ICR TREATMENT STUDY ANALYSIS

Base Analysis and Data Review Comments

Treatment Study ID 1034

Study Protocol GAC RSSCT treatment study

Plant ICR Number 363

PWS Name Illinois-American Water Company

City, State, Zip Belleville, IL 62223

Major comments:

1. RSSCT schematic (Figure 3-2) shows influent sampling point located prior to inline filtration by 0.1-0.2 µm Teflon filter. Therefore, influent water quality analysis was conducted on settled but not filtered water. Bench-scale pretreatment included decantation but no filtration prior to inline filtration during RSSCT testing.

2. First quarter calculation for scaling factor was based on full-scale particle size determined experimentally by a 50%-passing sieve analysis, while during remaining quarters, an average particle size was used based on mesh sizes according to *Data Collection Spreadsheets* formula. First quarter scaling factor used was 7.6, while during the remaining quarters the scaling factor was 6.9.

General Comments:

1. GAC influent was filtered through 0.1-0.2 µm pore size filter, a tighter filter than that required by the *Treatment Studies Manual* (about 1.0 µm).

2. Report states that influent "turbidity was relatively high in the 3rd and 4th quarters." Turbidity ranged from 0.3 to 1.1 during the two sessions. Note that based on Figure 3-2, sampling was conducted on settled water, instead of filtered water.

Outlier Data:

No outliers removed.

Cell: A1
Comment: 1034-SAS.xls 2/10/00 21:30

All curve fits reviewed and approved. See below for log of refit datasets.

Cell: C8
Comment: 1034-10-01 - Run 1 (DBAA) 2/10/00 21:00
Original value (CoefA0) = 0 New value = -0.433
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: D8
Comment: 1034-10-01 - Run 1 (DBAA) 2/10/00 21:00
Original value (CoefAf) = 1.19 New value = 3.5812
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: E8
Comment: 1034-10-01 - Run 1 (DBAA) 2/10/00 21:00
Original value (CoefB) = 10 New value = 20.1527
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: F8
Comment: 1034-10-01 - Run 1 (DBAA) 2/10/00 21:00
Original value (CoefD) = 0.15 New value = 0.4303
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: J8
Comment: 1034-10-01 - Run 1 (DBAA) 2/10/00 21:00
Original value (S) = 0 New value = -0.0099
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: C34
Comment: 1034-10-02 - Run 3 (HAA5) 2/10/00 21:04
Original value (CoefA0) = 99999 New value = -3.6798
Fewer than 6 points. Logistic function (type 1) applied.

Cell: D34
Comment: 1034-10-02 - Run 3 (HAA5) 2/10/00 21:04
Original value (CoefAf) = 99999 New value = 38.532
Fewer than 6 points. Logistic function (type 1) applied.

Cell: E34
Comment: 1034-10-02 - Run 3 (HAA5) 2/10/00 21:04
Original value (CoefB) = 99999 New value = 15.6434
Fewer than 6 points. Logistic function (type 1) applied.

Cell: F34
Comment: 1034-10-02 - Run 3 (HAA5) 2/10/00 21:04
Original value (CoefD) = 99999 New value = 0.0655
Fewer than 6 points. Logistic function (type 1) applied.

Cell: J34
Comment: 1034-10-02 - Run 3 (HAA5) 2/10/00 21:04
Original value (S) = 0 New value = 0
Fewer than 6 points. Logistic function (type 1) applied.

Cell: C35
Comment: 1034-10-02 - Run 3 (HAA6) 2/10/00 21:05
Original value (CoefA0) = 99999 New value = -4.3069
Fewer than 6 points. Logistic function (type 1) applied.

Cell: D35
Comment: 1034-10-02 - Run 3 (HAA6) 2/10/00 21:05
Original value (CoefAf) = 99999 New value = 42.3446
Fewer than 6 points. Logistic function (type 1) applied.

Cell: E35
Comment: 1034-10-02 - Run 3 (HAA6) 2/10/00 21:05
Original value (CoefB) = 99999 New value = 14.1131
Fewer than 6 points. Logistic function (type 1) applied.

Cell: F35
Comment: 1034-10-02 - Run 3 (HAA6) 2/10/00 21:05
Original value (CoefD) = 99999 New value = 0.0667
Fewer than 6 points. Logistic function (type 1) applied.

Cell: J35
Comment: 1034-10-02 - Run 3 (HAA6) 2/10/00 21:05
Original value (S) = 0 New value = 0
Fewer than 6 points. Logistic function (type 1) applied.

Cell: C38
Comment: 1034-10-02 - Run 3 (MCAA) 2/10/00 20:52
Original value (CoefA0) = 99999 New value = 0
Fewer than 6 points. Step function applied.

Cell: D38
Comment: 1034-10-02 - Run 3 (MCAA) 2/10/00 20:52
Original value (CoefAf) = 99999 New value = 0
Fewer than 6 points. Step function applied.

Cell: E38
Comment: 1034-10-02 - Run 3 (MCAA) 2/10/00 20:52
Original value (CoefB) = 99999 New value = 0
Fewer than 6 points. Step function applied.

Cell: F38
Comment: 1034-10-02 - Run 3 (MCAA) 2/10/00 20:52
Original value (CoefD) = 99999 New value = 0
Fewer than 6 points. Step function applied.

Cell: J38

Comment: 1034-10-02 - Run 3 (MCAA) 2/10/00 20:52
Original value (S) = 0 New value = 0
Fewer than 6 points. Step function applied.

Cell: K38
Comment: 1034-10-02 - Run 3 (MCAA) 2/10/00 20:52
Original value (t0) = 0 New value = 0
Fewer than 6 points. Step function applied.

Cell: C49
Comment: 1034-10-03 - Run 5 (CHBr3) 2/10/00 21:08
Original value (CoefA0) = 0 New value = 0
Fewer than 6 points above MRL. Peak curve/step function combination applied.

Cell: D49
Comment: 1034-10-03 - Run 5 (CHBr3) 2/10/00 21:08
Original value (CoefAf) = 0 New value = 1.59
Fewer than 6 points above MRL. Peak curve/step function combination applied.

Cell: E49
Comment: 1034-10-03 - Run 5 (CHBr3) 2/10/00 21:08
Original value (CoefB) = 0 New value = 0
Fewer than 6 points above MRL. Peak curve/step function combination applied.

Cell: F49
Comment: 1034-10-03 - Run 5 (CHBr3) 2/10/00 21:08
Original value (CoefD) = 0 New value = 0
Fewer than 6 points above MRL. Peak curve/step function combination applied.

Cell: J49
Comment: 1034-10-03 - Run 5 (CHBr3) 2/10/00 21:08
Original value (S) = 0 New value = -0.0877
Fewer than 6 points above MRL. Peak curve/step function combination applied.

Cell: C52
Comment: 1034-10-03 - Run 5 (DBAA) 2/10/00 21:11
Original value (CoefA0) = -0.1267 New value = -0.2758
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: D52
Comment: 1034-10-03 - Run 5 (DBAA) 2/10/00 21:11
Original value (CoefAf) = 2.3451 New value = 3.3414
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: E52
Comment: 1034-10-03 - Run 5 (DBAA) 2/10/00 21:11
Original value (CoefB) = 4.5 New value = 20.0653
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: F52
Comment: 1034-10-03 - Run 5 (DBAA) 2/10/00 21:11

Original value (CoefD) = 0.1482 New value = 0.3621
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: J52
Comment: 1034-10-03 - Run 5 (DBAA) 2/10/00 21:11
Original value (S) = 0 New value = -0.0357
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: C53
Comment: 1034-10-03 - Run 5 (DBCM) 2/10/00 21:07
Original value (CoefA0) = -0.8069 New value = 2.1667
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: D53
Comment: 1034-10-03 - Run 5 (DBCM) 2/10/00 21:07
Original value (CoefAf) = 9.1775 New value = 9.9875
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: E53
Comment: 1034-10-03 - Run 5 (DBCM) 2/10/00 21:07
Original value (CoefB) = 2.107 New value = 20.0926
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: F53
Comment: 1034-10-03 - Run 5 (DBCM) 2/10/00 21:07
Original value (CoefD) = 0.1572 New value = 0.3203
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: J53
Comment: 1034-10-03 - Run 5 (DBCM) 2/10/00 21:07
Original value (S) = -0.0426 New value = -0.1202
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: C59
Comment: 1034-10-03 - Run 5 (MBAA) 2/10/00 20:54
Original value (CoefA0) = 0 New value = 1.3732
Fewer than 6 points above MRL. Step function applied.

Cell: D59
Comment: 1034-10-03 - Run 5 (MBAA) 2/10/00 20:55
Original value (CoefAf) = 0 New value = 0
Fewer than 6 points above MRL. Step function applied.

Cell: E59
Comment: 1034-10-03 - Run 5 (MBAA) 2/10/00 20:55
Original value (CoefB) = 0 New value = 0
Fewer than 6 points above MRL. Step function applied.

Cell: F59
Comment: 1034-10-03 - Run 5 (MBAA) 2/10/00 20:55
Original value (CoefD) = 0 New value = 0

Fewer than 6 points above MRL. Step function applied.

Cell: J59
Comment: 1034-10-03 - Run 5 (MBAA) 2/10/00 20:55
Original value (S) = 0 New value = 0
Fewer than 6 points above MRL. Step function applied.

Cell: K59
Comment: 1034-10-03 - Run 5 (MBAA) 2/10/00 20:55
Original value (t0) = 0 New value = 48.5156
Fewer than 6 points above MRL. Step function applied.

Cell: C71
Comment: 1034-10-04 - Run 7 (CHBr3) 2/10/00 21:15
Original value (CoefA0) = -0.7705 New value = -0.4453
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: D71
Comment: 1034-10-04 - Run 7 (CHBr3) 2/10/00 21:15
Original value (CoefAf) = 2.3115 New value = 1.9358
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: E71
Comment: 1034-10-04 - Run 7 (CHBr3) 2/10/00 21:15
Original value (CoefB) = 0.6681 New value = 19.8623
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: F71
Comment: 1034-10-04 - Run 7 (CHBr3) 2/10/00 21:15
Original value (CoefD) = 0.0498 New value = 1.5979
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: J71
Comment: 1034-10-04 - Run 7 (CHBr3) 2/10/00 21:15
Original value (S) = 0 New value = -0.0274
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: C75
Comment: 1034-10-04 - Run 7 (DBCM) 2/10/00 21:14
Original value (CoefA0) = -4.188 New value = -6.658
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: D75
Comment: 1034-10-04 - Run 7 (DBCM) 2/10/00 21:14
Original value (CoefAf) = 12.564 New value = 14.6047
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: E75
Comment: 1034-10-04 - Run 7 (DBCM) 2/10/00 21:14
Original value (CoefB) = 0.4798 New value = 19.6441
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: F75
Comment: 1034-10-04 - Run 7 (DBCM) 2/10/00 21:14
Original value (CoefD) = 0.0965 New value = 2.5277
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: J75
Comment: 1034-10-04 - Run 7 (DBCM) 2/10/00 21:14
Original value (S) = 0 New value = -0.0276
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: C82
Comment: 1034-10-04 - Run 7 (MCAA) 2/10/00 20:57
Original value (CoefA0) = 0 New value = 2.592
Fewer than 6 points above MRL. Step function applied.

Cell: D82
Comment: 1034-10-04 - Run 7 (MCAA) 2/10/00 20:57
Original value (CoefAf) = 0 New value = 0
Fewer than 6 points above MRL. Step function applied.

Cell: E82
Comment: 1034-10-04 - Run 7 (MCAA) 2/10/00 20:57
Original value (CoefB) = 0 New value = 0
Fewer than 6 points above MRL. Step function applied.

Cell: F82
Comment: 1034-10-04 - Run 7 (MCAA) 2/10/00 20:57
Original value (CoefD) = 0 New value = 0
Fewer than 6 points above MRL. Step function applied.

Cell: J82
Comment: 1034-10-04 - Run 7 (MCAA) 2/10/00 20:57
Original value (S) = 0 New value = 0
Fewer than 6 points above MRL. Step function applied.

Cell: K82
Comment: 1034-10-04 - Run 7 (MCAA) 2/10/00 20:57
Original value (t0) = 0 New value = 47.6666
Fewer than 6 points above MRL. Step function applied.

Cell: C96
Comment: 1034-20-01 - Run 2 (DBAA) 2/10/00 21:01
Original value (CoefA0) = 0 New value = 0
Fewer than 6 points above MRL. Peak curve/step function combination applied.

Cell: D96
Comment: 1034-20-01 - Run 2 (DBAA) 2/10/00 21:01
Original value (CoefAf) = 0 New value = 1.175
Fewer than 6 points above MRL. Peak curve/step function combination applied.

Cell: E96

Comment: 1034-20-01 - Run 2 (DBAA) 2/10/00 21:01
Original value (CoefB) = 0 New value = 0
Fewer than 6 points above MRL. Peak curve/step function combination applied.

Cell: F96
Comment: 1034-20-01 - Run 2 (DBAA) 2/10/00 21:01
Original value (CoefD) = 0 New value = 0
Fewer than 6 points above MRL. Peak curve/step function combination applied.

Cell: J96
Comment: 1034-20-01 - Run 2 (DBAA) 2/10/00 21:01
Original value (S) = 0 New value = -0.0174
Fewer than 6 points above MRL. Peak curve/step function combination applied.

Cell: C137
Comment: 1034-20-03 - Run 6 (CHBr3) 2/10/00 21:12
Original value (CoefA0) = 0.0463 New value = -0.1624
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: D137
Comment: 1034-20-03 - Run 6 (CHBr3) 2/10/00 21:12
Original value (CoefAf) = 1.5087 New value = 2.2346
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: E137
Comment: 1034-20-03 - Run 6 (CHBr3) 2/10/00 21:12
Original value (CoefB) = 10 New value = 20.0112
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: F137
Comment: 1034-20-03 - Run 6 (CHBr3) 2/10/00 21:12
Original value (CoefD) = 0.107 New value = 0.2757
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: J137
Comment: 1034-20-03 - Run 6 (CHBr3) 2/10/00 21:12
Original value (S) = -0.0087 New value = -0.0232
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: C140
Comment: 1034-20-03 - Run 6 (DBAA) 2/10/00 21:13
Original value (CoefA0) = 0.0398 New value = -0.1688
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: D140
Comment: 1034-20-03 - Run 6 (DBAA) 2/10/00 21:13
Original value (CoefAf) = 2.6572 New value = 3.2873
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: E140
Comment: 1034-20-03 - Run 6 (DBAA) 2/10/00 21:13

Original value (CoefB) = 11.7175 New value = 23.3678
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: F140
Comment: 1034-20-03 - Run 6 (DBAA) 2/10/00 21:13
Original value (CoefD) = 0.1234 New value = 0.1765
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: J140
Comment: 1034-20-03 - Run 6 (DBAA) 2/10/00 21:13
Original value (S) = -0.0078 New value = -0.0166
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: C159
Comment: 1034-20-04 - Run 8 (CHBr3) 2/10/00 21:16
Original value (CoefA0) = 0.0148 New value = -0.6802
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: D159
Comment: 1034-20-04 - Run 8 (CHBr3) 2/10/00 21:16
Original value (CoefAf) = 2.0542 New value = 5.3233
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: E159
Comment: 1034-20-04 - Run 8 (CHBr3) 2/10/00 21:16
Original value (CoefB) = 66.8412 New value = 20.3055
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: F159
Comment: 1034-20-04 - Run 8 (CHBr3) 2/10/00 21:16
Original value (CoefD) = 0.1152 New value = 0.0859
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: J159
Comment: 1034-20-04 - Run 8 (CHBr3) 2/10/00 21:16
Original value (S) = -0.0039 New value = -0.011
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: C162
Comment: 1034-20-04 - Run 8 (DBAA) 2/10/00 21:19
Original value (CoefA0) = 0.0007 New value = -0.1108
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: D162
Comment: 1034-20-04 - Run 8 (DBAA) 2/10/00 21:19
Original value (CoefAf) = 2.0919 New value = 2.1663
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: E162
Comment: 1034-20-04 - Run 8 (DBAA) 2/10/00 21:19
Original value (CoefB) = 22.4144 New value = 894.9538

Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: F162
Comment: 1034-20-04 - Run 8 (DBAA) 2/10/00 21:19
Original value (CoefD) = 0.0992 New value = 0.2744
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: J162
Comment: 1034-20-04 - Run 8 (DBAA) 2/10/00 21:19
Original value (S) = -0.0038 New value = -0.0061
Poor peak curve fit. Data was refit by iterative curve fit procedure.

Cell: C170
Comment: 1034-20-04 - Run 8 (MCAA) 2/10/00 21:17
Original value (CoefA0) = 0 New value = -0.1484
Fewer than 6 points above MRL. Logistic function (type 1) applied.

Cell: D170
Comment: 1034-20-04 - Run 8 (MCAA) 2/10/00 21:17
Original value (CoefAf) = 0 New value = 3.4237
Fewer than 6 points above MRL. Logistic function (type 1) applied.

Cell: E170
Comment: 1034-20-04 - Run 8 (MCAA) 2/10/00 21:17
Original value (CoefB) = 0 New value = 1051.2572
Fewer than 6 points above MRL. Logistic function (type 1) applied.

Cell: F170
Comment: 1034-20-04 - Run 8 (MCAA) 2/10/00 21:17
Original value (CoefD) = 0 New value = 0.061
Fewer than 6 points above MRL. Logistic function (type 1) applied.

Cell: J170
Comment: 1034-20-04 - Run 8 (MCAA) 2/10/00 21:17
Original value (S) = 0 New value = 0
Fewer than 6 points above MRL. Logistic function (type 1) applied.

Illinois-American Water Company | **Bench-Scale RSSCT Treatment Study Summary** | **Quarter:** 1

ICR Information

ID / ICR#: IL 1635040 / 363
ICR Contact: Mr. Brent Gregory
Phone No.: (618) 239-3249
Period: 2/16/98 - 3/12/98 (23 B-S days)

Design Information

Design TOC: 4.0 mg/L
Col Diameter: 8.0 mm
Min Reynolds#: 0.38
Full-Scale Temp: 6.1 C

Full-Scale GAC Size: 8x30 Bituminous
Bench-Scale GAC Size: 60x80
Scaling Factor: 7.64
Meas Dry Bed Density: 0.41 g/cm3

Water Quality Summary

Influent	Influent Mean	SD/RD	Count	Min/Max	Influent Mean	SD/RD	Count	Min/Max
TOC	3.7	0.4	3	3.4 - 4.2				
pH	7.9	0.2	2	7.8 - 8.0				
UV254	0.071	0.003	3	0.069 - 0.074				
SUVA	1.93	0.14	3	1.77 - 2.01				
Bromide	51	9	2	47 - 56				
SDS-TOX	280	43	3	230 - 308				
SDS-THM4	50	3	3	46 - 53				
SDS-HAA6	35	8	3	27 - 40				
Effluent	**10 Min EBCT**			(24 B-S days)	**20 Min EBCT**			(24 B-S days)
Effluent pH	7.9	0.2	13	7.6 - 8.2	8.0	0.1	13	7.8 - 8.3
Effluent Temp	20.0	0.0	14	20.0 - 20.0	20.0	0.0	13	20.0 - 20.0

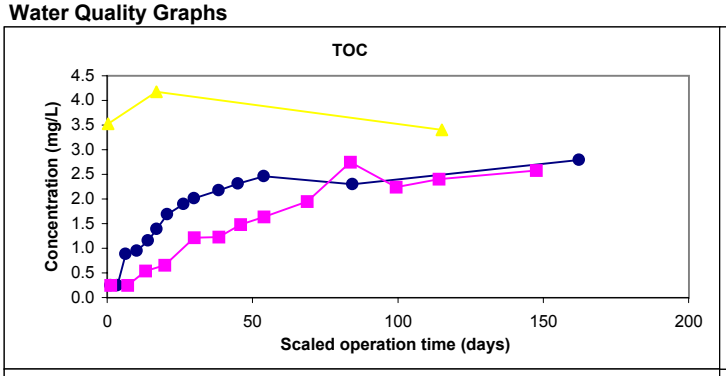
Cumulative SDS Conditions

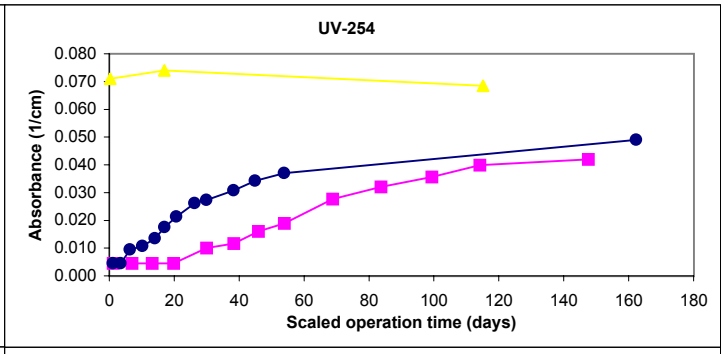
	Mean	SD	Count	Min/Max
Res (0)	0.90	0.24	27	0.55 - 1.46
Temp	4.0	0.0	27	4.0 - 4.0
pH	7.5	0.0	27	7.5 - 7.5
Time	48.5	1.1	27	47.5 - 50.7

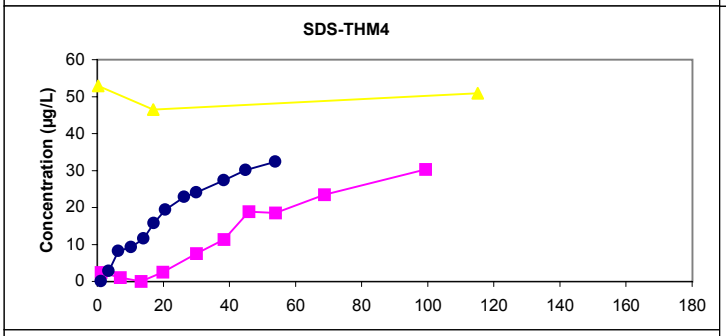
Comments:

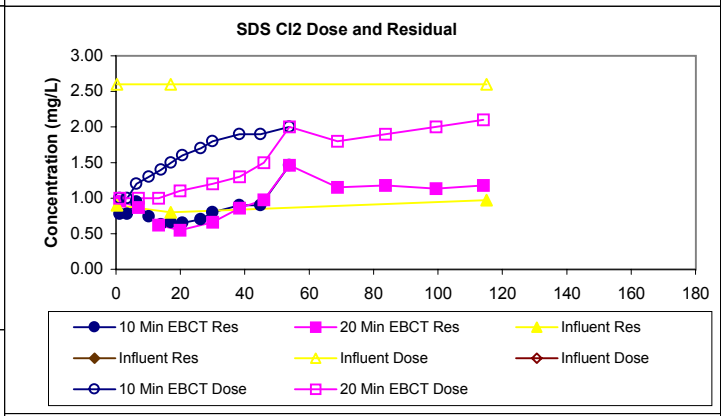
Chart Legend: 10 Min EBCT; 20 Min EBCT; Influent; Influent

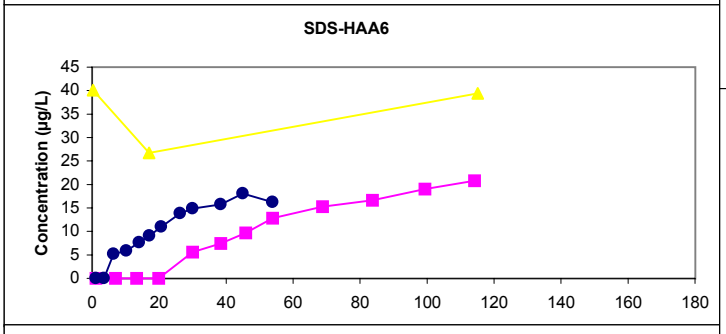
Water Quality Graphs

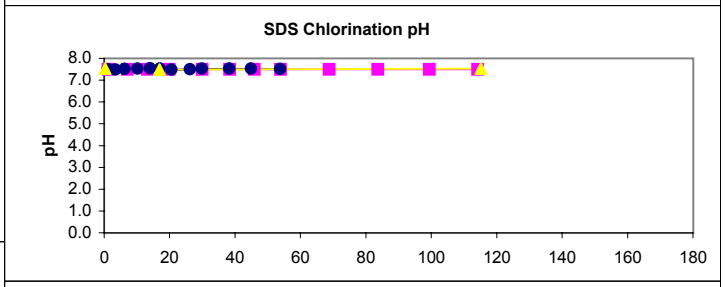


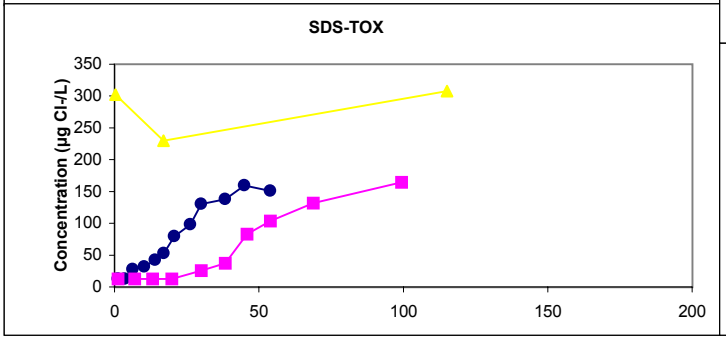


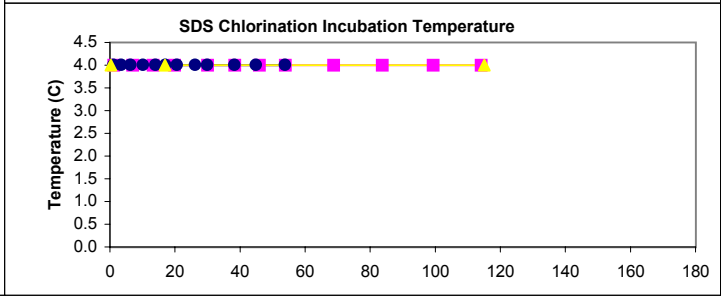




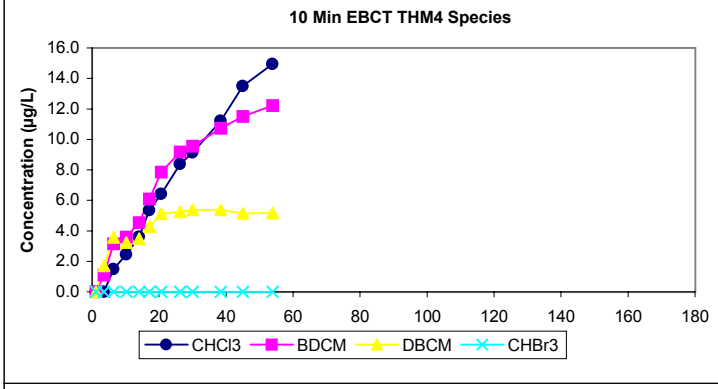


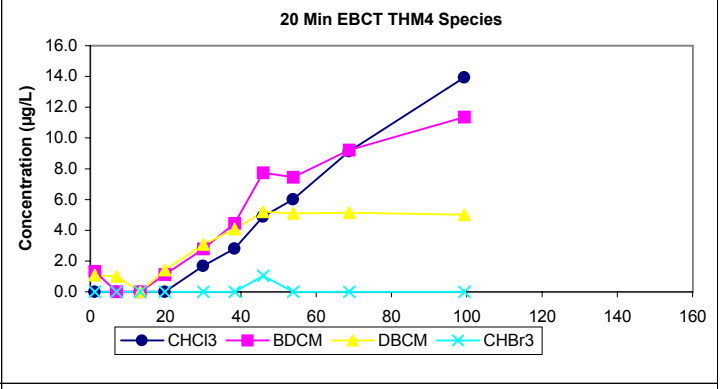


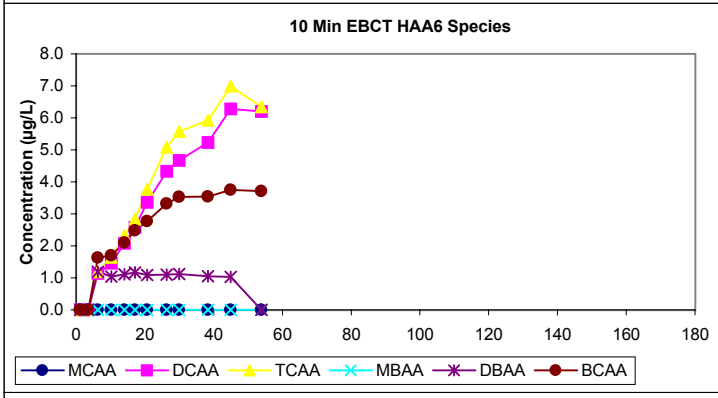


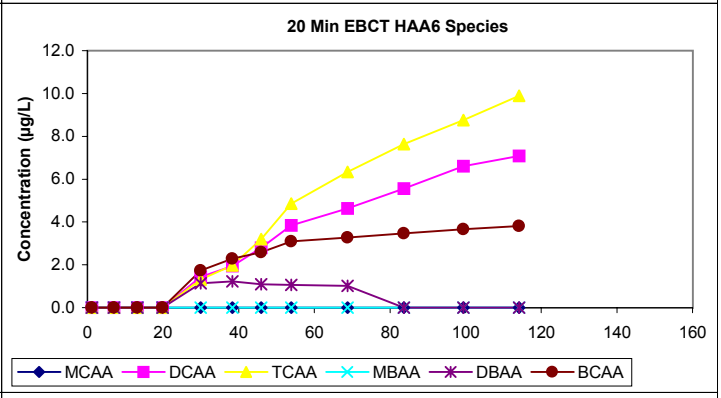


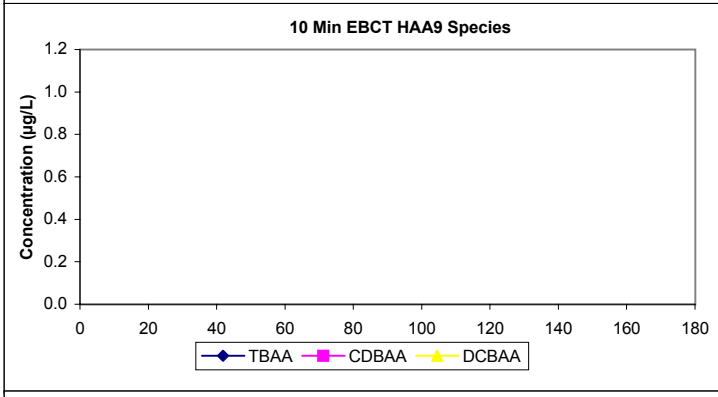
Water Quality Graphs (Continued)

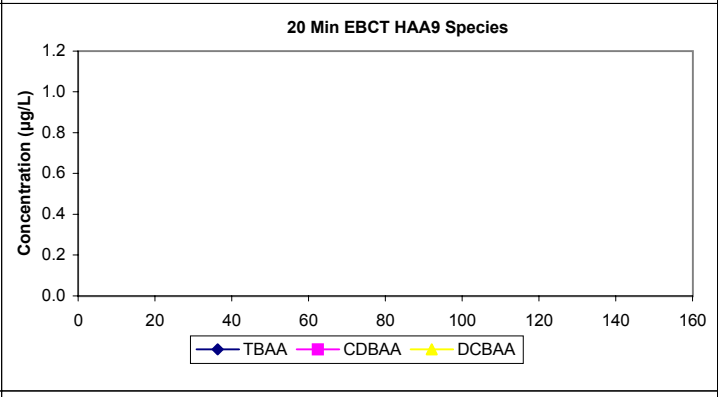


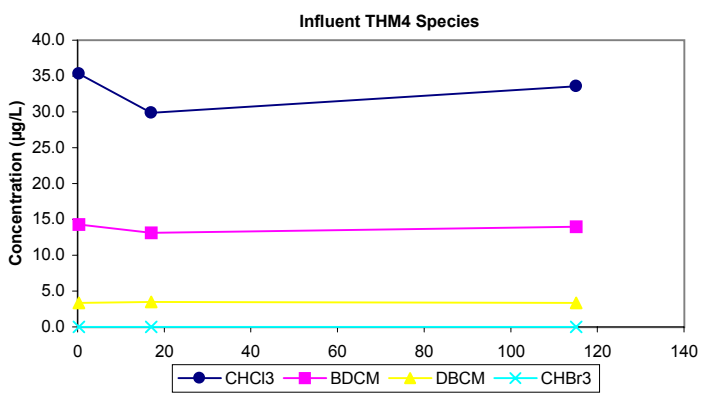


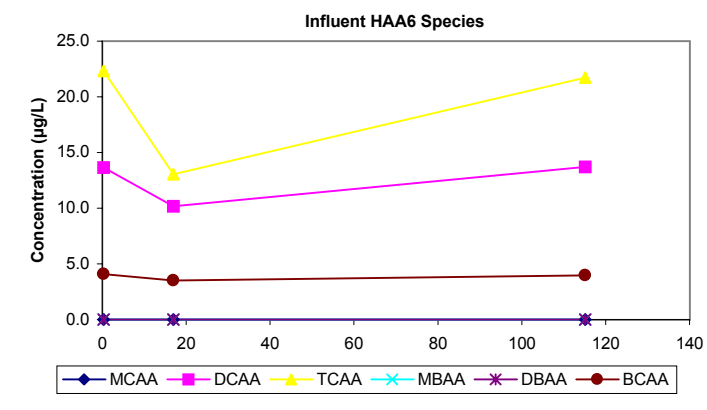












Illinois-American Water Company | **Bench-Scale RSSCT Treatment Study Summary** | **Quarter:** 2

ICR Information

ID / ICR#: IL 1635040 / 363
ICR Contact: Mr. Brent Gregory
Phone No.: (618) 239-3249
Period: 5/5/98 - 6/9/98 (34 B-S days)

Design Information

Design TOC: 3.5 mg/L
Col Diameter: 8.0 mm
Min Reynolds#: 0.50
Full-Scale Temp: 13.0 C

Full-Scale GAC Size: 8x30 Bituminous
Bench-Scale GAC Size: 60x80
Scaling Factor: 6.88
Meas Dry Bed Density: 0.56 g/cm3

Water Quality Summary

Influent	Influent Mean	SD/RD	Count	Min/Max	Influent Mean	SD/RD	Count	Min/Max
TOC	3.4	0.1	3	3.4 - 3.6				
pH	8.0	0.2	3	7.8 - 8.1				
UV254	0.072	0.001	3	0.071 - 0.072				
SUVA	2.08	0.07	3	2.00 - 2.13				
Bromide	33	0	2	33 - 33				
SDS-TOX	269	11	3	262 - 282				
SDS-THM4	68	6	3	62 - 74				
SDS-HAA6	63	2	3	61 - 65				
Effluent	**10 Min EBCT**			(10 B-S days)	**20 Min EBCT**			(35 B-S days)
Effluent pH	8.1	0.1	13	7.9 - 8.3	8.1	0.2	12	7.8 - 8.5
Effluent Temp	20.0	0.0	13	20.0 - 20.0	20.0	0.0	12	20.0 - 20.0

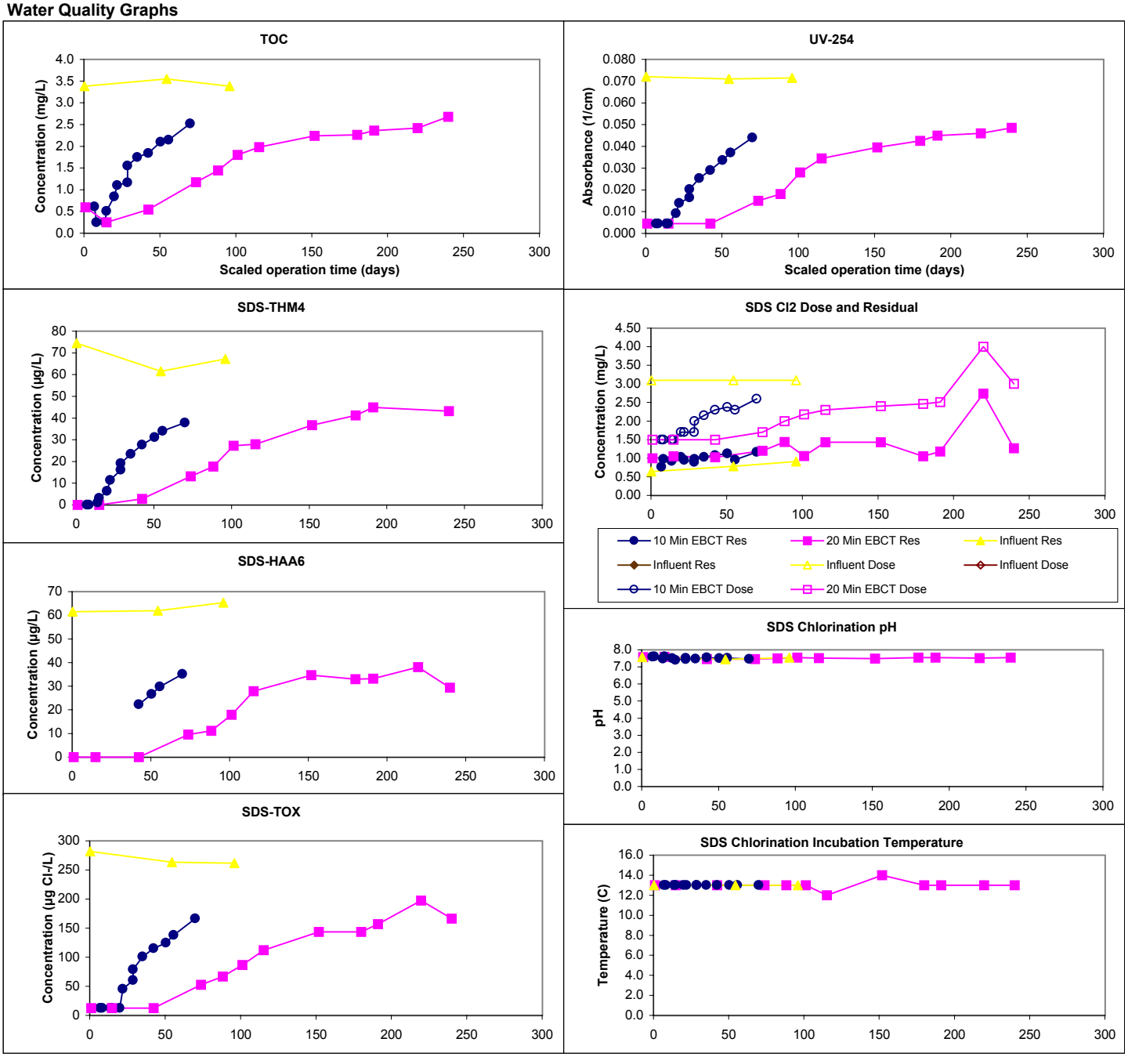
Cumulative SDS Conditions

	Mean	SD	Count	Min/Max
Res (0)	1.11	0.37	28	0.64 - 2.74
Temp	13.0	0.3	28	12.0 - 14.0
pH	7.5	0.1	28	7.4 - 7.6
Time	47.7	1.5	28	44.3 - 50.3

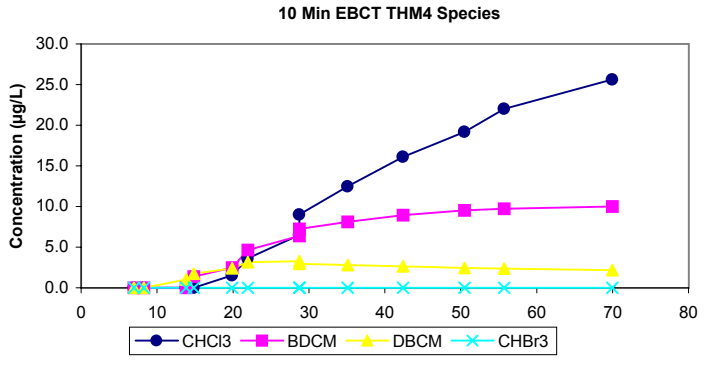
Comments:

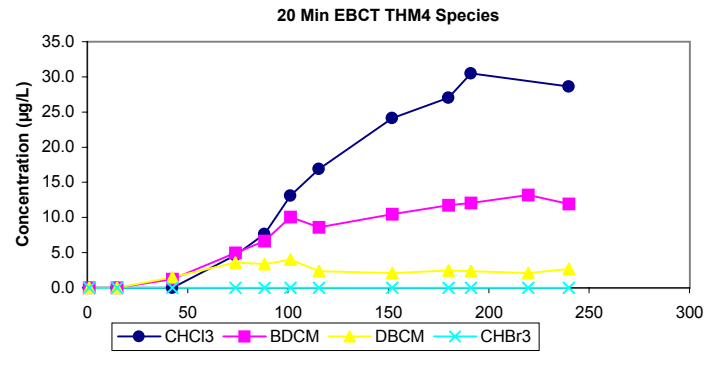
Chart Legend: 10 Min EBCT; 20 Min EBCT; Influent; Influent

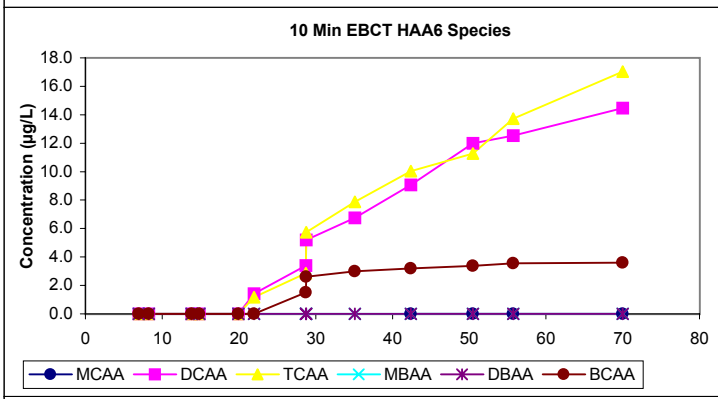
Water Quality Graphs

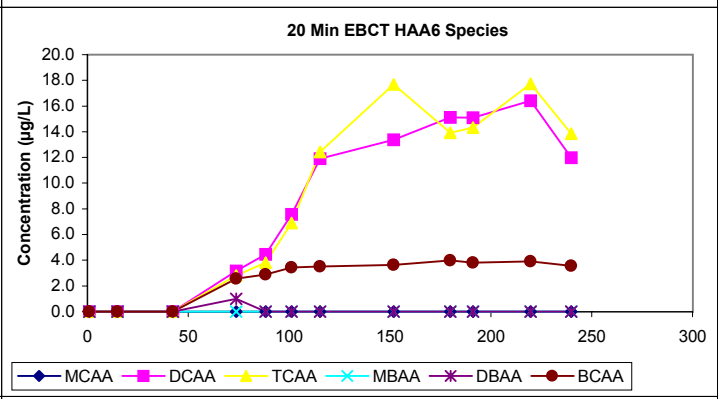


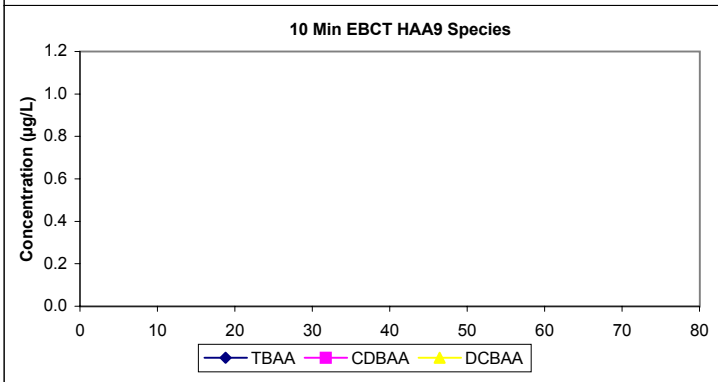
Water Quality Graphs (Continued)

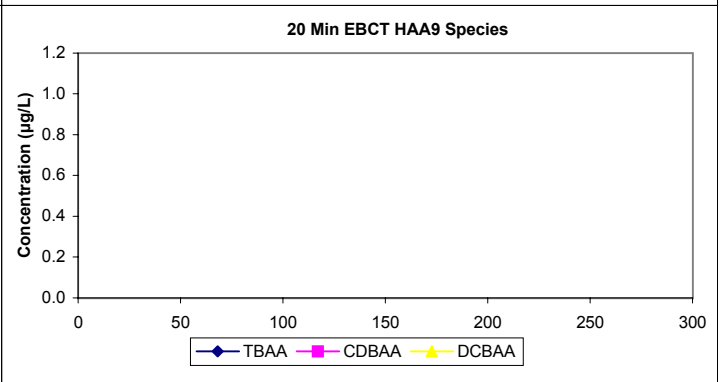


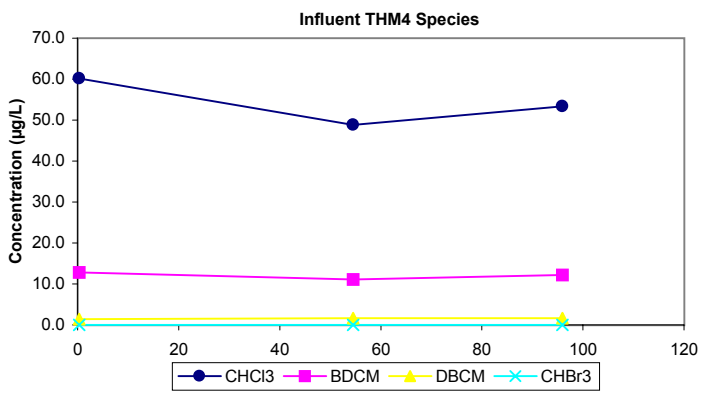


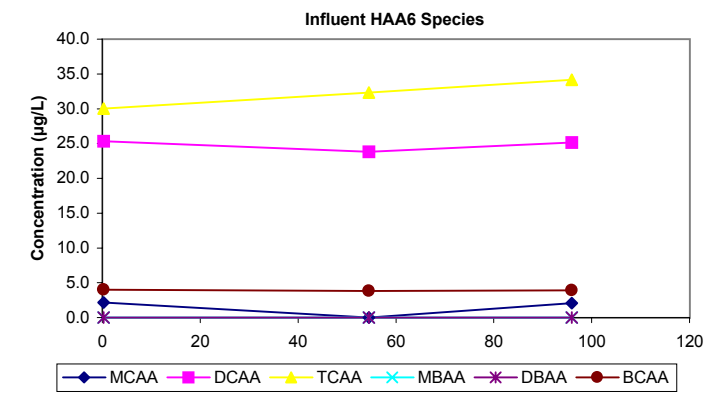












Illinois-American Water Company | **Bench-Scale RSSCT Treatment Study Summary** | **Quarter:** 3

ICR Information

ID / ICR#: IL 1635040 / 363
ICR Contact: Mr. Brent Gregory
Phone No.: (618) 239-3249
Period: 9/22/98 - 10/9/98 (17 B-S days)

Design Information

Design TOC: 3.8 mg/L
Col Diameter: 8.0 mm
Min Reynolds#: 0.50
Full-Scale Temp: 29.0 C

Full-Scale GAC Size: 8x30 Bituminous
Bench-Scale GAC Size: 60x80
Scaling Factor: 6.88
Meas Dry Bed Density: 0.45 g/cm3

Water Quality Summary

Influent	Influent Mean	SD/RD	Count	Min/Max	Influent Mean	SD/RD	Count	Min/Max
TOC	4.3	0.0	3	4.2 - 4.3				
pH	8.1	0.2	3	7.8 - 8.3				
UV254	0.098	0.000	3	0.098 - 0.098				
SUVA	2.30	0.02	3	2.28 - 2.32				
Bromide	53	1	2	53 - 54				
SDS-TOX	528	28	3	496 - 550				
SDS-THM4	136	2	3	134 - 138				
SDS-HAA6	128	5	2	125 - 131				
Effluent	**10 Min EBCT**		(8 B-S days)		**20 Min EBCT**			(17 B-S days)
Effluent pH	8.3	0.2	12	7.9 - 8.6	8.3	0.1	12	8.2 - 8.7
Effluent Temp	20.0	0.0	12	20.0 - 20.0	20.0	0.0	12	20.0 - 20.0

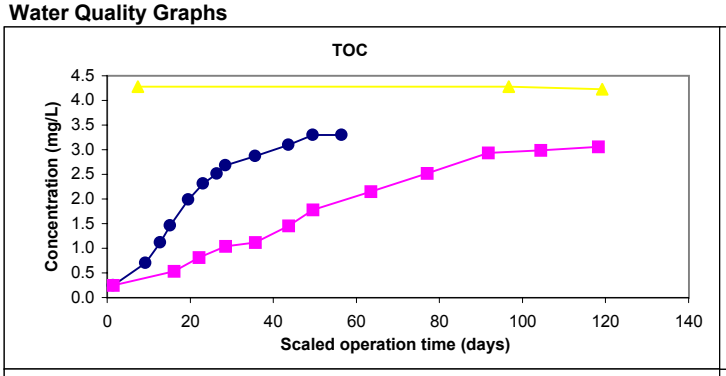
Cumulative SDS Conditions

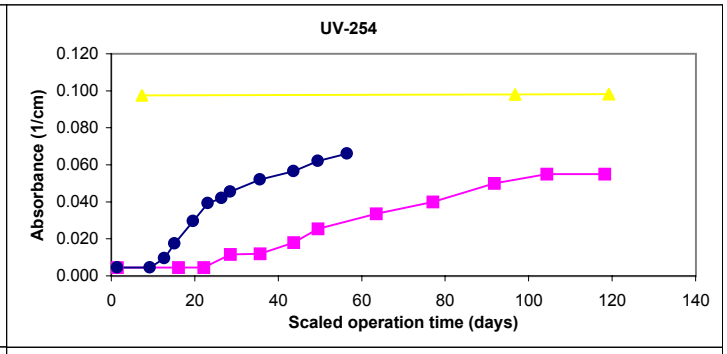
	Mean	SD	Count	Min/Max
Res (0)	1.02	0.20	27	0.41 - 1.34
Temp	28.7	0.4	27	28.0 - 29.0
pH	7.5	0.0	27	7.4 - 7.6
Time	47.5	0.6	27	46.4 - 48.2

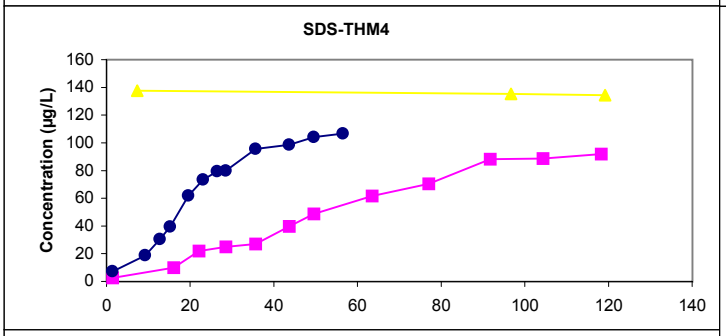
Comments:

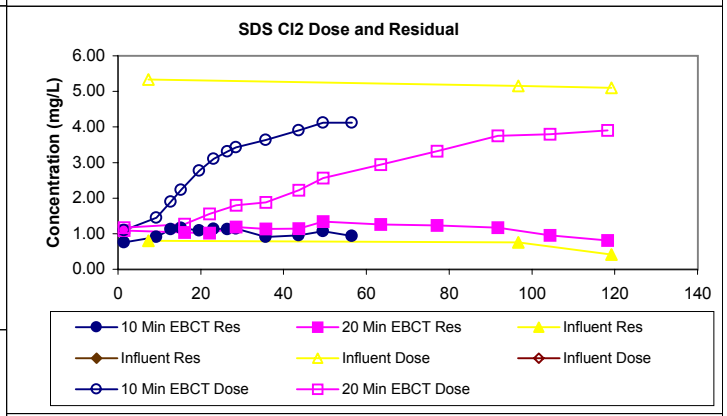
Chart Legend: 10 Min EBCT; 20 Min EBCT; Influent; Influent

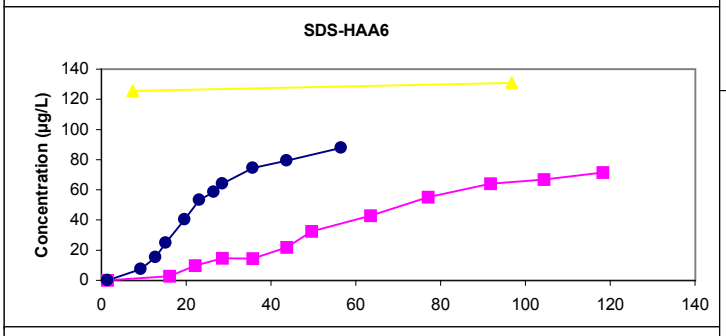
Water Quality Graphs

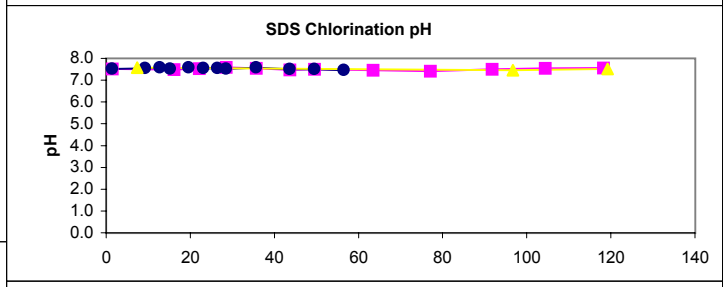


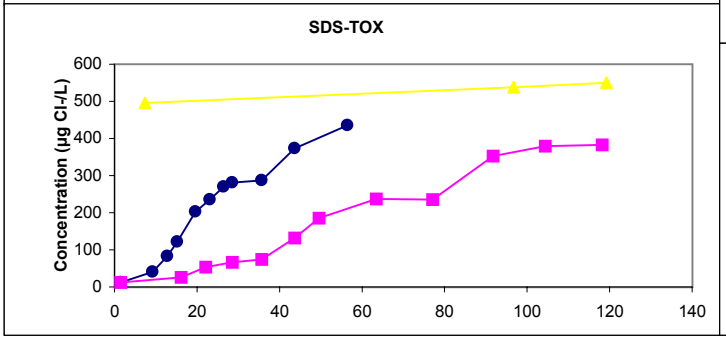


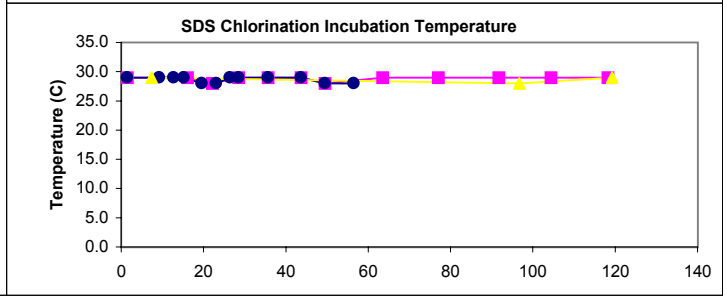




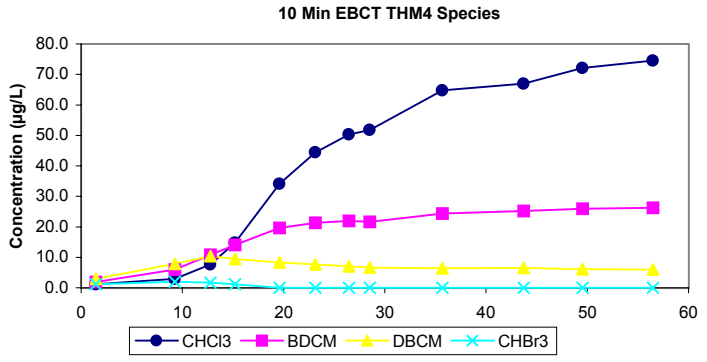


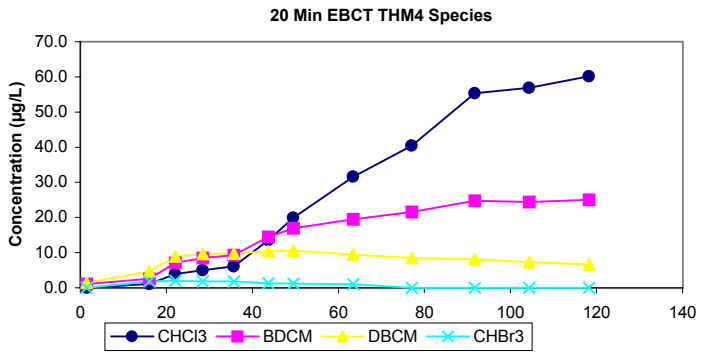


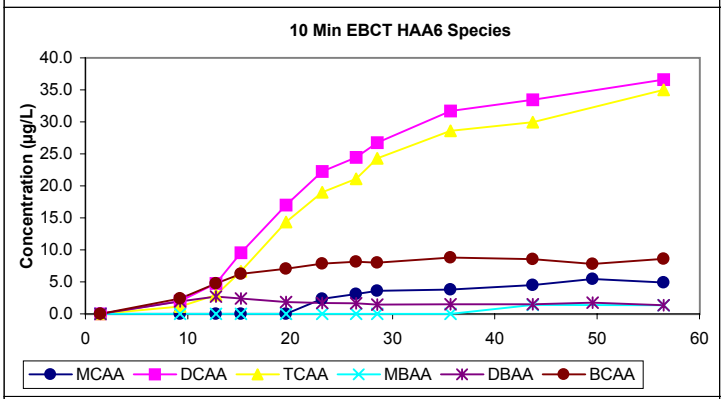


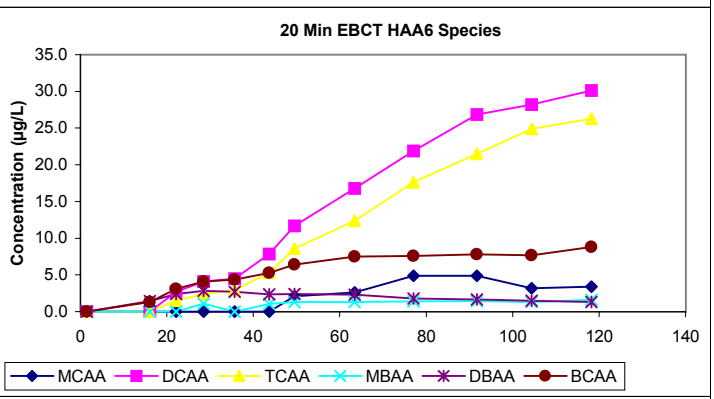


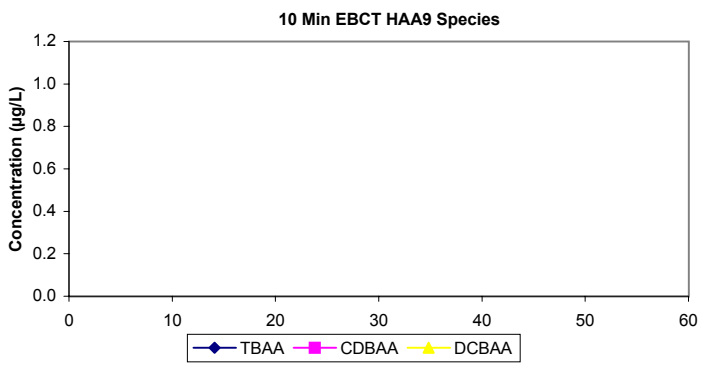
Water Quality Graphs (Continued)

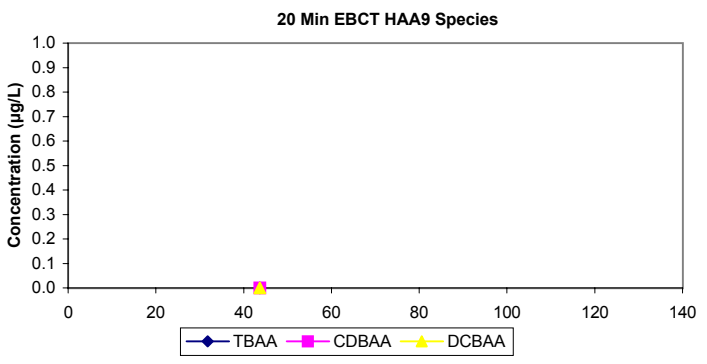


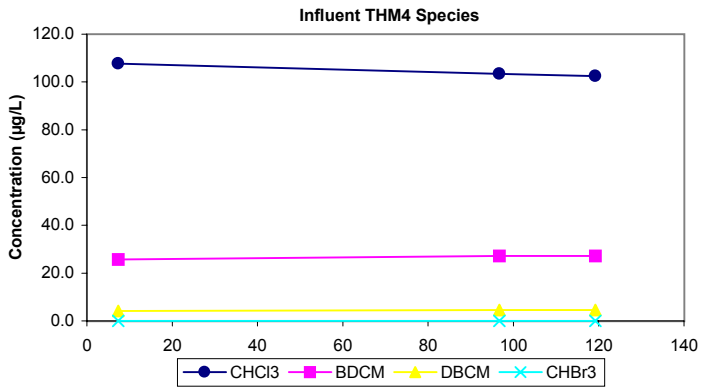


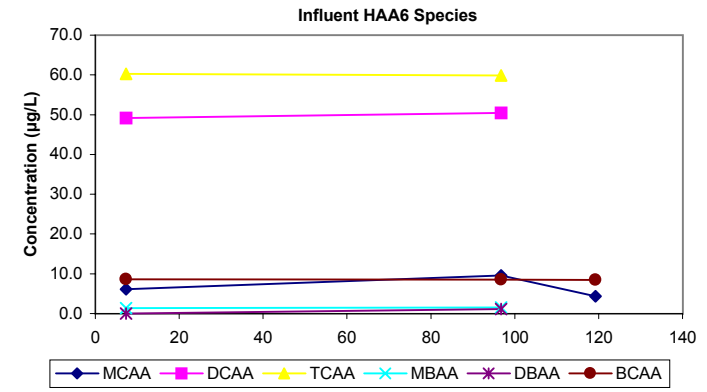












Illinois-American Water Company | **Bench-Scale RSSCT Treatment Study Summary** | **Quarter:** 4

ICR Information

ID / ICR#: IL 1635040 / 363
ICR Contact: Mr. Brent Gregory
Phone No.: (618) 239-3249
Period: 11/5/98 - 12/2/98 (27 B-S days)

Design Information

Design TOC: 4.1 mg/L
Col Diameter: 8.0 mm
Min Reynolds#: 0.50
Full-Scale Temp: 18.0 C

Full-Scale GAC Size: 8x30 Bituminous
Bench-Scale GAC Size: 60x80
Scaling Factor: 6.88
Meas Dry Bed Density: 0.44 g/cm3

Water Quality Summary

	Influent				Influent			
Influent	Mean	SD/RD	Count	Min/Max	Mean	SD/RD	Count	Min/Max
TOC	3.8	0.1	3	3.7 - 3.8				
pH	8.0	0.3	3	7.7 - 8.3				
UV254	0.078	0.003	3	0.076 - 0.082				
SUVA	2.08	0.09	3	1.99 - 2.16				
Bromide	80	36	2	62 - 98				
SDS-TOX	296	8	3	286 - 301				
SDS-THM4	80	2	3	78 - 81				
SDS-HAA6	59	4	3	54 - 62				
Effluent	**10 Min EBCT**			(11 B-S days)	**20 Min EBCT**			(26 B-S days)
Effluent pH	8.1	0.2	12	7.7 - 8.3	8.1	0.2	12	7.8 - 8.4
Effluent Temp	20.0	0.0	12	20.0 - 20.0	20.0	0.0	12	20.0 - 20.0

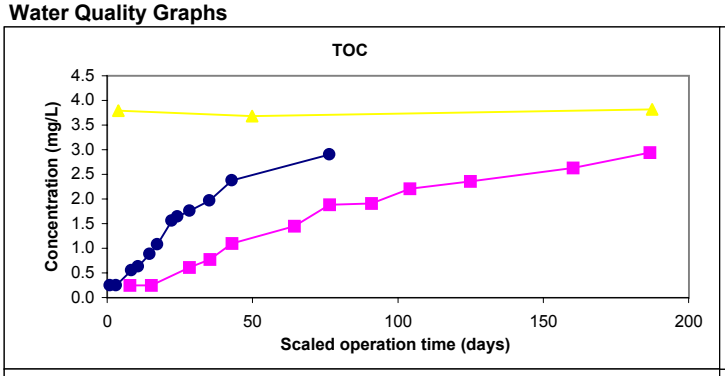
Cumulative SDS Conditions

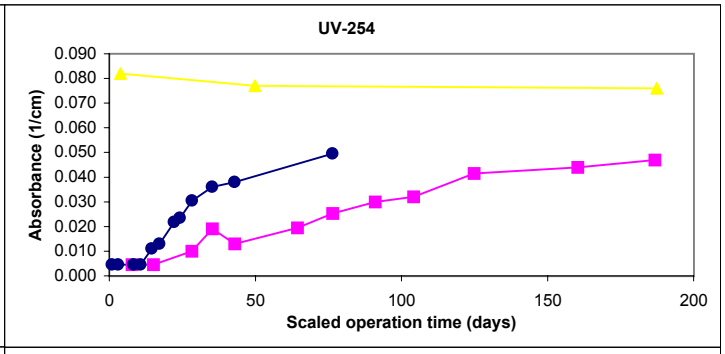
	Mean	SD	Count	Min/Max
Res (0)	1.19	0.17	27	0.95 - 1.85
Temp	18.0	0.0	27	18.0 - 18.0
pH	7.5	0.1	27	7.4 - 7.6
Time	46.9	0.5	27	46.1 - 48.1

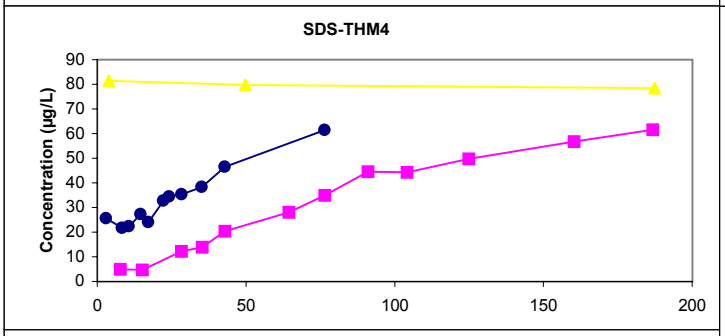
Comments:

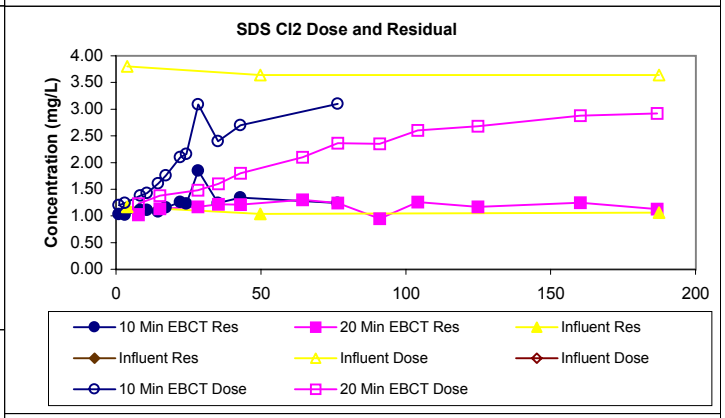
Chart Legend: 10 Min EBCT; 20 Min EBCT; Influent; Influent

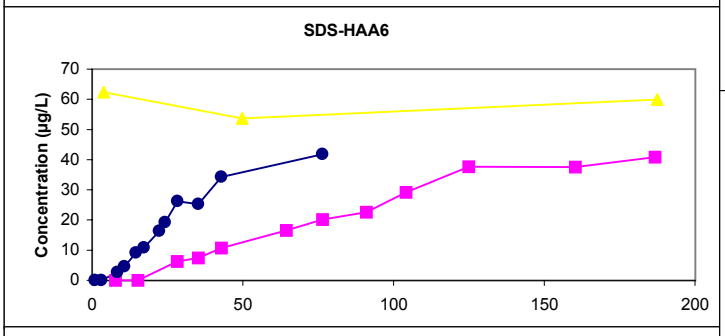
Water Quality Graphs

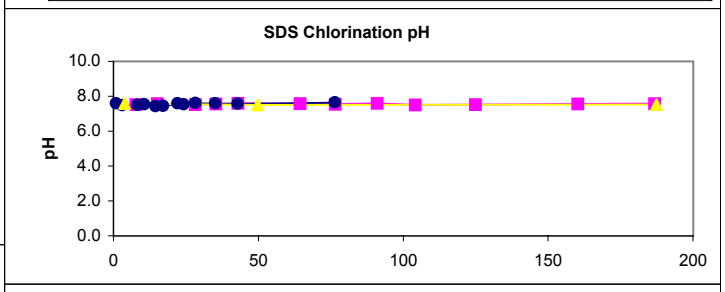


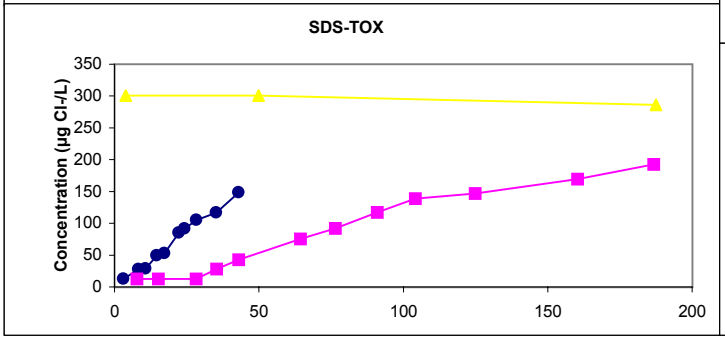


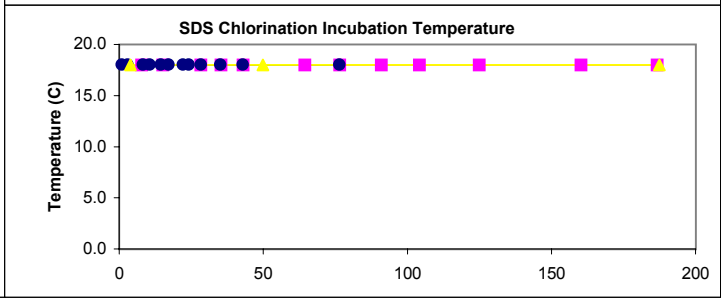












Water Quality Graphs (Continued)