

## River water quality parameters and the methods used for their analysis (Part 1 of 2)

Water Quality Parameter	Reporting Limit and Unit	Analytical Method <sup>1</sup> / Analyst
<b>Physical Chemical Properties</b>		
Water temperature	0.1 °C	Multi-parameter water quality data logger, model YSI-6820 / On-site measurement
Dissolved Oxygen	0.1 mg/L, 1%	
pH	0.1	
Conductivity	1 µS/cm	
Turbidity	0.1 NTU	
Flow	1 L/s	Electromagnetic flow meter, model Flo-mate 2000 / On-site measurement
<b>Solid Contents</b>		
Suspended Solids	0.5 mg/L	In-house method GL-PH-23, based on APHA <sup>2</sup> 20ed 2540 D / Government Laboratory
Total Solids	0.5 mg/L	In-house method GL-PH-19, based on APHA 20ed 2540 B / Government Laboratory
Total Volatile Solids	0.5 mg/L	In-house method GL-PH-19, based on APHA 20ed 2540 E / Government Laboratory
<b>Aggregate Organics</b>		
5-Day Biochemical Oxygen Demand (BOD <sub>5</sub> )	1 mg/L	In-house method based on APHA 18ed 5210 B / EPD
Chemical Oxygen Demand (COD)	2 mg/L	In-house method GL-OR-38 & GL-OR-39, based on ASTM <sup>3</sup> D1252-00 A & B (COD <sub>Cr</sub> ) / Government Laboratory
Total Organic Carbon (TOC)	1 mg/L	In-house method GL-OR-32, based on APHA 20ed 5310 B / Government Laboratory
<b>Faecal Bacteria</b>		
<i>E. coli</i>	1 cfu /100 mL	In-house method <sup>4</sup> , membrane filtration with CHROMagar Liquid ECC medium / EPD
Faecal Coliforms	1 cfu / 100 mL	
<b>Nutrients</b>		
Ammonia-Nitrogen	0.005 mg/L	In-house method GL-IN-15, based on ASTM D3590-89 B (FIA) / Government Laboratory
Nitrite-Nitrogen	0.002 mg/L	In-house method GL-IN-18, based on APHA 20ed 4500-NO <sub>2</sub> <sup>-</sup> B (FIA) / Government Laboratory
Nitrate-Nitrogen	0.002 mg/L	In-house method GL-IN-18, based on APHA 20ed 4500-NO <sub>3</sub> <sup>-</sup> F & I (FIA) / Government Laboratory
Total Kjeldahl Nitrogen	0.05 mg/L	In-house method GL-IN-14 & GL-IN-15, based on ASTM D3590-89 B (FIA) & APHA 20ed 4500-N A&D (FIA) / Government Laboratory
Ortho-phosphate as Phosphorus	0.002 mg/L	In-house method GL-IN-16, based on ASTM D515-88 A (FIA) / Government Laboratory
Total Phosphorus	0.02 mg/L	In-house method GL-IN-14 & GL-IN-16, based on ASTM D515-88 B (FIA) & APHA 20ed 4500-P G (FIA) / Government Laboratory
Molybdate-Reactive Silica	0.05 mg/L	In-house method GL-IN-17, based on APHA 20ed 4500-SiO <sub>2</sub> C&E (FIA) / Government Laboratory

## Reference notes:

1. Mention of brand names of commercial products does not constitute or imply endorsement or recommendation by the Environmental Protection Department.
2. APHA - American Public Health Association: *Standard Methods for the Examination of Water and Wastewater*.
3. ASTM - Annual Book of American Society for the Testing and Materials Standards, Vol. 11.01 & 11.02.
4. i) Ho, B.S.W. and Tam, T.Y. (1997). Enumeration of *E. coli* in environmental waters and wastewater using a chromogenic medium. *Wat. Sci. Tech.*, **35**, 409-413.  
ii) DoE and DHSS (1983). "The bacteriological examination of drinking water supplies 1982. Report on Public Health and Medical Subjects No. 71. Methods for the Examination of Waters and Associated Materials". Department of Environment, Department of Health and Social Security, Public Health Laboratory Service, H.M.S.O. London.

## River water quality parameters and the methods used for their analysis (Part 2 of 2)

Water Quality Parameter	Reporting Limit and Unit	Analytical Method <sup>1</sup> / Analyst
<b>Metals</b>		
Aluminium	50 µg/L	In-house method GL-TE-63, based on USEPA Method 6020A (ICP-MS) / Government Laboratory
Antimony	1 µg/L	
Arsenic	1 µg/L	
Barium	1 µg/L	
Beryllium	1 µg/L	
Boron	50 µg/L	
Cadmium	0.1 µg/L	
Chromium	1 µg/L	
Copper	1 µg/L	
Iron	50 µg/L	
Lead	1 µg/L	
Manganese	10 µg/L	
Mercury	1 µg/L	
Molybdenum	2 µg/L	
Nickel	1 µg/L	
Silver	1 µg/L	
Thallium	1 µg/L	
Vanadium	2 µg/L	
Zinc	10 µg/L	
<b>Industrial and Commercial Pollutants</b>		
Cyanide	0.01 mg/L	In-house method GL-IN-42, based on ASTM D4374-00 (FIA, amperometric) / Government Laboratory
Fluoride	0.2 mg/L	In-house method GL-IN-47, based on APHA 20ed 4500-F <sup>-</sup> C & G (Ion Selective Electrode) and ASTM D1179-99 B (FIA) / Government Laboratory
Anionic Surfactants (as Manoxol OT)	0.05 mg/L	In-house method GL-OR-30, based on BS 6068, Section 2.23 (1986) (Colorimetric) & In-house method GL-OR-27, based on Abbott, D.C. "Analyst", Vol.87, p.286(1962) & S. Motomizu et al., "Analyst" Vol.113, p.747(1988) (FIA) / Government Laboratory
Oil and Grease	0.5 mg/L	In-house method GL-OR-26, based on APHA 20ed 5520 C (IR) / Government Laboratory
<b>Sulphide Contents</b>		
Free Hydrogen Sulphide	0.01 mg/L	In-house method GL-IN-46, based on APHA 20ed 4500S <sup>2-</sup> D (Colorimetric) / Government Laboratory
Sulphide	0.02 mg/L	
<b>Plant Pigments</b>		
Chlorophyll-a	0.2 µg/L	In house method GL-OR-34, based on APHA 20ed 10200H 2 (spectrophotometric) / Government Laboratory
Pheo-Pigment	0.2 µg/L	

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