Technical Service Bulletin 105

Membrane Storage Inside Pressure Vessel

Short-Term Storage Procedure

If RO system is to remain offline for less than 7 days, then follow the procedure below.

1. When RO system is shutdown, flush with permeate or filtered feedwater while keeping the concentrate valve fully opened to completely displace concentrated feed water within RO elements. The maximum pressure and recommended flow rate for membrane element flushing have been described in TSB 109 – Membrane Element Flushing.

2. If chemical injection is typically used during normal operating condition, the chemical injection must be stopped before flushing begins.

3. Once flushing is complete, RO elements must remain submerged in flush water at all times and not be exposed to air.

4. Flush RO system at least once every 24 hours with filtered feedwater. If the operator suspects potential problem due to biofouling during down periods, then flushing frequencies should be increased or start flushing unit with RO permeate.

5. If feed water for flushing every 24 hours is not available, see Long-Term Storage with Preservative Procedure below.

Notes:

Contact with air will dry out the elements. Dry elements will irreversibly lose flux.

Long-Term Storage with Preservative Procedure

If the RO system is to remain off line for more than 7 days, then follow the procedure below.

1. If decline in normalized performance is observed prior to long term storage, performing a clean-in-place (CIP) on the RO system is recommended.

2. Flush the system with permeate or filtered feedwater while keeping the concentrate valve fully opened. The maximum pressure and recommended flow rate for membrane element flushing have been described in TSB 109 – Membrane Element Flushing.

3. Flush the system with a 0.5% solution of sodium metabisulfite (SMBS) solution. Once flushing is completed, RO elements must remain submerged in preservation solution at all times and not be exposed to air.

4. Check preservation solution pH every 30 days. When solution falls below pH 3.0, repeat steps 2 and 3 to re-preserve the elements.

Notes:

Any contact with oxygen will oxidize SMBS and reduce effectiveness of preservative.

In certain situations where the polyamide (PA) membranes have been fouled with heavy metals (e.g., Iron (Fe), Cobalt (Co), or Copper (Cu)), the membrane may be oxidized when stored using SMBS. The oxidation can be prevented by adding chelating agents into the preservative. Please contact LG Chem for advice.

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