



# DOW Ultrafiltration

## Operation and Design Guidelines

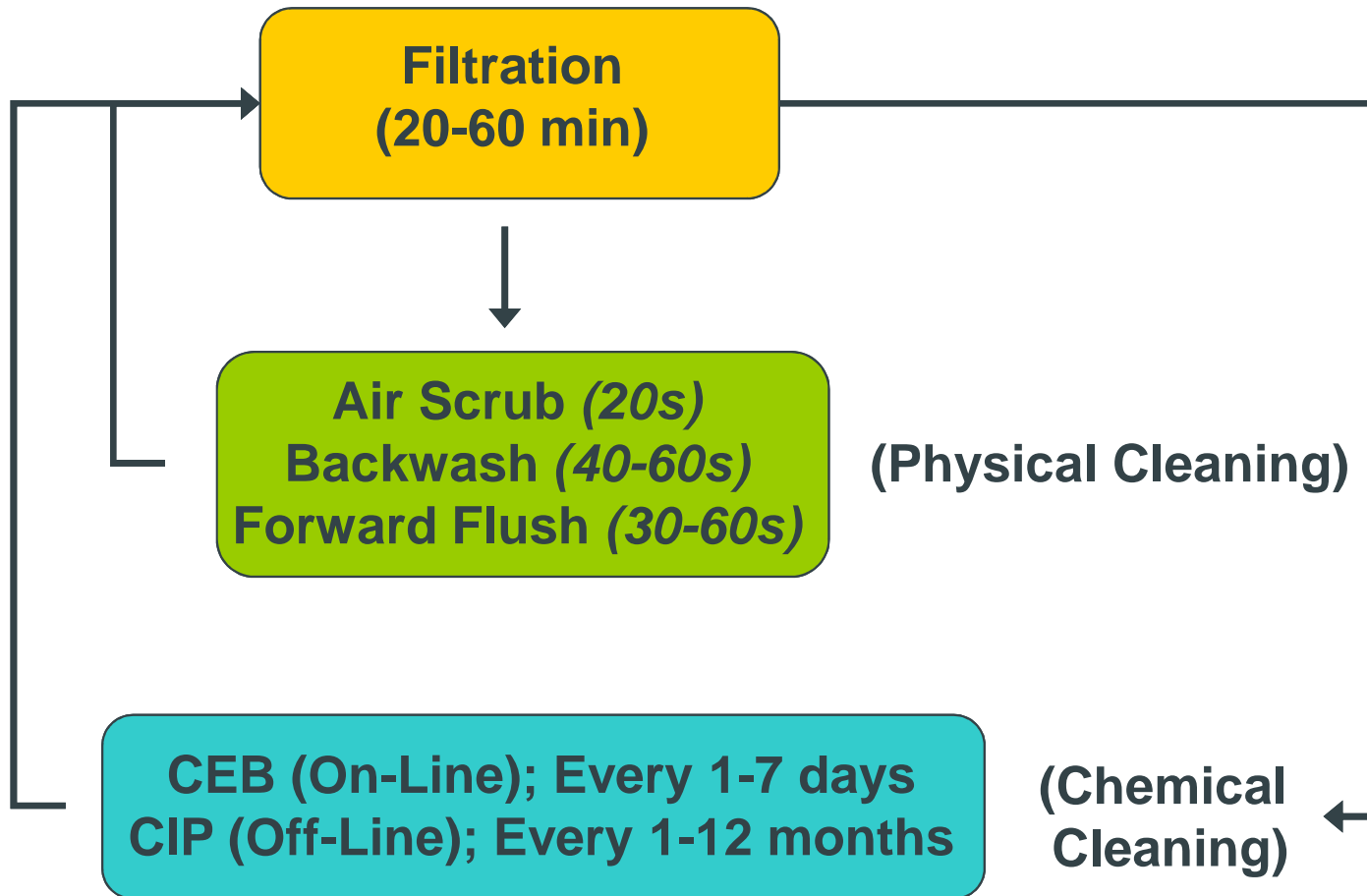


The Dow Chemical Company

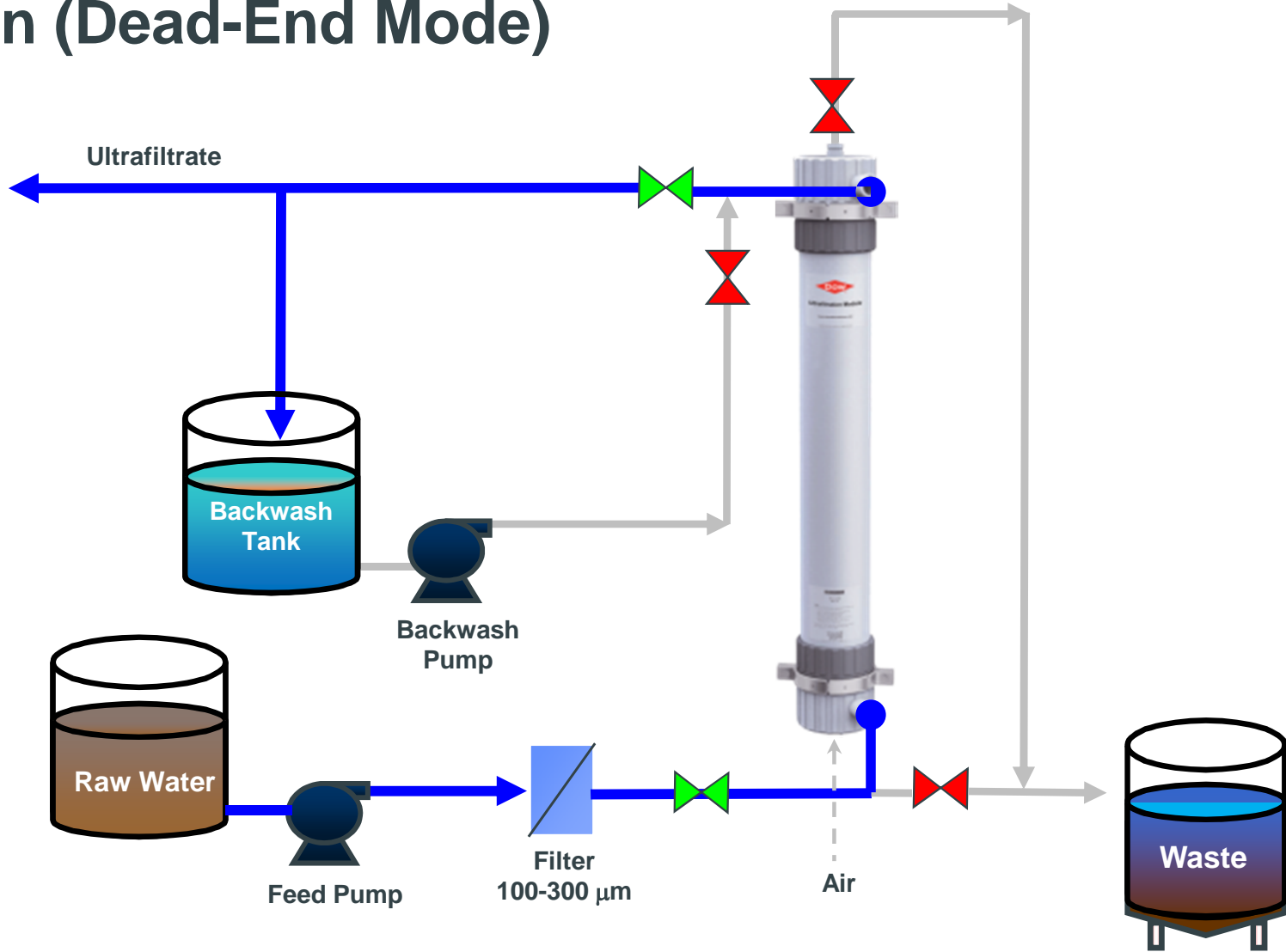
# — DOW UF

## Operation Modes

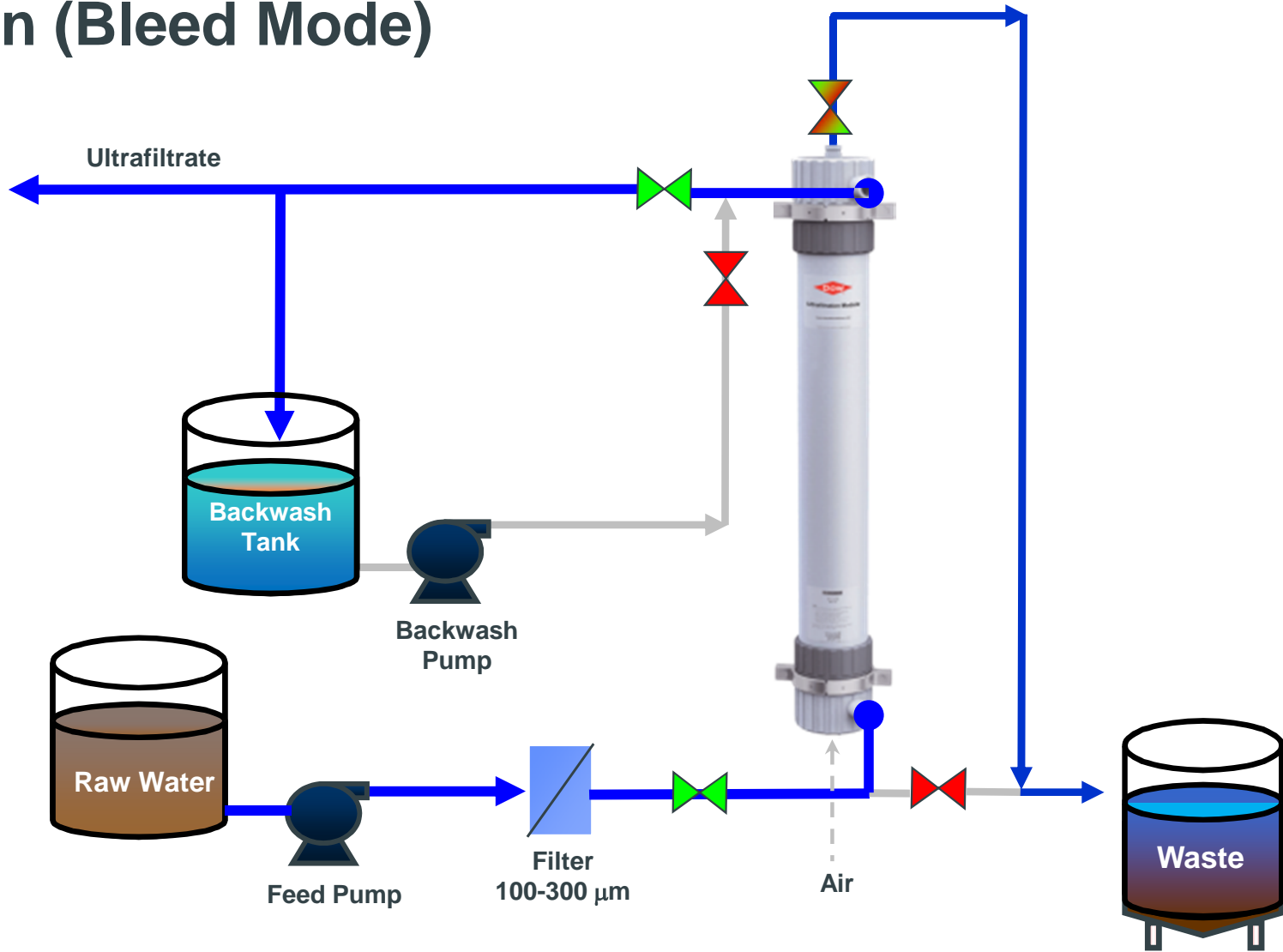
# DOW UF Operation Philosophy



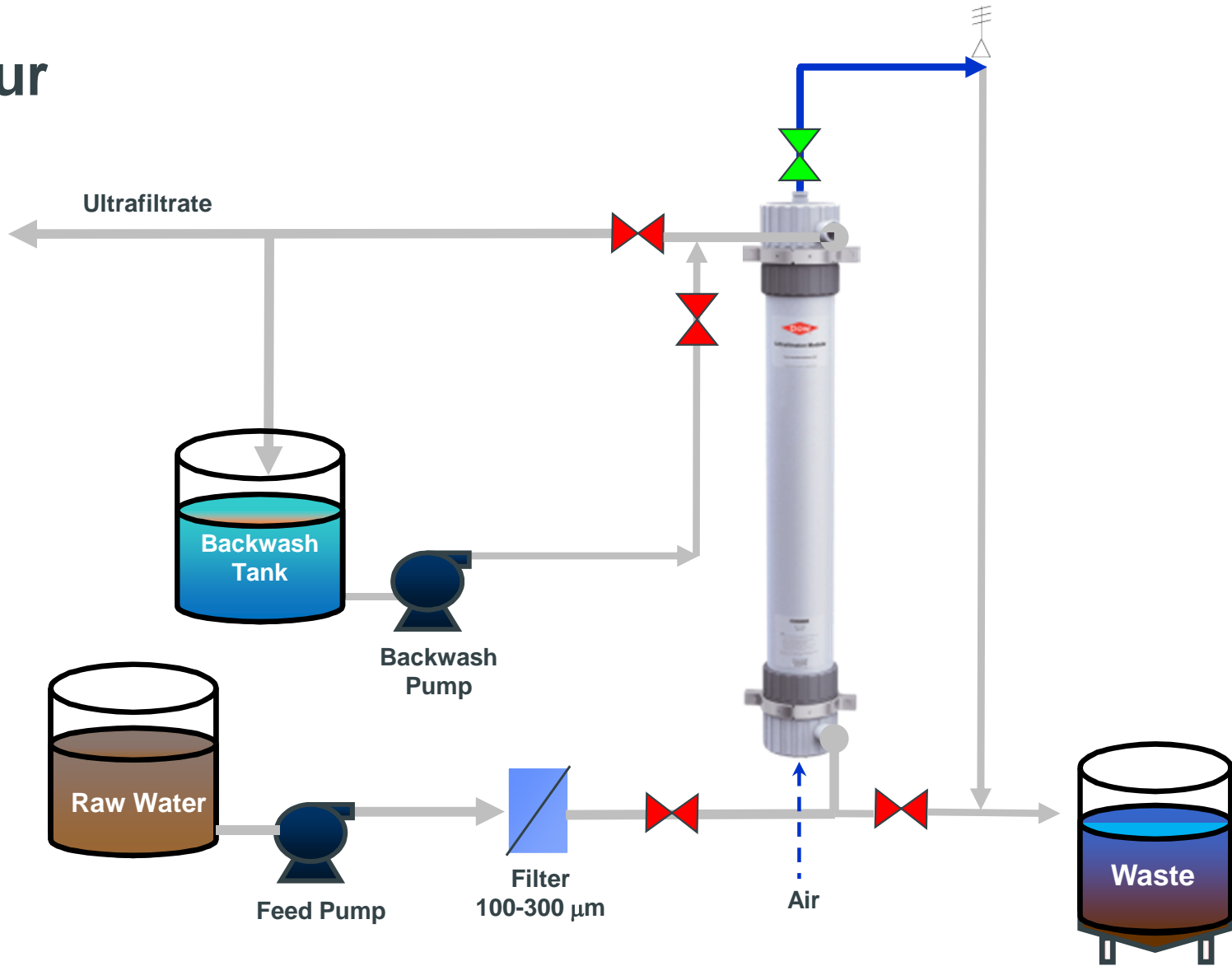
# Filtration (Dead-End Mode)



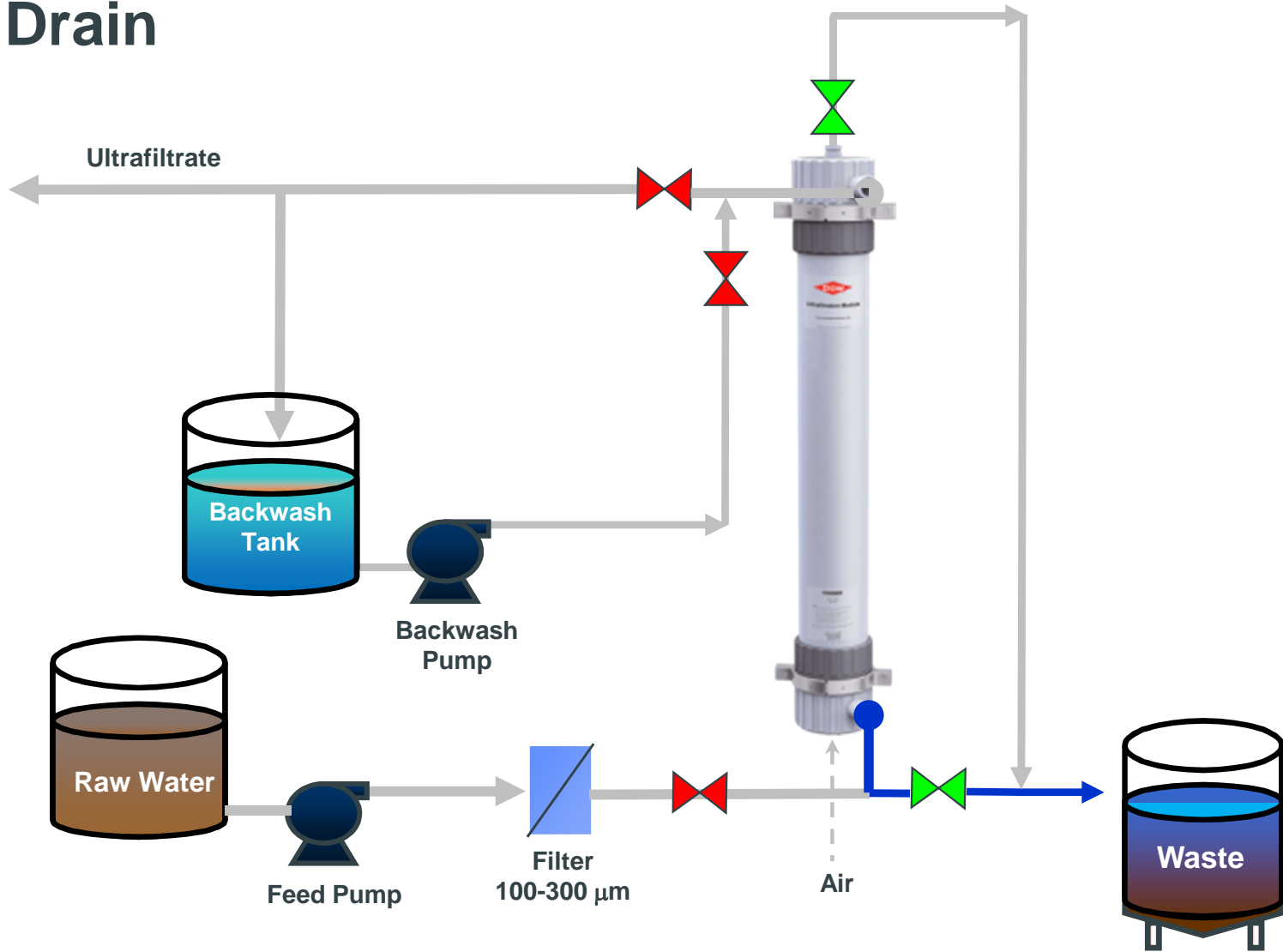
# Filtration (Bleed Mode)



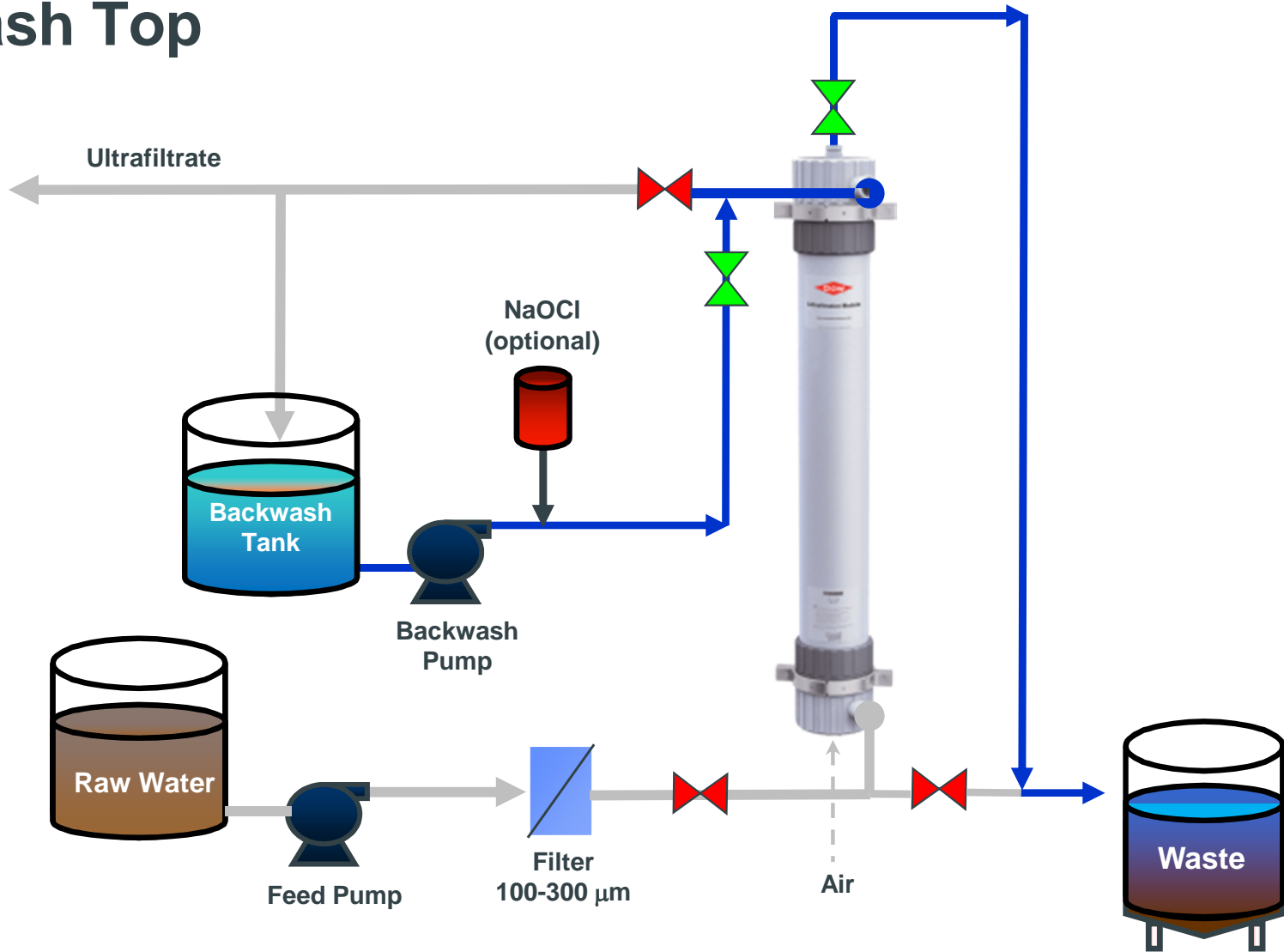
# Air Scour



# Gravity Drain

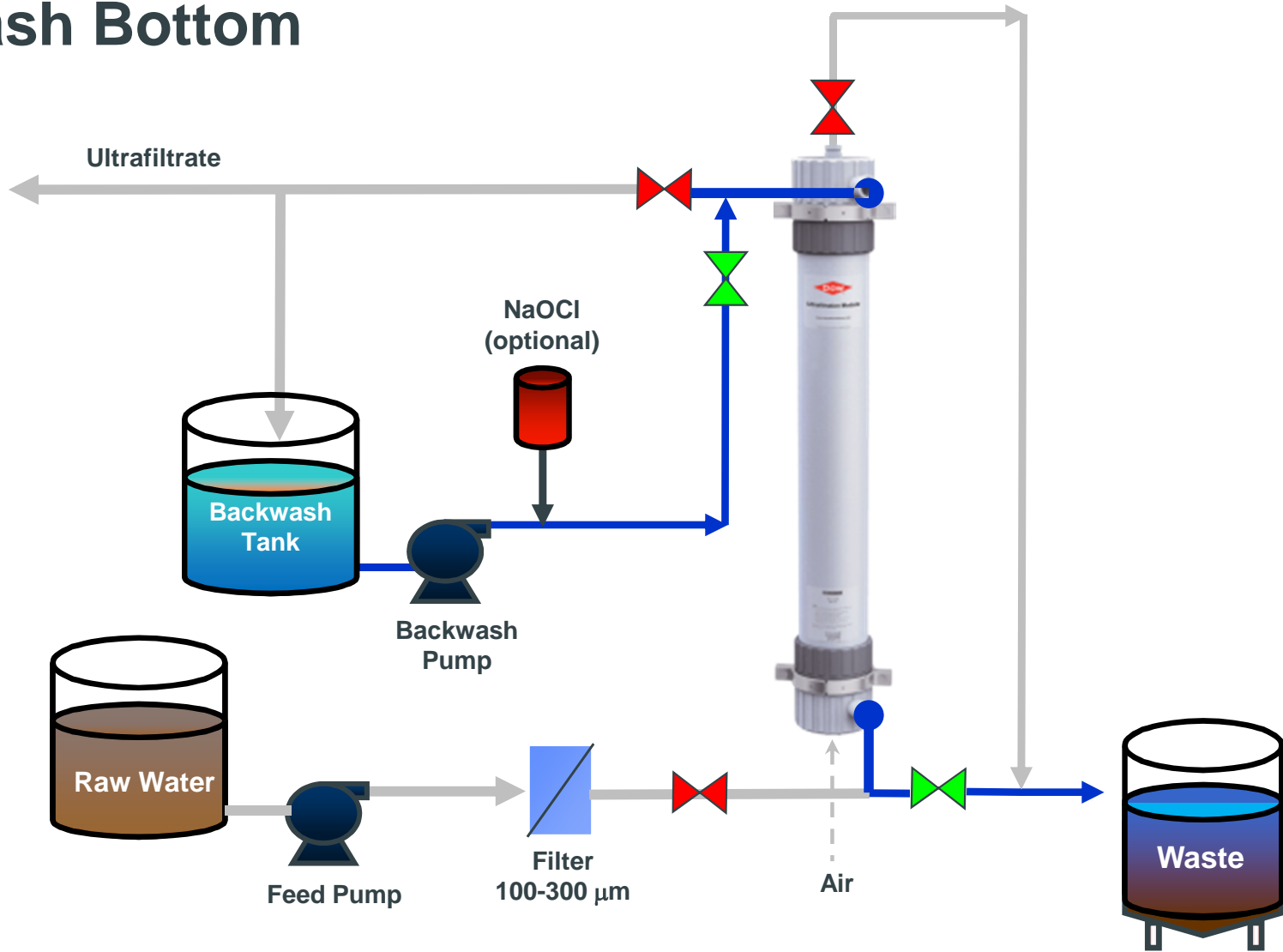


# Backwash Top

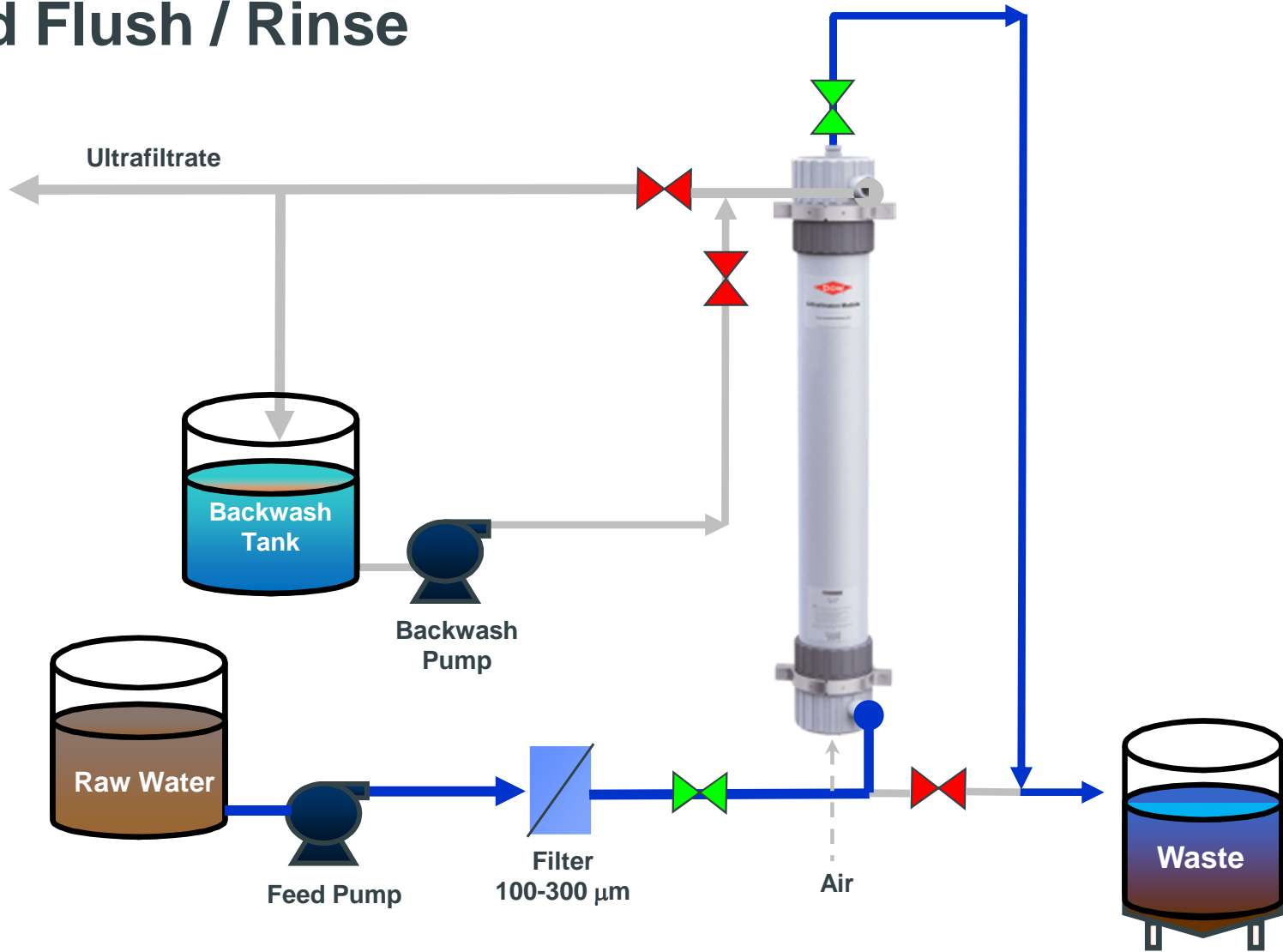




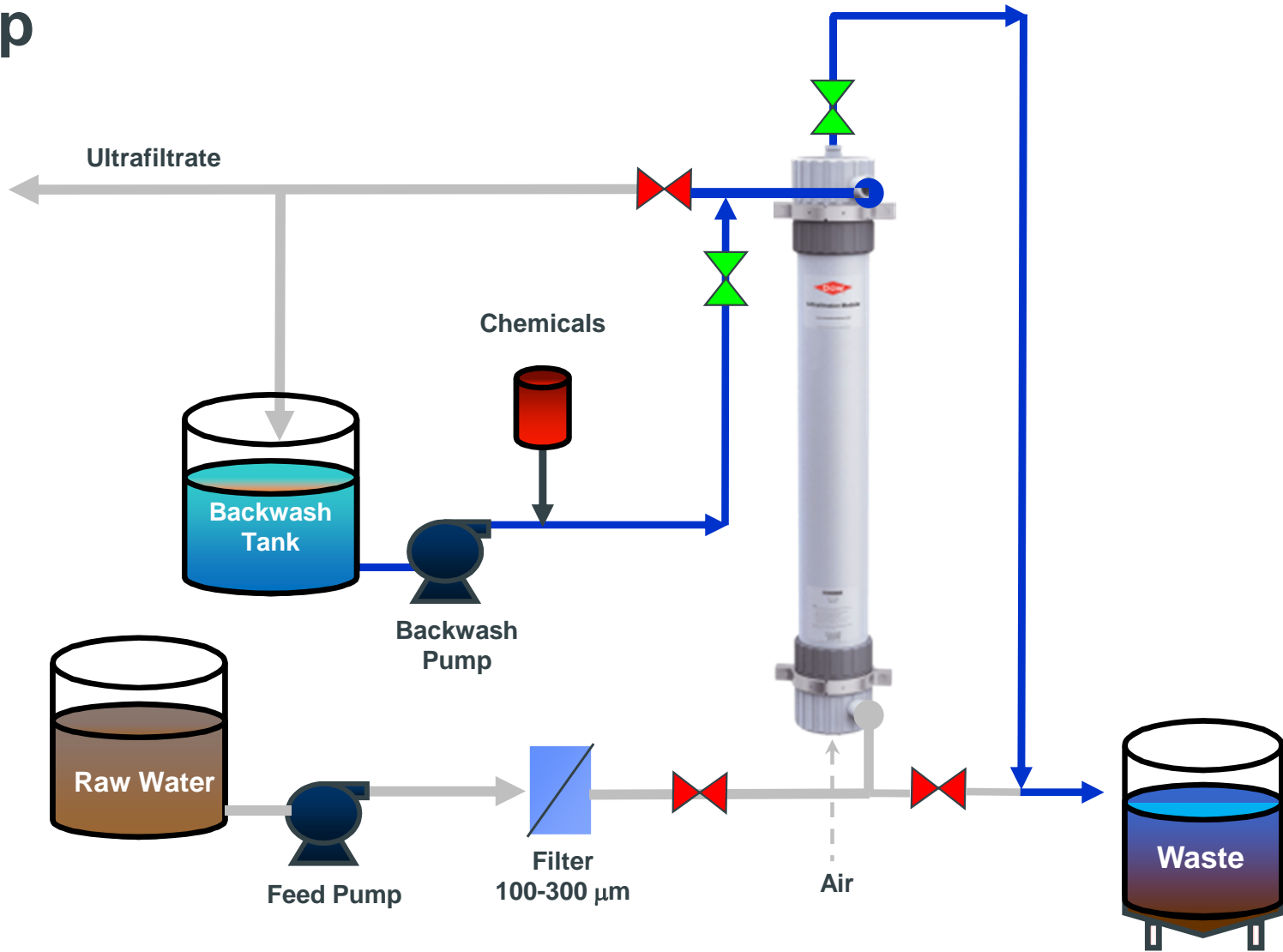
# Backwash Bottom



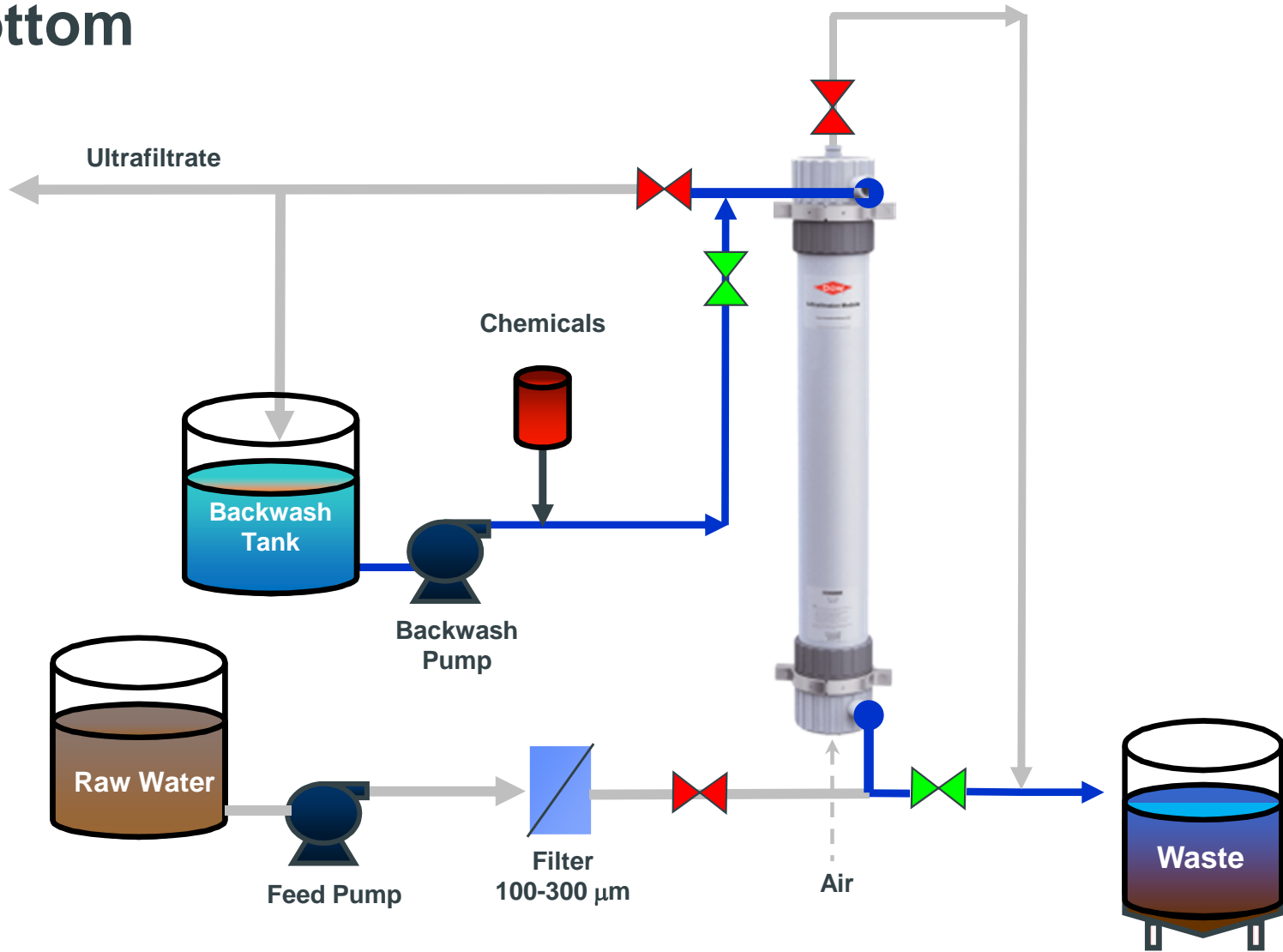
# Forward Flush / Rinse



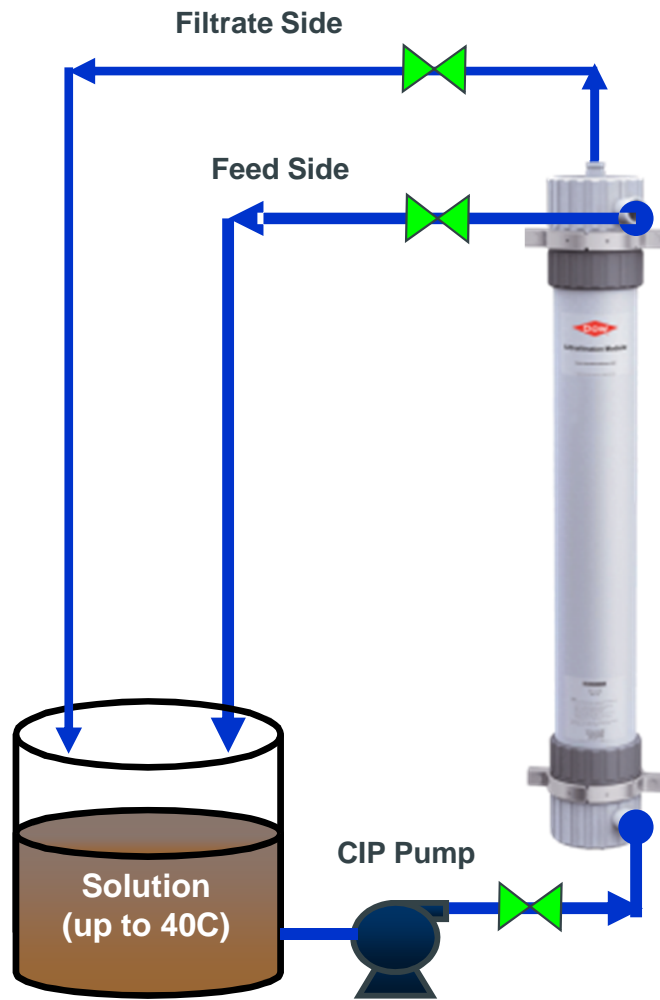
# CEB Top



# CEB Bottom



# CIP



# — DOW UF

## Design Guidelines

# DOW UF Design Guidelines

Source Water	Turbidity (NTU) <sup>[1]</sup>	TSS (mg/L) <sup>[1]</sup>	Flux <sup>[2]</sup> (LMH)		BW <sup>[3]</sup> Frequency (min)	BW Flux (LMH)	NaOCl in BW (mg/L)	CEB1 NaOH <sup>[4]</sup>	CEB1 NaOCl	CEB2 Acid <sup>[4]</sup>	CIP (days)
			Max. Recommended								
			SFP/D-2860 IP/D-51 IW-74	SFP/D-2880 IP/D-77 IW-102							
Ground Water	< 0.5	< 5	105	120	120	80	--	--	Recipe A	Recipe B	90-120
	1-2	< 5	105	120	90	80	--	--	Recipe A	Recipe B	60-90
City / Tap Water	< 3	< 5	105	120	90	80	--	--	Recipe A	Recipe B	60-90
Surface (Pretreated <sup>[5]</sup> )	< 1	< 10	90	110	60	100	--	--	Recipe A	Recipe B	60-90
	1-2	< 10	85	100	45	100	--	--	Recipe A	Recipe B	45-90
	2-5	< 20	75	90	40	100	--	--	Recipe A	Recipe B	45-60
Surface (Untreated)	< 5	< 10	75	80	60	100	--	--	Recipe A	Recipe B	60-90
	5-15	< 20	60	70	60	100	--	--	Recipe A	Recipe B	60-90
	15-50	< 30	55	65	40	100	--	--	Recipe C	Recipe D	30-60
	50-75	< 50	50	60	30	100	--	--	Recipe C	Recipe D	30
Seawater	< 5	< 10	70	85	90	100	--	--	Recipe C	Recipe D	60-90
	< 10	< 20	65	80	60	100	--	--	Recipe C	Recipe D	45-90
	< 20	< 40	60	75	30	100	--	--	Recipe C	Recipe D	30-60
Waste Water (Secondary, Tertiary Effluent)	< 5	< 5	60	65	30	120	Recommended 0-15	Recipe E	Recipe F	Recipe G	30-60
	< 5	< 10	55	60	30	120	Recommended 0-15	Recipe E	Recipe F	Recipe G	30
	5-10	< 20	50	55	30	120	Recommended 0-15	Recipe E	Recipe F	Recipe G	30
	10-20	< 30	45	50	20	120	Recommended 0-15	Recipe E	Recipe F	Recipe G	30
	< 30	< 40	40	45	20	120	Recommended 0-15	Recipe E	Recipe F	Recipe G	30

Recipe A: Recommended once per week (every 168 h) at 250 mg/L NaClO  
 Recipe B: Recommended once every two weeks (every 336 h) to pH2 (550 mg/L HCl or 750 mg/L H<sub>2</sub>SO<sub>4</sub>)  
 Recipe C: Every 24 hours, 350 mg/L NaClO  
 Recipe D: Once per week (every 168 h), to pH2, (550 mg/L HCl or 750 mg/L H<sub>2</sub>SO<sub>4</sub>)  
 Recipe E: Every 12 hours, to pH 12(650 mg/L NaOH)  
 Recipe F: Every 12 hours, at 750 mg/L NaClO  
 Recipe G: Every 36 hours, to pH 2 (400 m/L HCl or 550 mg/L H<sub>2</sub>SO<sub>4</sub>)

