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	Document Title:	<b>ANALYSIS, MONITORING AND MAINTENANCE OF WATER USED IN HEMODIALYSIS</b>

### **PURPOSE:**

1. To ensure that the Reverse Osmosis System's Membranes are free from contamination of pollutants such colloids, biofilms and biological matter
2. To identify potential hazard and prevent serious damage to the system.
3. To ensure the optimum performance of the system is maintained.
4. To ensure safe, reliable, and efficient system.
5. To ensure safe water used for hemodialysis.
6. To prevent water-borne infections among hemodialysis patients.

### **SCOPE:**


This applies to all involved sections and departments in ensuring the safety and proper handling of water for analysis.

### **PERSON RESPONSIBLE:**

Hemodialysis Technicians, Hemodialysis Supervisors, Dialysis Unit Head, Maintenance and Engineering Personnel, Safety and Pollution Control Officer, Infection Prevention and Control Unit, Microbiology Section – Laboratory Department

### **GENERAL GUIDELINES:**

1. The point-person, or his/her representative, from every unit concerned shall supervise their staff in the sampling and collection of water samples for analyses.
2. For the Hemodialysis Unit, the additional samples shall be collected and tested for internal monitoring every month which includes:
  - a. Raw water
    - i. one sample: Water tank (A, B, or C)
    - ii. one sample: raw water sampling point

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b. Product water

- i. two samples: RO System (1, 2, 3, or 4)
- ii. two samples: Storage tanks (Riser A and Riser B)

c. Point of use


- i. four to five samples: Main Hemodialysis Unit
- ii. two samples: ICU Rooms

2. To ensure impartial results, the above-mentioned water samples shall be sent to DOH accredited laboratory for dialysis water analysis independent from the Dr. Pablo O. Torre Memorial Hospital's laboratory.
3. Pursuant to DOH Administrative Order 2013-0003, the bacterial limit shall be as follows:
  - a. HPC less than 200 CFU/ml (*pour plate technique*)
  - b. Fecal Coliform less than 1.1 MPN/100ml


**PROCEDURE:**

1. Prepare materials needed for the collection of water samples. Water for microbial testing shall be contained in a sterile bottle properly marked and labeled with the following information:
  - a) Name/location of sample point
  - b) Date of collection
  - c) Time of collection
  - d) Sampling point classification (*raw water, product water, or point of use*)
2. Ensure that all parties (sections/ departments) involved must be present every scheduled water sampling.
3. Water samples shall be collected at three (3) points, namely:
  - a) Raw water: *water before it enters any part of the water treatment system*



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- b) Product water: *water drawn from a sample point immediately after the RO system*
  - c) Point of use: *water drawn at a point within close proximity approaching the dialysis equipment*
4. Any hose attached to the sampling points should be removed.
5. The sampling points shall be disinfected with 70% isopropyl alcohol using a sterile gauze. Bleach or other disinfectant solutions should not be used.
6. Rinse the sampling points for at least 5 minutes at normal pressure and flow rate before drawing the samples.
7. Samples shall be collected using a 'clean catch' technique to minimize potential contamination of the sample which may lead to false positive results.
8. The sample volume collected should be 5ml to 1000ml depending on the test to be run and/or specified by the laboratory who will perform the test.
9. The water samples are sent to the laboratory for testing.
10. In the event when test results exceed the limits, the following shall be the contingency actions:
  - a) The concerned water facility shall be temporarily isolated from use until the repeat test of the failing parameter complies with the standards.
  - b) A water treatment system/ water distribution system independent from the one with the failing parameter/s shall be used alternatively, unless otherwise contraindicated.
  - c) The Safety and Pollution Control Officer, Infection Prevention and Control Unit, Microbiology Section – Laboratory Department and Hemodialysis Unit shall convene if the result exceeds the limits.
  - d) Review the procedures in the water system to isolate the potential problem and corrective measure shall be undertaken in the area of the suspected cause.
  - e) Re-sampling and re-testing shall be conducted of the affected parameter once the issue has been resolved.

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## **REFERENCE:**


Water Treatment for Hemodialysis, QP-07 Hemodialysis Policy and Procedure Manual

Implementing Guidelines in the Analysis, Monitoring and Maintenance of Water Used in Dialysis Facilities Pursuant to Administrative Order No. 2012-0001 known as "New Rules and Regulations Governing the Licensure and Regulation of Dialysis Facilities in the Philippines. DOH Administrative Order 2013-0003. Manila, Philippines: Department of Health, 2013.


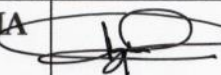


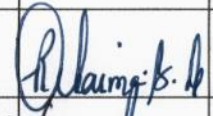
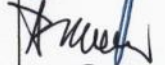
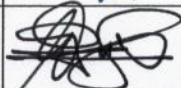
New Rules and Regulations Governing the Licensure and Regulation of Dialysis Facilities in the Philippines. DOH Administrative Order 2012-0001. Manila, Philippines: Department of Health, 2012.


Preparation and quality management of fluids for haemodialysis and related therapies. ANSI/AAMI/ISO 23500-1:2019. Arlington, VA: Association for the Advancement of Medical Instrumentation, 2020.




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	Name/Title	Signature	Date
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	<b>MARIA REMEDIOS R. TOMAS, MD, FPCP, FPSN</b> Dialysis Unit Head		4/6/22
Reviewed:	<b>DENNIS C. ESCALONA, MN, FPCHA, FPSQua</b> Quality Assurance Supervisor		4/07/2022
Recommending Approval:	<b>ROSARIO D. ABARING, RN, MN, PhD, FPCHA</b> Ancillary Division Officer		4/18/22
	<b>HENRY F. ALAVAREN, MD, FPSMID, FPSQua</b> Total Quality Division Officer		5/17/2022
Approved:	<b>GENESIS GOLDI D. GOLINGAN</b> President and CEO		6/23/22


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KEY TASKS	PERSON RESPONSIBLE
1. Prepares the materials needed for the collection of water samples	Hemodialysis Staff
2. Ensure that all parties (sections/ departments) involved must be present every scheduled water sampling	Hemodialysis Supervisors
3. Identifies the 3 points where the water samples will be collected	Maintenance and Engineering Personnel
4. Removes any hose attached to the sampling points	Maintenance and Engineering Personnel
5. Disinfects the sampling points with 70% isopropyl alcohol using a sterile gauze	Laboratory Personnel
6. Rinses the sampling points for at least 5 minutes at normal pressure and flow rate before drawing the samples.	Laboratory Personnel
7. Collects samples using a 'clean catch' technique to minimize potential contamination of the sample. The sample volume should be 5 ml to 1000 ml depending on the test to be run	Laboratory Personnel
8. Sends the water samples to the performing laboratory	Laboratory Personnel
9. Document the results	Laboratory Personnel
10. Isolates the concerned water facility from use temporarily until repeat test of failing parameter complies with the standards	Maintenance and Engineering Personnel
11. Uses alternative water distribution system independent	Maintenance and



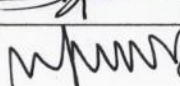



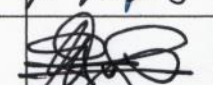
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from the one with failing parameter, unless contraindicated	Engineering Personnel
12. Conducts a meeting to review the procedures in the water system to isolate the potential problem and discuss the corrective measures to be taken	Maintenance and Engineering Personnel, IPCU, Safety and Pollution Control Officer
13. Conducts re-sampling and re-testing once the issue has been resolved	All participating departments



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	<b>MARIA REMEDIOS R. TOMAS, MD, FPCP, FPSN</b> Dialysis Unit Head		4/6/22
Reviewed:	<b>DENNIS C. ESCALONA, MN, FPCHA, FPSQua</b> Quality Assurance Supervisor		4/07/2022
Recommending Approval:	<b>ROSARIO D. ABARING, RN, MN, PhD, FPCHA</b> Ancillary Division Officer		4/18/22
	<b>HENRY F. ALAVAREN, MD, FPSMID, FPSQua</b> Total Quality Division Officer		5/19/2022
Approved:	<b>GENESIS GOLDI D. GOLINGAN</b> President and CEO		6/23/22



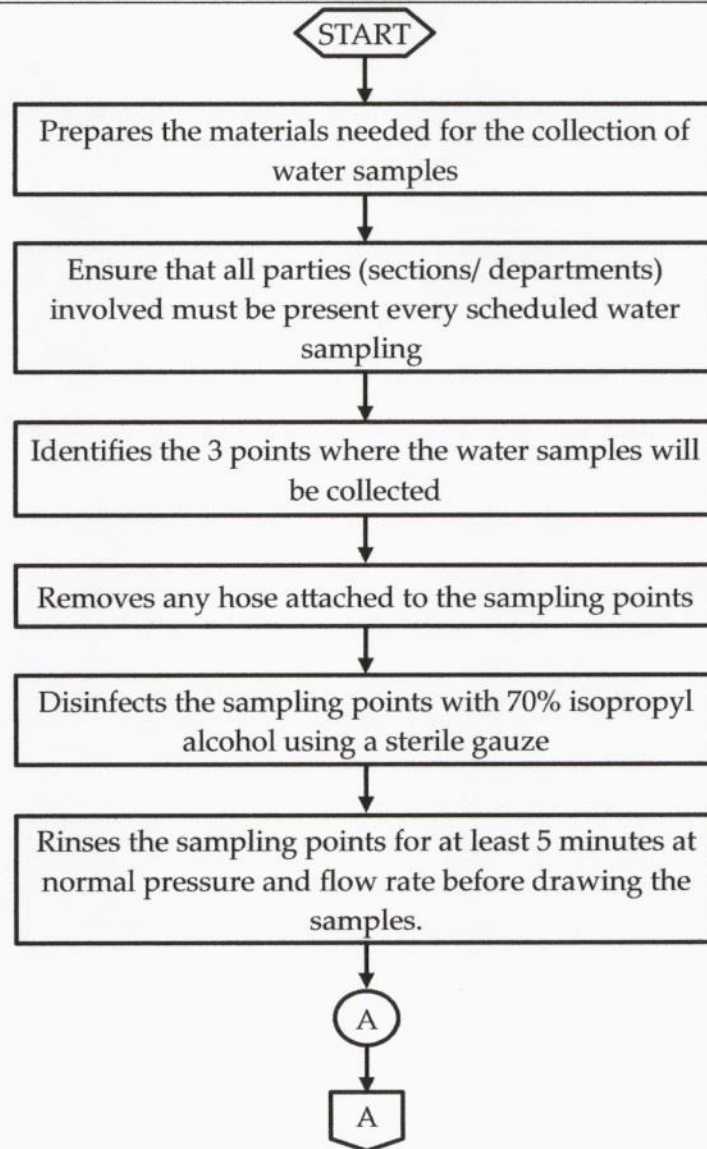


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### FLOWCHART

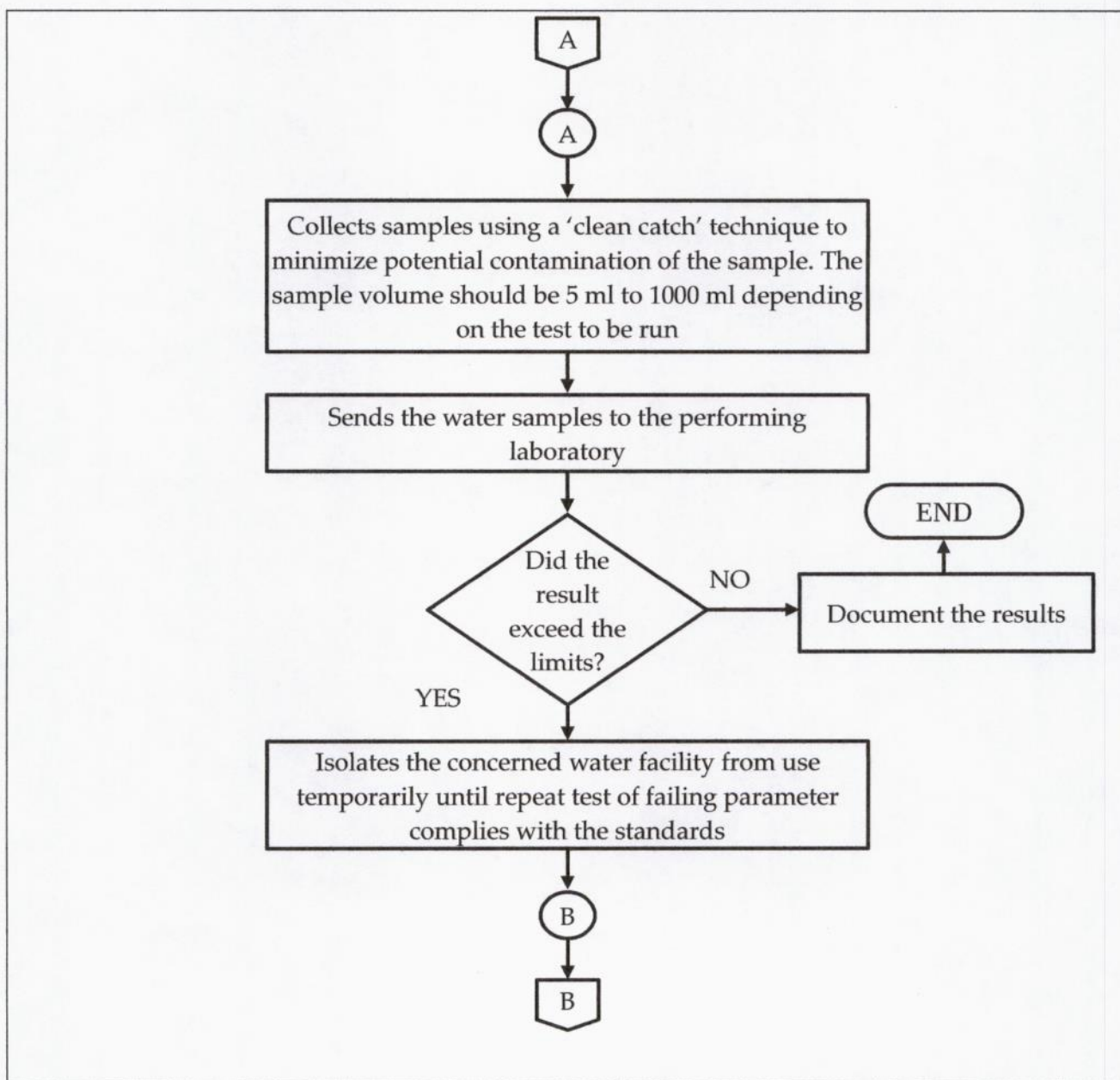




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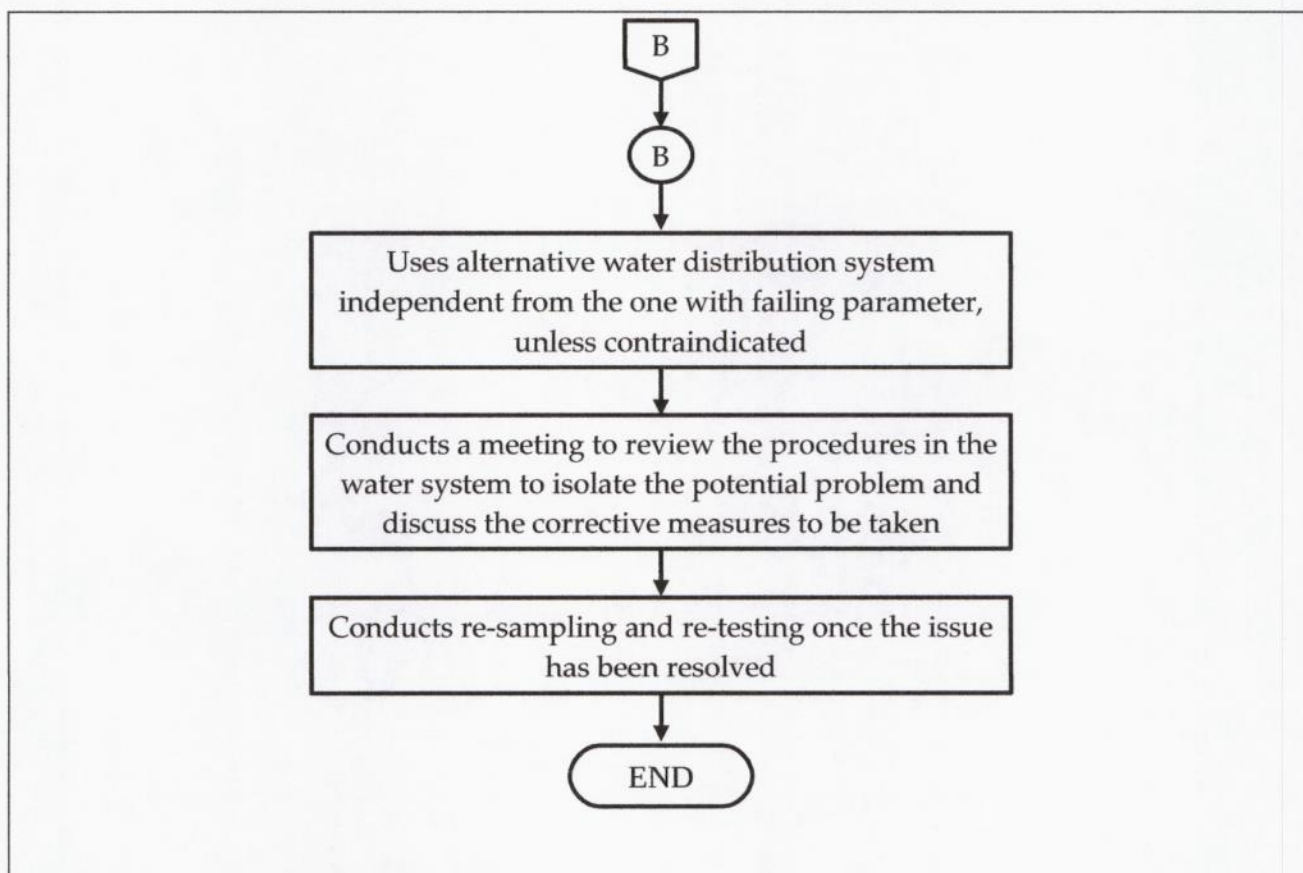





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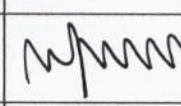



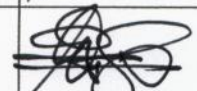
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