

ICR TREATMENT STUDY ANALYSIS

Base Analysis and Data Review Comments

Treatment Study ID 4016

Study Protocol GAC pilot-scale treatment study

Plant ICR Number 476

PWS Name Passaic Valley Water Commission

City, State, Zip Clifton, NJ 07011

General comments:

1. This pilot-scale study examined DBP precursor removal by F-400, a bituminous coal-based GAC, using a 20 minute EBCT. In a parallel study, RSSCTs were conducted over four quarterly sessions to examine DBP precursor removal at a 10 minute EBCT; the results of bench-scale testing are summarized as study 4015. A pilot-scale 10 minute EBCT run was not examined because this EBCT was examined during bench-scale testing. This study was conducted prior to the availability of the final version of the *ICR Manual for Bench- and Pilot-Scale Treatment Studies*, so some requirements (such as duplicate analyses) were not initially performed. However, these requirements were adopted as part of the study as they became known.
2. Uniform formation conditions (UFC) were utilized to assess DBP formation during this study (1.0 mg/L free chlorine residual after 24 hours, pH 8.0, and 20°C).

Outlier Data:

No outliers removed.

Cell: A1

Comment: 4016-SAS.xls 3/5/00 13:08

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

3/6/00 12:30

Although all comments refer to 4015, they are applicable to the curve fits for 4016.

Cell: C90

Comment: 4015-20-01 - Run 2 (BCAA) 3/5/00 12:58

Original value (CoefA0) = -5 New value = 0.2075

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

Cell: D90

Comment: 4015-20-01 - Run 2 (BCAA) 3/5/00 12:58

Original value (CoefAf) = 15 New value = 8.556

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

Cell: E90

Comment: 4015-20-01 - Run 2 (BCAA) 3/5/00 12:58

Original value (CoefB) = 3.0128 New value = 19.3848

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

Cell: F90

Comment: 4015-20-01 - Run 2 (BCAA) 3/5/00 12:58

Original value (CoefD) = 0.0132 New value = 0.0224

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

Cell: J90

Comment: 4015-20-01 - Run 2 (BCAA) 3/5/00 12:58

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: 4015-20-01 - Run 2 (CI2-D) 3/5/00 13:00

Original value (CoefA0) = 0.7694 New value = 0.6332

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

Cell: D95

Comment: 4015-20-01 - Run 2 (CI2-D) 3/5/00 13:00

Original value (CoefAf) = 2.1 New value = 0.974

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

Cell: E95

Comment: 4015-20-01 - Run 2 (CI2-D) 3/5/00 13:00

Original value (CoefB) = 10 New value = 20.8882

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

Cell: F95

Comment: 4015-20-01 - Run 2 (CI2-D) 3/5/00 13:01

Original value (CoefD) = 0.1593 New value = 0.0232
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: J95

Comment: 4015-20-01 - Run 2 (CI2-D) 3/5/00 13:01
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: C100

Comment: 4015-20-01 - Run 2 (HAA5) 3/5/00 12:58
Original value (CoefA0) = -12 New value = 1.4226
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: D100

Comment: 4015-20-01 - Run 2 (HAA5) 3/5/00 12:58
Original value (CoefAf) = 36 New value = 21.2719
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: E100

Comment: 4015-20-01 - Run 2 (HAA5) 3/5/00 12:58
Original value (CoefB) = 2.2968 New value = 14.4913
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: F100

Comment: 4015-20-01 - Run 2 (HAA5) 3/5/00 12:58
Original value (CoefD) = 0.0105 New value = 0.0173
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: J100

Comment: 4015-20-01 - Run 2 (HAA5) 3/5/00 12:59
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: C101

Comment: 4015-20-01 - Run 2 (HAA6) 3/5/00 13:01
Original value (CoefA0) = -17 New value = 1.7393
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: D101

Comment: 4015-20-01 - Run 2 (HAA6) 3/5/00 13:01
Original value (CoefAf) = 51 New value = 30.6512
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: E101

Comment: 4015-20-01 - Run 2 (HAA6) 3/5/00 13:01
Original value (CoefB) = 2.4613 New value = 15.4556
Peak curve fit with S = 0. Refit to type 1 curve fit by iterative curve fit procedure.

Cell: F101

Comment: 4015-20-01 - Run 2 (HAA6) 3/5/00 13:01
Original value (CoefD) = 0.0112 New value = 0.018

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

Cell: J101

Comment: 4015-20-01 - Run 2 (HAA6) 3/5/00 13:02

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: C111

Comment: 4015-20-01 - Run 2 (UV254) 3/5/00 12:59

Original value (CoefA0) = -0.0215 New value = 0.0068

Poor peak curve fit. Data was refit to type 1 curve fit by iterative curve fit procedure.

Cell: D111

Comment: 4015-20-01 - Run 2 (UV254) 3/5/00 12:59

Original value (CoefAf) = 0.0645 New value = 0.025

Poor peak curve fit. Data was refit to type 1 curve fit by iterative curve fit procedure.

Cell: E111

Comment: 4015-20-01 - Run 2 (UV254) 3/5/00 12:59

Original value (CoefB) = 1.5866 New value = 20

Poor peak curve fit. Data was refit to type 1 curve fit by iterative curve fit procedure.

Cell: F111

Comment: 4015-20-01 - Run 2 (UV254) 3/5/00 12:59

Original value (CoefD) = 0.0093 New value = 0.0252

Poor peak curve fit. Data was refit to type 1 curve fit by iterative curve fit procedure.

Cell: J111

Comment: 4015-20-01 - Run 2 (UV254) 3/5/00 12:59

Original value (S) = -0.0001 New value = 0

Poor peak curve fit. Data was refit to type 1 curve fit by iterative curve fit procedure.

ID / ICR#: NJ1605002 / 476

Design TOC: 2.7 mg/L

Full-Scale GAC Size: 12x40 US Std Mesh

ICR Contact: Ms. Linda Tatro




Col Diameter: 101.6 mm

Full-Scale particle dia.: 1.053 mm

Phone No.: (973) 890-2499

Meas Dry Bed Density: 424.80 kg/m3

Period: 11/16/94 - 8/8/95 (265 days)

Influent					Cumulative SDS Conditions								
Influent	Mean	SD	Count	Min/Max	Mean	SD	Count	Min/Max	Mean	SD	Count	Min/Max	
TOC	2.7	0.6	15	1.6 - 3.8					Res (0)	1.02	0.23	30	0.70 - 1.90
pH	6.6	0.3	15	6.2 - 7.5					Temp	20.0	0.0	30	20.0 - 20.0
UV254	0.054	0.017	15	0.031 - 0.088					pH	8.0	0.0	30	8.0 - 8.0
SUVA	2.01	0.29	15	1.4 - 2.4					Time	24.0	0.0	30	24.0 - 24.0
Bromide	60.60	26.29	15	20.0 - 120.0					Comments:				
SDS-TOX	210	72	15	120 - 340									
SDS-THM4	72	24	15	44 - 122									
SDS-HAA6	45	15	15	25 - 80									
Ammonia	0.06	0.04	15	0.03 - 0.15									
Effluent	10 Min EBCT (0 days)				20 Min EBCT (265 days)				Chart Legend:				
Effluent pH	NA	NA	0	0.0 - 0.0	6.7	0.7	15	6.1 - 8.8			10 Min EBCT		
Effluent Temp	NA	NA	0	0.0 - 0.0	13.7	5.6	15	7.2 - 24.4			20 Min EBCT		
										Influent			

