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# **Appendix A**

**Table A.1** Input data

Environment Data	Constraints or Units	Values or Texts
No. of Data Points	6-300	26
No. of Probes	1-6	2
Test temperature	°C	23.95
Barometric Pressure	in-Hg	29.92
Test Volume	ft <sup>3</sup>	48000
Gas Flow Rate	ft <sup>3</sup> /min	295
Enter a Title for Your Output		Example Data

**Table A.2** Observe data

No	Time	DO Concentration (mg/L)	
	(min)	Probe 1	Probe 2
1	0	1.8	0.5
2	2	2.8	1.8
3	4	4.3	3.1
4	6	5.2	4.0
5	8	5.5	5.0
6	10	6.2	5.9
7	12	6.9	6.6
8	14	7.4	7.2
9	16.5	8.0	7.9
10	18	8.4	8.3
11	20	8.9	8.6
12	22	9.1	9.2
13	24	9.3	9.5
14	26	10.0	9.8
15	28	9.8	9.9
16	30	9.9	10.3
17	35	10.8	10.8
18	40	10.9	11.0
19	45	11.1	11.3
20	50	11.5	11.7
21	55	11.6	11.8
22	60	11.6	11.6
23	65	11.6	11.9
24	70	11.6	11.9
25	75	11.6	12.1
26	80	11.6	12.3

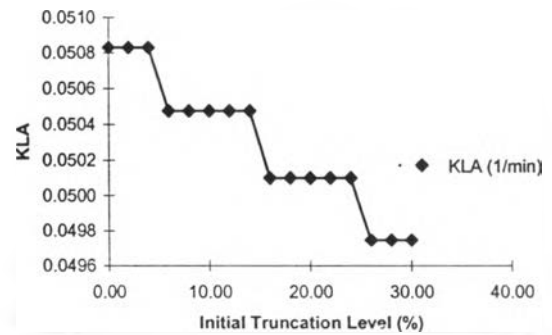
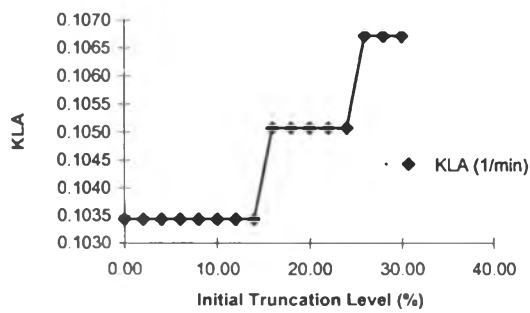
Table A.3 Initial estimation on the parameters

Probe 1

Probe 2

Initial truncation level (%)	Initial Suction (mm)	Initial Velocity (m/s)	Initial Pressure (Pa)
0.00	1.80	11.61	0.1034
2.00	1.80	11.61	0.1034
4.00	1.80	11.61	0.1034
6.00	1.80	11.61	0.1034
8.00	1.80	11.61	0.1034
10.00	1.80	11.61	0.1034
12.00	1.80	11.61	0.1034
14.00	1.80	11.61	0.1034
16.00	2.80	11.61	0.1051
18.00	2.80	11.61	0.1051
20.00	2.80	11.61	0.1051
22.00	2.80	11.61	0.1051
24.00	2.80	11.61	0.1051
26.00	4.30	11.61	0.1067
28.00	4.30	11.61	0.1067
30.00	4.30	11.61	0.1067

Initial truncation level (%)	Initial Suction (mm)	Initial Velocity (m/s)	Initial Pressure (Pa)
0.00	0.50	12.31	0.0508
2.00	0.50	12.31	0.0508
4.00	0.50	12.31	0.0508
6.00	1.80	12.31	0.0505
8.00	1.80	12.31	0.0505
10.00	1.80	12.31	0.0505
12.00	1.80	12.31	0.0505
14.00	1.80	12.31	0.0505
16.00	3.10	12.31	0.0501
18.00	3.10	12.31	0.0501
20.00	3.10	12.31	0.0501
22.00	3.10	12.31	0.0501
24.00	3.10	12.31	0.0501
26.00	4.00	12.31	0.0497
28.00	4.00	12.31	0.0497
30.00	4.00	12.31	0.0497



Initial truncation level (1-30%)

1 %

Initial truncation level (1-30%)

1 %

Table A.4 Output data

Summary ( for standard conditions, 20°C)							
Probe	KLA (1/hr)	C (mg/L)	SOTE (%)	SOTR lb/hr	de ft	RMS	Barometric (in hg)
1	3.249	12.753	40.616	124.129	13.392	0.170	29.920
2	3.335	13.102	42.821	130.870	14.669	0.103	29.920
Average	3.292	12.928	41.718	127.500	14.031	0.136	29.920

## **Appendix B**

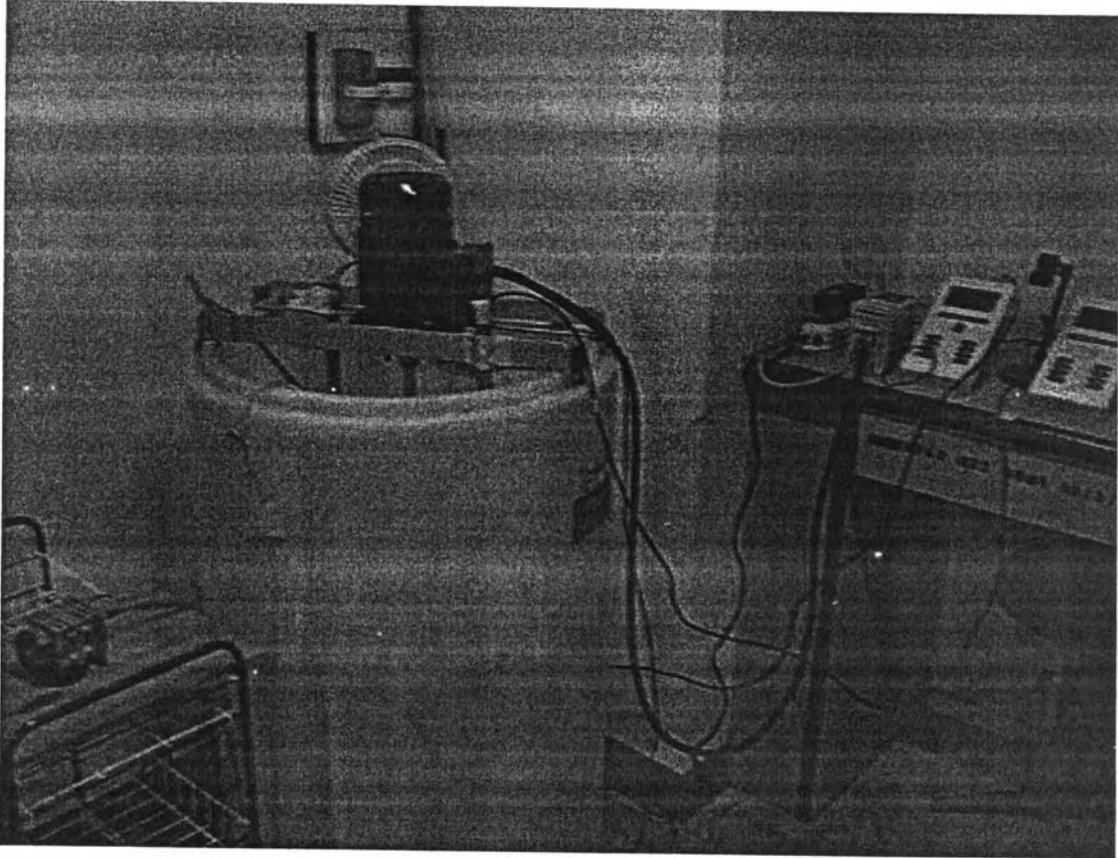
**ต้นฉบับ หน้าขาดหาย**



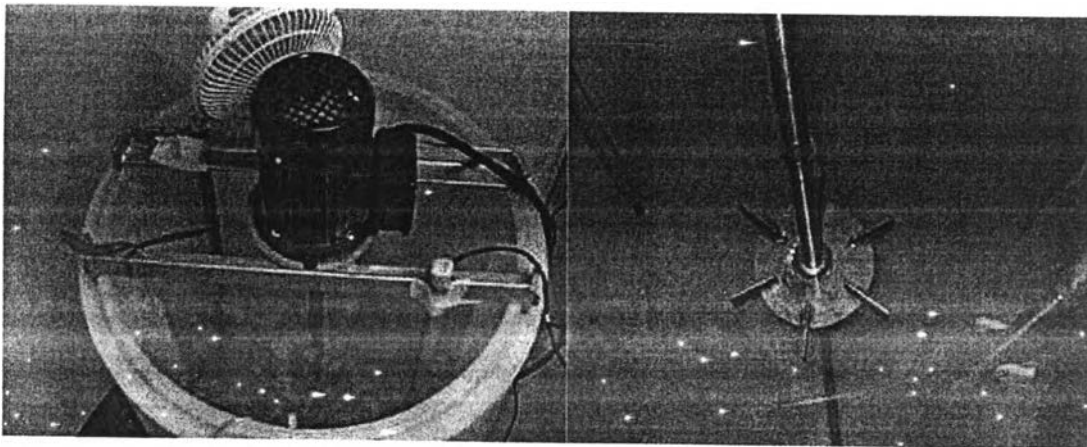
**Table B.2** Conclusion of  $K_L a$  Values

<b><math>K_L a</math> values</b>				
<b>Surfactant Concentration</b>	<b>13.17 Watts/m<sup>3</sup> (280 RPMs)</b>	<b>26.33 Watts/m<sup>3</sup> (420 RPMs)</b>	<b>39.50 Watts/m<sup>3</sup> (560 RPMs)</b>	<b>52.67 Watts/m<sup>3</sup> (700 RPMs)</b>
0 mg/L	3.718	4.801	5.510	6.219
5 mg/L	3.726	4.554	5.446	5.874
10 mg/L	3.785	4.738	5.413	5.298
15 mg/L	3.714	4.492	5.249	5.014

## **Appendix C**



a) Side view



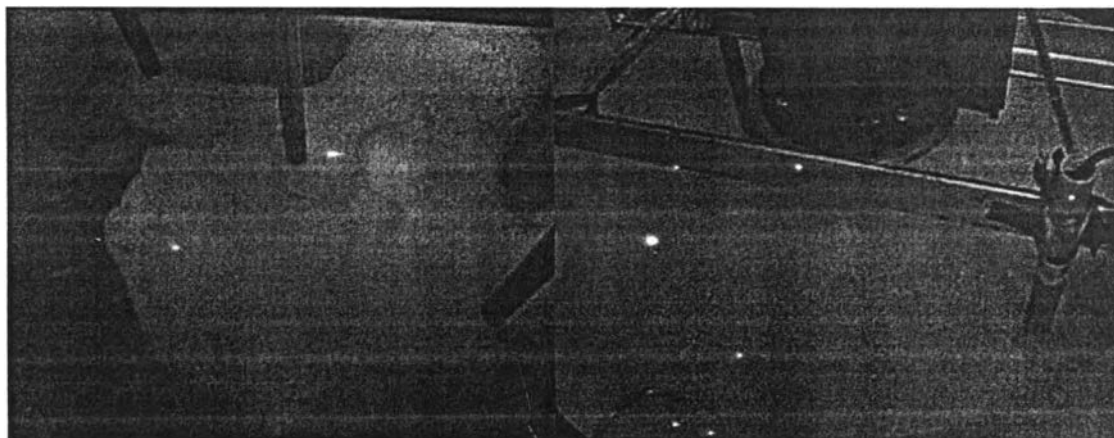
b) Top view

**Figure C.1** Turbine aeration setup; a) Side view, b) Top view



a) Tap water

b) SAA 5 mg/L



c) SAA 10 mg/L

d) SAA 15 mg/L

**Figure C.2** Turbine aeration run using speed 280 rpm : a) Tap water, b) SAA 5 mg/L, c) SAA 10 mg/L, d) SAA 15 mg/L

## BIOGRAPHY

Mr Marut Kaewwichai was born on December 19, 1976. He received his Bachelor's Degree in Environmental Engineering from faculty of Engineering, King Mongkut's University of Technology Thonburi in 1999. He pursued his Master Degree studies in the International Postgraduate Programs in Environmental Management, Inter-Department of Environmental Management, Chulalongkorn University, Bangkok, Thailand in May 2001. He was awarded Master Degree of Science in Environmental Management in April 2003.

