

ICR TREATMENT STUDY ANALYSIS

Base Analysis and Data Review Comments

Treatment Study ID	1033
Study Protocol	GAC pilot-scale treatment study
Plant ICR Number	403
PWS Name	City of New Bedford Water Department
City, State, Zip	East Freetown, MA 02717

These are general comments that do not need to be responded to directly.

Major comments:

None

General Comments:

1. The pilot columns were operated from April 1998 to January 1999, and the measured water temperature varied from 4 to 26°C. However, all SDS chlorination was performed at 13°C.

Outlier Data:

3 outliers removed.

Cell: A1

Comment: 1033-SAS.xls 2/10/00 15:09

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

Cell: C16

Comment: 1033-10-01 - Run 1 (MCAA) 2/10/00 15:01

Original value (CoefA0) = -0.5589 New value = -0.2996

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: D16

Comment: 1033-10-01 - Run 1 (MCAA) 2/10/00 15:01

Original value (CoefAf) = 5.85 New value = 2.487

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: E16

Comment: 1033-10-01 - Run 1 (MCAA) 2/10/00 15:01

Original value (CoefB) = 17.8154 New value = 27.1257

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: F16

Comment: 1033-10-01 - Run 1 (MCAA) 2/10/00 15:01

Original value (CoefD) = 0.0342 New value = 0.0639

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: J16

Comment: 1033-10-01 - Run 1 (MCAA) 2/10/00 15:01

Original value (S) = 0 New value = 0

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: C22

Comment: 1033-10-01 - Run 1 (TSUVA) 2/10/00 15:00

Original value (CoefA0) = -1.4615 New value = -2.0723

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: D22

Comment: 1033-10-01 - Run 1 (TSUVA) 2/10/00 15:00

Original value (CoefAf) = 3.5267 New value = 4.1422

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: E22

Comment: 1033-10-01 - Run 1 (TSUVA) 2/10/00 15:00

Original value (CoefB) = 1.2783 New value = 0.8722

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: F22

Comment: 1033-10-01 - Run 1 (TSUVA) 2/10/00 15:00

Original value (CoefD) = 0.1016 New value = 0.0965

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: J22

Comment: 1033-10-01 - Run 1 (TSUVA) 2/10/00 15:00

Original value (S) = 0 New value = 0

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: C95

Comment: 1033-20-01 - Run 2 (CI2-D) 2/10/00 15:03

Original value (CoefA0) = 0.6548 New value = 0.5529

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

1033-20-01 - Run 2 (CI2-D) 2/10/00 15:04

Original value (CoefA0) = 0.5529 New value = -0.0553

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: D95

Comment: 1033-20-01 - Run 2 (CI2-D) 2/10/00 15:03

Original value (CoefAf) = 0.6311 New value = 0.8713

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

1033-20-01 - Run 2 (CI2-D) 2/10/00 15:04

Original value (CoefAf) = 0.8713 New value = 1.4123

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: E95

Comment: 1033-20-01 - Run 2 (CI2-D) 2/10/00 15:03

Original value (CoefB) = 3149983232.168 New value = 19.3602

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

1033-20-01 - Run 2 (CI2-D) 2/10/00 15:04

Original value (CoefB) = 19.3602 New value = 23.2276

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: F95

Comment: 1033-20-01 - Run 2 (CI2-D) 2/10/00 15:03

Original value (CoefD) = 0.3251 New value = 0.0399

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

1033-20-01 - Run 2 (CI2-D) 2/10/00 15:04

Original value (CoefD) = 0.0399 New value = 0.0495

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: J95

Comment: 1033-20-01 - Run 2 (CI2-D) 2/10/00 15:03

Original value (S) = 0 New value = 0

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

1033-20-01 - Run 2 (CI2-D) 2/10/00 15:04

Original value (S) = 0 New value = 0

Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: C104

Comment: 1033-20-01 - Run 2 (MCAA) 2/10/00 15:05
Original value (CoefA0) = 0.017 New value = -1.282
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: D104

Comment: 1033-20-01 - Run 2 (MCAA) 2/10/00 15:05
Original value (CoefAf) = 3 New value = 3.7194
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: E104

Comment: 1033-20-01 - Run 2 (MCAA) 2/10/00 15:05
Original value (CoefB) = 92.1863 New value = 1.4554
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: F104

Comment: 1033-20-01 - Run 2 (MCAA) 2/10/00 15:05
Original value (CoefD) = 0.0466 New value = 0.004
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: J104

Comment: 1033-20-01 - Run 2 (MCAA) 2/10/00 15:05
Original value (S) = 0 New value = 0
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

ICR Information

ID / ICR#: MA4201000 / 403
 ICR Contact: Mr. Charles Kennedy
 Phone No.: (508) 763-5771
 Period: 4/21/98 - 10/7/98 (169 days)

Design Information

Design TOC: 2.7 mg/L
 Col Diameter: 101.6 mm

Full-Scale GAC Size: 8x30 US Std Mesh
 Full-Scale particle dia.: 1.480 mm
 Meas Dry Bed Density: 550.0 kg/m3

Water Quality Summary

Influent	Mean	SD	Count	Min/Max
TOC	2.3	0.2	22	1.9 - 2.8
pH	5.7	0.2	23	5.4 - 6.1
UV254	0.050	0.008	22	0.038 - 0.066
SUVA	2.14	0.24	21	1.7 - 2.7
Bromide	4	9	22	0 - 23
SDS-TOX	335	127	20	170 - 570
SDS-THM4	68	14	20	46 - 92
SDS-HAA6	51	7	19	40 - 67
Ammonia	0.02	0.06	22	0.00 - 0.20

Cumulative SDS Conditions

	Mean	SD	Count	Min/Max
Res (1)	0.90	0.33	50	0.05 - 2.06
Temp	13.0	0.0	52	13.0 - 13.0
pH	8.7	0.6	52	6.8 - 9.1
Time	100.3	2.3	50	100.0 - 116.0

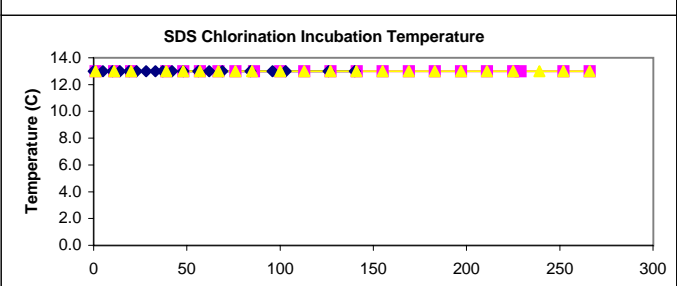
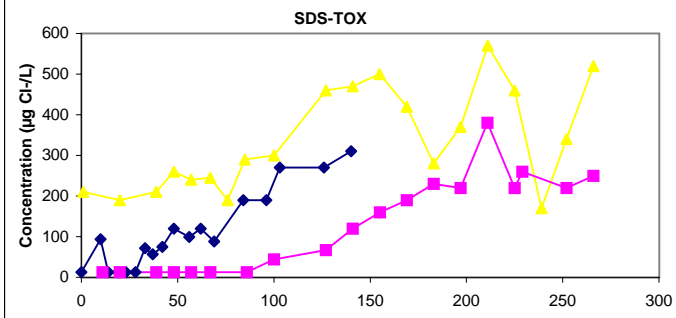
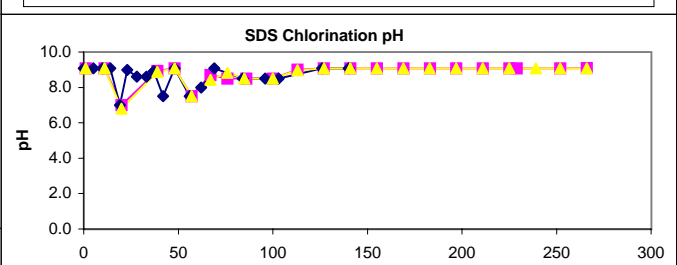
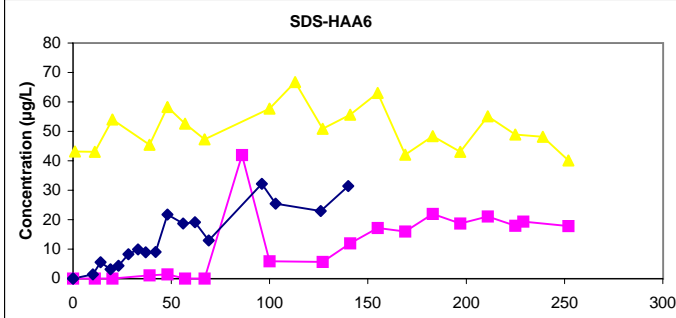
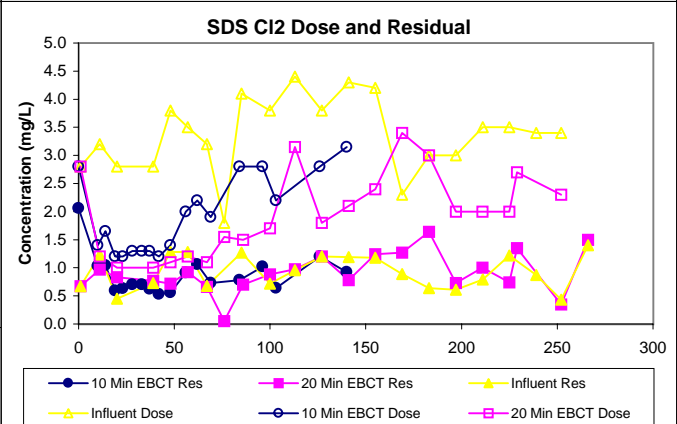
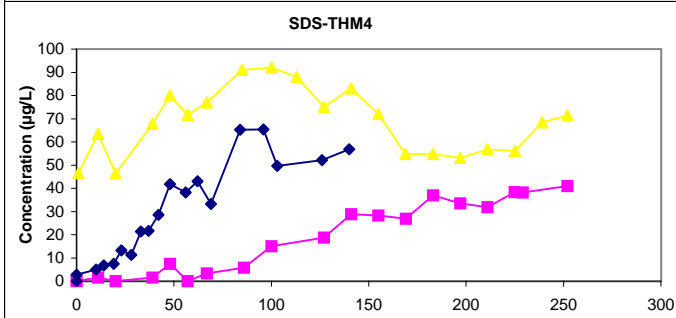
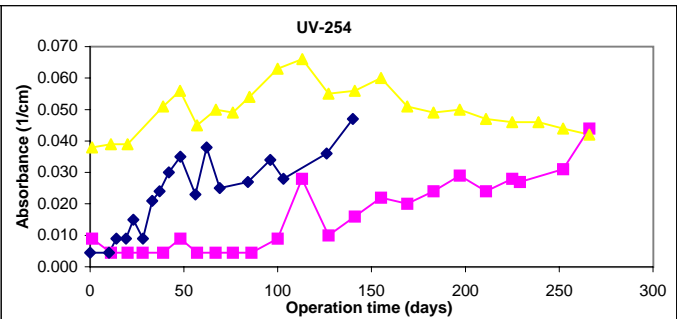
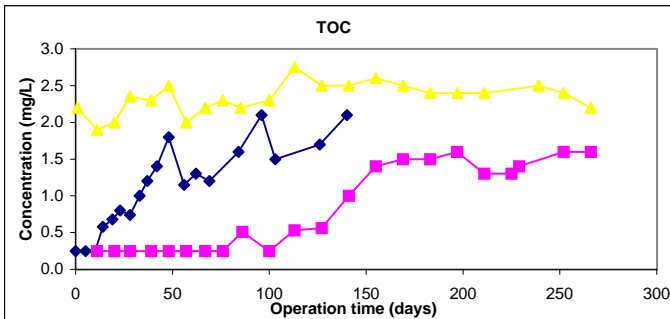
Comments:

Chart Legend:

10 Min EBCT
 20 Min EBCT
 Influent

Effluent	10 Min EBCT	20 Min EBCT
Effluent pH	5.9 1.1 19 5.3 - 10.3	5.9 0.9 23 5.5 - 10.1
Effluent Temp	20.3 3.9 19 14.0 - 26.0	16.8 7.3 23 3.0 - 26.0

Water Quality Parameter Graphs



Water Quality Parameter Graphs (Continued)

