Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales

Department of
Environment and Conservation (NSW)

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Contents

1. Introduction

This document lists the sampling and analysis methods to be used when complying with a requirement by or under the environment protection legislation, or a licence or notice under that legislation, to test for the presence or concentration of matter in water and the volume, depth and flow of water or wastewater.

The environment protection legislation includes, among other legislation, the *Protection of the Environment Operations Act 1997* and regulations under it.

This document is referred to in:

- the *Protection of the Environment Operations (General) Regulation 1998*;
- the *Clean Waters Regulations 1972* (for the purposes of Classification of Waters); and
- the Load Calculation Protocol.

This document also may be referred to in conditions attached to statutory instruments issued by the Environment Protection Authority, New South Wales (EPA).

The following process should be followed in determining the methods to be used:

1. Use the specified method(s) on the relevant environment protection licence.

2. If no method is specified on a licence, use the method(s) specified in this document.

3. If no method is specified in this document, or if you wish to use another method for sampling or analysis that is not included in this document, approval must be sought from the EPA before you commence sampling or analysis using that method.

In exceptional circumstances, the EPA may approve the use of alternative methods. Approval to use alternative methods must be sought in writing from the EPA. In the first instance, licensees should contact the EPA regional office that issues the licence.

Where there is a choice of more than one approved method for an analyte, unless stated otherwise by the relevant environment protection licence, a licensee may use any of the approved methods given for that analyte provided the method can achieve the reporting limits required for compliance with the licence . If there are no methods that will achieve the reporting limits required, licensees should contact the EPA. Once a licensee has selected an approved method, however, that licensee must not then change to another method for the same analyte without seeking permission in writing from the EPA.

In the sampling and analysis of water pollutants, the procedural details specified in the relevant method in this document may be varied by the person carrying out the sampling or analysis, provided the variation is not such as can affect the results of the test and the person conducting the test can establish that.

2. Sample Collection and Handling Guidelines

A sample should be collected so that it is representative of the condition being investigated, and in a manner consistent with the collection, handling and preservation principles enunciated in Standards Association of Australia (1998) AS/NZS 5667.1:1998, and APHA (1998) section 1060. If there is any inconsistency between these references, Standards Association of Australia (1998) prevails.

3. Methods of Analysis

Analyses should be undertaken by a laboratory accredited to perform those analyses by an independent accreditation body acceptable to the EPA, such as the National Association of Testing Authorities (NATA) or equivalent.

Such analyses should conform to the generic methods prescribed at Part 1000 of APHA (1998) covering quality assurance, data quality, expression of results, method development and evaluation, and laboratory procedures. These generic methods are applicable to each of the methods approved below for specific analytes.

Methods approved by the EPA for specific analytes are listed in Table 1. Where there are multiple methods, some may be indicated as preferred methods. These methods are preferred because they use modern equipment and/or particular techniques that are most practicable and/or give the most reliable results. Given, however, that in some circumstances access to the most up to date equipment or laboratories accredited for all methods may not be possible, acceptable alternatives are given.

How to find an analyte in the table: Analytes are listed in alphabetical order, generally based on the main analyte considered. For instance, Faecal Coliforms are listed under Coliforms; Total Suspended Solids under Solids. Both the groups of analytes and the individual analytes that fall into that group are listed. For instance, Organochlorine Pesticides include Aldrin and Dieldrin, among others—both these are also listed separately. If the analytes listed on the licence are not listed in Table 1, refer to Appendix 1, which gives the names of analytes that are synonymous with these listed analytes.

Table 1: Methods for the Analysis of Water Pollutants

Analyte	Method
Acenaphthene	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Acenaphthylene	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Acrolein	USEPA (40 CFR, 1994c) method 603; or USEPA (1986) method 8260B
Acrylonitrile	USEPA (40 CFR, 1994c) method 603; or USEPA (1986) method 8260B
Aldrin	APHA (1998) section 6630; or APHA (1998) section 6410; or *USEPA (1999a) method 8081B; or *USEPA (1986) method 8270C
Alkalinity (bicarbonate)	APHA (1998) section 2320
Alkalinity (total)	APHA (1998) section 2320
Aluminium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111D; or *APHA (1998) section 3111E; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†; or *APHA (1998) section 3500-Al
Anionic surfactants	APHA (1998) section 5540
Anthracene	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Antimony (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111B; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or

* Preferred methods

[1] Used when very low concentrations (< 100μg/L) to be tested

Analyte	Method
	*APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Arsenic (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3113; or *APHA (1998) section 3114; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†; or *APHA (1998) section 3500-As
Atrazine	USEPA (1998a) method 8141B
Barium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111D; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Benzene	APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
Benzidine	APHA (1998) section 6410; or *USEPA (1986) method 8270C
Benzo(a)anthracene *Benzo(a)pyrene* *Benzo(b)fluoranthene* *Benzo(e)pyrene* *Benzo[ghi]perylene* *Benzo(k)fluoranthene*	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Beryllium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111D; or *APHA (1998) section 3111E; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
alpha-BHC *beta-BHC*	APHA (1998) section 6630; or APHA (1998) section 6410; or *USEPA (1999a) method 8081B; or *USEPA (1986) method 8270C
Biochemical oxygen demand	APHA (1998) section 5210B, using APHA (1998) section 4500-O for the determination of the dissolved oxygen
Boron (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3120; or USEPA (1994a) method 200.7; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†; or *APHA (1998) section 4500-B
Bromide	APHA (1998) section 4110; or APHA (2001 supplement) section 4110; or APHA (1998) section 4140; or APHA (1998) section 4500-Br
Bromoform	APHA (1998) section 6200; or APHA (1998) section 6232; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
Cadmium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111B; or *APHA (1998) section 3111C; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Calcium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111B; or *APHA (1998) section 3111D; or *APHA (1998) section 3120; or USEPA (1994a) method 200.7; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†; or *APHA (1998) section 3500-Ca
Carbamate pesticides *Includes:* *carbaryl* *methomyl*	APHA (1998 or 2001 supplement) section 6610; or *USEPA (1986) method 8318
Carbaryl	APHA (1998 or 2001 supplement) section 6610; or *USEPA (1986) method 8318

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
Carbon tetrachloride	APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
Chemical oxygen demand	APHA (1998) section 5220
Chlordane	APHA (1998) section 6410; or APHA (1998) section 6630; or *USEPA (1999a) method 8081B; or *USEPA (1986) method 8270C
Chloride	APHA (1998) section 4110; or APHA (2001 supplement) section 4110; or APHA (1998) section 4140; or APHA (1998) section 4500-Cl B; or APHA (1998) section 4500-Cl D; or APHA (1998) section 4500-Cl E
Chlorinated phenoxy acid herbicides includes: *2,4-D* *pentachlorophenol* *2,4,5-T*	APHA (1998) section 6640; or *USEPA (1986) method 8151A
Chlorine (combined residual)	APHA (1998) section 4500-Cl D; or APHA (1998) section 4500-Cl F; or APHA (1998) section 4500-Cl G Note: The loss of free chlorine due to reaction with organic material and/or with reducing agents, and/or by volatilisation from water samples can make analysing for Chlorine (total residual), Chlorine (free residual) or Chlorine (combined residual) difficult. As a result, the most appropriate analytical technique to demonstrate compliance with a licence limit is likely to be analysis on site using a kit. The only kits that are acceptable to the EPA are those that use a portable spectrophotometer or colorimeter to measure the colour development that indicates the concentration of chlorine present. Kits that use comparison with a colour chart to determine concentration are not acceptable. Normal QA procedures must be followed. These include the analysis of blanks with every batch of samples, and certified chlorine standards on each occasion the kit is used (if it is not used every day) or weekly if the kit is used constantly. Samples need to be taken immediately prior to analysis and need to be taken in bottles, such as BOD bottles, that can be filled completely. The bottles should be wrapped in foil. These directions are based on the requirements set down in the APHA methods listed above for chlorine analysis. If the concentration of chlorine being measured is likely to be around 0.05–0.2 mg/L, it will be necessary to validate the detection limit for the specific wastewater being analysed and the kit being used for the analysis.
Chlorine (free residual)	APHA (1998) section 4500-Cl D; or APHA (1998) section 4500-Cl F; or

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
	APHA (1998) section 4500-Cl G; or APHA (1998) section 4500-Cl H Refer to note on the use of kits, under *Chlorine (combined residual)*.
Chlorine (total residual)	APHA (1998) section 4500-Cl B; or APHA (1998) section 4500-Cl C; or APHA (1998) section 4500-Cl D; or APHA (1998) section 4500-Cl E; or APHA (1998) section 4500-Cl F; or APHA (1998) section 4500-Cl G; or APHA (1998) section 4500-Cl I Refer to note on the use of kits, under *Chlorine (combined residual)*.
Chlorobenzene	APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
Chloroform	APHA (1998) section 6200; or APHA (1998) section 6232; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
1-Chloronaphthalene	APHA (1998) section 6410; or *USEPA (1986) method 8270C
2-Chlorophenol	APHA (1998) section 6410; or APHA (1998) section 6420; or *USEPA (1986) method 8041; or *USEPA (1986) method 8270C
Chlorophyll a	APHA (1998) section 10200 H
Chlorpyrifos	USEPA (1998a) method 8141B
Chromium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111C; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Chromium (hexavalent)	APHA (1998) section 3500-Cr; or AS 2882—1986; or USEPA (1994a) method 218.6
Chromium (trivalent)	Trivalent chromium is to be calculated:

Analyte	Method
	Cr^{3+} = Cr (acid extractable) – Cr^{6+}
Chrysene	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Cobalt (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111B; or *APHA (1998) section 3111C; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Coliforms: *(a) Total coliforms* *(b) Faecal coliforms*	 APHA (1998 or 2001 supplement) section 9221; or APHA (1998) section 9222; or APHA (1998) section 9223; or AS 4276.4—1995 and AS 4276.5—1995 APHA (1998 or 2001 supplement) section 9221; or APHA (1998) section 9222
Colour (true)	APHA (1998) section 2120
Conductivity	APHA (1998) section 2510
Copper (acid extractable)	Preliminary treatment APHA (1998) section 3030 followed by *APHA (1998) section 3111B; or *APHA (1998) section 3111C; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Coronene	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Cyanide (amenable to chlorination)	Preliminary treatment, if required, APHA (1998 or 2001 supplement) section 4500-CN^- B; followed by APHA (1998) section 4500-CN^- G; or

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
	APHA (1998) section 4500-CN^- H
Cyanide (free)	Preliminary recovery ASTM (2002) method D4282-02; followed by APHA (1998) section 4500-CN^- D; or APHA (1998) section 4500-CN^- E; or APHA (1998) section 4500-CN^- F; or ASTM (2002) D4282-02
Cyanide (total)	Preliminary treatment, if required, APHA (1998 or 2001 supplement) section 4500-CN^- B; followed by distillation APHA (1998 or 2001 supplement) section 4500-CN^- C; followed by APHA (1998) section 4500-CN^- D; or APHA (1998) section 4500-CN^- E; or APHA (1998) section 4500-CN^- F Note: If your discharge is a slurry—that is, contains a high fraction of solids—contact your licensing officer for further advice on the appropriate method.
Cyanide (weak acid dissociable)	Preliminary treatment, if required, APHA (1998 or 2001 supplement) section 4500-CN^- B; followed by APHA (1998) section 4500-CN^- I Note: if your discharge is a slurry—that is, contains a high fraction of solids—contact your licensing officer for further advice on the appropriate method.
2,4-D	APHA (1998) section 6640; or *USEPA (1986) method 8151A
4,4´-DDD *4,4´-DDE* *4,4´-DDT*	APHA (1998) section 6410; or APHA (1998) section 6630; or *USEPA (1999a) method 8081B; or *USEPA (1986) method 8270C
Depth	AS 3778 (1992 and 2001)
Diazinon	USEPA (1998a) method 8141B
Dibenzo(a,h)anthracene	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Dibromochloromethane	APHA (1998) section 6200; or APHA (1998) section 6232; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
1,2-Dichlorobenzene	APHA (1998) section 6200; or

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
1,3-Dichlorobenzene *1,4-Dichlorobenzene*	APHA (1998) section 6410; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B; or *USEPA (1986) method 8270C
3,3´-Dichlorobenzidine	APHA (1998) section 6410; or *USEPA (1986) method 8270C
1,1-Dichloroethane *1,2-Dichloroethane* *1,1-Dichloroethene*	APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
2,4-Dichlorophenol	APHA (1998) section 6410; or APHA (1998) section 6420; or *USEPA (1986) method 8041; or *USEPA (1986) method 8270C
Dieldrin	APHA (1998) section 6410; or APHA (1998) section 6630; or *USEPA (1999a) method 8081B; or *USEPA (1986) method 8270C
2,4-Dimethylphenol	APHA (1998) section 6410; or APHA (1998) section 6420; or *USEPA (1986) method 8041; or *USEPA (1986) method 8270C
1,2-Diphenyl hydrazine	USEPA (1986) method 8270C
Diquat	USEPA 549.1 (EPA-500 Series Supplement II, Aug 1992)
Dissolved organic carbon	APHA (1998) section 5310
Dissolved organic halogen *Includes:* *Trihalomethanes* *Trichloroethene* *Tetrachloroethene* *Other halogenated alkanes and alkenes* *Chlorinated and brominated pesticides* *Polychlorinated biphenyls* *Hexachlorobenzene* *2,4-Dichlorophenol*	APHA (1998) section 5320 B Note: this is a general screening method. It is preferred that individually listed compounds be tested by their specific methods, where included in this list
Dissolved oxygen	APHA (1998) section 4500-O
Diuron	USEPA (1998b) method 8321B
DTPA	There is no approved method for DTPA. Contact your licensing officer for further information
Endosulfan I *Endosulfate II*	APHA (1998) section 6410; or APHA (1998) section 6630; or

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
Endosulfan sulfate	*USEPA (1999a) method 8081B; or *USEPA (1986) method 8270C
Endrin	APHA (1998) section 6410; or APHA (1998) section 6630; or *USEPA (1999a) method 8081B; or *USEPA (1986) method 8270C
Enterococci	APHA (1998) section 9230
Ethanol	USEPA (1986) method 8015B
Ethyl benzene	APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
Extractable base/neutrals and acids *Includes:* *Acenaphthene* *Acenaphthylene* *Aldrin* *Anthracene* *Benzo(a)anthracene* *Benzo(a)pyrene* *Benzo(b)fluoranthene* *Benzo(ghi)perylene* *Benzo(k)fluoranthene* *beta-BHC* *Chlordane* *2-Chlorophenol* *Chrysene* *4,4´-DDD* *4,4´-DDE* *4,4´-DDT* *Dibenzo(a,h)anthracene* *1,2-Dichlorobenzene* *1,3-Dichlorobenzene* *1,4-Dichlorobenzene* *3,3´-Dichlorobenzidine* *2,4-Dichlorophenol* *Dieldrin* *2,4-Dimethylphenol* *Endosulfan sulfate* *Fluoranthene* *Heptachlor* *Heptachlor epoxide* *Hexachlorobenzene* *Indeno(1,2,3-cd)pyrene* *Naphthalene* *Nitrobenzene* *Pentachlorophenol* *Phenol* *Polychlorinated biphenyls (PCB-1016,*	APHA (1998) section 6410; or *USEPA (1986) method 8270C

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, PCB-1260) *Pyrene* *2,4,6-Trichlorophenol*	
Faecal coliforms	Refer to section on *Coliforms*
Floatables	APHA (1998) section 2530
Flow	AS 3778 (several volumes) Note: This standard covers methods for use in open channels and waterways. To determine flow in pipes, use pumping capacity, pressure differences, or electromagnetic, ultrasonic or other techniques.
Fluoranthene	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Fluoride	Preliminary distillation step, if required, APHA (1998) section 4500-F^- B; followed by APHA (1998) section 4140; or APHA (1998) section 4500-F^- C; or APHA (1998) section 4500-F^- D; or APHA (1998) section 4500-F^- E.
Formaldehyde	USEPA (1986) method 8315A
Glyphosate	APHA (1998) section 6651
Heptachlor *Heptachlor epoxide*	APHA (1998) section 6410; or APHA (1998) section 6630; or *USEPA (1999a) method 8081B; or *USEPA (1986) method 8270C
Hexachlorobenzene	APHA (1998) section 6410; or *USEPA (1986) method 8270C
Hydrogen sulfide (un-ionised)	Refer to section on *Sulfide*
Indeno(1,2,3-cd)pyrene	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Iron (acid extractable)	Preliminary treatment APHA (1998) section 3030; Then use *APHA (1998) section 3111B; or *APHA (1998) section 3111C; or

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
	*APHA (1998) section 3113; or *APHA (1998) section 3120; or USEPA (1994a) method 200.7; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Iron (dissolved)	Preliminary treatment APHA (1998) section 3030B; then treat according to *Iron (acid extractable)*
Iron (suspended)	Preliminary treatment APHA (1998) section 3030B; then treat according to *Iron (acid extractable)*
Lead (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111B; or *APHA (1998) section 3111C; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Lead (dissolved)	Preliminary treatment APHA (1998) section 3030B; then treat according to *Lead (acid extractable)*
Lead (suspended)	Preliminary treatment APHA (1998) section 3030B; then treat according to *Lead (acid extractable)*
Lindane	APHA (1998) section 6410; or APHA (1998) section 6630; or *USEPA (1999a) method 8081B; or *USEPA (1986) method 8270C
Lithium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use USEPA (1994a) method 200.7; or *APHA (1998) section 3111B; or *APHA (1998) section 3120
Magnesium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111B; or *APHA (1998) section 3120; or USEPA (1994a) method 200.7; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Malathion	USEPA (1998a) method 8141B; or USEPA (1986) method 8270C
Manganese (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111B; or *APHA (1998) section 3111C; or *APHA (1998) section 3113; or

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
	*APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Manganese (dissolved)	Preliminary treatment APHA (1998) section 3030B; then treat according to *Manganese (acid extractable)*
MCPA	APHA (1998) section 6640; or *USEPA (1986) method 8151A
Mercury (dissolved)	Preliminary treatment APHA (1998) section 3030B; then treat according to *Mercury (total)*
Mercury (total)	Preliminary treatment APHA (1998) section 3030 Then use APHA (1998) section 3112; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or USEPA (1994a) method 245.1; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020† or USEPA (2002) 1631E
Methane	APHA (1998) section 6211
Methomyl	APHA (1998 or 2001 supplement) section 6610; or *USEPA (1986) method 8318
Methoxychlor	APHA (1998) section 6410; or APHA (1998) section 6630; or *USEPA (1999a) method 8081B; or *USEPA (1986) method 8270C
Methyl azinphos	USEPA (1998a) method 8141B; or USEPA (1986) method 8270C
Methylene blue active substances	Refer to section on *Anionic surfactants*
Methyl ethyl ketone	USEPA (1986) method 8260B
2-Methylphenol *3-Methylphenol* *4-Methylphenol*	USEPA (1986) method 8041; or USEPA (1986) method 8270C
Metolachlor	USEPA (1999a) method 8081B; or USEPA (1998a) method 8141B; or USEPA (1986) method 8270C
Molinate	*USEPA (1986) method 8270C; or USEPA (1993) method 634

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
Molybdenum (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111D; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Molybdenum (dissolved)	Preliminary treatment APHA (1998) section 3030B; then treat according to *Molybdenum (acid extractable)*
Naphthalene	APHA (1998) section 6200; or APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8260B; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Nickel (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111B; or *APHA (1998) section 3111C; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Nickel (dissolved)	Preliminary treatment APHA (1998) section 3030B; then treat according to *Nickel (acid extractable)*
Nitrobenzene	APHA (1998) section 6410; or *USEPA (1986) method 8270C
Nitrogen (ammonia)	APHA (1998) section 4500-NH_3; or APHA (1998) section 4120; or APHA (1998) section 4130
Nitrogen (nitrate)	APHA (1998) section 4110; or APHA (1998) section 4120; or APHA (1998) section 4130; or APHA (2001 supplement) section 4110; or APHA (1998) section 4500-NO_3 D; or APHA (1998) section 4500-NO_3 E; or APHA (1998) section 4500-NO_3 F; or APHA (1998) section 4500-NO_3 I
Nitrogen (nitrite)	APHA (1998) section 4110; or APHA (2001 supplement) section 4110; or

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
	APHA (1998) section 4120; or APHA (1998) section 4130; or APHA (1998) section 4500-NO_2; or APHA (1998) section 4500-NO_3 F (with cadmium column removed); or APHA (1998) section 4500-NO_3 I (with cadmium column removed)
Nitrogen (organic)	Organic nitrogen is to be calculated as: *Nitrogen (organic) = Total Kjeldahl nitrogen – Nitrogen (ammonia)*; or *Nitrogen (organic) = Nitrogen (total*) – [*Nitrogen (ammonia) + Nitrogen (total oxidised)*]
Nitrogen (total)	Nitrogen (total) should be determined through calculation, using: *Nitrogen (total) = Total Kjeldahl nitrogen + Nitrogen (total oxidised)* Where a licensee can demonstrate equivalent results, the following direct Nitrogen (total) methods can be used: APHA (1998) section 4120; or APHA (1998) section 4130; or APHA (1998) section 4500-N C Note: The direct persulfate digestion method (4500-N C) for analysis of *Nitrogen (total)* is not suitable where there are high levels of particulates in the sample.
Nitrogen (total oxidised)	This is the sum total of oxidised forms of nitrogen, i.e. *Nitrogen (nitrate) + Nitrogen (nitrite)*. For the approved methods, refer to *Nitrogen (nitrate)*
Total Kjeldahl nitrogen	APHA (1998) section 4120; or APHA (1998) section 4130; or APHA (1998) section 4500-N_{org}; or APHA (1998) section 4500-N_{org} with Jirka modification (Jirka et al., 1976)
Nonylphenol ethoxylates *Octylphenol ethoxylates*	Note: There are no standard methods for these analytes. If required to monitor for these analytes, seek advice from your licensing officer before commencing sampling or analysis
Odour	APHA (1998) section 2150 Note: Exercise great care if undertaking this method of analysis. There are potential hazards to the tester.
Oil and grease	APHA (1998) section 5520B; or APHA (1998) section 5520C; or APHA (1998) section 5520D; or *USEPA (1994b) method 1664; or

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
	APHA (1998) section 5520F (hydrocarbons only)
Organochlorine pesticides *includes:* *Aldrin* *alpha-BHC* *beta-BHC* *4,4´-DDD* *4,4´-DDE* *4,4´-DDT* *Dieldrin* *Endosulfan sulfate* *Endrin* *Heptachlor* *Heptachlor epoxide* *Lindane* *Methoxychlor*	APHA (1998) section 6410; or APHA (1998) section 6630; or *USEPA (1999a) method 8081B; or *USEPA (1986) method 8270C
Organophosphorus pesticides *Includes:* *Chlorpyrifos* *Chlorpyrifos Methyl* *Diazinon* *Dimethoate* *Ethion* *Malathion* *Methyl azinphos* *Parathion* *Parathion Methyl*	USEPA (1986) method 8270C; or USEPA (1998a) method 8141B
Oxidation–reduction potential	APHA (1998) section 2580
Paraquat	USEPA (1992) method 549.1 (EPA-500 Series Supplement II, Aug 1992)
Parathion	USEPA (1998a) method 8141B; or USEPA (1986) method 8270C
Pentachlorophenol	APHA (1998) section 6410; or APHA (1998) section 6420; or APHA (1998) section 6640; or *USEPA (1986) method 8041; or *USEPA (1986) method 8151A; or *USEPA (1986) method 8270C
Perylene	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Petroleum hydrocarbons and BTEX: *(a) Total petroleum hydrocarbons*	(a) Petroleum hydrocarbons: USEPA (1986) method 8015B

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
(b) BTEX *equals:* *Benzene +* *Ethyl benzene +* *Toluene +* *Xylene*	(b) BTEX: APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
pH value	APHA (1998) section 4500-H^+
Phenol and individual phenolic compounds *includes:* *2-Chlorophenol* *2,4-Dichlorophenol* *2,4-Dimethylphenol* *Phenol* *2,4,6-Trichlorophenol*	APHA (1998) section 6410; or APHA (1998) section 6420; or *USEPA (1986) method 8041; or *USEPA (1986) method 8270C For individual phenolic compounds: Refer to their individual listing or look under *Extractable base/neutrals and acids*
Substituted phenols and cresols	APHA (1998) section 6410; or APHA (1998) section 6420; or *USEPA (1986) method 8041; or *USEPA (1986) method 8270C
Total phenolics	APHA (1998) section 5530
Phosphorus (dissolved reactive)	APHA (1998) section 4500-P B; followed by APHA (1998) section 4110; or APHA (2001 supplement) section 4110; or APHA (1998) section 4120; or APHA (1998) section 4130; or APHA (1998) section 4500-P E; or APHA (1998) section 4500-P F; or APHA (1998) section 4500-P G
Phosphorus (total)	Jirka modification—Jirka et al. (1976); followed by APHA (1998) section 4500-P E; or APHA (1998) section 4500-P F; or APHA (1998) section 4500-P H Note: The direct persulfate digestion methods for analysis of *Phosphorus (total)* are not suitable where there are high levels of particulates in the sample.
Phosphorus (total dissolved)	Jirka modification—Jirka et al. (1976); followed by APHA (1998) section 4500-P E; or APHA (1998) section 4500-P F; or APHA (1998) section 4500-P H Note: The direct persulfate digestion methods for analysis of *Phosphorus (total)* are not suitable where there are high levels of particulates in the sample.

Analyte	Method
Polychlorinated biphenyls	APHA (1998) section 6431; or *USEPA (1986) method 8082A
Polynuclear aromatic hydrocarbons *Includes:* *Acenaphthene* *Acenaphthylene* *Anthracene* *Benzo(a)anthracene* *Benzo(a)pyrene* *Benzo(b)fluoranthene* *Benzo(ghi)perylene* *Benzo(k)fluoranthene* *Chrysene* *Dibenzo(a,h)anthracene* *Fluoranthene* *Indeno(1,2,3-cd)pyrene* *Naphthalene* *Pyrene*	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Potassium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111B; or *APHA (1998) section 3120; or *APHA (1998) section 3500-K; or USEPA (1994a) method 200.7; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Pyrene	APHA (1998) section 6410; or APHA (1998) section 6440; or *USEPA (1986) method 8100; or *USEPA (1986) method 8270C; or *USEPA (1986) method 8310
Quaternary salts *Includes:* *Diquat* *Paraquat*	USEPA method 549.1 (EPA-500 Series Supplement II, Aug 1992)
Radionuclide(s)	For gross alpha and beta: AS 3550.5—1990; or APHA (1998) section 7110 B; or APHA (1998) section 7110 C For gamma-emitting radionuclides: APHA (1998) section 7120 B; or APHA (1998) section 7500-Cs B (Caesium); or APHA (1998) section 7500-I (Iodine); or APHA (1998) section 7500-Ra (Radium) For Strontium: APHA (1998) section 7500-Sr B For Tritium: APHA (1998) section 7500-^{3}HB For Uranium: APHA (1998) section 7500-U

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
Salinity *Includes:* *Use for calculation of salt load [in the load calculation protocol only]*	Conductivity—APHA (1998) section 2510; or Salinity—APHA (1998) section 2520
Selenium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3113; or *APHA (1998) section 3114; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or APHA (1998) section 3500-Se; or USEPA (1994a) method 200.7; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Semi-volatile organic hydrocarbons	APHA (1998) section 6410; or *USEPA (1986) method 8270C
Silver (acid extractable)	Preliminary treatment APHA (1998) section 3030; or acid digestion by the method of Yang *et al*. (2002) Then use *APHA (1998) section 3111B; or *APHA (1998) section 3111C; or *APHA (1998) section 3113; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Simazine	USEPA (1998a) method 8141B
Sodium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111B; or *APHA (1998) section 3120; or APHA (1998) section 3500-Na; or USEPA (1994a) method 200.7; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Solids: *(a) Total dissolved solids* *(b) Total suspended solids*	 APHA (1998) section 2540C APHA (1998) section 2540D; or USEPA (1999b) method 160.2; or AS 3550.4—1990
Standing water level	Refer to section on *Depth*
Styrene	APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
Substituted phenols and cresols	Refer to sections on *Phenol*

Analyte	Method
Sulfate	APHA (1998) section 4110; or APHA (2001 supplement) section 4110; or APHA (1998) section 4140; or APHA (1998) section 4500-SO_4^{2-} E; or APHA (1998) section 4500-SO_4^{2-} F
Sulfide (dissolved)	APHA (1998 or 2001 supplement) section 4500-S^{2-}
Sulfide (total)	APHA (1998 or 2001 supplement) section 4500-S^{2-}
Hydrogen sulfide (un-ionised)	APHA (1998 or 2001 supplement) section 4500-S^{2-}
2,4,5-T	APHA (1998) section 6640; or *USEPA (1986) method 8151A
Temperature	APHA (1998) section 2550
Tetrachloroethene	APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
2,3,4,6-Tetrachlorophenol	APHA (1998) section 6410; or APHA (1998) section 6420; or *USEPA (1986) method 8041; or *USEPA (1986) method 8270C
Thermotolerant coliforms	AS 4276.6—1995 or AS 4276.7—1995
Thiobencarb	USEPA (1986) method 8270B
Tin (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use APHA (1998) section 3111B; or *APHA (1998) section 3111D; or *APHA (1998) section 3113; or USEPA (1994a) method 200.7; or *USEPA (1986) method 6010
Titanium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111D; or USEPA (1994a) method 200.7; or *USEPA (1986) method 6010
Toluene	APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
Toluene 2,4-diisocyanate (TDI)	USEPA (1986) method 8270C
Total Kjeldahl nitrogen	Refer to sections on *Nitrogen*
Total organic carbon (in water)	APHA (1998) section 5310

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
Total dissolved solids *Total suspended solids*	Refer to section on *Solids*
Toxicity testing	Where toxicity testing is required, the details should be negotiated on a case-by-case basis with the licensing officer and staff from the EPA's Environmental Science Branch. Guidance on appropriate methods for toxicity testing will be provided as part of these negotiations
Tributyltin	Greaves and Unger (1988); or USEPA (1989) method 282.3 or USEPA (2003) method 8323. Note: USEPA method 282.3 has not been promulgated and may be hard to obtain (USEPA regional method)
1,1,1-Trichloroethane *1,1,2-Trichloroethane*	APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
Trichloroethene	APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
2,4,6-Trichlorophenol	APHA (1998) section 6410; or APHA (1998) section 6420; or *USEPA (1986) method 8041; or *USEPA (1986) method 8270C
Trifluralin	USEPA (1999a) method 8081B; or USEPA (1986) method 8270C
Trihalomethanes and chlorinated organic solvents *includes:* *Bromoform* *Bromodichloromethane* *Carbon tetrachloride* *Chloroform* *Dibromochloromethane* *Tetrachloroethene* *1,1,1-Trichloroethane* *1,1,2-Trichloroethane* *Trichloroethene*	APHA (1998) section 6232; or APHA (1998) section 6200; or *USEPA (1986) method 8021B; or *USEPA (1986) method 8260B
Turbidity	APHA (1998) section 2130
Vanadium (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111D; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
	USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Velocity [of flow]	AS 3778 (several volumes)
Vinyl chloride	APHA (1998) section 6200; or USEPA (1986) method 8260B; or USEPA (1986) method 8021B
Volatile halogenated compounds	APHA (1998) section 6200; or USEPA (1986) method 8260B; or USEPA (1986) method 8021B
Volatile organic compounds *includes:* *Benzene* *Bromoform* *Carbon tetrachloride* *Chlorobenzene* *Chloroform* *Dibromochloromethane* *1,2-Dichlorobenzene* *1,3-Dichlorobenzene* *1,4-Dichlorobenzene* *1,1-Dichloroethane* *1,2-Dichloroethane* *1,1-Dichloroethene* *Ethyl benzene* *Naphthalene* *Styrene* *Tetrachloroethene* *Toluene* *1,1,1-Trichloroethane* *1,1,2-Trichloroethane* *Trichloroethene* *Vinyl chloride* *m-Xylene* *o-Xylene* *p-Xylene*	APHA (1998) section 6200; or *USEPA (1986) method 8260B; or *USEPA (1986) method 8021B
Volume	AS 3778 covers methods for determining width, depth and velocity in open channels and waterways. For a standing water body, volume can be calculated as: *Volume = width × length × depth* A volume of flowing water can be calculated as: *Volume = cross-sectional area × flow (velocity),* where *cross-sectional area =width × depth* For pipes, the volume can be estimated from known pump capacity multiplied by the duration of pumping. In all calculations, ensure that measuring instruments are

* Preferred methods

† Used when very low concentrations (< 100µg/L) to be tested

Analyte	Method
	calibrated and the units of measurement are the same. Averages of several measurements should be used when calculating values. See also *Depth*, *Flow* and *Velocity*.
Xylene *includes:* *m-Xylene* *o-Xylene* *p-Xylene*	APHA (1998) section 6200; or *USEPA (1986) method 8260B; or *USEPA (1986) method 8021B
Zinc (acid extractable)	Preliminary treatment APHA (1998) section 3030 Then use *APHA (1998) section 3111B; or *APHA (1998) section 3111C; or *APHA (1998) section 3120; or *APHA (1998) section 3125†; or *APHA (1998) section 3130B; or USEPA (1994a) method 200.7; or USEPA (1994a) method 200.8†; or *USEPA (1986) method 6010; or *USEPA (1986) method 6020†
Zinc (dissolved)	Preliminary treatment APHA (1998) section 3030B; then treat according to *Zinc (acid extractable)*

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Appendix 1 Synonyms of analytes

Table 1 in this appendix gives the alternative names of analytes that are held to be synonymous with those given in the Approved Methods table. Table 2 gives the names of the Approved Methods analytes and possible synonymous alternative names. Alternative names may appear in regulations, in the load calculation protocol or on licences.

Table 1

Alternative analyte names	**Analyte name in Approved Methods**
AOX	Dissolved organic halogen
Adsorbable organic halogens	Dissolved organic halogen
Alkalinity (as calcium carbonate)	Alkalinity (total)
Aluminium	Aluminium (acid extractable)
Ammonia	Nitrogen (ammonia)
Ammonia nitrogen	Nitrogen (ammonia)
Antimony	Antimony (acid extractable)
Arsenic	Arsenic (acid extractable)
Barium	Barium (acid extractable)
Benzo(ghl)perylene, benzo(g,h,l)perylene (Note: incorrect names)	Benzo(ghi)perylene
Beryllium	Beryllium (acid extractable)
a-BHC	alpha-BHC
b-BHC	beta-BHC
Bicarbonate	Alkalinity (bicarbonate)
Biochemical oxygen demand	Biochemical oxygen demand (5-day)
BOD, BOD_5	Biochemical oxygen demand (5-day)
BOD (for the purpose of determining the 3DGM)	Biochemical oxygen demand (5-day)
Boron	Boron (acid extractable)
Boron (total)	Boron (acid extractable)
Cadmium	Cadmium (acid extractable)
Calcium	Calcium (acid extractable)
COD	Chemical oxygen demand
Chloramines	Chlorine (combined residual)
Chlorine	Chlorine (free residual)
Chloronaphthalene	1-Chloronaphthalene
Chloronaphthalene(1)	1-Chloronaphthalene
Chromium (VI) compounds	Chromium (hexavalent)
Chromium (III) compounds	Chromium (trivalent)
Chromium (total)	Chromium (acid extractable)
Copper	Copper (acid extractable)
DDD	4,4′-DDD
DDE	4,4′-DDE
DDT	4,4′-DDT
2,4-Dichlorophenoxyacetic acid	2,4-D
Dichlorobenzidine	3,3′-Dichlorobenzidine
Diphenyl hydrazine	1,2-Diphenyl hydrazine
DO	Dissolved oxygen
DOX	Dissolved organic halogen
FC, fc	Faecal coliforms [see under *Coliforms* in list]
FRC	Chlorine (free residual)
Free cyanide	Cyanide (free)

Alternative analyte names	**Analyte name in Approved Methods**
Free residual chlorine	Chlorine (free residual)
Filterable iron	Iron (dissolved)
Filterable manganese	Manganese (dissolved)
gamma-BHC (lindane)	Lindane
g-BHC (lindane)	Lindane
Guthion (methyl azinphos)	Methyl azinphos
Hexachlorobenzene (HCB)	Hexachlorobenzene
Hexavalent chromium	Chromium (hexavalent)
Insoluble lead	Lead (suspended)
Iron	Iron (acid extractable)
Lead	Lead (acid extractable)
Lithium	Lithium (acid extractable)
Magnesium	Magnesium (acid extractable)
Manganese	Manganese (acid extractable)
MBAS	Anionic surfactants
MCPA	2-Methyl-4-chlorophenoxyacetic acid
Mercury	Mercury (total)
Mercury (inorganic)	Mercury (total)
Methylene blue active substances	Anionic surfactants
3-Methylphenol (*m*-cresol)	3-Methylphenol
2-Methylphenol (*o*-cresol)	2-Methylphenol
4-Methylphenol (*p*-cresol)	4-Methylphenol
Molybdenum	Molybdenum (acid extractable)
NH_3-N	Nitrogen (ammonia)
Nickel	Nickel (acid extractable)
Nitrate	Nitrogen (nitrate)
Nitrate + nitrite (oxidised nitrogen)	Nitrogen (total oxidised)
Nitrite	Nitrogen (nitrite)
Nitrogen	Nitrogen (total)
Nitrogen as ammonia	Nitrogen (ammonia)
Non-filterable iron	Iron (suspended)
Non-filterable residue	Total suspended solids
o-Dichlorobenzene	1,2-Dichlorobenzene
Organic nitrogen	Nitrogen (organic)
Organophosphate pesticides	Organophosphorus pesticides
Orthophosphate	Phosphorus (dissolved reactive)
PAHs	Polynuclear aromatic hydrocarbons
PCBs	Polychlorinated biphenyls
Polyaromatic hydrocarbons	Polynuclear aromatic hydrocarbons
p,*p*′-DDD, *p*,*p*′-DDD (4,4)	4,4′-DDD
p,*p*′-DDE, *p*,*p*′-DDE (4,4)	4,4′-DDE
p,*p*′-DDT, *p*,*p*′-DDT (4,4)	4,4′-DDT
Reactive phosphorus	Phosphorus (dissolved reactive)
Redox potential	Oxidation–reduction potential
Salt	Salinity, conductivity
Silicate (SiO_2)	Silica (acid extractable)
Soluble lead	Lead (dissolved)
Soluble phosphorus	Phosphorus (dissolved reactive)
Sulfur	May mean sulfate or hydrogen sulfide (un-ionised). Seek further advice from your EPA regional office
TDS	Total dissolved solids

Alternative analyte names	Analyte name in Approved Methods
Thermotolerant coliforms	Faecal coliforms
TKN	Total Kjeldahl nitrogen
TKN-N	Total Kjeldahl nitrogen
TN	Nitrogen (total)
TOC	Total organic carbon
Total aluminium	Aluminium (acid extractable)
Total cadmium	Cadmium (acid extractable)
Total chromium	Chromium (acid extractable)
Total copper	Copper (acid extractable)
Total cyanide	Cyanide (total)
Total iron	Iron (acid extractable)
Total lead	Lead (acid extractable)
Total manganese	Manganese (acid extractable)
Total nitrogen	Nitrogen (total)
Total PAHs	Polynuclear aromatic hydrocarbons
Total phosphorus	Phosphorus (total)
Total phosphorus—filtered	Phosphorus (total dissolved)
Total phosphorus—unfiltered	Phosphorus (total)
Total residual chlorine	Chlorine (total residual)
Total zinc	Zinc (acid extractable)
TP	Phosphorus (total)
TRC	Chlorine (total residual)
Trivalent chromium	Chromium (trivalent)
TSS	Total suspended solids
Vanadium	Vanadium (acid extractable)
WAD cyanide	Cyanide (weak acid dissociable)
% Water-stable aggregates	Aggregate stability
WSA—Water-stable aggregates	Aggregate stability
Zinc	Zinc (acid extractable)

Table 2

Analyte name in Approved Methods	Alternative analyte names
Anionic surfactants	Methylene blue active substances
Acrylonitrile	Acrylonitrile (2-propenenitrile)
Alkalinity (bicarbonate)	Bicarbonate
Alkalinity (total)	Alkalinity (as calcium carbonate)
Aluminium (acid extractable)	Aluminium, total aluminium
Antimony (acid extractable)	Antimony
Arsenic (acid extractable)	Arsenic
Barium (acid extractable)	Barium
Benzo(ghi)perylene	Benzo(ghl)perylene, benzo(g,h,l)perylene (Note: incorrect names)
Beryllium (acid extractable)	Beryllium
alpha-BHC	a-BHC
beta-BHC	b-BHC
Biochemical oxygen demand (5-day)	Biochemical oxygen demand, BOD, BOD_5, BOD (for the purpose of determining the 3DGM)
Boron (acid extractable)	Boron, boron (total)
Cadmium (acid extractable)	Cadmium, total cadmium
Calcium (acid extractable)	Calcium

Analyte name in Approved Methods	**Alternative analyte names**
Chemical oxygen demand	COD
Chlorine (combined residual)	Chloramines
Chlorine (free residual)	Chlorine, FRC, free residual chlorine
Chlorine (total residual)	TRC, total residual chlorine
1-Chloronaphthalene	Chloronaphthalene(1)
Chromium (acid extractable)	Chromium (total), total chromium
Chromium (hexavalent)	Chromium (VI) compounds, hexavalent chromium
Chromium (trivalent)	Chromium (III) compounds, trivalent chromium
Conductivity	Salt [load calculation protocol only]
Copper (acid extractable)	Copper, total copper
Cyanide (free)	Free cyanide
Cyanide (total)	Total cyanide
Cyanide (weak acid dissociable)	WAD cyanide
4,4′-DDD	DDD, *p,p′*-DDD, *p,p′*-DDD (4,4)
4,4′-DDE	DDE, *p,p′*-DDE, *p,p′*-DDE (4,4)
4,4′-DDT	DDT, *p,p′*-DDT, *p,p′*-DDT (4,4)
1,2-Dichlorobenzene	*o*-Dichlorobenzene
3,3′-Dichlorobenzidine	Dichlorobenzidine
1,2-Diphenyl hydrazine	Diphenyl hydrazine
Dissolved organic halogen	AOX, absorbable organic halogens
Dissolved oxygen	DO
DTPA	Diethylenetriaminepentaacetic acid pentasodium salt
Faecal coliforms	FC, fc,
Hexachlorobenzene	Hexachlorobenzene (HCB)
Iron (acid extractable)	Iron, total iron
Iron (dissolved)	Filterable iron
Iron (suspended)	Non-filterable iron
Lead (acid extractable)	Lead, total lead
Lead (dissolved)	Soluble lead
Lead (suspended)	Insoluble lead
Lindane	gamma-BHC (lindane), g-BHC (lindane)
Lithium (acid extractable)	Lithium
Magnesium (acid extractable)	Magnesium
Manganese (acid extractable)	Manganese, total manganese
Manganese (dissolved)	Filterable manganese
Mercury (total)	Mercury, mercury (inorganic)
Methyl azinphos	Guthion (methyl azinphos)
2-Methyl-4-chlorophenoxyacetic acid	MCPA
2-Methylphenol	2-Methylphenol (*o*-cresol)
3-Methylphenol	3-Methylphenol (*m*-cresol)
4-Methylphenol	4-Methylphenol (*p*-cresol)
Molybdenum (acid extractable)	Molybdenum
Nickel (acid extractable)	Nickel
Nitrogen (ammonia)	Nitrogen as ammonia, ammonia, ammonia nitrogen, NH_3-N
Nitrogen (organic)	Organic nitrogen
Nitrogen (nitrate)	Nitrate
Nitrogen (nitrite)	Nitrite
Nitrogen (total)	Nitrogen, TN, total nitrogen
Nitrogen (total oxidised)	Nitrate + nitrite (oxidised nitrogen)

Analyte name in Approved Methods	Alternative analyte names
Organophosphorus pesticides	Organophosphate pesticides
Oxidation–reduction potential	Redox potential
Phosphorus (dissolved reactive)	Orthophosphate, reactive phosphorus, soluble phosphorus
Phosphorus (total)	TP, total phosphorus, total phosphorus—unfiltered
Phosphorus (total dissolved)	Total phosphorus—filtered
Polychlorinated biphenyls	PCBs
Polynuclear aromatic hydrocarbons	Total PAHs
Salinity	Salt [load calculation protocol only]
Silica (acid extractable)	Silicate (SiO_2)
2,4,5-T	2,4,5-Trichlorophenoxyacetic acid
Total dissolved solids	TDS
Total Kjeldahl nitrogen	TKN, TKN-N
Total organic carbon	TOC
Total suspended solids	TSS
Vanadium (acid extractable)	Vanadium
Aggregate stability	% Water-stable aggregates, WSA—water-stable aggregates
Zinc (acid extractable)	Total zinc, zinc