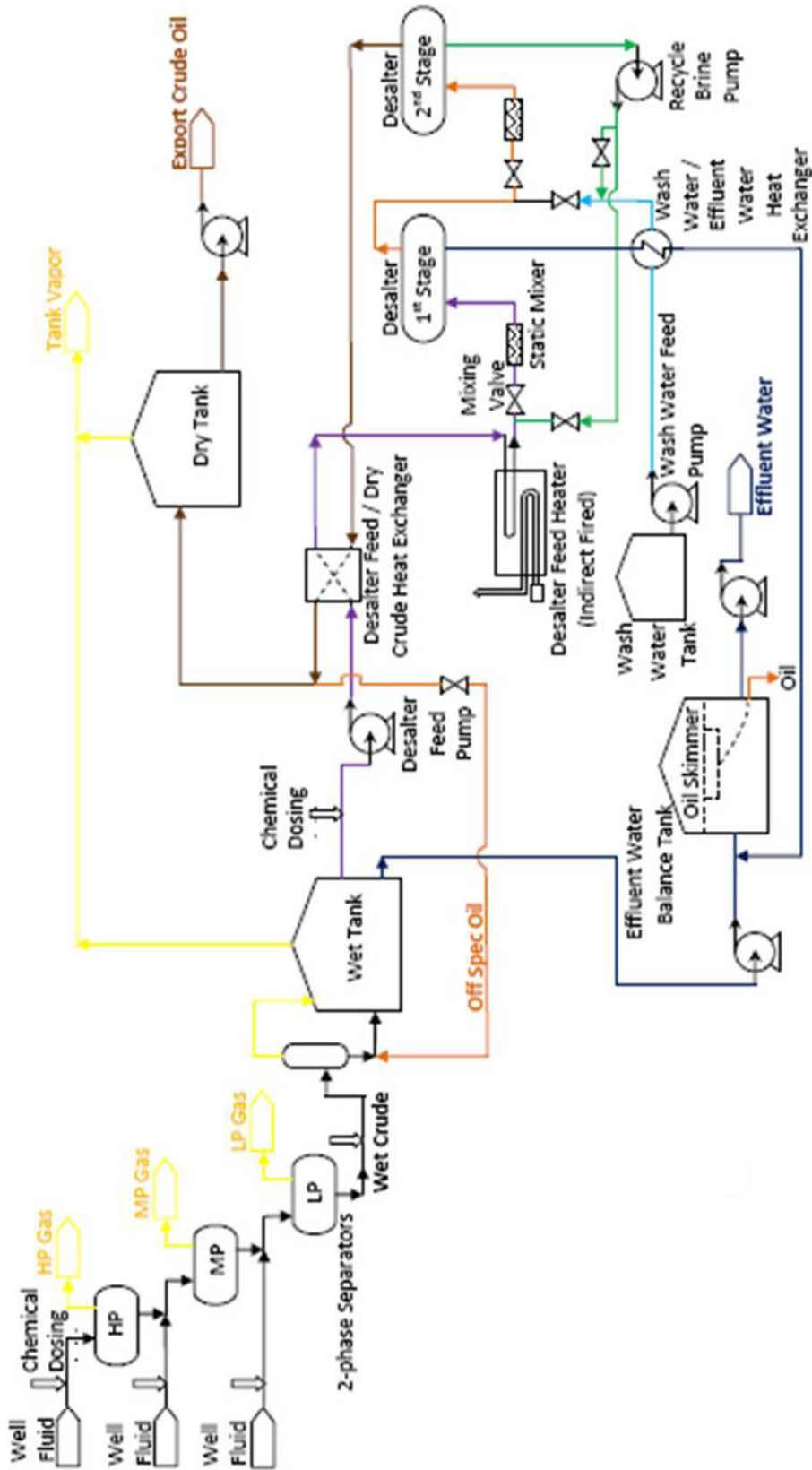

SUPPORTING DOCUMENTS

In this chapter, additional material that supports current research is given for cross reference. Particularly, it includes a schematic illustrating oil production train and DDP, data used in the study and outputs of the VP Model developed in this study.

Appendix-A1

Crude Oil Production including Dehydration and Desalting Process (Simplified schematic)



Appendix-A2

Data from Literature							ANN (in MATLAB) Output	Process Model Output in this study	
Used as Training Data for predicting Salt Removal Efficiency (SRE)						SRE			SRE
Experimental Data									
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE		
°C	min.	min.	ppm	%	%	%	%		
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$	$Y_{calc.}$		
55	1	1	1	1	38	40.237	38.887		
55	1	1	1	2	40	42.138	41.214		
55	1	1	1	3	45	43.923	43.356		
55	1	1	1	4	45	45.586	45.311		
55	1	1	1	6	50	48.528	48.654		
55	1	1	1	10	52	52.749	53.127		
55	1	1	2	1	40	41.008	39.854		
55	1	1	2	2	42	42.865	42.110		
55	1	1	2	3	45	44.605	44.180		
55	1	1	2	4	45	46.223	46.062		
55	1	1	2	6	50	49.081	49.267		
55	1	1	2	8	50	51.412	51.737		
55	1	1	2	10	52	53.189	53.501		
55	1	1	5	1	42	43.31	42.780		
55	1	1	5	2	44	45.006	44.828		
55	1	1	5	4	50	48.057	48.372		
55	1	1	5	6	52	50.647	51.198		
55	1	1	5	8	54	52.77	53.335		
55	1	1	5	10	55	54.415	54.821		
55	1	1	8	1	42	45.118	45.074		
55	1	1	8	2	46	46.641	46.939		
55	1	1	8	3	46	48.061	48.628		
55	1	1	8	4	50	49.381	50.144		

Data from Literature							ANN (in MATLAB) Output	Process Model Output in this study	
Used as Training Data for predicting Salt Removal Efficiency (SRE)						SRE			SRE
Experimental Data									
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE		
°C	min.	min.	ppm	%	%	%	%		
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}		
55	1	1	8	6	54	51.721	52.674		
55	1	1	8	8	55	53.661	54.571		
55	1	1	10	1	48	45.842	45.849		
55	1	1	10	2	50	47.257	47.613		
55	1	1	10	3	50	48.581	49.208		
55	1	1	10	4	52	49.815	50.638		
55	1	1	10	6	56	52.016	53.025		
55	1	1	10	8	56	53.863	54.818		
55	1	1	10	10	58	55.355	56.060		
55	1	1	12	1	46	46.111	45.808		
55	1	1	12	2	48	47.432	47.491		
55	1	1	12	3	48	48.674	49.013		
55	1	1	12	6	52	51.929	52.668		
55	1	1	12	8	54	53.709	54.400		
55	1	1	12	10	54	55.177	55.621		
55	1	1	15	1	46	45.607	43.942		
55	1	1	15	2	46	46.821	45.544		
55	1	1	15	3	46	47.972	46.998		
55	1	1	15	4	48	49.059	48.311		
55	1	1	15	6	50	51.046	50.535		
55	1	1	15	8	50	52.779	52.261		
55	1	1	15	10	52	54.254	53.530		
55	1	3	1	2	48.86	50.569	49.715		

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	3	1	3	52.27	51.648	51.111
55	1	3	1	4	52.27	52.62	52.324
55	1	3	1	6	54.55	54.215	54.196
55	1	3	1	8	54.55	55.303	55.334
55	1	3	1	10	55.68	55.833	55.759
55	1	3	2	1	48.86	50.13	49.086
55	1	3	2	2	50	51.268	50.593
55	1	3	2	3	54.55	52.301	51.919
55	1	3	2	4	55.68	53.224	53.061
55	1	3	2	8	54.55	55.723	55.809
55	1	3	2	10	56.82	56.19	56.126
55	1	3	5	1	54.55	52.53	51.977
55	1	3	5	2	51.14	53.525	53.262
55	1	3	5	3	54.55	54.411	54.368
55	1	3	5	4	55.68	55.186	55.294
55	1	3	5	6	56.82	56.403	56.623
55	1	3	5	8	56.82	57.17	57.275
55	1	3	5	10	59.09	57.476	57.289
55	1	3	8	1	56.82	55.088	55.011
55	1	3	8	3	56.82	56.67	56.993
55	1	3	8	4	56.82	57.304	57.728
55	1	3	8	6	57.95	58.266	58.710
55	1	3	8	8	57.95	58.831	59.071

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	3	8	10	59.09	59.004	58.855
55	1	3	10	1	56.82	56.598	56.784
55	1	3	10	2	54.55	57.352	57.742
55	1	3	10	3	59.09	58.004	58.535
55	1	3	10	4	59.09	58.557	59.167
55	1	3	10	6	57.95	59.381	59.969
55	1	3	10	10	59.09	59.951	59.877
55	1	3	12	1	59.09	57.761	58.064
55	1	3	12	2	56.82	58.441	58.923
55	1	3	12	3	60.23	59.027	59.625
55	1	3	12	4	60.23	59.52	60.176
55	1	3	12	6	61.36	60.245	60.844
55	1	3	12	8	61.36	60.637	60.972
55	1	3	12	10	60.23	60.711	60.604
55	1	3	15	1	59.09	58.603	58.630
55	1	3	15	2	60.23	59.224	59.380
55	1	3	15	4	60.23	60.209	60.459
55	1	3	15	6	60.23	60.875	61.012
55	1	3	15	8	60.23	61.244	61.083
55	1	3	15	10	61.36	61.333	60.713
55	1	5	1	1	73.33	72.944	73.284
55	1	5	1	2	73.33	74.205	74.798
55	1	5	1	3	75.56	75.395	76.111

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$	$Y_{calc.}$
55	1	5	1	4	75.56	76.503	77.222
55	1	5	1	6	80	78.427	78.828
55	1	5	1	8	80	79.887	79.620
55	1	5	2	1	73.33	73.978	74.466
55	1	5	2	2	73.33	75.171	75.926
55	1	5	2	3	80	76.29	77.185
55	1	5	2	4	80	77.323	78.242
55	1	5	2	6	81.11	79.098	79.745
55	1	5	2	8	81.11	80.422	80.445
55	1	5	2	10	81.11	81.215	80.365
55	1	5	5	1	80	76.373	76.821
55	1	5	5	2	77.78	77.35	78.098
55	1	5	5	3	77.78	78.246	79.175
55	1	5	5	6	80	80.406	81.228
55	1	5	5	8	80	81.364	81.645
55	1	5	5	10	81.11	81.886	81.339
55	1	5	8	1	80	78.678	78.770
55	1	5	8	2	80	79.446	79.850
55	1	5	8	3	80	80.135	80.738
55	1	5	8	4	81.11	80.746	81.438
55	1	5	8	6	80	81.73	82.288
55	1	5	8	8	81.11	82.391	82.438
55	1	5	8	10	82.22	82.709	81.930

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	5	10	2	80	80.999	81.139
55	1	5	10	3	81.11	81.56	81.915
55	1	5	10	4	82.22	82.05	82.510
55	1	5	10	6	82.22	82.817	83.181
55	1	5	10	8	82.22	83.305	83.191
55	1	5	10	10	82.22	83.505	82.585
55	1	5	12	1	82.22	82.006	81.509
55	1	5	12	2	82.22	82.521	82.368
55	1	5	12	3	83.33	82.968	83.051
55	1	5	12	4	83.33	83.35	83.563
55	1	5	12	8	84.44	84.263	84.010
55	1	5	12	10	84.44	84.359	83.349
55	1	5	15	1	83.33	83.959	82.810
55	1	5	15	2	83.33	84.333	83.558
55	1	5	15	3	83.33	84.648	84.144
55	1	5	15	4	86.67	84.907	84.574
55	1	5	15	6	85.56	85.271	84.988
55	1	5	15	8	85.56	85.442	84.843
55	1	5	15	10	86.67	85.427	84.180
55	1	7	1	1	68.57	67.978	67.389
55	1	7	1	3	68.57	71.018	70.945
55	1	7	1	4	74.29	72.414	72.428
55	1	7	1	6	74.29	74.88	74.794

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	7	1	8	77.14	76.806	76.363
55	1	7	1	10	77.14	78.073	77.151
55	1	7	2	1	68.57	69.409	69.107
55	1	7	2	2	68.57	70.92	70.926
55	1	7	2	3	71.43	72.352	72.550
55	1	7	2	4	74.29	73.693	73.975
55	1	7	2	6	77.14	76.043	76.227
55	1	7	2	10	80	79.034	78.388
55	1	7	5	1	71.43	72.197	72.139
55	1	7	5	2	71.43	73.507	73.789
55	1	7	5	3	74.29	74.728	75.243
55	1	7	5	4	77.14	75.852	76.502
55	1	7	5	6	77.14	77.779	78.443
55	1	7	5	8	80	79.224	79.638
55	1	7	5	10	80	80.116	80.119
55	1	7	8	1	71.43	73.222	72.885
55	1	7	8	2	74.29	74.314	74.349
55	1	7	8	4	77.14	76.235	76.715
55	1	7	8	6	80	77.781	78.356
55	1	7	8	8	80	78.923	79.307
55	1	7	8	10	80	79.621	79.608
55	1	7	10	1	74.29	73.59	73.020
55	1	7	10	2	74.29	74.558	74.357

Data from Literature							ANN (in MATLAB) Output	Process Model Output in this study	
Used as Training Data for predicting Salt Removal Efficiency (SRE)						SRE			SRE
Experimental Data									
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE		
°C	min.	min.	ppm	%	%	%	%		
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}		
55	1	7	10	3	77.14	75.444	75.514		
55	1	7	10	4	77.14	76.248	76.494		
55	1	7	10	6	77.14	77.602	77.942		
55	1	7	10	8	80	78.606	78.742		
55	1	7	12	1	74.29	73.992	73.253		
55	1	7	12	2	74.29	74.855	74.473		
55	1	7	12	3	77.14	75.642	75.522		
55	1	7	12	4	77.14	76.354	76.403		
55	1	7	12	6	77.14	77.555	77.684		
55	1	7	12	8	80	78.453	78.359		
55	1	7	12	10	77.14	79.033	78.470		
55	1	7	15	1	71.43	74.494	73.668		
55	1	7	15	2	71.43	75.23	74.748		
55	1	7	15	3	74.29	75.902	75.671		
55	1	7	15	6	80	77.546	77.548		
55	1	7	15	8	80	78.339	78.110		
55	1	7	15	10	77.14	78.886	78.168		
55	1	9	1	1	74.12	73.096	72.517		
55	1	9	1	2	76.47	74.499	74.391		
55	1	9	1	3	76.47	75.836	76.075		
55	1	9	1	4	78.82	77.088	77.563		
55	1	9	1	6	78.82	79.257	79.947		
55	1	9	1	8	81.18	80.852	81.540		

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$	$Y_{calc.}$
55	1	9	1	10	81.18	81.746	82.356
55	1	9	2	2	74.12	76.266	75.971
55	1	9	2	3	74.12	77.595	77.566
55	1	9	2	4	78.82	78.833	78.964
55	1	9	2	6	81.18	80.963	81.171
55	1	9	2	8	83.53	82.516	82.594
55	1	9	2	10	83.53	83.37	83.257
55	1	9	5	1	78.82	78.983	78.294
55	1	9	5	2	81.18	80.277	79.849
55	1	9	5	3	81.18	81.482	81.208
55	1	9	5	4	89.41	82.584	82.372
55	1	9	5	8	83.53	85.737	85.123
55	1	9	5	10	83.53	86.397	85.408
55	1	9	8	1	78.82	80.671	80.034
55	1	9	8	2	78.82	81.763	81.397
55	1	9	8	3	78.82	82.761	82.570
55	1	9	8	4	83.53	83.658	83.555
55	1	9	8	6	83.53	85.127	84.978
55	1	9	8	8	84.71	86.115	85.701
55	1	9	8	10	84.71	86.562	85.765
55	1	9	10	1	81.18	80.484	79.924
55	1	9	10	3	89.41	82.312	82.229
55	1	9	10	4	89.41	83.087	83.110

Data from Literature							ANN (in MATLAB) Output	Process Model Output in this study	
Used as Training Data for predicting Salt Removal Efficiency (SRE)						SRE			SRE
Experimental Data									
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE		
°C	min.	min.	ppm	%	%	%	%		
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}		
55	1	9	10	6	89.41	84.34	84.353		
55	1	9	10	8	84.71	85.17	84.936		
55	1	9	10	10	84.71	85.532	84.901		
55	1	9	12	1	78.82	79.676	79.349		
55	1	9	12	2	78.82	80.533	80.477		
55	1	9	12	3	76.47	81.306	81.430		
55	1	9	12	4	78.82	81.992	82.214		
55	1	9	12	6	78.82	83.101	83.291		
55	1	9	12	10	83.53	84.188	83.635		
55	1	9	15	1	78.82	78.061	78.544		
55	1	9	15	2	81.18	78.826	79.516		
55	1	9	15	3	81.18	79.517	80.328		
55	1	9	15	4	81.18	80.134	80.985		
55	1	9	15	6	81.18	81.149	81.857		
55	1	9	15	8	81.18	81.868	82.175		
55	1	9	15	10	83.53	82.276	81.980		
55	3	1	1	1	70.83	72.059	71.884		
55	3	1	1	2	72.92	72.822	72.691		
55	3	1	1	4	75	74.333	74.226		
55	3	1	1	6	75	75.804	75.662		
55	3	1	1	8	77.08	77.216	77.004		
55	3	1	1	10	77.08	78.556	78.258		
55	3	1	2	1	72.92	72.627	72.936		

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	1	2	2	72.92	73.375	73.715
55	3	1	2	3	75	74.114	74.469
55	3	1	2	4	75	74.841	75.197
55	3	1	2	6	77.08	76.25	76.581
55	3	1	2	8	77.08	77.587	77.873
55	3	1	5	1	72.92	74.235	74.944
55	3	1	5	2	75	74.915	75.670
55	3	1	5	3	75	75.575	76.372
55	3	1	5	4	75	76.211	77.049
55	3	1	5	6	77.08	77.413	78.335
55	3	1	5	8	77.08	78.518	79.534
55	3	1	5	10	79.17	79.528	80.650
55	3	1	8	1	75	75.531	75.597
55	3	1	8	2	75	76.126	76.309
55	3	1	8	3	77.08	76.692	76.996
55	3	1	8	6	77.08	78.221	78.917
55	3	1	8	8	79.17	79.107	80.088
55	3	1	8	10	79.17	79.896	81.179
55	3	1	10	1	75	76.116	75.463
55	3	1	10	2	77.08	76.655	76.182
55	3	1	10	3	77.08	77.163	76.876
55	3	1	10	4	81.25	77.641	77.546
55	3	1	10	6	81.25	78.509	78.815

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	1	10	8	79.17	79.271	79.997
55	3	1	10	10	79.17	79.94	81.097
55	3	1	12	2	79.17	76.897	75.704
55	3	1	12	3	79.17	77.356	76.415
55	3	1	12	4	79.17	77.785	77.101
55	3	1	12	6	81.25	78.555	78.403
55	3	1	12	8	81.25	79.221	79.614
55	3	1	12	10	81.25	79.797	80.741
55	3	1	15	1	72.92	76.129	73.668
55	3	1	15	2	75	76.577	74.449
55	3	1	15	3	75	76.994	75.202
55	3	1	15	4	77.08	77.379	75.929
55	3	1	15	8	79.17	78.651	78.593
55	3	1	15	10	79.17	79.151	79.788
55	3	3	1	1	78	78.231	77.994
55	3	3	1	2	80	79.185	78.721
55	3	3	1	3	80	80.133	79.424
55	3	3	1	4	82	81.073	80.103
55	3	3	1	6	82	82.909	81.393
55	3	3	1	8	84	84.665	82.597
55	3	3	1	10	84	86.317	83.721
55	3	3	2	1	80	78.573	78.839
55	3	3	2	3	82	80.431	80.227

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$	$Y_{calc.}$
55	3	3	2	4	82	81.344	80.885
55	3	3	2	6	84	83.121	82.136
55	3	3	2	8	84	84.815	83.301
55	3	3	2	10	86	86.405	84.388
55	3	3	5	1	80	79.486	80.397
55	3	3	5	2	80	80.338	81.066
55	3	3	5	3	82	81.173	81.712
55	3	3	5	4	82	81.991	82.334
55	3	3	5	6	84	83.566	83.515
55	3	3	5	10	86	86.446	85.637
55	3	3	8	1	80	80.089	80.807
55	3	3	8	2	80	80.846	81.472
55	3	3	8	3	84	81.582	82.114
55	3	3	8	4	84	82.297	82.732
55	3	3	8	6	86	83.664	83.905
55	3	3	8	8	86	84.948	84.995
55	3	3	8	10	86	86.153	86.008
55	3	3	10	1	78	80.223	80.598
55	3	3	10	2	80	80.921	81.274
55	3	3	10	4	84	82.25	82.557
55	3	3	10	6	84	83.494	83.750
55	3	3	10	8	84	84.662	84.859
55	3	3	10	10	86	85.76	85.889

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	3	12	1	78	80.065	80.079
55	3	3	12	2	78	80.715	80.777
55	3	3	12	3	81	81.342	81.451
55	3	3	12	4	81	81.947	82.100
55	3	3	12	6	82	83.094	83.331
55	3	3	12	8	82	84.17	84.475
55	3	3	15	1	80	79.111	78.826
55	3	3	15	2	81	79.723	79.571
55	3	3	15	3	81	80.31	80.290
55	3	3	15	4	82	80.875	80.983
55	3	3	15	6	83	81.945	82.297
55	3	3	15	8	83	82.947	83.519
55	3	3	15	10	83	83.895	84.655
55	3	5	1	1	80	81.019	80.720
55	3	5	1	2	82	81.867	81.382
55	3	5	1	3	82	82.685	82.022
55	3	5	1	6	84	84.928	83.813
55	3	5	1	8	86	86.223	84.906
55	3	5	1	10	86	87.345	85.924
55	3	5	2	1	82	81.393	81.362
55	3	5	2	2	82	82.235	82.009
55	3	5	2	3	84	83.044	82.633
55	3	5	2	4	84	83.817	83.236

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	5	2	6	86	85.245	84.379
55	3	5	2	8	86	86.502	85.444
55	3	5	2	10	88	87.584	86.435
55	3	5	5	2	82	82.983	83.083
55	3	5	5	3	84	83.749	83.684
55	3	5	5	4	84	84.475	84.263
55	3	5	5	6	86	85.799	85.361
55	3	5	5	8	88	86.948	86.382
55	3	5	5	10	88	87.927	87.332
55	3	5	8	1	82	82.333	82.582
55	3	5	8	2	82	83.089	83.210
55	3	5	8	3	86	83.806	83.815
55	3	5	8	4	86	84.482	84.399
55	3	5	8	8	88	86.787	86.532
55	3	5	8	10	88	87.705	87.487
55	3	5	10	1	80	82.01	82.250
55	3	5	10	2	82	82.737	82.894
55	3	5	10	3	84	83.426	83.515
55	3	5	10	4	86	84.079	84.114
55	3	5	10	6	86	85.271	85.248
55	3	5	10	8	86	86.319	86.301
55	3	5	10	10	86	87.227	87.279
55	3	5	12	1	80	81.283	81.653

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	5	12	3	83	82.665	82.965
55	3	5	12	4	83	83.305	83.587
55	3	5	12	6	84	84.483	84.763
55	3	5	12	8	84	85.532	85.857
55	3	5	12	10	85	86.457	86.872
55	3	5	15	1	78	79.297	80.342
55	3	5	15	2	80	80.004	81.059
55	3	5	15	3	83	80.682	81.751
55	3	5	15	4	83	81.332	82.419
55	3	5	15	6	84	82.547	83.683
55	3	5	15	10	85	84.659	85.950
55	3	7	1	1	80	81.336	82.610
55	3	7	1	2	82	82.135	83.217
55	3	7	1	3	84	82.906	83.803
55	3	7	1	4	84	83.644	84.369
55	3	7	1	6	86	85.01	85.442
55	3	7	1	8	86	86.213	86.441
55	3	7	1	10	86	87.244	87.371
55	3	7	2	1	82	81.923	83.079
55	3	7	2	2	82	82.706	83.675
55	3	7	2	4	84	84.168	84.806
55	3	7	2	6	86	85.471	85.858
55	3	7	2	8	88	86.601	86.837

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$	$Y_{calc.}$
55	3	7	2	10	88	87.555	87.747
55	3	7	5	1	84	83.25	83.783
55	3	7	5	2	84	83.97	84.367
55	3	7	5	3	84	84.645	84.929
55	3	7	5	4	86	85.272	85.472
55	3	7	5	6	88	86.387	86.500
55	3	7	5	8	88	87.317	87.454
55	3	7	8	1	84	83.736	83.657
55	3	7	8	2	84	84.395	84.253
55	3	7	8	3	86	85.002	84.828
55	3	7	8	4	86	85.561	85.382
55	3	7	8	6	86	86.535	86.430
55	3	7	8	8	88	87.334	87.404
55	3	7	8	10	88	87.977	88.308
55	3	7	10	1	82	83.48	83.220
55	3	7	10	2	84	84.114	83.835
55	3	7	10	3	84	84.698	84.428
55	3	7	10	6	86	86.166	86.082
55	3	7	10	8	86	86.933	87.087
55	3	7	10	10	87	87.557	88.020
55	3	7	12	1	82	82.68	82.551
55	3	7	12	2	82	83.314	83.193
55	3	7	12	3	84	83.898	83.811

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	7	12	4	84	84.435	84.408
55	3	7	12	6	85	85.378	85.537
55	3	7	12	8	85	86.165	86.586
55	3	7	12	10	86	86.816	87.559
55	3	7	15	2	80	80.988	81.876
55	3	7	15	3	82	81.624	82.544
55	3	7	15	4	83	82.216	83.188
55	3	7	15	6	84	83.278	84.408
55	3	7	15	8	85	84.193	85.542
55	3	7	15	10	85	84.98	86.595
55	3	9	1	1	82	82.31	84.143
55	3	9	1	2	84	83.174	84.703
55	3	9	1	3	84	84.011	85.243
55	3	9	1	4	84	84.817	85.764
55	3	9	1	8	88	87.636	87.669
55	3	9	1	10	88	88.756	88.523
55	3	9	2	1	84	83.053	84.469
55	3	9	2	2	84	83.894	85.022
55	3	9	2	3	85	84.703	85.555
55	3	9	2	4	85	85.473	86.069
55	3	9	2	6	87	86.884	87.042
55	3	9	2	8	88	88.102	87.948
55	3	9	2	10	88	89.114	88.790

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	9	5	1	84	84.81	84.850
55	3	9	5	4	86	86.895	86.439
55	3	9	5	6	88	88.025	87.405
55	3	9	5	8	88	88.943	88.302
55	3	9	5	10	90	89.659	89.136
55	3	9	8	1	86	85.594	84.523
55	3	9	8	2	86	86.23	85.091
55	3	9	8	3	88	86.81	85.638
55	3	9	8	4	88	87.335	86.165
55	3	9	8	6	88	88.225	87.163
55	3	9	8	8	90	88.917	88.089
55	3	9	10	1	84	85.428	84.001
55	3	9	10	2	86	86.007	84.590
55	3	9	10	3	87	86.531	85.158
55	3	9	10	4	87	87.001	85.705
55	3	9	10	6	87	87.791	86.741
55	3	9	10	8	88	88.402	87.704
55	3	9	10	10	88	88.861	88.596
55	3	9	12	1	84	84.62	83.277
55	3	9	12	2	85	85.17	83.895
55	3	9	12	3	86	85.666	84.490
55	3	9	12	6	86	86.866	86.149
55	3	9	12	8	87	87.461	87.158

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	9	12	10	87	87.925	88.094
55	3	9	15	1	82	82.07	81.868
55	3	9	15	2	84	82.633	82.538
55	3	9	15	3	84	83.149	83.184
55	3	9	15	4	86	83.622	83.806
55	3	9	15	6	86	84.452	84.985
55	3	9	15	8	86	85.147	86.081
55	3	9	15	10	86	85.73	87.098
70	1	1	1	2	60	60.258	59.612
70	1	1	1	3	62	61.726	61.465
70	1	1	1	4	65	63.103	63.123
70	1	1	1	6	65	65.597	65.865
70	1	1	1	8	68	67.763	67.867
70	1	1	1	10	68	69.631	69.162
70	1	1	2	1	60	60.121	59.058
70	1	1	2	2	60	61.593	61.027
70	1	1	2	3	62	62.974	62.804
70	1	1	2	4	65	64.267	64.390
70	1	1	2	8	70	68.617	68.895
70	1	1	2	10	70	70.352	70.103
70	1	1	5	1	62	63.168	62.588
70	1	1	5	2	62	64.415	64.356
70	1	1	5	3	64	65.579	65.947

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$	$Y_{calc.}$
70	1	1	5	4	68	66.663	67.363
70	1	1	5	6	70	68.607	69.685
70	1	1	5	8	70	70.279	71.356
70	1	1	5	10	72	71.711	72.410
70	1	1	8	1	64	64.237	63.666
70	1	1	8	3	67	66.36	66.728
70	1	1	8	4	70	67.315	68.023
70	1	1	8	6	70	69.032	70.164
70	1	1	8	8	74	70.517	71.730
70	1	1	8	10	74	71.797	72.753
70	1	1	10	1	64	63.782	62.826
70	1	1	10	2	65	64.823	64.340
70	1	1	10	3	65	65.798	65.708
70	1	1	10	4	67	66.711	66.935
70	1	1	10	6	67	68.364	68.980
70	1	1	10	10	72	71.069	71.535
70	1	1	12	1	60	62.395	61.122
70	1	1	12	2	62	63.403	62.537
70	1	1	12	3	64	64.354	63.820
70	1	1	12	4	64	65.251	64.976
70	1	1	12	6	66	66.894	66.920
70	1	1	12	8	70	68.353	68.396
70	1	1	12	10	70	69.647	69.429

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	1	15	1	58	58.78	58.347
70	1	1	15	2	60	59.749	59.604
70	1	1	15	4	62	61.565	61.786
70	1	1	15	6	64	63.23	63.553
70	1	1	15	8	64	64.758	64.928
70	1	1	15	10	66	66.158	65.932
70	1	3	1	1	56.82	55.282	56.041
70	1	3	1	2	56.82	56.996	58.077
70	1	3	1	3	59.09	58.616	59.914
70	1	3	1	4	62.5	60.14	61.552
70	1	3	1	6	62.5	62.911	64.245
70	1	3	1	8	65.91	65.327	66.180
70	1	3	2	1	56.82	56.81	56.572
70	1	3	2	2	56.82	58.44	58.534
70	1	3	2	3	59.09	59.974	60.304
70	1	3	2	4	62.5	61.414	61.882
70	1	3	2	6	65.91	64.021	64.477
70	1	3	2	8	65.91	66.284	66.348
70	1	3	2	10	68.18	68.229	67.529
70	1	3	5	1	59.09	60.062	58.161
70	1	3	5	2	59.09	61.469	59.846
70	1	3	5	3	59.09	62.785	61.356
70	1	3	5	6	65.91	66.221	64.871

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$	$Y_{calc.}$
70	1	3	5	8	65.91	68.122	66.411
70	1	3	5	10	68.18	69.749	67.353
70	1	3	8	1	61.36	61.135	59.797
70	1	3	8	2	62.5	62.386	61.234
70	1	3	8	3	62.5	63.556	62.512
70	1	3	8	4	65.91	64.648	63.634
70	1	3	8	6	68.18	66.615	65.432
70	1	3	8	8	68.18	68.317	66.663
70	1	3	8	10	68.18	69.783	67.361
70	1	3	10	2	61.36	61.768	61.523
70	1	3	10	3	62.5	62.878	62.688
70	1	3	10	4	62.5	63.92	63.710
70	1	3	10	6	63.64	65.808	65.342
70	1	3	10	8	65.91	67.461	66.452
70	1	3	10	10	65.91	68.904	67.071
70	1	3	12	1	59.09	59.074	59.639
70	1	3	12	2	61.36	60.205	60.852
70	1	3	12	3	61.36	61.275	61.930
70	1	3	12	4	63.64	62.285	62.876
70	1	3	12	8	63.64	65.79	65.437
70	1	3	12	10	63.64	67.257	66.031
70	1	3	15	1	57.95	55.372	57.092
70	1	3	15	2	57.95	56.418	58.169

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	3	15	3	59.09	57.421	59.132
70	1	3	15	4	61.36	58.383	59.982
70	1	3	15	6	61.36	60.192	61.363
70	1	3	15	8	62.5	61.856	62.339
70	1	3	15	10	62.5	63.388	62.933
70	1	5	1	1	62.22	60.351	60.097
70	1	5	1	3	64.44	63.487	63.346
70	1	5	1	4	64.44	64.893	64.669
70	1	5	1	6	64.44	67.379	66.724
70	1	5	1	8	68.89	69.443	68.021
70	1	5	1	10	68.89	71.102	68.601
70	1	5	2	1	62.22	61.855	61.942
70	1	5	2	2	64.44	63.394	63.640
70	1	5	2	3	64.44	64.824	65.138
70	1	5	2	4	64.44	66.144	66.438
70	1	5	2	6	66.67	68.463	68.460
70	1	5	2	10	71.11	71.879	70.321
70	1	5	5	1	64.44	64.882	64.818
70	1	5	5	2	66.67	66.195	66.448
70	1	5	5	3	66.67	67.4	67.893
70	1	5	5	4	68.89	68.5	69.155
70	1	5	5	6	68.89	70.399	71.150
70	1	5	5	8	71.11	71.921	72.469

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$	$Y_{calc.}$
70	1	5	5	10	73.33	73.1	73.150
70	1	5	8	1	66.67	65.484	64.304
70	1	5	8	2	68.89	66.623	65.793
70	1	5	8	4	71.11	68.613	68.290
70	1	5	8	6	73.33	70.245	70.174
70	1	5	8	8	73.33	71.552	71.478
70	1	5	8	10	75.56	72.567	72.237
70	1	5	10	1	62.22	64.518	63.247
70	1	5	10	2	64.44	65.568	64.579
70	1	5	10	3	64.44	66.532	65.764
70	1	5	10	4	66.67	67.413	66.807
70	1	5	10	6	66.67	68.943	68.486
70	1	5	10	8	68.89	70.189	69.650
70	1	5	12	1	60	62.579	62.131
70	1	5	12	2	62.22	63.547	63.299
70	1	5	12	3	62.22	64.443	64.334
70	1	5	12	4	64.44	65.27	65.239
70	1	5	12	6	66.67	66.73	66.681
70	1	5	12	8	66.67	67.952	67.658
70	1	5	12	10	66.67	68.96	68.201
70	1	5	15	1	60	58.371	59.870
70	1	5	15	2	62.22	59.196	60.847
70	1	5	15	3	62.22	59.973	61.707

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	5	15	6	64.44	62.04	63.626
70	1	5	15	8	64.44	63.219	64.394
70	1	5	15	10	65.56	64.258	64.783
70	1	7	1	1	54.29	51.708	50.629
70	1	7	1	2	54.29	53.365	52.610
70	1	7	1	3	57.14	54.918	54.394
70	1	7	1	4	57.14	56.367	55.985
70	1	7	1	6	57.14	58.946	58.595
70	1	7	1	8	60	61.106	60.474
70	1	7	1	10	60	62.866	61.665
70	1	7	2	2	54.29	55.258	54.644
70	1	7	2	3	54.29	56.745	56.367
70	1	7	2	4	54.29	58.123	57.900
70	1	7	2	6	57.14	60.555	60.407
70	1	7	2	8	62.86	62.568	62.199
70	1	7	2	10	62.86	64.184	63.322
70	1	7	5	1	57.14	57.999	57.770
70	1	7	5	2	57.14	59.412	59.523
70	1	7	5	3	60	60.713	61.092
70	1	7	5	4	62.86	61.904	62.483
70	1	7	5	8	65.71	65.626	66.348
70	1	7	5	10	68.57	66.915	67.338
70	1	7	8	1	60	59.815	60.247

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$	$Y_{calc.}$
70	1	7	8	2	65.71	61.076	61.899
70	1	7	8	3	65.71	62.233	63.380
70	1	7	8	4	68.57	63.288	64.696
70	1	7	8	6	68.57	65.107	66.852
70	1	7	8	8	71.43	66.563	68.408
70	1	7	8	10	71.43	67.69	69.404
70	1	7	10	1	57.14	59.651	59.877
70	1	7	10	3	65.71	61.899	62.962
70	1	7	10	4	65.71	62.884	64.270
70	1	7	10	6	68.57	64.594	66.443
70	1	7	10	8	68.57	65.981	68.057
70	1	7	10	10	68.57	67.073	69.149
70	1	7	12	1	54.29	58.574	57.659
70	1	7	12	2	57.14	59.648	59.252
70	1	7	12	3	57.14	60.642	60.700
70	1	7	12	4	60	61.558	62.008
70	1	7	12	6	60	63.17	64.222
70	1	7	12	10	62.86	65.587	67.155
70	1	7	15	1	54.29	55.885	51.781
70	1	7	15	2	54.29	56.779	53.246
70	1	7	15	3	54.29	57.616	54.592
70	1	7	15	4	57.14	58.398	55.822
70	1	7	15	6	57.14	59.806	57.953

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	7	15	8	60	61.019	59.669
70	1	7	15	10	62.86	62.053	60.995
70	1	9	1	1	64.71	64.013	64.621
70	1	9	1	2	64.71	65.806	66.648
70	1	9	1	4	71.76	69.165	70.146
70	1	9	1	6	74.12	72.198	72.920
70	1	9	1	8	74.12	74.894	75.005
70	1	9	1	10	76.47	77.256	76.446
70	1	9	2	1	64.71	65.736	65.783
70	1	9	2	2	67.06	67.462	67.736
70	1	9	2	3	71.76	69.107	69.504
70	1	9	2	4	71.76	70.668	71.091
70	1	9	2	6	74.12	73.532	73.737
70	1	9	2	8	76.47	76.053	75.709
70	1	9	5	1	67.06	69.386	68.420
70	1	9	5	2	67.06	70.901	70.159
70	1	9	5	3	74.12	72.324	71.724
70	1	9	5	4	74.12	73.657	73.119
70	1	9	5	6	74.12	76.057	75.420
70	1	9	5	8	76.47	78.122	77.104
70	1	9	5	10	76.47	79.877	78.217
70	1	9	8	1	69.41	70.562	69.678
70	1	9	8	2	71.76	71.863	71.231

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	9	8	3	74.12	73.077	72.623
70	1	9	8	6	78.82	76.23	75.890
70	1	9	8	8	78.82	77.958	77.363
70	1	9	8	10	81.18	79.421	78.324
70	1	9	10	1	69.41	70.06	69.598
70	1	9	10	2	70.59	71.212	71.050
70	1	9	10	3	71.76	72.287	72.353
70	1	9	10	4	71.76	73.289	73.510
70	1	9	10	6	74.12	75.086	75.411
70	1	9	10	8	76.47	76.633	76.795
70	1	9	10	10	78.82	77.957	77.705
70	1	9	12	2	69.41	69.768	69.929
70	1	9	12	3	69.41	70.692	71.170
70	1	9	12	4	70.59	71.555	72.276
70	1	9	12	6	71.76	73.118	74.103
70	1	9	12	8	74.12	74.482	75.451
70	1	9	12	10	74.12	75.674	76.358
70	1	9	15	1	67.06	66.118	64.358
70	1	9	15	2	67.06	66.818	65.701
70	1	9	15	3	67.06	67.477	66.918
70	1	9	15	4	69.41	68.098	68.014
70	1	9	15	8	71.76	70.264	71.284
70	1	9	15	10	72.94	71.196	72.311

Data from Literature							ANN (in MATLAB) Output	Process Model Output in this study	
Used as Training Data for predicting Salt Removal Efficiency (SRE)						SRE			SRE
Experimental Data									
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE		
°C	min.	min.	ppm	%	%	%	%		
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}		
70	3	1	1	1	72.92	69.557	70.697		
70	3	1	1	2	70.83	71.143	71.605		
70	3	1	1	3	72.92	72.54	72.492		
70	3	1	1	4	72.92	73.735	73.358		
70	3	1	1	6	75	75.478	75.031		
70	3	1	1	8	75	76.353	76.627		
70	3	1	1	10	77.08	76.455	78.149		
70	3	1	2	1	72.92	71.423	72.917		
70	3	1	2	3	72.92	74.398	74.592		
70	3	1	2	4	72.92	75.591	75.400		
70	3	1	2	6	77.08	77.33	76.959		
70	3	1	2	8	77.08	78.19	78.446		
70	3	1	2	10	77.08	78.241	79.864		
70	3	1	5	1	75	75.746	77.396		
70	3	1	5	2	77.08	77.277	78.104		
70	3	1	5	3	77.08	78.632	78.796		
70	3	1	5	4	79.17	79.8	79.472		
70	3	1	5	6	86.46	81.538	80.777		
70	3	1	5	10	85.42	82.483	83.208		
70	3	1	8	1	77.08	77.698	79.058		
70	3	1	8	2	79.17	79.155	79.690		
70	3	1	8	3	81.25	80.459	80.309		
70	3	1	8	4	83.33	81.602	80.913		

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	1	8	6	83.33	83.375	82.082
70	3	1	8	8	81.25	84.41	83.199
70	3	1	8	10	81.25	84.662	84.266
70	3	1	10	1	77.08	77.602	78.842
70	3	1	10	2	79.17	79.002	79.455
70	3	1	10	4	83.33	81.396	80.641
70	3	1	10	6	81.25	83.205	81.777
70	3	1	10	8	81.25	84.368	82.864
70	3	1	10	10	81.25	84.823	83.906
70	3	1	12	1	79.17	76.524	77.687
70	3	1	12	2	79.17	77.851	78.303
70	3	1	12	3	81.25	79.067	78.905
70	3	1	12	4	81.25	80.167	79.495
70	3	1	12	6	81.25	81.996	80.639
70	3	1	12	8	86.46	83.279	81.736
70	3	1	15	1	77.08	73.649	74.333
70	3	1	15	2	75	74.818	74.988
70	3	1	15	3	75	75.91	75.630
70	3	1	15	4	77.08	76.921	76.260
70	3	1	15	6	78.13	78.685	77.484
70	3	1	15	8	78.13	80.06	78.661
70	3	1	15	10	79.17	80.977	79.793
70	3	3	1	1	74	72.994	72.448

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$	$Y_{calc.}$
70	3	3	1	2	74	74.249	73.186
70	3	3	1	3	75	75.304	73.905
70	3	3	1	6	78	77.208	75.957
70	3	3	1	8	78	77.491	77.240
70	3	3	1	10	78	77.195	78.459
70	3	3	2	1	76	74.387	74.357
70	3	3	2	2	76	75.671	75.040
70	3	3	2	3	77	76.752	75.706
70	3	3	2	4	77	77.621	76.355
70	3	3	2	6	78	78.703	77.605
70	3	3	2	8	79	78.962	78.792
70	3	3	2	10	79	78.57	79.918
70	3	3	5	2	79	78.922	78.761
70	3	3	5	3	79	80.043	79.308
70	3	3	5	4	80	80.957	79.841
70	3	3	5	6	84	82.13	80.867
70	3	3	5	8	84	82.427	81.841
70	3	3	5	10	85	81.938	82.767
70	3	3	8	1	79	78.743	79.658
70	3	3	8	2	82	80.034	80.152
70	3	3	8	3	82	81.153	80.635
70	3	3	8	4	83	82.09	81.105
70	3	3	8	8	85	83.861	82.877

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	3	8	10	85	83.534	83.700
70	3	3	10	1	77	78.23	79.524
70	3	3	10	2	78	79.473	80.001
70	3	3	10	3	78	80.566	80.467
70	3	3	10	4	80	81.502	80.922
70	3	3	10	6	81	82.865	81.801
70	3	3	10	8	81	83.5	82.639
70	3	3	10	10	82	83.377	83.439
70	3	3	12	1	77	76.866	78.612
70	3	3	12	3	78	79.068	79.559
70	3	3	12	4	79	79.977	80.016
70	3	3	12	6	80	81.372	80.900
70	3	3	12	8	81	82.147	81.746
70	3	3	12	10	81	82.244	82.554
70	3	3	15	1	75	73.871	75.902
70	3	3	15	2	75	74.851	76.414
70	3	3	15	3	76	75.746	76.915
70	3	3	15	4	76	76.551	77.405
70	3	3	15	6	78	77.867	78.355
70	3	3	15	10	80	79.086	80.140
70	3	5	1	1	76	75.515	77.077
70	3	5	1	2	78	76.82	77.690
70	3	5	1	3	78	77.93	78.287

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	5	1	4	79	78.846	78.869
70	3	5	1	6	80	80.127	79.987
70	3	5	1	8	80	80.818	81.047
70	3	5	1	10	80	81.16	82.053
70	3	5	2	1	76	76.699	78.703
70	3	5	2	2	79	78.065	79.268
70	3	5	2	4	80	80.179	80.353
70	3	5	2	6	80	81.482	81.383
70	3	5	2	8	81	82.108	82.360
70	3	5	2	10	81	82.293	83.286
70	3	5	5	1	80	79.591	81.973
70	3	5	5	2	80	81.084	82.431
70	3	5	5	3	81	82.362	82.877
70	3	5	5	4	82	83.415	83.312
70	3	5	5	6	86	84.838	84.148
70	3	5	5	8	86	85.41	84.942
70	3	5	8	1	82	81.016	83.237
70	3	5	8	2	84	82.535	83.637
70	3	5	8	3	84	83.855	84.028
70	3	5	8	4	86	84.965	84.410
70	3	5	8	6	90	86.526	85.144
70	3	5	8	8	90	87.208	85.843
70	3	5	8	10	90	87.1	86.507

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	5	10	1	79	80.998	83.161
70	3	5	10	2	84	82.471	83.547
70	3	5	10	3	84	83.768	83.924
70	3	5	10	6	86	86.495	85.001
70	3	5	10	8	88	87.285	85.677
70	3	5	10	10	88	87.275	86.321
70	3	5	12	1	79	80.34	82.445
70	3	5	12	2	81	81.716	82.831
70	3	5	12	3	82	82.942	83.209
70	3	5	12	4	84	84.008	83.578
70	3	5	12	6	84	85.622	84.291
70	3	5	12	8	85	86.496	84.972
70	3	5	12	10	85	86.612	85.623
70	3	5	15	2	80	79.873	80.678
70	3	5	15	3	80	80.914	81.083
70	3	5	15	4	82	81.837	81.479
70	3	5	15	6	84	83.297	82.246
70	3	5	15	8	84	84.181	82.981
70	3	5	15	10	85	84.43	83.684
70	3	7	1	1	82	83.09	81.370
70	3	7	1	2	84	83.797	81.875
70	3	7	1	3	84	84.333	82.367
70	3	7	1	4	86	84.71	82.846

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	7	1	8	86	85.084	84.636
70	3	7	1	10	87	84.972	85.461
70	3	7	2	1	84	84.011	82.745
70	3	7	2	2	84	84.787	83.209
70	3	7	2	3	85	85.374	83.660
70	3	7	2	4	85	85.778	84.099
70	3	7	2	6	86	86.112	84.942
70	3	7	2	8	86	85.994	85.741
70	3	7	2	10	87	85.665	86.497
70	3	7	5	1	84	85.499	85.511
70	3	7	5	3	86	87.2	86.244
70	3	7	5	4	87	87.715	86.597
70	3	7	5	6	87	88.103	87.274
70	3	7	5	8	87	87.777	87.916
70	3	7	5	10	87	86.992	88.525
70	3	7	8	1	87	85.739	86.601
70	3	7	8	2	87	86.793	86.923
70	3	7	8	3	87	87.628	87.238
70	3	7	8	4	91	88.235	87.545
70	3	7	8	6	91	88.765	88.135
70	3	7	8	10	87	87.484	89.229
70	3	7	10	1	85	85.408	86.569
70	3	7	10	2	87	86.443	86.878

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	7	10	3	87	87.276	87.180
70	3	7	10	4	91	87.898	87.475
70	3	7	10	6	87	88.487	88.043
70	3	7	10	8	87	88.225	88.585
70	3	7	10	10	86	87.241	89.101
70	3	7	12	1	84	84.808	86.010
70	3	7	12	2	86	85.759	86.319
70	3	7	12	4	87	87.12	86.917
70	3	7	12	6	87	87.701	87.488
70	3	7	12	8	86	87.477	88.033
70	3	7	12	10	86	86.511	88.553
70	3	7	15	1	84	83.76	84.265
70	3	7	15	2	84	84.498	84.597
70	3	7	15	3	86	85.098	84.921
70	3	7	15	4	86	85.552	85.239
70	3	7	15	6	87	85.984	85.853
70	3	7	15	8	86	85.737	86.441
70	3	9	1	1	86	86.591	87.728
70	3	9	1	2	86	87.228	88.101
70	3	9	1	3	87	87.764	88.463
70	3	9	1	4	87	88.222	88.815
70	3	9	1	6	87	89.009	89.489
70	3	9	1	8	87	89.786	90.125

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	9	1	10	91	90.679	90.724
70	3	9	2	1	87	88.26	88.896
70	3	9	2	2	91	88.945	89.233
70	3	9	2	3	91	89.5	89.561
70	3	9	2	6	91.3	90.606	90.487
70	3	9	2	8	91.5	91.148	91.061
70	3	9	2	10	91.5	91.739	91.601
70	3	9	5	1	92.1	91.027	91.260
70	3	9	5	2	92.4	91.829	91.518
70	3	9	5	3	92.8	92.436	91.769
70	3	9	5	4	92.8	92.859	92.013
70	3	9	5	6	92.5	93.237	92.479
70	3	9	5	8	92.3	93.19	92.919
70	3	9	5	10	92.3	92.979	93.334
70	3	9	8	2	93.2	92.32	92.448
70	3	9	8	3	93.4	92.96	92.658
70	3	9	8	4	93.2	93.383	92.862
70	3	9	8	6	93.1	93.63	93.254
70	3	9	8	8	93	93.233	93.624
70	3	9	8	10	92.9	92.463	93.974
70	3	9	10	1	91.9	91.386	92.255
70	3	9	10	2	93	92.217	92.460
70	3	9	10	3	93.1	92.836	92.658

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	9	10	4	93.1	93.239	92.852
70	3	9	10	8	92.8	92.873	93.577
70	3	9	10	10	92.7	91.838	93.911
70	3	9	12	1	91.7	91.451	91.847
70	3	9	12	2	92.8	92.198	92.051
70	3	9	12	3	93	92.747	92.250
70	3	9	12	4	92.9	93.092	92.443
70	3	9	12	6	92.9	93.171	92.815
70	3	9	12	8	92.6	92.495	93.169
70	3	9	12	10	92.5	91.243	93.506
70	3	9	15	1	91.7	92.079	90.496
70	3	9	15	2	92.2	92.62	90.717
70	3	9	15	3	92.5	92.994	90.932
70	3	9	15	4	92.7	93.193	91.143
70	3	9	15	6	92.5	93.047	91.549
70	3	9	15	8	92.5	92.176	91.936
70	3	9	15	10	92.1	90.662	92.306

Appendix-A3

Data from Literature							Process Model Output in this study
Used as Testing Data for predicting Salt Removal Efficiency (SRE)						ANN (in MATLAB) Output	
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X₁	X₂	X₃	X₄	X₅	Y_d	Y_{calc.}	Y_{calc.}
55	1	1	1	8	50	50.93	51.25213
55	1	1	5	3	46	46.59	46.69108
55	1	1	8	10	56	55.2	55.87746
55	1	1	12	4	50	49.84	50.37958
55	1	3	1	1	48.86	49.39	48.13732
55	1	3	2	6	54.55	54.72	54.79561
55	1	3	8	2	54.55	55.93	56.08825
55	1	3	10	8	59.09	59.84	60.1913
55	1	3	15	3	61.36	59.76	59.98849
55	1	5	1	10	81.11	80.79	79.6159
55	1	5	5	4	78.89	79.06	80.05479
55	1	5	10	1	80	80.36	80.17835
55	1	5	12	6	83.33	83.93	84.09621
55	1	7	1	2	68.57	69.53	69.2642
55	1	7	2	8	80	77.86	77.69084
55	1	7	8	3	74.29	75.32	75.62493
55	1	7	10	10	80	79.23	78.93668
55	1	7	15	4	77.14	76.51	76.44207
55	1	9	2	1	74.12	74.86	74.18301
55	1	9	5	6	89.41	84.43	84.12195
55	1	9	10	2	81.18	81.44	81.16823
55	1	9	12	8	81.18	83.84	83.75019
55	3	1	1	3	75	73.58	73.4716

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Testing Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	1	2	10	79.17	78.84	79.07995
55	3	1	8	4	77.08	77.23	77.65945
55	3	1	12	1	75	76.41	74.96718
55	3	1	15	6	77.08	78.07	77.30883
55	3	3	2	2	80	79.51	79.54483
55	3	3	5	8	86	85.05	84.61416
55	3	3	10	3	82	81.6	81.92723
55	3	3	12	10	83	85.19	85.53859
55	3	5	1	4	84	83.47	82.64002
55	3	5	5	1	82	82.18	82.46008
55	3	5	8	6	86	85.71	85.50486
55	3	5	12	2	80	81.99	82.32119
55	3	5	15	8	84	83.66	84.8583
55	3	7	2	3	84	83.46	84.2506
55	3	7	5	10	88	88.07	88.3417
55	3	7	10	4	86	85.23	84.99935
55	3	7	15	1	80	80.31	81.18379
55	3	9	1	6	86	86.32	86.75071
55	3	9	5	2	85	85.55	85.39901
55	3	9	5	3	86	86.25	85.9284
55	3	9	8	10	90	89.44	88.9489
55	3	9	12	4	86	86.11	85.0633
70	1	1	1	1	60	58.7	57.56234

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Testing Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data						SRE	SRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	1	2	6	70	66.6	67.00304
70	1	1	8	2	67	65.34	65.27667
70	1	1	10	8	72	69.81	70.50391
70	1	1	15	3	62	60.68	60.74875
70	1	3	1	10	65.91	67.41	67.39309
70	1	3	5	4	63.64	64.01	62.69366
70	1	3	10	1	61.36	60.58	60.21061
70	1	3	12	6	63.64	64.14	64.39434
70	1	5	1	2	62.22	61.97	61.82278
70	1	5	2	8	71.11	70.37	69.7406
70	1	5	8	3	68.89	67.66	67.12017
70	1	5	10	10	71.11	71.18	70.33186
70	1	5	15	4	62.22	60.7	62.4537
70	1	7	2	1	54.29	53.66	52.72605
70	1	7	5	6	62.86	63.97	64.74399
70	1	7	10	2	65.71	60.82	61.49913
70	1	7	12	8	62.86	64.51	65.92666
70	1	9	1	3	71.76	67.53	68.48945
70	1	9	2	10	76.47	78.24	77.05516
70	1	9	8	4	76.47	74.21	73.85999
70	1	9	12	1	67.06	68.78	68.54771
70	1	9	15	6	70.59	69.24	69.8629
70	3	1	2	2	70.83	73	73.76425

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Testing Data for predicting Salt Removal Efficiency (SRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	SRE	SRE	SRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	1	5	8	86.46	82.43	82.02128
70	3	1	10	3	79.17	80.27	80.05445
70	3	1	12	10	86.46	83.95	82.789
70	3	3	1	4	76	76.15	74.60674
70	3	3	5	1	78	77.6	78.20033
70	3	3	8	6	83	83.38	82.01303
70	3	3	12	2	78	78.03	79.09073
70	3	3	15	8	79	78.74	79.26666
70	3	5	2	3	79	79.23	79.81766
70	3	5	5	10	86	85.31	85.69476
70	3	5	10	4	85	84.88	84.2914
70	3	5	15	1	78	78.72	80.26442
70	3	7	1	6	86	85.07	83.76544
70	3	7	5	2	86	86.46	85.8825
70	3	7	8	8	87	88.45	88.69609
70	3	7	12	3	86	86.53	86.6218
70	3	7	15	10	86	84.8	87.00396
70	3	9	2	4	91.3	89.94	89.87853
70	3	9	8	1	92.5	91.46	92.23142
70	3	9	10	6	93	93.42	93.22412
70	3	9	15	2	92.2	92.62	90.71685

Appendix-A4

Data from Literature							Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)						ANN (in MATLAB) Output	
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$	$Y_{calc.}$
55	1	1	1	1	18.75	15.45	15.43844
55	1	1	1	2	31.25	25.603	25.81834
55	1	1	1	3	37.5	30.916	31.08236
55	1	1	1	4	37.5	33.885	34.22759
55	1	1	1	6	38.75	33.455	34.09072
55	1	1	1	8	38.75	30.457	31.04024
55	1	1	1	10	38.75	27.306	27.78379
55	1	1	2	2	31.25	38.012	37.96057
55	1	1	2	3	37.5	43.558	43.40406
55	1	1	2	4	43.75	46.779	46.78795
55	1	1	2	6	40.63	47.115	47.35425
55	1	1	2	8	40.63	45.002	45.11129
55	1	1	2	10	37.5	42.712	42.63226
55	1	1	5	1	25	30.846	31.42543
55	1	1	5	2	37.5	40.678	41.14059
55	1	1	5	3	43.75	45.986	46.30982
55	1	1	5	4	50	48.975	49.51691
55	1	1	5	8	40.63	47.763	48.34508
55	1	1	5	10	37.5	45.588	45.93261
55	1	1	8	1	31.25	28.725	29.42396
55	1	1	8	2	47.5	38.198	38.63041
55	1	1	8	3	47.5	43.192	43.54491
55	1	1	8	4	50	45.887	46.54674

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	1	8	6	47.5	46.493	47.39574
55	1	1	8	8	43.75	45.022	45.76442
55	1	1	8	10	43.75	42.914	43.41959
55	1	1	10	1	27.5	27.262	27.65533
55	1	1	10	3	43.75	41.134	41.21556
55	1	1	10	4	50	43.532	43.99627
55	1	1	10	6	47.5	43.978	44.74404
55	1	1	10	8	43.75	42.502	43.16421
55	1	1	10	10	40.63	40.3	40.77734
55	1	1	12	1	25	27.127	26.99773
55	1	1	12	2	37.5	36.047	35.57295
55	1	1	12	3	40.63	40.332	39.96231
55	1	1	12	4	43.75	42.379	42.46187
55	1	1	12	6	40.63	42.53	42.97273
55	1	1	12	10	37.5	38.488	38.7879
55	1	1	15	1	25	27.438	27.21361
55	1	1	15	2	34.38	36.049	35.43917
55	1	1	15	3	37.5	39.794	39.41277
55	1	1	15	4	40.63	41.38	41.49688
55	1	1	15	6	40	41.161	41.63148
55	1	1	15	8	40	39.376	39.83574
55	1	1	15	10	37.5	36.725	37.12657
55	1	3	1	1	7.14	6.194	6.771027

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	3	1	2	10.71	16.035	16.78246
55	1	3	1	4	11.43	22.622	23.34752
55	1	3	1	6	12.86	22.351	23.00859
55	1	3	1	8	12.86	20.701	21.11178
55	1	3	1	10	14.29	18.868	19.00509
55	1	3	2	1	21.43	20.995	21.22214
55	1	3	2	2	42.86	30.959	31.27377
55	1	3	2	3	45.71	35.688	35.93034
55	1	3	2	4	46.43	37.92	38.19638
55	1	3	2	6	45.71	38.387	38.56193
55	1	3	2	8	46.43	37.628	37.51536
55	1	3	5	1	25.71	29.325	29.6445
55	1	3	5	2	42.86	38.718	38.9841
55	1	3	5	3	42.86	42.843	43.08484
55	1	3	5	4	46.43	44.639	44.97703
55	1	3	5	6	46.43	44.877	45.15667
55	1	3	5	8	48.57	44.111	44.13778
55	1	3	5	10	46.43	43.226	42.96934
55	1	3	8	1	35.71	33.032	33.22509
55	1	3	8	2	46.43	42.102	42.14926
55	1	3	8	3	46.43	45.781	45.86716
55	1	3	8	6	48.57	47.482	47.63875
55	1	3	8	8	48.57	46.804	46.70403

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	3	8	10	48.57	45.969	45.58418
55	1	3	10	1	32.14	33.296	33.46075
55	1	3	10	2	44.29	42.284	42.27243
55	1	3	10	3	45.71	45.777	45.85107
55	1	3	10	4	50	47.216	47.43571
55	1	3	10	6	50	47.555	47.69188
55	1	3	10	8	46.43	47.098	46.9581
55	1	3	10	10	44.29	46.455	46.0122
55	1	3	12	2	35.71	40.473	40.42972
55	1	3	12	3	39.29	43.823	43.92163
55	1	3	12	4	39.29	45.24	45.49634
55	1	3	12	6	42.86	45.811	45.96622
55	1	3	12	8	42.86	45.659	45.51581
55	1	3	12	10	42.86	45.303	44.83503
55	1	3	15	1	31.43	24.163	24.39714
55	1	3	15	2	32.14	32.99	33.10377
55	1	3	15	3	32.14	36.088	36.43344
55	1	3	15	4	34.29	37.451	37.96621
55	1	3	15	8	39.29	38.561	38.61199
55	1	3	15	10	39.29	38.634	38.31399
55	1	5	1	1	33.33	28.835	28.98859
55	1	5	1	2	36	38.294	38.62969
55	1	5	1	3	38.67	41.629	41.94394

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	5	1	4	38.67	42.627	42.99111
55	1	5	1	6	36	41.757	42.1821
55	1	5	1	8	36	39.9	40.30832
55	1	5	1	10	34.67	37.72	38.08654
55	1	5	2	1	44	43.932	43.80945
55	1	5	2	3	60	57.26	57.22713
55	1	5	2	4	66.67	58.659	58.66482
55	1	5	2	6	65.33	58.838	58.86082
55	1	5	2	8	63.33	58.175	58.12923
55	1	5	2	10	63.33	57.279	57.13699
55	1	5	5	1	30.67	49.087	49.13271
55	1	5	5	2	46.67	58.32	58.40802
55	1	5	5	3	46.67	61.493	61.61009
55	1	5	5	4	65.33	62.732	62.92355
55	1	5	5	6	50	63.107	63.33023
55	1	5	5	10	48	62.379	62.4656
55	1	5	8	1	53.33	51.017	50.93994
55	1	5	8	2	63.33	59.806	59.75422
55	1	5	8	3	65.33	62.556	62.59335
55	1	5	8	4	66.67	63.624	63.75815
55	1	5	8	6	65.33	64.062	64.22361
55	1	5	8	8	65.33	63.99	64.08847
55	1	5	8	10	63.33	63.774	63.7869

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	5	10	1	51.33	51.636	51.50027
55	1	5	10	2	62.67	60.176	60.08032
55	1	5	10	4	66.67	63.688	63.82706
55	1	5	10	6	63.33	64.197	64.35594
55	1	5	10	8	63.33	64.268	64.35704
55	1	5	10	10	62.67	64.214	64.21144
55	1	5	12	1	49.33	51.506	51.35886
55	1	5	12	2	62.67	59.832	59.75552
55	1	5	12	3	64	62.169	62.25516
55	1	5	12	4	66.67	63.122	63.3165
55	1	5	12	6	65.33	63.741	63.9415
55	1	5	12	8	65.33	63.981	64.09859
55	1	5	15	1	46.67	47.118	47.29895
55	1	5	15	2	57.33	55.236	55.52431
55	1	5	15	3	60	57.437	57.89899
55	1	5	15	4	62.67	58.45	58.98583
55	1	5	15	6	63.33	59.419	59.87509
55	1	5	15	8	62.67	60.072	60.36562
55	1	5	15	10	60	60.62	60.73871
55	1	7	1	1	37.5	30.874	31.0467
55	1	7	1	2	40	39.472	39.60118
55	1	7	1	3	42.5	41.626	41.64752
55	1	7	1	6	40	41.265	41.3175

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	7	1	8	40	39.908	39.97234
55	1	7	1	10	38.75	38.376	38.44542
55	1	7	2	1	47.5	47.182	47.20796
55	1	7	2	2	62.5	56.064	56.01533
55	1	7	2	3	62.5	58.584	58.42876
55	1	7	2	4	68.75	59.513	59.3446
55	1	7	2	6	67.5	59.856	59.68258
55	1	7	2	8	65.63	59.772	59.56492
55	1	7	2	10	65.63	59.606	59.35516
55	1	7	5	2	50	59.512	59.74867
55	1	7	5	3	50	61.655	61.85163
55	1	7	5	4	67.5	62.471	62.68652
55	1	7	5	6	53.13	62.919	63.15295
55	1	7	5	8	52.5	63.054	63.27616
55	1	7	5	10	51.25	63.142	63.34399
55	1	7	8	1	56.25	52.345	52.54262
55	1	7	8	2	65.63	60.096	60.26836
55	1	7	8	3	67.5	61.865	62.05309
55	1	7	8	4	68.75	62.526	62.75099
55	1	7	8	8	67.5	63.059	63.29358
55	1	7	8	10	65.63	63.174	63.38903
55	1	7	10	1	54.38	52.921	53.04234
55	1	7	10	2	65	60.339	60.47769

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	7	10	3	65	61.9	62.08847
55	1	7	10	4	68.75	62.481	62.71428
55	1	7	10	6	65.63	62.837	63.09285
55	1	7	10	8	65.63	62.994	63.23728
55	1	7	10	10	65	63.125	63.34896
55	1	7	12	1	52.5	53.334	53.38456
55	1	7	12	3	66.25	61.83	62.02731
55	1	7	12	4	68.75	62.346	62.59469
55	1	7	12	6	67.5	62.684	62.9551
55	1	7	12	8	67.5	62.854	63.1118
55	1	7	12	10	62.5	63.004	63.24127
55	1	7	15	1	50	51.705	51.61373
55	1	7	15	2	60	58.45	58.48041
55	1	7	15	3	62.5	59.658	59.77815
55	1	7	15	4	65	60.142	60.29652
55	1	7	15	6	65.63	60.551	60.68059
55	1	7	15	10	62.5	61.08	61.08774
55	1	9	1	1	31.25	30.324	30.59222
55	1	9	1	2	37.5	37.476	37.49563
55	1	9	1	3	40	38.487	38.37294
55	1	9	1	4	40	38.383	38.24559
55	1	9	1	6	37.5	37.165	37.0363
55	1	9	1	8	37.5	35.59	35.46753

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	9	1	10	35	33.868	33.75211
55	1	9	2	1	43.75	48.524	48.77049
55	1	9	2	2	56.25	56.047	56.04364
55	1	9	2	4	65.63	58.03	57.86188
55	1	9	2	6	62.5	58.123	57.93209
55	1	9	2	8	50	57.974	57.75203
55	1	9	2	10	37.5	57.78	57.52125
55	1	9	5	1	43.75	52.476	53.04165
55	1	9	5	2	46.88	59.496	59.8804
55	1	9	5	3	46.88	60.776	61.0902
55	1	9	5	4	65.63	61.23	61.53829
55	1	9	5	6	51.25	61.473	61.78708
55	1	9	5	8	50	61.546	61.85717
55	1	9	8	1	51.25	53.346	53.79384
55	1	9	8	2	65.63	59.867	60.20517
55	1	9	8	3	67.5	60.896	61.20795
55	1	9	8	4	68.75	61.254	61.57076
55	1	9	8	6	67.5	61.447	61.7734
55	1	9	8	8	62.5	61.513	61.83693
55	1	9	8	10	50	61.565	61.88387
55	1	9	10	1	51.25	53.816	54.18555
55	1	9	10	2	65	60.048	60.35914
55	1	9	10	3	65	60.942	61.25067

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	1	9	10	6	62.5	61.417	61.74743
55	1	9	10	8	62.5	61.479	61.80732
55	1	9	10	10	50	61.531	61.85387
55	1	9	12	1	50	54.213	54.50938
55	1	9	12	2	65	60.187	60.47487
55	1	9	12	3	66.25	60.965	61.27214
55	1	9	12	4	65.63	61.229	61.55289
55	1	9	12	6	63.75	61.378	61.71277
55	1	9	12	8	62.5	61.437	61.77021
55	1	9	12	10	43.75	61.489	61.81679
55	1	9	15	2	51.25	58.732	58.64532
55	1	9	15	3	56.25	59.4	59.33928
55	1	9	15	4	62.5	59.646	59.5882
55	1	9	15	6	62.5	59.834	59.7522
55	1	9	15	8	62.5	59.952	59.83285
55	1	9	15	10	43.75	60.062	59.90502
55	3	1	1	1	9.68	13.927	14.40896
55	3	1	1	2	22.58	23.293	23.49334
55	3	1	1	3	35.48	34.619	34.79678
55	3	1	1	4	35.48	45.234	45.64215
55	3	1	1	8	61.29	58.816	59.66582
55	3	1	1	10	61.29	58.032	58.77917
55	3	1	2	1	22.58	19.296	18.6525

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	1	2	2	35.48	29.361	28.50726
55	3	1	2	3	35.48	40.973	40.16875
55	3	1	2	4	48.39	51.282	50.73214
55	3	1	2	6	48.39	61.884	61.70001
55	3	1	2	8	61.29	63.838	63.64781
55	3	1	2	10	61.29	63.304	63.00859
55	3	1	5	1	22.58	30.162	29.41632
55	3	1	5	3	74.19	52.841	52.25588
55	3	1	5	4	74.19	61.35	60.98977
55	3	1	5	6	61.29	68.577	68.37504
55	3	1	5	8	61.29	69.262	68.97335
55	3	1	5	10	74.19	68.297	67.88581
55	3	1	8	1	35.48	41.213	40.41516
55	3	1	8	2	48.39	53.104	52.43574
55	3	1	8	3	74.19	63.136	62.66291
55	3	1	8	4	74.19	69.606	69.25832
55	3	1	8	6	61.29	74.102	73.73282
55	3	1	8	10	74.19	72.517	71.85446
55	3	1	10	1	35.48	48.937	48.18221
55	3	1	10	2	61.29	60.621	60.04521
55	3	1	10	3	74.19	69.477	69.05171
55	3	1	10	4	74.19	74.669	74.29005
55	3	1	10	6	61.29	77.767	77.27134

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	1	10	8	74.19	77.099	76.42055
55	3	1	10	10	74.19	75.586	74.74033
55	3	1	12	1	61.29	56.682	56.02911
55	3	1	12	2	74.19	67.74	67.26742
55	3	1	12	4	87.1	79.372	78.95292
55	3	1	12	6	74.19	81.391	80.77529
55	3	1	12	8	74.19	80.435	79.6011
55	3	1	12	10	87.1	78.813	77.78642
55	3	1	15	1	61.29	67.803	67.38962
55	3	1	15	2	87.1	77.337	77.03128
55	3	1	15	3	87.1	83.031	82.68892
55	3	1	15	4	87.1	85.742	85.28385
55	3	1	15	6	74.19	86.661	85.91173
55	3	1	15	8	87.1	85.494	84.47073
55	3	3	1	1	37.5	32.193	32.43997
55	3	3	1	2	37.5	43.729	43.78696
55	3	3	1	3	62.5	55.87	56.07012
55	3	3	1	4	62.5	65.642	66.14801
55	3	3	1	6	75	74.999	75.83214
55	3	3	1	8	75	76.865	77.6311
55	3	3	1	10	87.5	76.547	77.12989
55	3	3	2	1	37.5	37.635	37.12202
55	3	3	2	2	50	49.821	49.20061

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	3	2	3	62.5	62.028	61.60338
55	3	3	2	6	75	80.381	80.5167
55	3	3	2	8	87.5	82.55	82.59495
55	3	3	2	10	87.5	82.825	82.67765
55	3	3	5	1	50	46.42	46.05217
55	3	3	5	2	50	59.388	59.10999
55	3	3	5	3	75	70.604	70.58089
55	3	3	5	4	75	78.273	78.46159
55	3	3	5	6	87.5	85.098	85.36339
55	3	3	5	8	87.5	87.028	87.14334
55	3	3	5	10	90.63	87.667	87.5721
55	3	3	8	2	62.5	66.826	66.87216
55	3	3	8	3	75	76.389	76.64548
55	3	3	8	4	75	82.371	82.72962
55	3	3	8	6	87.5	87.638	87.94179
55	3	3	8	8	87.5	89.481	89.59964
55	3	3	8	10	93.75	90.455	90.34741
55	3	3	10	1	50	59.14	59.18155
55	3	3	10	2	62.5	71.047	71.30457
55	3	3	10	3	75	79.38	79.78761
55	3	3	10	4	87.5	84.396	84.84275
55	3	3	10	8	93.75	90.797	90.93339
55	3	3	10	10	93.75	92.009	91.91339

Data from Literature							ANN (in MATLAB) Output	Process Model Output in this study	
Used as Training Data for predicting Water Removal Efficiency (WRE)						WRE			WRE
Experimental Data									
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE		
°C	min.	min.	ppm	%	%	%	%		
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}		
55	3	3	12	1	75	63.773	64.02576		
55	3	3	12	2	75	74.625	75.06792		
55	3	3	12	3	87.5	81.756	82.2832		
55	3	3	12	4	87.5	85.96	86.47665		
55	3	3	12	6	87.5	89.943	90.31134		
55	3	3	12	8	93.75	91.89	92.05264		
55	3	3	12	10	93.75	93.341	93.26964		
55	3	3	15	1	75	69.837	70.378		
55	3	3	15	3	87.5	84.356	85.00494		
55	3	3	15	4	87.5	87.622	88.21302		
55	3	3	15	6	93.75	91.069	91.4831		
55	3	3	15	8	93.75	93.177	93.3835		
55	3	3	15	10	93.75	94.977	94.95054		
55	3	5	1	1	37.5	31.91	31.36116		
55	3	5	1	2	37.5	45.153	44.61286		
55	3	5	1	3	62.5	57.351	57.12882		
55	3	5	1	4	62.5	66.245	66.37677		
55	3	5	1	6	75	75.131	75.58396		
55	3	5	1	10	87.5	80.986	81.38136		
55	3	5	2	1	37.5	38.065	37.10616		
55	3	5	2	2	50	51.643	50.76997		
55	3	5	2	3	62.5	63.61	63.0749		
55	3	5	2	4	75	72.111	71.90058		

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	5	2	6	75	80.782	80.83267
55	3	5	2	8	87.5	84.769	84.80882
55	3	5	2	10	87.5	87.652	87.61748
55	3	5	5	1	50	47.238	46.51696
55	3	5	5	2	50	60.461	59.97764
55	3	5	5	4	75	77.457	77.49513
55	3	5	5	6	87.5	84.405	84.55868
55	3	5	5	8	87.5	88.114	88.22843
55	3	5	5	10	90.63	91.119	91.16295
55	3	5	8	1	50	55.283	54.75824
55	3	5	8	2	62.5	67.183	66.9278
55	3	5	8	3	75	75.494	75.45675
55	3	5	8	4	75	80.729	80.79882
55	3	5	8	6	87.5	86.376	86.46759
55	3	5	8	8	87.5	89.833	89.87068
55	3	5	10	1	50	60.424	60.03321
55	3	5	10	2	62.5	71.113	70.96078
55	3	5	10	3	75	78.199	78.19546
55	3	5	10	4	87.5	82.622	82.6746
55	3	5	10	6	87.5	87.626	87.66378
55	3	5	10	8	93.75	90.956	90.93945
55	3	5	10	10	93.75	93.949	93.87535
55	3	5	12	1	75	65.229	64.95129

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	5	12	2	75	74.6	74.50645
55	3	5	12	3	87.5	80.588	80.58204
55	3	5	12	6	87.5	88.842	88.82188
55	3	5	12	8	93.75	92.065	91.99456
55	3	5	12	10	93.75	95.032	94.91551
55	3	5	15	1	75	71.635	71.46299
55	3	5	15	2	75	79.071	78.9931
55	3	5	15	3	87.5	83.699	83.64253
55	3	5	15	4	87.5	86.693	86.62597
55	3	5	15	6	93.75	90.618	90.5087
55	3	5	15	8	93.75	93.697	93.55156
55	3	5	15	10	93.75	96.601	96.42827
55	3	7	1	2	37.5	34.473	33.26069
55	3	7	1	3	43.75	42.262	41.45273
55	3	7	1	4	43.75	46.608	46.13315
55	3	7	1	6	43.75	48.598	48.40853
55	3	7	1	8	50	47.56	47.42571
55	3	7	1	10	50	46.299	46.16892
55	3	7	2	1	37.5	32.731	31.33777
55	3	7	2	2	37.5	42.937	41.79432
55	3	7	2	3	50	50.268	49.50916
55	3	7	2	4	56.25	54.2	53.72906
55	3	7	2	8	50	55.188	54.97242

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	7	2	10	50	54.374	54.14494
55	3	7	5	1	50	46.206	45.4508
55	3	7	5	2	50	54.975	54.52757
55	3	7	5	3	62.5	60.166	60.00099
55	3	7	5	4	62.5	62.324	62.32038
55	3	7	5	6	50	62.125	62.20917
55	3	7	5	8	50	60.366	60.43701
55	3	7	5	10	62.5	58.886	58.92741
55	3	7	8	1	50	57.466	57.25617
55	3	7	8	3	75	67.608	67.83813
55	3	7	8	4	87.5	68.4	68.70169
55	3	7	8	6	50	66.684	66.98768
55	3	7	8	8	62.5	63.987	64.23828
55	3	7	8	10	62.5	61.715	61.90531
55	3	7	10	1	50	64.242	64.37349
55	3	7	10	2	62.5	69.823	70.17321
55	3	7	10	3	87.5	72.064	72.5286
55	3	7	10	4	87.5	72.194	72.69595
55	3	7	10	6	62.5	69.751	70.22782
55	3	7	10	10	62.5	63.744	64.07275
55	3	7	12	1	75	70.325	70.75403
55	3	7	12	2	75	74.719	75.31549
55	3	7	12	3	87.5	76.135	76.80901

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	7	12	4	87.5	75.781	76.4763
55	3	7	12	6	62.5	72.818	73.48428
55	3	7	12	8	62.5	69.164	69.75852
55	3	7	12	10	75	65.899	66.39853
55	3	7	15	1	75	78.096	78.86811
55	3	7	15	2	75	81.007	81.88769
55	3	7	15	4	75	80.75	81.70611
55	3	7	15	6	78.13	77.354	78.31164
55	3	7	15	8	78.13	73.252	74.15937
55	3	7	15	10	76.25	69.366	70.17369
55	3	9	1	1	25	18.215	16.85195
55	3	9	1	2	25	29.147	28.148
55	3	9	1	3	31.25	36.628	36.02992
55	3	9	1	4	37.5	40.825	40.48785
55	3	9	1	6	37.5	43.732	43.57174
55	3	9	1	8	43.75	43.971	43.82488
55	3	9	2	1	31.25	25.969	24.91577
55	3	9	2	2	37.5	36.661	35.99096
55	3	9	2	3	37.5	43.791	43.48811
55	3	9	2	4	43.75	47.831	47.74873
55	3	9	2	6	43.75	51.007	51.06239
55	3	9	2	8	43.75	51.884	51.93871
55	3	9	2	10	50	52.22	52.24958

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	9	5	1	37.5	34.075	33.54265
55	3	9	5	2	43.75	42.9	42.72754
55	3	9	5	3	43.75	48.234	48.3137
55	3	9	5	6	50	53.387	53.66978
55	3	9	5	8	50	54.124	54.40655
55	3	9	5	10	56.25	54.509	54.78017
55	3	9	8	1	37.5	39.553	39.33409
55	3	9	8	2	50	46.366	46.4109
55	3	9	8	3	50	50.182	50.3745
55	3	9	8	4	56.25	52.168	52.42586
55	3	9	8	6	56.25	53.744	54.03153
55	3	9	8	8	62.5	54.293	54.57637
55	3	9	8	10	62.5	54.609	54.8838
55	3	9	10	2	62.5	48.132	48.27533
55	3	9	10	3	62.5	51.14	51.37827
55	3	9	10	4	62.5	52.683	52.95926
55	3	9	10	6	62.5	53.92	54.20949
55	3	9	10	8	62.5	54.377	54.6606
55	3	9	10	10	62.5	54.656	54.93265
55	3	9	12	1	43.75	45.049	45.13251
55	3	9	12	2	56.25	49.538	49.75033
55	3	9	12	3	56.25	51.89	52.15793
55	3	9	12	4	56.25	53.087	53.37398

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	9	12	8	62.5	54.445	54.72975
55	3	9	12	10	62.5	54.693	54.97196
55	3	9	15	1	37.5	47.944	48.16271
55	3	9	15	2	43.75	51.107	51.38184
55	3	9	15	3	50	52.716	53.00977
55	3	9	15	4	50	53.534	53.83036
55	3	9	15	6	50	54.224	54.51592
55	3	9	15	8	50	54.522	54.81046
55	3	9	15	10	56.25	54.731	55.01596
70	1	1	1	1	37.5	39.671	39.43239
70	1	1	1	3	43.75	43.65	43.22593
70	1	1	1	4	43.75	46.303	45.98726
70	1	1	1	6	50	50.327	50.38482
70	1	1	1	8	50	51.031	51.37301
70	1	1	1	10	53.13	51.052	51.40979
70	1	1	2	1	43.75	45.309	45.12337
70	1	1	2	2	43.75	46.526	46.24769
70	1	1	2	3	52.5	49.543	49.10684
70	1	1	2	4	53.13	52.149	51.84382
70	1	1	2	6	56.25	56.12	56.19518
70	1	1	2	10	56.25	57.208	57.55818
70	1	1	5	1	50	50.662	50.59291
70	1	1	5	2	50	52.055	51.75557

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	1	5	3	53.13	54.958	54.46979
70	1	1	5	4	55	57.028	56.74522
70	1	1	5	6	60	60.041	60.14752
70	1	1	5	8	62.5	60.508	60.84253
70	1	1	5	10	62.5	60.332	60.65358
70	1	1	8	1	56.25	53.627	53.67824
70	1	1	8	2	60	55.315	54.99791
70	1	1	8	4	62.5	59.709	59.47191
70	1	1	8	6	65.63	61.875	61.99122
70	1	1	8	8	65.63	61.96	62.2282
70	1	1	8	10	68.75	61.366	61.57422
70	1	1	10	1	53.13	53.814	54.00131
70	1	1	10	2	55	55.78	55.51856
70	1	1	10	3	56.25	58.558	58.13402
70	1	1	10	4	56.25	59.894	59.77581
70	1	1	10	6	60	61.625	61.82158
70	1	1	10	8	62.5	61.53	61.81598
70	1	1	12	1	53.13	52.332	52.62625
70	1	1	12	2	55	54.593	54.38397
70	1	1	12	3	55	57.342	57.02381
70	1	1	12	4	55	58.458	58.48977
70	1	1	12	6	56.25	59.814	60.13144
70	1	1	12	8	60	59.567	59.9134

Data from Literature							ANN (in MATLAB) Output	Process Model Output in this study	
Used as Training Data for predicting Water Removal Efficiency (WRE)						WRE			WRE
Experimental Data									
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE		
°C	min.	min.	ppm	%	%	%	%		
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}		
70	1	1	12	10	60	58.519	58.71222		
70	1	1	15	1	50	48.516	48.63903		
70	1	1	15	2	53.13	51.106	50.71182		
70	1	1	15	3	53.13	53.681	53.32734		
70	1	1	15	6	55	55.089	55.48346		
70	1	1	15	8	56.25	54.434	54.82376		
70	1	1	15	10	56.25	52.838	53.04132		
70	1	3	1	1	42.86	46.211	46.32964		
70	1	3	1	2	42.86	49.852	49.90218		
70	1	3	1	3	50	54.213	54.09537		
70	1	3	1	4	50	57.006	56.87822		
70	1	3	1	6	57.14	61.258	61.00241		
70	1	3	1	8	57.14	62.931	62.93215		
70	1	3	1	10	57.14	63.057	63.00002		
70	1	3	2	2	50	54.931	54.99571		
70	1	3	2	3	57.14	59.393	59.30476		
70	1	3	2	4	57.14	62.223	62.15745		
70	1	3	2	6	64.29	66.661	66.49004		
70	1	3	2	8	64.29	68.7	68.78697		
70	1	3	2	10	71.43	69.186	69.21708		
70	1	3	5	1	57.14	52.902	52.97413		
70	1	3	5	2	57.14	57.024	56.93212		
70	1	3	5	3	57.14	61.311	61.13318		

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	3	5	4	64.29	63.815	63.75404
70	1	3	5	8	71.43	70.034	70.19576
70	1	3	5	10	71.43	70.522	70.64656
70	1	3	8	1	57.14	53.652	53.52195
70	1	3	8	2	57.14	57.97	57.62506
70	1	3	8	3	64.29	62.013	61.67055
70	1	3	8	4	64.29	64.204	64.05334
70	1	3	8	6	71.43	67.94	67.78323
70	1	3	8	8	71.43	70.161	70.26251
70	1	3	8	10	75	70.622	70.6904
70	1	3	10	1	50	53.724	53.47824
70	1	3	10	3	64.29	62.03	61.61918
70	1	3	10	4	71.43	64.046	63.86499
70	1	3	10	6	71.43	67.602	67.4308
70	1	3	10	8	71.43	69.916	69.9904
70	1	3	10	10	75	70.39	70.42948
70	1	3	12	1	50	53.162	52.8374
70	1	3	12	2	50	57.708	57.14122
70	1	3	12	3	57.14	61.42	60.98873
70	1	3	12	4	64.29	63.298	63.12469
70	1	3	12	6	65.71	66.735	66.57592
70	1	3	12	10	71.43	69.72	69.7428
70	1	3	15	1	42.86	50.244	49.91051

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	3	15	2	50	54.961	54.3984
70	1	3	15	3	57.14	58.482	58.14688
70	1	3	15	4	62.86	60.244	60.18805
70	1	3	15	6	64.29	63.656	63.59666
70	1	3	15	8	65.71	66.455	66.57005
70	1	3	15	10	71.43	67.191	67.23523
70	1	5	1	1	53.33	50.926	50.92454
70	1	5	1	2	53.33	54.976	54.89044
70	1	5	1	4	60	59.994	59.62754
70	1	5	1	6	66.67	62.759	62.05381
70	1	5	1	8	66.67	64.305	64.00131
70	1	5	1	10	66.67	64.02	63.68476
70	1	5	2	1	60	56.101	56.23726
70	1	5	2	2	60	60.358	60.39039
70	1	5	2	3	62.67	63.868	63.71383
70	1	5	2	4	62.67	65.547	65.35291
70	1	5	2	6	66.67	68.599	68.08656
70	1	5	2	8	68	70.591	70.4787
70	1	5	5	1	63.33	57.421	57.57818
70	1	5	5	2	63.33	61.766	61.78389
70	1	5	5	3	63.33	64.995	64.91739
70	1	5	5	4	66.67	66.463	66.41485
70	1	5	5	6	68	69.317	69.0033

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	5	5	8	70	71.499	71.57935
70	1	5	5	10	70	71.718	71.78134
70	1	5	8	1	66.67	57.905	57.91936
70	1	5	8	2	66.67	62.235	62.10616
70	1	5	8	3	70	65.144	65.01277
70	1	5	8	6	73.33	69.027	68.74618
70	1	5	8	8	73.33	71.343	71.43545
70	1	5	8	10	73.33	71.569	71.64392
70	1	5	10	1	63.33	58.171	58.08683
70	1	5	10	2	66.67	62.449	62.24018
70	1	5	10	3	68	65.148	64.99688
70	1	5	10	4	70	66.289	66.24344
70	1	5	10	6	70	68.774	68.51902
70	1	5	10	8	72	71.185	71.28745
70	1	5	10	10	72	71.42	71.50435
70	1	5	12	2	60	62.541	62.27057
70	1	5	12	3	63.33	65.038	64.88197
70	1	5	12	4	66.67	66.076	66.04508
70	1	5	12	6	66.67	68.438	68.21628
70	1	5	12	8	68	70.953	71.06946
70	1	5	12	10	70	71.204	71.30077
70	1	5	15	1	57.33	58.231	57.93946
70	1	5	15	2	60	62.269	61.95674

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	5	15	3	60	64.493	64.36835
70	1	5	15	4	63.33	65.414	65.43171
70	1	5	15	8	66.67	70.334	70.48417
70	1	5	15	10	66.67	70.635	70.7587
70	1	7	1	1	50	45.985	46.37456
70	1	7	1	2	50	50.189	50.28159
70	1	7	1	3	53.13	52.775	52.56825
70	1	7	1	4	53.13	53.812	53.50217
70	1	7	1	6	56.25	56.098	55.30154
70	1	7	1	8	59.38	58.266	57.95091
70	1	7	1	10	59.38	58.213	57.85584
70	1	7	2	1	53.13	51.634	52.24266
70	1	7	2	3	56.25	58.675	58.72469
70	1	7	2	4	59.38	59.867	59.83442
70	1	7	2	6	59.38	62.524	62.02922
70	1	7	2	8	59.38	65.207	65.19068
70	1	7	2	10	62.5	65.656	65.60487
70	1	7	5	1	56.25	52.489	53.1679
70	1	7	5	2	59.38	56.716	57.1214
70	1	7	5	3	59.38	59.142	59.38317
70	1	7	5	4	59.38	60.234	60.4423
70	1	7	5	6	62.5	62.798	62.59944
70	1	7	5	10	62.5	66.284	66.52002

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	7	8	1	59.38	52.388	52.95527
70	1	7	8	2	59.38	56.397	56.73941
70	1	7	8	3	62.5	58.556	58.81772
70	1	7	8	4	62.5	59.539	59.80091
70	1	7	8	6	62.5	61.958	61.85306
70	1	7	8	8	65.63	65.046	65.36533
70	1	7	8	10	65.63	65.648	65.94047
70	1	7	10	1	53.13	52.28	52.77491
70	1	7	10	2	56.25	56.118	56.43495
70	1	7	10	4	59.38	59.035	59.33801
70	1	7	10	6	59.38	61.367	61.3271
70	1	7	10	8	62.5	64.565	64.92534
70	1	7	10	10	62.5	65.194	65.52503
70	1	7	12	1	53.13	52.129	52.55925
70	1	7	12	2	56.25	55.782	56.08864
70	1	7	12	3	56.25	57.627	57.94486
70	1	7	12	4	57.5	58.497	58.84528
70	1	7	12	6	59.38	60.749	60.77705
70	1	7	12	8	59.38	64.056	64.46026
70	1	7	15	1	51.25	51.794	52.14572
70	1	7	15	2	53.13	55.155	55.47168
70	1	7	15	3	53.13	56.799	57.18042
70	1	7	15	4	56.25	57.607	58.03229

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	7	15	6	56.25	59.754	59.8898
70	1	7	15	8	57.5	63.224	63.69963
70	1	7	15	10	59.38	63.927	64.36665
70	1	9	1	1	25	26.42	26.69754
70	1	9	1	2	31.25	30.347	30.10864
70	1	9	1	3	37.5	32.43	31.89929
70	1	9	1	6	40.63	35.99	34.84742
70	1	9	1	8	40.63	39.347	38.72814
70	1	9	1	10	40.63	40.091	39.4393
70	1	9	2	1	25	32.489	33.07273
70	1	9	2	2	34.38	36.536	36.63296
70	1	9	2	3	37.5	38.764	38.60469
70	1	9	2	4	40.63	39.99	39.75666
70	1	9	2	6	40.63	42.968	42.24633
70	1	9	2	8	43.75	46.898	46.70006
70	1	9	2	10	43.75	48.211	47.9942
70	1	9	5	2	37.5	36.281	36.56037
70	1	9	5	3	40	38.321	38.43167
70	1	9	5	4	40	39.504	39.57722
70	1	9	5	6	40.63	42.429	42.07581
70	1	9	5	8	46.88	46.593	46.73718
70	1	9	5	10	46.88	48.033	48.1731
70	1	9	8	1	34.38	31.517	32.08211

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	9	8	2	37.5	34.96	35.2192
70	1	9	8	3	46.88	36.796	36.95373
70	1	9	8	4	46.88	37.906	38.04855
70	1	9	8	8	50	44.992	45.2121
70	1	9	8	10	50	46.46	46.67455
70	1	9	10	1	32.5	30.873	31.36707
70	1	9	10	2	34.38	34.091	34.34392
70	1	9	10	3	40.63	35.8	35.98928
70	1	9	10	4	40.63	36.863	37.04857
70	1	9	10	6	40.63	39.559	39.39453
70	1	9	10	8	43.75	43.932	44.19783
70	1	9	10	10	43.75	45.41	45.67049
70	1	9	12	1	31.25	30.256	30.68443
70	1	9	12	3	34.38	34.837	35.05608
70	1	9	12	4	33.13	35.852	36.07757
70	1	9	12	6	37.5	38.451	38.35389
70	1	9	12	8	40.63	42.887	43.19688
70	1	9	12	10	40.63	44.368	44.67287
70	1	9	15	1	28.13	29.413	29.74751
70	1	9	15	2	28.13	32.069	32.31616
70	1	9	15	3	31.25	33.484	33.73961
70	1	9	15	4	31.25	34.425	34.6983
70	1	9	15	6	34.38	36.864	36.85693

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	9	15	10	40.63	42.841	43.20378
70	3	1	1	1	61.29	60.844	60.74295
70	3	1	1	2	61.29	61.905	61.78549
70	3	1	1	3	64.52	64.731	64.95455
70	3	1	1	4	64.52	66.172	66.16676
70	3	1	1	6	67.74	66.083	66.0869
70	3	1	1	8	67.74	65.952	65.95665
70	3	1	1	10	70.97	65.813	65.8174
70	3	1	2	1	61.29	63.166	63.00653
70	3	1	2	2	62.58	64.239	64.07588
70	3	1	2	4	66.45	68.637	68.58746
70	3	1	2	6	69.03	68.717	68.66999
70	3	1	2	8	69.03	68.77	68.71569
70	3	1	2	10	70.97	68.828	68.76471
70	3	1	5	1	64.52	63.838	63.661
70	3	1	5	2	64.52	64.754	64.61789
70	3	1	5	3	66.45	67.421	67.67972
70	3	1	5	4	66.45	69.108	69.10155
70	3	1	5	6	70.97	69.221	69.21817
70	3	1	5	8	70.97	69.316	69.30756
70	3	1	8	1	64.52	64.13	63.90395
70	3	1	8	2	67.74	64.903	64.74975
70	3	1	8	3	67.74	67.394	67.66847

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	1	8	4	67.74	69.204	69.18811
70	3	1	8	6	70.97	69.327	69.31208
70	3	1	8	8	74.19	69.439	69.41583
70	3	1	8	10	74.19	69.564	69.52985
70	3	1	10	1	63.87	64.312	64.05939
70	3	1	10	2	64.52	65.003	64.83881
70	3	1	10	3	66.45	67.381	67.6636
70	3	1	10	6	67.74	69.408	69.38274
70	3	1	10	8	67.74	69.534	69.4974
70	3	1	10	10	70.97	69.674	69.62415
70	3	1	12	1	62.58	59.985	60.61047
70	3	1	12	2	64.52	60.641	61.34369
70	3	1	12	3	64.52	62.946	64.09007
70	3	1	12	4	64.52	64.968	65.76491
70	3	1	12	6	66.45	65.185	65.93198
70	3	1	12	8	66.45	65.402	66.08752
70	3	1	12	10	67.74	65.637	66.25715
70	3	1	15	2	62.58	58.76	58.56451
70	3	1	15	3	64.52	60.87	61.1599
70	3	1	15	4	64.52	62.992	62.93307
70	3	1	15	6	64.52	63.152	63.08621
70	3	1	15	8	65.16	63.318	63.23396
70	3	1	15	10	66.45	63.504	63.39895

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	3	1	1	65.63	62.962	62.91877
70	3	3	1	2	65.63	63.672	63.57575
70	3	3	1	3	68.75	66.088	66.22773
70	3	3	1	4	68.75	68.025	67.99889
70	3	3	1	8	71.88	68.518	68.46574
70	3	3	1	10	72.5	68.816	68.74512
70	3	3	2	1	66.25	65.646	65.5616
70	3	3	2	2	63.75	66.411	66.28288
70	3	3	2	3	65.63	68.867	68.9815
70	3	3	2	4	67.5	70.947	70.88557
70	3	3	2	6	70	71.396	71.3162
70	3	3	2	8	70	71.881	71.77663
70	3	3	2	10	71.88	72.425	72.2917
70	3	3	5	1	67.5	66.625	66.52346
70	3	3	5	3	67.5	69.668	69.8177
70	3	3	5	4	67.5	71.923	71.87808
70	3	3	5	6	71.88	72.476	72.40782
70	3	3	5	8	71.88	73.077	72.97964
70	3	3	5	10	72.5	73.749	73.61616
70	3	3	8	1	68.75	67.261	67.08364
70	3	3	8	2	68.75	67.918	67.74328
70	3	3	8	3	68.75	70.129	70.24054
70	3	3	8	4	68.75	72.553	72.44802

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	3	8	6	71.88	73.189	73.05225
70	3	3	8	10	75	74.661	74.43726
70	3	3	10	1	65.63	67.721	67.49093
70	3	3	10	2	65.63	68.356	68.13625
70	3	3	10	3	67.5	70.491	70.56675
70	3	3	10	4	67.5	73.03	72.87572
70	3	3	10	6	68.75	73.729	73.53482
70	3	3	10	8	68.75	74.495	74.25246
70	3	3	10	10	71.88	75.345	75.04777
70	3	3	12	1	65	63.939	64.25637
70	3	3	12	2	65.63	64.598	64.90688
70	3	3	12	4	65.63	69.396	69.7152
70	3	3	12	6	67.5	70.241	70.462
70	3	3	12	8	67.5	71.162	71.27379
70	3	3	12	10	68.75	72.172	72.16831
70	3	3	15	1	65	62.532	62.14519
70	3	3	15	2	63.75	63.146	62.77745
70	3	3	15	3	65.63	65.113	65.05511
70	3	3	15	4	65.63	67.948	67.62824
70	3	3	15	6	65.63	68.824	68.44325
70	3	3	15	8	66.25	69.785	69.33231
70	3	5	1	1	77.5	73.44	73.66326
70	3	5	1	2	78.13	74.481	74.64725

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	5	1	3	78.13	77.036	77.3126
70	3	5	1	4	81.25	79.993	80.20873
70	3	5	1	6	87.5	81.537	81.72856
70	3	5	1	8	87.5	83.134	83.29966
70	3	5	1	10	87.5	84.779	84.91913
70	3	5	2	1	78.13	76.899	77.08812
70	3	5	2	2	81.25	78.037	78.17326
70	3	5	2	3	81.25	80.662	80.91242
70	3	5	2	6	84.38	85.585	85.73401
70	3	5	2	8	87.5	87.447	87.56276
70	3	5	2	10	90	89.368	89.44958
70	3	5	5	1	81.25	79.337	79.4586
70	3	5	5	2	81.25	80.498	80.58336
70	3	5	5	3	84.38	83.053	83.26916
70	3	5	5	4	84.38	86.38	86.51093
70	3	5	5	6	87.5	88.32	88.41684
70	3	5	5	8	87.5	90.31	90.37254
70	3	5	5	10	90.63	92.341	92.37072
70	3	5	8	2	87.5	82.629	82.57822
70	3	5	8	3	90.63	85.096	85.18931
70	3	5	8	4	94.38	88.597	88.59035
70	3	5	8	6	94.38	90.621	90.57727
70	3	5	8	8	93.75	92.675	92.59618

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	5	8	10	93.75	94.746	94.63657
70	3	5	10	1	84.38	82.934	82.80784
70	3	5	10	2	87.5	84.112	83.96559
70	3	5	10	3	87.5	86.518	86.52393
70	3	5	10	4	90	90.126	90.02416
70	3	5	10	8	92.5	94.272	94.09922
70	3	5	10	10	93.75	96.351	96.1526
70	3	5	12	1	84.38	80.409	80.47967
70	3	5	12	2	84.38	81.631	81.66062
70	3	5	12	3	83.75	84.014	84.17745
70	3	5	12	4	87.5	87.762	87.78453
70	3	5	12	6	87.5	89.937	89.87115
70	3	5	12	8	90.63	92.111	91.96231
70	3	5	12	10	90.63	94.269	94.0448
70	3	5	15	1	81.25	80.292	79.90483
70	3	5	15	3	82.5	83.714	83.49119
70	3	5	15	4	83.75	87.551	87.20947
70	3	5	15	6	84.38	89.659	89.29013
70	3	5	15	8	87.5	91.741	91.3533
70	3	5	15	10	90	93.78	93.38513
70	3	7	1	1	43.75	49.325	49.07951
70	3	7	1	2	50	49.552	49.30339
70	3	7	1	3	50	51.098	50.88056

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	7	1	4	53.13	53.909	53.772
70	3	7	1	6	53.13	54.526	54.4039
70	3	7	1	10	56.25	56.041	55.90725
70	3	7	2	1	46.88	53.502	53.2552
70	3	7	2	2	50	53.739	53.49315
70	3	7	2	3	52.5	55.275	55.06651
70	3	7	2	4	53.13	58.17	58.03858
70	3	7	2	6	55	58.912	58.79574
70	3	7	2	8	55	59.815	59.69793
70	3	7	2	10	56.25	60.795	60.66554
70	3	7	5	1	56.25	57.039	56.78784
70	3	7	5	2	59.38	56.971	56.73579
70	3	7	5	4	62.5	60.928	60.82042
70	3	7	5	6	65.63	61.31	61.2313
70	3	7	5	8	65.63	61.942	61.87567
70	3	7	5	10	68.75	62.718	62.65367
70	3	7	8	1	62.5	60.257	59.97827
70	3	7	8	2	62.5	59.833	59.57355
70	3	7	8	3	65.63	60.573	60.38596
70	3	7	8	4	71.88	63.201	63.068
70	3	7	8	6	71.88	63.117	63.01391
70	3	7	8	8	68.75	63.385	63.29772
70	3	7	10	1	62.5	62.535	62.27532

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	7	10	2	62.5	61.858	61.61545
70	3	7	10	3	62.5	62.3	62.13318
70	3	7	10	4	62.5	64.792	64.66835
70	3	7	10	6	65.63	64.357	64.2586
70	3	7	10	8	65.63	64.349	64.26542
70	3	7	10	10	68.75	64.631	64.55384
70	3	7	12	1	59.38	61.133	60.91058
70	3	7	12	2	59.38	60.237	59.99904
70	3	7	12	3	61.25	60.412	60.22267
70	3	7	12	6	62.5	62.056	61.82911
70	3	7	12	8	65.63	61.828	61.55408
70	3	7	12	10	65.63	61.962	61.63379
70	3	7	15	1	56.25	62.281	62.20698
70	3	7	15	2	56.25	60.955	60.87928
70	3	7	15	3	59.38	60.617	60.61258
70	3	7	15	4	59.38	62.693	62.69617
70	3	7	15	6	59.38	61.236	61.2331
70	3	7	15	8	62.5	60.408	60.39658
70	3	7	15	10	62.5	60.057	60.03636
70	3	9	1	2	43.75	46.435	46.52655
70	3	9	1	3	46.88	47.815	47.79592
70	3	9	1	4	46.88	51.066	51.16499
70	3	9	1	6	50	51.7	51.7408

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Training Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE		
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	9	1	8	51.25	52.284	52.27445
70	3	9	1	10	51.25	52.816	52.76319
70	3	9	2	1	46.88	49.714	49.93661
70	3	9	2	2	50	50.251	50.41624
70	3	9	2	3	50	51.698	51.75928
70	3	9	2	4	53.13	55.091	55.26521
70	3	9	2	8	56.25	56.806	56.87236
70	3	9	2	10	56.25	57.626	57.64789
70	3	9	5	1	46.88	50.742	51.02601
70	3	9	5	2	50	51.192	51.43277
70	3	9	5	3	53.13	52.473	52.63565
70	3	9	5	4	53.13	55.907	56.1721
70	3	9	5	6	56.25	56.684	56.90434
70	3	9	5	8	60	57.462	57.64406
70	3	9	5	10	60	58.238	58.38671
70	3	9	8	1	53.13	51.464	51.67842
70	3	9	8	3	53.13	52.883	53.00687
70	3	9	8	4	55	56.314	56.53029
70	3	9	8	6	60	56.926	57.10516
70	3	9	8	8	61.25	57.562	57.71071
70	3	9	8	10	62.5	58.217	58.34015
70	3	9	10	1	53.75	52.138	52.28065
70	3	9	10	2	53.13	52.382	52.49735

Data from Literature							ANN (in MATLAB) Output	Process Model Output in this study	
Used as Training Data for predicting Water Removal Efficiency (WRE)						WRE			WRE
Experimental Data									
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE		
°C	min.	min.	ppm	%	%	%	%		
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}		
70	3	9	10	3	53.13	53.335	53.40744		
70	3	9	10	4	62.5	56.752	56.91034		
70	3	9	10	6	62.5	57.234	57.36303		
70	3	9	10	10	62.5	58.314	58.40145		
70	3	9	12	1	50	49.443	49.15402		
70	3	9	12	2	50	49.635	49.29676		
70	3	9	12	3	50	50.491	50.09533		
70	3	9	12	4	52.5	53.924	53.58193		
70	3	9	12	6	53.13	54.345	53.92567		
70	3	9	12	8	53.13	54.825	54.33331		
70	3	9	12	10	56.25	55.355	54.79579		
70	3	9	15	1	50	48.175	48.01661		
70	3	9	15	2	46.88	48.171	48.00165		
70	3	9	15	3	46.88	48.77	48.58929		
70	3	9	15	4	50	52.1	51.99851		
70	3	9	15	6	50	52.188	52.08064		
70	3	9	15	8	52.5	52.36	52.25156		
70	3	9	15	10	53.13	52.606	52.50155		

Appendix-A5

Data from Literature							Process Model Output in this study
Used as Testing Data for predicting Water Removal Efficiency (WRE)						ANN (in MATLAB) Output	
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X₁	X₂	X₃	X₄	X₅	Y_d	Y_{calc.}	Y_{calc.}
55	1	1	2	1	25	27.74	27.57099
55	1	1	5	6	40.63	49.51	50.26155
55	1	1	10	2	37.5	36.46	36.5389
55	1	1	12	8	37.5	40.91	41.31528
55	1	3	1	3	11.43	20.61	21.30395
55	1	3	2	10	46.43	36.76	36.32267
55	1	3	8	4	46.43	47.29	47.51249
55	1	3	12	1	32.14	31.52	31.65507
55	1	3	15	6	35.71	38.3	38.68798
55	1	5	2	2	60	53.64	53.6376
55	1	5	5	8	49.33	62.83	62.99949
55	1	5	10	3	62.67	62.7	62.72887
55	1	5	12	10	60	64.11	64.12418
55	1	7	1	4	42.5	42.07	42.09084
55	1	7	5	1	47.5	51.2	51.5038
55	1	7	8	6	67.5	62.91	63.15795
55	1	7	12	2	65	60.45	60.56469
55	1	7	15	8	65	60.83	60.89556
55	1	9	2	3	56.25	57.55	57.41405
55	1	9	5	10	37.5	61.6	61.9039
55	1	9	10	4	65.63	61.25	61.56862
55	1	9	15	1	46.88	53.06	52.93499
55	3	1	1	6	48.39	56.72	57.55318

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Testing Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
55	3	1	5	2	48.39	41.55	40.77981
55	3	1	8	8	74.19	73.86	73.34131
55	3	1	12	3	87.1	75.31	74.91809
55	3	1	15	10	87.1	83.83	82.56703
55	3	3	2	4	75	71.45	71.32261
55	3	3	8	1	50	54.17	54.01679
55	3	3	10	6	87.5	88.92	89.25923
55	3	3	15	2	75	78.82	79.47188
55	3	5	1	8	75	78.72	79.17947
55	3	5	5	3	75	70.71	70.54252
55	3	5	8	10	93.75	92.84	92.81148
55	3	5	12	4	87.5	84.35	84.35951
55	3	7	1	1	37.5	24.2	22.7892
55	3	7	2	6	50	55.97	55.72328
55	3	7	8	2	62.5	64.33	64.39197
55	3	7	10	8	62.5	66.53	66.93742
55	3	7	15	3	75	81.55	82.48349
55	3	9	1	10	43.75	43.53	43.3765
55	3	9	5	4	50	51.11	51.31946
55	3	9	10	1	43.75	42.55	42.5046
55	3	9	12	6	62.5	54.06	54.3523
70	1	1	1	2	40.63	40.73	40.4412
70	1	1	2	8	56.25	56.99	57.33498

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Testing Data for predicting Water Removal Efficiency (WRE)							
Experimental Data							
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	1	1	8	3	62.5	58.12	57.61594
70	1	1	10	10	62.5	60.71	60.88554
70	1	1	15	4	53.13	54.41	54.50299
70	1	3	2	1	50	51.06	51.21941
70	1	3	5	6	71.43	67.9	67.7913
70	1	3	10	2	57.14	58.16	57.678
70	1	3	12	8	68.57	69.19	69.25601
70	1	5	1	3	60	58.41	58.10895
70	1	5	2	10	70	70.74	70.59865
70	1	5	8	4	70	66.4	66.3531
70	1	5	12	1	60	58.34	58.16476
70	1	5	15	6	65.33	67.64	67.48269
70	1	7	2	2	56.25	55.99	56.30394
70	1	7	5	8	62.5	65.72	65.98039
70	1	7	10	3	56.25	58.11	58.39879
70	1	7	12	10	61.25	64.71	65.08562
70	1	9	1	4	37.5	33.45	32.83036
70	1	9	5	1	28.13	32.51	33.18749
70	1	9	8	6	46.88	40.7	40.45868
70	1	9	12	2	31.25	33.25	33.49921
70	1	9	15	8	34.38	41.37	41.73798
70	3	1	2	3	64.52	67.08	67.27003
70	3	1	5	10	71.61	69.42	69.40471

Data from Literature						ANN (in MATLAB) Output	Process Model Output in this study
Used as Testing Data for predicting Water Removal Efficiency (WRE)							
Experimental Data						WRE	WRE
Temperature	Settling Time	Mixing Time	Chemical Dosing	Dilution Water	WRE	WRE	WRE
°C	min.	min.	ppm	%	%	%	%
X ₁	X ₂	X ₃	X ₄	X ₅	Y _d	Y _{calc.}	Y _{calc.}
70	3	1	10	4	66.45	69.28	69.25226
70	3	1	15	1	61.29	58.23	57.92585
70	3	3	1	6	71.88	68.26	68.22528
70	3	3	5	2	65.63	67.33	67.21494
70	3	3	8	8	75	73.89	73.7085
70	3	3	12	3	65.63	66.7	67.28797
70	3	3	15	10	67.5	70.84	70.31107
70	3	5	2	4	84.38	83.79	83.96677
70	3	5	8	1	87.5	81.46	81.43231
70	3	5	10	6	90	92.19	92.05237
70	3	5	15	2	81.88	81.47	81.07837
70	3	7	1	8	56.25	55.26	55.14049
70	3	7	5	3	59.38	58.13	57.95896
70	3	7	8	10	68.75	63.88	63.79785
70	3	7	12	4	62.5	62.79	62.60432
70	3	9	1	1	43.75	45.99	46.1403
70	3	9	2	6	53.13	55.96	56.07735
70	3	9	8	2	52.5	51.8	51.97618
70	3	9	10	8	62.5	57.76	57.86275
70	3	9	15	3	46.88	48.77	48.58929

Appendix-A6

Plant Data extracted from Literature						Process Model Output
Used as Training Data for predicting Wash Water (WW) Flow rate						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
135000	24057	143	75.68	11.4	3327	3300
217000	21450	148	71.64	11.4	4207	5443
217000	19500	148	64.51	11.4	4249	5662
218000	20450	146	67.54	14.3	4291	5542
218000	19500	148	62.27	11.4	4305	5674
217000	21400	148	71.82	11.4	4417	5440
219000	21450	147	62.52	17.1	4473	5788
228000	23400	147	74.42	11.4	4640	5449
219000	19500	149	65.15	11.4	4668	5629
213000	24200	145	90.73	11.4	4668	5757
220000	21500	149	71.3	14.3	4682	5507
217000	21450	148	60.81	17.1	4794	6329
219000	19500	148	65.76	11.4	4808	5618
223000	24300	145	67.7	17.1	4850	5515
223000	20656	148	59.29	11.4	4864	5527
233000	22900	148	61.66	11.4	4864	5568
221000	19500	145	68.67	17.1	4864	5576
219000	19500	144	74.68	17.1	4864	5624
223000	25350	146	69.58	17.1	4878	5483
224000	25350	146	70.14	17.1	4906	5447
218000	25000	145	67.76	17.1	4906	6213
218000	21450	148	65.57	11.4	4920	5551
223000	21500	143	79.81	11.4	4948	5518
221000	22300	143	72.78	11.4	4948	5493
215000	21500	147	72.88	14.3	4976	5566

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbl/day	ppm	F	ppm	ppm	bbl/day	bbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
222000	19500	147	58.98	11.4	4976	5718
221000	21450	147	68.14	14.3	4976	5464
220000	21450	149	67.65	17.1	5004	5594
223000	23600	144	96.8	11.4	5018	5732
224000	23400	144	86.14	14.3	5032	5428
224000	19500	144	75.54	17.1	5032	5663
221000	19500	143	72.7	17.1	5032	5717
219000	24250	143	79.7	17.1	5032	5481
215000	21000	144	73.83	8.55	5032	5537
222000	22100	149	54.5	14.3	5060	5840
218000	22400	146	87.79	11.4	5060	5303
225000	24300	144	73.97	17.1	5060	5460
222000	19500	142	71.7	17.1	5060	5857
221000	29400	143	79.59	14.3	5060	5514
219000	23650	143	82.88	11.4	5060	5444
218000	23450	147	73.6	28.5	5088	6324
222000	19500	147	74.08	11.4	5088	5695
223000	24300	148	65.5	14.3	5102	5496
225000	23400	147	68.1	17.1	5102	5449
220000	21550	147	70.46	11.4	5116	5443
218000	21300	142	76.74	11.4	5116	5555
221000	21500	148	77.1	17.1	5143	5394
222000	23400	146	67.21	11.4	5144	5468
219000	21450	147	58.8	11.4	5171	5699
222000	24300	148	67.97	11.4	5171	5445

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
225000	19500	147	78.9	8.55	5171	6109
224000	22530	150	59.03	11.4	5199	5683
217000	23400	145	88.59	8.55	5199	5316
222000	24300	148	61.45	11.4	5199	5585
227000	19500	146	71.7	11.4	5227	5981
220000	23400	146	86.66	11.4	5241	5299
222000	19500	143	73.9	17.1	5255	5732
223000	23400	144	85.89	11.4	5269	5429
226000	23400	145	72	11.4	5283	5466
218000	21500	148	68.86	25.65	5283	6151
224000	21450	150	63.4	25.65	5311	5982
217000	23000	149	62.89	14.3	5311	6291
231000	23400	144	74.6	14.3	5339	5485
221000	21450	148	57.24	17.1	5381	5839
219000	21450	150	62.95	19.95	5395	6305
223000	23400	145	70.5	11.4	5395	5462
211000	23450	149	69.72	14.3	5423	6672
229000	23400	145	73.39	14.3	5437	5469
219000	21450	149	65.09	11.4	5451	5571
217000	21770	151	86.82	11.4	5479	6327
188000	23100	145	48.06	14.3	5507	6736
224000	23400	148	68.1	11.4	5521	5452
216000	23400	143	91.11	11.4	5521	6351
222000	23400	144	72.5	11.4	5591	5470
224000	21300	143	76.62	11.4	5591	5545

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbl/day	ppm	F	ppm	ppm	bbl/day	bbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
222000	21160	148	56.64	11.4	5605	5566
213000	21450	150	67.44	14.3	5619	6621
217000	19500	150	66.65	8.55	5661	6297
217000	22820	151	100.68	11.4	5703	7214
225000	23400	146	91.09	11.4	5703	5351
217000	21450	151	65.31	14.3	5717	6496
217000	20100	149	92.98	8.55	5717	5526
221000	21450	149	68.9	8.55	5731	5507
218000	25350	148	61.66	11.4	5731	6339
210000	29250	149	64.27	11.4	5731	6373
214000	23540	148	54.23	11.4	5731	7026
217000	20150	148	47.86	8.55	5745	6810
224000	21300	140	76.91	11.4	5745	5717
217000	21160	149	61.14	14.3	5745	6075
212000	19500	147	60.43	11.4	5759	6646
215000	20000	150	93.45	8.55	5772	5901
201000	19500	145	99.16	14.3	5786	6828
221000	21450	150	53.46	11.4	5786	5901
217000	21450	150	60.89	14.3	5786	6339
222000	21450	149	55.13	17.1	5786	5882
220000	19500	149	56.8	11.4	5814	5710
218000	19500	150	66.17	14.3	5814	5774
224000	23800	150	68.9	11.4	5814	5688
215000	23400	146	70.52	11.4	5814	5803
218000	20100	150	84.79	8.55	5814	5734

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbl/day	ppm	F	ppm	ppm	bbl/day	bbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
216000	22641	151	93.17	11.4	5828	6385
221000	23000	150	52.43	14.3	5828	6496
220000	22100	149	52.82	14.3	5828	6331
222000	21450	147	46.18	8.55	5842	5798
226000	19500	148	70.63	11.4	5842	5695
220000	19500	150	67.3	14.3	5842	5734
220000	21450	150	68.88	14.3	5842	5732
216000	21450	152	67.1	14.3	5842	7441
144125	23500	149	33.23	14.3	5843	5892
214000	19500	149	88.99	8.55	5859	5623
219000	22400	150	89.04	8.55	5870	5646
197000	19500	143	82.82	8.55	5870	6473
209000	19500	141	64.19	8.55	5870	5545
216000	20100	150	74	8.55	5884	5728
217000	21800	150	79.29	11.4	5884	5642
223000	20560	153	65.4	11.4	5884	7738
225000	23750	143	81.07	11.4	5884	5470
216000	23485	150	88.62	11.4	5898	5517
220000	19500	147	64.23	11.4	5912	5685
221000	21450	149	63	11.4	5926	5554
218000	20100	150	73.43	8.55	5926	5734
222000	20656	150	54.84	11.4	5954	5724
213000	23400	146	34.52	11.4	5954	7218
217000	20100	150	82.58	11.4	5954	5701
196000	20100	143	56.52	14.3	5954	7214

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbl/day	ppm	F	ppm	ppm	bbl/day	bbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
220000	19500	142	83.28	11.4	5954	7351
224000	22100	143	72.06	11.4	5954	5501
212000	22000	149	105.3	8.55	5957	6313
226000	21600	151	63	14.3	5968	6035
221000	22200	150	54.21	14.3	5968	6184
218000	19500	144	75.95	11.4	5968	6130
213000	19500	143	66.57	8.55	5968	5961
222000	21100	150	59.68	14.3	5996	5746
207288	21450	141	56.78	11.4	6010	7240
209997	21200	141	64.06	11.4	6010	6916
218000	21450	144	90.31	14.3	6010	6766
190000	23400	146	54.78	17.1	6010	6324
213000	19500	147	61.08	11.4	6010	6374
218000	20000	149	77.79	11.4	6024	5499
218000	22500	151	55.41	14.3	6024	7158
222000	17940	150	71.7	11.4	6038	6974
213000	21450	149	48.64	11.4	6038	7146
215000	19975	141	60.32	8.55	6038	6064
222000	19500	144	69.32	14.3	6066	5832
225000	19500	149	68.08	14.3	6066	5603
203000	19500	140	71.78	8.55	6066	5452
212000	19500	143	73.56	8.55	6066	5929
204000	19580	138	80.31	8.55	6080	6396
218000	22780	149	80.76	8.55	6108	5351
132503	19500	137	57.2	14.3	6122	6483

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
210000	21450	141	81.98	14.3	6122	7327
223000	21450	145	85.77	14.3	6122	5439
219000	19500	145	64.06	14.3	6122	5708
219000	19500	145	81.4	11.4	6122	5939
216000	22460	148	58.07	11.4	6122	6493
219000	22783	148	67.02	11.4	6122	5513
185000	22500	150	57.26	14.3	6122	5775
194000	19500	143	69.97	8.55	6122	6871
216000	21450	145	92.64	14.3	6122	6786
222000	21450	150	55.4	8.55	6136	5686
220000	21450	148	51.2	11.4	6136	6016
225000	22100	150	56.4	14.3	6150	5711
214267	21350	140	49.25	11.4	6164	7104
211000	19500	143	71.93	8.55	6164	5793
218000	21000	140	71.99	11.4	6178	5760
223000	21450	141	72.49	14.3	6178	5540
219000	22100	149	57.84	14.3	6220	6126
176000	21400	146	52.14	11.4	6248	6429
218809	22200	144	52.46	11.4	6262	6219
223000	22100	150	58.36	17.1	6262	5869
222000	22100	151	54.41	14.3	6262	6304
223000	19500	142	83.58	11.4	6262	7477
216000	22640	148	72.31	11.4	6262	5483
216000	19500	144	77.75	11.4	6262	6071
149471	22300	139	49.94	11.4	6290	6423

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbl/day	ppm	F	ppm	ppm	bbl/day	bbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
219000	19500	147	76.18	8.55	6290	5872
199205	24350	151	52.04	17.1	6318	7100
220000	19500	145	95.76	14.3	6318	7160
221000	19500	147	61.62	11.4	6318	5702
217000	22640	148	90.19	14.3	6318	5249
221000	22200	150	58.23	14.3	6318	5951
139991	23200	138	28	11.4	6332	6354
217000	19500	146	72.57	11.4	6332	5719
224000	19500	148	62.8	11.4	6332	5665
219000	23400	149	68.21	11.4	6332	5556
220000	19500	148	70.6	8.55	6332	5877
216000	23820	151	87.35	11.4	6345	6268
107000	19500	139	45.92	17.1	6346	6421
218000	19500	144	81.68	11.4	6360	6195
206000	21000	139	73.87	8.55	6360	7162
217000	19500	143	68.63	8.55	6360	6527
214828	23300	142	56.04	17.1	6373	7121
217000	20100	151	60	8.55	6373	6339
214000	21773	152	61.92	11.4	6373	7867
212000	19500	151	65.11	14.3	6373	7106
225000	23400	149	67.08	17.1	6373	5542
220000	19880	146	77.3	11.4	6387	5606
209769	21200	144	55.02	14.3	6387	7180
221000	19500	150	84.75	8.55	6401	5939
217000	19500	145	72.34	8.55	6415	6092

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
212000	19500	142	76.09	8.55	6415	6246
219000	19500	142	74.77	14.3	6429	6194
222000	22000	149	59.89	11.4	6429	5579
209953	21300	144	59.98	11.4	6443	7062
170173	19500	134	45.8	14.3	6457	7541
211160	25350	151	61.94	14.3	6457	7553
221000	22100	150	61.41	14.3	6457	5828
221000	19500	145	75.66	8.55	6460	6431
213364	25350	150	64.85	17.1	6486	7071
225000	23400	151	61.48	14.3	6513	6098
225000	23400	150	59.24	14.3	6541	5733
204451	23400	138	53.68	17.1	6555	7246
205694	22000	142	66.56	11.4	6569	7159
158000	23400	139	72.32	11.4	6569	7259
157000	19500	140	67.46	11.4	6583	6620
211430	21100	144	58.46	14.3	6597	7068
173500	21400	132	12.09	28.5	6597	7875
221000	26150	148	66.04	11.4	6597	5608
216000	19500	150	98.46	8.55	6597	7075
207130	21000	143	49	19.95	6597	7217
151248	23000	138	43.05	14.3	6611	8198
218000	19500	144	85.19	11.4	6639	6521
214106	23400	140	69.69	17.1	6667	6515
204792	23400	140	50.19	14.3	6681	7238
206287	24350	142	51.88	17.1	6681	7205

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
203900	23400	143	52.3	17.1	6681	7173
198499	23400	140	62.31	14.3	6709	7304
126000	19500	136	32.1	11.4	6709	6895
223000	21450	149	53.2	8.55	6709	5587
158000	20656	140	56.87	11.4	6715	6151
206255	23400	142	47.99	17.1	6731	7219
203323	21350	141	47.55	11.4	6737	7254
155000	22340	142	55.53	14.25	6793	6357
209960	21350	140	40.93	11.4	6815	7295
208440	21200	143	66.91	14.3	6821	7045
212055	22000	142	52.3	11.4	6835	7163
206406	21350	142	66.1	11.4	6835	7144
215055	23700	145	58.64	17.1	6849	7035
215106	23500	143	63.34	22.8	6849	7062
217696	23000	145	52.75	17.1	6849	6980
219429	23000	146	56.84	11.4	6849	5952
219880	22100	147	58.29	17.1	6849	6040
218908	23250	145	58.78	17.1	6849	6424
217934	22000	147	57.53	14.3	6849	6255
208511	21000	150	68.75	8.55	6849	6743
217506	19500	150	75.96	11.4	6849	5743
214467	21500	144	54.29	11.4	6849	6835
210002	23000	145	52.71	14.3	6849	7161
177000	19500	142	91.7	14.3	6857	7407
206456	21000	144	64.78	19.95	6877	7210

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
215187	22300	144	67.54	14.3	6877	6030
212480	19500	143	51.19	11.4	6877	7541
215618	19500	144	51.59	11.4	6877	6861
217057	19500	145	45.54	8.55	6877	7718
218013	23000	147	48.25	14.3	6877	7018
218230	24350	146	61.77	17.1	6877	6547
218064	19500	149	58.23	17.1	6877	6019
215880	19500	148	77.06	14.3	6877	5438
210796	19500	151	64.63	14.3	6877	7346
204000	19500	133	44.25	22.8	6877	8328
218418	22100	146	50.61	19.95	6877	7018
215179	23000	149	56.8	8.55	6877	6675
214068	27100	142	43.74	17.1	6880	7228
215584	23100	143	51.93	19.95	6880	7182
212436	23400	142	46.07	14.3	6880	7231
212870	22100	143	64.37	25.65	6887	7187
105891	21450	140	50.7	22.3	6887	6885
204688	21800	142	57.45	11.4	6887	7218
219683	23400	147	43.51	17.1	6905	7129
218259	23100	146	58.79	11.4	6905	6047
219981	19500	149	62.98	8.55	6905	6107
211654	23000	148	64.66	14.3	6905	6825
214334	25350	151	66.63	17.1	6905	7661
211418	23550	151	61.95	17.1	6905	7667
213448	22000	144	49.72	22.8	6905	7203

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
183677	23400	143	70.21	14.3	6933	7862
207025	23400	149	66.5	19.95	6933	6643
199437	29300	152	61.35	22.8	6933	8368
211433	21350	144	61.91	11.4	6947	6825
212290	24800	151	62.32	14.3	6960	7591
174403	35000	139	62.69	19.95	6960	6876
206982	22400	148	64.79	57	6960	7685
213856	21350	143	63.91	11.4	6974	6169
216574	23000	144	55.17	11.4	6974	6658
214037	23400	141	58.04	17.1	6988	7127
217085	23000	144	65.78	14.3	6988	5934
216582	19500	146	48.47	11.4	6988	6740
218534	23400	147	52.98	14.3	6988	6774
215958	23450	148	63.55	17.1	6988	6649
216968	21000	148	65.94	17.1	6988	5829
218565	19500	148	65.04	19.95	6988	5667
212344	22300	149	65.78	19.95	6988	6902
216979	24100	148	64.35	34.2	6988	6885
212028	23100	149	65.79	25.65	6988	6888
200673	23100	148	36.68	42.75	6988	6581
212501	21450	152	71.56	17.1	6988	8231
203314	32500	150	79.95	14.3	6988	6613
196330	23500	150	80.25	11.4	6988	6880
213264	20450	148	57.6	14.3	6988	6856
212116	22200	143	57	14.3	6993	7124

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
215628	22100	143	59.4	17.1	6993	6775
212342	22200	142	50	11.4	6993	7189
212130	21200	143	52.19	11.4	6993	7139
207688	22100	137	52.98	25.65	6993	7409
215000	22200	141	48.7	22.5	6993	7225
210051	22200	143	59.81	14.3	7016	7150
184471	23100	149	65.22	42.75	7016	7501
201283	23500	148	80.86	57	7016	7399
207674	25350	150	61.94	11.4	7016	6864
207000	20000	149	90.83	8.55	7016	6444
202381	19500	148	65.92	71.25	7044	7667
200322	21350	149	72.57	11.4	7044	6418
216825	21350	144	53.11	11.4	7058	6430
206224	23400	138	56.73	14.3	7072	7245
126000	19500	138	37.11	14.3	7128	6180
212233	21350	140	59.57	17.1	7156	7081
216168	22000	142	61.7	17.1	7236	6452
213011	22200	143	51.83	17.1	7236	7195
206911	21925	143	69.33	8.55	7258	6918
211420	26000	144	57.96	19.95	7258	7114
213508	22100	142	52.91	19.95	7258	7202
217741	21400	145	45.52	11.4	7268	6843
217207	21450	146	48.17	14.3	7268	6949
208420	23000	145	50.2	14.3	7268	7164
205000	21500	138	51.34	14.3	7268	7285

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
217384	19500	143	50	11.4	7268	6851
213510	23550	152	66.16	11.4	7324	8102
197274	23100	137	56.77	14.3	7324	7355
209000	23400	137	66.62	19.95	7352	8113
205000	21500	137	50.74	14.3	7408	7307
204000	21500	137	57.63	17.1	7436	7399
211079	23000	152	57.37	11.4	7436	8273
217000	25450	138	62.29	31.4	7442	7371
206000	21500	137	63.91	14.3	7464	7540
206000	21500	137	50.75	17.1	7492	7277
205000	25350	138	77.3	17.1	7542	8719
174000	21450	131	45.66	17.1	7576	8838
211000	25350	138	64.67	19.95	7603	7229
199000	26450	132	50.36	14.3	7631	7256
212167	23550	149	61.87	14.3	7660	6930
212326	26350	150	65.11	19.95	7660	7002
212174	23550	149	67.49	14.3	7688	6725
200000	25450	138	65.9	19.95	7715	8618
201000	25350	139	61.95	22.8	7715	8158
78000	21450	137	36	14.3	7743	7915
204000	19500	143	65.87	17.1	7799	7977
208000	19500	142	65.3	14.3	7799	7347
205000	21500	139	84.6	11.4	7799	7936
216432	19500	143	50.41	11.4	7841	6987
229000	20962	140	62.55	19.95	7869	7681

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbl/day	ppm	F	ppm	ppm	bbl/day	bbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
202000	21500	140	91.39	11.4	7939	7986
204000	24375	138	63	19.95	7953	7701
210408	23100	142	57	14.3	7967	7196
177000	19500	138	100.44	11.4	7967	7595
207000	19500	140	95	11.4	7995	8928
219000	24057	141	85.47	17.1	8023	6302
206000	21450	143	85.76	11.4	8023	7519
215000	19500	140	70.7	14.3	8135	6801
214000	21250	141	83.51	17.1	8135	7066
137170	23400	133	27.2	11.4	8150	7976
219000	23400	142	89.55	17.1	8163	6869
193000	19500	141	80.02	11.4	8191	8918
231000	23425	136	64.65	31.35	8204	8243
218000	23400	141	86.59	17.1	8218	6856
194000	23400	141	60.39	19.95	8232	8487
169000	23400	142	54.92	11.4	8288	7792
198000	19500	139	67.58	19.95	8316	8885
78000	20150	139	67.83	19.95	8316	8341
208000	19500	138	47.64	17.1	8330	7901
205000	20400	143	69.01	14.3	8330	7390
208000	19500	140	90.1	14.3	8330	8015
219000	19500	142	97.68	19.95	8369	7140
211000	18720	142	93.26	14.3	8386	8781
204000	20656	143	89.79	25.65	8386	8232
218000	22340	143	91.49	14.3	8414	6854

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbl/day	ppm	F	ppm	ppm	bbl/day	bbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
231000	21937	139	61.05	17.1	8484	8536
220000	19500	142	68.7	14.3	8484	6194
182000	19500	142	87.27	14.3	8514	8028
193000	20800	143	66	19.95	8526	8491
210000	23400	143	60.68	17.1	8526	7166
218000	21890	142	88.57	14.3	8526	6851
205000	19500	142	65.74	28.5	8526	8715
220000	19500	142	93.85	14.3	8554	7862
188000	23400	141	73.15	19.95	8568	8361
210000	19500	138	63.35	17.1	8582	8149
201000	41535	142	61.36	28.5	8610	8609
200000	21460	144	72.3	17.1	8680	8434
212646	22200	145	61.95	14.3	8705	6906
218184	23100	146	51.4	19.95	8705	7073
210028	21000	150	73.63	8.55	8705	6057
214408	22500	145	56.6	17.1	8810	7065
214770	23100	147	54.48	14.3	8810	7036
210000	19500	137	47.64	14.3	8861	9386
200000	23400	143	61.76	19.95	8861	7180
171000	21450	140	38	14.3	8959	8138
210000	23400	144	59.28	14.25	8973	7143
201000	19500	137	47.64	14.3	8973	8625
211000	19500	139	72.9	19.95	9029	8097
208000	23400	142	56.42	17.1	9043	7207
198000	21450	140	61.11	14.3	9113	7644

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
195597	22100	272	67.63	11.4	9141	9379
211154	21450	277	54.32	17.1	9197	9370
213017	22150	272	72.91	19.95	9225	9370
211997	21200	146	54.62	17.1	9225	7122
217000	23100	139	71.66	48.45	9281	8737
199000	23097	143	72.65	22.8	9309	8406
215513	22100	197	74.63	14.3	9354	9095
213909	22100	197	80.56	14.3	9359	9017
211675	22100	207	75.28	11.4	9365	9328
192000	21500	139	68.95	14.3	9365	8739
195000	19975	143	66.68	14.3	9365	8607
196000	20060	143	66.68	22.8	9365	8557
201000	19500	137	56	14.3	9449	9014
214982	26300	150	68.93	17.1	9505	6962
206000	19500	137	56.08	14.3	9505	9157
204000	21450	137	58.2	14.3	9589	7336
210614	20500	202	72.25	8.55	9617	9648
211345	20100	154	65.7	8.55	9644	9991
210718	21100	155	61.16	11.4	9644	10716
214440	21600	154	53.12	19.95	9672	10549
214892	21600	155	67.66	17.1	9700	10193
214331	20500	150	59.01	17.1	9728	7034
199335	26600	157	60.95	17.1	9728	9542
217104	21350	153	64.46	17.1	9759	8775
216504	21350	154	55.6	17.1	9759	10351

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbl/day	ppm	F	ppm	ppm	bbl/day	bbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
215913	21500	153	62.33	17.1	9812	9174
206000	23400	141	63.53	22.8	9812	7552
210065	20500	155	63.43	8.55	9828	10772
216104	25450	155	57.7	17.1	9831	10675
216730	26500	187	66.57	17.1	9840	9356
216431	21600	155	60.24	17.1	9840	10763
216934	21600	154	66	17.1	9868	9682
216371	20450	155	67.1	17.1	9896	9968
217021	20350	154	59.42	14.3	9924	9579
216406	21600	155	65.52	17.1	9924	10230
210204	22425	155	76.08	19.95	9924	9905
214760	20450	154	59.5	14.3	9952	10046
210133	22425	155	69.73	17.1	9952	10198
209992	23500	154	68.54	14.3	9952	9983
215915	22500	154	61.02	25.65	9980	10568
216198	21350	154	63.41	17.1	10008	9985
215035	21350	154	61.62	17.1	10008	10265
217011	21600	154	66.56	17.1	10008	9622
214364	21600	155	73.32	14.3	10008	9444
193000	19500	140	61.89	11.4	10030	8650
206667	21450	155	67.24	14.3	10036	10242
209642	25700	154	67.74	14.3	10036	9815
207842	19500	153	65.04	17.1	10036	9548
214056	21600	155	54.4	19.95	10064	11075
215822	21600	154	74.87	17.1	10064	9120

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
211081	25460	155	71.02	22.8	10064	9868
215829	21600	153	74.87	17.1	10064	8491
206068	23500	151	62.47	22.8	10092	7615
213578	21350	153	63.2	19.95	10092	9634
211641	27360	154	70.12	22.8	10092	9706
213002	25350	154	65.36	17.1	10120	10057
211249	21350	155	74.09	19.95	10120	10023
210068	19816	154	71.49	14.3	10120	9793
208911	21126	154	69.79	17.1	10120	10094
211039	21126	154	66.03	17.1	10120	10250
209727	21350	154	63	17.1	10120	10274
213883	22350	154	71.32	17.1	10146	9773
208297	21450	154	65.92	17.1	10148	10142
210365	25433	154	68.8	17.1	10148	9847
213618	21350	153	63.2	17.1	10176	9439
212110	21600	152	62.28	31.35	10176	9056
213629	23000	152	65.15	17.1	10176	8517
210033	24350	153	75.24	19.95	10204	9434
211567	25300	155	60.49	17.1	10204	10278
209793	19500	153	64.08	28.5	10204	9904
217136	22550	152	61.54	22.8	10204	8650
209667	19500	154	67.28	19.95	10232	10325
211277	23500	153	67.75	19.95	10259	9582
210826	20300	153	65.55	19.95	10259	9655
214112	21350	153	64.77	14.3	10287	9029

Plant Data extracted from Literature						Process Model Output
Used as Training Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbl/day	ppm	F	ppm	ppm	bbl/day	bbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
212240	23700	154	67	14.3	10310	10063
212016	23500	153	63.89	22.8	10343	9673
211755	24500	154	66.56	14.3	10360	10027
213592	23300	154	67.36	17.1	10371	10120
216000	19186	143	92.32	11.4	10511	8618
188612	19500	150	44.76	8.55	11349	11305
208854	19500	151	58.09	8.55	12160	10727
209494	19500	154	62.83	8.55	12677	12741
205925	19500	156	62.54	8.55	14983	15262
199000	16012	135	65.8	14.3	16269	15959
199000	13650	134	63.36	14.3	16409	16689
200000	17450	135	65.07	14.3	16549	16384
215000	14500	139	57.56	17.1	18925	19044

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Plant Data extracted from Literature						Process Model Output
Used as Testing Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
231000	22900	147	69.54	11.4	4934	5484
224000	21450	149	74.62	14.3	5004	5528
219000	25500	143	79.99	11.4	5032	5452
226000	23400	146	72.56	14.3	5060	5444
225000	23400	146	73.65	11.4	5088	5440
226000	23400	145	71.17	11.4	5157	5467
220000	29400	144	76.09	11.4	5227	5604
224000	23400	148	67.77	14.3	5353	5456
224000	21350	145	69.83	17.1	5395	5476
218000	23400	148	70.46	14.3	5479	5558
220000	18530	148	73.89	14.3	5591	5793
214000	19640	147	68.6	14.3	5731	5763
223000	23300	147	61.45	11.4	5744	5505
223000	21450	148	60.93	14.3	5758	5521
220000	21450	148	64.59	14.3	5786	5542
194656	23400	140	38.4	17.1	5800	7227
216000	20100	150	78.13	8.55	5890	5703
226000	23400	152	69.53	11.4	5940	6913
216000	21701	151	89.92	8.55	5968	6272
153607	25400	140	47.51	11.4	6010	7291
223000	19500	150	68.8	14.3	6080	5738
215000	19500	148	62.99	11.4	6122	5862
215000	19500	147	60.51	11.4	6206	6036
224000	21450	150	56.3	11.4	6332	5672
221000	19500	144	77.82	11.4	6387	6269

Plant Data extracted from Literature						Process Model Output
Used as Testing Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbbl/day	ppm	F	ppm	ppm	bbbl/day	bbbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
158573	19600	137	69.52	28.5	6457	8112
218000	19500	146	65.24	8.55	6513	6067
226000	21000	143	77.66	11.4	6639	5606
208078	23400	142	50.07	14.3	6737	7224
215587	22300	147	52.84	11.4	6849	6880
213962	19500	145	64.96	11.4	6905	6073
215404	20450	150	61.28	14.3	6988	6434
181052	25450	139	81.82	17.1	7016	8171
211215	22400	142	50.74	19.95	7236	7226
207895	21350	141	73.28	11.4	7380	6848
205000	21500	134	53.62	19.95	7464	7710
206000	26325	137	83.5	11.4	7659	8530
188000	19500	141	63.64	17.1	7799	8722
217000	19500	139	67.2	19.95	7939	6284
154000	19500	135	41.82	14.3	8023	6735
229000	24425	139	58.19	45.6	8218	7847
199000	19500	141	88.61	11.4	8246	9057
171000	21450	139	67.83	14.3	8316	8405
193000	19987	143	70.25	14.3	8470	8572
219000	18730	144	90.39	11.4	8554	9400
209000	19500	140	78.16	22.8	9001	8175
215000	20712	139	76.76	37.05	9272	8362
197000	19500	141	66.68	17.1	9365	8837
211253	19500	154	71.7	14.3	9644	9547
216022	21550	154	67.6	17.1	9759	9688

Plant Data extracted from Literature						Process Model Output
Used as Testing Data						
Production Rate	Salt in	Temperature in	Chemical Dosing	Salt out	Wash Water	Wash Water
bbl/day	ppm	F	ppm	ppm	bbl/day	bbl/day
X_1	X_2	X_3	X_4	X_5	Y_d	$Y_{calc.}$
196835	21000	153	62.1	19.95	9896	9100.3938
216567	21600	155	77.1	17.1	9952	9112.0712
216469	21600	155	71.18	17.1	10008	9600.6173
214171	28500	154	69.92	31.35	10176	9676.6128
207599	19500	154	63.13	8.55	13166	13473.435