given a reporting limit of 0.5 µg/L, which approximated the "established detection levels" used on the similar U.S. Environmental Protection Agency (USEPA) method. However, the United States Geological Survey method is an order of magnitude more sensitive than the USEPA methods; and compounds can be routinely identified at less than the 0.5 µg/L reporting level. By lowering the reporting level to the MDL, the NWQL will be able to provide these low-level measurements to our District customers at no additional cost.

DISCUSSION AND CONCLUSIONS

The Laboratory Schedule 1359 reporting levels will be changed to the following MDL concentrations effective April 1, 1996:

Compound	Method Detection Limit, µg/L
Methomyl	0.017
Aldicarb	.023
Propoxur	.015
Carbofuran	.014
Carbaryl	.013
1-Naphthol	.028
Propham	.015
Methiocarb	.023

The concentrations represent the most recent evaluation of the qualitatively identifiable method detection limits for each of these compounds. MDLs should be reevaluated on a predetermined schedule. Currently there is a team composed of both NWQL and District personnel who are addressing MDL issues, including how often they should be reevaluated.

Identifications below the reporting level have been reported to the Districts by sending them a copy of the analysis report form since May 1995. If your project has such data, you may want to have it entered in the data base, and the nondetections for these samples can be changed to the MDLs. However, report limits for any other samples should not be changed.

Supersedes: None

Key Words: Carbamate, Pesticides, MDL, Method Detection Limit

Effect on Database: None

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