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# United States Department of the Interior

U.S. GEOLOGICAL SURVEY

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## NATIONAL WATER QUALITY LABORATORY TECHNICAL MEMORANDUM 2001.05

December 26, 2001

To: Distribution E  
From: Gregory B. Mohrman, Chief  
Subject: National Water Quality Laboratory  
Establishment of Long-Term Method Detection Levels for the Analysis of Oil and Grease  
Effective Date of Change: October 1, 2001  
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### Purpose

The National Water Quality Laboratory (NWQL) analyzes water samples for Oil and Grease, Parameter Code 00556, method code B, labcode 2125. The NWQL Minimum Reporting Level (MRL) for this analysis has been 1 mg/L. A Long-Term Method Detection Level (LT-MDL) has been established at 3 mg/L and the Laboratory Reporting Level (LRL) has been set at 7 mg/L (Childress and others, 1999). The purpose of this memo is to announce the establishment of the LT-MDL and discuss the implications on data reported for samples taken prior to Oct. 1, 2001, the effective date of the LT-MDL.

### Background

The NWQL started analyzing samples for Oil and Grease by U.S. Environmental Protection Agency Method 1664 on June 1, 1996 (U.S. Geological Survey National Water Quality Laboratory Technical Memorandum 96.08, 1996). A Method Detection Limit (MDL) was determined using the U.S. Environmental Protection Agency Procedure (U.S. Environmental Protection Agency, 1984). The NWQL MRL was set equivalent to the MDL, 1 mg/L.

The LT-MDL was determined during water year 2001, and the LRL was calculated as two times the LT-MDL. The LT-MDL is 3 mg/L and the LRL is 7 mg/L. The LT-MDL is at a statistical level where no more than 1 percent false positive results are expected, and the LRL is set at a level where no more than 1 percent false negative results are expected (Childress and others, 1999).

## Scope

The LT-MDL is three times higher than the original MRL for the Oil and Grease analysis, and there is a possibility that reported results, which were between 1 and 3 mg/L, were false positive.

The Blind Blank Program, administered by the NWQL Quality Assurance Section (QAS), submitted about 20 blank samples for analysis by this method between September 9, 1998, and September 19, 2000. The results demonstrated that 25 percent of the samples had reported concentrations greater than the MRL of 1 mg/L, demonstrating the reality of false positive results between 1 and 3 mg/L.

Between June 1, 1996, and the effective date of this memo, concentrations greater than 1 mg/L have been reported. During the period from June 19, 1996, to May 18, 2001, there were 1226 samples analyzed by this method and about 326 samples had results between 1 and 3 mg/L.

The NWQL does not retroactively qualify previous data when a reporting level changes, but customers should be aware of the implications on data, previous to the establishment of an LT-MDL. Field blanks analyzed during this time may also have false positive results and should be interpreted with that in mind.

## References

Childress, C.J.O., Foreman, W.T., Connor, B.F., and Maloney, T.J., 1999, New reporting procedures based on long-term method detection levels and some considerations for interpretations of water-quality data provided by the U.S. Geological Survey National Water Quality Laboratory: U.S. Geological Survey [Open-File Report 99-193](#), 19 p.

U.S. Environmental Protection Agency, 1984, Guidelines for establishing test procedures for the analysis of pollutants (App. B, Part 209, Definition and procedures for the determination of the method detection limit): U.S. Code of Federal Regulations, Title 49, CFR 49(209):43430.

U.S. Geological Survey, 1996, Implementation of EPA Method 1664 for the analysis of oil and grease or total petroleum hydrocarbons in water: National Water Quality Laboratory Technical Memorandum 96.08, accessed April 30, 2001, at URL <http://wwwnwql.cr.usgs.gov/Public/tech-memos/nwql.96-08.html>

//signed//

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## Key Words:

Total organic carbon, Analysis, Blank