AWQC

SAMPLE BOTTLE GUIDE

- High quality analytical services
- Leading edge research
- Solving water quality issues

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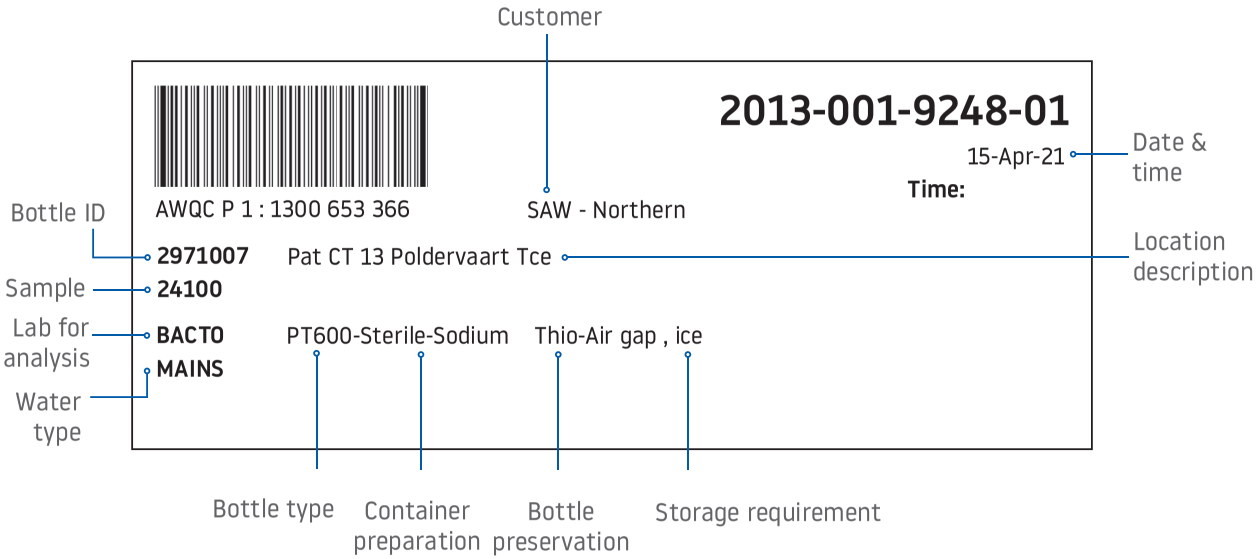
Sampling tips

- Ensure the sample is representative of the source and always collect from the same location.
- If sampling from a tap, minimum flush of 2 minutes prior to collection (unless specified otherwise).
- Collection of microbiological samples should be immediately after sample point disinfection.
- All microbiological samples should be double bagged with zip locks for transportation to AWQC.
- Sample bottles should be adequately filled. If air gap required, fill to base of neck.
- Ensure all sample bottles are labelled. If you are not using an AWQC label, provide sample location description and time/date collected as minimum.
- Samples should be immediately chilled, preferably use ice. In the case of ice bricks, please attempt to pre-chill samples prior to transport to AWQC with ice bricks.
- Samples for Amoeba analysis must NOT be chilled or placed on ice.
- Pre-dosed bottles must never be rinsed.
- Surface sampling should always occur, if possible, at a minimum of 30cm below the surface to avoid any surface scums.

Field filtering directions

- Avoid contamination by not touching tips of filters and syringe internals.
- Pre-rinse syringe with sample water.
- Add 50-60ml of sample, invert and expel air.
- Screw on a white GF filter first, followed by 0.45µm yellow filter.
- Samples low in suspended material can be filtered with only a 0.45µm yellow filter.
- Commence filtering until sample is dispensed or filters are blocked. Replace filters if necessary.
- Ensure a minimum of 60ml is collected.
- DO NOT completely fill container, air gap required for sample freezing at AWQC.
- Discard filters after use.
- **NOTE:** when collecting a filtered and unfiltered sample from the same location, filter water from the unfiltered container to ensure the samples are comparable with each other.

Sample bottle label information



Bottle descriptions

Bottle type descriptions

- PT = plastic type in sizes 120, 250, 300, 355, 600 and 1250ml
- GL = glass (clear) in size 100 or 1000ml
- AG = amber glass in size 100ml or 1000ml
- JC1 = jerry can in size 10Lt
- APT = amber plastic type or foil wrapped clear, in size 1000 or 1250ml
- PP = plastic pot in size 500ml
- GJ = glass jar
- BLKPT1 = black plastic type in size 1000ml
- HDPE = in sizes 100, 250 and 1000ml
- PTDNA = 1250ml DNA free bottle

Sterile = container pre-sterilised

Acid washed = container pre-acid washed

Sodium thio = container dosed with sodium thiosulphate

Ammonium chloride = container dosed with ammonium chloride

Sodium hydroxide dosed = container dosed with sodium hydroxide

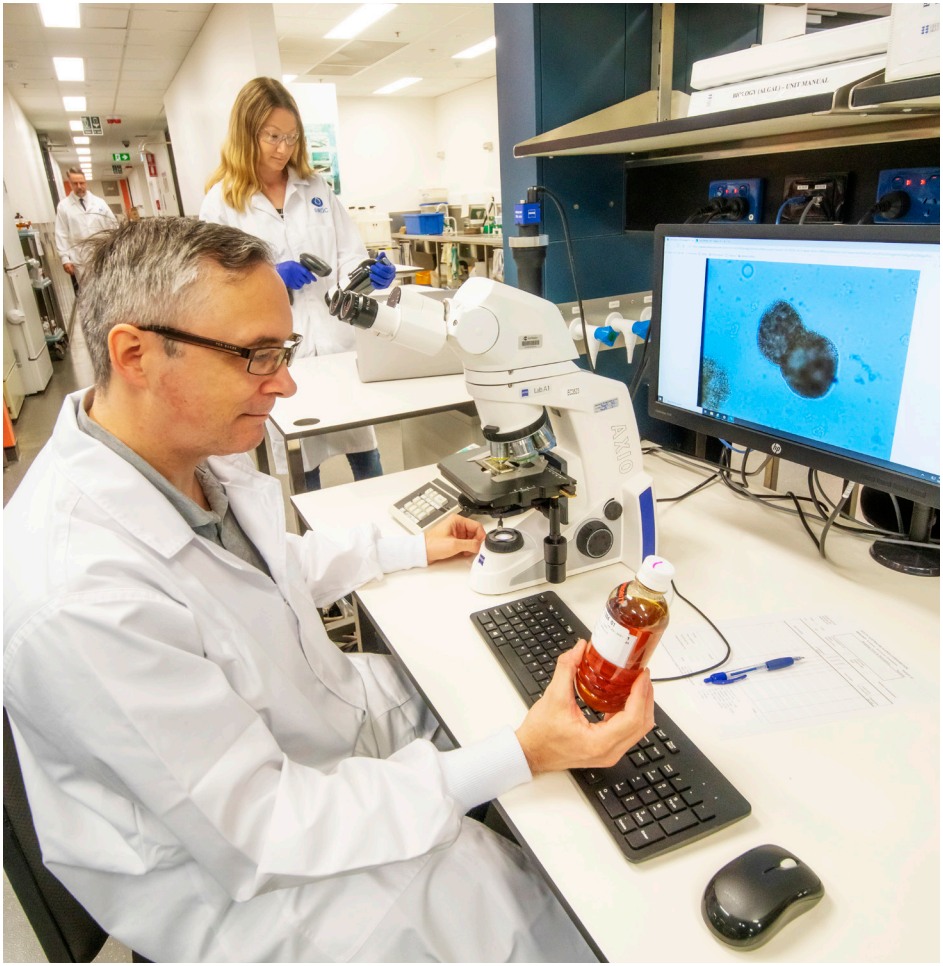
Holding times

* Holding times as per Standard Method, 22nd Edition, 2012

** Holding times as per AS/NZS5667.1:1998

*** No stated holding time in Standard Method or AS/NZS5667, deliver to lab as soon as possible or as stated

Holding times as per AS/NZS2031



Chemical analyses - inorganic

General	Radioactivity	Heavy metals and mercury
Sample container 250ml plastic (PT250) 	**Sample container** 1L HDPE (HDPE) 100ml amber glass (GLBB) 	**Sample container** 250ml HDPE (HDPE1) 
Label PT250 – none – none – no air gap – ice	**Label** HDPE – none – none – no air gap – ice GLBB – none – none – no air gap – ice	**Label** HDPE1 – RO rinsed – none – no air gap – ice
Analytes & holding times All water types General cations (7 days) **pH (6 hours) *Conductivity (28 days) *Colour (48 hours) *Turbidity (24 hours) *Alkalinity (24 hours)	**Analytes & holding times** All water types **Gross alpha & beta (28 days) **Radon 222 (96 hours)	**Analytes & holding times** All water types *All metals (28 days) Includes cations calcium, magnesium, sodium and potassium
Sampling requirements No air gap	**Sampling requirements** No air gap	**Sampling requirements** No air gap
Storage and preservation Iced or chilled to 4°C. No preservative.	**Storage and preservation** Iced or chilled to 4°C. No preservative.	**Storage and preservation** Iced or chilled to 4°C. No preservative.
Notes No container preparation.	**Notes** No container preparation.	**Notes** Container is pre-rinsed with RO water.

Chemical analyses - inorganic

Nutrients - total	Nutrients - total	Nutrients - filterable
Sample container 250ml plastic (PT250) 	**Sample container** 120mL plastic (PT120) 	**Sample container** 120ml plastic (PT120) 
Label PT250 – none – none – no air gap – ice	**Label** PT120 – none – none – air gap – ice	**Label** PT120 – none – none – filtered – air gap – ice
Analytes & holding times All water types *Chloride (28 days) *Fluoride (28 days) *OXN/Nitrite (24 hours) *Ammonia (6 hours) *Filterable P (24 hours)	**Analytes & holding times** All water types *TKN (28 days) *Total P (28 days)	**Analytes & holding times** All water types *SKN (28 days) *Soluble P (28 days) *Ammonia (28 days) *OXN/Filterable P (28 days) *Nitrite (48 hours)
Sampling requirements No air gap	**Sampling requirements** Air gap	**Sampling requirements** Air gap
Storage and preservation Iced or chilled to 4°C. No preservative.	**Storage and preservation** Iced or chilled to 4°C. No preservative.	**Storage and preservation** Iced or chilled to 4°C. No preservative. Containers to be double bagged with zip locks.
Notes No container preparation.	**Notes** None.	**Notes** Filtration equipment is required to filter the sample in the field.

Chemical analyses - organic

VFA	NDMA
Sample container 120mL plastic (PT120) 	**Sample container** 1L black plastic (APT) 
Label PT120 – none – none – no air gap – ice	**Label** APT-TS-NO-NI – 1000 – none – sodium thio – no air gap – ice
Analytes & holding times All water types *VFA (14 days)	**Analytes & holding times** ***NDMA (14 days)
Sampling requirements No air gap	**Sampling requirements** No air gap
Storage and preservation Iced or chilled to 4°C. No preservative.	**Storage and preservation** Iced or chilled to 4°C. 150mg/L sodium sulphite for chloramine <4.0mg/L.
Notes No container preparation.	**Notes** Wrap entire bottle in foil if amber glass bottles or black plastic bottles not used.

Chemical analyses - organic

General	Algal toxins
Sample container 1L glass (GL1000) 	**Sample container** 600mL or 1.25L plastic (PT600 or PT1250) 
Label GL1000 – none – none – no air gap – ice	**Label** PT600 or PT1250 – none – none – no air gap – ice
Analytes & holding times All water types ***Organochlorides (14 days) ***Organophosphates (14 days) ***Acid herbicides (14 days) ***GCMSSCANs (14 days) ***Diesel, VOC, BTEX, MTBE, Fipronyl, Haloxyfop (14 days) ***Atrazine 'metabolites', Simazine (14 days) ***Formaldehyde TPH/TRH (14 days)	**Analytes & holding times** All water types ***MIB , GEOSMIN (14 days) ***TCA (14 days) are performed by CLSA for lower detection limits. ***Algal toxins (14 days)
Sampling requirements No air gap	**Sampling requirements** No air gap
Storage and preservation Iced or chilled to 4°C. No preservative.	**Storage and preservation** Iced or chilled to 4°C. No preservative.
Notes No container preparation. Amber glass bottle can also be used.	**Notes** No container preparation.

Chemical analyses - organic

DOC, TOC, MIB, geosmin, TCA, HAAFP, THMFP, gylphosate	Disinfection byproducts
Sample container 355mL plastic (PT355) 	**Sample container** 355mL plastic (PT355) 600mL plastic (PT600) 
Label PT355 – none – none – no air gap – ice	**Label** PPT355/PT600 – none – ammonium chloride – no air gap – ice
Analytes & holding times All water types ***Dissolved organic carbon, total organic carbon (14 days) ***Total carbon (14 days) ***MIB, GEOSMIN, TCA (5 days) ***Glyphosate (14 days) ***Formation potential of THM and HAA (14 days)	**Analytes & holding times** All water types ***Haloacetic acids (14 days) ***Chloracetic acids (14 days) ***DBP_551 (14 days) ***THM (14 days) ***VCH (14 days)
Sampling requirements No air gap	**Sampling requirements** No air gap
Storage and preservation Iced or chilled to 4°C. No preservative.	**Storage and preservation** Iced or chilled to 4°C. 100mg/L ammonium chloride dosed.
Notes No container preparation.	**Notes** No container preparation.

Chemical analyses - organic

Formaldehyde	TRH/TPH, Diesel
Sample container 1L glass (GL1000) 	**Sample container** 1L glass (GL1000) 
Label GL1000 – none – ammonium chloride – no air gap – ice	**Label** GL1000 – none – solvent washed – no air gap – ice
Analytes & holding times All water types	**Analytes & holding times** All water types
Sampling requirements No air gap	**Sampling requirements** No air gap
Storage and preservation Iced or chilled to 4°C. Ammonium chloride dosed.	**Storage and preservation** Iced or chilled to 4°C. No preservative.
Notes No container preparation.	**Notes** Solvent washed.

Wastewater analyses

General and BOD	Cyanides	Transmittance absorbance
Sample container 1.25L plastic (PT1250) 	**Sample container** 100mL HDPE 	**Sample container** 250mL plastic (PT250) 
Label PT1250 – none – none – no air gap – ice	**Label** HDPE100 – none – NaOH – no air gap – ice	**Label** PT250 – none – none – no air gap – ice
Analytes & holding times All water types *Biological oxygen demand (48 hours) *Solids - suspended or dissolved (7 days) *Chemical oxygen demand (28 days) *pH (6 hours) *Conductivity (28 days)	**Analytes & holding times** All water types *Cyanide (14 days)	**Analytes & holding times** All water types *UV Transmittance (3 days) *UV Absorbance (3 days)
Sampling requirements No air gap	**Sampling requirements** No air gap	**Sampling requirements** No air gap
Storage and preservation Iced or chilled to 4°C. No preservative.	**Storage and preservation** Iced or chilled to 4°C. NaOH pellet dosed.	**Storage and preservation** Iced or chilled to 4°C
Notes No container preparation.	**Notes** Samples to be taken in pre-dosed container. Do not rinse. Invert to mix pellets.	**Notes**

Wastewater analyses

Grease & oils	Sludges, solids & soils
Sample container 1L glass (GL1000) 	**Sample container** 500mL plastic pot (PP500) 
Label GL1000 – acid washed – none – no air gap – ice	**Label** PP500 – none – none – none
Analytes & holding times All water types *Grease (28 days) *MBAS (48 hours)	**Analytes & holding times**
Sampling requirements Air gap	**Sampling requirements** No air gap
Storage and preservation Iced or chilled to 4°C. No preservative.	**Storage and preservation** No preservative.
Notes No container preparation.	**Notes** Caution to not overfill container. Containers to be double-bagged using zip lock bags.

Wastewater analyses

Sludge & sediments (microbiological analyses)	*Giardia & Cryptosporidium* (wastewater only)
Sample container Plastic pot (PT600) 	**Sample container** 2x1.25L plastic (PT1250) 
Label PT600 – sterile – sodium thio – air gap – no ice	**Label** PT1250 – sterile – sodium thio – air gap – no ice
Analytes & holding times All water types #*E.coli* (24 hours), #Coliforms (24 hours) Filamentous bacteria Amoebae – *Naegleria fowleri* (48 hours as per in-house valid)	**Analytes & holding times** All water types *Cryptosporidium* and *Giardia* (96 hours as per USEPA 1623)
Sampling requirements Air gap	**Sampling requirements** Air gap
S**Storage and preservation** Iced or chilled to 4°C. Sodium thiosulphate dosed.	**Storage and preservation** Iced or chilled to 4°C. Sodium thiosulphate dosed.
Notes Aseptic preparation is mandatory. Containers to be double-bagged using zip lock bags for storage on ice.	**Notes** Aseptic preparation is mandatory. 2 x 1.25L pet bottles be used.

Biological analyses

Algal	Odours	Chlorophyll
Sample container 250ml plastic (PT250) 	**Sample container** 355ml plastic (PT355) 	**Sample container** 1L black plastic (BLKPT1) 
Label PT250 – none – none – no air gap – ice	**Label** PT355 – none – none – air gap – ice	**Label** BLKPT1 – none – none – air gap – ice
Analytes & holding times All water types Including blue green algae, see preservation below (24 hours for live samples)	**Analytes & holding times** All water types Odour test (24 hours)	**Analytes & holding times** All water types *Chlorophyll (48 hours)
Sampling requirements No air gap	**Sampling requirements** Air gap	**Sampling requirements** Air gap
Storage and preservation Iced or chilled to 4°C (live). Algae holding time increased to 28 days when preserved with Lugol's solution • Freshwater samples 1:100 by volume. • Marine samples 1:200 by volume.	**Storage and preservation** Iced or chilled t to 4°C.	**Storage and preservation** Iced or chilled to 4°C. No preservative.
Notes No container preparation.	**Notes** No container preparation.	**Notes** No container preparation.

Microbiological analyses

General	*Legionella*	Sulphite & sulphate reducing bacteria
Sample container 300mL sterile plastic (PT300) 	**Sample container** 300mL sterile plastic (PT300) 	**Sample container** 300mL sterile plastic (PT300) 
Label PT300 – sterile – sodium thio – air gap – ice	**Label** PT300 – sterile – sodium thio – air gap – ice	**Label** PT300 – sterile – sodium thio – air gap – ice
Analytes & holding times All water types #*E.coli* (24 hours) #Faecal coliforms (24 hours) #Coliforms (24 hours) #Enterococcus (24 hours) #Iron bacteria (24 hours) #Pseudomonas (24 hours) #Plate counts (24 hours) #Bacteriophages and f RNA phage (24 hours)	**Analytes & holding times** All water types #*Legionella* (24 hours) Samples from warm or hot water systems require **NO FLUSHING** or flame sterilisation of sample tap prior to sampling.	**Analytes & holding times** All water types #Sulphite reducing Clostridia including *Clostridium perfringens* (24 hours) #Sulphate reducing bacteria (24 hours)
Sampling requirements Air gap	**Sampling requirements** Air gap	**Sampling requirements** No air gap
Storage and preservation Iced or chilled to 4°C. Sodium thiosulphate dosed.	**Storage and preservation** Iced or chilled to 4°C. Sodium thiosulphate dosed.	**Storage and preservation** Iced or chilled to 4°C. Sodium thiosulphate dosed.
Notes Aseptic preparation is mandatory. Containers to be double-bagged using zip lock bags for storage on ice.	**Notes** Aseptic preparation is mandatory. Containers to be double-bagged using zip lock bags for storage on ice.	**Notes** Aseptic preparation is mandatory. Containers to be double-bagged using zip lock bags for storage on ice.

Microbiological analyses

Campylobacteria & *Salmonella*	Ice
Sample container 2x600mL sterile plastic (PT600) 	**Sample container** Plastic pot (PT600) 
Label PT600 – sterile – sodium thio – air gap – ice	**Label** PT600 – sterile – sodium thio – air gap – ice
Analytes & holding times All water types #*Campylobacter* (*C.jejuni, C.coli*) (24 hours) #*Salmonella* spp (24 hours)	**Analytes & holding times** All water types #*E.coli* (24 hours), #Coliforms (24 hours)
Sampling requirements Air gap	**Sampling requirements** Air gap
Storage and preservation Iced or chilled to 4°C. Sodium thiosulphate dosed.	**Storage and preservation** Iced or chilled to 4°C. Sodium thiosulphate dosed.
Notes Aseptic preparation is mandatory. Containers to be double-bagged using zip lock bags for storage on ice. 2 x 600mL bottles to be used.	**Notes** Aseptic preparation is mandatory. Containers to be double-bagged using zip lock bags for storage on ice.

Microbiological analyses

Amoebae	*Cryptosporidium & Giardia*
Sample container 600mL sterile plastic (PT600) 	**Sample container** 2x10L plastic (JC1) 
Label PT600 – sterile – sodium thio – air gap – ice	**Label** JC1 – sterile – sodium thio – air gap – ice
Analytes & holding times All water types ***Amoebae – *Naegleria fowleri* (96 hours as per in-house validation) AMOEBAE samples are not to be chilled.	**Analytes & holding times** All water types *Cryptosporidium* and *Giardia* (96 hours as per USEPA 1623)
Sampling requirements Air gap	**Sampling requirements** Air gap
Storage and preservation **Do not refrigerate or ice.** Sodium thiosulphate dosed.	**Storage and preservation** Iced or chilled to 4°C. Sodium thiosulphate dosed.
Notes Aseptic preparation is mandatory.Containers to be double-bagged using zip lock bags for storage on ice.	**Notes** Aseptic preparation is mandatory. Containers to be double-bagged using zip lock bags for storage on ice.

Molecular analyses

E. coli whole genome sequencing (WGS)	*E. coli* phylogrouping	*E. coli* capsule
Sample container 300mL sterile plastic (PT300) 	**Sample container** 300mL sterile plastic (PT300) 	**Sample container** 300mL sterile plastic (PT300) 
Label PT300 – sterile – sodium thio – air gap	**Label** PT300 – sterile – sodium thio – air gap	**Label** PT300 – sterile – sodium thio – air gap
Analytes & holding times All water types 72 hours	**Analytes & holding times** All water types 72 hours Emergency 48 hours	**Analytes & holding times** All water types 72 hours Emergency 48 hours
Sampling requirements Air gap	**Sampling requirements** Air gap	**Sampling requirements** Air gap
Storage and preservation Sodium thiosulphate dosed.	**Storage and preservation** Sodium thiosulphate dosed.	**Storage and preservation** Sodium thiosulphate dosed.
Notes Bottle or exisiting Colilert tray can be submitted.	**Notes** Bottle or exisiting Colilert tray can be submitted.	**Notes** Bottle or exisiting Colilert tray can be submitted.

Molecular analyses

Faecal source tracking (FST)	NGS analyses (bDNA/vDNA)
Sample container 1.25L DNA free 	**Sample container** 1.25L DNA free 
Label PTDNA – Bacto – none – sterile – air gap	**Label** PTDNA – Bacto – none – sterile – air gap
Analytes & holding times All water types 72 hours Emergency 2 days	**Analytes & holding times** All water types 72 hours
Sampling requirements Air gap	**Sampling requirements** Air gap
Storage and preservation 1.25L DNA free.	**Storage and preservation** 1.25L DNA free.
Notes Sampler must follow DNA sampling procedure WI-375	**Notes** Sampler must follow DNA sampling procedure WI-375

Molecular analyses

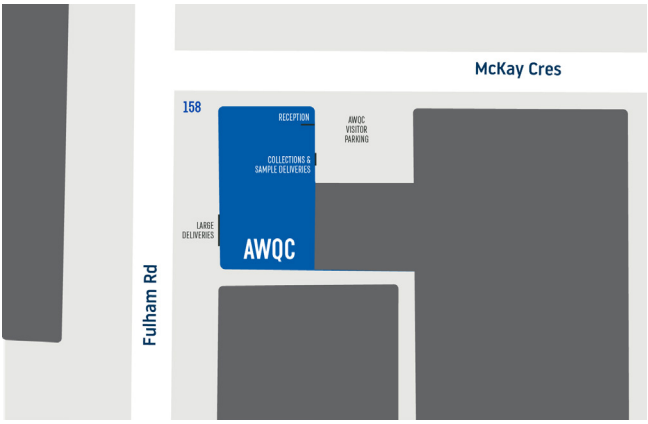
Burkholderia	CyanoDTec
Sample container 2 x 600mL (PT600) 	**Sample container** 300mL sterile plastic (PT300) 
Label PT600 – sterile – sodium thio – air gap	**Label** PT300 – sterile – sodium thio – air gap
Analytes & holding times All water types 24 hours	**Analytes & holding times** All water types 72 hours Emergency 24 hours
Sampling requirements Air gap	**Sampling requirements** Air gap
Storage and preservation Sodium thiosulphate dosed.	**Storage and preservation** Sodium thiosulphate dosed.
Notes For water - 2 x 600mL and sludge 1 x 300mL	**Notes**

Laboratory locations

Adelaide, SA

250 Victoria Square/
Tarntanyangga
ADELAIDE
SA 5000

Melbourne, VIC



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