Critical Element Information (CEI)

We recommend that this document is filled out as much as possible. It enables FilmTec to prepare a more detailed Director Services Report.

1. Element details

Model:				
Serial number	A xxxxxx	A xxxxxxx		
Location within system	Example: 1st element in stage 1 from RO unit A	Last element of stage 2 from RO unit B		

2. Feed water source

☐ City water	☐ Well water	☐ Sea water, open intake	☐ Sea water, beach well
☐ Lake	☐ River	☐ Canal	☐ Tertiary Effluent
☐ Other, please specify:			

3. Pretreatment

☐ Sodium hypochlorite	☐ Chloramines	☐ Chlorine dioxide	☐ Ozone
☐ Clarifier	☐ Lime softening	☐ Multi media filter	☐ Gravity sand filter
☐ Pressure sand filter	☐ Green sand filter	☐ Activated carbon filter	☐ Ultra filtration
☐ Micro filtration (membranes)	☐ Feedwater heatexchanger	☐ Cartridge filter Pore size: um Exchange frequency:	☐ Softening by ion exchange resin
☐ Dealkaization by ion exchange resin	☐ Other: please specify		

4. Chemicals used in pretreatment

Chlorine residual	Feed point: Dose rate:	ppm residual prior to neutralization	☐ Bisulfite: ppm Feed point:
Flocculants/coagulants	☐ alum ☐ PAC Feed point: Dose rate:	☐ Ferric chloride ☐ Ferric sulfate Feed point: Dose rate:	☐ Organic polymer Product name: Feed point: Dose rate:
On-line shock dosing	☐ Yes Product name: Dose rate: Frequency:	☐ No	

Acidification	☐ Yes To pH: ☐ No	☐ Sulfuric acid ☐ Hydrochloric acid ☐ Other Please indicate:	
Antiscalant	Product name:	Dose rate:	Feed point:

Is antiscalant diluted?	☐ Yes	☐ No
What kind of water is used for dilution?	☐ RO permeate	☐ RO feed water
	☐ City water	☐ Other, please specify:
How often is a new solution of antiscalant prepared?		

5. RO/NF design

Number of trains:	

5.1 Configuration

Number of stage:	
Number of pressure vessels in each stage:	
Number of elements per pressure vessel:	
Membrane element type:	
Start-up date RO/NF system:	
Permeate flow recovery:	

5.2 Permeate application

☐ Potable water	☐ Boiler feed water	☐ Irrigation water	☐ Process water	☐ Other:

6. RO/NF operation

Is the RO/NF unit in continuous operation?	☐ Yes		☐ No	
How often is the RO/NF system shutdown (time/day, length of shutdown, hours/day)				
Is a flush carried out prior to shutdown?	☐ Yes		☐ No	
What kind of water is used for the flush?	☐ Raw feed water		☐ Pretreated water	
	☐ Permeate		☐ Other,	

7. Comments on current operation and performance trend

Permeate quality:	
Permeate flow:	
Pressure drop:	
Cleaning frequency:	
Other:	

8. Feed water, concentrate, permeate analysis

Temperature (°F or °C)		Feed water SDI	
pH raw water		pH feed water	

Units: ☐ mg/l ion   ☐ meq/l   ☐ ppm CaCO3   ☐ Other, please specify

Please attach water analysis reports when available.

9. Cleaning

What is the reason for cleaning?	☐ Pressure drop increases ☐ Salt passage increases	☐ Permeate flow decline ☐ Other, please specify
Are stages cleaned separately?	☐ Yes	☐ No
Is cleaning solution heated?	☐ Yes	☐ No
Is CIP unit equipped with cleaning pump?	☐ Yes	☐ No
Is ICP unit equipped with cartridge filters?	☐ Yes	☐ No
Which cleaning method is applied? Please specify: ☐ acid, please specify which product ☐ alkaline, please specify which ☐ biocide, please specify which product ☐ other, please specify which product		
Please indicate in which order the cleaning chemicals are applied: Example: alkaline followed by acid. RO permeate flush after each cleaning. Please describe the cleaning procedure:		
What kind of water is used for the dilution of the cleaning chemicals? ☐ RO permeate ☐ RO/NF feed water ☐ NF permeate ☐ City water ☐ Raw water ☐ Other, please specify:		
What is the flow rate during cleaning? Please indicate which unit: ☐ gpm ☐ m3/hr ☐ Other, please specify which unit Stage 1: Stage 2: Stage 3: Other:		