

United States Department of the Interior

U.S. GEOLOGICAL SURVEY Box 25046 M.S. <u>407</u> Denver Federal Center Denver, Colorado 80225

IN REPLY REFER TO:

NATIONAL WATER QUALITY LABORATORY TECHNICAL MEMORANDUM 1998.03S, Revision A

August 28, 1998

Subject:	Changes in Reporting Levels and Data Qualifiers for Selected Pesticides and Degradation Products in Schedules 2050 and 2051
Effective date of changes:	December 15, 1997
Authors:	Bill Foreman, Methods Research and Development Program, 303-467-8079, email: wforeman; and Bob Gilliom, Chief, NAWQA Pesticide Synthesis Team, 916-278-3094, email: rgilliom
Revision:	This supplemental memorandum replaces NWQL Technical Memorandum 98.03S with addition of the schedule 2051 method code letter to parameter codes listed in table 1 only.
Supplemental	This technical memorandum contains supplementary information for NWQL Technical Memorandum 98.03A.

DOCUMENTATION OF REPORTING LEVEL CHANGES FOR SCHEDULES 2050 and 2051

(Contents from Bill Foreman's memorandum to Chief, Quality Management Program, NWQL, October 29, 1997)

The following documentation pertains to reporting changes for schedules 2050/2051 that are to be implemented (tentatively on an effective date of November 17, 1997) in a forthcoming NWQL Technical Memorandum.

The need for these changes was addressed in a series of meetings occurring on July 16 and 30, 1997, and then on August 12, 1997, when the reporting level changes were mostly finalized. The 2050 Data Review Committee addressing these reporting level changes consisted of the following

individuals (staff noted with a * are key program representatives who were involved with the entire process):

Organics Program Ron Brenton,* Unit Supervisor for the 2050 schedule Ralph White, Acting Chief of Organics Program for July 16 meeting

Quality Management Program Kim Pirkey,* Quality Assurance Unit (QAU) representative at all meetings Al Driscoll, Chief, QAU Tom Maloney, Chief, QMP

Methods Research and Development Program Mark Burkhardt,* Developer of 2050 method Steve Werner, Staff specialist on 2050 method Bill Foreman,* Acting Chief of MRDP at the time

The following WRD representatives were involved in additional decisions regarding deletion of esfenvalerate and the "E" coding of aldicarb sulfoxide (in addition to aldicarb and aldicarb sulfone recommended for "E" coding by the internal 2050 Data Review Committee):

NAWQA National Pesticide Synthesis Team Bob Gilliom, Chief Paul Capel, Research Chemist (Paul also is an OWQ staff representative.)

On the basis of method performance data acquired from the QAU's Organic Blind Sample Program, which revealed a substantial number of false negatives and several serious method recovery performance problems, and from routine laboratory reagent spike recovery data, reporting changes were required for 17 method constituents, as summarized in table 1 below. No reporting changes were deemed necessary for any of the remaining constituents in schedules 2050 and 2051 at this time.

New reporting levels were set based in part on:

- (1) Kim's estimate of the method detection limit (MDL) using laboratory reagent spike (LRS) data compiled by the Organics Program andQAU, or;
- (2) Kim's estimate of the MDL using limited data from low level spikes from the QAU's Organic Blind Sample Program (BSP).

Reporting levels for five (5) compounds were set either equivalent to the resulting LRS MDL or twice the LRS MDL as shown in table 1 below. These reporting levels were set using the LRS MDL information, because the BSP revealed false negatives at lower concentrations.

Reporting levels for nine (9) other compounds were set to either twice the BSP MDL (equal to the nondetection value, NDV) or twice the NDV as shown in the table below. These were set at a concentration above that where false negatives were revealed from the BSP data.

Note that these reporting levels were not set using the new long-term MDL process, since this LTMDL information is not available nor expected to be for a year or longer for schedule 2050.

However, the LRS MDL does represent an excellent estimate of long-term variation of the method at the 0.5 ug/L spike concentration.

1-Naphthol was deleted because of very poor performance (3.5% mean recovery and 0% median recovery in LRS) and lack of detection in even the high (1 ug/L) spikes from the BSP.

Esfenvalerate also was considered for deletion from the method because of very poor performance (15% mean recovery and 9% median recovery in LRS), but initially was retained pending further discussion with NAWQA. Bob Gilliom, Chief, NAWQA Pesticide Synthesis Team, agreed that esfenvalerate's performance was too poor for continued inclusion and recommended deletion. The 2050 Data Review Committee concurred, and esfenvalerate is deleted.

In line with these deletions, the historic data in the data base for esfenvalerate and 1-naphthol will be deleted.

An "E" code is added to all values for aldicarb, aldicarb sulfoxide, and aldicarb sulfone because of:

- (1) low and variable recoveries of aldicarb and aldicarb sulfone, and
- (2) post-collection conversion of aldicarb to aldicarb sulfoxide, resulting in variable high bias in recoveries for aldicarb sulfoxide.

As reported in Werner and others (1996, p. 34), chlorothalonil, dichlobenil, and DNOC continue to be "E" coded because of recognized performance limitations.

Reference:

Werner, S.L., Burkhardt, M.R., and DeRusseau, S.N., 1996, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory--Determination of pesticides in water by Carbopak-B solid-phase extraction and high-performance liquid chromatography: U.S. Geological Survey Open-File Report 96-216.

/s/

Robert S. Williams, Jr., Chief National Water Quality Laboratory Branch of Analytical Services

Distribution: http://wwwnwql.cr.usgs/USGS

Constituent	Parameter code	NWQL lab code 2050/2051	Reporting level (microgram/liter)		Approach used to		
			Current	Effective 11/10/97	reporting level		
Constituents with Increased Reporting Level							
Carbofuran Chloramben Clopyralid 2,4-D 2,4-DB MCPA MCPB Oryzalin Triclopyr	49309A/B 49307A/B 49305A/B 39732B/C 38746A/B 38482A/B 38487A/B 49292A/B 49235A/B	5418/5618 5419/5619 5423/5623 5408/5608 5407/5607 5433/5633 5434/5634 5440/5640 5446/5646	0.028 0.011 0.050 0.035 0.035 0.050 0.035 0.019 0.050	0.12 0.42 0.23 0.15 0.24 0.17 0.14 0.31 0.25	BSP NDV		
Current "E" Coded Constituents with Increased Reporting Level							
DNOC Dichlobenil Chlorothalonil	49299A/B 49303A/B 49306A/B	5402/5602 5404/5604 5421/5621	0.035 0.020 0.035	0.42 1.20 0.48	LRS MDL LRS MDL x 2 LRS MDL		
New "E" Coded Constituents with Increased Reporting Level							
Aldicarb Aldicarb sulfone	49312A/B 49313A/B	5411/5611 5413/5613	0.016 0.016	0.55 0.10	LRS MDL BSP NDV		
New "E" Coded Constituent with No Reporting Level Change							
Aldicarb sulfoxide	49314A/B	5412/5612	0.021	No change			
Constituents Deleted from the Method							
Esfenvalerate	49298A/B	5429/5629	0.019	Deleted due poor perfor	e to very rmance		
1-Naphthol	49295A/B	5438/5638	0.007	Deleted due poor perfor	e to very mance		

Table 1. Reporting changes for selected constituents in schedules 2050 and 2051