

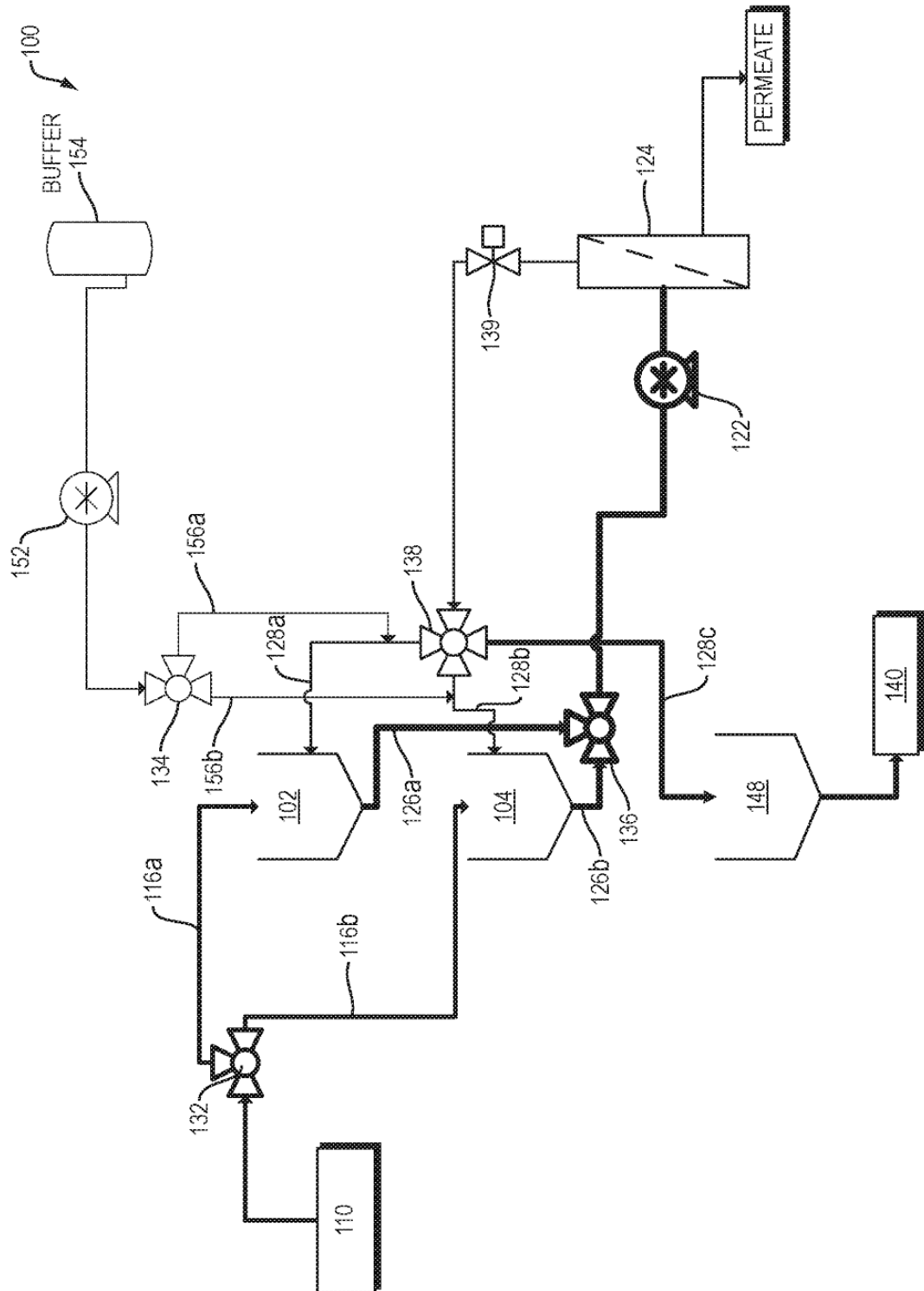


FIG. 1

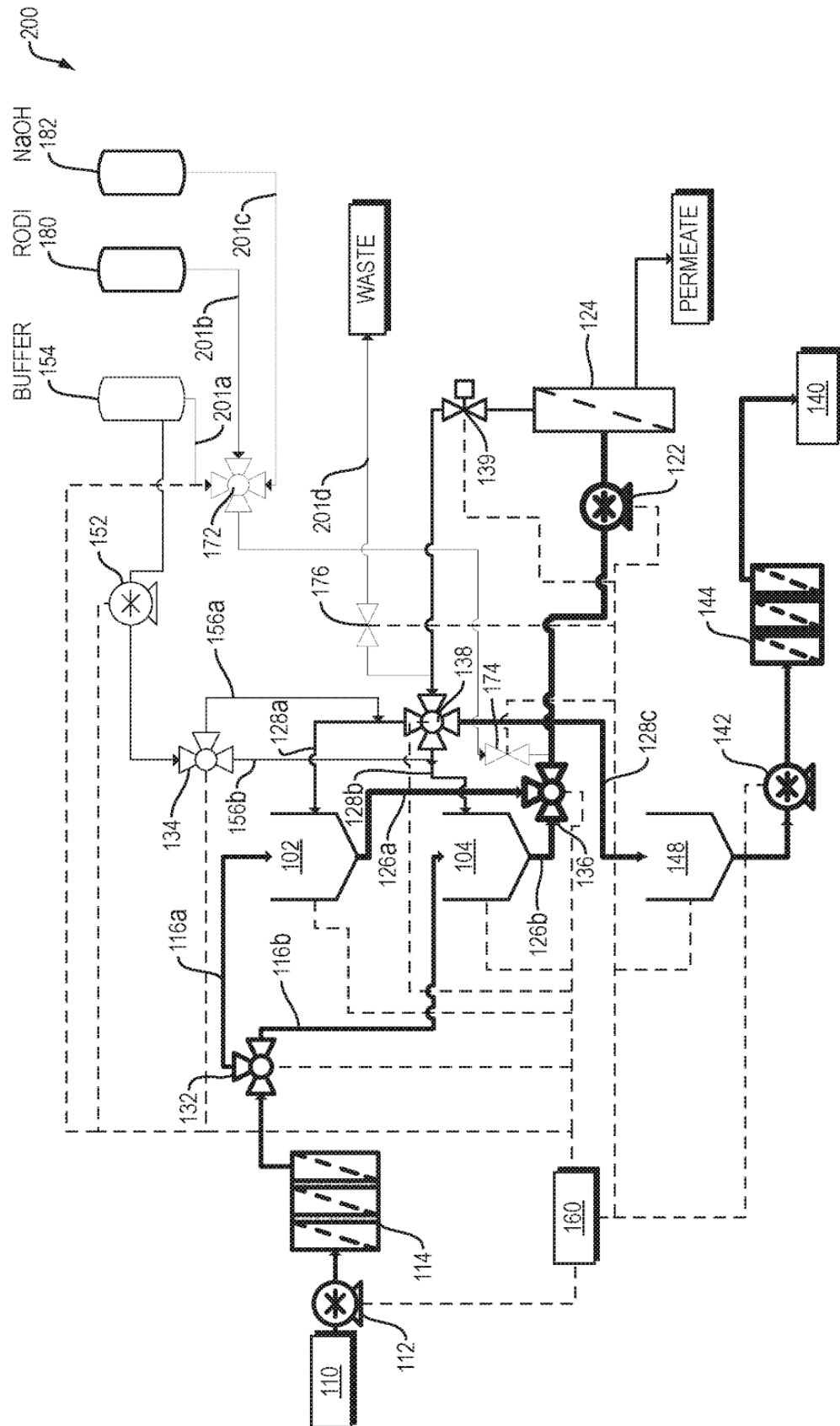


FIG. 2

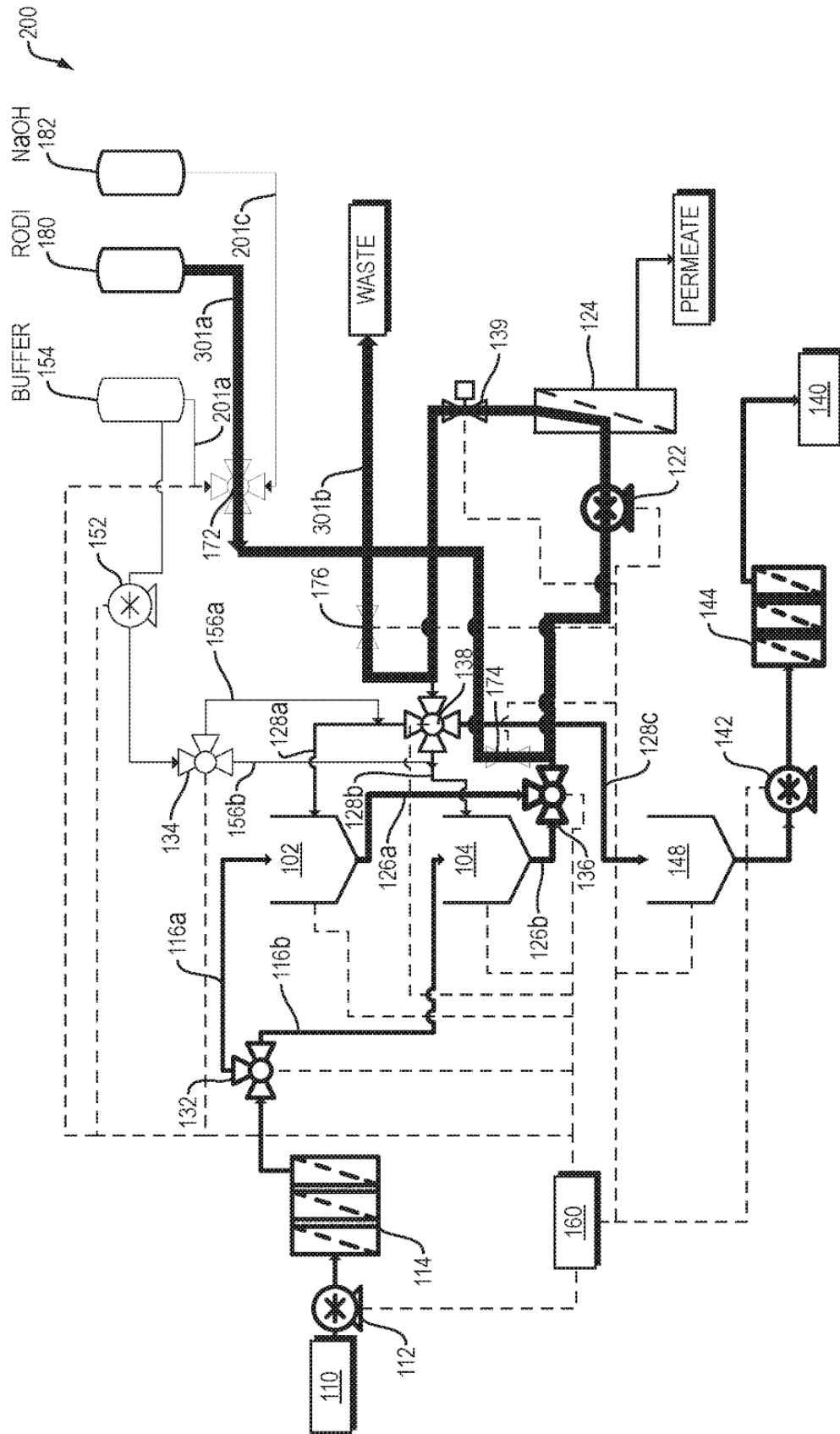
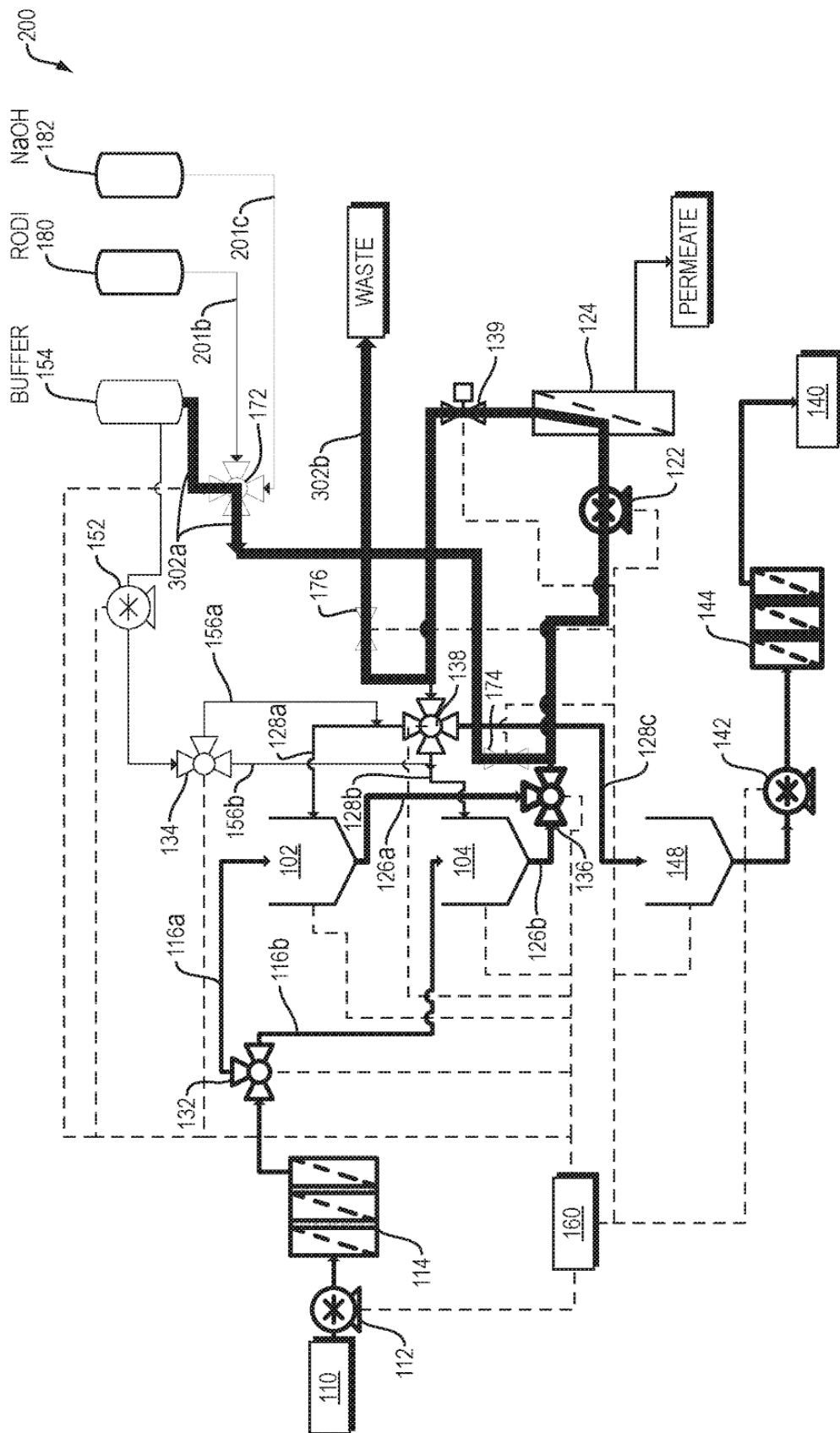
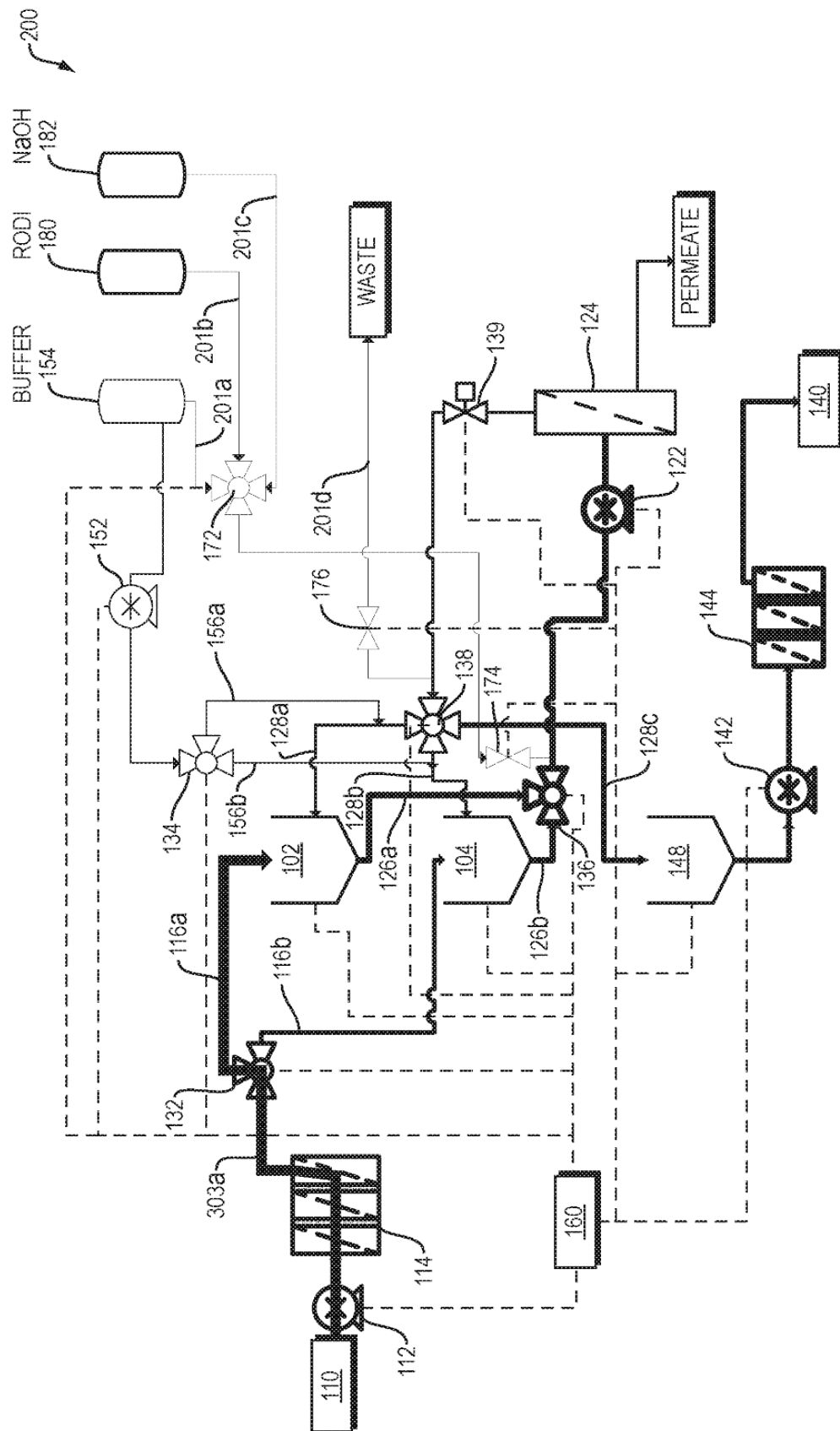
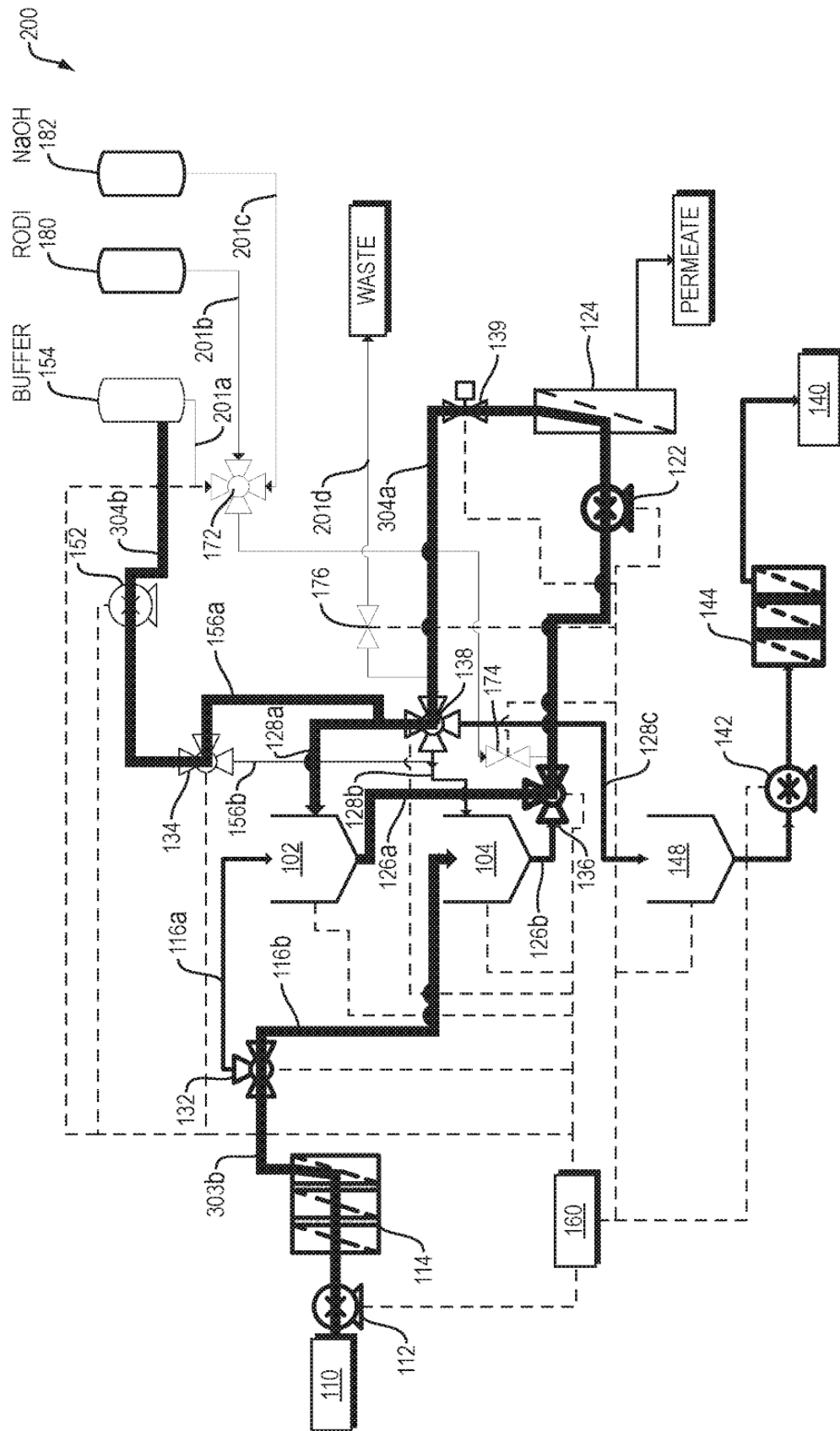


FIG. 3A







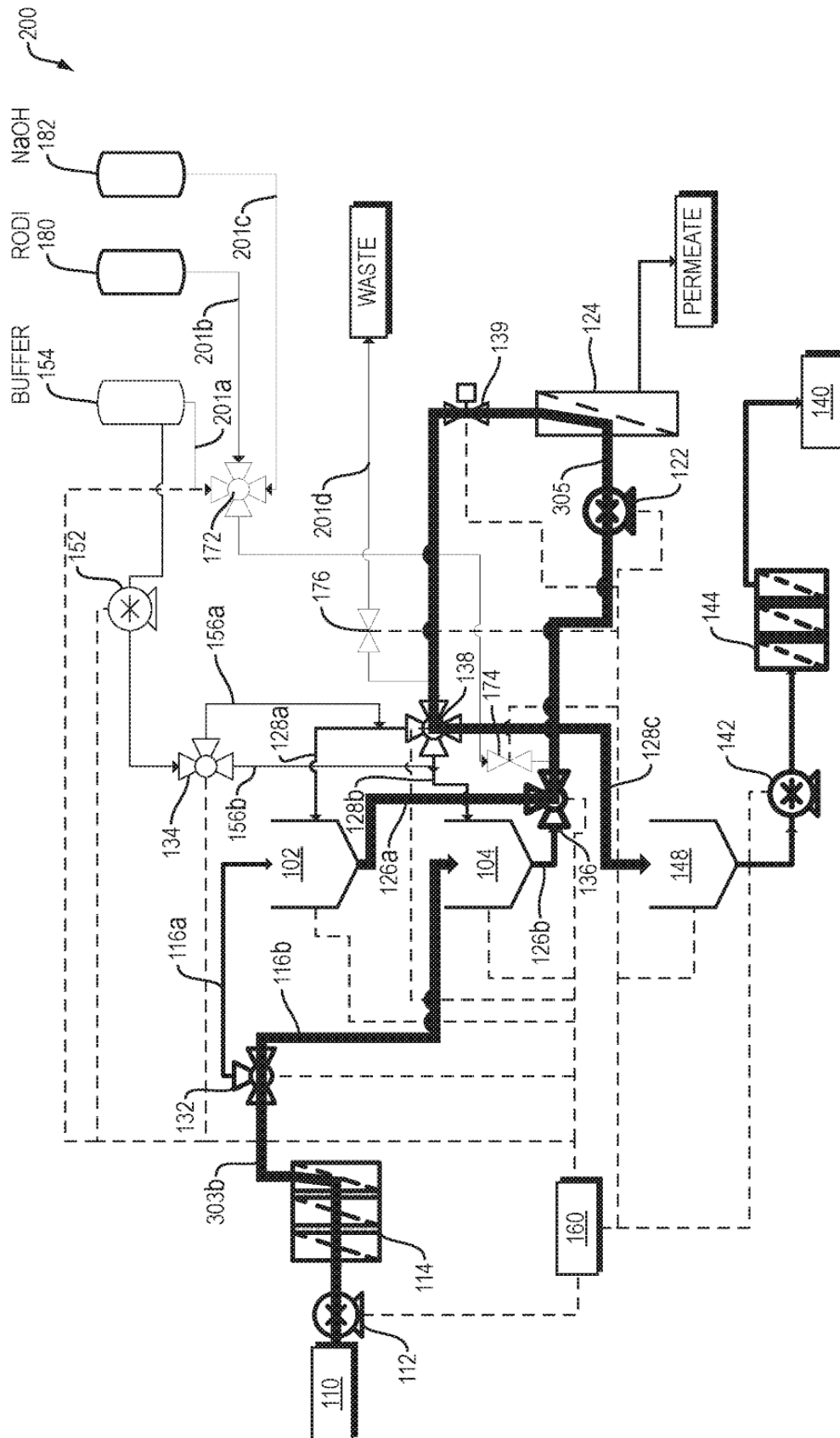


FIG. 3E

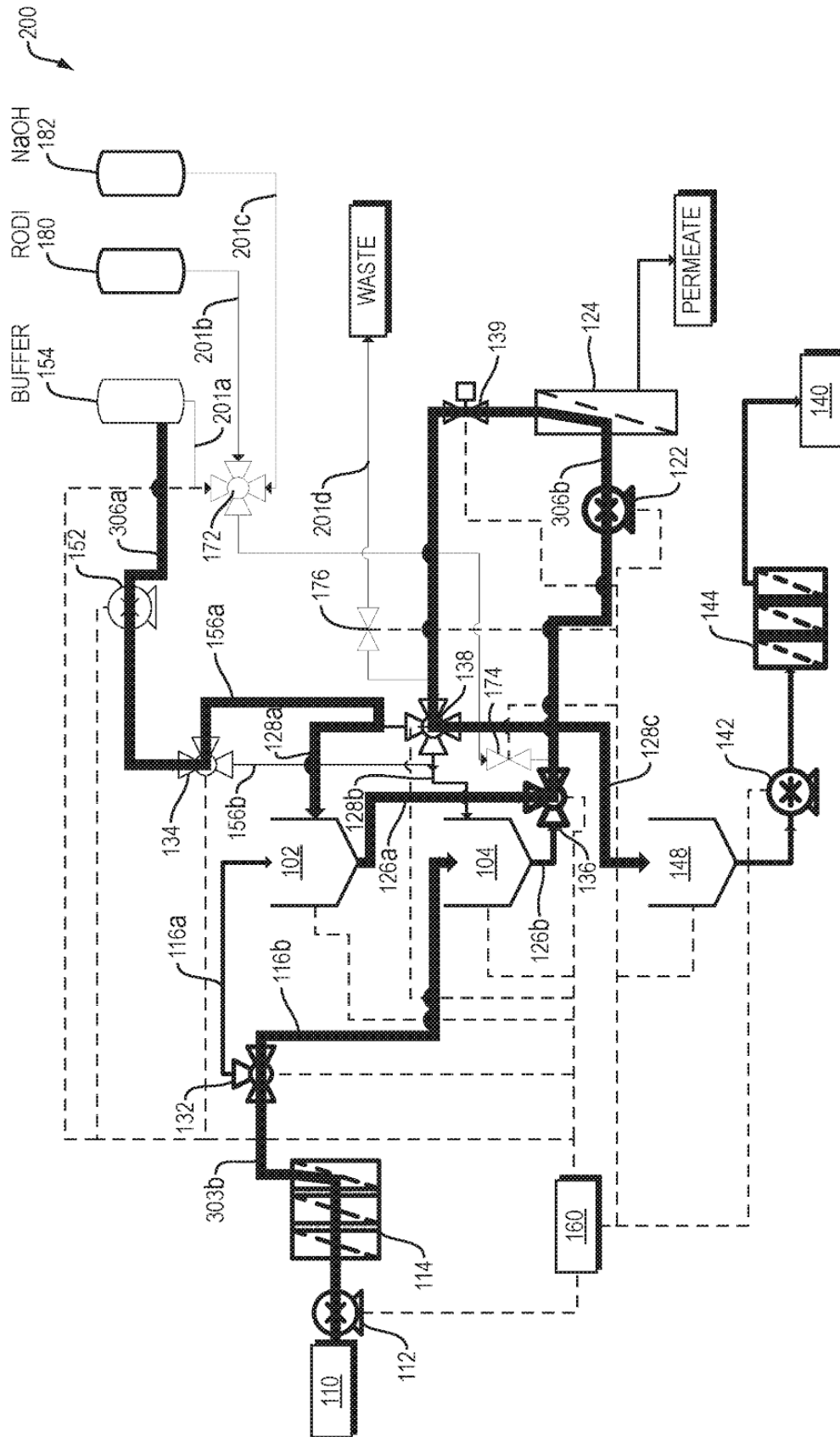


FIG. 3F

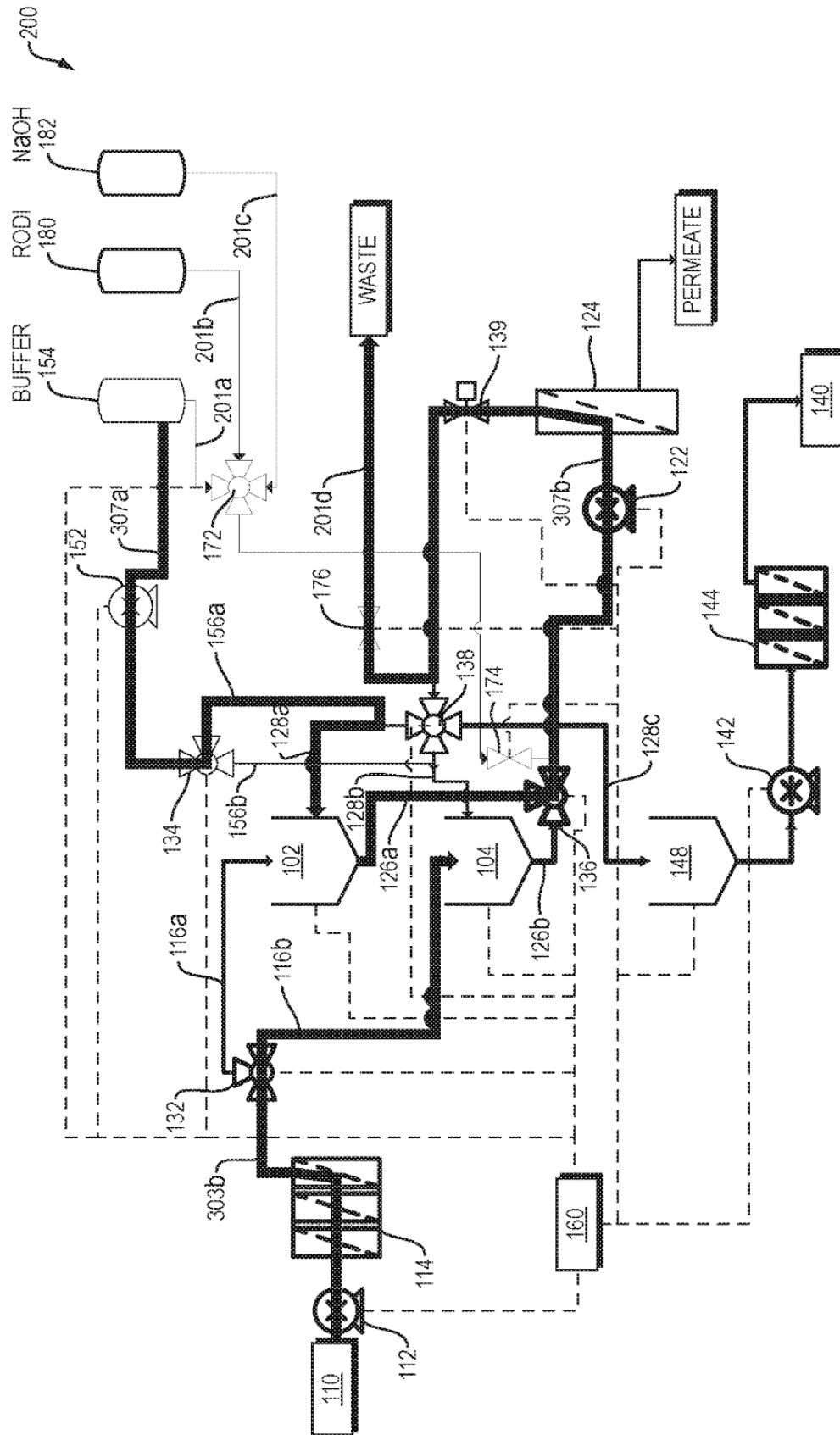


FIG. 3G

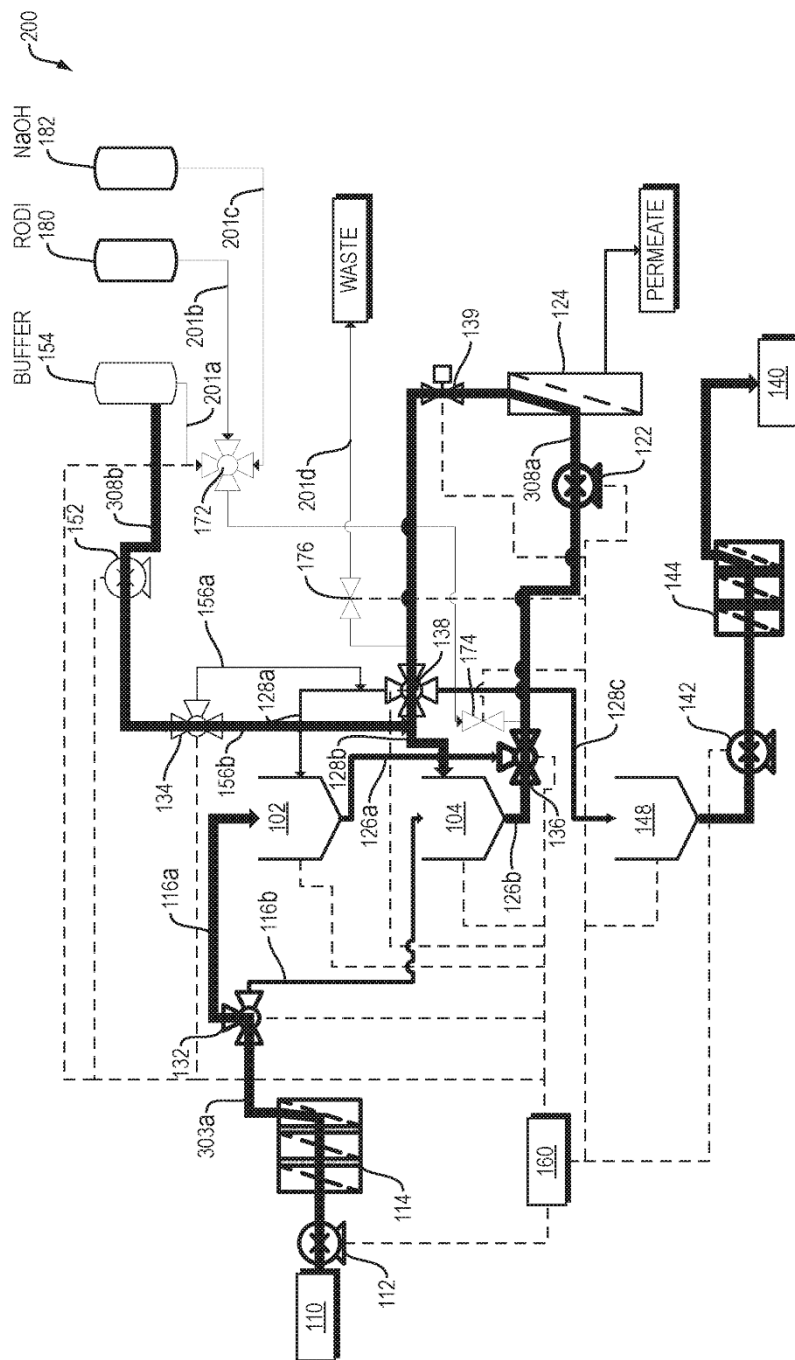


FIG. 3H

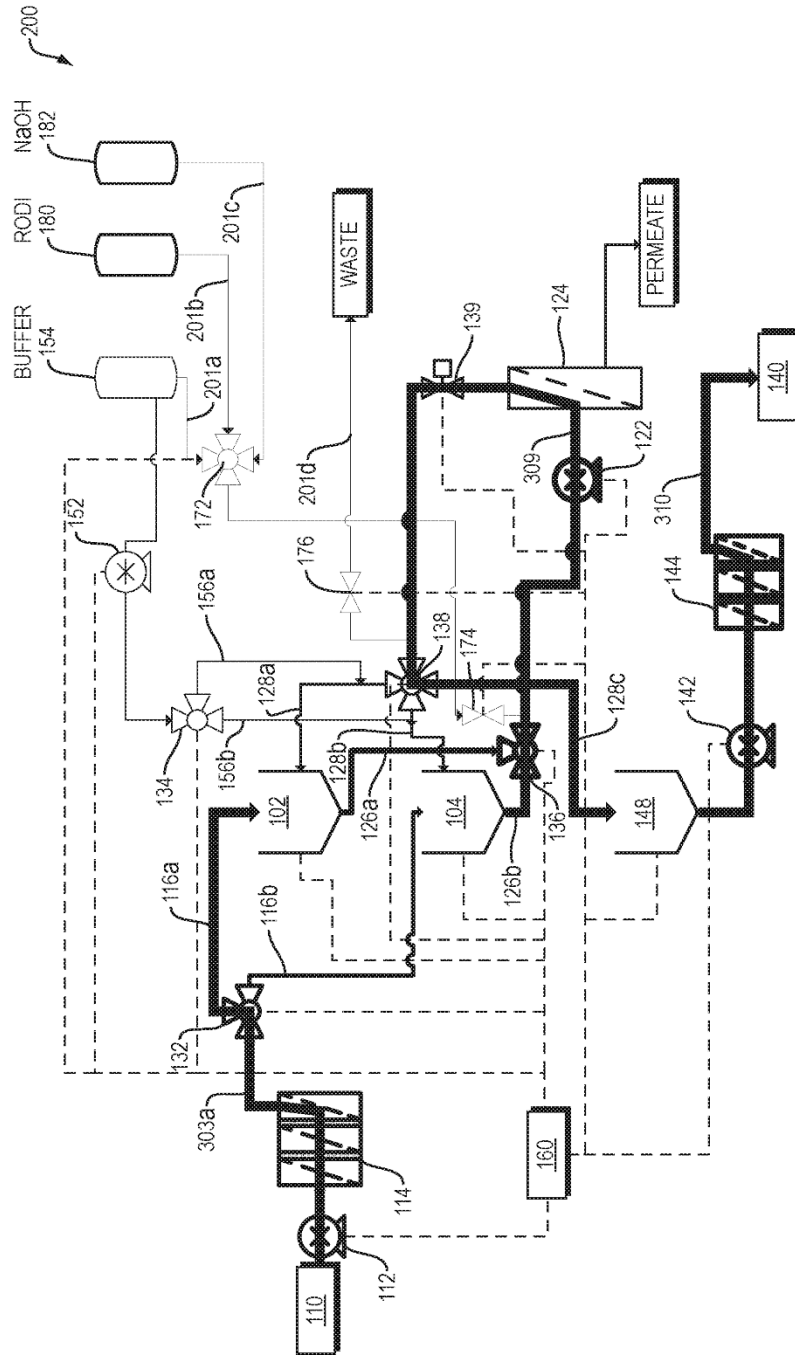


FIG. 3I

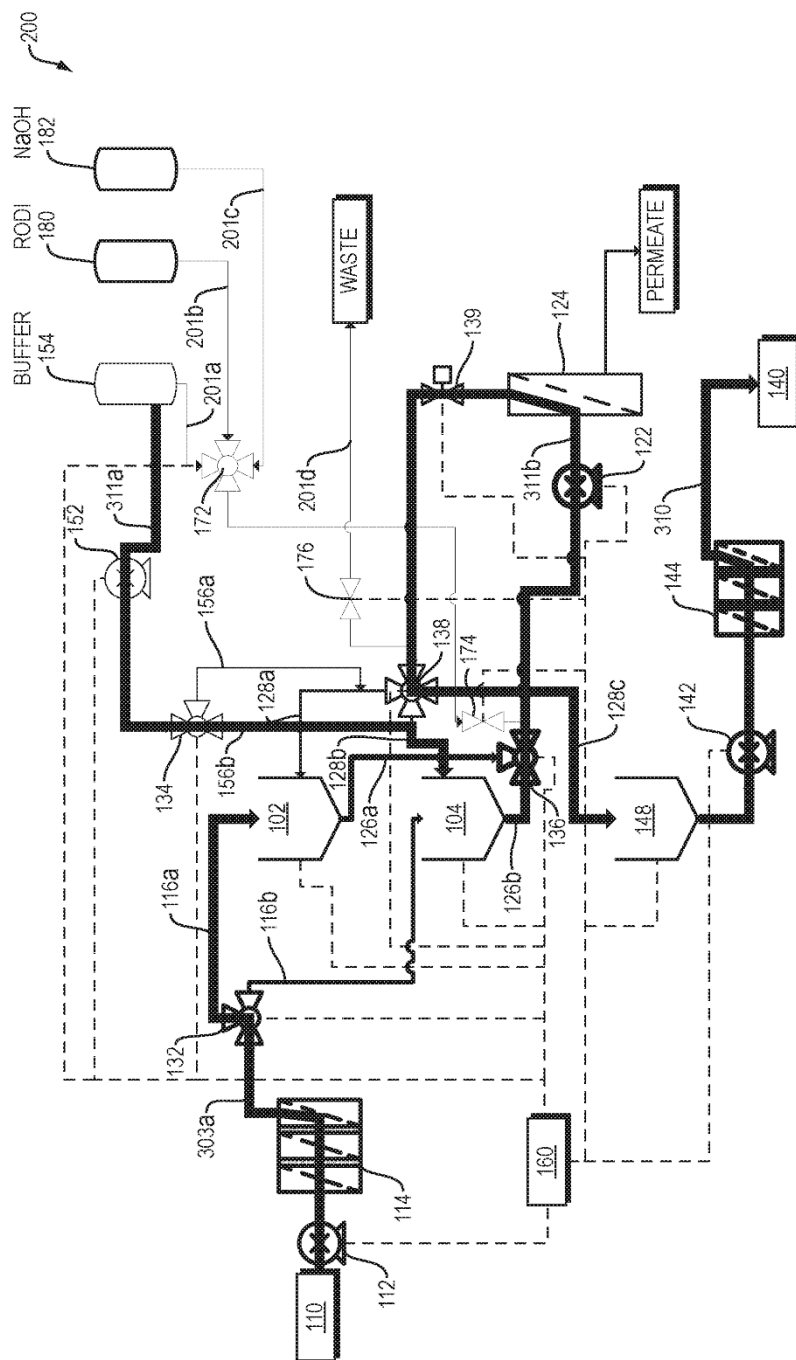


FIG. 3J

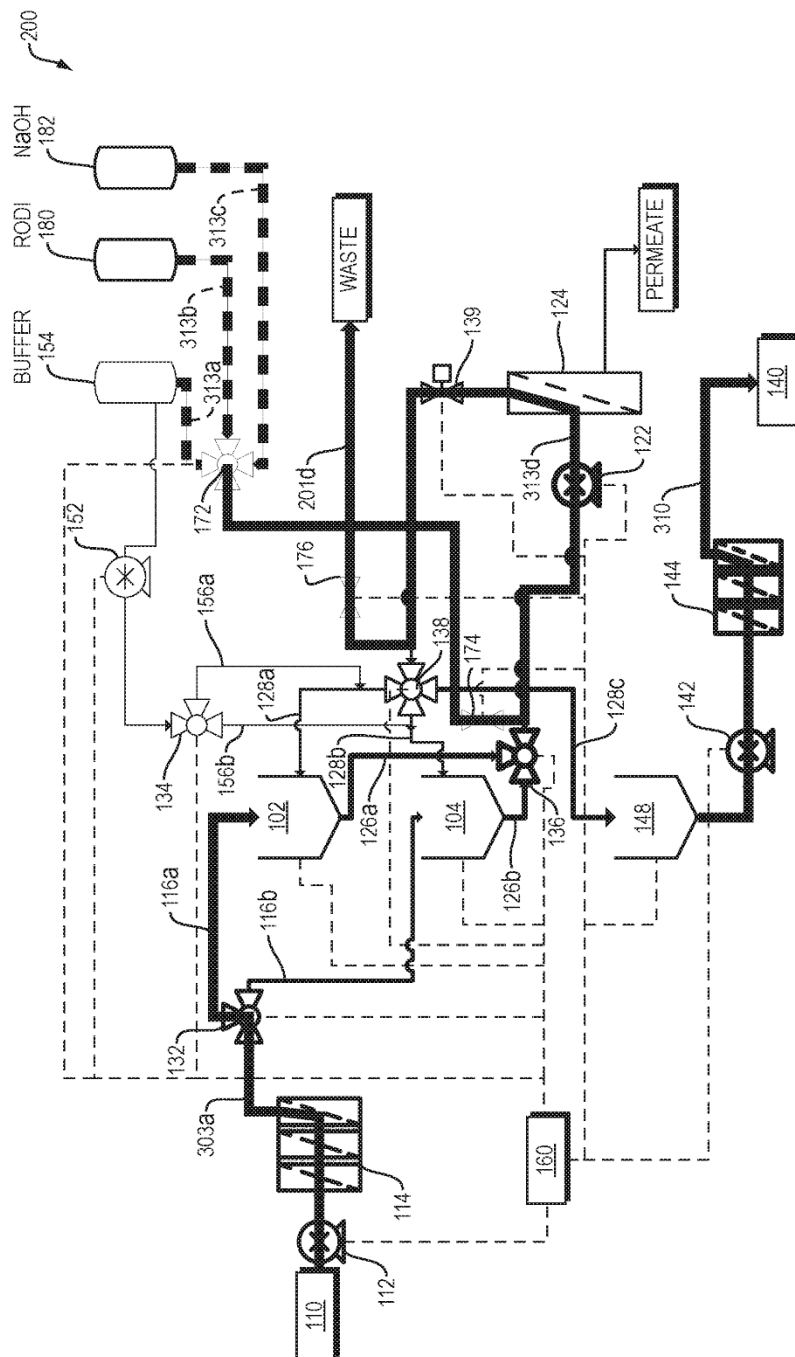


FIG. 3L

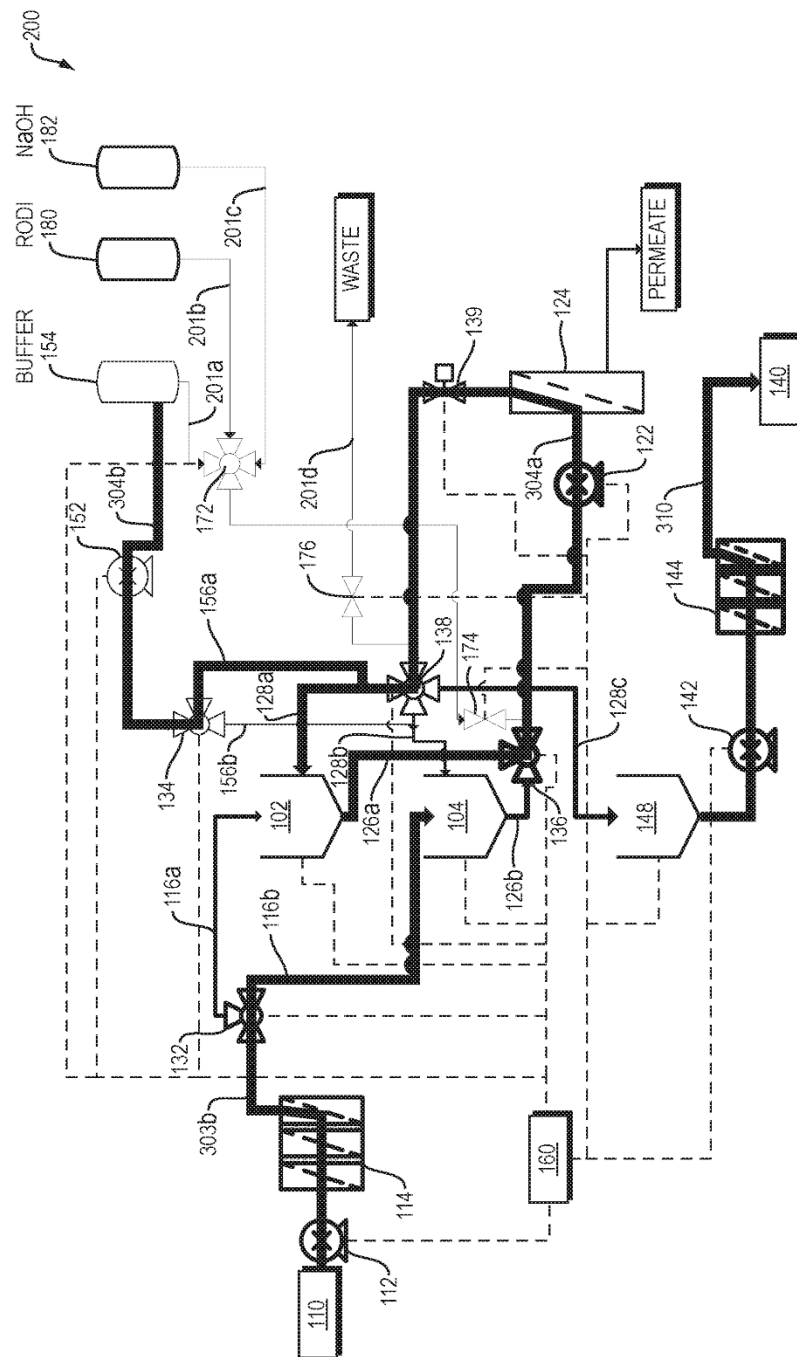


FIG. 3M

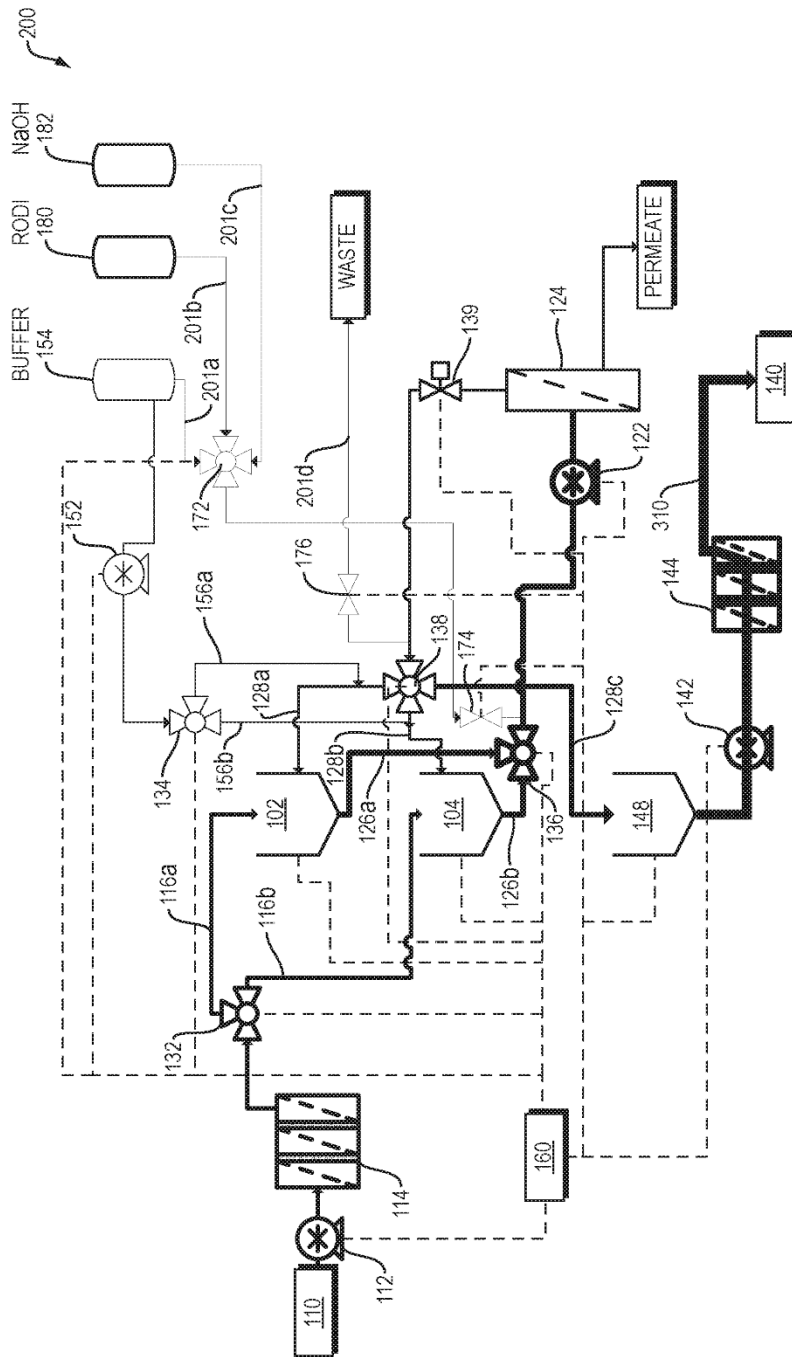


FIG. 3N

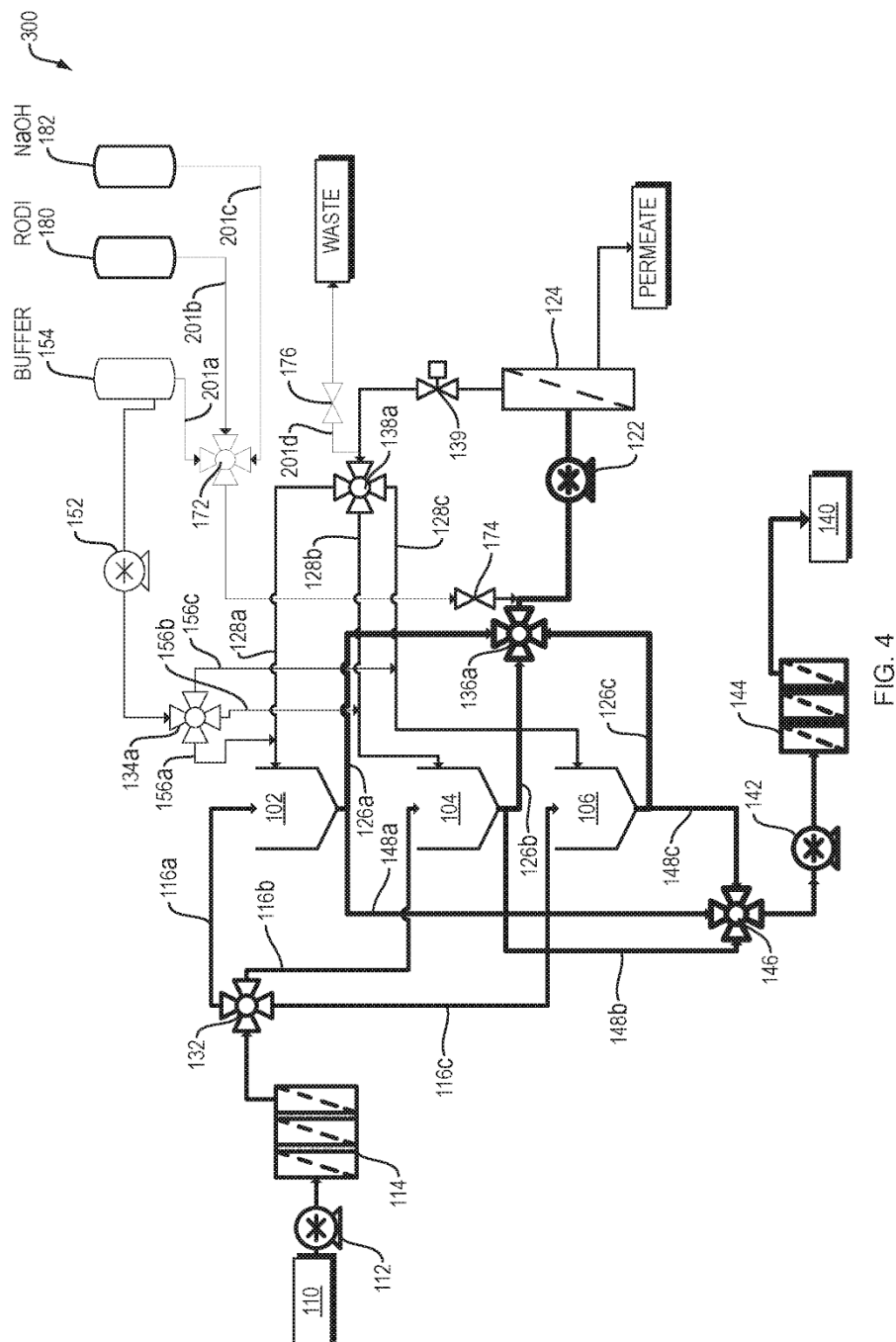


FIG. 4

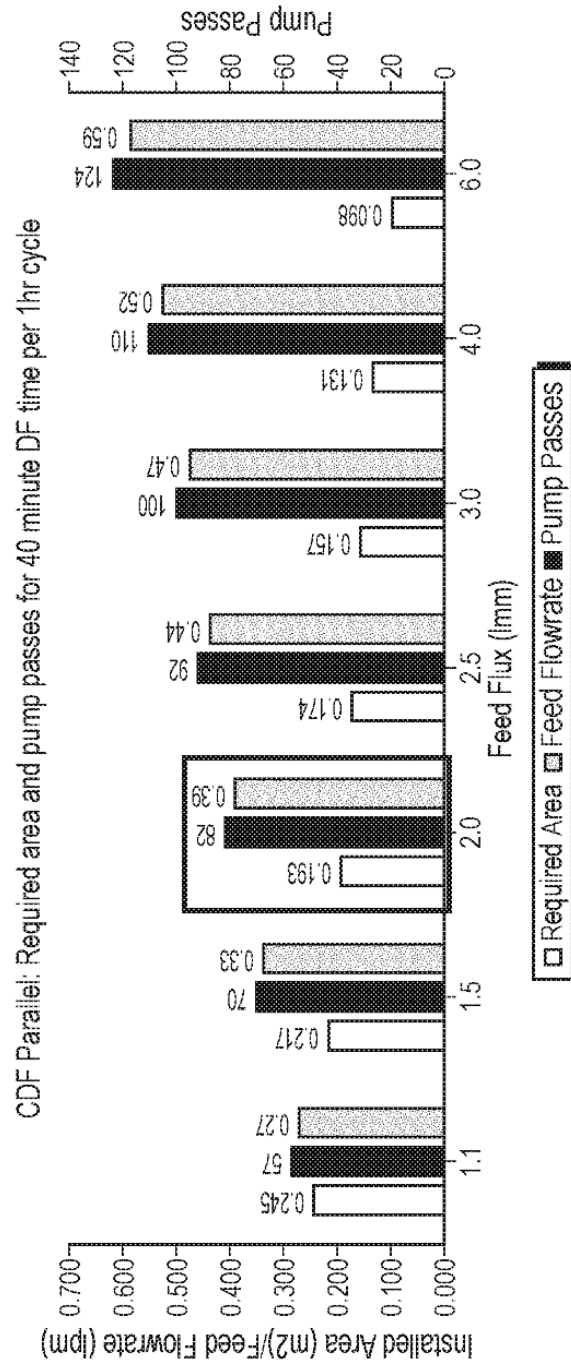


FIG. 5

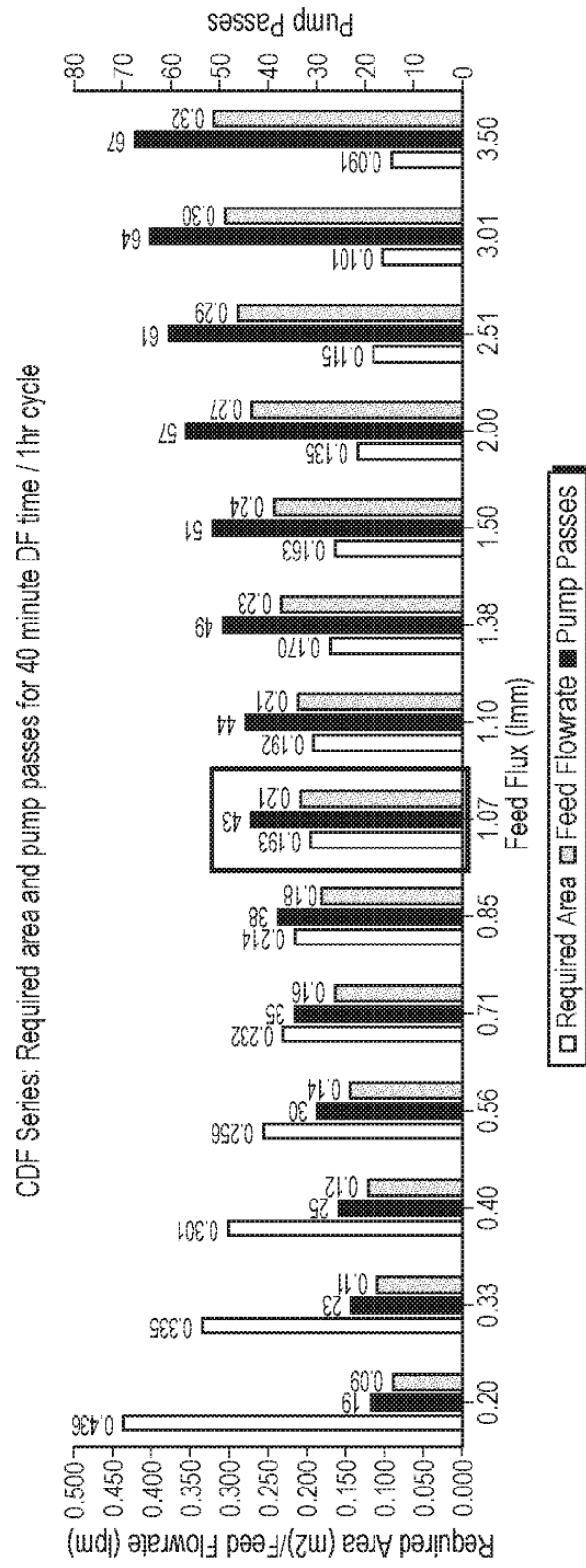


FIG. 6

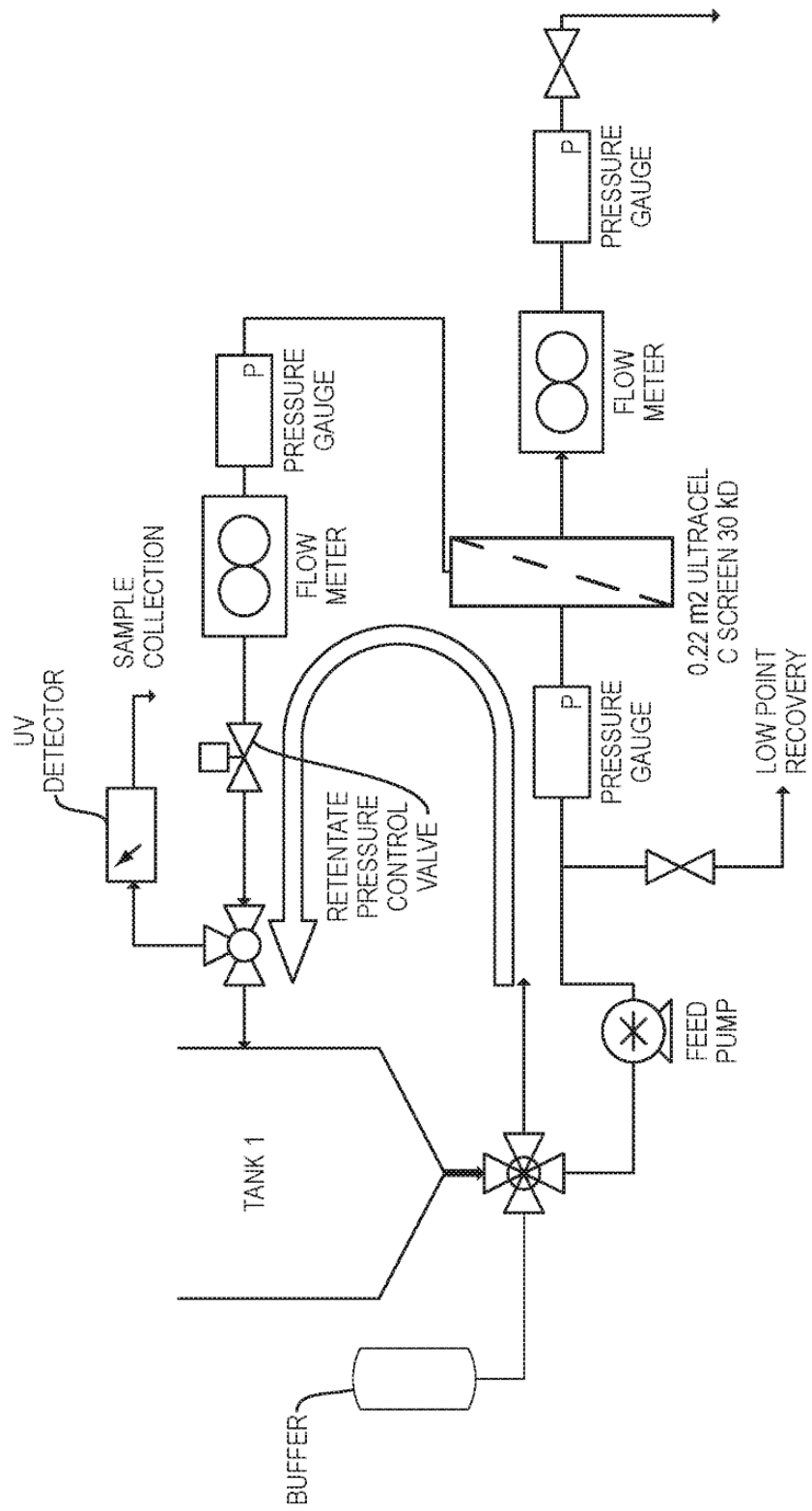


FIG. 7

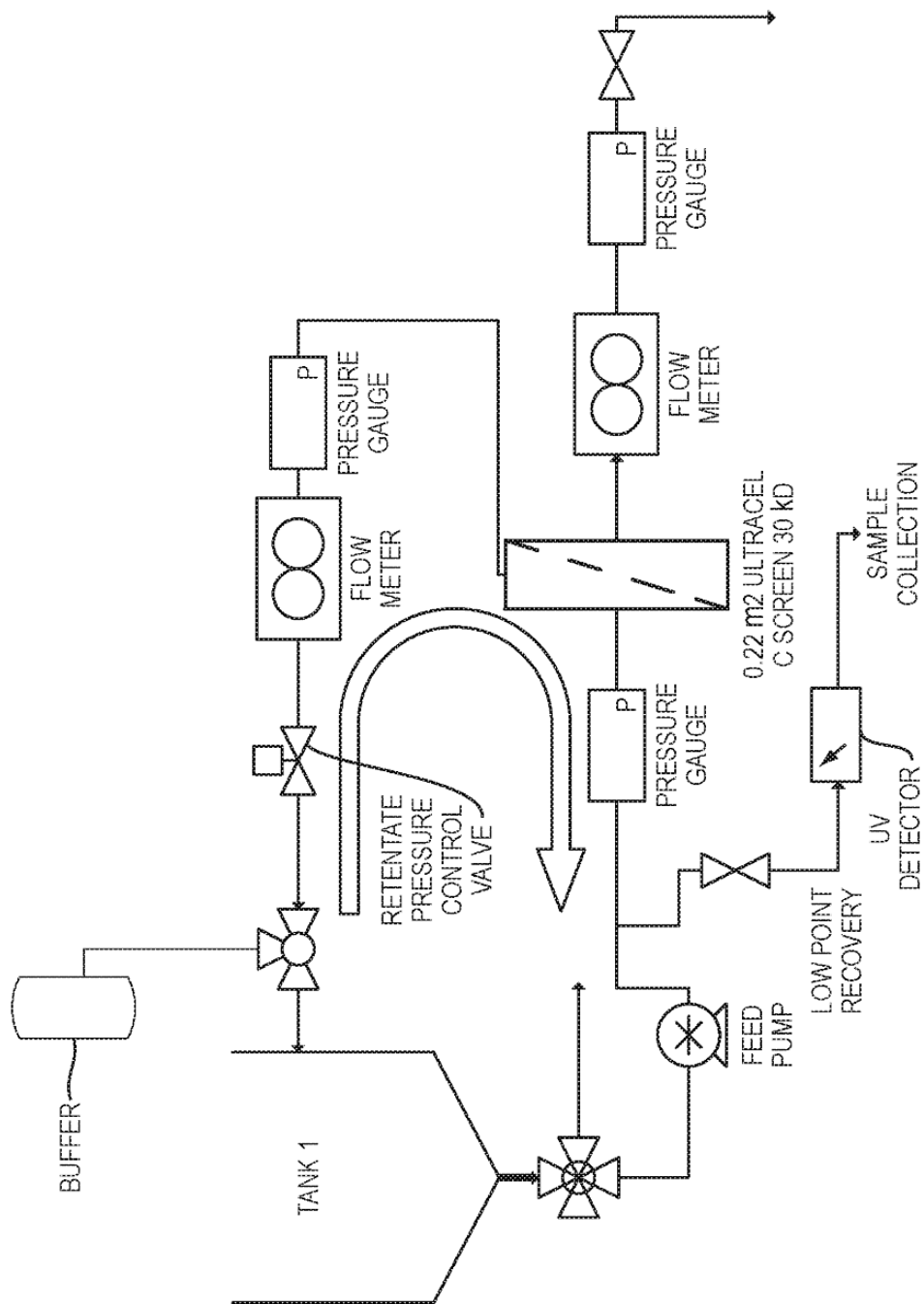


FIG. 8

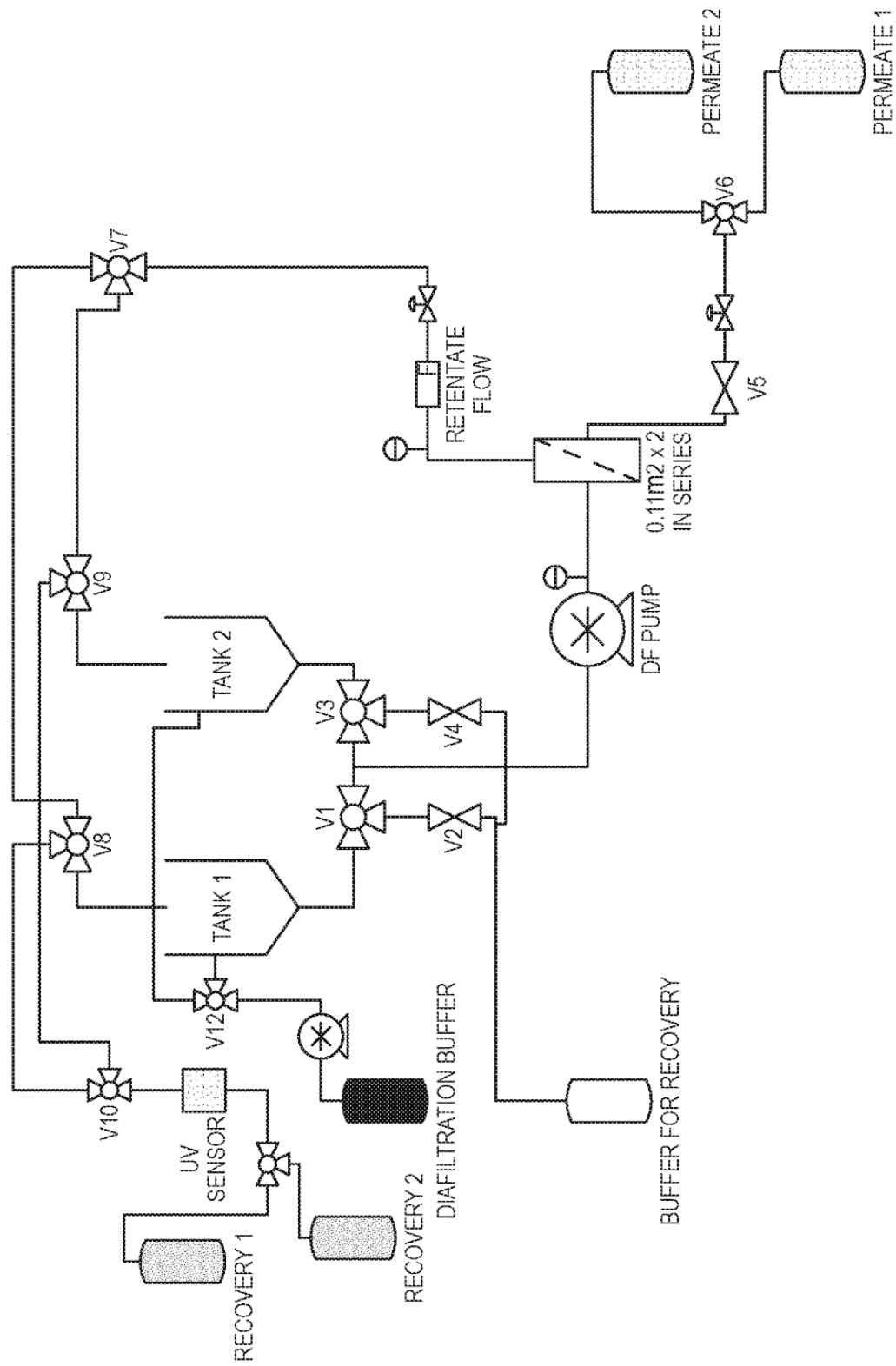


FIG. 9

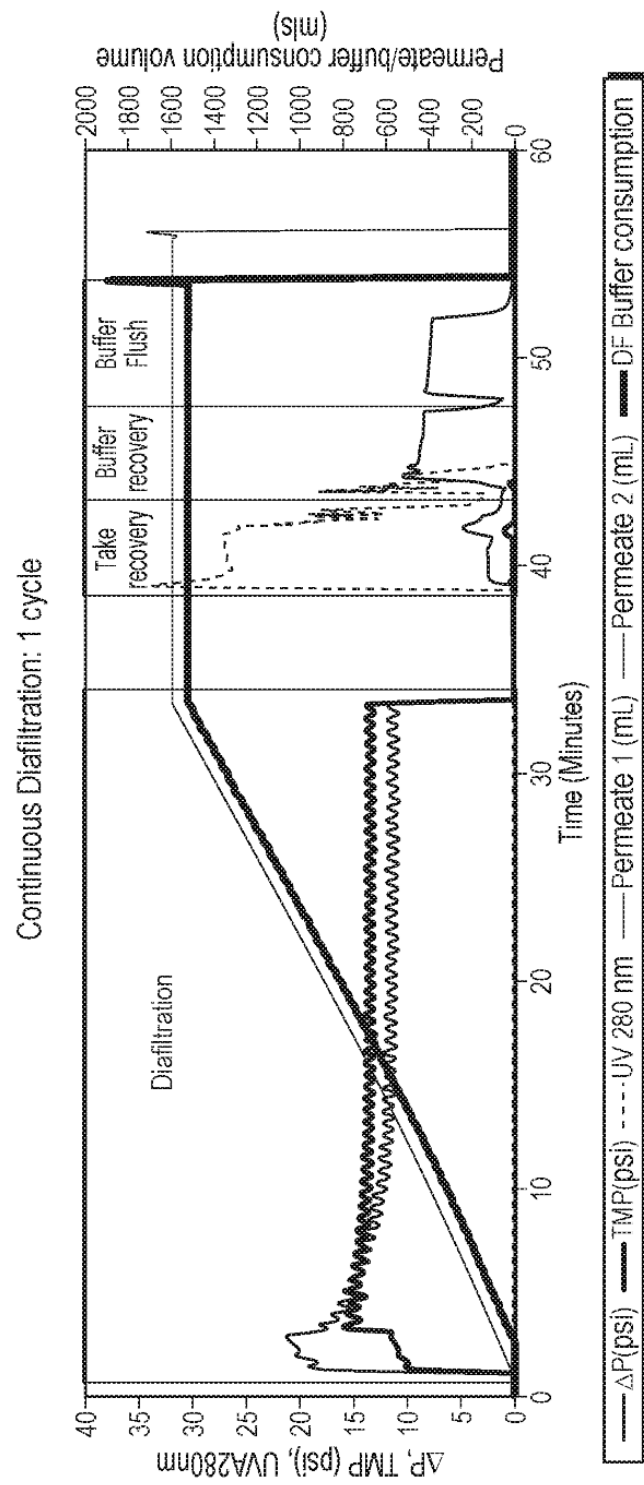


FIG. 10

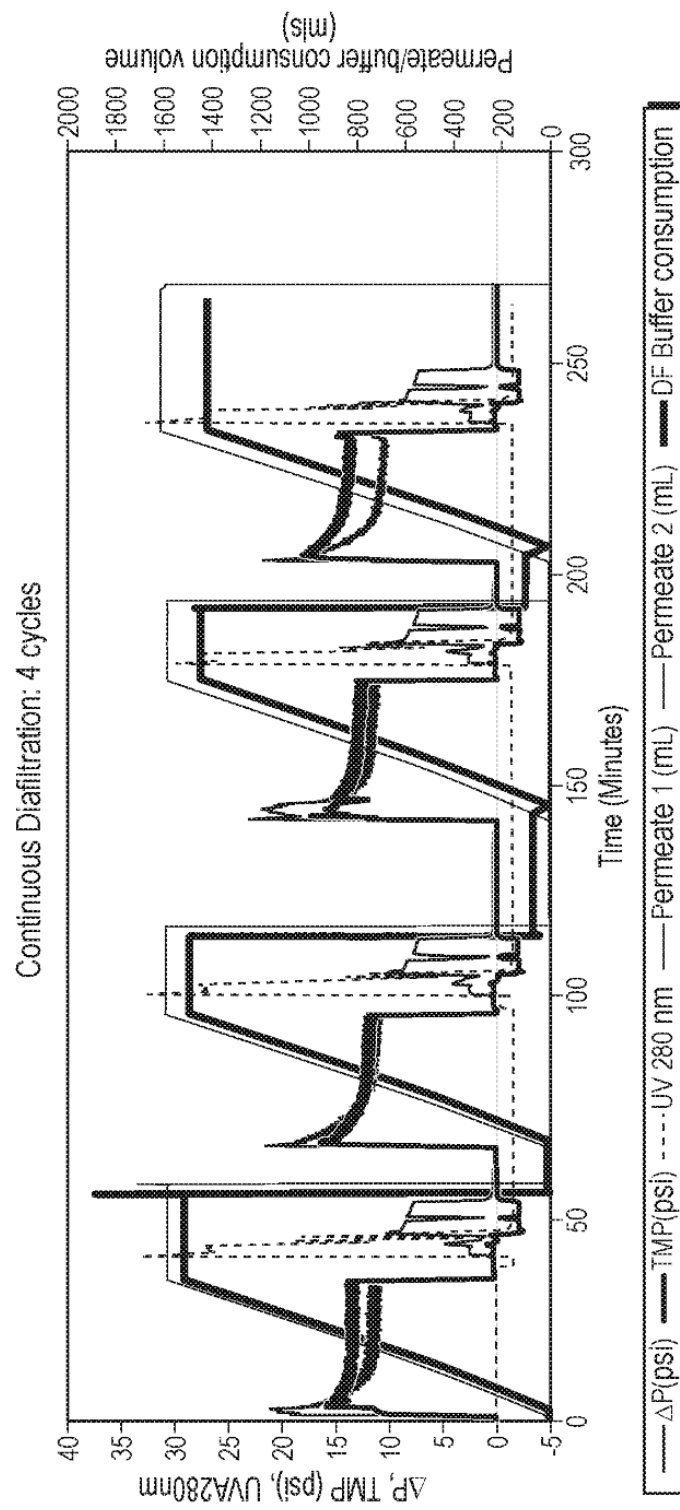


FIG. 11

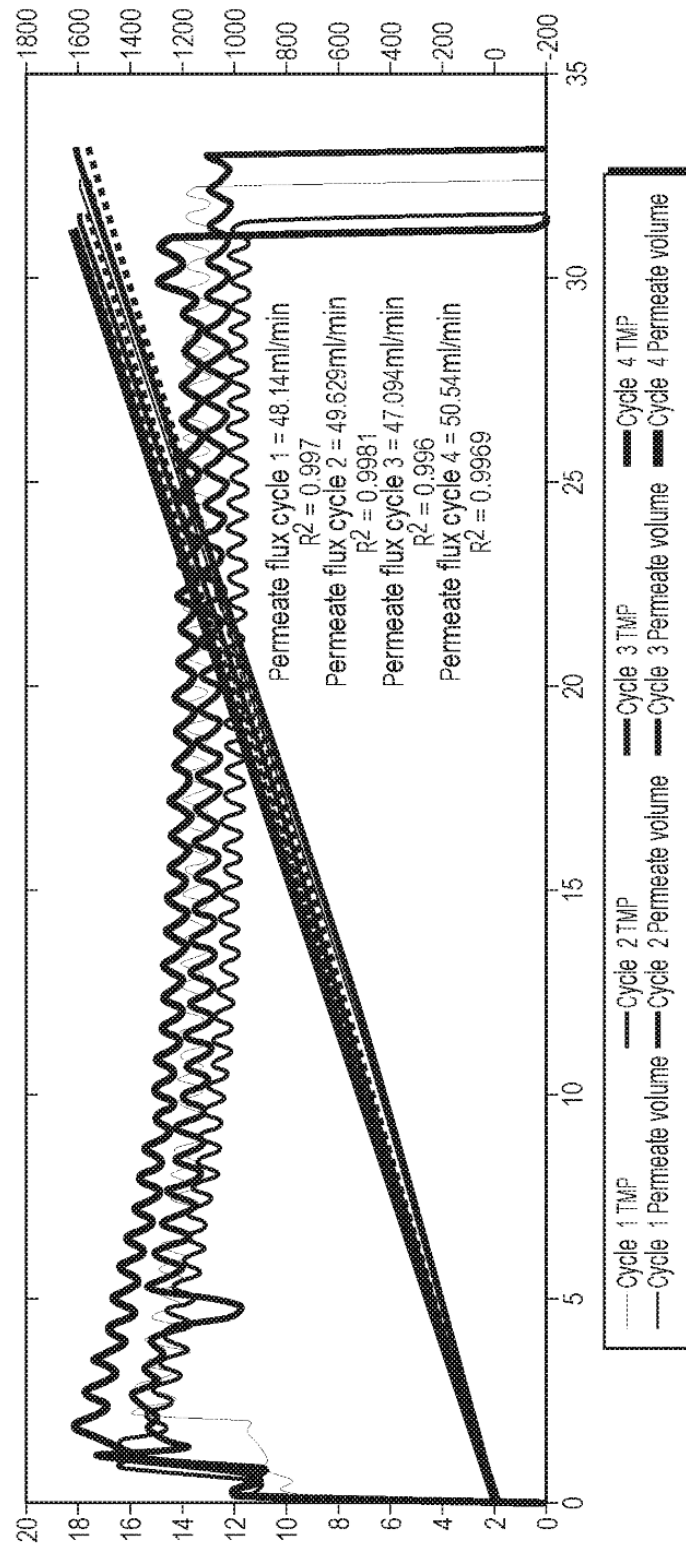


FIG. 12

Variables	Cycle 1	Cycle 2	Cycle 3	Cycle 4
DF Time (min)	32.4	31.5	33.0	30.7
DF Volume (L)	1520	1519	1525	1525
Permeate Volume (ml)	1611	1593	1614	1611
System hold up	90	74	89	86
Permeate Flux (LMH)	13.6	13.8	13.3	14.3
Feed Flux (LMH)	60	60	60	60
Feed Flux (lmm)	1	1	1	1
Conversion	23%	23%	22%	24%
Average TMP (psi)	13.4	12.5	12.8	14.5

FIG. 13

Cycle Number	Feed		Product recovery (tank + buffer recovery)		Tank residual		Yield (%)	Buffer Flush		Permeate		Mass balance
	Volume (ml)	Concentration (g/L)	Volume (ml)	Concentration (g/L)	Volume (ml)	Concentration (g/L)		Volume (ml)	Concentration (g/L)	Volume (ml)	Concentration (g/L)	
1	195.8	73.1	295.4	47.0	NA	NA	98.5%	197.6	0.21	1610.6	0.02	99.0%
2	195.5	73.1	296.1	47.1	NA	NA	99.0%	198.3	0.27	1593.1	0.03	99.8%
3	196.7	73.1	296.1	47.9	2	110.7	98.6%	193.8	0.20	1613.8	0.02	99.1%
4	196.2	73.1	294.9	48.0	2	104	98.7%	195.9	0.19	1610.7	0.03	99.2%

FIG. 14

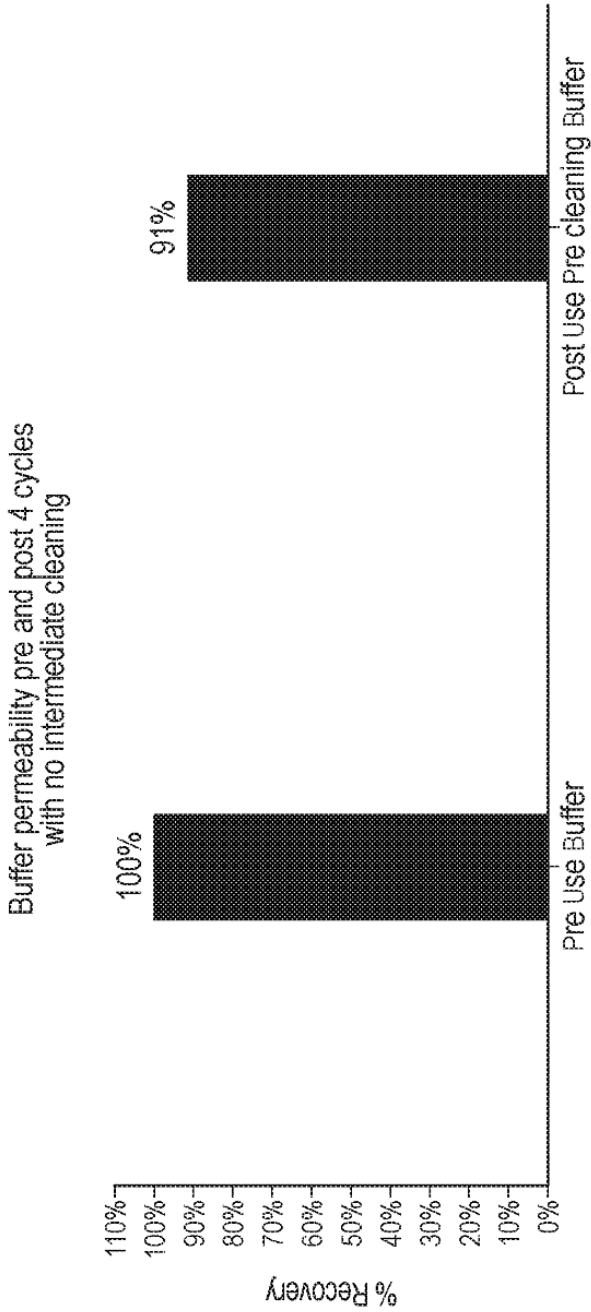


FIG. 15