



## MANITOBA RENAL PROGRAM

<b>SUBJECT</b> <ul style="list-style-type: none"> <li>Use of Reverse Osmosis System via the Multi-Media Interface Nurse Remote Panel (Island Lake, Swan Valley Health Centre, Ashern Lakeshore Hospital and Flin Flon)</li> </ul>	<b>SECTION</b> 30.50 Water Treatment
	<b>CODE</b> 30.50.06
<b>AUTHORIZATION</b> <ul style="list-style-type: none"> <li>Professional Advisory Committee, Manitoba Renal Program</li> </ul>	<b>EFFECTIVE DATE</b> February 2002
	<b>REVISION DATE</b> October 2010 April 2013 December 2013 October 2016 April 2018

### PURPOSE:

- The Reverse Osmosis System (RO) is a water treatment process whereby organic matter and electrolytes are removed from the water. The processed water can then be used with delivery systems in the preparation of dialyzing fluid.

### POLICY:

- Registered Nurses, Licensed Practical Nurses, Dialysis Technologists and Unit Assistants employed in Hemodialysis who have received instruction and have demonstrated competency to the renal educator or delegate may use the RO equipment.

### EQUIPMENT:

- US Filter/Petwa Reverse Osmosis System
- CWT Reverse Osmosis System
- Single Patient Delivery System

### PROCEDURE:

### KEY POINT:

#### A. RO System Start Up

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| <ol style="list-style-type: none"> <li>Touch screen at bottom to activate Touch Screen.</li> <li>Repeatedly touch screen to scroll through available windows.</li> </ol> | <ul style="list-style-type: none"> <li>Screen will automatically turn off after several minutes.</li> <li>Four windows available:             <ul style="list-style-type: none"> <li>Manufacturer logo</li> <li>Inlet pressure and temperature</li> <li>Product water conductivity</li> <li>RO on/off switch</li> </ul> </li> </ul> |
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## PROCEDURE:

3. Select window with Reverse Osmosis ON/OFF display.
4. Touch the ON arrow symbol on the screen.
5. Product water is now available to the delivery systems.

## **B. RO System Shutdown**

1. Touch screen at bottom to activate Touch Screen.
2. Repeatedly touch screen to scroll windows.
3. Select window with Reverse Osmosis ON/OFF display.
4. Touch OFF arrow symbol.

## **C. Emergency RO System Shutdown and Restart**

1. Push in red Emergency Stop button.

## **D. Restart RO System after Emergency Shutdown**

1. Turn red Emergency Stop button Counterclockwise to pull out and reset.
2. Perform RO System Start Up (Procedure A).

## KEY POINT:

- “RO ON”, “AUTOFLUSH” and “PERMEATE DIVERT” panel lights will be lit. After 60 seconds, “AUTOFLUSH” will turn off. After 240 seconds, “PERMEATE DIVERT” will turn off, leaving only the green “RO ON” on.
- DO NOT OPERATE delivery systems until only the green “RO ON” light is on.

- Screen will automatically turn off after several minutes.

- Four windows available:
  - Us Filter logo
  - Inlet pressure and temperature
  - Product water conductivity
  - RO on/off switch

- “RO ON”, “AUTOFLUSH” and “PERMEATE DIVERT” panel lights will be lit. The RO will autoflush for 300 seconds and automatically shutdown.

- Can be used in case of large water leak in the RO system or smoke/fire.
- RO will shut down immediately. Audible alarm will sound, touch Stop button on screen to silence.

- Allows RO system to be started normally.

## TROUBLESHOOTING ALARMS:

- All alarms will occur with an audible alarm and a visible screen alarm. On the bottom of the alarm screen are the buttons:
  - STOP – touch to silence audible alarm.
  - ACK – (acknowledge) enables operator to further investigate multiple active alarms through the MON1 and MON2 buttons.

## **TROUBLESHOOTING ALARMS:**

- MON1 and MON2 – touch to view other multiple alarms.
- NEGLECT – touch to bring you back to the four main screens or the initial alarm screen.

### **Low Inlet Pressure**

The inlet water pressure to the RO system has fallen below 10 psi for more than 5 seconds. The RO has now shut down, until water pressure is restored. Low water pressure may be caused by fouled pre-RO or RO filters or low hospital water pressure. Inform the technologist or site delegate.

### **High Inlet Temperature**

The inlet water temperature to the RO system has risen above 45° C for 5 seconds causing the RO to shut down. This is done to protect the RO membranes. High inlet temperature may be caused by failure of the temperature mixing valves. Inform the technologist or site delegate.

### **High Conductivity**

The product water conductivity has risen above 20 microsiemens for 5 seconds and the alarm has sounded as a warning. The RO system will still operate normally. Inform the technologist or site delegate.

### **Motor Overload**

The thermal overload protection circuit has tripped and power has been shut off to the RO motor. The RO will need to be turned off and the circuit manually reset before the RO is restarted. Inform the technologist or site delegate.

### **Motor Trip**

The ground fault protection circuit has been tripped and power has been shut off to the RO motor. The RO will need to be turned off and the circuit manually reset before the RO is restarted. Inform the technologist or site delegate.

### **Emergency Shutdown**

The red Emergency Stop button has been pushed in. The RO will shut down immediately. The button must be pulled out in order to restart RO.

## **REFERENCES:**

Manufacturer information, Canadian Water Technologies. Manual Edition: 6/08.12

Manager, Renal Technology, Manitoba Renal Program

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