

Document Owner: Manager Customer Planning

Stormwater Quality Sampling Procedure

This Standard Operating Procedure (SOP) covers operating outlines the recommended process for stormwater quality sampling.

Health & Safety and Operational Information

Hazard Indicators



Personal Protection



Health and Safety Information

- Health and Safety documentation.
- Generic Traffic Management Plans or site-specific Traffic Management plan.
- Confined space entry
- Working at heights
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Operation's & Maintenance Documentation

- Corridor Access Requests (CAR) and WIP Permits (site specific or generic/global)
- Service plans (B4uDig)
- Design drawings
- Site plans
- Notification Calling Cards
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Customer Information (Confidential)

Priority Customer Categories

- Schools and Childcare
- Commercial premises
- Hospitals
- Aged Care Facilities
- Correction Facilities
- Military Installations
- Oil and Gas Refineries

Emergency Procedure / Escalation

- Make "Site Safe" and isolate risks to people or property with resources at hand

Additional Documentation

- WWL Global Stormwater Monitoring Plan
- WWL Eurofins Chain of Custody form

Escalate if extra resources required or problems occur!

Escalate to Team Leader and inform of the issues faced and/or expected resources required if necessary.

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Required Skills, Competencies (Qualifications and/or Certifications)

Competent persons only.

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Required Equipment

Equipment and Information	Details
Fully Equipped Vehicle	Ensure vehicle, plant, equipment, and materials appropriate to the day's work schedule are available.
Specialist Equipment	<p>Specialised equipment needed – Sampling equipment including cool storage, laboratory forms, bottles.</p> <p>Sampling plan.</p> <p>Ensure specific site access requirements (site keys etc).</p> <p>Mighty Gripper retractable sampling stick with collection bottle</p> <p>Collection bottle attached to fishing nylon</p> <p>Ice packs</p> <p>Sledgehammer</p> <p>Manhole key/lifters</p>

Prepare to do the work

Action	Action Details
Pre-Start Process	<p>Complete the Daily Pre-Start:</p> <ul style="list-style-type: none"> - Include Hazard ID - Include Pre-Start Tailgate Meeting <p>Undertake all tasks required in the Generic Planned Maintenance SOP</p>
Compliance	Traffic Management Plan - Where required, TMP to be in place prior to work starting. TMP to be accessible on site.
Notification	If required to access sampling sites
Laboratory notification	<p>Notify laboratory (number of samples and likely time of delivery)</p> <p>Check delivery times required for test samples and conditions for storage and delivery.</p>
Sample location	<p>Select manholes to sample from using GIS maps.</p> <p>Possibly visit site beforehand to understand best method of access or if traffic management is required.</p> <p>Create a sampling plan of manholes to sample</p>

Perform the work

Action	Trade	Action Details
TMP	Serviceperson	Implement TMP. Review and update to suit site conditions if required.
Maintenance	Serviceperson	<p>Once on site, open manhole using the correct key/equipment.</p> <p>Put collection bottle (either on Mighty Gripper stick or fishing nylon) into the invert of the manhole to collect water.</p> <p>Only sample water that is flowing, DO NOT sample stagnant water</p>
Maintenance	Serviceperson	<p>First collection of water is used to rinse the collection bottle and then discarded.</p> <p>Water collected in the bottle after the rinse can be decanted into a sample bottle.</p> <p>Each sample bottle requires at least 100 mL of water.</p> <p>A faint line on the sample bottle marks 100 mL.</p> <p>Put sample into chilly bin to keep below 10°C.</p> <p>Close manhole once sampling is completed</p>

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Maintenance	Serviceperson	Label the bottle as below: Client: Asset ID (i.e. WCC_SW010683) (Address) Ref: 01 (for first sample, 02 for second sample, etc.) Sample ID: Catchment name (i.e. Newlands) Date/Time: date and time of taking the sample Sampled by: sampler name
Maintenance	Serviceperson	Log into Field Maps app. Tap on stormwater manhole/stormwater pipe that the sample was taken from. Open 'Sanitary Survey' survey. Complete sanitary survey form accordingly. Select <i>E. coli</i> parameter, unless sampling from sea water, where enterococci will need to be selected instead. Asset status is 'Sampled, awaiting result' until the results are loaded into the point.
TMP	Serviceperson	Pack up any traffic management and equipment. Move to the next manhole and complete the above steps
Maintenance	Serviceperson	After completing sampling, take samples to Eurofins ELS in Seaview. A chain of custody form must be filled out to accompany the samples taken. The sample description should match what was written for the 'Client' field on the sample bottle.

Background

Water quality sampling of the public stormwater network is completed to check the quality of stormwater/freshwater before it discharges at coastal or stream outlets. Parameters of note include *E. coli* and enterococci. Other parameters include total and dissolved zinc, total hardness, pH, and total copper. *E. coli* is the testing parameter for fresh water, and enterococci is used for sea water.

Samples that produce results greater than 1000 cfu/100mL (coliform forming units per 100mL) require investigation, as this is the maximum baseline value given in the Global Stormwater Consent (GSC).

Rainfall can affect the validity of results due to 'first flush', where pollution can enter the stormwater system from runoff, causing elevated results. For more accurate results, sample from the stormwater network at least 48 hours after the last rainfall.

Risk Assessment

Task	Risk	Control
Opening/closing manholes	Working at heights/falling into manhole, manual handling injuries when opening/closing manhole lids	Use correct lifting technique and equipment, use fishing nylon to avoid leaning into manhole
Handling stormwater samples	Sickness from handling unclean samples	Fully vaccinated against hepatitis, tetanus etc., wear gloves when handling samples
Accessing manholes in live lane	Injury to operator from traffic, pedestrians/traffic entering working space or falling into manhole	Cone off working space, use traffic management to access manholes safely
Accessing manholes on uneven terrain	Injury to operator, slips, trips, and falls	Look where you step, find the safest access