



METHOD STATEMENT

WATER ANALYSIS

- 1- SCOPE
- 2- OBJECTIVE
- 3- TOOLS & EQUIPMENT
- 4- SAFETY
- 5- PRIOR ACTIVITIES
- 6- RESPONSIBILITIES
- 7- PROCEDURES
- 8- CLOSING ACTIVITIES

SCOPE:

This method statement covers the procedures for water sampling. This procedure provides general guidelines for collection of samples, handling of samples and storage of samples related to microbiological testing; however, when specific sampling or sample handling and storage instructions are provided within in certain standard testing method should be followed.

OBJECTIVE

This Method Statement is for guidance of the staff/technicians who will be involved in carrying out the water sampling and analysis.

- This method statement is to ensure that the work will be executed in an safe and efficient manner.

TOOLS & EQUIPMENTS REQUIRED:

- Bottles, thermometer, multigas detector, cool box, ice pack, lights,
- Laboratory sterilized sampling glass bottles or pre-sterilized plastic sampling bottles or bags.
- Sodium thio-sulphate (3% solution sterilized)
- EDTA 15% sterile solution
- Ice box/Sampling box
- Sample refrigerator or freezer as required.
- 70% ethanol (disinfections)

- Barricade the area, all safety measures and precautions shall be maintained.
- Wear all PPE such as helmet, gloves, safety shoe/gum boots, goggles, coverall/uniform, air mask.

PRIOR ACTIVITIES:

- PTW – Permit to work to be obtained

RESPONSIBILITIES:

- The supervisor/team leader shall ensure that all tools and equipment are made available sufficiently in advance to the commencement of the work.

PROCEDURE:

- Preparation for collection of sample (samples).
- Sterilize sample collection bottles (at 121°C for 20min) or take pre-sterilized bottles (as required).
- For chlorinated samples add 0.1ml of 10% Na₂S₂O₃ for 100ml-120ml of sample or other concentrations of 10% Na₂S₂O₃ can be added according to the requirement.
- If the samples are suspected to contain heavy metals >1ppm then add 0.3ml of a 15% EDTA solution or other concentration can be added as required.
- The above-mentioned preservatives should be added before sterilization of bottles or otherwise should be sterilized if to be added after sterilization process.

Sampling from tap (Tap water)

- Remove any attachment from the tap that can cause water splashing.
- Using sterile tissue wipe of any dirt from outside of the tap.
- Open the tap at its maximum flow rate and let the water to flow for 2-3minutes.
- Sterilize hands & outer surface of tap (pump outlet) using ethanol 70% (Tap can be flamed if applicable).
- Now open the tap again and allow the water to flow at medium rate for few seconds.
- Fill the sampling bottle and leave some air space to facilitate shaking at the time of analysis.
- Close the bottle immediately and label with necessary details e.g. date, time, location, type etc.

Sampling from reservoir, spring or stream.

- Sanitize hands and open a sterilized bottle
- Submerge the sample bottle in depth of about 20cm fill the bottle mouth facing slightly upwards.
- Close the bottle immediately and label with necessary details e.g. date, time, location, type etc.

Sampling form dug well.

- Fix a suitable weight size with the sampling container or bottle
- Open the bottle and lower it down into the well.
- Immerse the bottle completely into the water avoid touching the side walls of the well.
- Pull the sample water out when it is filled and discard some water to create airspace.
- Close the bottle immediately and label with necessary details e.g. date, time, temperature, location, type, system etc.

Storage of Samples

- Drinking water samples (compliance purpose).
- Keep the sample in cool conditions preferably at 2⁰C-8⁰C during transportation to the lab.
- Upon receiving samples in the lab, if analysis is delayed then refrigerate the samples at 2⁰C-8⁰C.
- Don't exceed 30hrs holding time since the collection of samples for analysis of coliforms and 8hrs for Heterotrophic plate counts (HPC).
- Non-Potable water samples (Compliance purpose).
- Hold samples under cool conditions at less than 10⁰C (waste water, pool, source water etc.).
- Refrigerate the samples upon receipt and preferably proceed testing within 2hrs time.
- Separately store less contaminated samples (e.g. drinking or potable water, bottled water, packed finished products etc.) from highly contaminated samples (e.g. waste or STP water, contaminated raw food samples etc.) to avoid any cross contamination taking place.

CLOSING ACTIVITIES:

PTW – Permit





RISK ASSESSMENT

Hazard	Potential Hazard	Initial Assessment			Control Measures (List the controls to manage each of the hazards)	Re-Assessment		
		L (1-5)	S (1-5)	Risk Rate		L	S	Residual Risk
Incompetent Technician	Serious physical damage to employees/Property	4	4	16	Technician should have appropriate training for the task required. Induction should be give prior start of work. Follow permit to work.	2	4	8
Climbing ladder	Bodily injury	4	4	16	Check condition of ladder before using. Maintain a 3-point contact before climbing. Apply 1-4 principle steps in using straight ladder for climbing must be 1m away for every 4m height from the base, use appropriate PPE's	1	4	4
Contaminated Water	Worker	4	4	16	Use hand gloves and appropriate PPE	1	4	4
Manual Handling	Physical Injury - Head, feet & body.	3	4	12	Use ropes & hooks to secure objects & bottles . Hard hat and safety shoes to minimize the impact. (All PPE's)	1	4	4
Slips/Falls.	Head & body injury	3	4	12	Provision of anti-slip boots. Thorough understanding of layout, provision of adequate lighting and proper training. Warning signs and isolate area.	1	4	4
Working at heights	Physical damage	4	4	12	Use full PPE's. Use of long handled tools wherever appropriate. Full body harness and lifeline. Safety briefing to be conducted before starting the job. Take utmost precaution & controlled operations.	1	4	4
Limited access & egress	Head & body injury	3	4	12	Provision of retrieval/rescue equipment. Conduct safety briefing to identify the risk involved. Use radio for continuous communication.	1	4	4
Hard/sharp objects.	Head & body injury	3	4	12	Barricade and isolate all with warning signs. Use all PPE's. Identify the areas and use padding or wrapping to sharp edges.	1	4	4



LIKELIHOOD			<p style="text-align: center;">LIKELIHOOD</p>	<p style="text-align: center;">CONSEQUENCE</p>	<p style="text-align: center;">UNACCEPTABLE Stop activity and make immediate improvements</p> <p style="text-align: center;">TOLERABLE Look to improve within specified timescale</p> <p style="text-align: center;">ADEQUATE Improve at next review</p> <p style="text-align: center;">ACCEPTABLE No further action. Ensure controls are maintained</p>
<p>1. Very Unlikely - There's 1 in a million chance of the hazardous event happening.</p> <p>2. Unlikely - There's 1 in 100,000 chance of the hazardous event happening.</p> <p>3. Fairly Likely - There's 1 in 10,000 chance of the hazardous event happening.</p> <p>4. Likely - There's 1 in 1000 chance of the hazardous event happening.</p> <p>5. Very Likely - There's 1 in 100 chance of the hazardous event happening.</p>					
CONSEQUENCE					
<p>1.. Insignificant - No injury</p> <p>2. Minor - Minor injuries needing First Aid</p> <p>3. Moderate - Up to 3 days absent</p> <p>4. Major - More than 3 days absent</p> <p>5. Catastrophic - Death</p>					

	Name	Designation	Signature	Date	Remarks
Prepared By;	Patrick	Safety Supervisor		20-03-2020	
Reviewed By:	Wilfred	HSE		20-03-2020	