

## **DRINKING WATER INSPECTORATE**

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### **DWI Information Letter 18/99**

23 December 1999

To: Board level contacts of Water and Sewerage  
Companies and Water Companies in England  
and Wales

Dear Sir

### **FURTHER GUIDANCE ON ANALYTICAL QUALITY CONTROL (AQC) AND ANALYTICAL REPORTING LIMITS**

#### **Purpose**

1. The purpose of this letter is to inform water companies and their analytical laboratories of the benchmarks against which laboratories' systems of analytical quality control will be assessed. Also included is guidance on the acceptable use of reporting limits for analytical results.

#### **Introduction**

2. In 1989 the Department of the Environment and the Welsh Office issued "Guidance on Safeguarding the Quality of Public Water Supplies", which gave general guidance on analytical quality control. In 1993 this was supplemented by DWI Information Letter 8/93. Since then there have been a number of documents published on analytical quality control, which develop currently recognised good practice. DWI Information Letter 3/99 advised companies of the reference documents currently regarded by the Inspectorate as embodying good practice in this area.

3. Information Letter 3/99 also advised companies that more detailed guidance was being prepared in this area and that it would be made available to companies and laboratories when ready. This guidance is now available and is enclosed with this letter as "Guidance on the Interpretation of Aspects of Analytical Quality Control (AQC)".

4. Many companies or their analytical laboratories use analytical reporting limits as practical surrogates for limits of detection when reporting the results of analysis. However, the Inspectorate has become aware that a number of companies and laboratories have been using inappropriate reporting limits. Guidance is given on the acceptable use of reporting limits. The use of inappropriate reporting limits may result in enforcement action for breaches of regulation 21(2)(d)(iii) or regulation 29(1)(f) of the Water Supply (Water Quality) Regulations 1989 as amended (the Regulations).

## **Guidance on analytical quality control**

5. The enclosed document “Guidance On The Interpretation Of Aspects Of Analytical Quality Control (AQC)” will be used by the Inspectorate as a benchmark against which a laboratory’s procedures and practices will be assessed when checking whether those arrangements comply with the Regulations. The guidance is not a statement of the specific arrangements a laboratory will be expected to adopt. Alternative, but no less effective, systems of analytical quality control will continue to satisfy the requirements of regulation 21.

6. The guidance has been drawn from the reference documents given in Information Letter 3/99. As mentioned in paragraph 2 above, the Inspectorate regards the content of these reference documents as currently embodying good practice in this area. The guidance is made available to companies and their analytical laboratories as a benchmark against which they can assess their own AQC arrangements. The Inspectorate expects that a laboratory's arrangements for AQC are at least as effective at demonstrating compliance with the Regulations as those described in the guidance.

## **Guidance on the use of analytical reporting limits**

7. Analytical reporting limits (RLs) are values or concentrations, other than limits of detection (LODs), that are used by laboratories, and sometimes companies, as a cut off below which all results for a particular test are reported as being less than that value or concentration. They should not be used for the parameters trihalomethanes, polycyclic aromatic hydrocarbons and total pesticides, which are defined as the sum of the detected concentrations of the constituent compounds.

8. RLs are sometimes used instead of the determined LODs because the LOD has a value of concentration that is not compatible with the laboratory’s or company’s policy on reporting results because it has more significant figures than are reported. This practice is only acceptable if the RL adopted is the LOD rounded up to the last reporting figure, and the RL is only applied to the final calculated result (including any conversion to regulatory units). Examples of acceptable and unacceptable RLs are given in the Appendix to this letter.

9. I would be grateful if you would ensure that a copy of this letter and the document “Guidance On The Interpretation Of Aspects Of Analytical Quality Control” is given to each laboratory carrying out compliance analysis for your company.

### **Enquiries about this letter**

10. If you have any queries on this letter please do not hesitate to contact Malcolm Morgan, Inspector, Zone 2/E3 (0171 890 5987).

11. Copies of this letter are being sent to Pamela Taylor, Chief Executive, Water UK; Bob Dinwiddy, Water Supply and Regulation Division, Department of the Environment, Transport and the Regions; Bob Macey, Environment Division, The National Assembly for Wales; Tim Hooton, Water Services Unit, Scottish Executive; Randal Scott, Drinking Water Inspectorate for Northern Ireland; and Rowena Tye, Office of Water Services.

15. Please acknowledge receipt of this letter using the enclosed slip and envelope.

Yours faithfully

M J Rouse  
Chief Inspector

## APPENDIX

### 1. Examples of inappropriate use of reporting limits

LOD	Maximum permissible LOD	RL <sup>1,2</sup>	Reason given for adopting RL
0.31	2.5	2.5	Equals maximum permissible LOD and will not need revising if LOD changes
0.65	1	2	Set as a common RL for all determinands in the analysis suite

<sup>1</sup> Using these RLs on the public record instead of the actual result of analysis would contravene the requirements of regulation 29(1)(f)

<sup>2</sup> Applying these RLs to intermediate results (eg to nitrite and total oxidised nitrogen results before calculating the nitrate result) would contravene the requirements of regulation 21(2)(d)(iii). The calculation is part of the analytical system.

### 2. Examples of appropriate use of reporting limits

LOD	Number of decimal places reported for results close to the LOD <sup>3,4</sup>	Appropriate RL
0.141	3	0.141
0.141	2	0.15
0.141	1	0.2

<sup>3</sup> The number of decimal places reported should always be related to method performance.

<sup>4</sup> The examples of number of decimal places reported are given for demonstration of appropriate reporting limits only and do not reflect any view on the appropriate number of significant figures to report.