ICR Treatment Study Summary Report

Akron Public Utilities Bureau

Akron Water Supply Plant

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Evaluation of Granular Activated Carbon Adsorption of Disinfection Byproduct Precursors for Compliance with the Information Collection Rule

Conducted during the period of 6/17/97 through 1/6/98

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Attachments: 1 compact disc containing *Data Collection Spreadsheet*, *Treatment Study Summary Report Spreadsheet*, this report in portable document format (PDF), and laboratory reports listing all analytical results and QC data

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3 List of Abbreviations

°C	degrees Celsius
µg	microgram
µL	microliter
µm	micrometer
A_0	logistic function parameter
A_f	logistic function parameter
B	logistic function parameter
BCAA	bromochloroacetic acid
BDCM	bromodichloromethane
BMRL	below minimum reporting level
BV	bed volume
BV_{50}	bed volumes to 50 percent TOC breakthrough
C	concentration
$\overline{C}$	blended effluent concentration
C1	larger of two observed values for RPD calculation
C2	smaller of two observed values for RPD calculation
CCC	continuing calibration check
CCI	construction cost index
CDBAA	chlorodibromoacetic acid
$CHBr_3$	bromoform
$CHCl_3$	chloroform
Cl^-	chloride
CLD	chlorine demand
cm	centimeter
cu	cubic
CUR	carbon usage rate
D	column inner diameter
d	day
d	diameter
D	logistic function parameter
DBAA	dibromoacetic acid
DBCM	dibromochloromethane
DBP	disinfection byproduct
DCAA	dichloroacetic acid
DCBAA	dichlorobromoacetic acid
DS	distribution system
EBCT	empty-bed contact time
EPA	Environmental Protection Agency
ft	feet
g	gram
GAC	granular activated carbon
gal	gallon
gpm	gallons per minute

HAA	haloacetic acid
HAA5	sum of five haloacetic acids: MCAA, DCAA, TCAA, MBAA, DBAA
HAA6	sum of five haloacetic acids: MCAA, DCAA, TCAA, MBAA, DBAA, BCAA
HAA9	sum of five haloacetic acids: MCAA, DCAA, TCAA, MBAA, DBAA, BCAA, DCBAA, CDBAA, TBAA
hr	hour
$_i$	individual contactor
ICR	Information Collection Rule
in.	inch
$_{inf}$	influent
l	bed length
L	liter
$_{LC}$	large column
m	mass
$_{max}$	maximum
MBAA	monobromoacetic acid
MCAA	monochloroacetic acid
MCL	maximum contaminant level
mg	milligram
MG	million gallons
MGD	million gallons per day
$_{min}$	minimum
min	minute
mL	milliliter
mm	millimeter
MRL	minimum reporting level
MtBE	methyl tert-butyl ether
$_n$	number of contactors
NA	not applicable
NA	not analyzed
NB	not backwashed
ntu	nephelometric turbidity unit
O&M	operations and maintenance
$_p$	particle
PE	performance evaluation
PPI	Producers Price Index
Q	flow rate
QA/QC	quality assurance/quality control
Re	Reynold's number
RPD	relative percent difference
RSD	relative standard deviation
RSSCT	rapid small-scale column test
RT	run time
$_{SC}$	small column
SDS	simulated distribution system
sec	second

SF	scaling factor
SM	*Standard Methods*
SUVA	specific ultraviolet absorbance
t	time
$_T$	total
TBAA	tribromoacetic acid
TCAA	trichloroacetic acid
THM	trihalomethane
THM4	sum of four trihalomethanes: $CHCl_3$, BDCM, DBCM, and $CHBr_3$
TOC	total organic carbon
TOC_0	influent total organic carbon
TOX	total organic halide
TSUVA	total specific ultraviolet absorbance
UV	ultraviolet absorbance
UV_{254}	ultraviolet absorbance at 254 nm
ε	bed porosity
ν	kinematic viscosity
ρ	density

4 *Conclusions and Recommendations*

4 Conclusions and Recommendations

As required by the Information Collection Rule (ICR), a treatment study was conducted by Summers & Hooper, Inc. (S&H) to evaluate the removal of disinfection byproduct (DBP) precursors by granular activated carbon (GAC) for the Akron Water Supply Plant, operated by the Akron Public Utilities Bureau. The rapid small-scale column test (RSSCT) was utilized as the bench-scale method to simulate full-scale GAC performance. The treatment study was performed off-site at S&H's laboratory facilities in Cincinnati, Ohio. It was designed and conducted as required by section 141.141(3) of the ICR, published in the May 14, 1996 Federal Register. The procedures followed were those contained in the *GAC Precursor Removal Studies* section of the *ICR Manual for Bench- and Pilot-Scale Treatment Studies* (USEPA, 1996a), and all analyses were conducted following approved methods and as required by the *ICR/DBP Analytical Methods Manual* (USEPA, 1996b).

An electronic deliverable is included as an attachment to this report. It includes: this report in portable document format (PDF) along with a laboratory report listing all data analyzed during this treatment study and all required QA/QC information; the *ICR Treatment Studies Data Collection Spreadsheets*, with all data input as required by EPA; and the *Treatment Study Summary Report Spreadsheet*, with all data input as required by EPA.

A bituminous coal-based GAC (F-400) manufactured by Calgon Carbon Corporation was investigated during three seasonal sessions conducted to evaluate seasonal variability. During each session, two empty-bed contact times (EBCTs) were evaluated (10 and 20 minutes). DBP formation by disinfection with free chlorine was simulated by utilizing site-specific chlorination conditions designed to match the distribution system conditions.

In parallel with the second seasonal variability session, a lignite coal-based GAC type (Hydrodarco 4000), manufactured by Norit Americas, Inc., was investigated. Two RSSCTs were operated, simulating full-scale EBCTs of 10 and 20 minutes. DBP formation by disinfection with free chlorine was simulated by utilizing site-specific chlorination conditions designed to match the distribution system conditions. The design and operation of the lignite coal-based GAC RSSCTs allowed for a direct comparison between DBP precursor removal by bituminous and lignite coal-based GACs.

Based on compliance with the placeholders for Stage 2 DBP maximum contaminant levels (MCLs), the formation of either total trihalomethane (THM4) and the sum of five haloacetic acids (HAA5) served as the controlling parameter during different GAC runs for run time estimates. This study showed that with GAC adsorption and proper reactivation frequency, the system will comply with the placeholder for Stage 2 THM4 MCL of 40 µg/L or 32 µg/L with a 20 percent safety factor, and the placeholder for HAA5 MCL of 30 µg/L or 24 µg/L with a 20 percent safety factor.

To meet the placeholder for Stage 2 DBP MCLs (using a 20 percent safety factor), bituminous coal-based GAC run times ranged from 76 to 96 days for 10 minute EBCT contactors and 199 to 213 days for 20 minute EBCT contactors. In practice, multiple contactors are operated in staggered fashion and their effluents are blended prior to disinfection. Therefore, run times to a

given effluent criterion are extended as compared to a single contactor, because the poorer quality water from "older" contactors is blended with water from "newer" contactors. Based on this configuration, bituminous coal-based GAC run times to meet the placeholder for Stage 2 MCLs (with a 20 percent safety factor) ranged from 167 to 234 days using 10 minute EBCT contactors and 433 to 557 days for 20 minute EBCT contactors.

Based on an EPA cost model, the average cost for GAC to maintain formed DBP levels below the placeholders for Stage 2 MCLs (with a 20 percent safety factor) using concrete gravity contactors was 20 and 25 cents/1,000 gal for 10 and 20 minute EBCT contactors, respectively, operated in parallel staggered mode. The average cost for steel pressure contactors was 27 and 42 cents/1,000 gal for 10 and 20 minute EBCT contactors, respectively, operated in parallel staggered mode. These costs are based on the use of bituminous coal-based GAC. GAC treatment using lignite coal-based GAC was slightly more expensive, due to shorter run times, ranging from 1 to 4 percent higher than costs using bituminous coal-based GAC. The analysis performed accounted for the 19 percent lower bed density of lignite coal-based GAC as compared to bituminous coal-based GAC, since GAC is purchased on a weight basis.

A relative measure of GAC performance is the number of bed volumes to 50 percent total organic carbon (TOC) breakthrough, BV_{50}. This parameter can correlate GAC performance to the influent TOC concentration. Typically, GAC performance improves with decreasing influent TOC concentration, as the loading on the GAC contactor is decreased. The measured BV_{50} values for GAC runs in this study was compared to the BV_{50} of an average water, correlated to the influent TOC concentration, which is available in the literature for over 20 source waters and adsorption pH between 7 and 8. Based on the influent TOC concentrations of each of the three sessions evaluating seasonal variability with bituminous coal-based GAC, the average predicted BV_{50} was 6,700 bed volumes. For the three sessions, the 10 minute EBCT contactor BV_{50} ranged from 6,380 to 9,240 bed volumes: GAC run times averaged about 22 percent longer than predicted for the 10 minute EBCT contactors. For the 20 minute EBCT contactors the BV_{50} ranged from 8,380 to 12,520 for the three bituminous coal-based GAC sessions, or an average 61 percent longer than predicted. The better than predicted performance of this water source may be attributed in part to the relatively low influent pH level (6.3 to 7.1). The longest run times were associated with the sessions with lowest influent pH levels.

The bromide concentration measured during this study was very low, ranging from <20 to 36 µg/L. GAC treatment does not remove bromide, while TOC is adsorbed, resulting in higher GAC effluent bromide to TOC ratios as compared to the GAC influent. Due to this increase, GAC effluent formed DBPs may undergo shifts in speciation to higher concentrations of the more brominated DBP species. In some cases, such as for bromodichloromethane, effluent formed concentrations were measured higher than that formed in the influent. However, the effluent formed concentrations were very low, less than 6 µg/L. It is important to track the breakthrough behavior of specific DBP species, because some may be of potential health concern and a MCL could be set for a specific DBP species, although during this study the formed levels of most individual brominated DBP species were very low, not exceeding 9 µg/L in the GAC effluent of any run, except for dibromochloromethane, which exceeded 12 µg/L during a few runs.

By plotting effluent concentrations divided by their respective influent concentrations, a normalized breakthrough evaluation can be performed. This evaluation yields insight into the relative breakthrough patterns of TOC, ultraviolet absorbance at 254 nm (UV_{254}), and simulated distribution system (SDS) DBPs, indicating whether DBP surrogates can serve as direct or conservative indicators of SDS-DBP breakthrough. The evaluation performed during this study showed that TOC breakthrough served as a conservative indicator for the breakthrough of all DBP precursors, while UV_{254} breakthrough served as an excellent predictor of total organic halide (TOX) precursor breakthrough.

In general, GAC performance can be improved by lowering the influent TOC concentration and the influent pH. Optimization of the coagulation process could result in lower TOC concentrations prior to GAC adsorption. Although, requiring higher chemical costs, GAC run times would be extended, lowering GAC operations and maintenance (O&M) costs. Influent pH levels between 6.3 and 7.1 were observed during this treatment study during different seasons. As influent TOC concentrations were similar, the improved performance times during the June and September sessions can be attributed in part to lower influent pH levels. GAC performance can be optimized by maintaining pH levels after coagulation between 6.0 and 6.5. However, lower pH levels may increase treatment costs due to the costs of pH adjustment after GAC adsorption.

As reported above, the total costs (capital and O&M) for GAC treatment to comply with the placeholders for Stage 2 DBP MCLs (with a 20 percent safety factor) were lowest using 10 minute EBCT concrete gravity contactors. However, an evaluation of shorter EBCT contactors was not made. Depending on the trade off between higher O&M costs and lower capital costs, an EBCT shorter than 10 minutes may be more cost-effective.

5 *Background Information*

5 Background Information

5.1 Treatment Plant Description

The Akron Public Utilities Bureau operates the Akron Water Supply Plant, a conventional treatment plant (alum coagulation) that provides water for a population of 275,000 in Akron, Ohio. The state approved plant capacity is 67 MGD and the source water is Lake Rockwell, which is fed by the Cuyahoga River.

Figure 1 shows a simple schematic of the Akron Water Supply Plant. Prior to rapid mix, chlorine dioxide is added, typically at 2 to 3 mg/L dose levels. Aluminum sulfate (alum) is the coagulant added at rapid mix, typically at a 40 to 80 mg/L dose range. Coagulant addition is followed by chlorine addition at a dose of 1 to 4 mg/L. Flocculation and sedimentation follows rapid mix. After sedimentation, the water is filtered through a dual media filter. Chlorine is reapplied to the water, followed by hydrofluorosilic acid, sodium hydroxide, and zinc orthophosphate. Typical sodium hydroxide doses are 14 to 20 mg/L, raising the finished water pH from 6.7 to 7.3. The dual media filter washwater is recycled to the head of the plant, prior to rapid mix.

5.1.1 Treatment Plant Design Information

Table 1 summarizes the Akron Water Supply Plant design data. The data presented is based on data from report A.2 "Design Plant Parameters" and report A.3 "Design Plant Chemical Parameters," of the *ICR Water Utility Database System.*

5.1.2 Treatment Challenges Facing Plant

Lake Rockwell, the source water for the Akron Water Supply Plant is a shallow reservoir. It is not stratified, and is constantly overturning. Seasonal algae blooms in the lake are common. The source water to the reservoir is high in manganese, which concentrates in the anaerobic bottom of the lake, but is frequently overturned. The Akron Public Utilities Bureau is currently considering dredging the lake to increase the volume of the reservoir. Currently the sedimentation basin are being upgraded with multiple chemical addition points to increase the flexibility of chemical dosing location. Emergency power is not sufficient to operate the plant completely, but the variable-speed drive pumps are being added to facilitate emergency operations. The Akron Public Utilities Bureau is also currently in the design phase of a chemical building to allow for a change in primary disinfectant used from regular chlorine to sodium hypochlorite.

5.2 Tabular Summary of Source and Finished Water Quality

Tables 2 and 3 summarize average source and finished water quality, respectively, at the Akron Water Supply Plant, based on data taken between July 1997 and December 1998. This data

constitutes preliminary ICR monitoring results and has not necessarily undergone EPA review. The source water is characterized by moderate TOC levels, averaging 6.1 mg/L and low bromide levels, averaging 36 µg/L. The average TOC concentration after treatment was 3.1 mg/L, a removal of 49 percent. The average source water UV_{254} was 0.156 1/cm, while that for the finished water was 0.047 1/cm. The source water specific UV absorbance (TSUVA, defined as UV_{254}/TOC) averaged 2.6 L/mg-m. This was reduced to an average of 1.5 L/mg-m after treatment. Normally, dissolved organic carbon (DOC) is used to calculate SUVA, defined as UV_{254}/DOC. Since DOC is always less than or equal to TOC, TSUVA will always be greater than or equal to SUVA as defined in the Interim Enhanced Surface Water Treatment Rule.

Distribution system (DS) THM4 levels varied widely, ranging from 11 to 133 µg/L. DS-THM4 levels averaged 45 µg/L, meeting the Stage 1 MCL of 80 µg/L or 64 using a 20 percent safety factor, but exceeding the placeholder for Stage 2 THM4 MCL of 40 µg/L or 32 µg/L using a 20 percent safety factor. DS-HAA5 averaged 59 µg/L, slightly lower than the Stage 1 MCL of 60 µg/L, but exceeding the Stage 1 MCL of 48 µg/L using a 20 percent safety factor. DS-HAA5 levels exceeded the placeholder for Stage 2 HAA5 MCL of 30 µg/L or 24 µg/L using a 20 percent safety factor. DS-HAA5 concentrations also showed a wide seasonal variability. This variability was not evident in TOC concentration, which yielded a relative standard deviation of 16 percent. The variability in THM and HAA formation was likely due to varying water temperature throughout the year and differences in residence times for the distribution system samples taken.

Unit Process	Process Description
Washwater Return	Washwater Treated: No 24 Hour Average Water Flow Returned (MGD): 1.0
Disinfectant Addition	Chemical: Chlorine dioxide Chemical Code: ClO_2 Measurement Formula: ClO_2 Dose rate (mg/L): 2.0
Rapid Mix	Type of Mixer: Mechanical Baffling Type: Average Liquid Volume (gal): 31,000 Short Circuiting Factor: 0.6 Mean Velocity Gradient (sec^{-1}): 975 Coagulant Addition: Alum [$Al_2(SO_4)_3$] Coagulant Dose (mg/L): 65
Disinfectant Addition	Chemical: Chlorine gas Chemical Code: Cl_2 Dose Rate (mg/L): 3.80
Flocculation	Type of Mixer: Mechanical Liquid Volume (gal): 1,684,000 Short Circuiting Factor: 0.6 Baffling Type: Average Stage Sequence Number: 1 Stage Mean Velocity Gradient (sec^{-1}): 50 Stage Liquid Volume (gal): 844,000 Stage Sequence Number: 2 Stage Mean Velocity Gradient (sec^{-1}): 25 Stage Liquid Volume (gal): 844,000
Sedimentation	Surface Area (ft^2): 58,410 Liquid Volume (gal): 6,277,000 Baffling Type: Average Short Circuiting Factor: 0.6
Filtration	Surface Area (ft^2): 17,500 Liquid Volume (gal): 1,050,000 Total Media Depth (in): 32 Media Type: Dual Minimum Water Depth to Top of Media (ft): 5.4 Depth from Top of Media to Top of Backwash Trough (ft): 2.5
Disinfectant Addition	Chemical Type: Chlorine gas Measurement Formula: Cl_2 Dose Rate (mg/L): 1.90
Other Treatment Process	High Lift PS Surface Area (ft^2): 4,350 Liquid Volume (gal): 555,000 Short Circuiting Factor: 0.1

Table 1 Summary of treatment plant design data

Water quality parameter	Mean	Standard deviation	Minimum	Maximum	Count
Temperature (°C)	15.5	6.9	4.9	24.7	18
pH	7.97	0.33	7.39	8.72	18
Alkalinity (mg/L as $CaCO_3$)	95	16	65	124	18
Total hardness (mg/L as $CaCO_3$)	127	18	90	170	18
Calcium hardness (mg/L as $CaCO_3$)	105	16	70	140	18
TOC (mg/L)	6.1	0.7	4.7	7.4	17
UV_{254} (1/cm)	0.156	0.024	0.120	0.214	17
Bromide (µg/L)	36	9	23	53	17
TSUVA (L/mg-m)	2.6	0.4	2.0	3.4	17

Table 2 Summary of source water quality at the Akron Water Supply Plant

Water quality parameter	Mean	Standard deviation	Minimum	Maximum	Count
Temperature (°C)	15.1	7.6	2.9	24.8	18
pH	7.28	0.06	7.15	7.37	18
Turbidity (ntu)	0.11	0.07	0.05	0.35	18
TOC (mg/L)	3.1	0.5	2.3	3.8	17
UV_{254} (1/cm)	0.047	0.006	0.038	0.058	17
TSUVA (L/mg-m)	1.5	0.2	1.2	1.8	17
DS-THM4 (µg/L)	45	29	11	133	20
DS-HAA5 (µg/L)	59	29	19	122	24
DS-HAA6 (µg/L)	66	32	22	134	24

DS: distribution system; average of all distribution system sampling points

Table 3 Summary of finished and distribution system water quality at the Akron Water Supply Plant

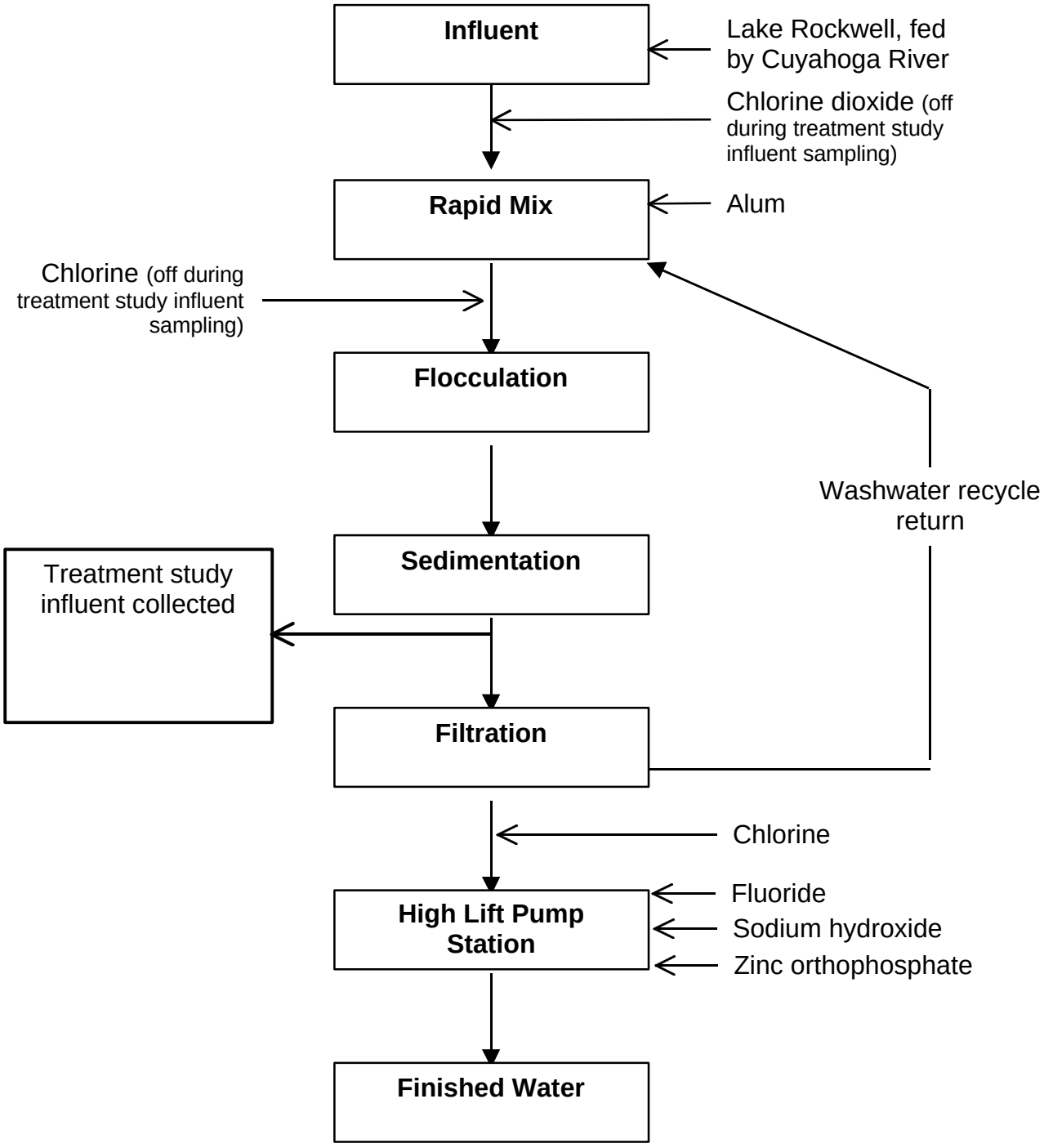


Figure 1 Treatment plant schematic

6 *Materials and Methods*

6 Materials and Methods

6.1 Treatment Study Influent Sampling Procedures

The treatment study influent water was sampled from the Akron Water Supply Plant after full-scale sedimentation. Basin 4 (of four parallel basins) was selected for treatment study influent sampling. Three quarterly samples were taken throughout the year to capture seasonal variability. The sample dates are summarized in Table 4. The three samples represent the summer, fall, and winter seasons.

Under normal plant operation, chlorine dioxide is added just prior to rapid mix, and chlorine gas is added during flocculation. The chlorine dioxide and chlorine gas feeds were turned off the day before sampling, and remained off until sampling was complete. Samples for free chlorine and chlorine dioxide analysis were taken during drum sampling, and concentrations were below detection limits.

The water was sampled in 55-gallon plastic drums that were extensively cleaned at S&H's laboratory facility prior to use. The cleaning process included three 24-hour soaks with hot water, a basic solution, and an acidic solution. Prior to use, the drums were filled with water and total organic carbon (TOC) samples taken to ensure that no measurable leaching of organic compounds (measured as TOC) was occurring from the inside surface of the drums.

During the morning prior to each sampling event, the plant settled water (treatment study influent sampling point) was sampled and analyzed to determine the representativeness of the sample. Water quality parameters analyzed included TOC, pH, alkalinity, calcium hardness, total hardness, and UV_{254}. These analyses were conducted on-site by the Akron Public Utilities Bureau. Once the representativeness of the settled water was verified by comparison of the water quality data to historic data, sampling into the 55-gallon drums proceeded. The water quality verification data obtained are summarized in Table 5.

For all sessions, the treatment study influent water was shipped the day of sampling, and arrived the next day at S&H's laboratory facilities. The water was shipped at ambient temperature.

To check for significant biodegradation or other changes during shipment, an aliquot of the treatment study influent water was sampled for TOC approximately half way through each sampling event. The sample was immediately preserved. Upon arrival at S&H's laboratory facilities, a second aliquot was obtained for TOC analysis. Both samples were analyzed, and the results are summarized in Table 6.

The settled water TOC concentration did not change by more than 10 percent after shipment. During the first RSSCT session (June) the settled water TOC concentration sampled after arrival at S&H's laboratories was 2.8 mg/L. However, the sampling procedure did not involve mixing the water in the drum prior to sampling. The TOC concentration reported in Table 6 reflects a sample taken after the water in the drum was mixed. Although the settled water TOC

concentration decreased during shipment by up to 9.4 percent, the plant filtered and S&H filtered TOC samples differed by less than 4 percent.

6.2 Pretreatment Processes to the Advanced Treatment Processes

The full-scale and bench-scale pretreatment processes in place prior to bench-scale GAC are described in Figure 2. The water was sampled after full-scale alum coagulation and sedimentation. Bench-scale filtration through a 1.0-µm glass fiber cartridge filter simulated full-scale rapid sand filtration. The TOC data for the filtered water, Table 6, shows some TOC removal due to filtration by a 1.0-µm glass fiber cartridge filter. The average percent decrease in TOC concentration after filtration was 9 percent. A 4 percent difference was observed between measured TOC concentrations of plant filtered water and cartridge filtered water at S&H, during the second and third sessions. The plant settled water pH is typically between 6.2 and 7.1 and the pH measured during each sampling event was maintained in the influent to the RSSCTs. During the operation of the RSSCTs, the pH was maintained within 0.1 pH units of the target pH (measured settled water pH) by the addition of dilute solutions of sulfuric acid and sodium hydroxide.

To prevent potential headloss buildup in the RSSCTs, a sand column was placed in line prior to the RSSCT during the first session (June). The design for the sand filter is summarized in Table 7. The sand used for the sand filter had not been previously biologically acclimated. During operation of the RSSCTs, a TOC sample taken before and after the sand filter was analyzed to check for any significant changes in concentration. A slight (2.5 percent) decrease in TOC concentration was observed. The sample was taken after 19 days of RSSCT operation (239 full-scale days). The in-line sand column filtration did not prevent headloss buildup (see Section 6.3.3.5), and was not utilized during subsequent sessions.

Table 7 summarizes the design data for each pretreatment process prior to GAC adsorption. Bench-scale cartridge filtration was employed as bench-scale pretreatment during all sessions.

6.3 Advanced Treatment Process Information

6.3.1 Schematics and Descriptions of the Process Equipment Used

Figures 3 through 5 show schematics of the RSSCT systems. All components were of stainless steel, glass, or Teflon construction. The batch influent water was held in a stainless steel container. The influent water was pumped through each column using a metering diaphragm pump rated for 1 percent speed control and 75 psi continuous duty. The wetted parts of the pump were Teflon and glass. A stainless steel gas sampling cylinder was used as a pulse dampener. Pressure gauges with stainless steel connections were used to monitor the system pressure.

During the June session, the 10 and 20 minute EBCT contactors were each preceded by a bench-scale sand filter, as shown in Figure 3. The system configuration for the 10 minute EBCT contactors during the September and January sessions is shown in Figure 4. During these

sessions, the GAC in the 20 minute EBCT contactor was packed into two columns in series, as shown in Figure 5. This allowed for mixing of the top portion of the GAC bed, if necessary, without disturbing the remainder of the bed. Typically, 90 percent of the bed was packed in the second column. Both columns were of equal inner diameters.

The effluent flow rate was constantly monitored. The calibration of the effluent flow rate control system was checked by a manual measurement at least three times daily and adjusted as necessary to maintain it within 3 percent of the design flow rate.

The GAC was packed in chromatography columns with Teflon fittings. The GAC support consisted of appropriately sized stainless steel screens, glass wool, and Teflon beads. The support system differed depending on the column inner diameter. Standard 8.0 mm inner diameter columns required a stainless steel support system as shown in Figure 6 (a). When a 10.0 mm inner diameter columns were used, the support system shown in Figure 6 (b) was used so that the GAC was contained within the effective length of the column.

6.3.2 Design Data for the Advanced Treatment Process

The design data for the RSSCTs conducted during each quarter are summarized in Table 8. During each of the three sessions designed to evaluate seasonal variability, two RSSCTs were operated to simulate full-scale equivalent EBCTs of 10 and 20 minutes. Other than the EBCT, the design for the two RSSCTs operated during each session was identical. Over the course of the entire study, columns with inner diameters of 8.0 or 10.0 mm were used, and Reynolds numbers in the RSSCTs used ranged from 0.30 to 0.49.

During the second session, a second pair of RSSCTs simulating full-scale equivalent EBCTs of 10 and 20 minutes were operated, using lignite coal-based GAC. Other than the EBCT, the design for the two lignite coal-based GAC RSSCTs was identical. The design differed with that of the bituminous coal-based GAC RSSCTs operated during the same quarter in bed porosity and dry bed density. These values changed due to the differences in GAC type used.

6.3.3 Procedures Specific to the Treatment Study

6.3.3.1 GAC Preparation Procedures

For seasonal variability a representative batch of Filtrasorb 400 (F-400), a bituminous-coal based GAC, was obtained from the manufacturer, Calgon Carbon Corporation. For the evaluation of lignite-coal based GAC, a representative batch of Hydrodarco 4000 was obtained from the manufacturer, Norit Americas, Inc. Identical GAC preparation procedures were followed for both GAC types.

Both GAC types are a 12x40 mesh size (d_p = 1.06 mm). Using a riffle splitter, a small (10-30 g) representative sample of the GAC was obtained. Using a porcelain mortar and pestle, the GAC was ground to a 140x230 mesh size (d_p = 0.085 mm). Care was taken to frequently sieve the ground GAC, and the GAC was ground until the entire sample passed through the 140 mesh size

sieve. Usually, a recovery of 20 to 25 percent was obtained, as defined by the amount of GAC retained between the 140 and 230 mesh size sieves divided by the total amount of GAC prior to grinding.

The ground GAC was transferred to a beaker, and covered with reagent grade (adsorbed-deionized) water. The GAC was washed by repeated additions and decantations of reagent grade water. The reagent grade water was added at a high rate and turbulence, to stir up the GAC and release fines. The supernatant water containing GAC fines was decanted after the GAC was allowed to settle. Towards the end of the cleaning procedure, the sample was sonicated twice for 5 to 10 seconds. The sonication step helped loosen fines that were subsequently removed by the addition and decantation of reagent grade water.

The GAC was dried in an oven at 80 to 90°C for 6 to 12 hours. The temperature was then raised to 100 to 110°C and the sample was dried until it reached a constant weight. The sample was removed and cooled inside a dessicator. Once cooled, if not immediately used, it was stored in a glass vial sealed with a lid with TFE-lined septum until ready for use.

The dry bed density was measured using a sample of dried and cooled GAC. Stored GAC was dried in an oven as described above prior to the dry bed density measurement. To measure the dry bed density, a sample of the GAC was placed inside a 10-mL glass graduated cylinder to a level of 5-9 mL. The cylinder was tapped to pack the GAC. A volume was measured and recorded. This GAC was then weighed on a balance. The volume reading of the graduated cylinder was checked and calibrated if necessary by adding a known volume of water to it using a 10-mL class A graduated pipette. The GAC dry bed density was calculated by dividing the weight by the calibrated volume.

The calculated mass of GAC of each RSSCT was weighed, placed inside a clean beaker, and covered with reagent grade water. The wetted GAC was usually allowed to sit for 12-24 hours, followed by placement in a vacuum for about 1 hour to displace the air within the pores.

6.3.3.2 RSSCT Column Setup

The GAC support for 10.0-mm inner diameter columns consisted of a stainless steel screen (60 or 100 mesh size), Teflon beads, glass wool, a 325 mesh size stainless steel screen, and a 100 mesh size stainless steel screen. The column support is detailed in Figure 6. The support for 8.0 mm inner diameter columns consisted of a 325 mesh size stainless steel screen and a 100 mesh size stainless steel screen placed on top of the Teflon fitting. For all column inner diameter sizes, a small amount of glass wool was placed inside the Teflon fitting, supported by a 60 mesh size stainless steel screen.

The columns were packed by adding the GAC as a slurry and packing the column by repeatedly tapping the sides. The 20 minute full-scale equivalent EBCT RSSCTs were packed into two columns of the same inner diameter placed in series. Only reagent grade water was used during the packing process.

6.3.3.3 Batch Influent Preparation

On arrival to S&H's laboratory facilities, the influent water was filtered through a 1.0-µm nominal pore size glass fiber cartridge filter. The cartridge filter was pre-rinsed with deionized water. Dilute solutions of sulfuric acid and sodium hydroxide were used to maintain the influent pH within 0.1 pH units of the target pH during operation of the RSSCTs.

6.3.3.4 RSSCT Monitoring

The effluent flow rates were monitored constantly to ensure that the flow rates were maintained within 5 percent of the design flow rate. The calibration of the effluent flow rate control system was checked at least three times daily and adjusted when a flow rate differed by more than 3 percent from the design flow rate. The system pressure was monitored daily. The effluent TOC concentration was monitored frequently so that samples could be taken at 5 to 8 percent increments of the average influent TOC concentration.

6.3.3.5 Headloss Buildup

Problematic headloss buildup only occurred during the first RSSCT run. Typically, when the pressure required to maintain a constant flow rate through the RSSCT exceeds 50 psi, a column backwashing procedure is performed to mitigate the headloss problem.

The procedure utilized minimizes the disturbance of the GAC bed. The column is taken off line, and the top opened so that the GAC inside is accessible. A clean small rod (18 gauge galvanized steel wire) is inserted into the column. The top layer (0.2 to 1.0 cm) of GAC is carefully mixed to break apart the particles that are bound together. Once the top layer is sufficiently loosened, the column is placed on line, and the head pressure necessary to maintain the design flow rate is usually 20 to 40 percent of the pressure before mixing the top layer. The backwashing episodes are summarized in Section 7.2.

6.4 Experimental Design

The treatment study was designed to evaluate the impact of seasonal variability on the performance of bituminous coal-based GAC at two EBCTs. Additionally, the performance of lignite-coal based GAC was evaluated in a parallel study during the second quarter. The experimental design is summarized in Table 9.

6.5 ICR Treatment Study Protocol

This treatment study was designed and conducted as required by section 141.141(3) of the Information Collection Rule (ICR), published in the May 14, 1996 Federal Register. The procedures contained in the *GAC Precursor Removal Studies* section of the *ICR Manual for Bench- and Pilot-Scale Treatment Studies* were followed. During RSSCT operation, a minimum of 12 effluent samples were taken at target 5 to 8 percent increments of the average influent TOC

concentration. Three samples were taken in duplicate and the resulting experimental variability is displayed on all plots as vertical error bars representing the relative difference between the duplicate samples. All required analyses were conducted, including pH, temperature, TOC, UV_{254}, and SDS chlorination for THMs, HAAs, and TOX.

During each session, both the 10 and 20 minute EBCT RSSCTs were operated in parallel, with a single batch influent container. Therefore, only two influent A (alkalinity, calcium hardness, total hardness, ammonia, and bromide) and three influent B (pH, temperature, turbidity, TOC, $UV_{254,}$ SDS chlorination) samples were taken during the course of each study, and the data from these applied to both the 10 and 20 minute EBCT RSSCTs.

The ICR requires that the RSSCTs be operated until the first of three conditions are met:

1. the effluent TOC concentration reaches at least 70 percent of the average influent TOC concentration

2. the effluent TOC concentration reaches a plateau at greater than 50 percent of the influent TOC concentration (a plateau is defined as an increase in TOC concentration of no more than 10 percent over a two-month full-scale equivalent time period)

3. the RSSCT has been operated for the equivalent full-scale of one year

Usually, RSSCT runs were terminated based on meeting the first condition: the effluent TOC concentration reached or exceeded 70 percent of the average influent TOC concentration. Typically the twelfth and last RSSCT effluent sample was taken at this point. A thirteenth sample (analyzed for TOC, pH, and temperature only) was taken two full-scale equivalent weeks after the twelfth effluent sample to confirm that 70 percent TOC breakthrough was reached. Table 10 summarizes the run termination criteria used, percent breakthrough reached at the twelfth sample, and the corresponding full-scale equivalent run time.

A low percent TOC breakthrough was calculated for the twelfth sample of the 20 minute EBCT contactor during the June session. The influent TOC concentration measured at the end of the run was slightly higher than expected (increasing the running average influent TOC concentration), causing the calculated percent breakthrough to decrease. The thirteenth sample yielded 75 percent TOC breakthrough. Although 70 percent breakthrough was exceeded for the 20 minute EBCT RSSCT during the January session, the run was terminated based on criteria 2: in an interval of 64 full-scale equivalent days after 50 percent TOC breakthrough, the TOC concentration increased by only 7 percent. A thirteenth confirmation sample was not taken.

A tabular summary of the all data analyzed during the treatment study is given in the Appendix. As required by EPA, the data was input into the *ICR Treatment Studies Data Collection Spreadsheets*. These files are included in electronic form (CD-ROM) as an attachment to this report.

6.6 Simulated Distribution System (SDS) Chlorination Conditions

The target simulated distribution system (SDS) conditions are summarized in Table 11. During all quarterly sessions, a 48-hour holding time was targeted. The samples were buffered at pH 7.3 using a phosphate buffer, and the target free chlorine residual was 1.35 mg/L as Cl_2. The incubation temperature was 13°C during all three seasonal sessions. For GAC influent water, during all three sessions, the mean and standard deviation obtained for each parameter are summarized in Table 12. The same data are summarized in Table 13 for the effluent samples from the 10 minute EBCT column, and in Table 14 for the effluent samples taken from the 20 minute EBCT column.

6.7 Analytical Methods

A list of all analytical methods and minimum reporting levels (MRLs) used during the study is shown in Table 15. A summary listing the laboratories involved for analytical support and the period over which analyses were conducted by each laboratory is shown in Table 16. Contact information for the laboratories involved is summarized in Table 17.

Session	Sampling Date
1	June 17, 1997
2*	September 23, 1997
3	January 6, 1998

*The lignite coal-based GAC RSSCTs were conducted with water collected during the second quarter of testing.

Table 4 Sampling dates for GAC bench-scale treatment study sessions

Sample date	TOC (mg/L)	UV_{254} (1/cm)	pH	Alkalinity (mg/L as $CaCO_3$)	Calcium hardness (mg/L as $CaCO_3$)	Total hardness (mg/L as $CaCO_3$)
June	3.7	0.056	6.35	37	74	84
September	3.4	0.059	6.80	59	94	122
January	3.5	0.063	7.13	46	74	100

Table 5 Summary of sample representativeness data

Sample date	Settled water TOC concentration (mg/L)		Percent change (%)	Filtered water TOC concentration (mg/L)	
	On day of sampling	Upon arrival at S&H		Plant	S&H
June	3.3	3.4	3.0	NA	2.7*
September	3.2	2.9	-9.4	2.8	2.9
January	3.1	2.9	-6.5	2.6	2.7

NA: not analyzed
*Although the filtered water was not sampled, this value represents the first influent sample taken during RSSCT operation.

Table 6 Summary of TOC sampling before and after water shipment

Unit Process	**Process Description**
Washwater Return (Full-Scale)	Washwater Treated: No 24 Hour Average Water Flow Returned (MGD): 1.0
Rapid Mix (Full-Scale)	Type of Mixer: Mechanical Baffling Type: Average Liquid Volume (gal): 31,000 Short Circuiting Factor: 0.6 Mean Velocity Gradient (sec^{-1}): 975 Coagulant Addition: Alum [$Al_2(SO_4)_3$] Coagulant Dose (mg/L): 65
Flocculation (Full-Scale)	Type of Mixer: Mechanical Liquid Volume (gal): 1,684,000 Short Circuiting Factor: 0.6 Baffling Type: Average

	Stage Sequence Number: 1 Stage Mean Velocity Gradient (sec^{-1}): 50 Stage Liquid Volume (gal): 844,000 Stage Sequence Number: 2 Stage Mean Velocity Gradient (sec^{-1}): 25 Stage Liquid Volume (gal): 844,000
Sedimentation (Full-Scale)	Surface Area (ft^2): 58,410 Liquid Volume (gal): 6,277,000 Baffling Type: Average Short Circuiting Factor: 0.6
Cartridge Filtration (Bench-Scale)	Surface Area (ft^2): 5.0 Nominal Pore Size (µm): 1.0 Filter Material: Glass fiber Filter Life (gallons of processed water): 100 - 150
Sand Filtration (Bench-Scale, Quarter 1, June, only)	EBCT (min): 1.5 Column inner diameter (mm): 11 Volumetric flow rate (mL/min): 12.6 Superficial velocity (gpm/ft^2): 3.2

Table 7 Summary of design data for each pretreatment process prior to GAC

Design parameter	Design value during Quarter			
	1 June	2 September	3 January	4 Sept-Lignite
GAC manufacturer	Calgon Carbon Co.	Calgon Carbon Co.	Calgon Carbon Co.	Norit Americas Inc.
GAC brand name	F-400	F-400	F-400	HD 4000
GAC type	Bituminous	Bituminous	Bituminous	Lignite
GAC mesh size	12x40	12x40	12x40	12x40
Average particle diameter, d_{LC} (mm)	1.063	1.063	1.063	1.063
General design parameters				
Minimum Reynold's number, $Re_{SC, min}$ (-)	0.49	0.40	0.30	0.40
Full-scale operating temperature (°C)	19	18	2	18
Kinematic viscosity, ν_{LC} (m^2/s)	1.03E-06	1.05E-06	1.67E-06	1.05E-06
Bed porosity, ε_{LC} (-)	0.45	0.45	0.45	0.53
Measured dry bed density, ρ_{SC} (g/cm^3)	0.522	0.535	0.523	0.412
RSSCT design parameters				
RSSCT mesh size	140x230	140x230	140x230	140x230
Particle diameter, d_{SC} (mm)	0.085	0.085	0.085	0.085
Scaling factor, SF	12.57	12.57	12.57	12.57
Hydraulic loading rate, v_{SC} (m/hr)	9.59	8.09	9.61	9.52
Column diameter, D_{SC} (mm)	10.0	8.0	8.0	8.0
Flow rate, Q_{SC} (mL/min)	12.5	6.8	8.1	8.0
Estimated run length				
RSSCT influent TOC concentration (mg/L)	3.0	2.5	2.7	2.5
Bed volumes to 50% TOC breakthrough, BV_{50}	5,200	6,600	6,000	NA
Estimated total run time, BV_T	18,200	23,100	20,900	NA
RSSCT 1				
Full-scale empty-bed contact time, $EBCT_{LC}$ (min)	10	10	10	10
Estimated full-scale run time, t_{LC}^T (days)	126	160	145	160
Estimated RSSCT run time, t_{SC}^T (days)	10.1	12.7	11.5	12.7
Volume water required, V_{SC} (L)	182	124	134	146
Mass GAC required, m_{SC} (g)	5.21	2.88	3.35	2.61
RSSCT empty-bed contact time, $EBCT_{SC}$ (min)	0.80	0.80	0.80	0.80
Bed length, l_{SC} (cm)	12.7	10.7	12.7	12.6
RSSCT 2				
Full-scale empty-bed contact time, $EBCT_{LC}$ (min)	20	20	20	20
Estimated full-scale run time, t_{LC}^T (days)	253	321	290	321
Estimated RSSCT run time, t_{SC}^T (days)	20.1	25.5	23.1	25.5
Volume water required, V_{SC} (L)	363	249	267	293
Mass GAC required, m_{SC} (g)	10.42	5.76	6.69	5.23
RSSCT empty-bed contact time, $EBCT_{SC}$ (min)	1.59	1.59	1.59	1.59
Bed length, l_{SC} (cm)	25.4	21.4	25.5	25.2

NA: not applicable; run time estimate is only valid for bituminous coal based GAC

Table 8 Summary of RSSCT design parameters

Season	Pretreatment	GAC type	EBCT (min)
Summer	Alum coagulation	Bituminous	10, 20
Fall	Alum coagulation	Bituminous	10, 20
Fall	Alum coagulation	Lignite	10, 20
Winter	Alum coagulation	Bituminous	10, 20

Table 9 Experimental design summary

Session	10 minute EBCT			20 minute EBCT		
	Run termination criteria*	Run time (days)	Percent TOC breakthrough	Run termination criteria*	Run time (days)	Percent TOC breakthrough
June	1	124	70	1	262	68
September	1	119	73	1	244	70
January	1	80	73	2	186	72
September-lignite	1	88	71	1	190	74

* 1: the effluent TOC concentration reaches at least 70 percent of the average influent TOC concentration
2: the effluent TOC concentration reaches a plateau at greater than 50 percent of the influent TOC concentration (a plateau is defined as an increase in TOC concentration of no more than 10 percent over a two-month full-scale equivalent time period)
3: the RSSCT has been operated for the full-scale equivalent of one year

Table 10 Summary of RSSCT run termination criteria, run time, and percent TOC breakthrough reached

Parameter	Session 1 June		Session 2 September		Session 3 January		Session 4 Sept-Lignite	
	Value	Tolerance	Value	Tolerance	Value	Tolerance	Value	Tolerance
Incubation time (hours)	48.0	1.0	48.0	1.0	48.0	1.0	48.0	1.0
Incubation temperature (°C)	13.0	2.0	13.0	2.0	13.0	2.0	13.0	2.0
pH	7.30	0.20	7.30	0.20	7.30	0.20	7.30	0.20
Free chlorine residual (mg/L)	1.35	0.30	1.35	0.30	1.35	0.30	1.35	0.30

Table 11 Simulated distribution system (SDS) chlorination target conditions

Parameter	Session 1 June		Session 2 September		Session 3 January		Session 4 Sept-Lignite	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Incubation time (hours)	48.2	0.1	48.1	0.7	48.1	0.2	48.1	0.7
Incubation temperature (°C)	13.0	0.1	13.0	0.0	13.0	0.1	13.0	0.0
pH	7.27	0.01	7.26	0.07	7.32	0.01	7.26	0.07
Free chlorine residual (mg/L)	1.33	0.04	1.41	0.11	1.54	0.22	1.41	0.11

*pH is average of analysis at beginning and end of incubation period for each sample.

Table 12 Summary of experimental SDS chlorination conditions for GAC influent water

Parameter	Session 1 June		Session 2 September		Session 3 January		Session 4 Sept-Lignite	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Incubation time (hours)	48.1	0.1	48.2	0.2	48.0	0.2	47.9	0.3
Incubation temperature (°C)	13.0	0.0	13.0	0.1	12.9	0.0	12.9	0.1
pH	7.24	0.04	7.34	0.02	7.40	0.02	7.33	0.01
Free chlorine residual (mg/L)	1.38	0.15	1.39	0.09	1.54	0.11	1.31	0.06

*pH is average of analysis at beginning and end of incubation period for each sample.

Table 13 Summary of experimental SDS chlorination conditions for 10 minute EBCT contactor

Parameter	Session 1 June		Session 2 September		Session 3 January		Session 4 Sept-Lignite	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Incubation time (hours)	48.1	0.1	48.1	0.4	48.1	0.1	48.2	0.2
Incubation temperature (°C)	13.0	0.1	13.0	0.1	13.0	0.1	13.0	0.1
pH	7.30	0.02	7.33	0.02	7.39	0.03	7.33	0.02
Free chlorine residual (mg/L)	1.32	0.08	1.37	0.08	1.39	0.07	1.37	0.08

*pH is average of analysis at beginning and end of incubation period for each sample.

Table 14 Summary of experimental SDS chlorination conditions for 20 minute EBCT contactor.

Analyte	Session	Method	Minimum reporting level (MRL)
Alkalinity	All	SM 2320 B	5 mg/L as $CaCO_3$
Ammonia	All	EPA 350.1	0.05 mg/L as NH_3-N
Bromide	All	EPA 300.0 A	0.02 mg/L
Calcium hardness	All	SM 3500-Ca D	10 mg/L as $CaCO_3$
Chlorine dose (solution standardization)	All	SM 4500-Cl B	NA
Chlorine residual	All	SM 4500-Cl F	0.2 mg/L as Cl_2
BCAA, DBAA, DCAA, MBAA, TCAA, BDCAA	All	SM 6251 B	1.0 µg/L (each analyte)
MCAA, CDBAA	All	SM 6251 B	2.0 µg/L (each analyte)
TBAA	All	SM 6251 B	4.0 µg/L (each analyte)
pH	All	4500-H^+ B	NA
Temperature	All	SM 2550 B	NA
Total hardness	All	SM 2340 C	5 mg/L as $CaCO_3$
Total organic carbon (TOC)	All	SM 5310 C	0.50 mg/L
Total organic halide (TOX)	All	SM 5320 B	25 µg/L as Cl^-
THM4 ($CHCl_3$, BDCM, DBCM, $CHBr_3$)	All	EPA 551.1	1.0 µg/L (each analyte)
Turbidity	All	SM 2130 B	0.05 ntu
UV absorbance at 254 nm (UV_{254})	All	SM 5910 B	0.009 cm^{-1}

SM: *Standard Methods*
NA: not applicable

Table 15 Summary of analytical methods and MRLs

Analyses performed	Laboratory	Sessions of service
Alkalinity, calcium hardness, chlorine dose, chlorine residual, pH, temperature, total hardness, TOC, TOX, THM4, turbidity, UV_{254}	Summers & Hooper, Inc.	All
Ammonia, bromide, HAA9	Montgomery Watson Laboratories	All

Table 16 Summary of laboratories conducting analyses

	Summers & Hooper, Inc.	Montgomery Watson Laboratories
ICR lab ID number	ICROH033	ICRCA013
Contact name:	Stuart Hooper	Andrew Eaton
Contact phone number	(513) 679-2200	(626) 568-6400
Contact fax number	(513) 679-2201	(626) 568-6324

Table 17 Laboratory contact information

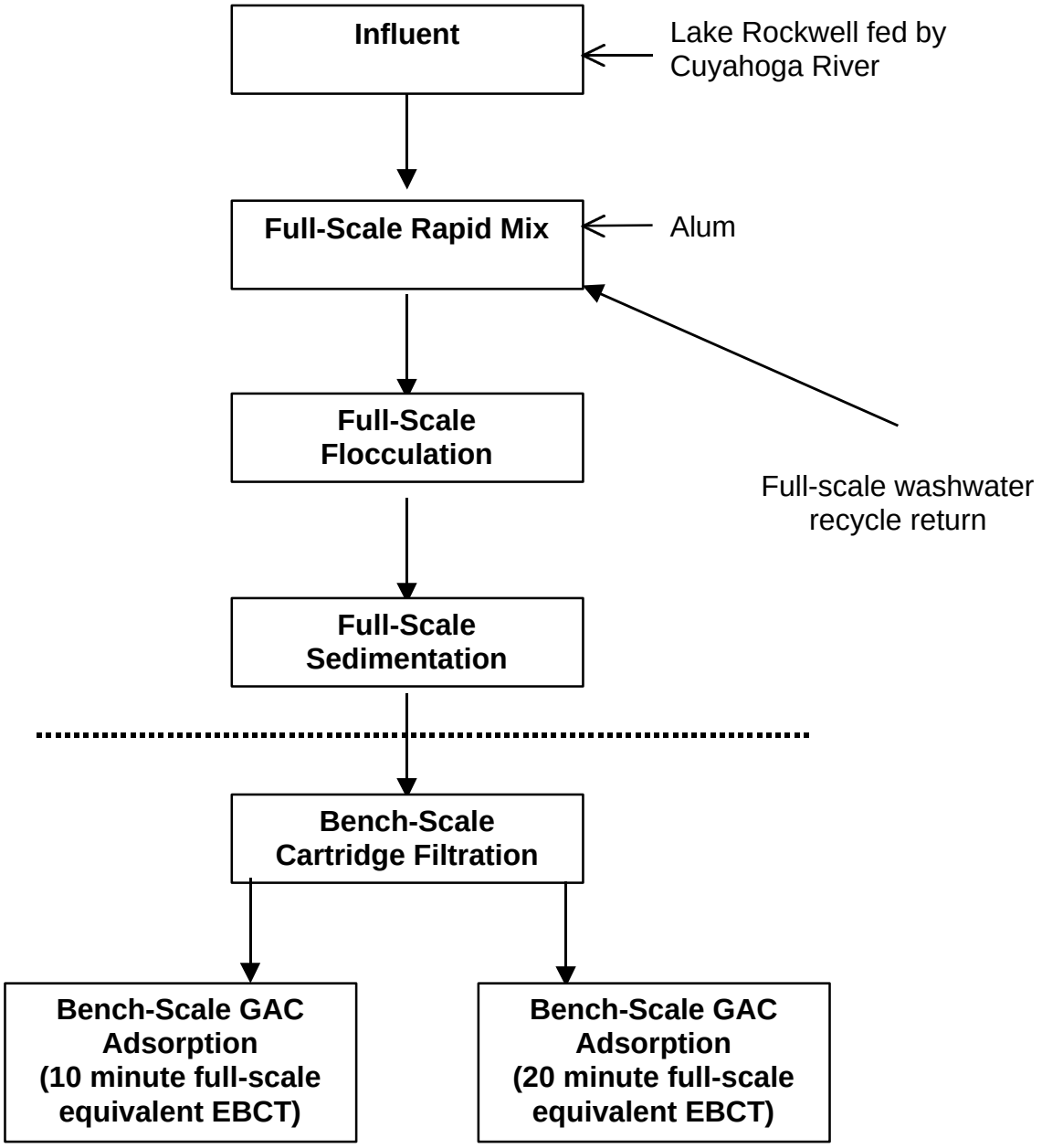


Figure 2 Schematic of pretreatment processes prior to GAC

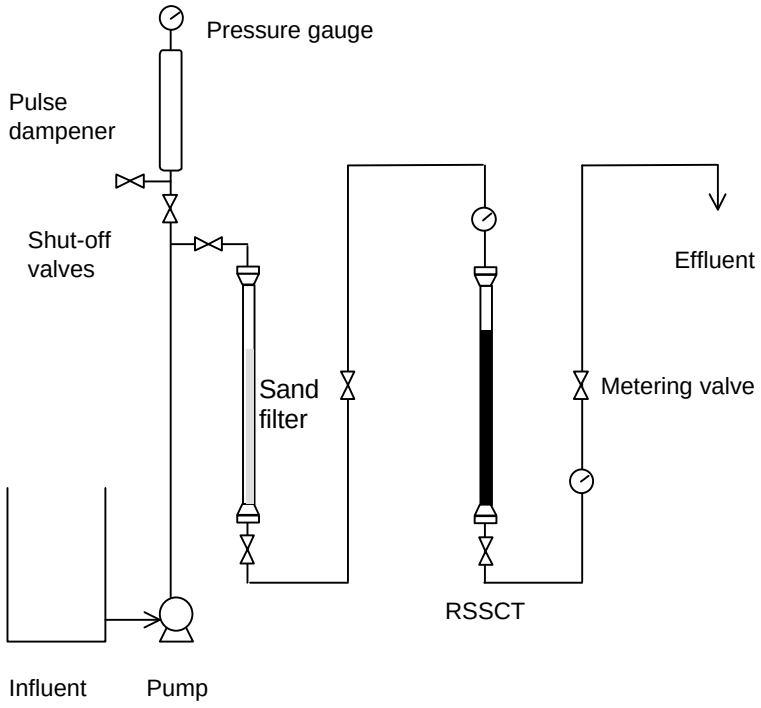


Figure 3 RSSCT system schematic for 10 and 20 minute EBCT full-scale equivalent contactors (June session)

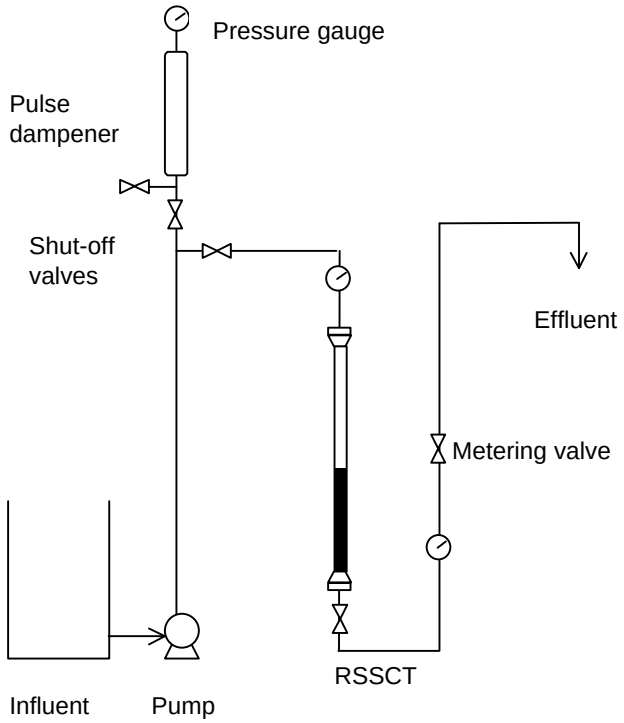


Figure 4 RSSCT system schematic for 10 minute EBCT full-scale equivalent contactor (September and January sessions)

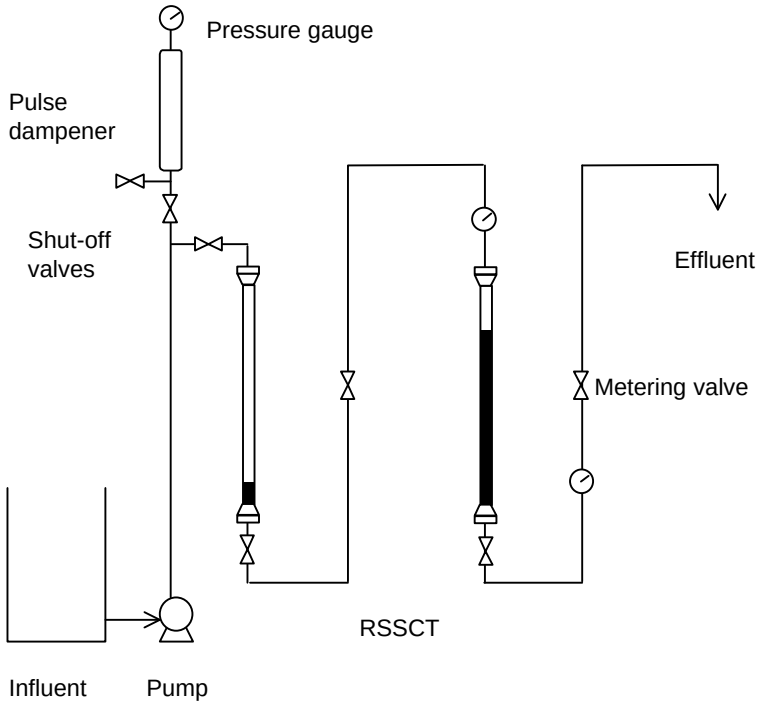
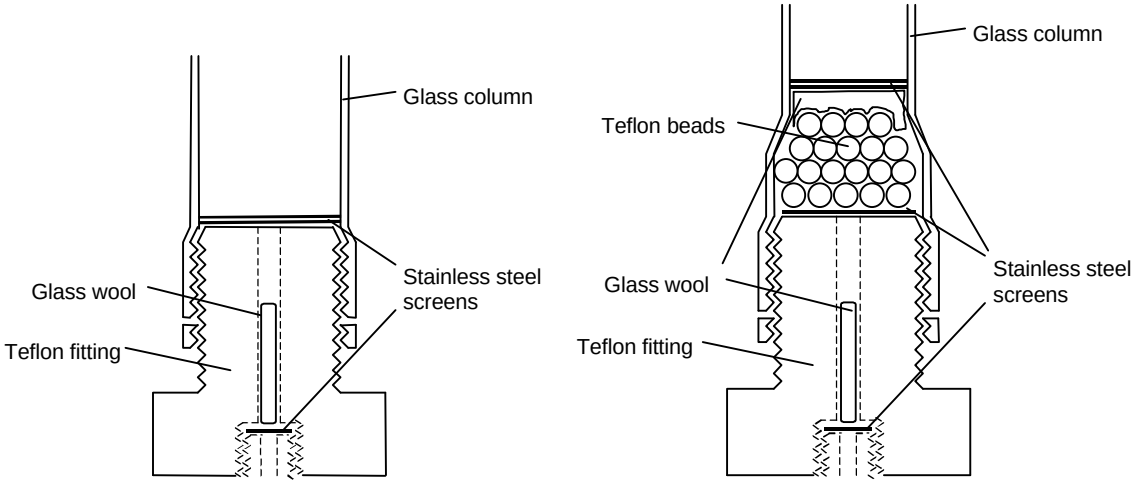


Figure 5 RSSCT system schematic for 20 minute EBCT full-scale equivalent contactor (September and January sessions)



(a) Standard 8.0 mm inner diameter column (b) 10.0 mm inner diameter column

Figure 6 RSSCT column GAC support system

7 *Results and Discussion Overview*

7 Results and Discussion Overview

7.1 Data Analysis

A significant amount of data was collected during the treatment study. The following chapters summarize various methods of analyzing the data. These include a discussion of the impact of seasonal variability in water quality and contactor EBCT on DBP precursor control. During the September session, bituminous and lignite coal based GACs were compared on a DBP precursor control basis. Although data for single contactor operation was generated by this treatment study, in practice, multiple GAC contactors in parallel are used, and GAC run times are lengthened significantly by operating the contactors in a staggered mode. GAC run times are estimated based on a model that simulates the operation of multiple GAC contactors in parallel. Breakthrough curve extrapolations were performed: the algorithm used and the results obtained are presented. The extent to which TOC and UV_{254} breakthrough served as indicators for DBP precursor breakthrough is analyzed. An evaluation of GAC performance based on TOC breakthrough and compared to other waters is presented. Finally, an EPA cost model is used to estimate the costs for GAC treatment based meeting the placeholders for Stage 2 DBP MCLs.

7.2 Problems Encountered

Moderate levels of excessive headloss buildup caused operational difficulties during the first session of seasonal RSSCTs (June). The 20 minute full-scale equivalent EBCT RSSCT was most affected, because it required longer run times to complete. Table 18 summarizes the backwash episodes performed to mitigate headloss buildup. The procedure used to backwash the RSSCTs minimized the disruption of the GAC bed and is summarized in Section 6.3.3.5.

During the September session, most analyses conducted for tribromoacetic acid (TBAA) yielded non reportable results. Therefore, all data presented for HAA9 during the September session does not include a reported value for TBAA.

7.3 Water Quality Data

The average pretreated influent to GAC water quality for each quarterly sample is summarized in Table 19. TOC concentration and UV_{254} showed very little variability over the three sampling events. The mean TOC concentration during for all three sampling events was 2.68 ± 0.05 mg/L (relative standard deviation [RSD] = 1.6%) and mean UV_{254} was 0.055 ± 0.002 cm^{-1} (RSD = 3.3%). Alkalinity averaged 41 mg/L as $CaCO_3$ (RSD = 43%); calcium hardness averaged 83 mg/L as $CaCO_3$ (RSD = 20%); total hardness averaged 108 mg/L as $CaCO_3$ (RSD = 17%). Ammonia levels ranged from <0.05 to 0.077 mg/L, and bromide levels ranged from <20 to 36 µg/L. Due to the fairly low bromide levels measured, only a limited amount of bromine incorporation in DBPs was expected. The TSUVA, averaged 2.0 L/mg-m (RSD = 2.3%).

An important contributor to GAC performance is the influent pH. As pH is lowered, GAC performance is typically improved, leading to longer run times to a given water quality objective.

The mean influent pH during a seasonal session ranged from 6.3 to 7.1. Since the influent TOC concentration and UV_{254} were fairly constant across seasonal samples, the influent pH was expected to have a strong influence on GAC performance.

SDS-DBP formation prior to GAC adsorption showed little variability across the three seasonal sessions. The RSDs for all DBP analyzed ranged from 7.4 to 12 percent. Little variability was observed due to the fairly constant GAC influent TOC concentration and UV_{254} measured across the three seasonal sessions, and due to the use of constant chlorination conditions (including pH and temperature) across all sessions.

Session	Full-scale equivalent run time (d)	
	10 minute EBCT	20 minute EBCT
1	35	35
		255
		264
		269
2 (bituminous)	NB	NB
2 (lignite)	NB	NB
3	NB	NB

NB: not backwashed during entire run

Table 18 Summary of RSSCT backwashing episodes

Water Quality Parameter	Session 1 June		Session 2 September		Session 3 January		Session 4 Sept-Lignite	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Temperature (°C)	17.4	1.7	16.6	1.6	17.8	0.7	16.6	1.6
pH	6.32	0.03	6.81	0.04	7.12	0.01	6.81	0.04
Turbidity (ntu)	0.18	0.03	0.09	0.02	0.10	0.05	0.09	0.02
Alkalinity (mg/L as $CaCO_3$)	21	1	55	2	46	1	55	2
Calcium hardness (mg/L as $CaCO_3$)	70	5	101	2	78	2	101	2
Total hardness (mg/L as $CaCO_3$)	91	1	128	2	105	1	128	2
Ammonia (mg/L)	BMRL	NA	0.077	0.006	BMRL	NA	0.077	0.006
Bromide (mg/L)	0.030	0.001	0.036	0.001	BMRL	NA	0.036	0.001
TOC (mg/L)	2.73	0.12	2.68	0.05	2.64	0.11	2.68	0.05
UV_{254} (1/cm)	0.057	0.002	0.053	0.001	0.054	0.001	0.053	0.001
TSUVA (L/mg-m)	2.1	--	2.0	--	2.0	--	2.0	--
SDS-THM4 (µg/L)	59	1	54	2	50	1	54	2
SDS-HAA5 (µg/L)	56	4	45	4	48	1	45	4
SDS-HAA6 (µg/L)	60	4	50	4	52	2	50	4
SDS-HAA9 (µg/L)	67	5	58	3	61	3	58	3
SDS-TOX (µg Cl^-/L)	274	5	235	19	239	2	235	19
SDS-chlorine demand (mg/L)	3.2	0.0	2.5	0.0	2.1	0.1	2.5	0.0

BMRL: below minimum reporting level
NA: not applicable

Table 19 Summary of GAC influent water quality

8 *Impact of Seasonal Variability*

8 Impact of Seasonal Variability

During each of three sessions designed to investigate the impact of seasonal variability (June, September, and January), both 10 and 20 minute full-scale equivalent EBCTs were evaluated using RSSCTs. Table 4 lists the sampling date for each session.

Figure 7 shows the RSSCT effluent TOC breakthrough profiles for the 10 minute EBCT contactors during each session. The average influent TOC concentration during each session varied only from 2.6 to 2.7 mg/L. However, a range of effluent TOC concentration breakthrough behavior was observed, with run times to an effluent TOC concentration of 1.0 mg/L ranging from 37 to 57 days for the 10 minute EBCT contactors. Run times to 70 percent TOC breakthrough ranged from 74 to 123 days. The RSSCTs with lower influent pH levels (June and September) yielded longer run times than the January RSSCT. Breakthrough curves for the lignite coal-based GAC RSSCT run are also included in Figure 7 and subsequent seasonal variability figures, for purposes of comparison. The lignite coal-based GAC has a bed density that was measured at 23 percent lower than that of the bituminous coal-based GAC. Therefore, there is 23 percent less mass of GAC in the same column volume. Thus, the earlier breakthrough of the lignite coal-based GAC was expected. The difference in performance and mass will be discussed in the cost analysis section (15). Effluent UV_{254} breakthrough profiles, shown in Figure 8, displayed relative breakthrough behavior that was similar to that for TOC.

The GAC effluent breakthrough profiles for SDS-DBPs are plotted in Figures 9 through 13. Although influent SDS-THM4 levels were about equal, SDS-THM4 breakthrough varied: GAC performance improve (breakthrough curve shifted to the right) as influent pH decreased. For SDS-HAA breakthrough, the January water sample (higher influent pH) showed earlier breakthrough of SDS-HAA5, -HAA6 and -HAA9. SDS-HAA breakthrough for both the June and September water samples occurred later than that for the January sample. Unlike the correlation between influent pH and GAC performance observed for SDS-THM4 breakthrough, SDS-HAA breakthrough for the June sample occurred somewhat earlier than for the September sample, although the GAC influent pH was lower for the June sample. Note that constant SDS incubation temperature (13°C) and pH (7.3) were used throughout the entire treatment study.

For the 10 minute EBCT contactors, SDS-TOX breakthrough followed similar trends observed for SDS-HAA5, where breakthrough curves for SDS-TOX during the June and September water samples outperformed the January sample. The GAC effluent SDS chlorine demand (CLD), Figure 14, displays a high immediate breakthrough which varies by season. This is likely caused by chlorine demand due to variation in levels of nonadsorbable inorganic parameters.

The RSSCT effluent TOC breakthrough profiles for the 20 minute EBCT contactors are shown in Figure 15. A range in effluent TOC concentration breakthrough behavior was observed: run times to an effluent TOC concentration of 1.0 mg/L ranged from 90 to 134 days, while run times to 70 percent TOC breakthrough ranged from 200 to 266 days. Again, as was observed at a 10 minute EBCT, the RSSCTs with lower influent pH levels (June and September) yielded longer run times than the January RSSCT. Effluent UV_{254} breakthrough profiles are shown in Figure 16. The GAC effluent breakthrough profiles for SDS-DBP formation are plotted in Figures 17 through 21. The breakthrough trends for THMs and HAAs described for the 10 minute EBCT

contactor were also evident in the 20 minute EBCT contactor breakthrough profiles. Figure 22 shows the measured GAC effluent SDS chlorine demand.

In summary, little seasonal variability in influent TOC concentration was observed: the influent TOC concentration ranged from 2.6 to 2.7 mg/L (mean = 2.68 ± 0.05 mg/L). Seasonal variability in settled water pH seemed to have the greatest impact of GAC performance. Although TOC concentrations were similar, and the SDS incubation pH was held constant throughout the entire treatment study, influent SDS-DBP levels formed during the June session were slightly higher (13 to 18 percent) than levels measured in January and September. The impact of these higher influent DBP precursor levels on GAC performance was not consistent, however, with THM4 precursor removal by GAC actually improved during the June session. SDS HAA breakthrough during the June session was usually matched by the September session, until later stages of breakthrough, where the June RSSCTs were outperformed by the September RSSCTs. A similar effect was observed for SDS-TOX breakthrough. The effluent pH and temperature for each EBCT during each quarterly session were also monitored, and the results, summarized in Tables 20 and 21, were very consistent with a RSD of less than 3 percent.

Table 22 summarizes run times to various GAC effluent criteria for the 10 minute EBCT contactors. The mean, standard deviation, and percent standard deviation of the run times are also tabulated, along with the length of each study. For the 20 minute EBCT contactors, a summary of the same information is given in Table 23. Also shown in Tables 22 and 23 are the projected run times of the lignite GAC on an equivalent weight basis. Since the lignite GAC density was 23 percent lower, the run times were increased by a factor of 1.23. The THM and HAA run time criteria chosen are based on Stage 1 and the placeholders for Stage 2 MCLs, with a 20 percent safety factor. The TOC, UV_{254}, and TOX breakthrough criteria were chosen to represent a range of concentrations. A relative performance criteria, 50 percent breakthrough, c/c_0, was also chosen for TOC and UV_{254}. For a visual comparison of the impact of seasonal variability on GAC run times, bar graph plots of the data were generated. For a 10 minute EBCT, Figures 23 and 24 summarize run times to effluent TOC and UV_{254} criteria, and Figures 25 and 26 summarize run times to effluent SDS-THM4 and SDS-HAA5 criteria. For cases where the effluent concentration did not reach the run time criterion, no bar is shown. Bar graph GAC run time summaries are shown in Figures 27 through 30 for 20 minute EBCT contactors.

Based on the calculated run times for all four quarters and both EBCTs, the corresponding concentration of other measured parameters (DBP precursor surrogates and SDS-DBPs) at that run time were also calculated. For each quarter and each EBCT, these data are summarized in Tables 24 through 31. For example, Table 24 shows that when the placeholder for Stage 2 MCL for THM4 (with a 20 percent safety factor) was exceeded, the TOC concentration was 1.7 mg/L, the SDS-HAA5 concentration was 28 µg/L, and the SDS-TOX concentration was 139 µg Cl^-/L.

It is important to track the breakthrough behavior of specific DBP species, because some may be of potential health concern and a MCL could be set for a specific DBP species. GAC does not remove bromide and this can result in relatively high bromide to TOC ratios in the GAC effluent. Because of the high bromide to TOC ratios, GAC effluent SDS-DBPs may undergo shifts in speciation to more brominated DBP species. In some cases, effluent concentration are measured higher than influent levels.

For both the 10 and 20 minute EBCT contactors and all four seasons, Figures 31, 32, 33 and 34 show the breakthrough behavior of the formed THMs: chloroform ($CHCl_3$), bromodichloromethane (BDCM), dibromochloromethane (DBCM), and bromoform ($CHBr_3$), respectively. GAC effluent SDS-THM4 was dominated by the formation of chloroform. After breakthrough, effluent formed BDCM concentrations exceeded those measured in the influent, but levels did not exceed 6 µg/L. Effluent formed DBCM levels approached measured influent levels. Only one effluent formed bromoform sample was measured at a concentration above the MRL. The effluent formed BDCM and DBCM breakthrough curves show the impact of the increase in bromide to TOC ratio in the GAC effluent. The MRL for each analyte is indicated on each plot as a dashed line.

All nine HAA species were analyzed during the study. Plots of the effluent formed breakthrough profiles for the nine HAA species during all four seasons and for both EBCTs are shown in Figures 35 through 43. The HAA species are monochloroacetic acid (MCAA), dichloroacetic acid (DCAA), trichloroacetic acid (TCAA), monobromoacetic acid (MBAA), dibromoacetic acid (DBAA), bromochloroacetic acid (BCAA), dichlorobromoacetic acid (DCBAA), chlorodibromoacetic acid (CDBAA), and tribromoacetic acid (TBAA). Species that were formed at significant concentrations in the GAC effluent included DCAA, TCAA, BCAA, and DCBAA. While GAC effluent formed levels of DCAA and TCAA did not exceed 50 to 60 percent of formed influent levels over the entire GAC run time, GAC effluent formed concentrations of BCAA and DCBAA (both brominated species) reached, and in some cases exceeded, measured formed influent concentrations. Again, the relatively poor control of BCAA and DCBAA in the GAC effluent can be attributed to the increase in bromide to TOC ratio in the GAC effluent.

Effluent sample number	Effluent pH				Effluent temperature (°C)			
	June	September	January	Sept-Lignite	June	September	January	Sept-Lignite
1	6.6	7.6	7.9	7.5	23	23	21	23
2	7.3	7.7	7.9	7.6	23	23	20	22
3	7.1	7.7	7.7	7.5	23	23	21	22
4	7.4	7.7	7.8	7.5	23	24	21	23
5	7.4	7.7	7.7	7.7	23	23	22	23
6	7.3	7.6	7.7	7.5	23	23	21	23
7	7.2	7.7	7.7	7.5	23	22	21	23
8	7.2	7.8	7.7	7.6	23	22	22	22
9	7.2	7.6	7.7	7.6	23	23	22	23
10	7.4	7.4	7.7	7.6	23	21	22	22
11	7.1	7.5	7.6	7.6	23	21	21	23
12	7.2	7.5	7.8	7.6	23	22	22	22
13	7.2	7.6	7.8		23	21	22	
Mean	7.2	7.6	7.7	7.6	23	22	21	23
Standard deviation	±0.2	±0.1	±0.1	±0.1	±0.3	±0.9	±0.5	±0.5
Relative percent error	3	1	1	1	1	4	2	2

Table 20 GAC effluent pH and temperature data for 10 minute EBCT contactors

Effluent sample number	Effluent pH				Effluent temperature (°C)			
	June	September	January	Sept-Lignite	June	September	January	Sept-Lignite
1	6.7	7.6	8.6	7.5	24	23	21	23
2	6.7	7.3	7.8	7.4	22	23	23	23
3	7.1	7.5	7.9	7.5	22	23	22	22
4	6.7	7.4	7.9	7.5	22	22	22	22
5	6.9	7.3	7.9	7.7	22	22	22	22
6	6.8	7.5	7.9	7.5	22	22	22	23
7	6.7	7.7	7.8		22	22	22	
8	6.9	7.4	7.8	7.5	21	19	22	23
9	6.9	7.5	7.9	7.4	23	21	22	22
10	6.9	7.3	7.8	7.5	23	21	22	22
11	7.0	7.5	7.9	7.6	22	21	22	21
12	7.0	7.3	8.0	7.3	22	21	22	21
13								
Mean	6.9	7.4	7.9	7.5	22	22	22	22
Standard deviation	±0.1	±0.1	±0.2	±0.1	±0.7	±1.0	±0.3	±0.6
Relative percent error	2	2	3	1	3	5	1	3

Table 21 GAC effluent pH and temperature data for 20 minute EBCT contactors

Parameter	Units	Value	Run time (days)					Sessions 1 - 3		
			Session					Mean	Standard deviation	Percent standard deviation (%)
			1 June	2 September	3 January	4‡ Sept-Lignite	4# Sept-Lignite			
TOC	(mg/L)	2.0	136	*	91	101	124	114	±32	28%
		1.0	57	51	37	34	42	48	±10	21%
		c/c_0 = 50%†	64	63	44	44	55	57	±11	19%
UV-254	(1/cm)	0.040	*	*	*	*	*			
		0.020	67	75	54	59	72	65	±10	16%
		c/c_0 = 50%†	109	104	69	79	97	94	±22	23%
SDS-THM4	(µg/L)	80	*	*	*	*	*			
		64	*	*	*	*	*			
		32	96	76	*	71	87	86	±14	17%
SDS-HAA5	(µg/L)	48	*	*	*	*	*			
		24	79	*	*	85	104	79		
SDS-HAA6	(µg/L)	48	*	*	*	*	*			
		24	66	101	66	75	92	78	±20	26%
SDS-HAA9	(µg/L)	48	*	*	*	*	*			
		24	61	63	51	46	57	59	±6	11%
SDS-TOX	(µg Cl^-/L)	120	72	100	64	*	*	78	±19	24%
		70	60	62	44	45	55	55	±10	17%
Study length	(days)	--	124	119	80	88		108	±24	22%

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time, calculated values are left blank.

‡Lignite column had 23 percent less GAC by weight due to lower RSSCT bed density.

#Projected run times based on a run time a factor of 1.23 times longer.

Table 22 Run times to selected GAC effluent criteria (10 minute EBCT)

Parameter	Units	Value	Run time (days)					Sessions 1 - 3		
			Session					Mean	Standard deviation	Percent standard deviation (%)
			1 June	2 September	3 January	4‡ Sept-Lignite	4# Sept-Lignite			
TOC	(mg/L)	2.0	272	*	*	192	236	272		
		1.0	134	119	90	73	89	115	±22	20%
		c/c_0 = 50%†	174	158	116	96	119	149	±30	20%
UV-254	(1/cm)	0.040	*	*	*	*	*			
		0.020	197	190	136	122	150	174	±34	19%
		c/c_0 = 50%†	*	243	180	179	220	211	±45	21%
SDS-THM4	(µg/L)	80	*	*	*	*	*			
		64	*	*	*	*	*			
		32	213	199	*	146	179	206	±10	5%
SDS-HAA5	(µg/L)	48	*	*	*	*	*			
		24	221	*	194	*	*	207	±19	9%
SDS-HAA6	(µg/L)	48	*	*	*	*	*			
		24	203	*	165	183	225	184	±27	15%
SDS-HAA9	(µg/L)	48	*	*	*	*	*			
		24	164	170	134	100	123	156	±20	13%
SDS-TOX	(µg Cl^-/L)	120	209	*	174	163	201	191	±25	13%
		70	151	153	107	89	110	137	±26	19%
Study length	(days)	--	262	244	216	190		241	±23	10%

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time, calculated values are left blank.

‡Lignite column had 23 percent less GAC by weight due to lower RSSCT bed density.

#Projected run times based on a run time a factor of 1.23 times longer.

Table 23 Run times to selected GAC effluent criteria (20 minute EBCT)

Parameter	Units	Influent concen-tration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (single contactor)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	136	19,640	2.0	#	#	#	#	#	#
			1.0	57	8,200	1.0	0.012	12	12	15	20	63
			1.4†	64	9,240	1.4	0.018	19	18	22	28	94
UV_{254}	(1/cm)	0.057	0.040	*	*							
			0.020	67	9,610	1.5	0.020	19	21	24	31	105
			0.028†	109	15,670	1.8	0.028	31	32	35	42	152
SDS-THM4	(µg/L)	59	80	*	*							
			64	*	*							
			32	96	13,870	1.7	0.026	32	28	31	38	139
SDS-HAA5	(µg/L)	56	48	*	*							
			24	79	11,440	1.6	0.023	25	24	28	34	127
SDS-HAA6	(µg/L)	60	48	*	*							
			24	66	9,520	1.5	0.020	19	20	24	30	103
SDS-HAA9	(µg/L)	67	48	*	*							
			24	61	8,780	1.2	0.015	16	16	19	24	75
SDS-TOX	(µg Cl^-/L)	274	120	72	10,310	1.6	0.021	21	22	26	32	120
			70	60	8,600	1.1	0.013	14	14	17	23	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time, value of listed parameter is left blank.

#Data not available for listed parameter at given breakthrough criterion.

Table 24 Run times to selected GAC effluent criteria (10 minute EBCT) during session 1, June

Parameter	Units	Influent concen-tration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (single contactor)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	272	19,600	2.0	#	#	#	#	#	#
			1.0	134	9,680	1.0	0.009	14	10	12	16	56
			1.4†	174	12,520	1.4	0.017	25	17	20	25	89
UV_{254}	(1/cm)	0.057	0.040	*	*							
			0.020	197	14,150	1.5	0.020	29	20	23	29	108
			0.028†	*	*							
SDS-THM4	(µg/L)	59	80	*	*							
			64	*	*							
			32	213	15,310	1.6	0.022	32	22	26	32	124
SDS-HAA5	(µg/L)	56	48	*	*							
			24	221	15,890	1.7	0.024	33	24	27	34	127
SDS-HAA6	(µg/L)	60	48	*	*							
			24	203	14,590	1.6	0.021	30	21	24	30	114
SDS-HAA9	(µg/L)	67	48	*	*							
			24	164	11,800	1.3	0.015	23	16	19	24	82
SDS-TOX	(µg Cl^-/L)	274	120	209	15,040	1.6	0.022	31	22	25	31	120
			70	151	10,850	1.2	0.012	18	14	16	21	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time, value of listed parameter is left blank.

#Data not available for listed parameter at given breakthrough criterion.

Table 25 Run times to selected GAC effluent criteria (20 minute EBCT) during session 1, June

Parameter	Units	Influent concentration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (single contactor)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	*	*							
			1.0	51	7,360	1.0	0.010	14	7	10	17	47
			1.3†	63	9,030	1.3	0.016	23	12	15	24	72
UV_{254}	(1/cm)	0.053	0.040	*	*							
			0.020	75	10,750	1.5	0.020	31	14	18	28	89
			0.027†	104	14,960	1.8	0.027	34	20	24	35	124
SDS-THM4	(µg/L)	54	80	*	*							
			64	*	*							
			32	76	10,930	1.5	0.020	32	15	19	28	90
SDS-HAA5	(µg/L)	45	48	*	*							
			24	*	*							
SDS-HAA6	(µg/L)	50	48	*	*							
			24	101	14,590	1.8	0.026	34	20	24	34	121
SDS-HAA9	(µg/L)	58	48	*	*							
			24	63	9,130	1.3	0.016	24	12	15	24	72
SDS-TOX	(µg Cl^-/L)	235	120	100	14,400	1.8	0.026	34	19	24	34	120
			70	62	8,860	1.3	0.015	22	11	15	23	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time, value of listed parameter is left blank.

#Data not available for listed parameter at given breakthrough criterion.

Table 26 Run times to selected GAC effluent criteria (10 minute EBCT) during session 2, September

Parameter	Units	Influent concentration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (single contactor)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	*	*							
			1.0	119	8,600	1.0	0.009	12	9	12	13	44
			1.3†	158	11,350	1.3	0.015	23	12	16	21	73
UV_{254}	(1/cm)	0.053	0.040	*	*							
			0.020	190	13,690	1.6	0.020	31	15	19	28	95
			0.027†	243	17,480	1.9	0.027	37	18	21	30	116
SDS-THM4	(µg/L)	54	80	*	*							
			64	*	*							
			32	199	14,300	1.6	0.021	32	16	20	29	100
SDS-HAA5	(µg/L)	45	48	*	*							
			24	*	*							
SDS-HAA6	(µg/L)	50	48	*	*							
			24	*	*							
SDS-HAA9	(µg/L)	58	48	*	*							
			24	170	12,260	1.4	0.017	27	12	16	24	82
SDS-TOX	(µg Cl^-/L)	235	120	*	*							
			70	153	11,040	1.3	0.014	22	12	16	20	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time, value of listed parameter is left blank.

#Data not available for listed parameter at given breakthrough criterion.

Table 27 Run times to selected GAC effluent criteria (20 minute EBCT) during session 2, September

Parameter	Units	Influent concentration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (single contactor)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.6	2.0	91	13,110	2.0	#	#	#	#	#	#
			1.0	37	5,380	1.0	0.011	12	8	11	14	47
			1.3†	44	6,380	1.3	0.015	17	12	16	21	70
UV_{254}	(1/cm)	0.054	0.040	*	*							
			0.020	54	7,780	1.5	0.020	21	16	19	25	92
			0.027†	69	9,900	1.8	0.027	28	21	25	32	135
SDS-THM4	(µg/L)	50	80	*	*							
			64	*	*							
			32	*	*							
SDS-HAA5	(µg/L)	48	48	*	*							
			24	*	*							
SDS-HAA6	(µg/L)	52	48	*	*							
			24	66	9,450	1.7	0.026	26	20	24	31	126
SDS-HAA9	(µg/L)	61	48	*	*							
			24	51	7,420	1.4	0.019	20	15	18	24	86
SDS-TOX	(µg Cl^-/L)	239	120	64	9,150	1.7	0.025	25	19	23	30	120
			70	44	6,360	1.3	0.015	17	12	16	21	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time, value of listed parameter is left blank.

#Data not available for listed parameter at given breakthrough criterion.

Table 28 Run times to selected GAC effluent criteria (10 minute EBCT) during session 3, January

Parameter	Units	Influent concentration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (single contactor)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.6	2.0	*	*							
			1.0	90	6,500	1.0	0.009	11	7	9	12	44
			1.3†	116	8,380	1.3	0.016	18	10	13	19	78
UV_{254}	(1/cm)	0.054	0.040	*	*							
			0.020	136	9,760	1.5	0.020	23	15	18	25	98
			0.027†	180	12,940	1.8	0.027	27	22	26	34	125
SDS-THM4	(µg/L)	50	80	*	*							
			64	*	*							
			32	*	*							
SDS-HAA5	(µg/L)	48	48	*	*							
			24	194	13,970	1.8	0.029	29	24	28	36	132
SDS-HAA6	(µg/L)	52	48	*	*							
			24	165	11,860	1.8	0.025	26	20	24	32	113
SDS-HAA9	(µg/L)	61	48	*	*							
			24	134	9,620	1.5	0.020	22	15	18	24	96
SDS-TOX	(µg Cl^-/L)	239	120	174	12,500	1.8	0.026	27	22	25	33	120
			70	107	7,740	1.2	0.014	16	9	12	17	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time, value of listed parameter is left blank.

#Data not available for listed parameter at given breakthrough criterion.

Table 29 Run times to selected GAC effluent criteria (20 minute EBCT) during session 3, January

Parameter	Units	Influent concen-tration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (single contactor)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	101	14,520	2.0	#	#	#	#	#	#
			1.0	34	4,920	1.0	0.010	14	7	10	16	49
			1.3†	44	6,390	1.3	0.016	22	12	15	23	69
UV_{254}	(1/cm)	0.053	0.040	*	*							
			0.020	59	8,440	1.6	0.020	27	15	19	29	95
			0.027†	79	11,410	1.8	0.027	33	22	26	#	120
SDS-THM4	(µg/L)	54	80	*	*							
			64	*	*							
			32	71	10,210	1.7	0.025	32	18	22	33	119
SDS-HAA5	(µg/L)	45	48	*	*							
			24	85	12,220	1.9	0.028	33	24	28	#	119
SDS-HAA6	(µg/L)	50	48	*	*							
			24	75	10,770	1.8	0.026	33	20	24	#	120
SDS-HAA9	(µg/L)	58	48	*	*							
			24	46	6,630	1.4	0.016	23	12	16	24	72
SDS-TOX	(µg Cl^-/L)	235	120	*	*							
			70	45	6,470	1.3	0.016	22	12	15	24	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time, value of listed parameter is left blank.
#Data not available for listed parameter at given breakthrough criterion.

Table 30 Run times to selected GAC effluent criteria (10 minute EBCT) during session 4, Sept-Lignite

Parameter	Units	Influent concen-tration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (single contactor)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	192	13,790	2.0	#	#	#	#	#	#
			1.0	73	5,230	1.0	0.010	14	7	10	16	51
			1.3†	96	6,940	1.3	0.015	22	11	15	23	77
UV_{254}	(1/cm)	0.053	0.040	*	*							
			0.020	122	8,790	1.5	0.020	26	16	20	27	94
			0.027†	179	12,910	1.9	0.027	38	20	24	33	128
SDS-THM4	(µg/L)	54	80	*	*							
			64	*	*							
			32	146	10,500	1.7	0.023	32	18	22	30	109
SDS-HAA5	(µg/L)	45	48	*	*							
			24	*	*							
SDS-HAA6	(µg/L)	50	48	*	*							
			24	183	13,170	1.9	0.027	39	20	24	34	130
SDS-HAA9	(µg/L)	58	48	*	*							
			24	100	7,180	1.4	0.016	23	12	16	24	80
SDS-TOX	(µg Cl^-/L)	235	120	163	11,760	1.8	0.024	36	18	22	32	120
			70	89	6,430	1.3	0.014	20	10	14	22	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time, value of listed parameter is left blank.
#Data not available for listed parameter at given breakthrough criterion.

Table 31 Run times to selected GAC effluent criteria (20 minute EBCT) during session 4, Sept-Lignite

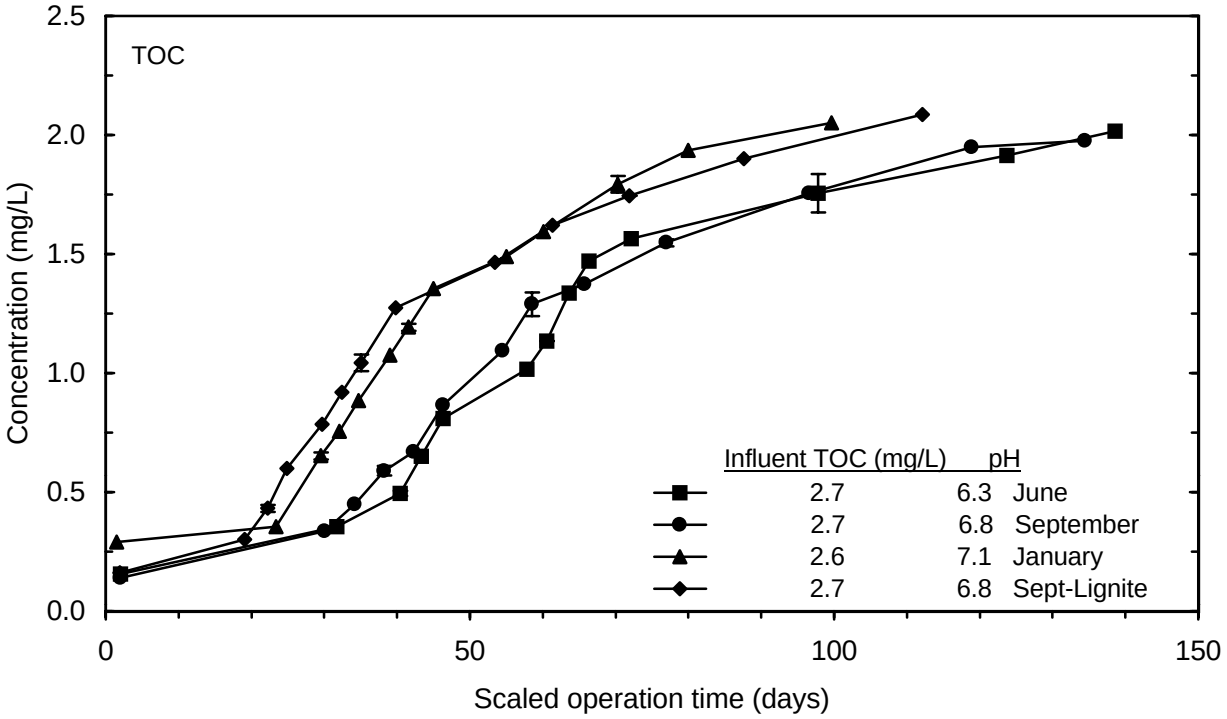


Figure 7 TOC breakthrough for 10 minute EBCT contactors for each session

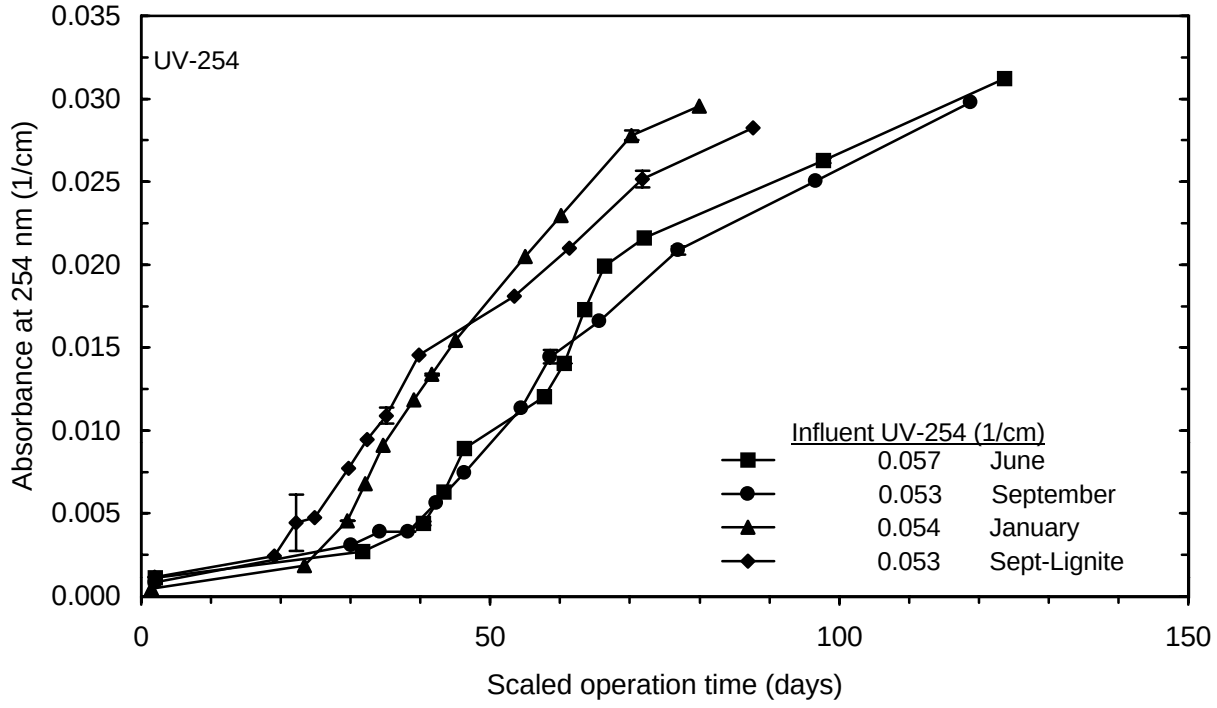


Figure 8 UV-254 breakthrough for 10 minute EBCT contactors for each session

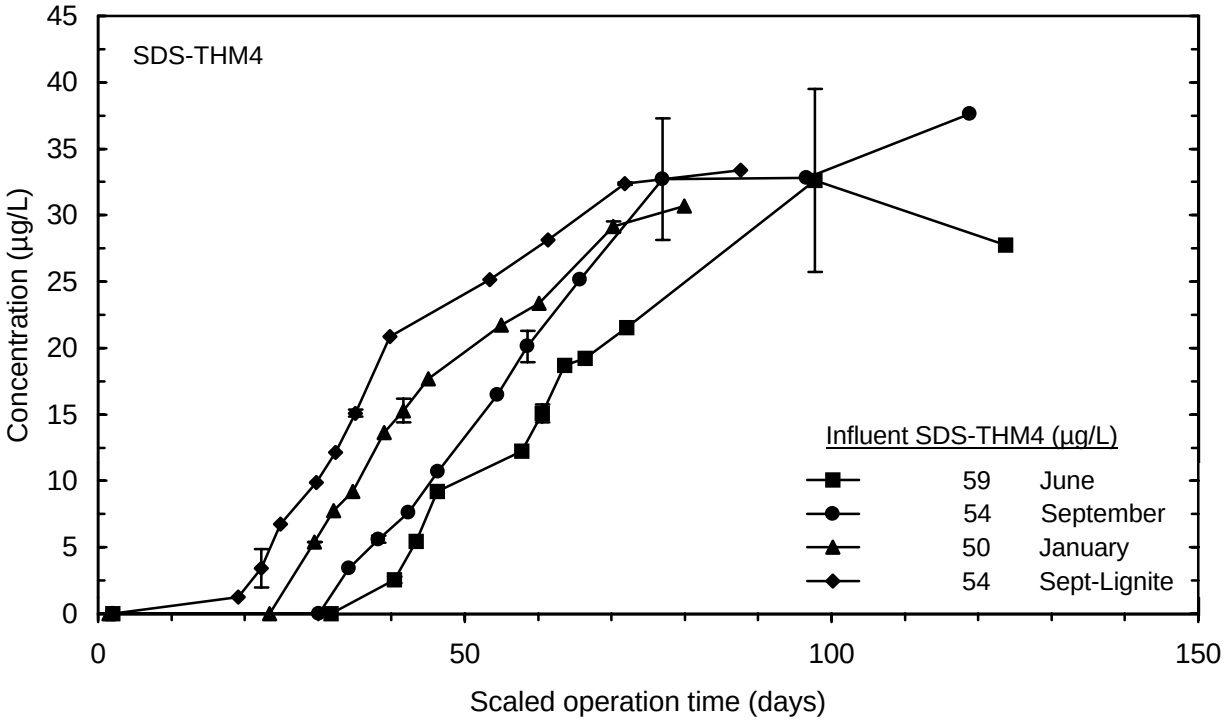


Figure 9 SDS-THM4 breakthrough for 10 minute EBCT contactors for each session

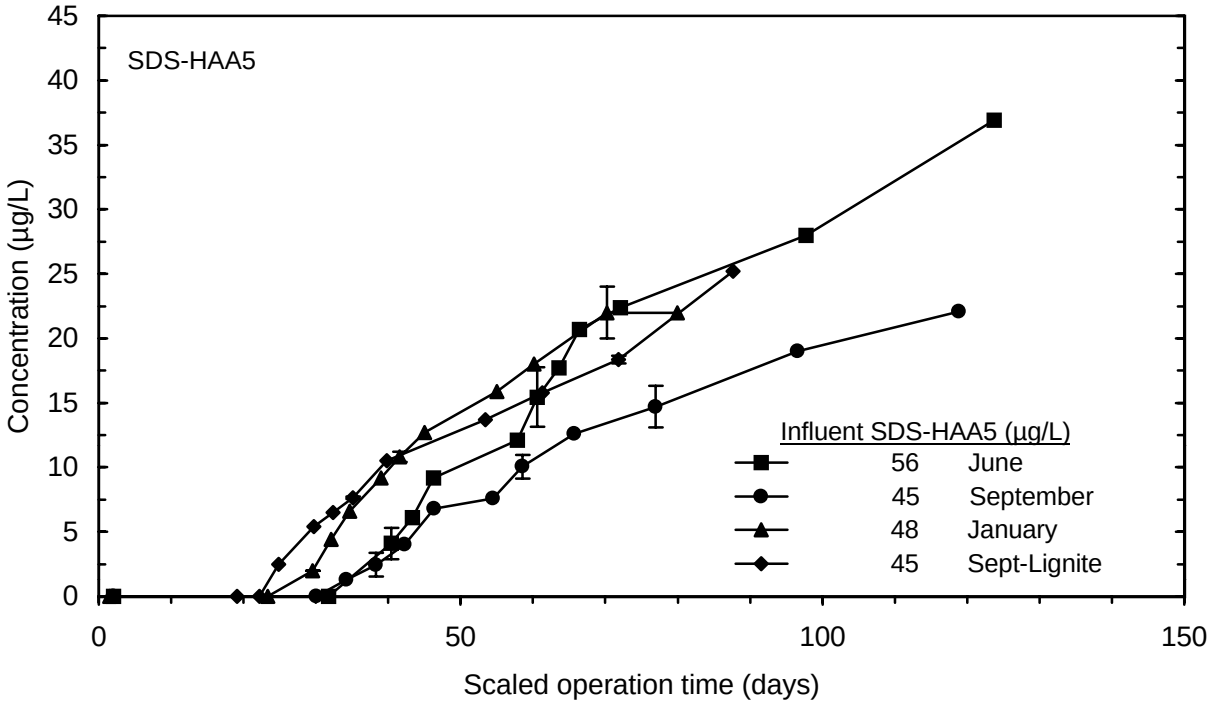


Figure 10 SDS-HAA5 breakthrough for 10 minute EBCT contactors for each session

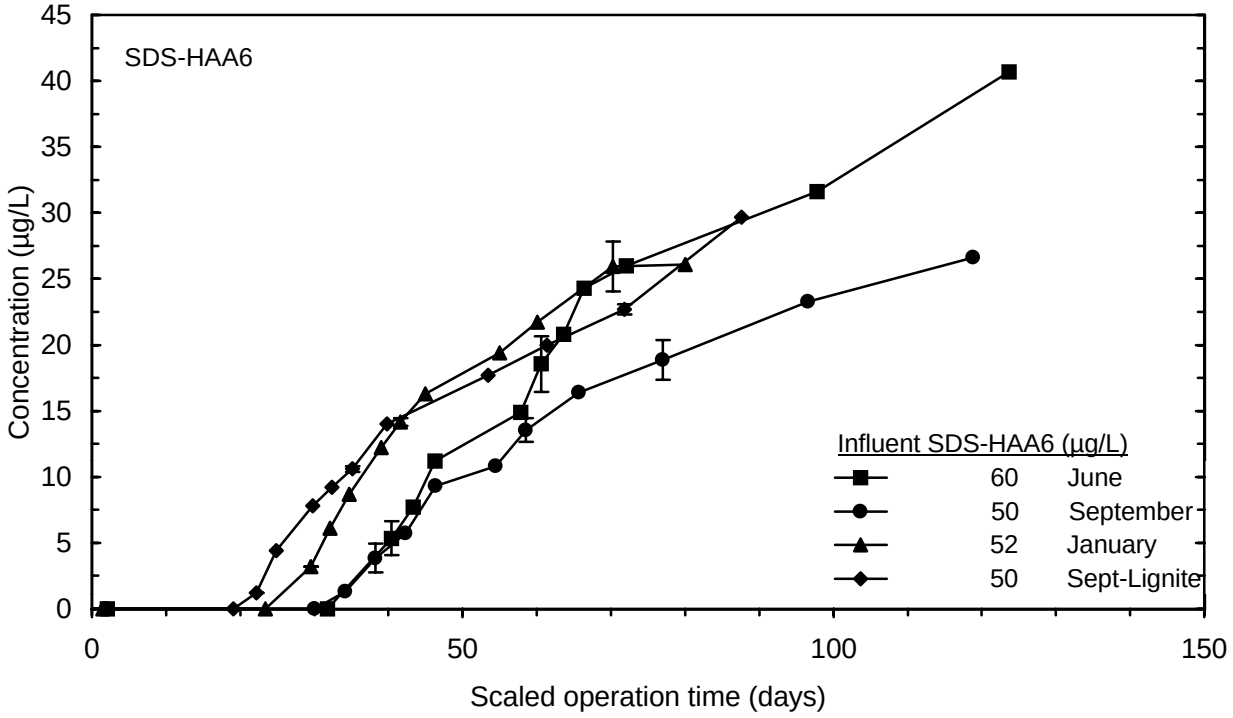


Figure 11 SDS-HAA6 breakthrough for 10 minute EBCT contactors for each session

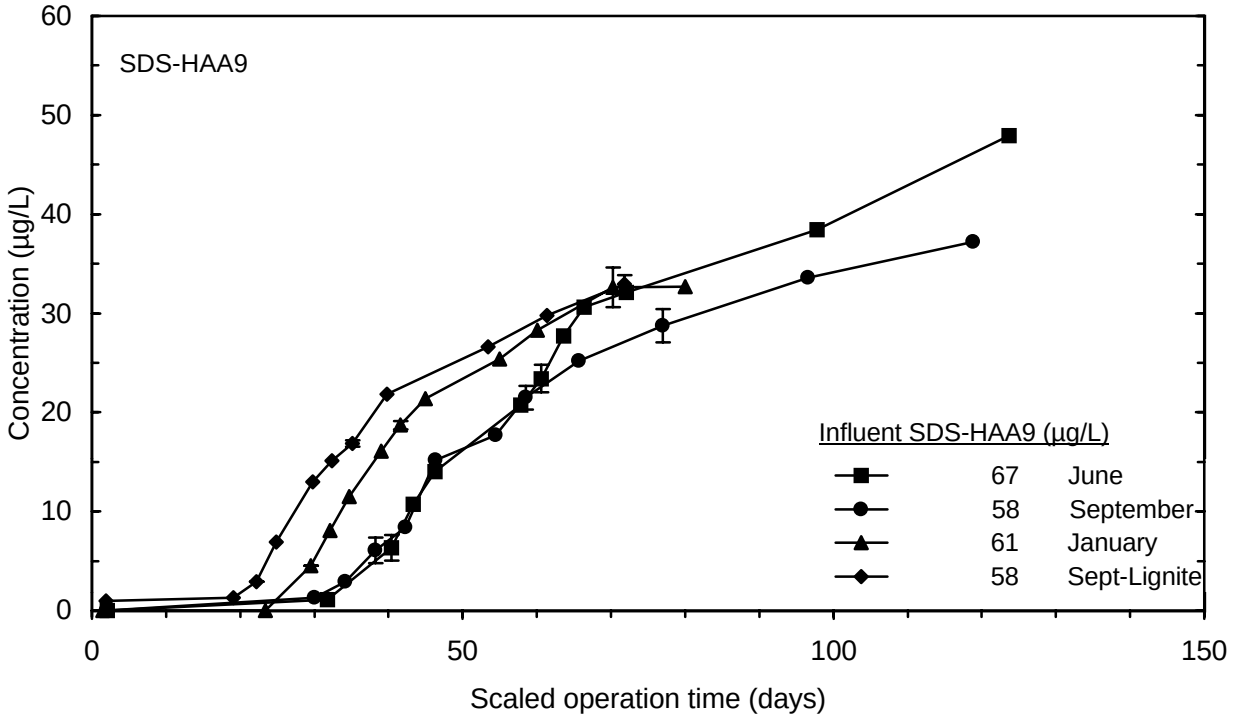


Figure 12 SDS-HAA9 breakthrough for 10 minute EBCT contactors for each session

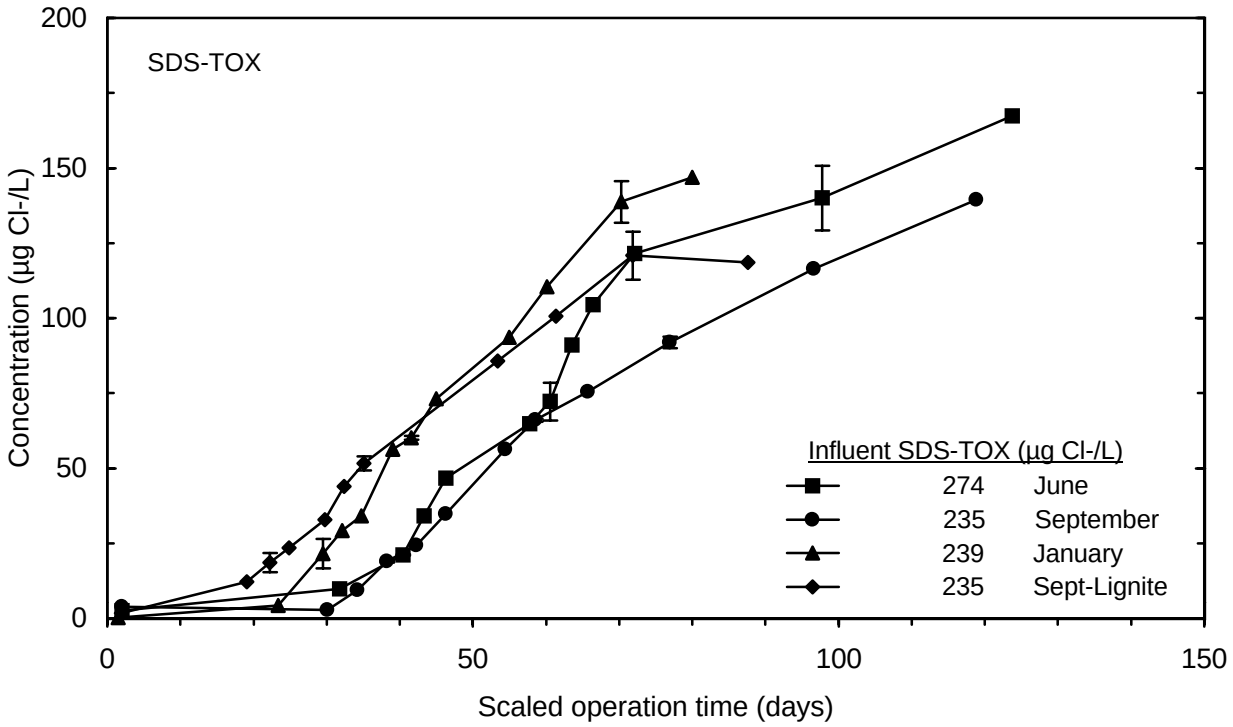


Figure 13 SDS-TOX breakthrough for 10 minute EBCT contactors for each session

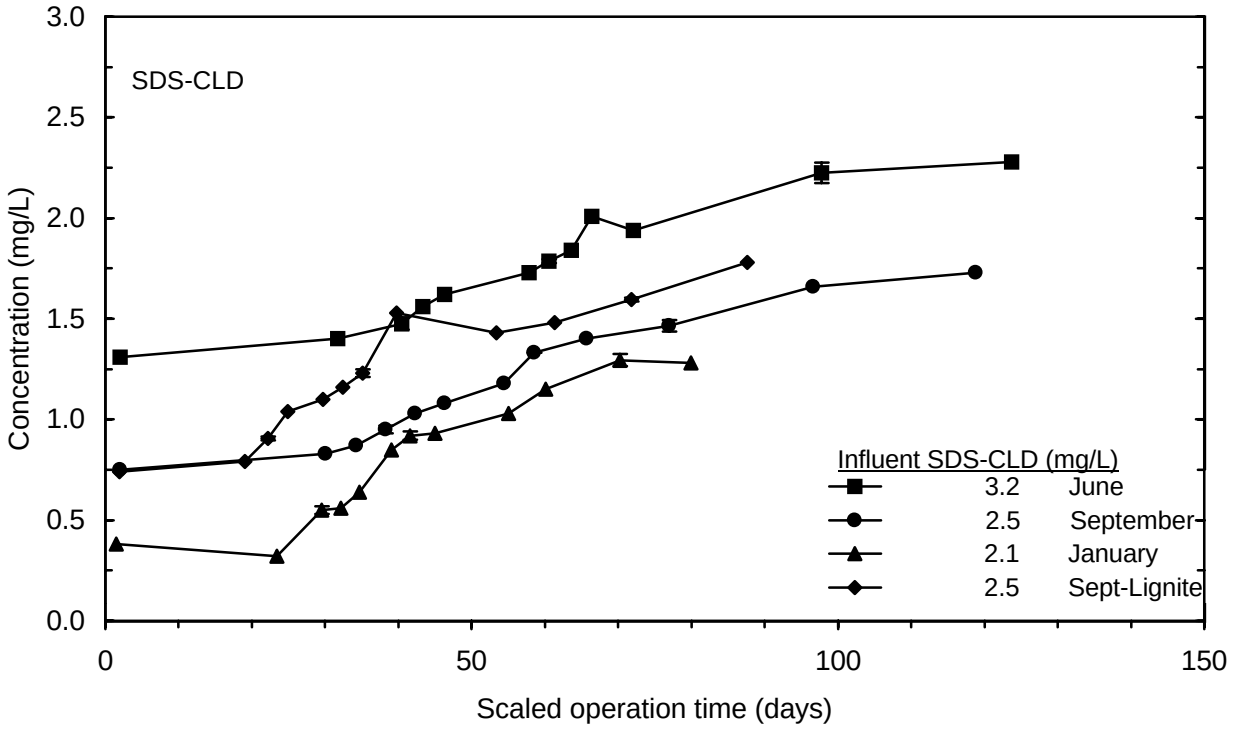


Figure 14 SDS-CLD breakthrough for 10 minute EBCT contactors for each session

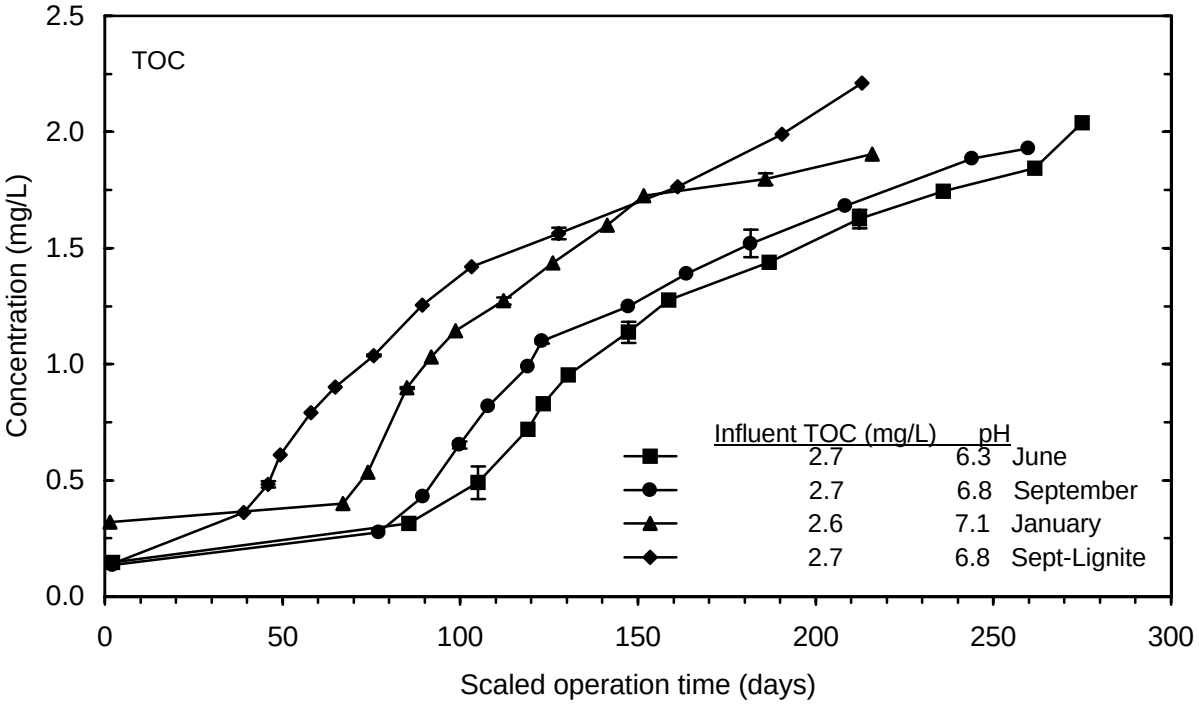


Figure 15 TOC breakthrough for 20 minute EBCT contactors for each session

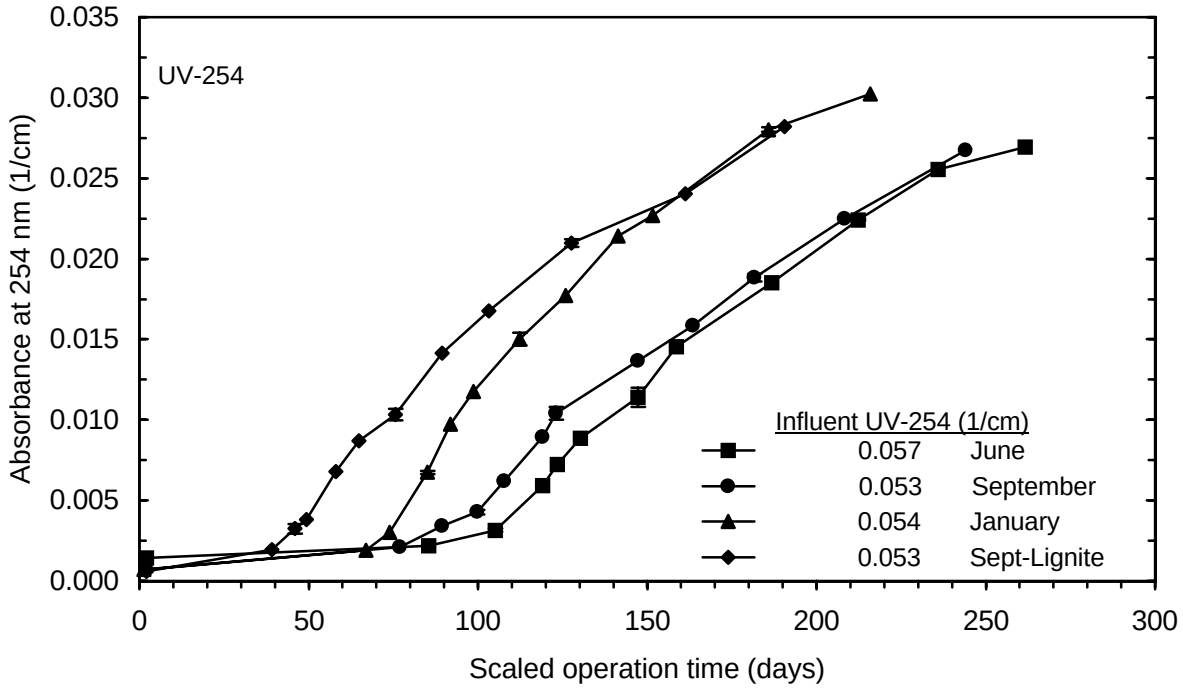


Figure 16 UV-254 breakthrough for 20 minute EBCT contactors for each session

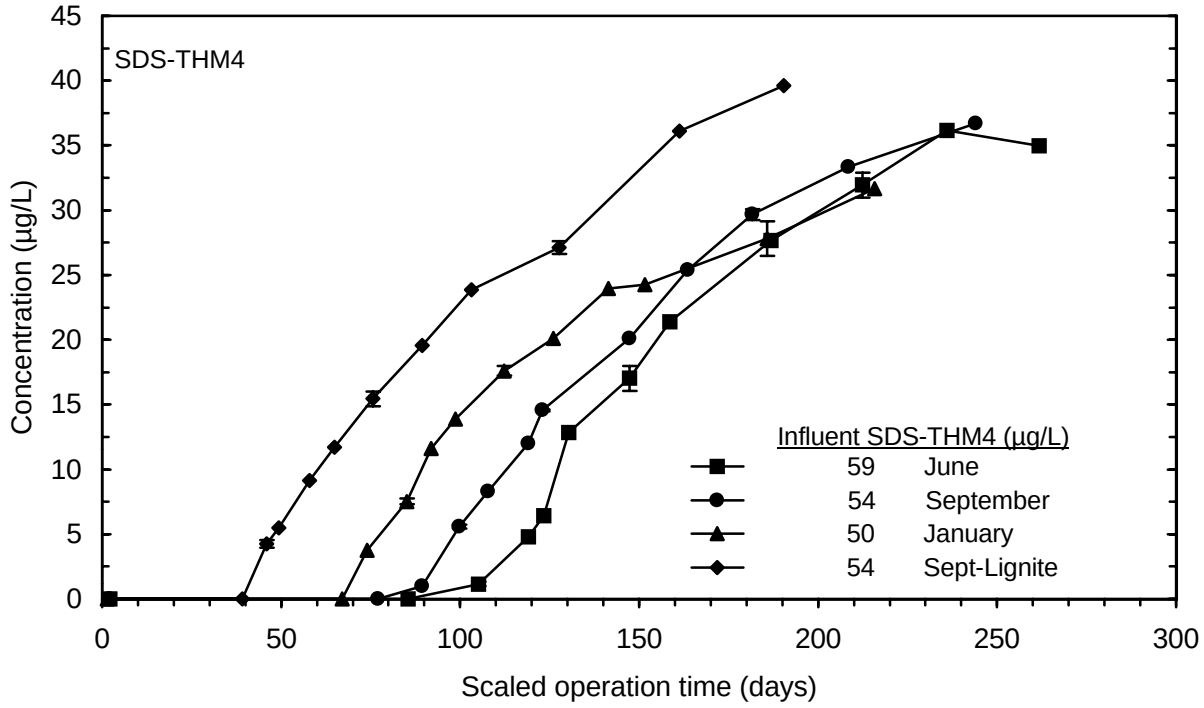


Figure 17 SDS-THM4 breakthrough for 20 minute EBCT contactors for each session

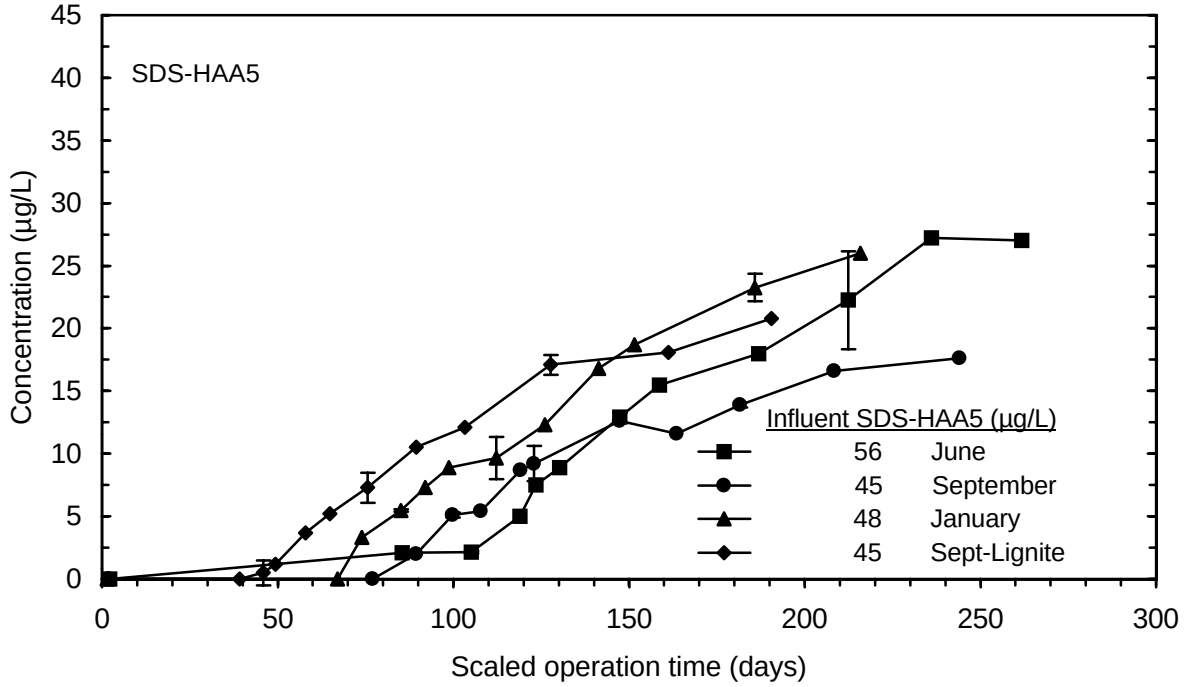


Figure 18 SDS-HAA5 breakthrough for 20 minute EBCT contactors for each session

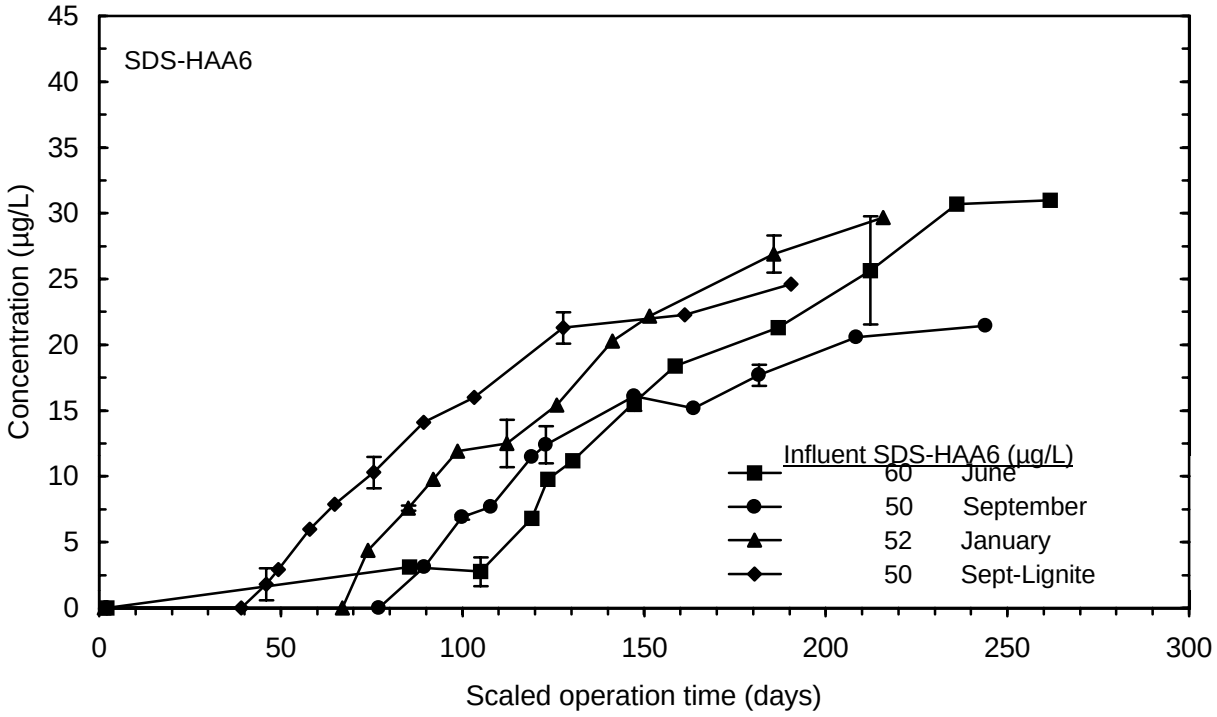


Figure 19 SDS-HAA6 breakthrough for 20 minute EBCT contactors for each session

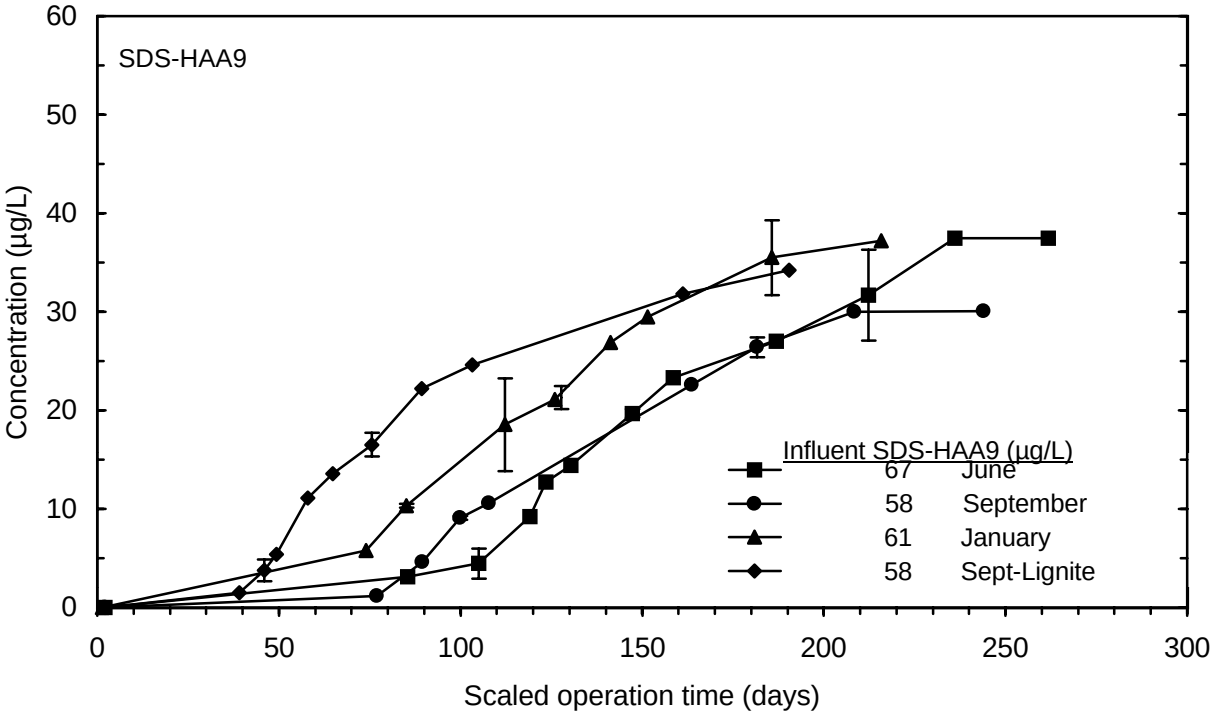


Figure 20 SDS-HAA9 breakthrough for 20 minute EBCT contactors for each session

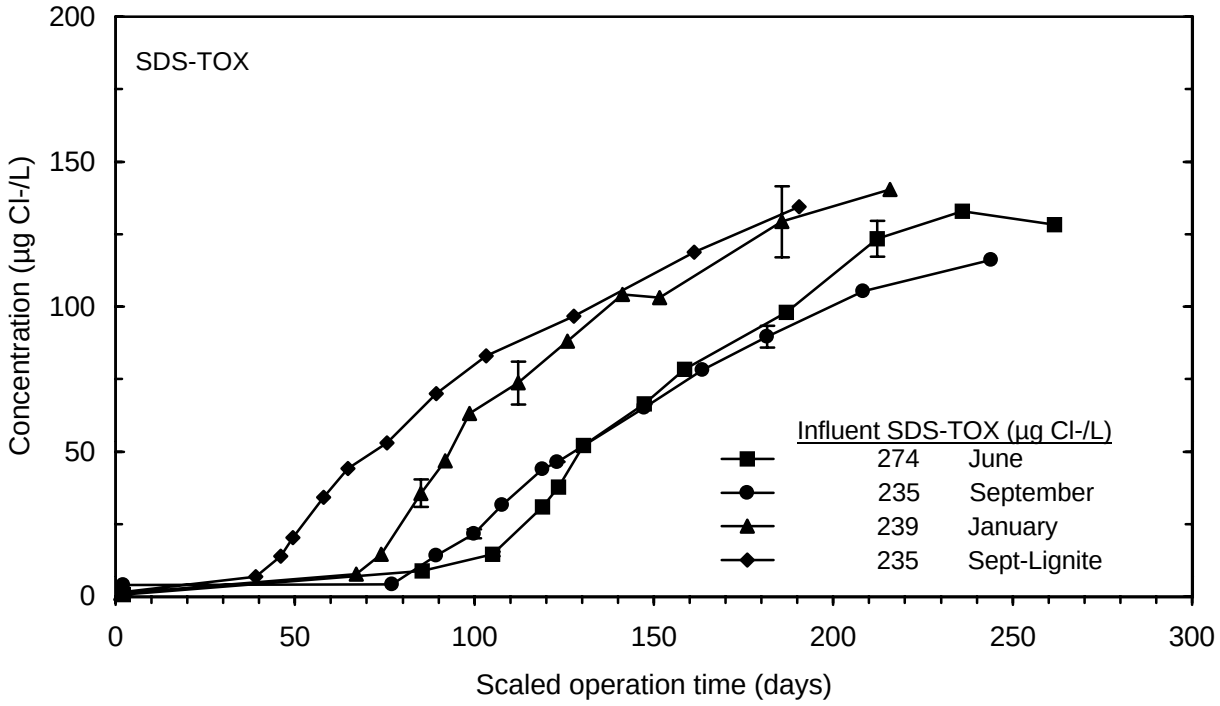


Figure 21 SDS-TOX breakthrough for 20 minute EBCT contactors for each session

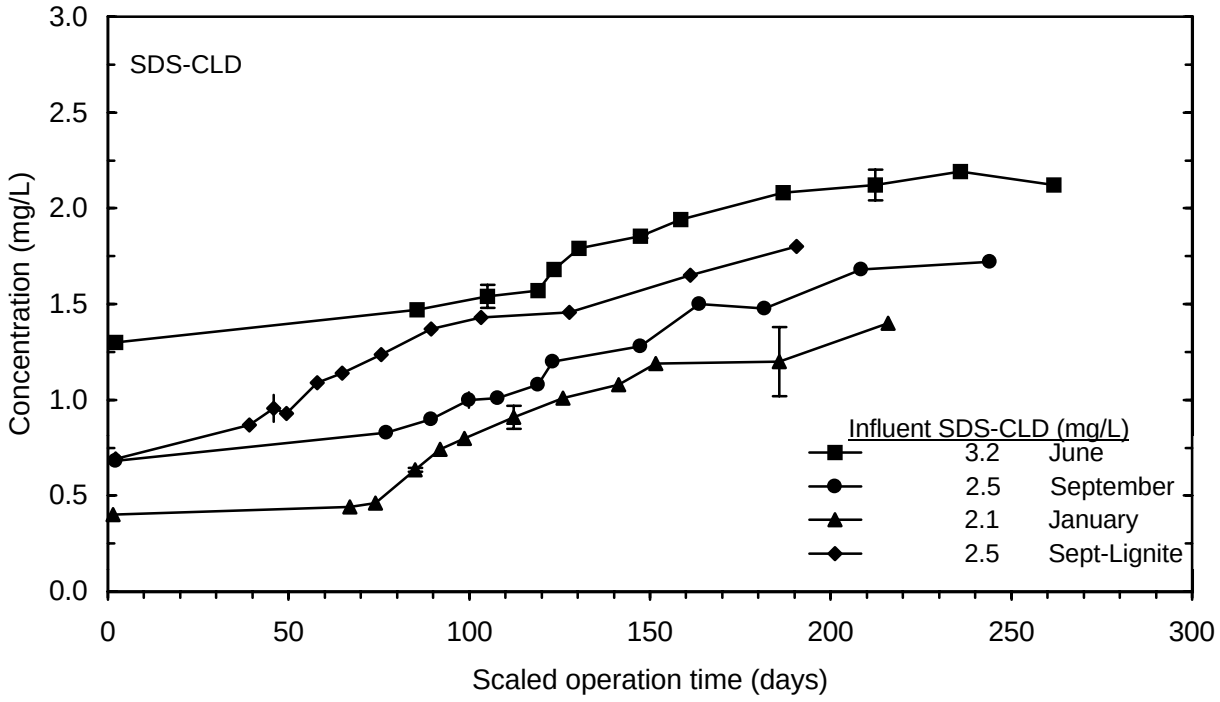


Figure 22 SDS-CLD breakthrough for 20 minute EBCT contactors for each session

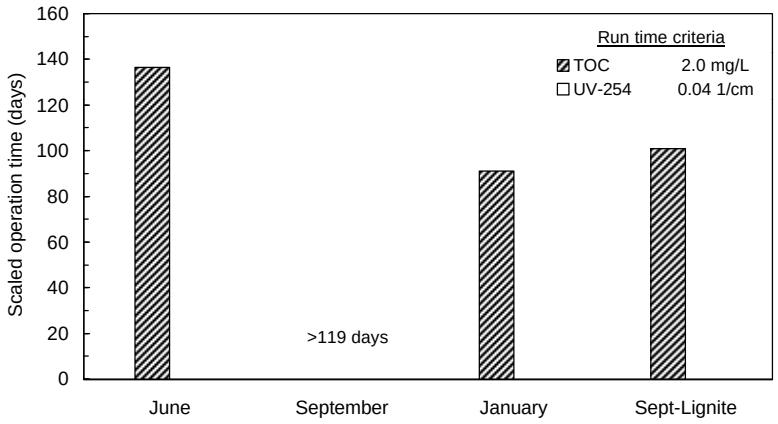


Figure 23 GAC run times based on single contactor breakthrough curves for TOC and UV-254 effluent criteria (high) for each session (10 minute EBCT)

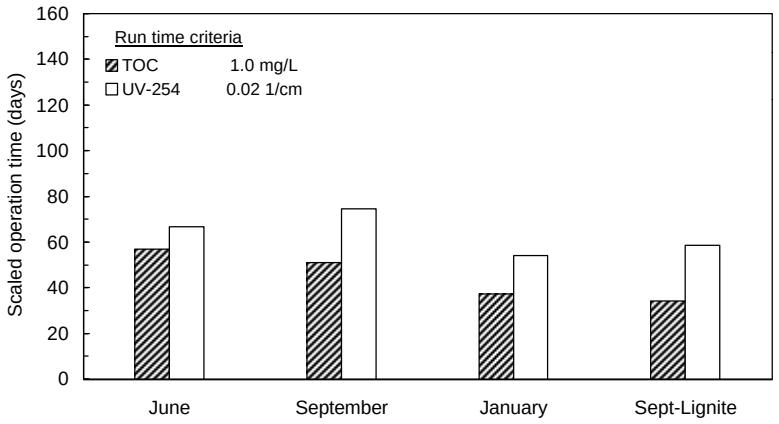


Figure 24 GAC run times based on single contactor breakthrough curves for TOC and UV-254 effluent criteria (low) for each session (10 minute EBCT)

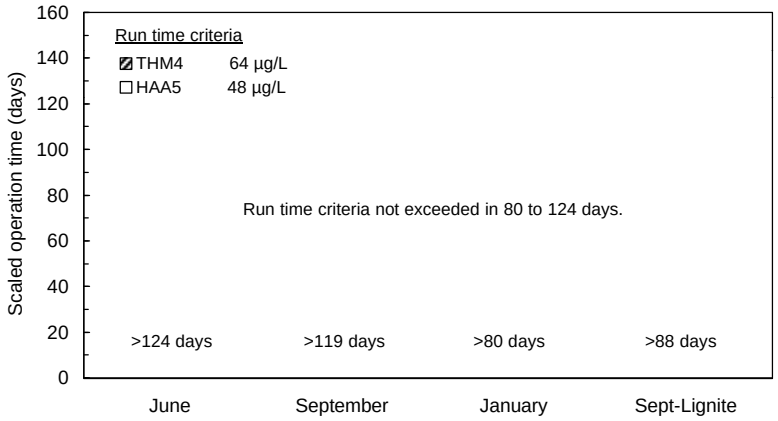


Figure 25 GAC run times based on single contactor breakthrough curves for Stage 1 THM4 and HAA5 effluent criteria for each session (10 minute EBCT)

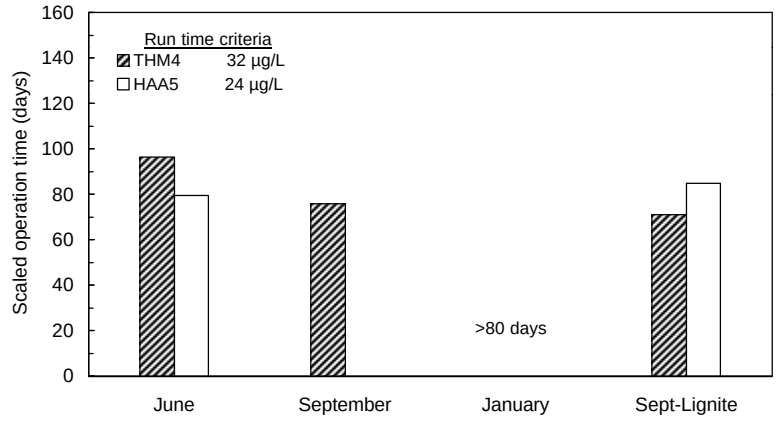


Figure 26 GAC run times based on single contactor breakthrough curves for Stage 2 THM4 and HAA5 effluent criteria for each session (10 minute EBCT)

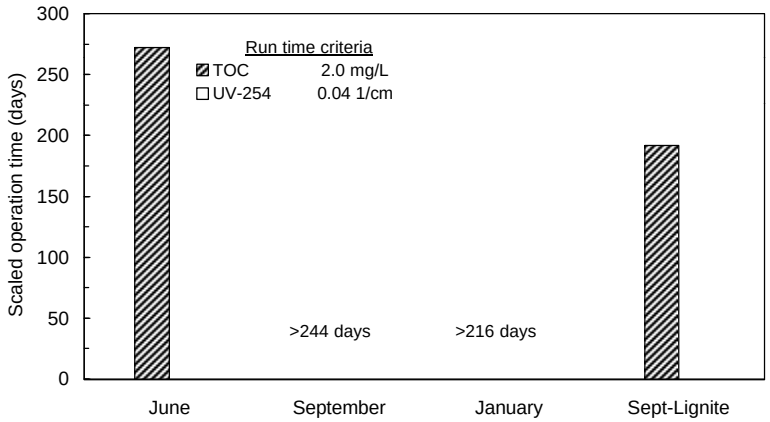


Figure 27 GAC run times based on single breakthrough curves for TOC and UV-254 effluent criteria for each session (20 minute EBCT)

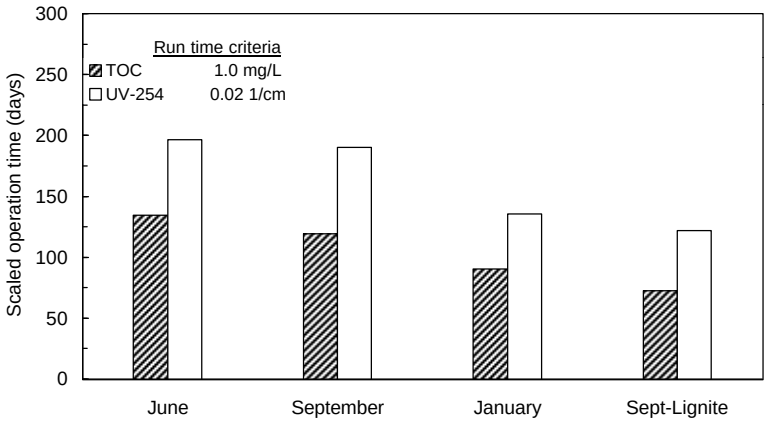


Figure 28 GAC run times based on single breakthrough curves for TOC and UV-254 effluent criteria for each session (20 minute EBCT)

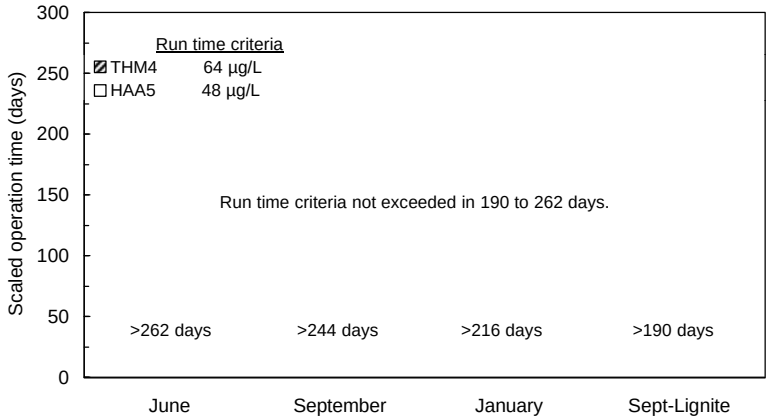


Figure 29 GAC run times based on single breakthrough curves for Stage 1 THM4 and HAA5 effluent criteria for each session (20 minute EBCT)

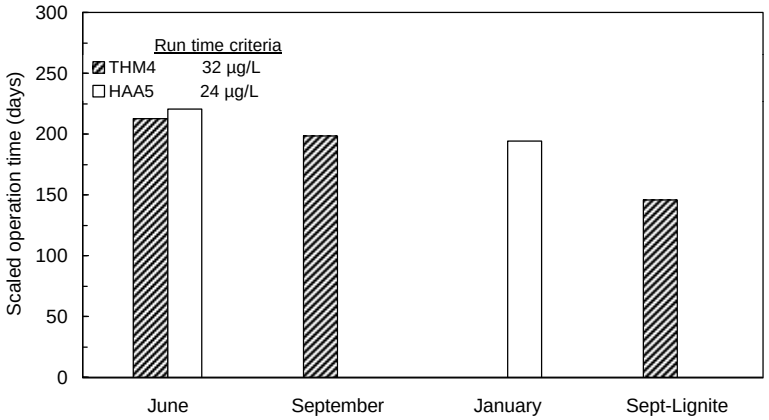


Figure 30 GAC run times based on single breakthrough curves for Stage 2 THM4 and HAA5 effluent criteria for each session (20 minute EBCT)

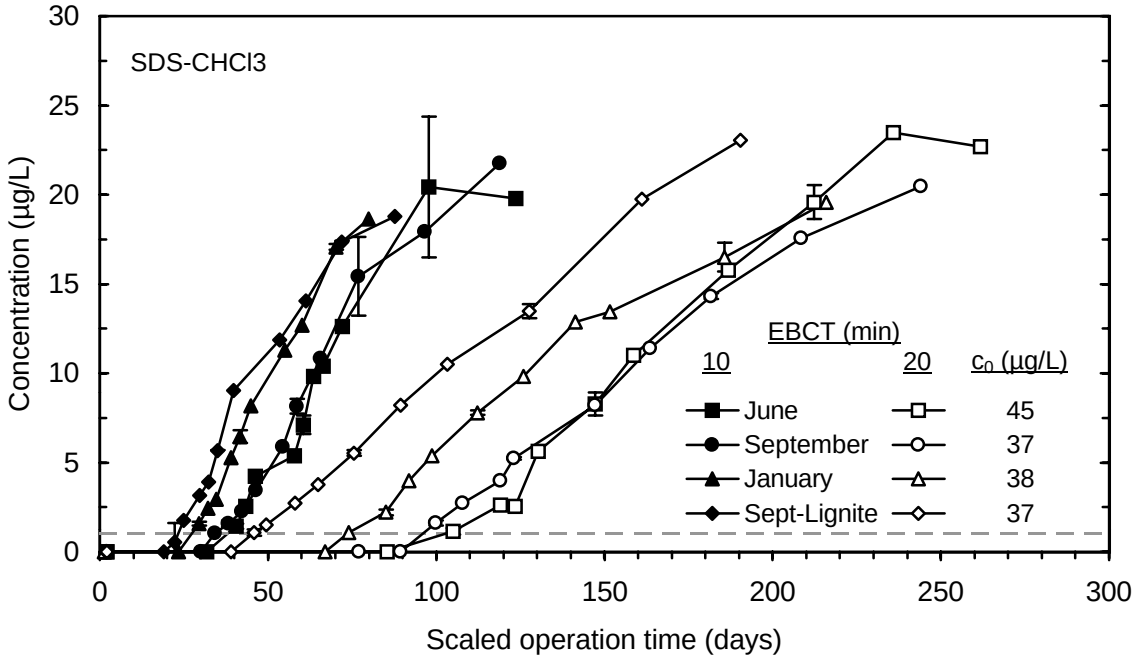


Figure 31 SDS-CHCl3 breakthrough for 10 and 20 minute EBCT contactors for each session

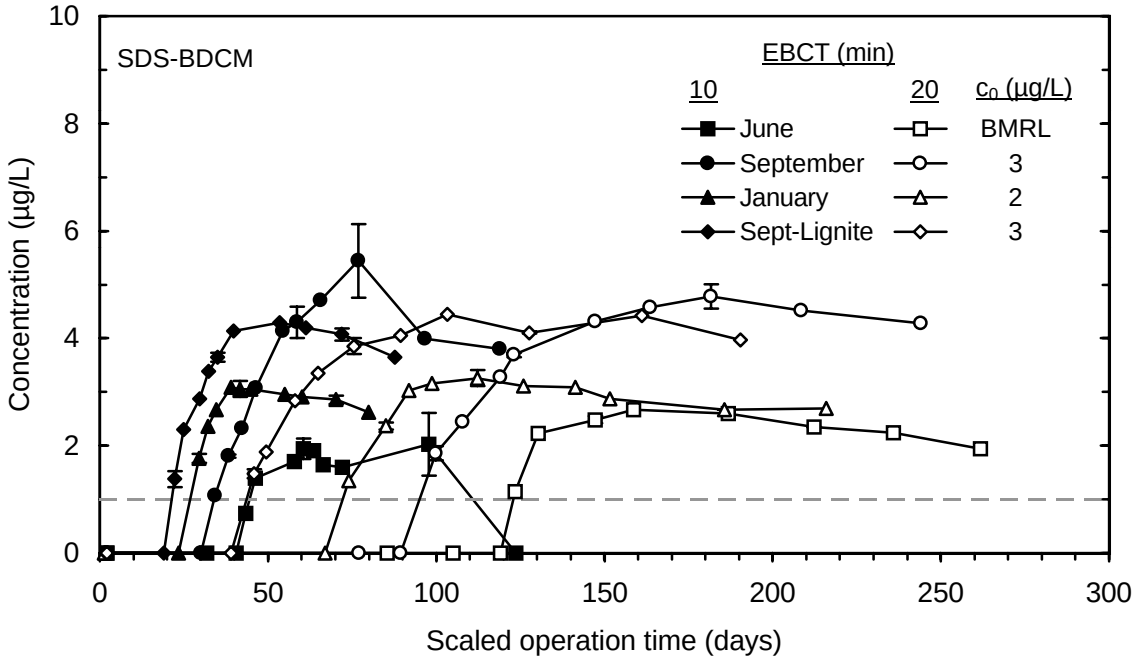


Figure 32 SDS-BDCM breakthrough for 10 and 20 minute EBCT contactors for each session

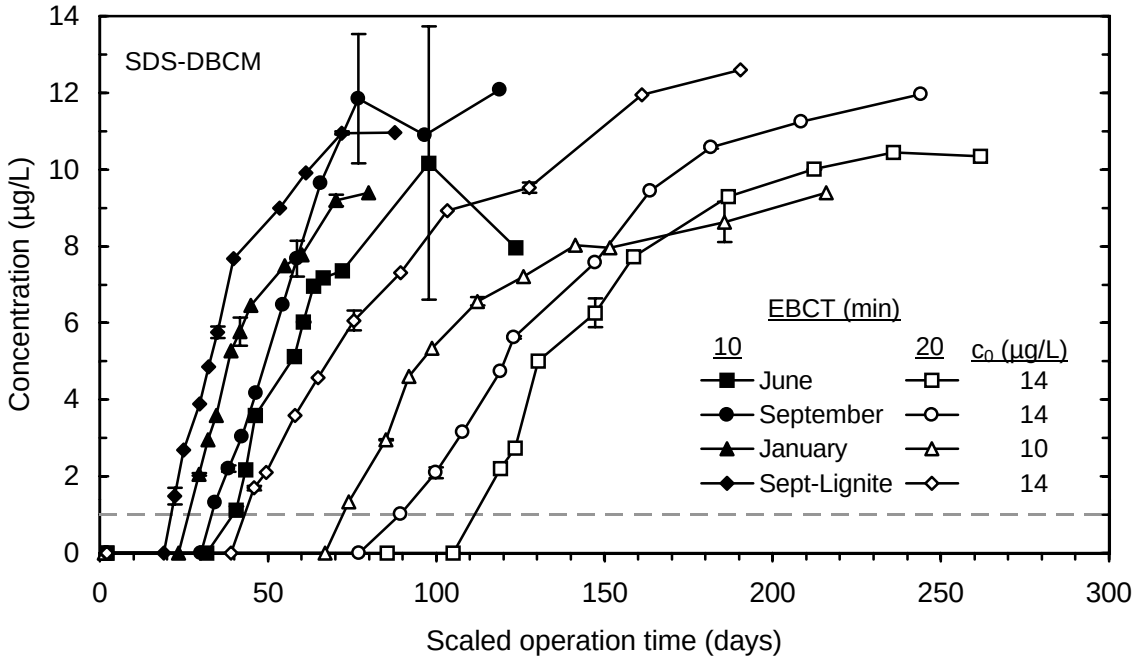


Figure 33 SDS-DBCM breakthrough for 10 and 20 minute EBCT contactors for each session

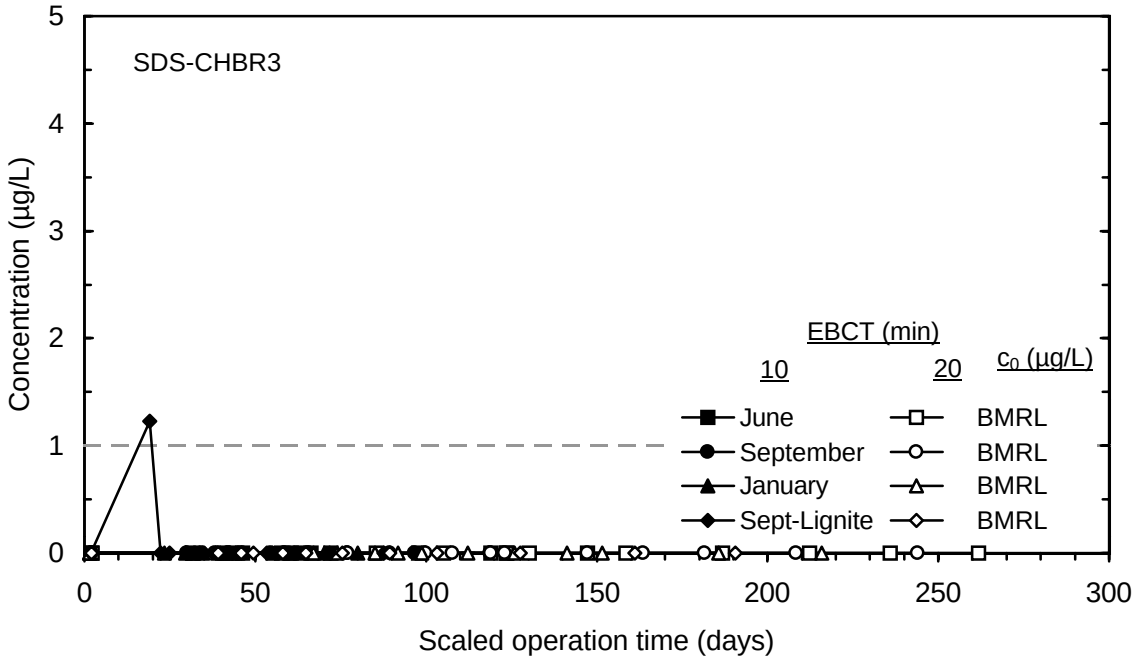


Figure 34 SDS-CHBR3 breakthrough for 10 and 20 minute EBCT contactors for each session

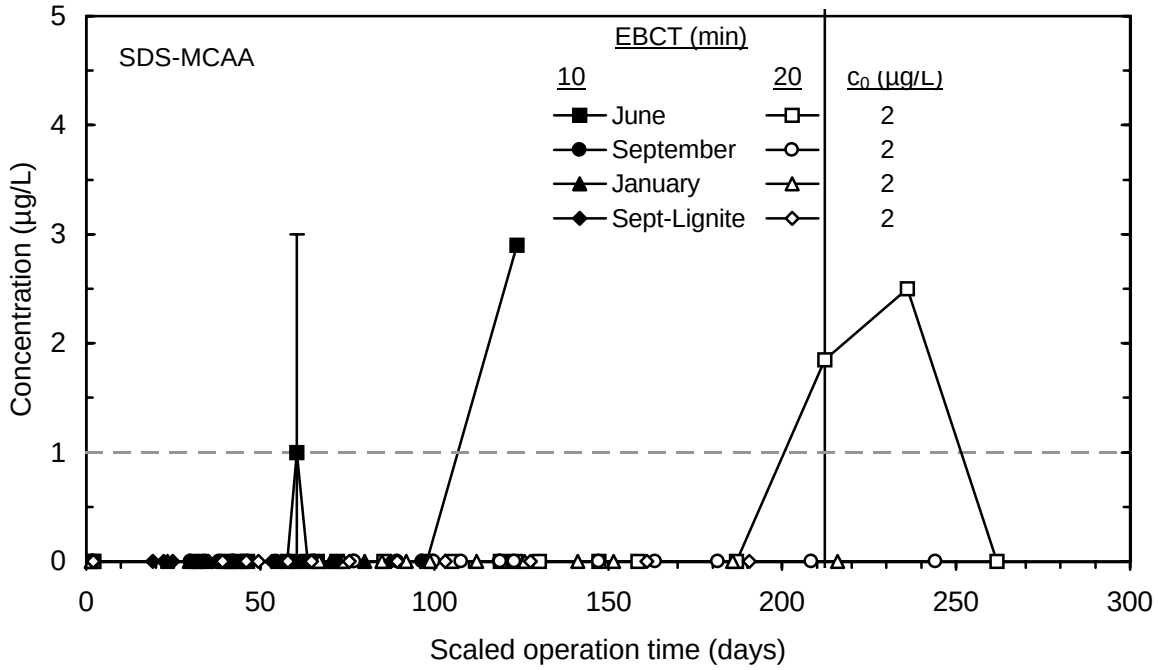


Figure 35 SDS-MCAA breakthrough for 10 and 20 minute EBCT contactors for each session

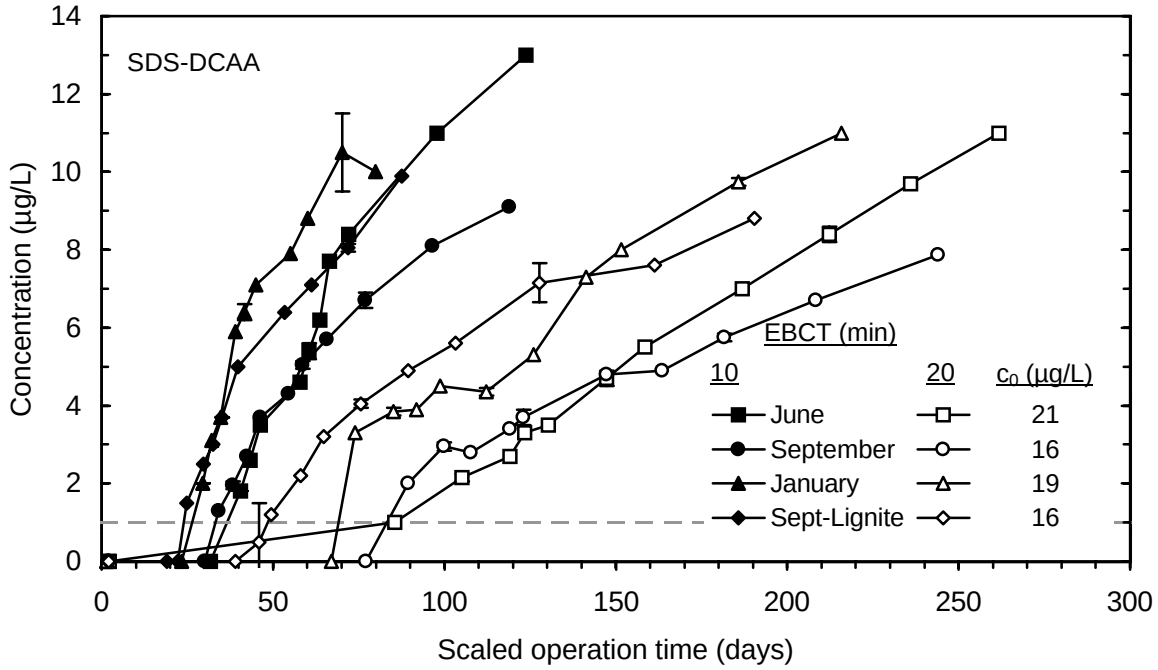


Figure 36 SDS-DCAA breakthrough for 10 and 20 minute EBCT contactors for each session

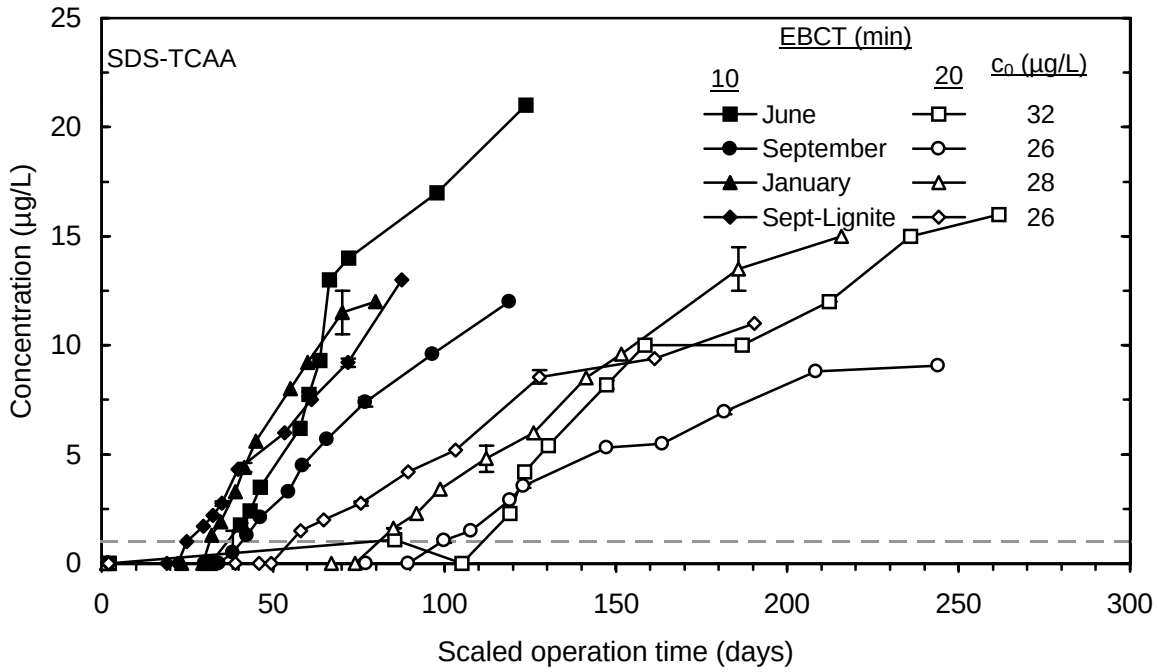


Figure 37 SDS-TCAA breakthrough for 10 and 20 minute EBCT contactors for each session

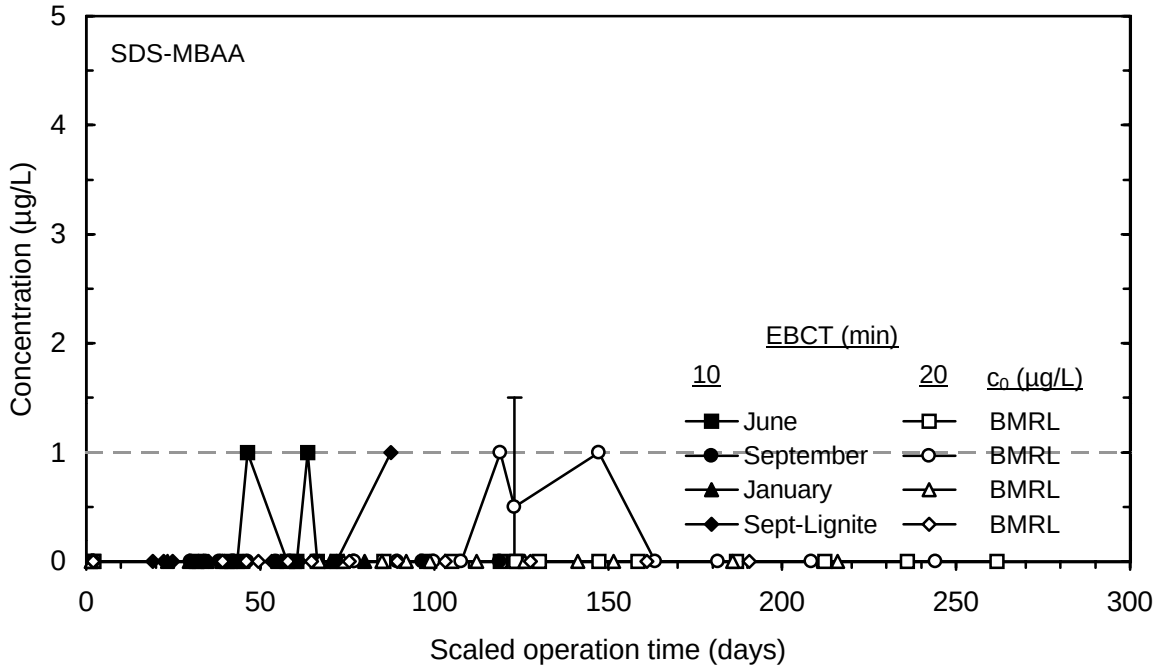


Figure 38 SDS-MBAA breakthrough for 10 and 20 minute EBCT contactors for each session

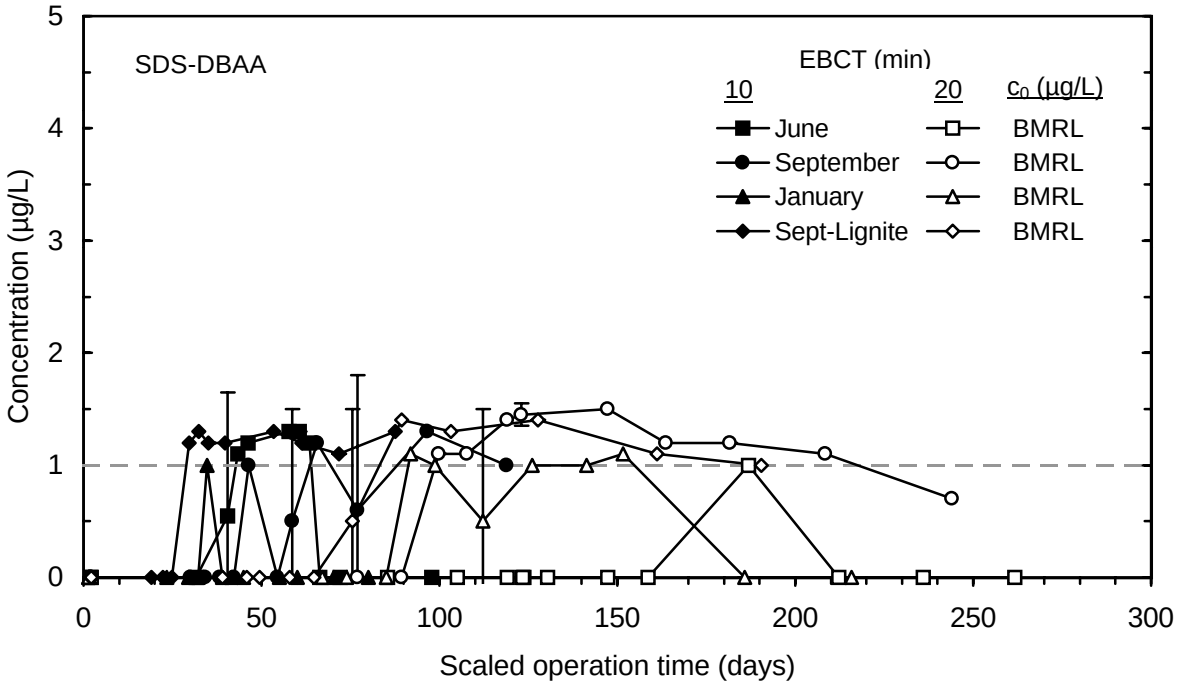


Figure 39 SDS-DBAA breakthrough for 10 and 20 minute EBCT contactors for each session

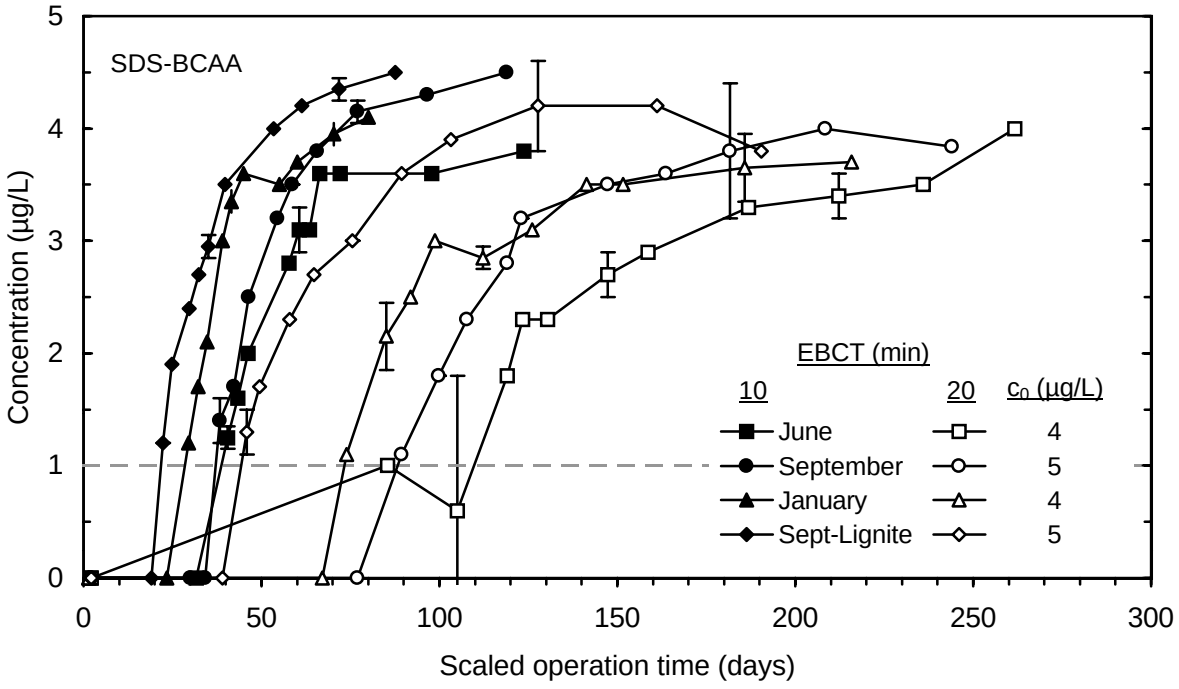


Figure 40 SDS-BCAA breakthrough for 10 and 20 minute EBCT contactors for each session

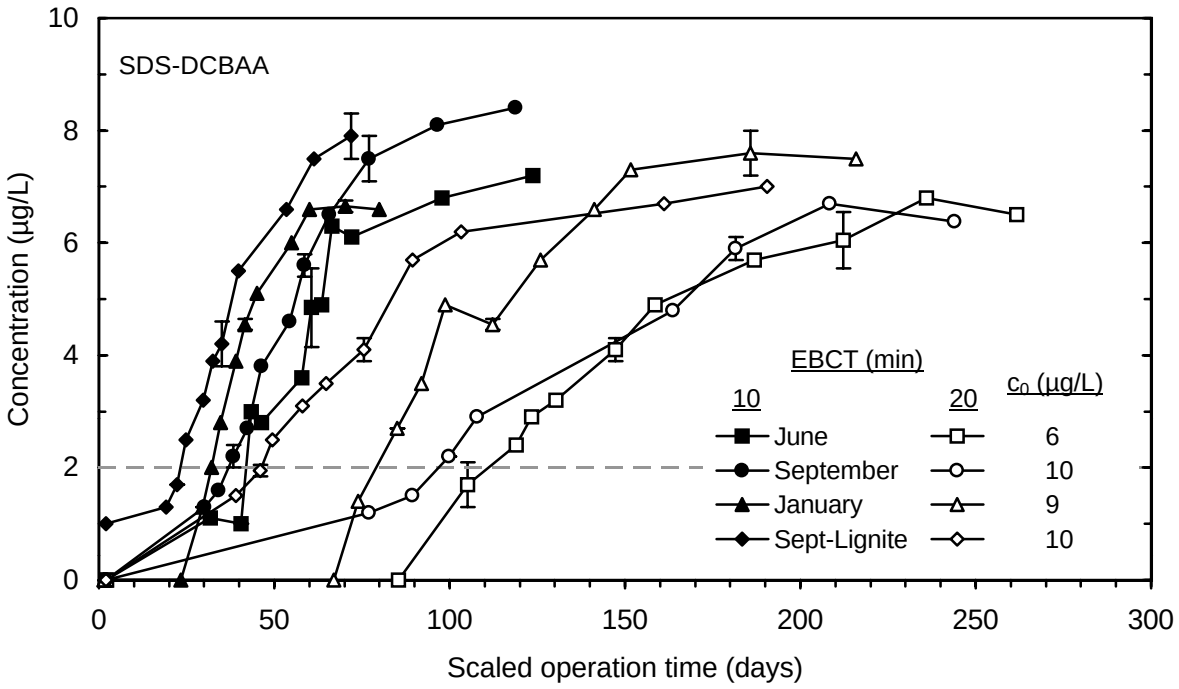


Figure 41 SDS-DCBAA breakthrough for 10 and 20 minute EBCT contactors for each session

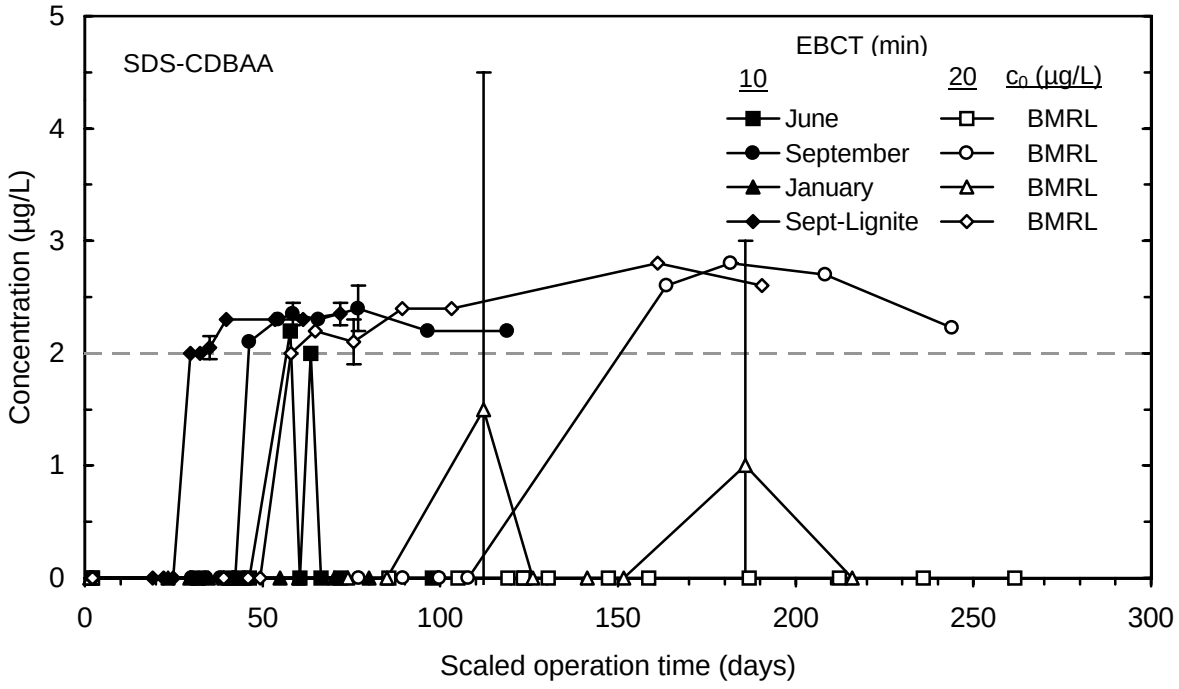


Figure 42 SDS-CDBAA breakthrough for 10 and 20 minute EBCT contactors for each session

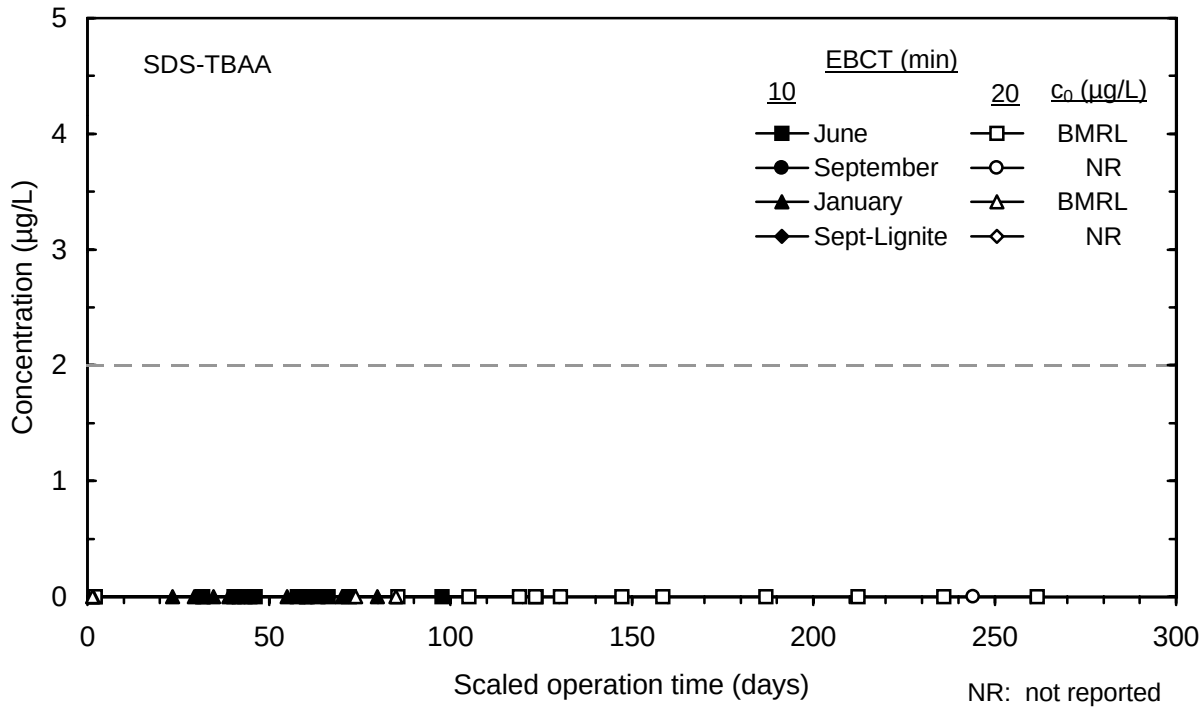


Figure 43 SDS-TBAA breakthrough for 10 and 20 minute EBCT contactors for each session

9 *Impact of GAC Type*

9 Impact of GAC Type

The impact of seasonal variability on GAC performance was evaluated by conducting three RSSCT sessions, using a bituminous coal-based GAC. A fourth RSSCT session was conducted to evaluate the performance of lignite coal-based GAC, and both 10 and 20 minute EBCT contactors were simulated. This session was conducted in parallel with the September bituminous coal-based GAC RSSCTs, so that influent water quality would be equivalent for both GAC types, and a direct comparison of the results could be made. Figures 7 through 43, and Tables 22, 23, 30, and 31, show that the lignite coal-based GAC did not perform as well as the bituminous coal-based GAC, when compared on an equal volume basis (i.e., EBCT). The run times to various criteria were 7 to 65 percent shorter. However, the lignite coal-based GAC has a bed density that was measured at 23 percent lower than the bituminous coal-based GAC. A performance comparison of these two GACs on a weight basis is very informative, as GAC is purchased by weight. To do so, the specific throughput can be used, expressed as volume of water treated per weight of GAC (L/g).

Although the bed density of the lignite coal-based GAC was measured at 23 percent lower than that for bituminous coal-based GAC, based on the manufacturers' specifications for the bed density of full-scale GAC (31 and 25 lb/ft^3 for bituminous and lignite coal-based GAC, respectively) the bed density of lignite coal-based GAC is 19 percent lower than that for bituminous coal based GAC. The laboratory measured bed density of ground GAC was used for calculations within this chapter, and the manufacturers' specifications for GAC bed densities were used for the cost analysis in Chapter 15.

For a 10 minute EBCT, Figures 44 through 51 compare the performance of the two GACs on a specific throughput basis. The specific throughput for the lignite run to most GAC effluent criteria were slightly shorter (ranging from 1 to 13 percent). The specific throughput to the placeholder for Stage 2 THM4 MCL during the lignite run was 21 percent greater than that for the bituminous run. As can be seen in Figure 46, the bituminous run outperformed the lignite run during the early to middle stages of the breakthrough. Towards the end, the curves crossed and performance of the lignite run was superior. The placeholder for Stage 2 THM4 MCL was exceeded during this time period.

On average, the specific throughput for the 20 minute EBCT contactor lignite run was 16 percent lower than that for the bituminous run (Figures 52 through 59). The specific throughput to the placeholder for Stage 2 THM4 MCL, however, was only 5 percent shorter for the lignite run. Comparisons between the breakthrough of all DBP species analyzed between lignite and bituminous GAC runs are shown in Figures 60 through 71. SDS-TBAA is not shown because all results were not reportable.

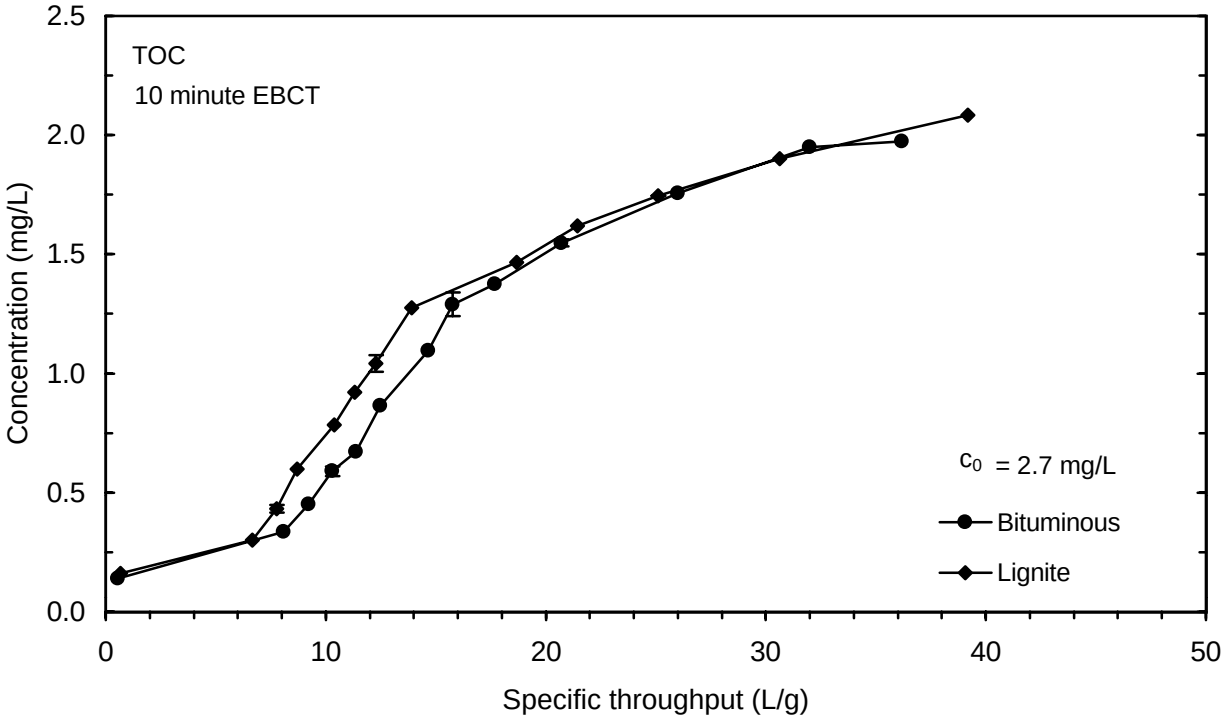


Figure 44 Impact of GAC type on TOC breakthrough for 10 minute EBCT contactors

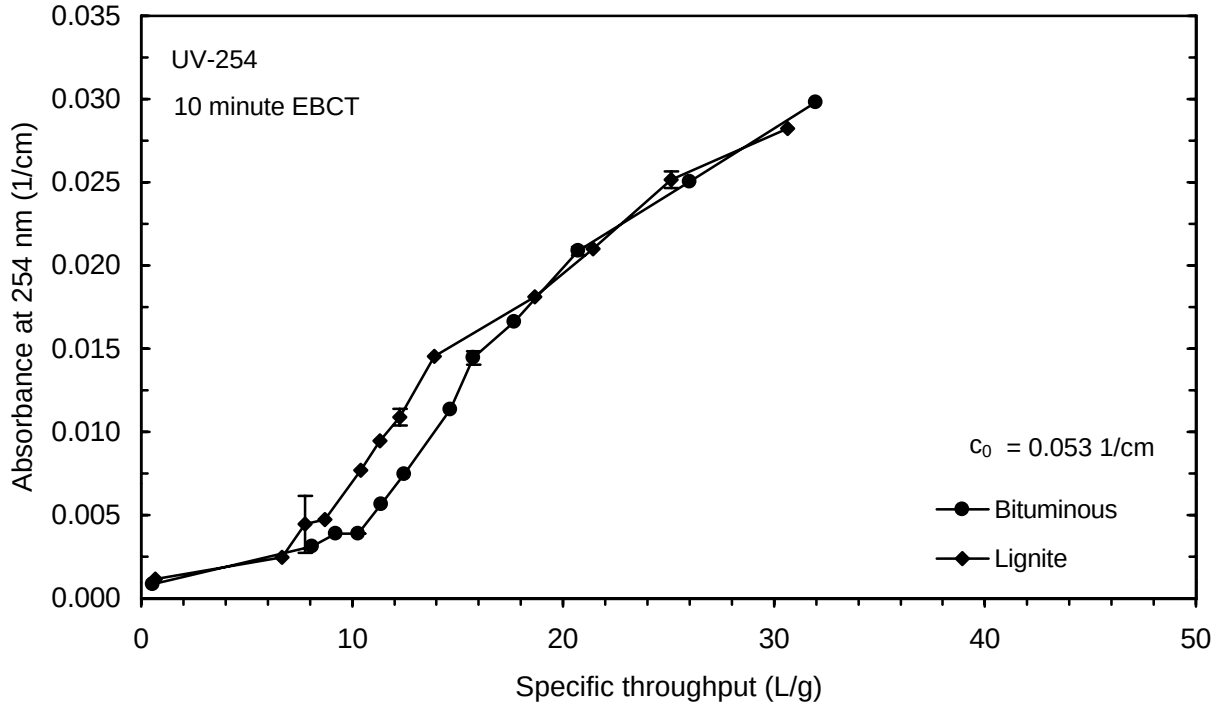


Figure 45 Impact of GAC type on UV-254 breakthrough for 10 minute EBCT contactors

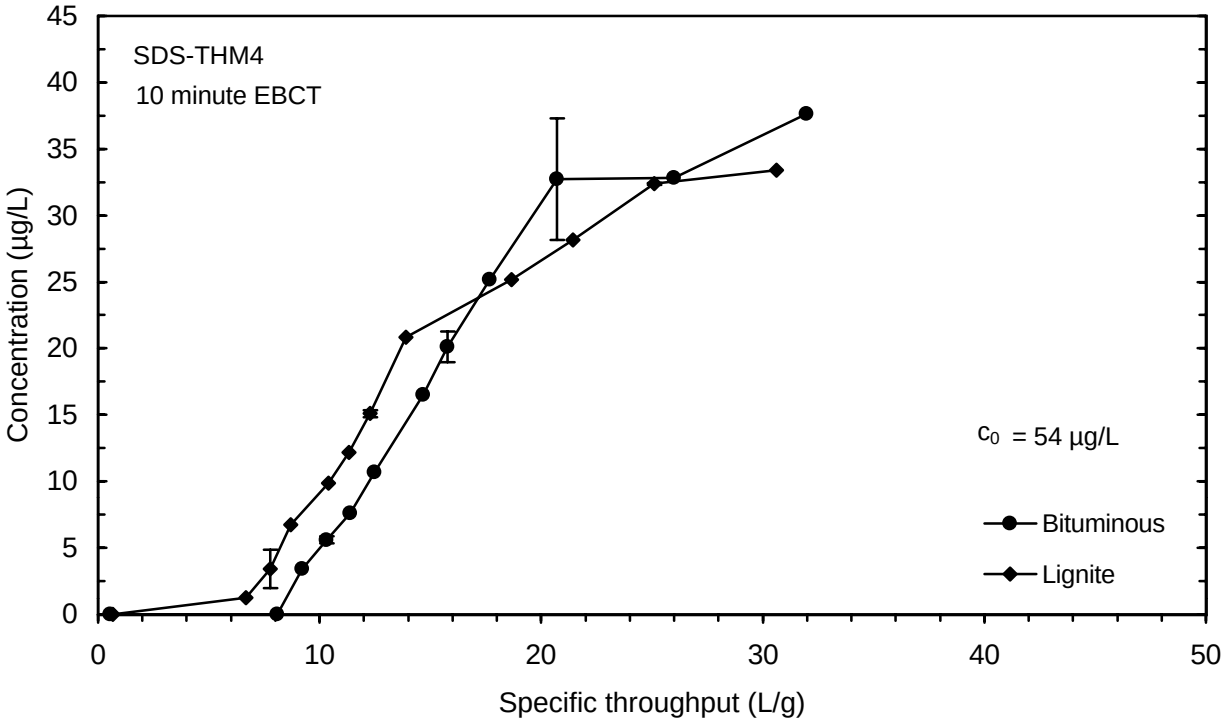


Figure 46 Impact of GAC type on SDS-THM4 breakthrough for 10 minute EBCT contactors

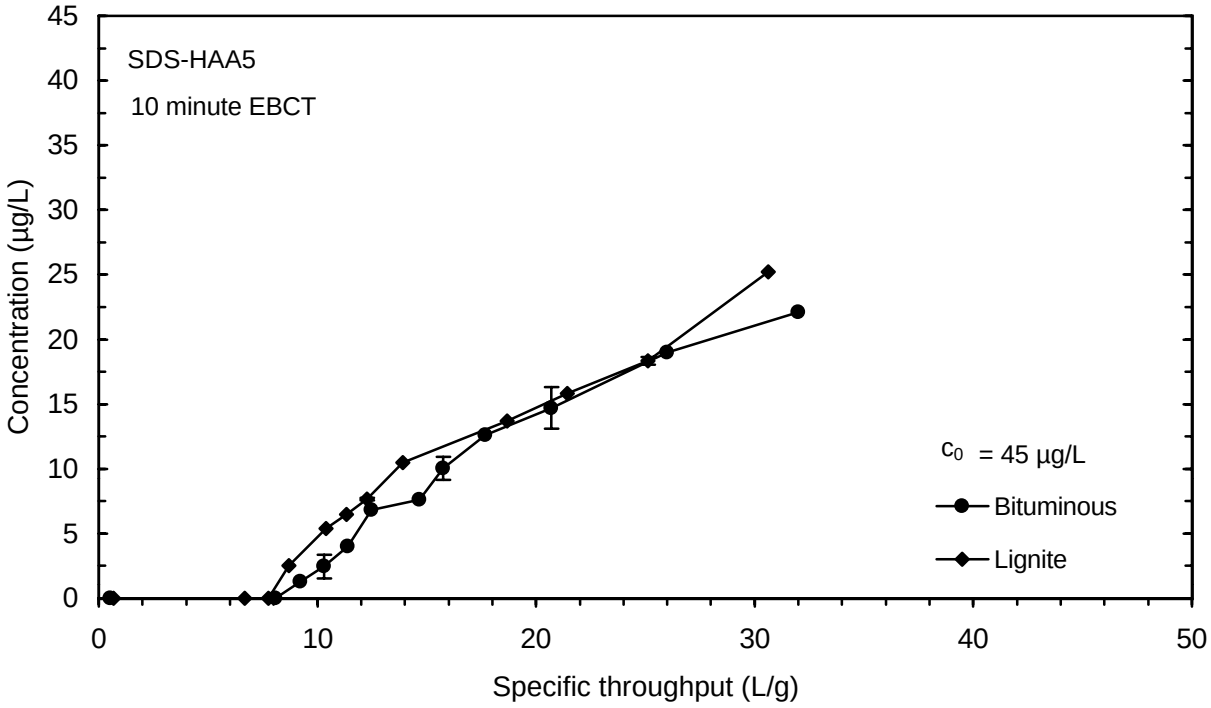


Figure 47 Impact of GAC type on SDS-HAA5 breakthrough for 10 minute EBCT contactors

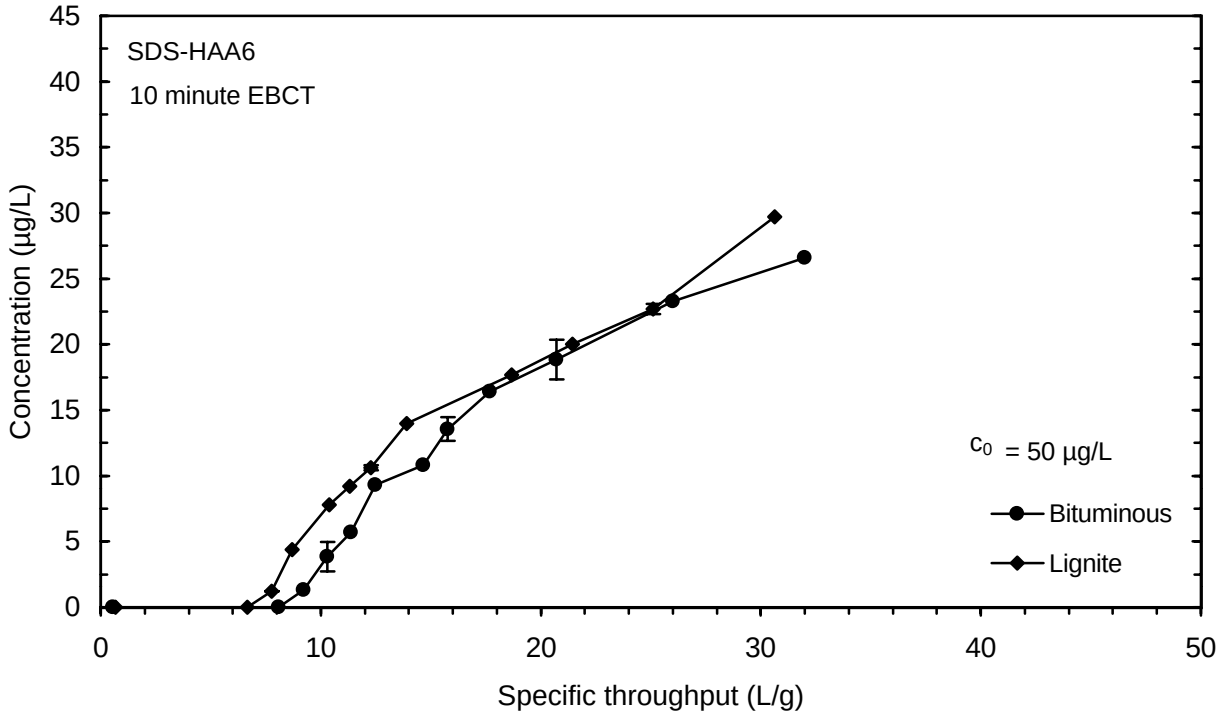


Figure 48 Impact of GAC type on SDS-HAA6 breakthrough for 10 minute EBCT contactors

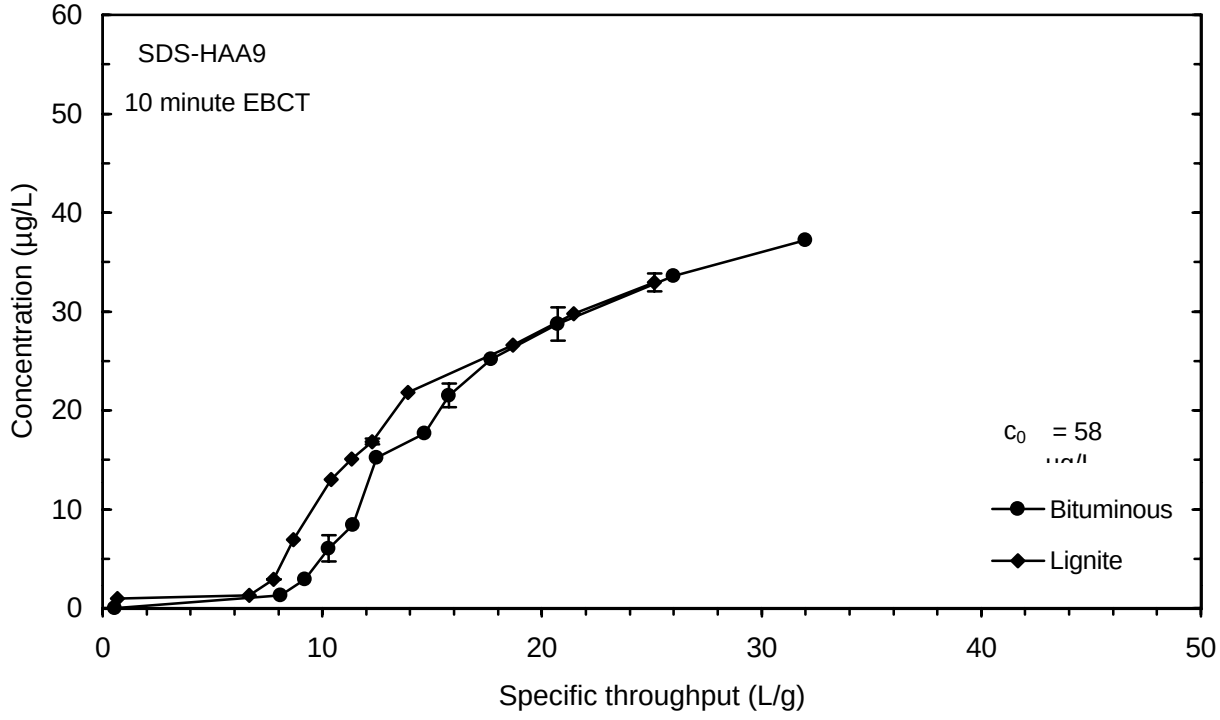


Figure 49 Impact of GAC type on SDS-HAA9 breakthrough for 10 minute EBCT contactors

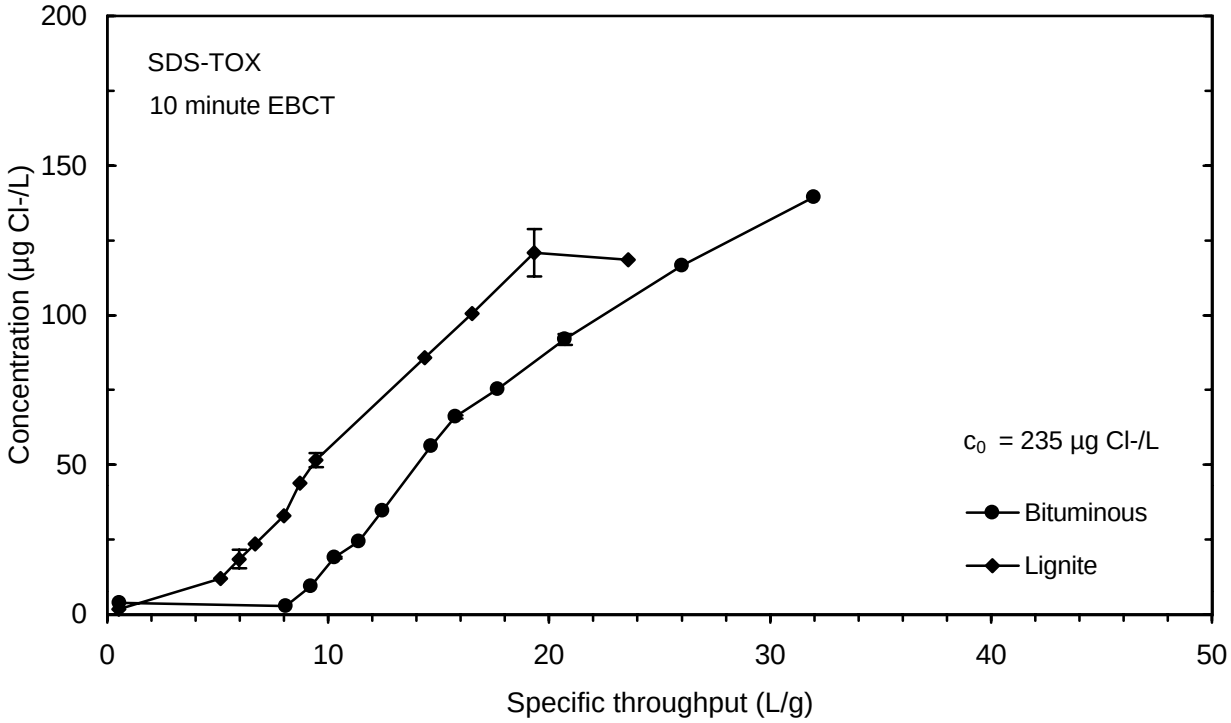


Figure 50 Impact of GAC type on SDS-TOX breakthrough for 10 minute EBCT contactors

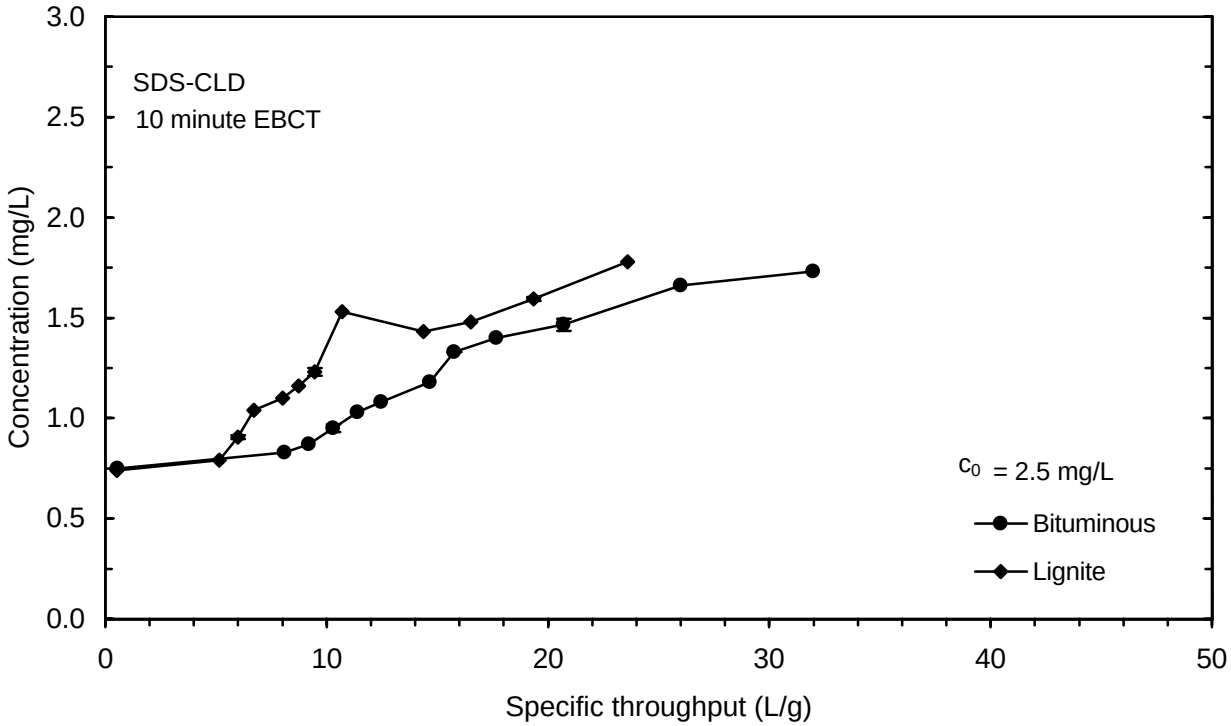


Figure 51 Impact of GAC type on SDS-CLD breakthrough for 10 minute EBCT contactors

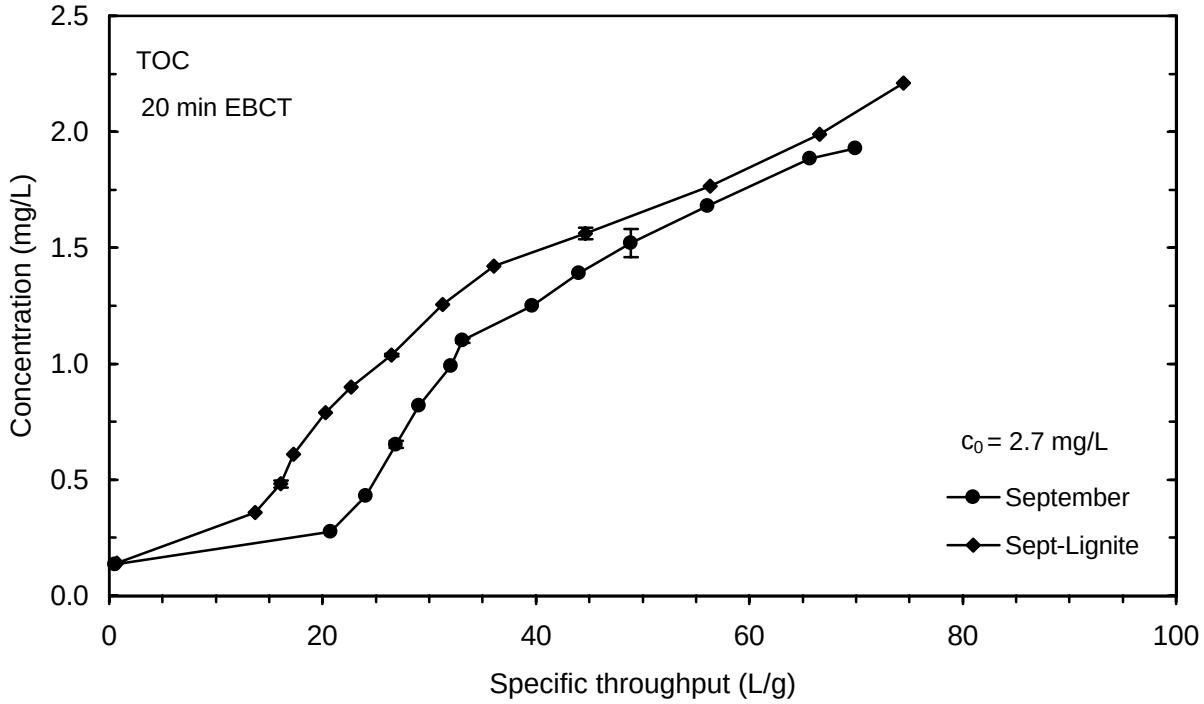


Figure 52 Impact of GAC type on TOC breakthrough for 20 minute EBCT contactors

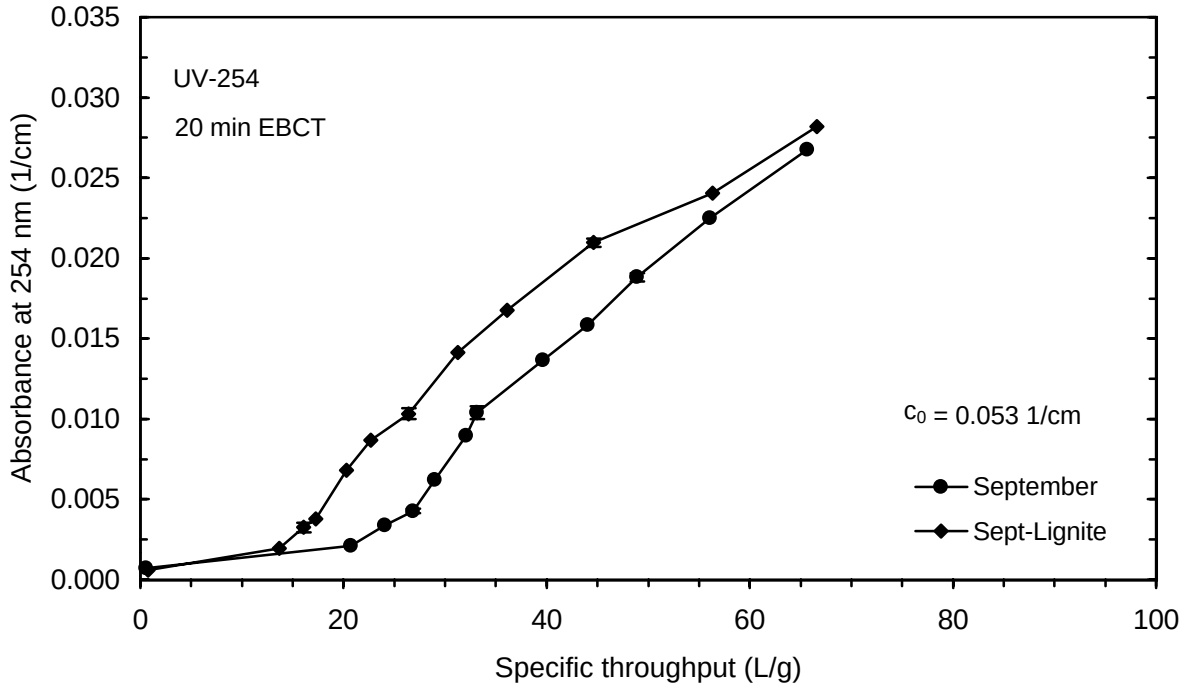


Figure 53 Impact of GAC type on UV-254 breakthrough for 20 minute EBCT contactors

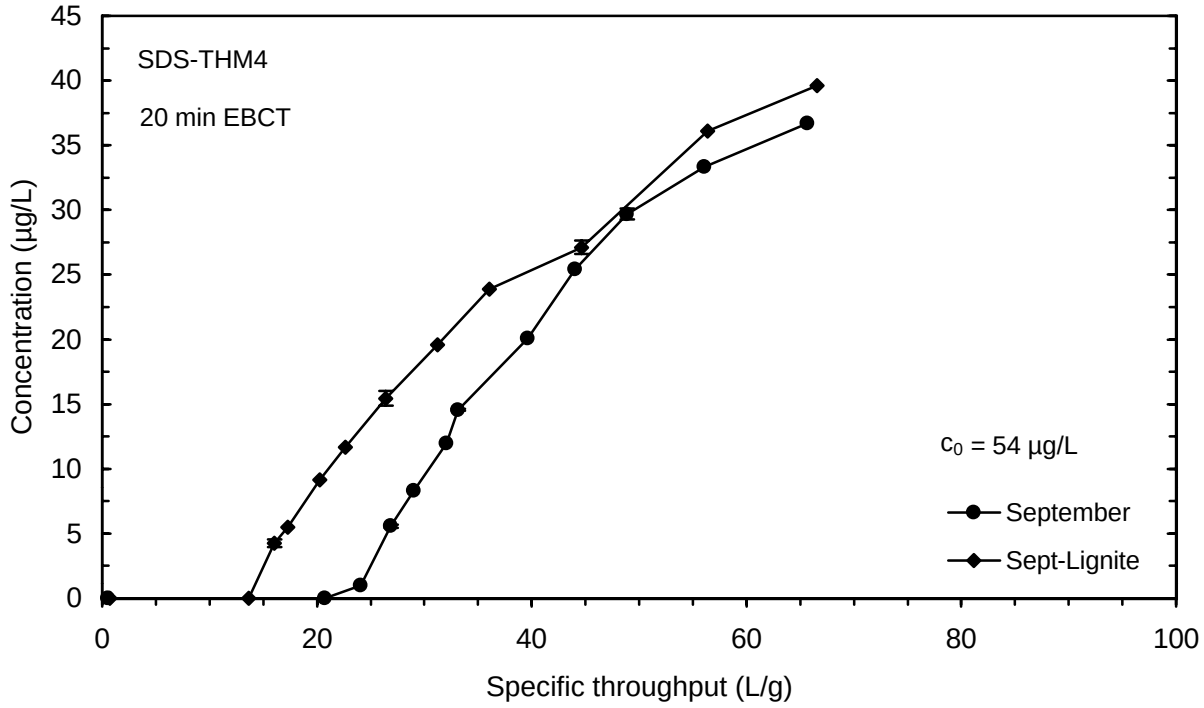


Figure 54 Impact of GAC type on SDS-THM4 breakthrough for 20 minute EBCT contactors

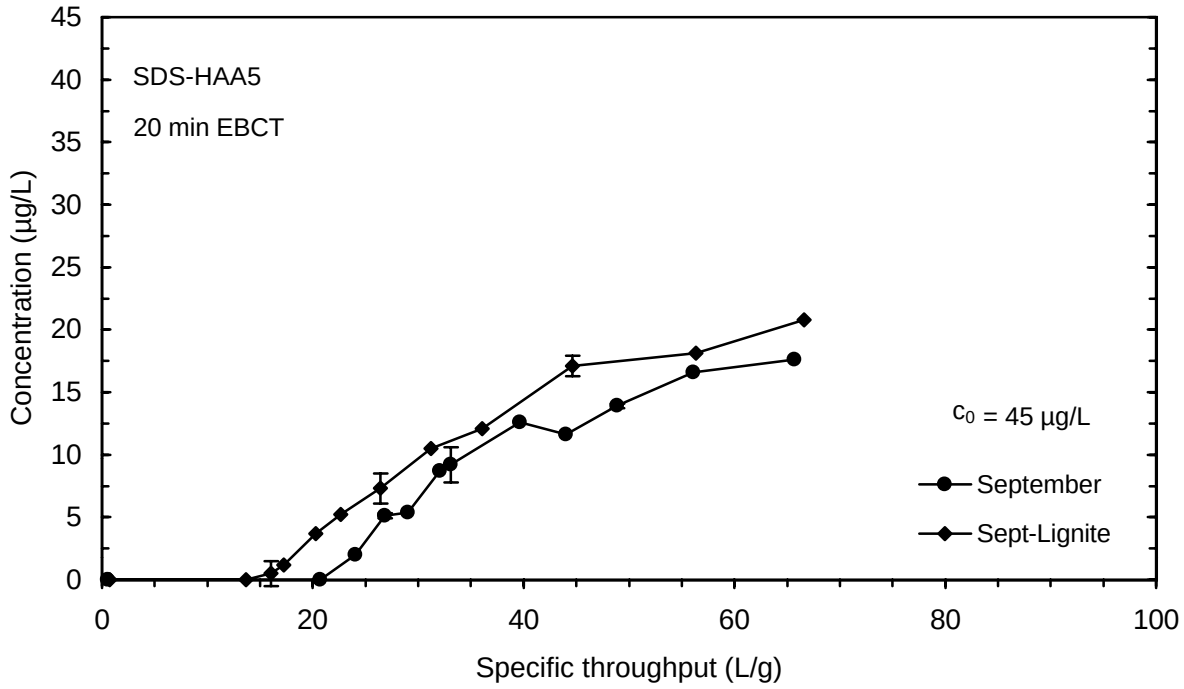


Figure 55 Impact of GAC type on SDS-HAA5 breakthrough for 20 minute EBCT contactors

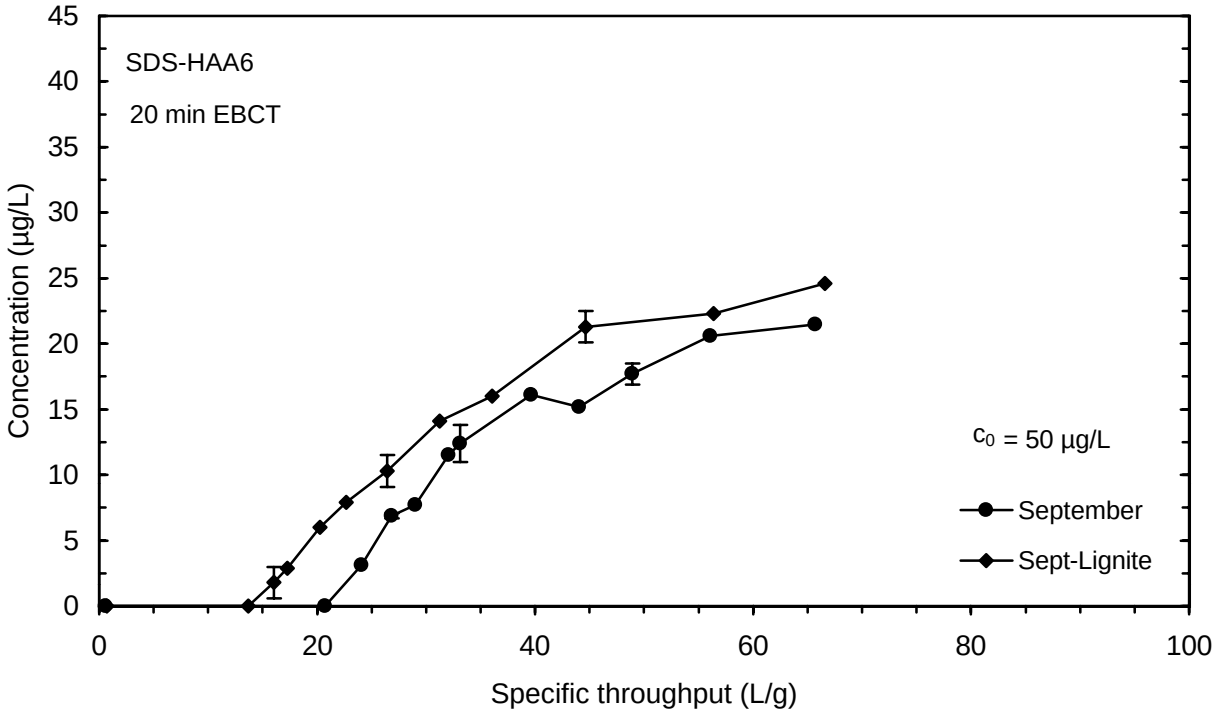


Figure 56 Impact of GAC type on SDS-HAA6 breakthrough for 20 minute EBCT contactors

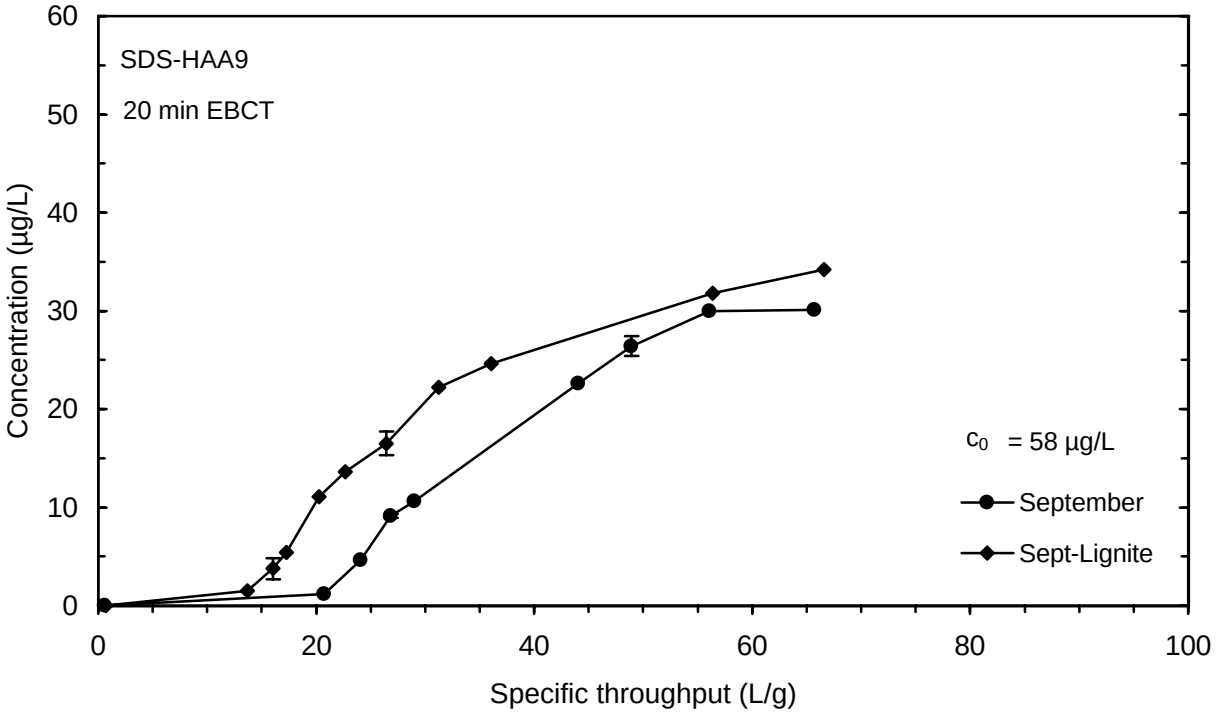


Figure 57 Impact of GAC type on SDS-HAA9 breakthrough for 20 minute EBCT contactors

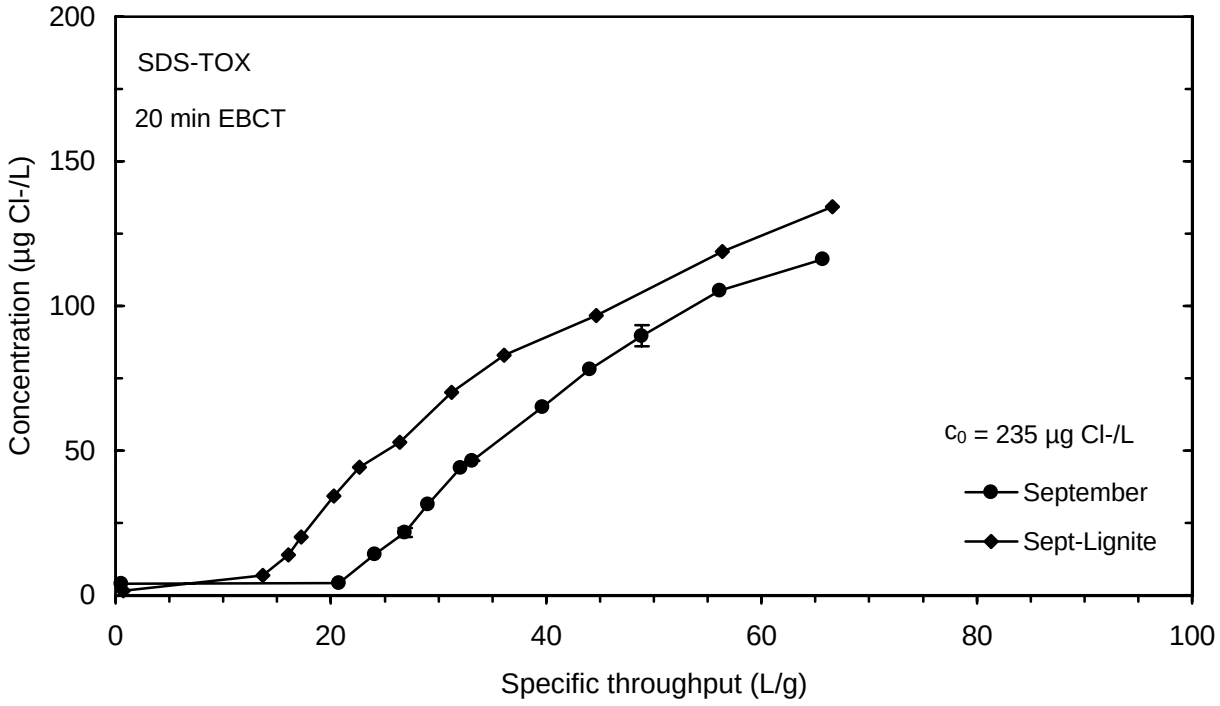


Figure 58 Impact of GAC type on SDS-TOX breakthrough for 20 minute EBCT contactors

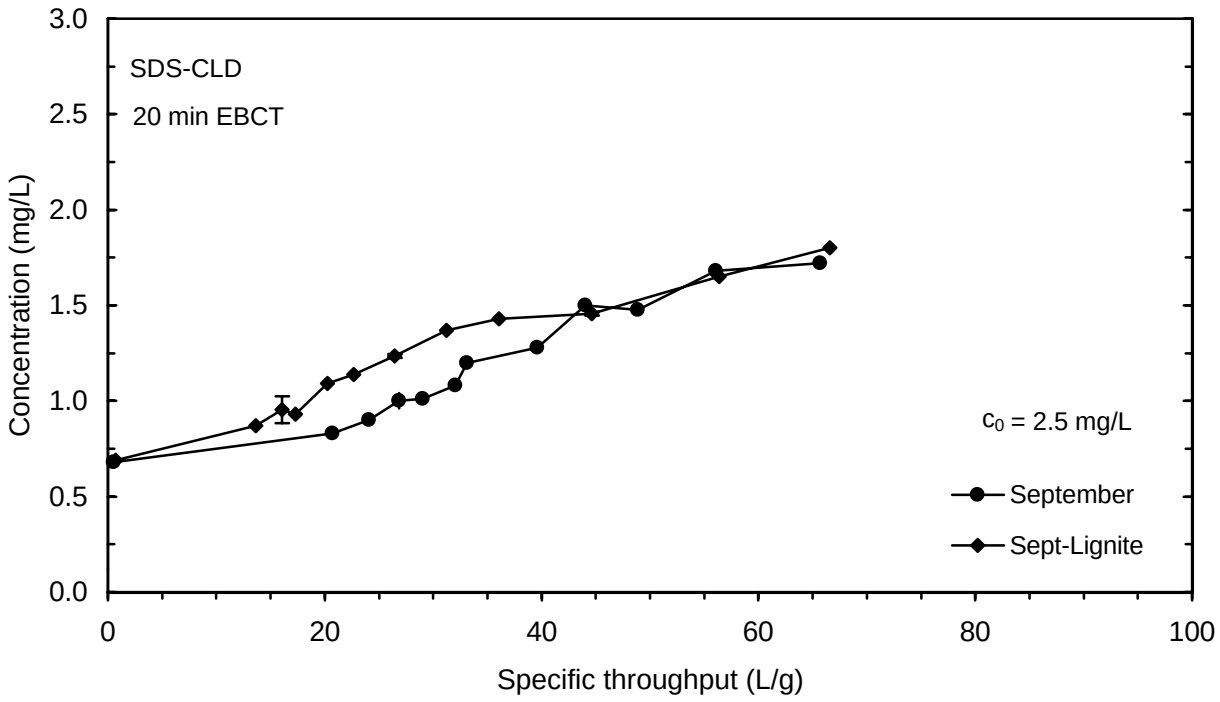


Figure 59 Impact of GAC type on SDS-CLD breakthrough for 20 minute EBCT contactors

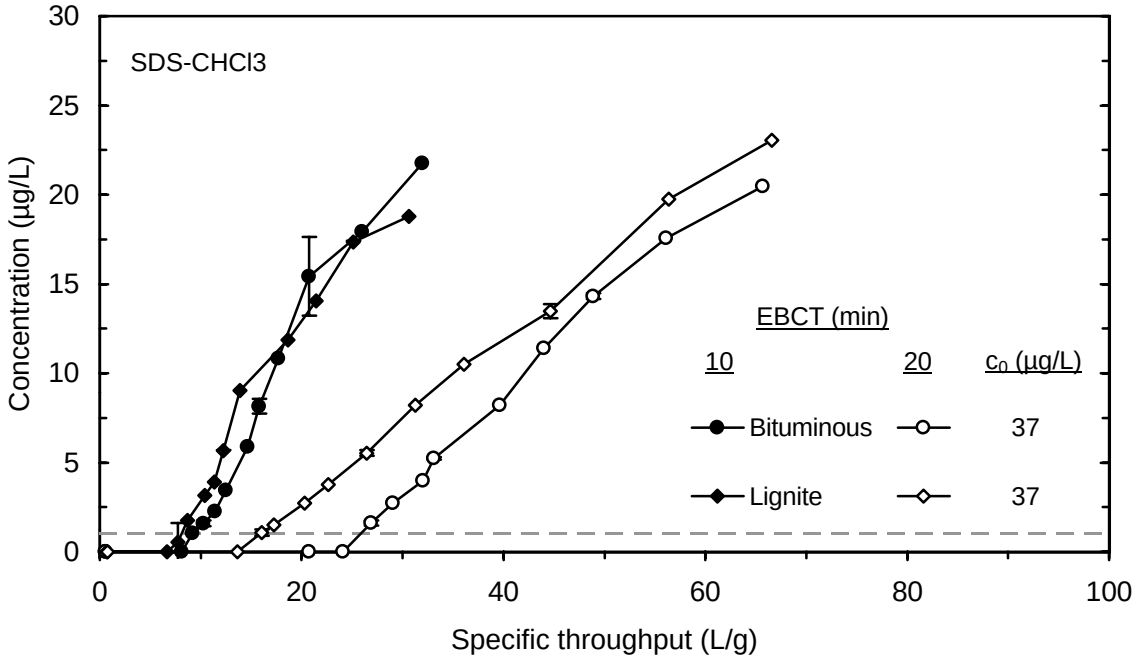


Figure 60 Impact of GAC type on SDS-CHCl3 breakthrough for 10 and 20 minute EBCT contactors

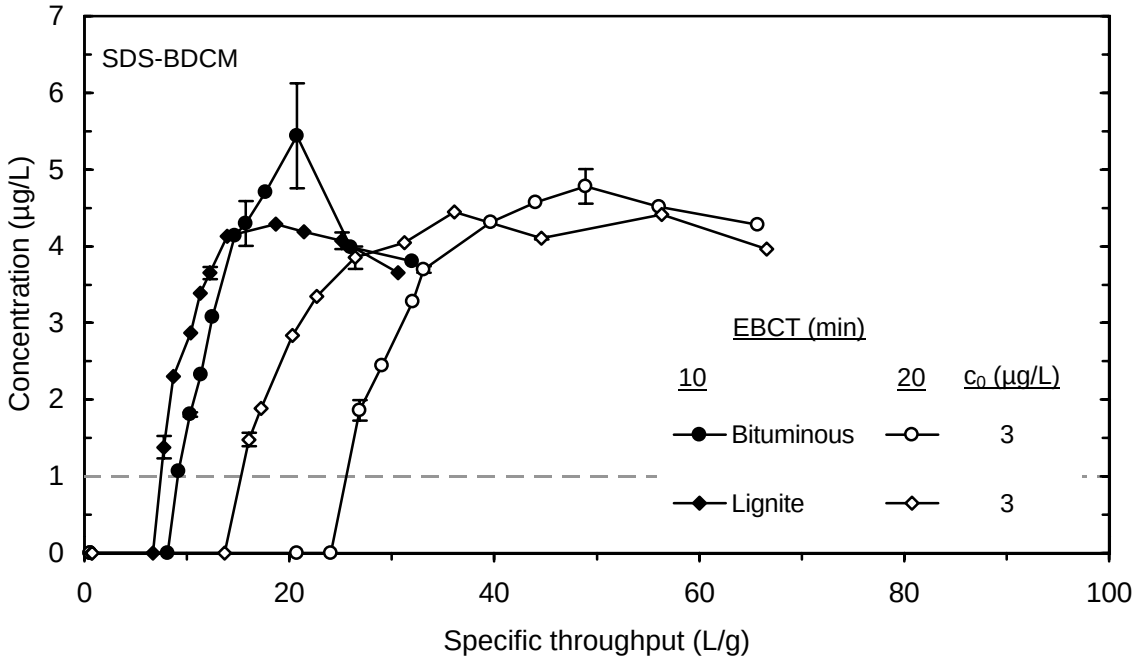


Figure 61 Impact of GAC type on SDS-BDCM breakthrough for 10 and 20 minute EBCT contactors

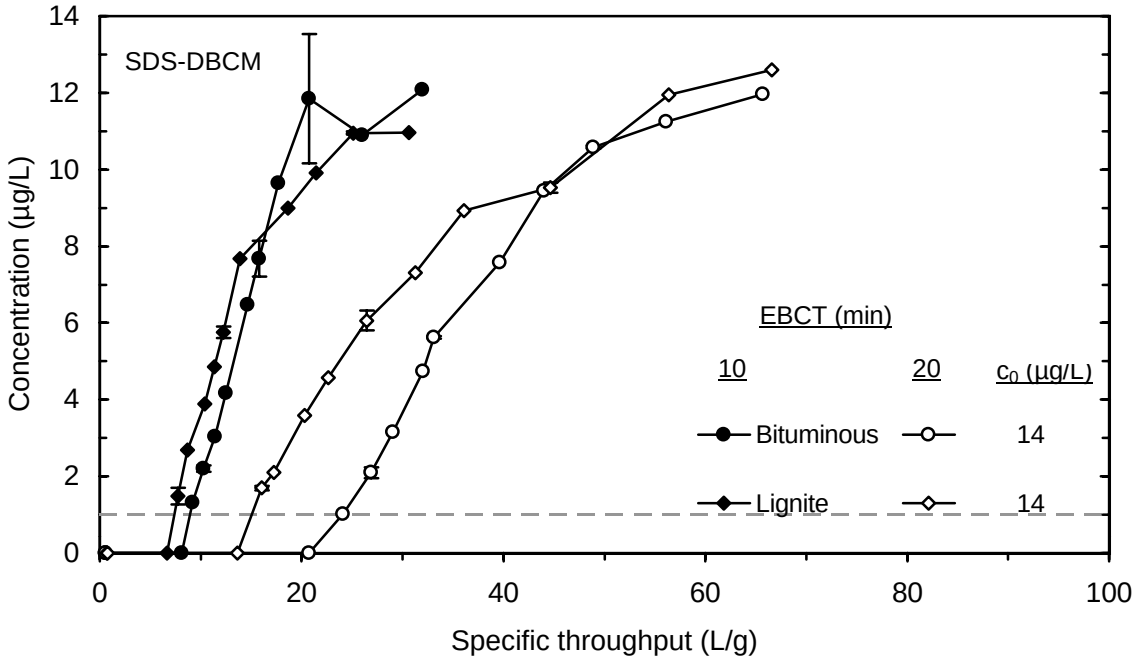


Figure 62 Impact of GAC type on SDS-DBCM breakthrough for 10 and 20 minute EBCT contactors

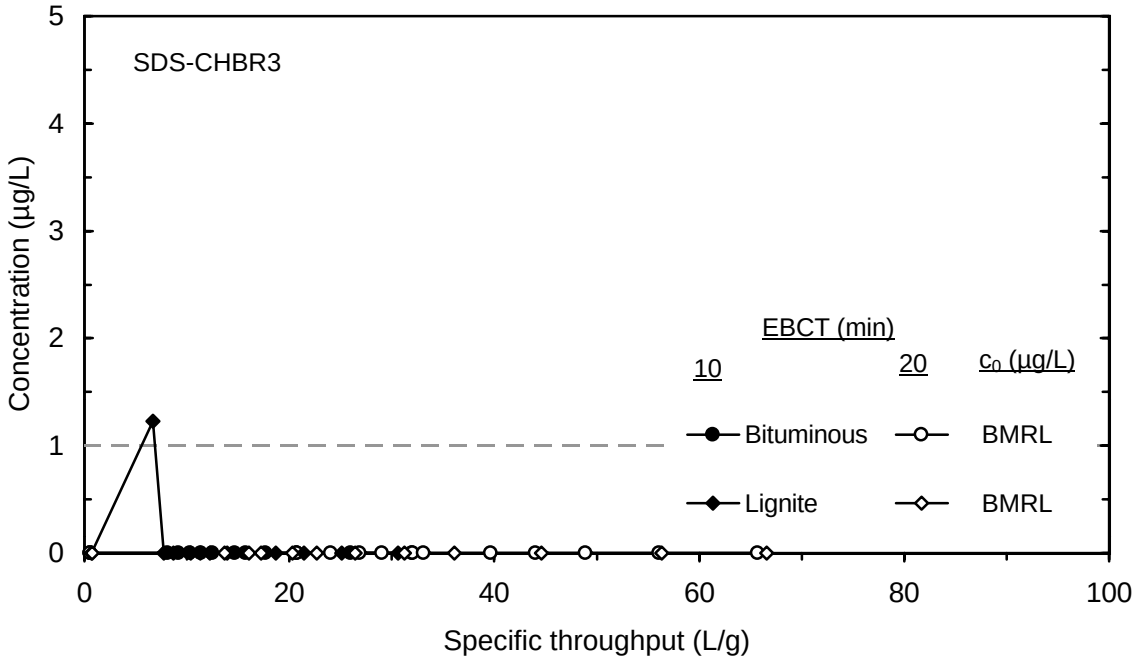


Figure 63 Impact of GAC type on SDS-CHBR3 breakthrough for 10 and 20 minute EBCT contactors

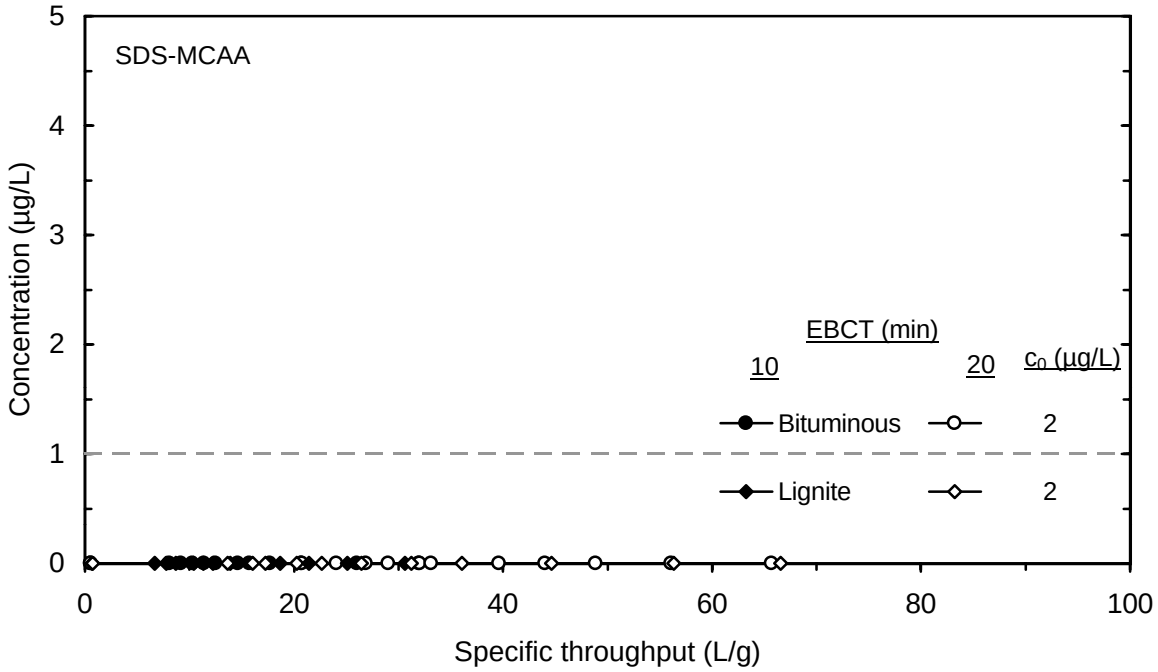


Figure 64 Impact of GAC type on SDS-MCAA breakthrough for 10 and 20 minute EBCT contactors

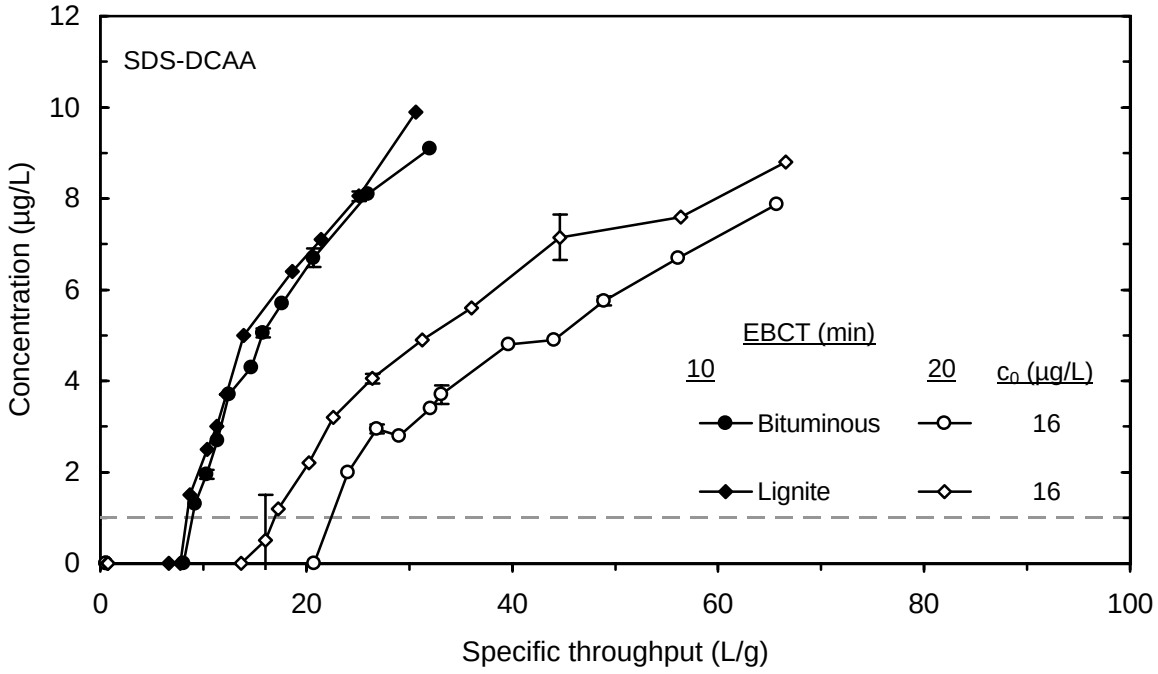


Figure 65 Impact of GAC type on SDS-DCAA breakthrough for 10 and 20 minute EBCT contactors

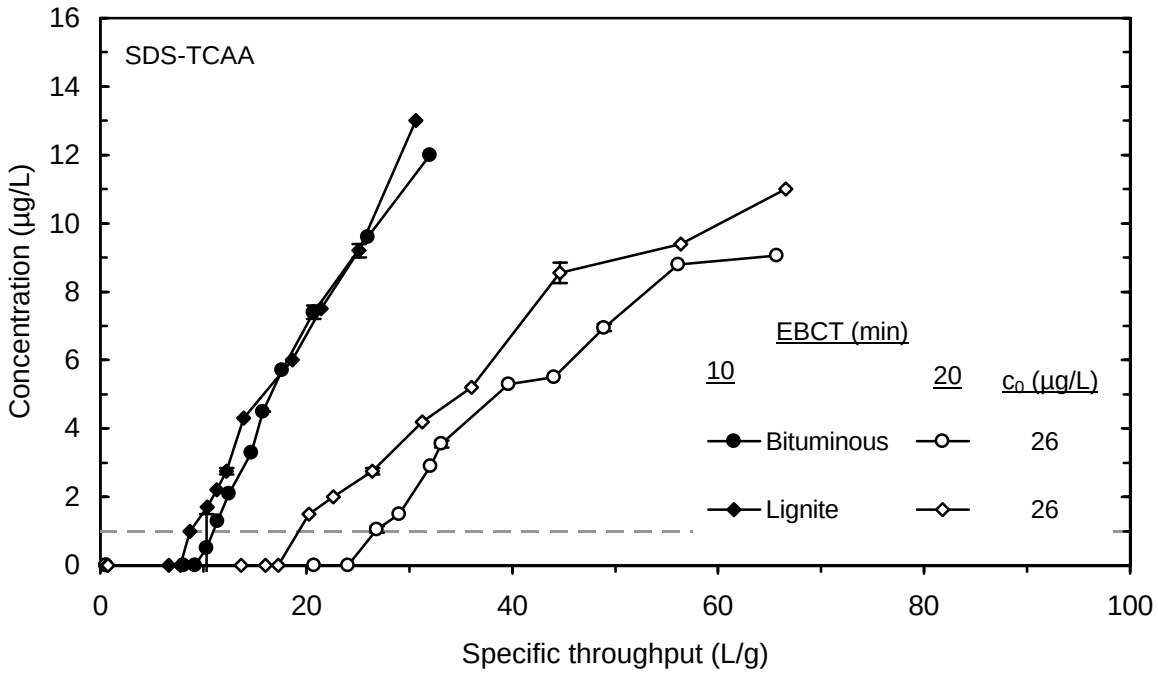


Figure 66 Impact of GAC type on SDS-TCAA breakthrough for 10 and 20 minute EBCT contactors

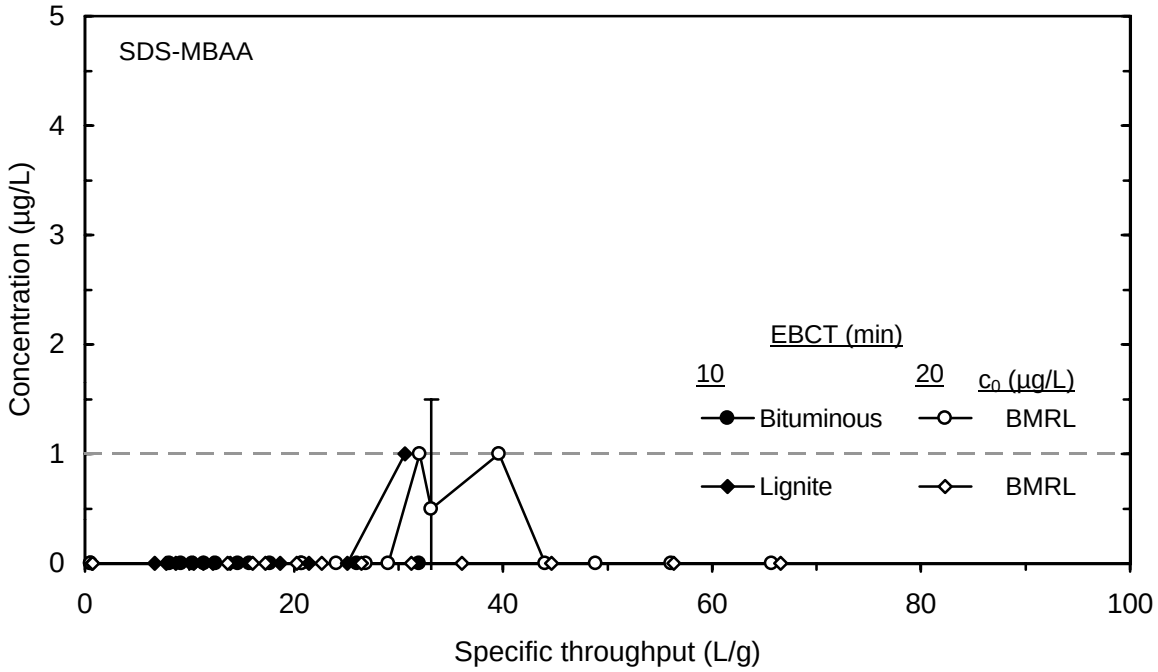


Figure 67 Impact of GAC type on SDS-MBAA breakthrough for 10 and 20 minute EBCT contactors

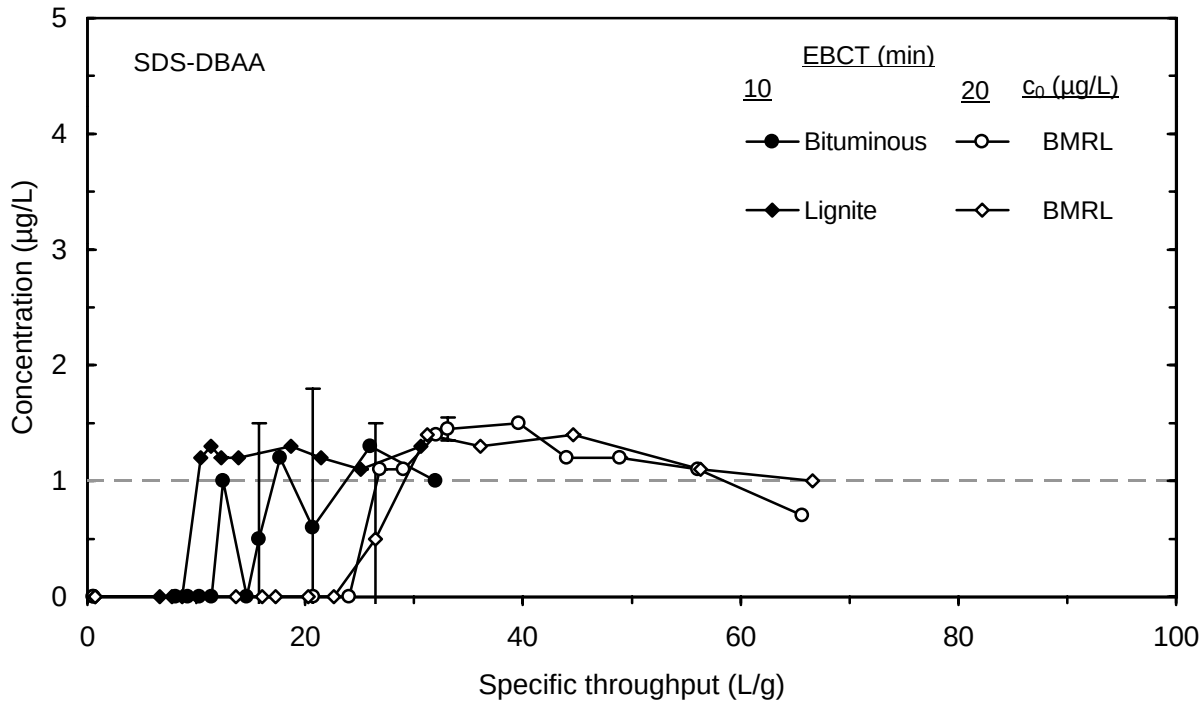


Figure 68 Impact of GAC type on SDS-DBAA breakthrough for 10 and 20 minute EBCT contactors

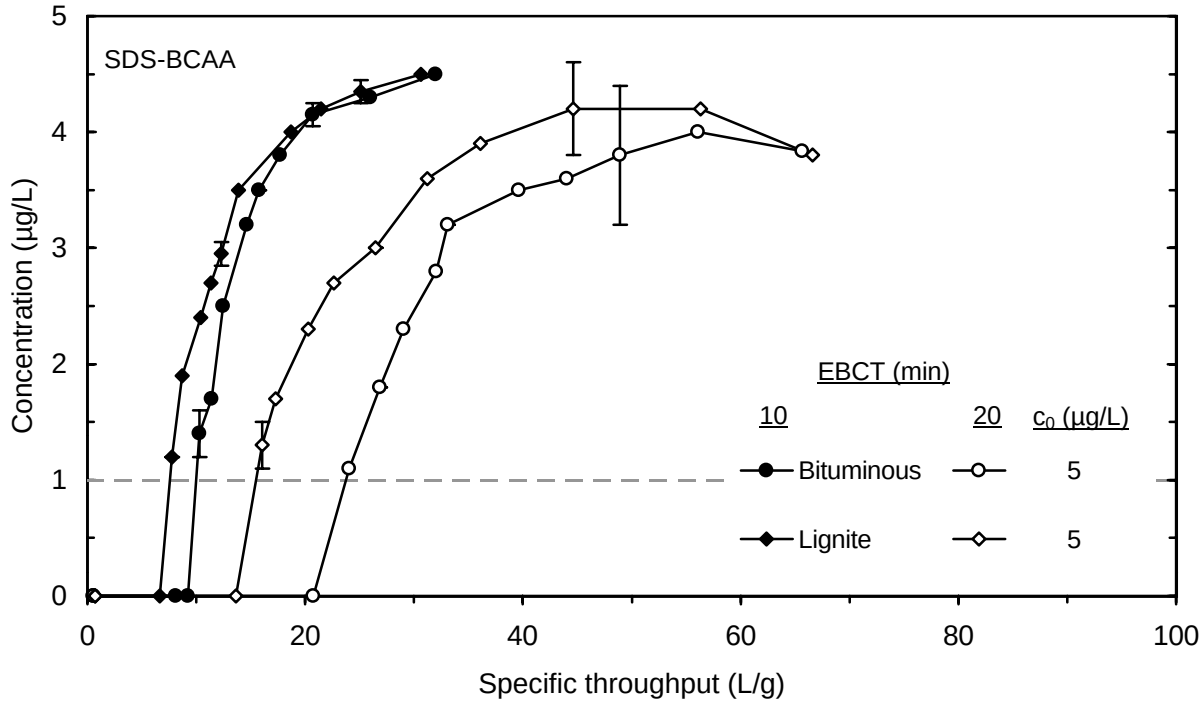


Figure 69 Impact of GAC type on SDS-BCAA breakthrough for 10 and 20 minute EBCT contactors

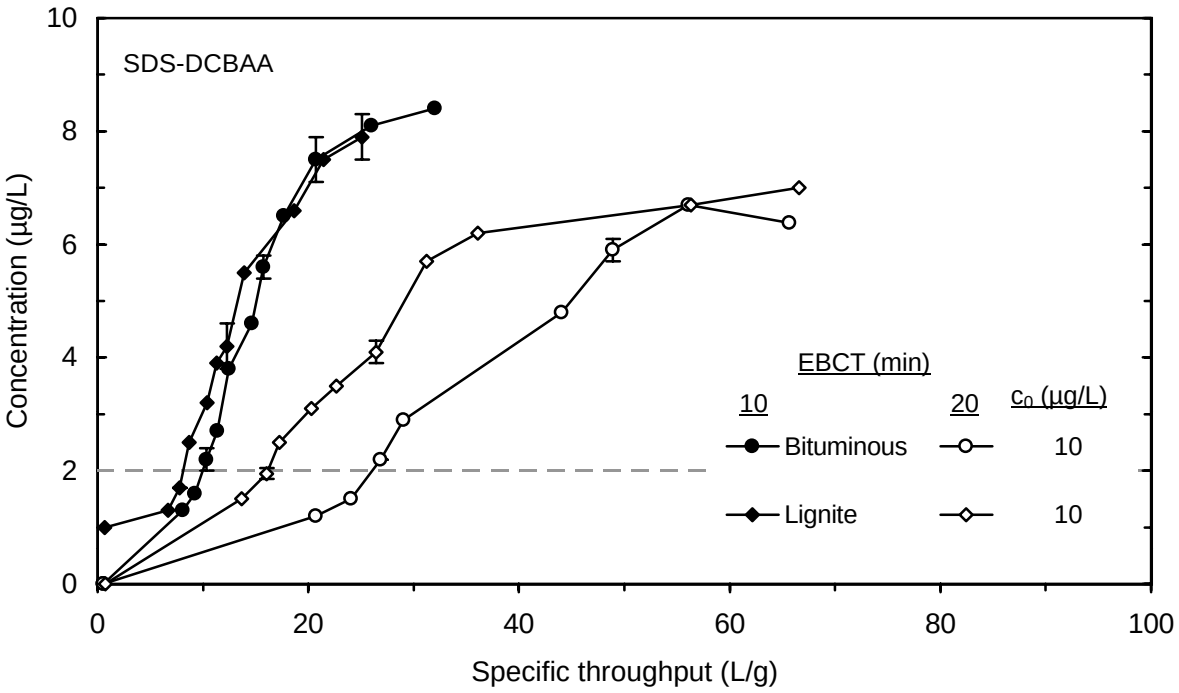


Figure 70 Impact of GAC type on SDS-DCBAA breakthrough for 10 and 20 minute EBCT contactors

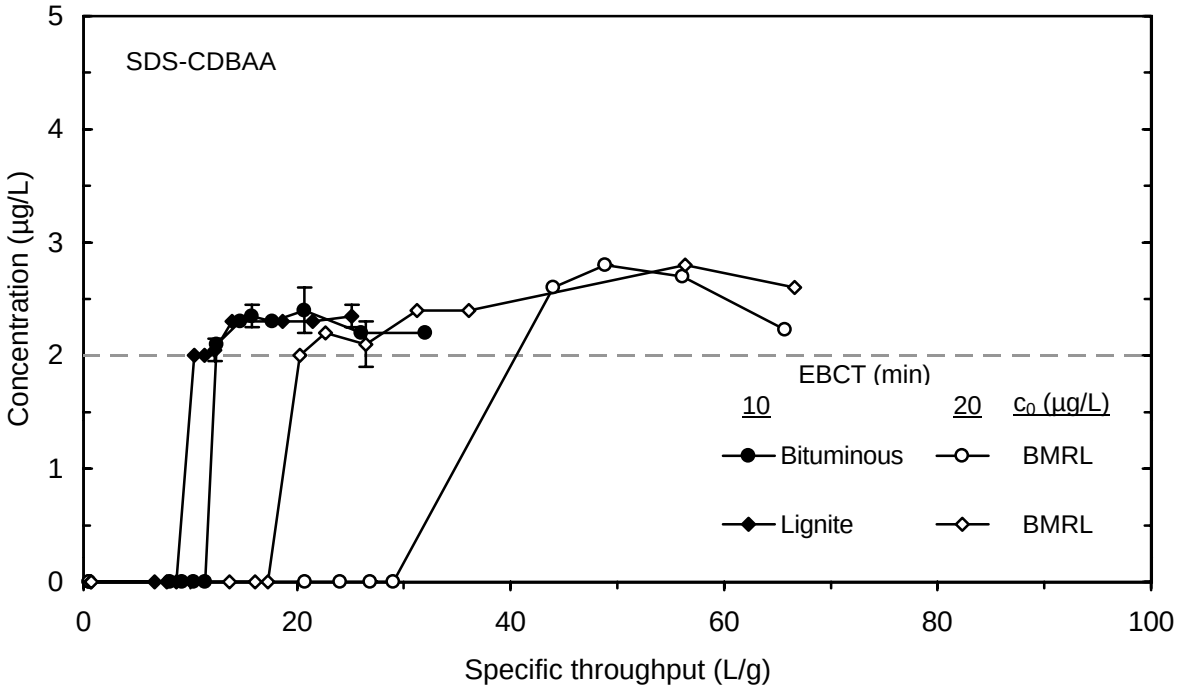


Figure 71 Impact of GAC type on SDS-CDBAA breakthrough for 10 and 20 minute EBCT contactors

10 *Impact of Empty-Bed Contact Time (EBCT)*

10 Impact of Empty-Bed Contact Time (EBCT)

During each of the three seasonal sessions, as required by the ICR, two EBCTs were evaluated: 10 and 20 minutes. The breakthrough data generated were then used to evaluate the impact of EBCT on DBP precursor removal by GAC. To do so, the GAC breakthrough curves for each EBCT are plotted on a throughput basis, with units of bed volumes. This transformation normalizes for the difference in amount of EBCT between the two columns to be compared. The following equation is used to convert from run time to throughput in bed volumes:

$$\text{Throughput (bed volumes)} = \frac{\text{Run time}}{\text{EBCT}} \qquad (1)$$

For the June session, Figures 72 through 79 compare the 10 and 20 minute EBCT contactor performance for the breakthrough of TOC, UV_{254}, SDS-THM4, SDS-HAA5, SDS-HAA6, SDS-HAA9, SDS-TOX, and SDS-CLD. The same data are presented for the September and January sessions in Figures 80 through 95. In general, all sessions showed that the 20 minute EBCT contactor outperformed the 10 minute EBCT contactor on a throughput basis, as seen by a shift to the right in the breakthrough curve. For the September session that evaluated lignite coal-based GAC, very little difference was observed between the 10 and 20 minute EBCT contactors, as shown in Figures 96 through 103.

For all parameters analyzed, the throughput in bed volumes for both EBCTs to various run time criteria are summarized in Tables 32 through 35.

The throughput comparison data are summarized in graphical format in Figures 104 through 107 for the June session. On a throughput basis and for all run time criteria, the 20 minute EBCT contactor outperformed the 10 minute EBCT contactor. The same data are presented for the September, January, and September-lignite sessions in Figures 108 through 119.

Parameter	Units	Influent concen-tration	Value	Throughput (BV) at given EBCT (min)				Throughput change from 10 to 20 min EBCT (%)	
				10		20			
				Contactor configuration				Single contactor	Multiple contactors
				Single	Multiple	Single	Multiple		
TOC	(mg/L)	2.7	2.0	19,640	*	19,600	*	0	
			1.0	8,200	15,880	9,680	19,850	18	25
			1.4†	9,240	22,150	12,520	28,240	35	27
UV-254	(1/cm)	0.057	0.040	*	*	*	*		
			0.020	9,610	21,650	14,150	28,200	47	30
			0.028†	15,670	33,120	*	42,520		28
SDS-THM4	(µg/L)	59	80	*	*	*	*		
			64	*	*	*	*		
			32	13,870	39,480	15,310	40,020	10	1
SDS-HAA5	(µg/L)	56	48	*	*	*	*		
			24	11,440	24,100	15,890	33,710	39	40
SDS-HAA6	(µg/L)	60	48	*	*	*	*		
			24	9,520	21,060	14,590	29,500	53	40
SDS-HAA9	(µg/L)	67	48	*	*	*	*		
			24	8,780	17,220	11,800	24,630	34	43
SDS-TOX	(µg Cl^-/L)	274	120	10,310	24,710	15,040	33,790	46	37
			70	8,600	15,480	10,850	21,010	26	36

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time, calculated values are left blank.

Table 32 Summary of throughput to selected GAC effluent criteria during session 1, June

Parameter	Units	Influent concen-tration	Value	Throughput (BV) at given EBCT (min)				Throughput change from 10 to 20 min EBCT (%)	
				10		20			
				Contactor configuration				Single contactor	Multiple contactors
				Single	Multiple	Single	Multiple		
TOC	(mg/L)	2.7	2.0	*	*	*	*		
			1.0	7,360	15,280	8,600	18,660	17	22
			1.3†	9,030	21,480	11,350	25,480	26	19
UV-254	(1/cm)	0.053	0.040	*	*	*	*		
			0.020	10,750	22,970	13,690	27,180	27	18
			0.027†	14,960	32,590	17,480	38,490	17	18
SDS-THM4	(µg/L)	54	80	*	*	*	*		
			64	*	*	*	*		
			32	10,930	33,740	14,300	40,130	31	19
SDS-HAA5	(µg/L)	45	48	*	*	*	*		
			24	*	41,980	*	*		
SDS-HAA6	(µg/L)	50	48	*	*	*	*		
			24	14,590	31,610	*	38,710		22
SDS-HAA9	(µg/L)	58	48	*	*	*	*		
			24	9,130	20,350	12,260	26,930	34	32
SDS-TOX	(µg Cl^-/L)	235	120	14,400	32,260	*	39,240		22
			70	8,860	18,150	11,040	21,740	25	20

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time, calculated values are left blank.

Table 33 Summary of throughput to selected GAC effluent criteria during session 2, September

Parameter	Units	Influent concen-tration	Value	Throughput (BV) at given EBCT (min)				Throughput change from 10 to 20 min EBCT (%)	
				10		20			
				Contactor configuration					
				Single	Multiple	Single	Multiple	Single contactor	Multiple contactors
TOC	(mg/L)	2.6	2.0	13,110	*	*	*		
			1.0	5,380	10,950	6,500	14,020	21	28
			1.3†	6,380	15,160	8,380	18,810	31	24
UV-254	(1/cm)	0.054	0.040	*	*	*	*		
			0.020	7,780	15,720	9,760	20,410	25	30
			0.027†	9,900	22,580	12,940	29,360	31	30
SDS-THM4	(µg/L)	50	80	*	*	*	*		
			64	*	*	*	*		
			32	*	*	*	*		
SDS-HAA5	(µg/L)	48	48	*	*	*	*		
			24	*	25,840	13,970	31,160		21
SDS-HAA6	(µg/L)	52	48	*	*	*	*		
			24	9,450	20,820	11,860	25,860	26	24
SDS-HAA9	(µg/L)	61	48	*	*	*	*		
			24	7,420	15,920	9,620	19,550	30	23
SDS-TOX	(µg Cl^-/L)	239	120	9,150	20,790	12,500	27,850	37	34
			70	6,360	12,280	7,740	15,690	22	28

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time, calculated values are left blank.

Table 34 Summary of throughput to selected GAC effluent criteria during session 3, January

Parameter	Units	Influent concen-tration	Value	Throughput (BV) at given EBCT (min)				Throughput change from 10 to 20 min EBCT (%)	
				10		20			
				Contactor configuration					
				Single	Multiple	Single	Multiple	Single contactor	Multiple contactors
TOC	(mg/L)	2.7	2.0	14,520	*	13,790	*	-5	
			1.0	4,920	10,500	5,230	10,910	6	4
			1.3†	6,390	15,550	6,940	16,130	9	4
UV-254	(1/cm)	0.053	0.040	*	*	*	*		
			0.020	8,440	17,140	8,790	18,920	4	10
			0.027†	11,410	24,530	12,910	27,240	13	11
SDS-THM4	(µg/L)	54	80	*	*	*	*		
			64	*	*	*	*		
			32	10,210	27,460	10,500	25,420	3	-7
SDS-HAA5	(µg/L)	45	48	*	*	*	*		
			24	12,220	28,850	*	*		
SDS-HAA6	(µg/L)	50	48	*	*	*	*		
			24	10,770	22,330	13,170	26,260	22	18
SDS-HAA9	(µg/L)	58	48	*	*	*	*		
			24	6,630	14,750	7,180	17,190	8	17
SDS-TOX	(µg Cl^-/L)	235	120	*	25,080	11,760	25,790		3
			70	6,470	13,500	6,430	13,940	-1	3

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time, calculated values are left blank.

Table 35 Summary of throughput to selected GAC effluent criteria during session 4, Sept-Lignite

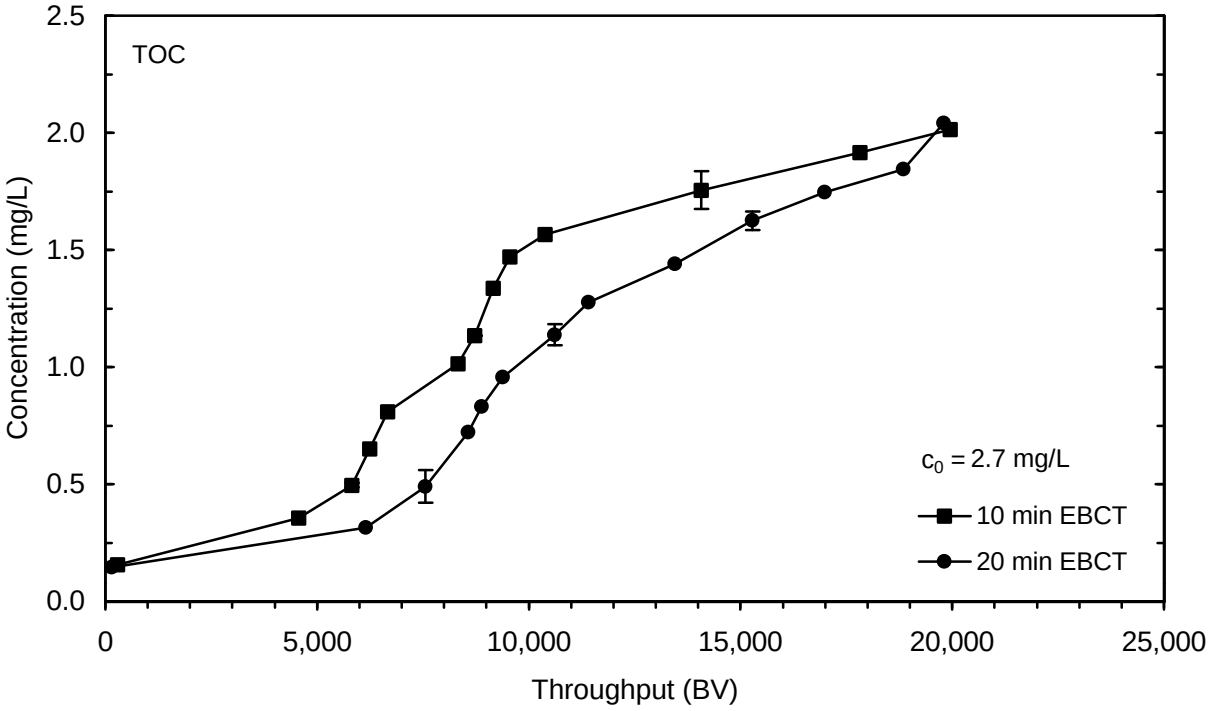


Figure 72 TOC breakthrough for 10 and 20 minute EBCT contactors during session 1 (June), plotted as throughput in bed volumes treated

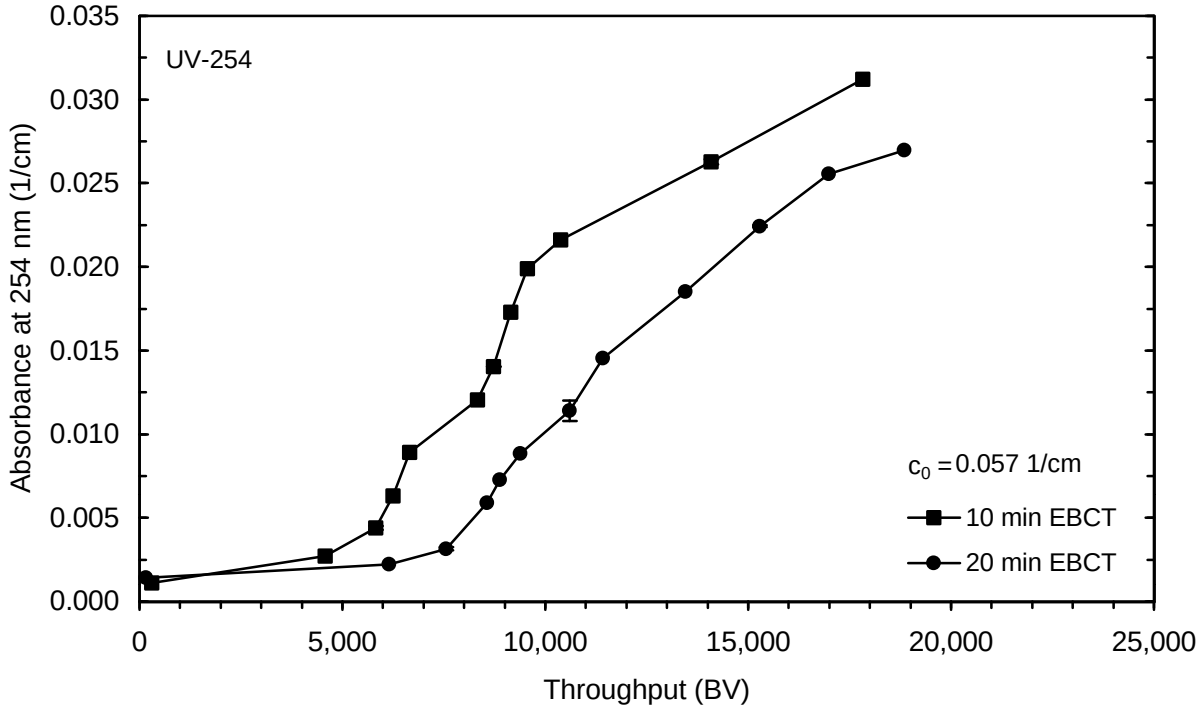


Figure 73 UV-254 breakthrough for 10 and 20 minute EBCT contactors during session 1 (June), plotted as throughput in bed volumes treated

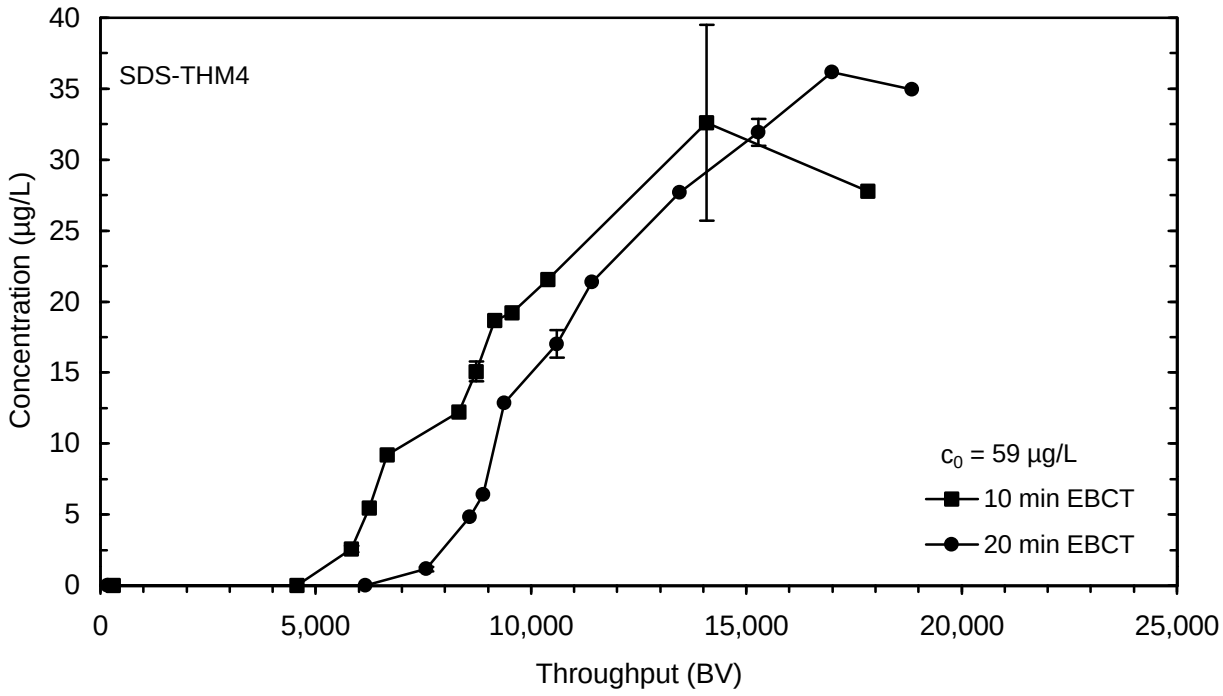


Figure 74 SDS-THM4 breakthrough for 10 and 20 minute EBCT contactors during session 1 (June), plotted as throughput in bed volumes treated

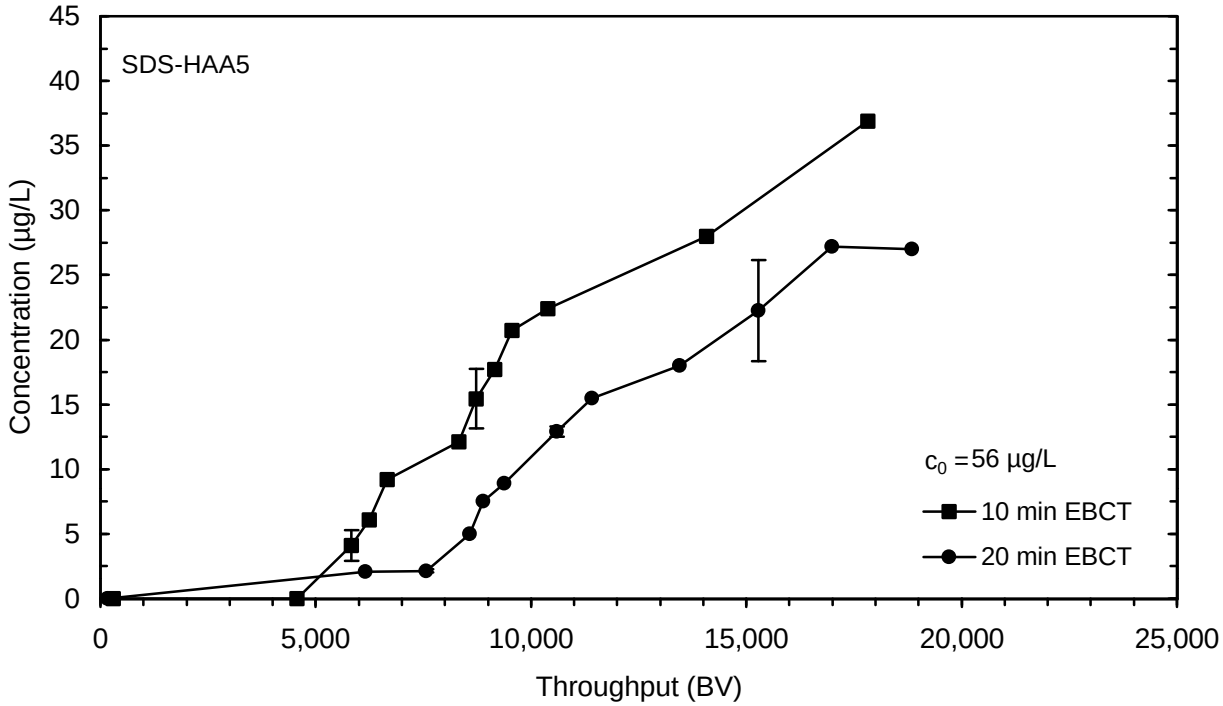


Figure 75 SDS-HAA5 breakthrough for 10 and 20 minute EBCT contactors during session 1 (June), plotted as throughput in bed volumes treated

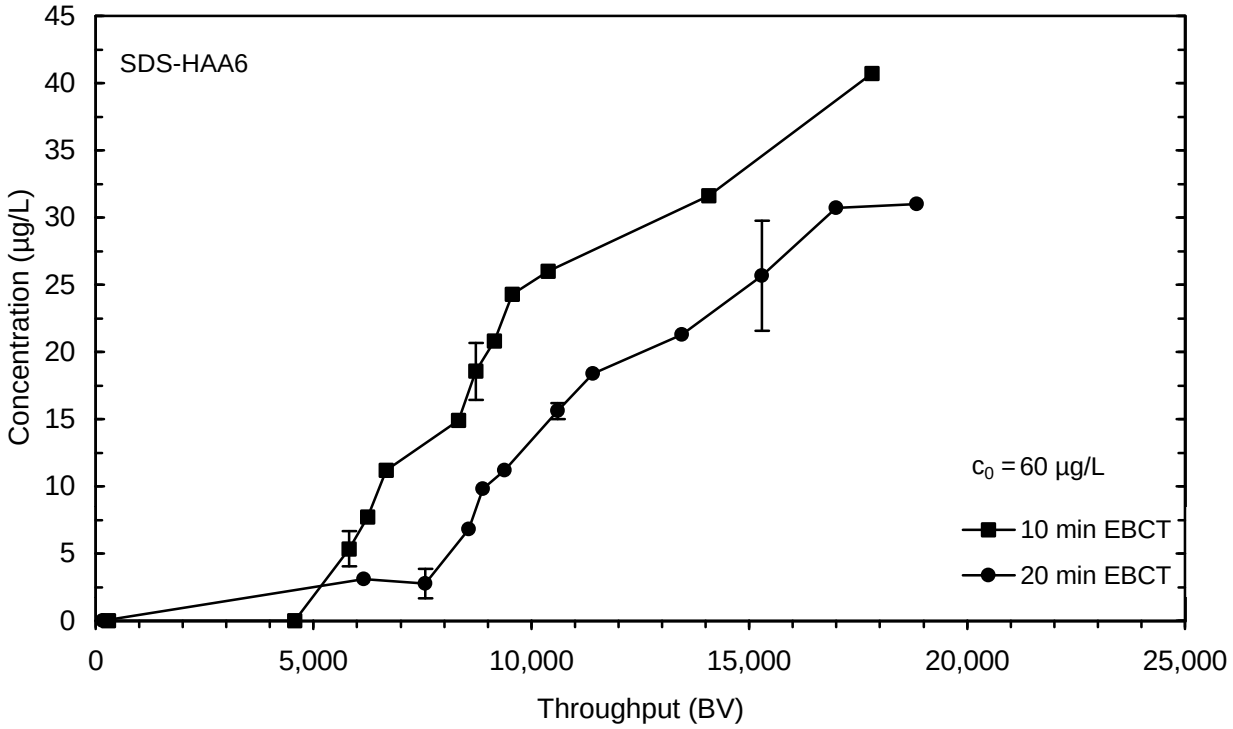


Figure 76 SDS-HAA6 breakthrough for 10 and 20 minute EBCT contactors during session 1 (June), plotted as throughput in bed volumes treated

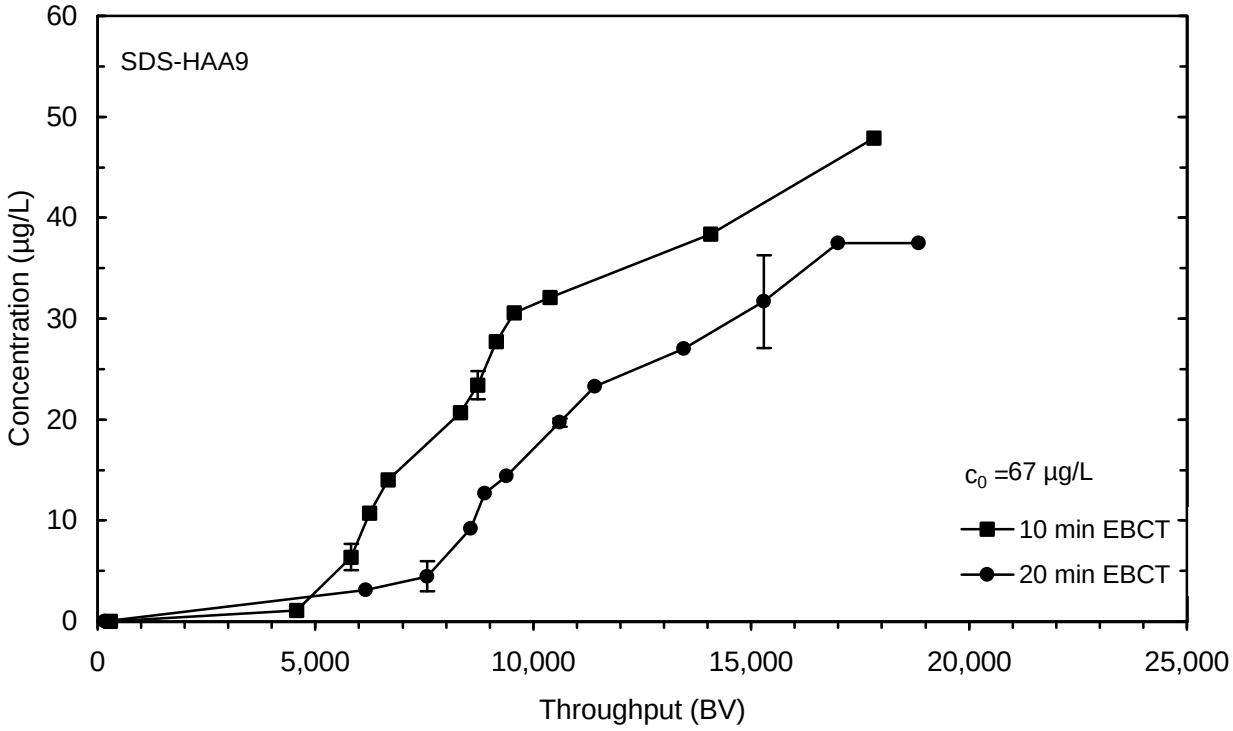


Figure 77 SDS-HAA9 breakthrough for 10 and 20 minute EBCT contactors during session 1 (June), plotted as throughput in bed volumes treated

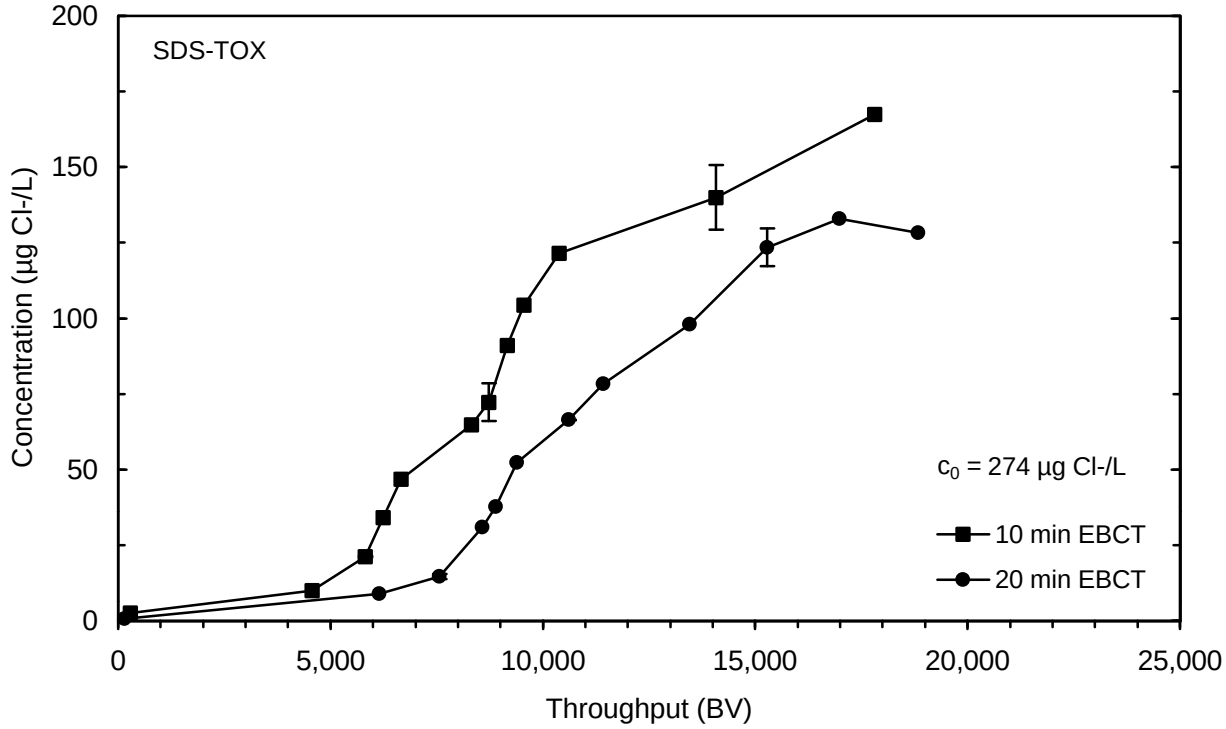


Figure 78 SDS-TOX breakthrough for 10 and 20 minute EBCT contactors during session 1 (June), plotted as throughput in bed volumes treated

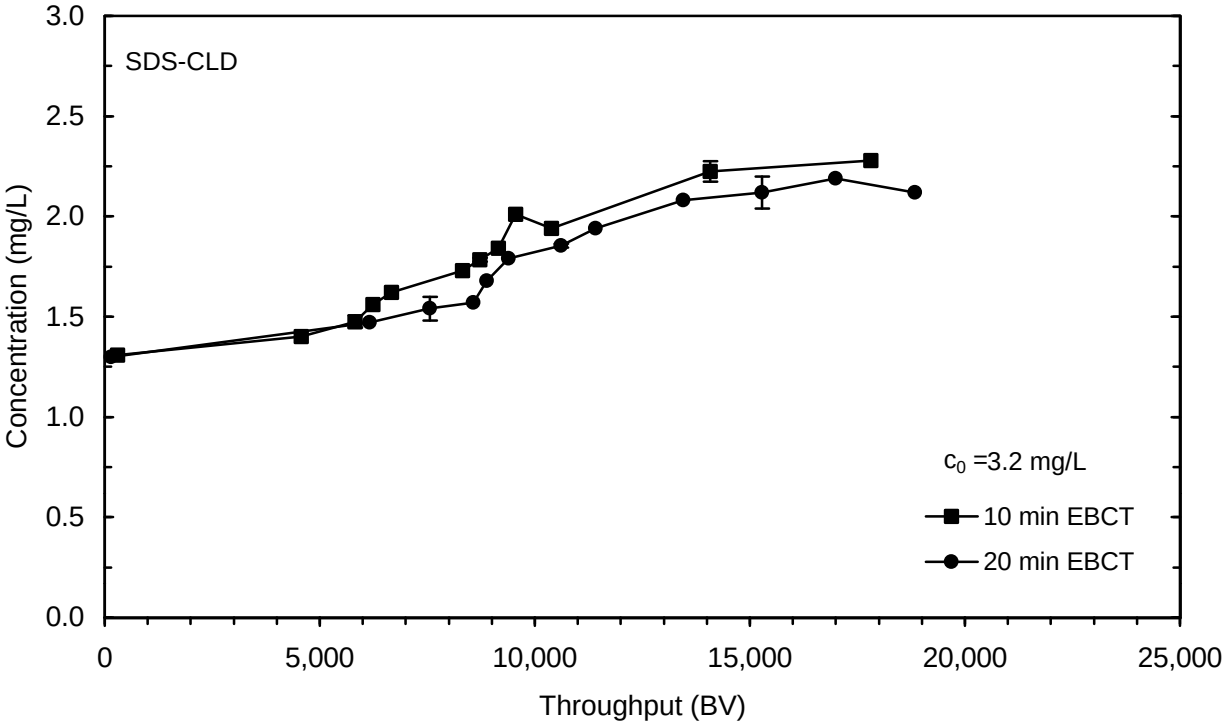


Figure 79 SDS-CLD breakthrough for 10 and 20 minute EBCT contactors during session 1 (June), plotted as throughput in bed volumes treated

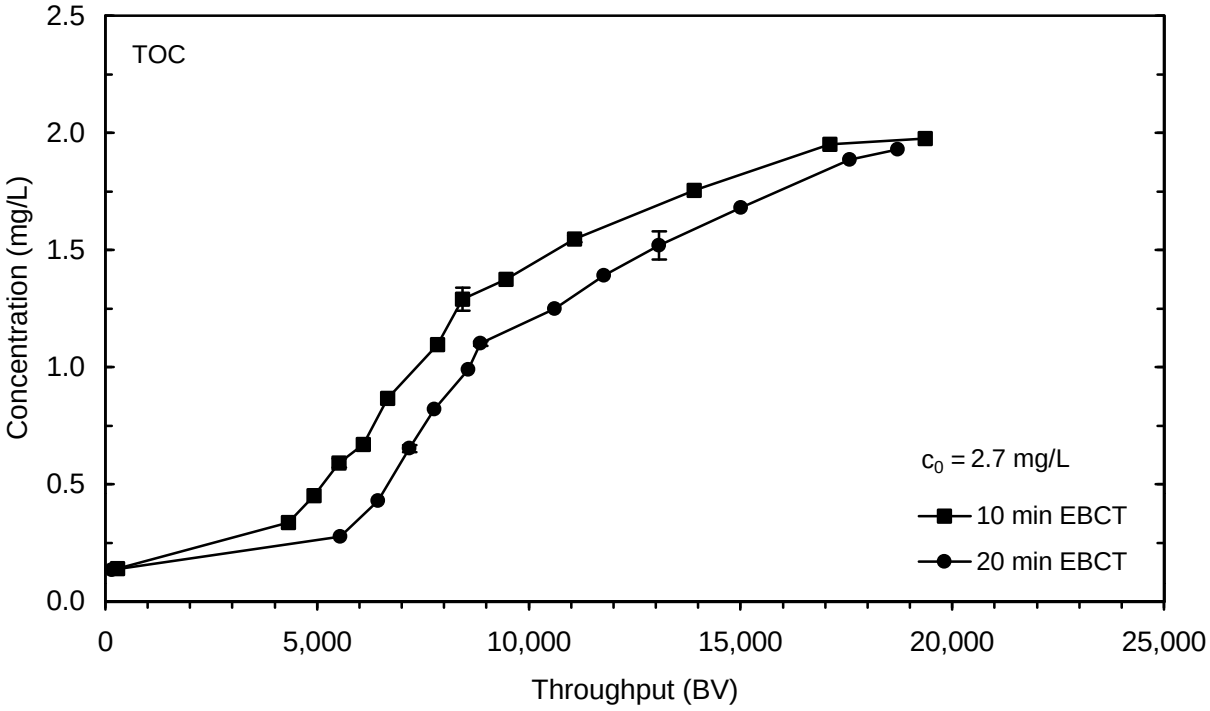


Figure 80 TOC breakthrough for 10 and 20 minute EBCT contactors during session 2 (September), plotted as throughput in bed volumes treated

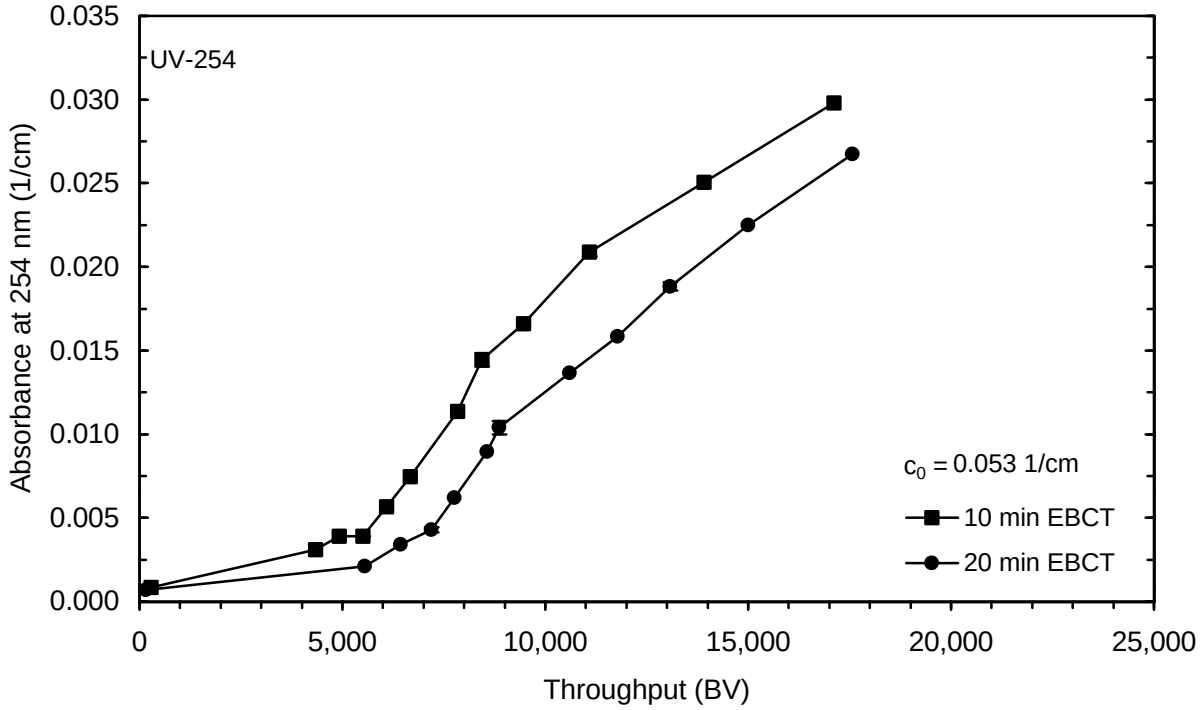


Figure 81 UV-254 breakthrough for 10 and 20 minute EBCT contactors during session 2 (September), plotted as throughput in bed volumes treated

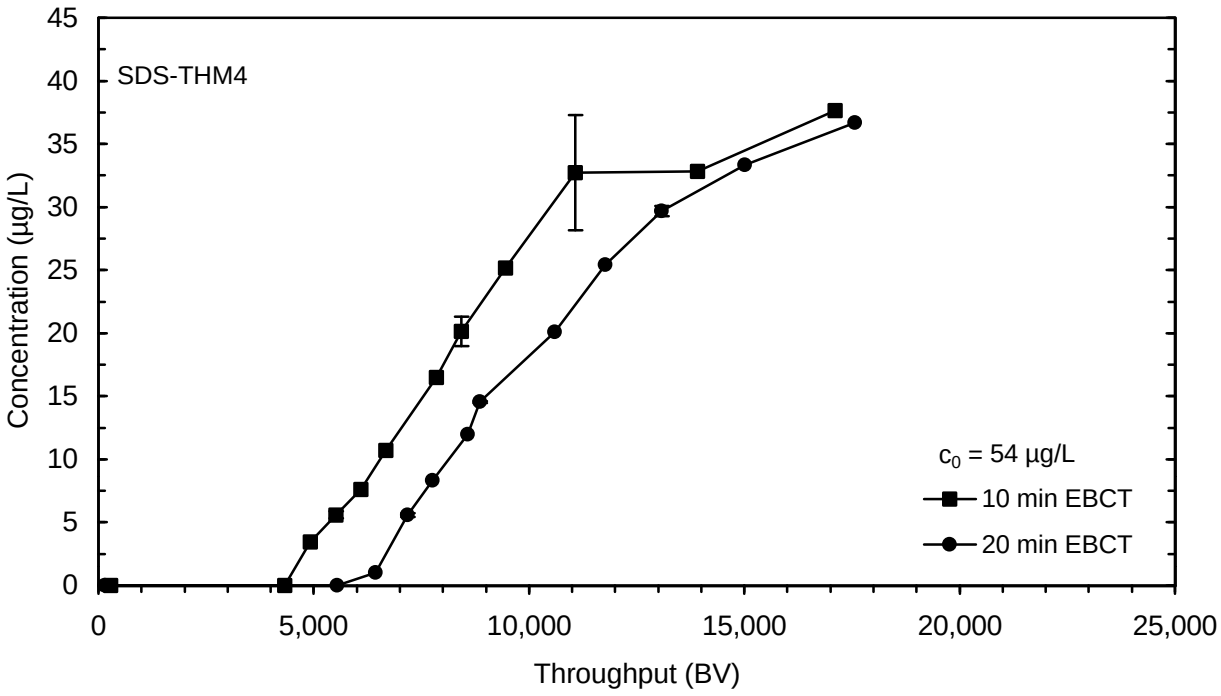


Figure 82 SDS-THM4 breakthrough for 10 and 20 minute EBCT contactors during session 2 (September), plotted as throughput in bed volumes treated

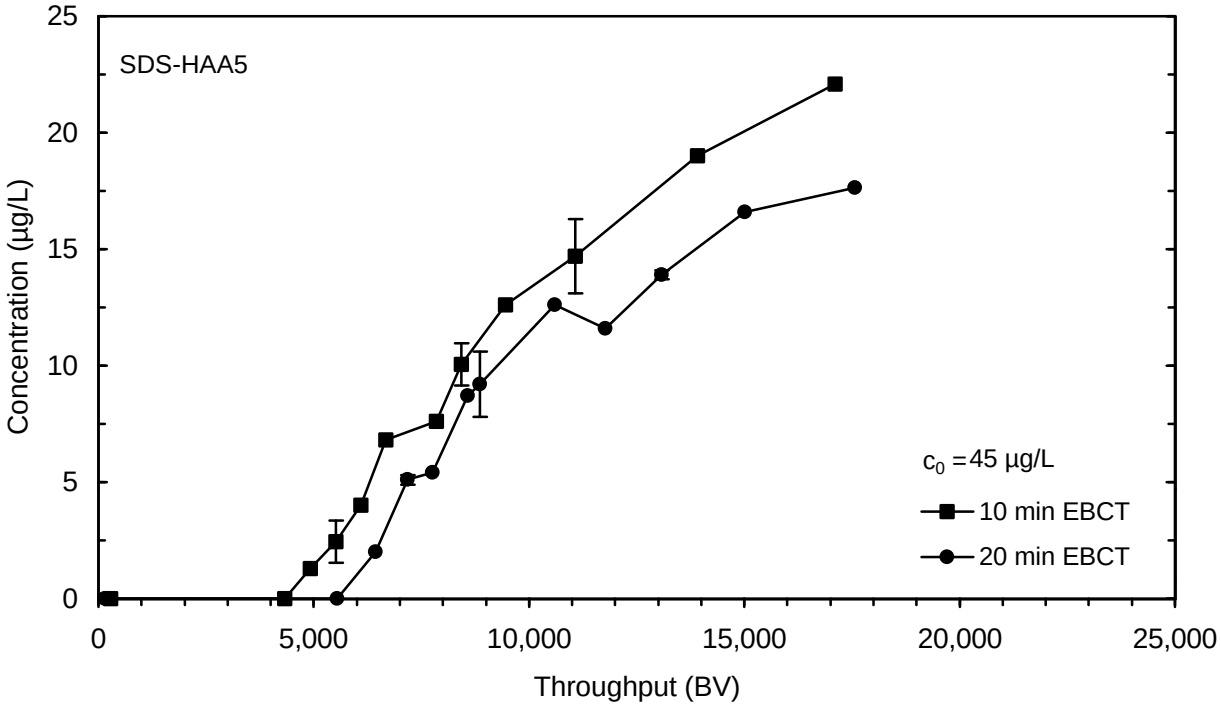


Figure 83 SDS-HAA5 breakthrough for 10 and 20 minute EBCT contactors during session 2 (September), plotted as throughput in bed volumes treated

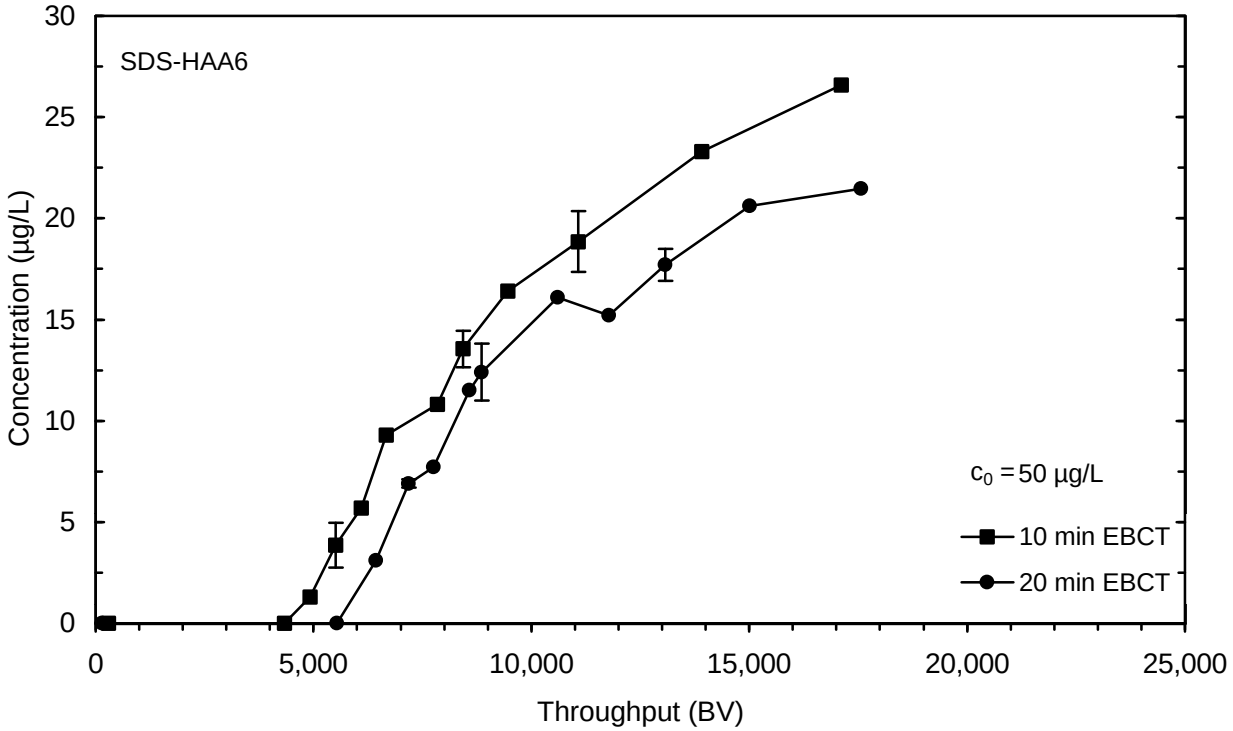


Figure 84 SDS-HAA6 breakthrough for 10 and 20 minute EBCT contactors during session 2 (September), plotted as throughput in bed volumes treated

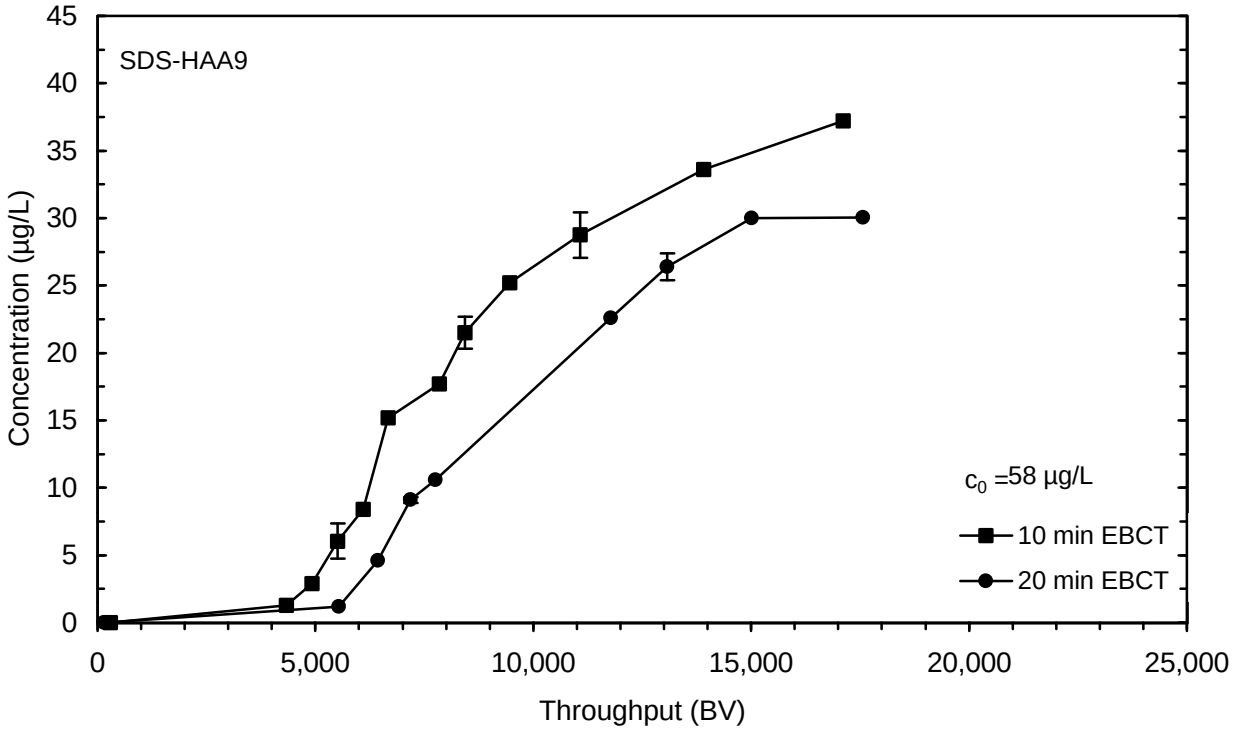


Figure 85 SDS-HAA9 breakthrough for 10 and 20 minute EBCT contactors during session 2 (September), plotted as throughput in bed volumes treated

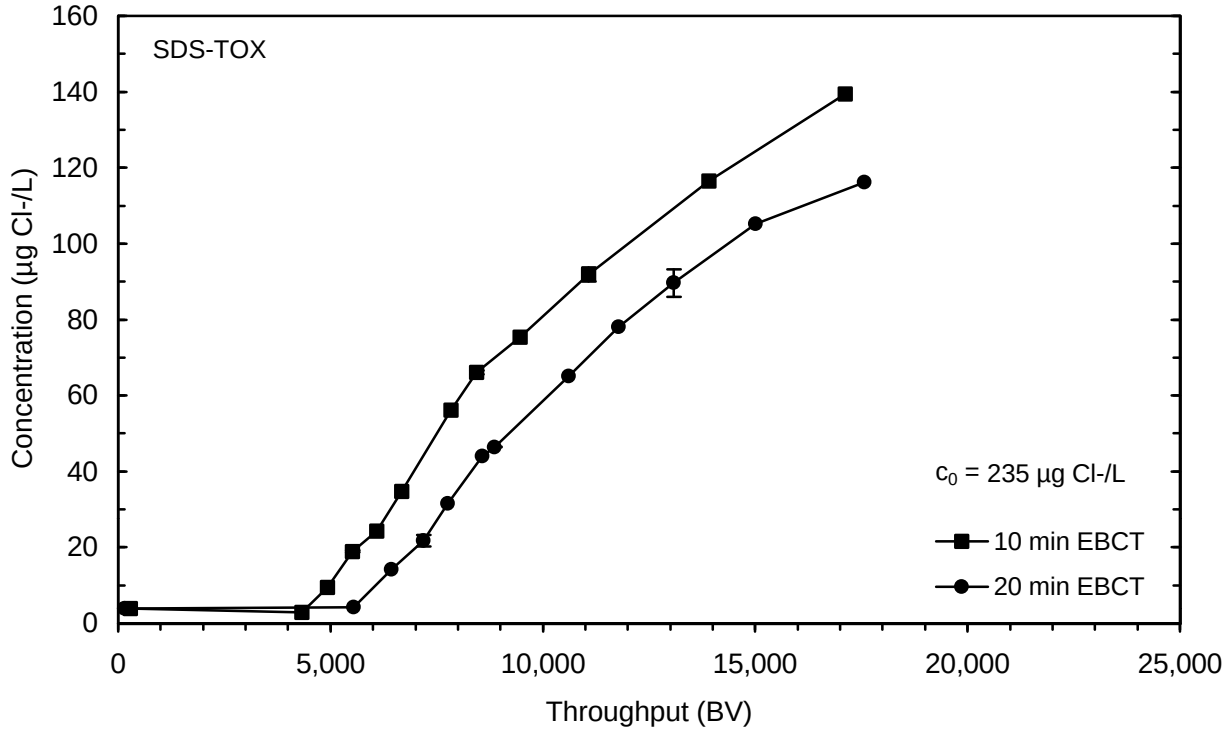


Figure 86 SDS-TOX breakthrough for 10 and 20 minute EBCT contactors during session 2 (September), plotted as throughput in bed volumes treated

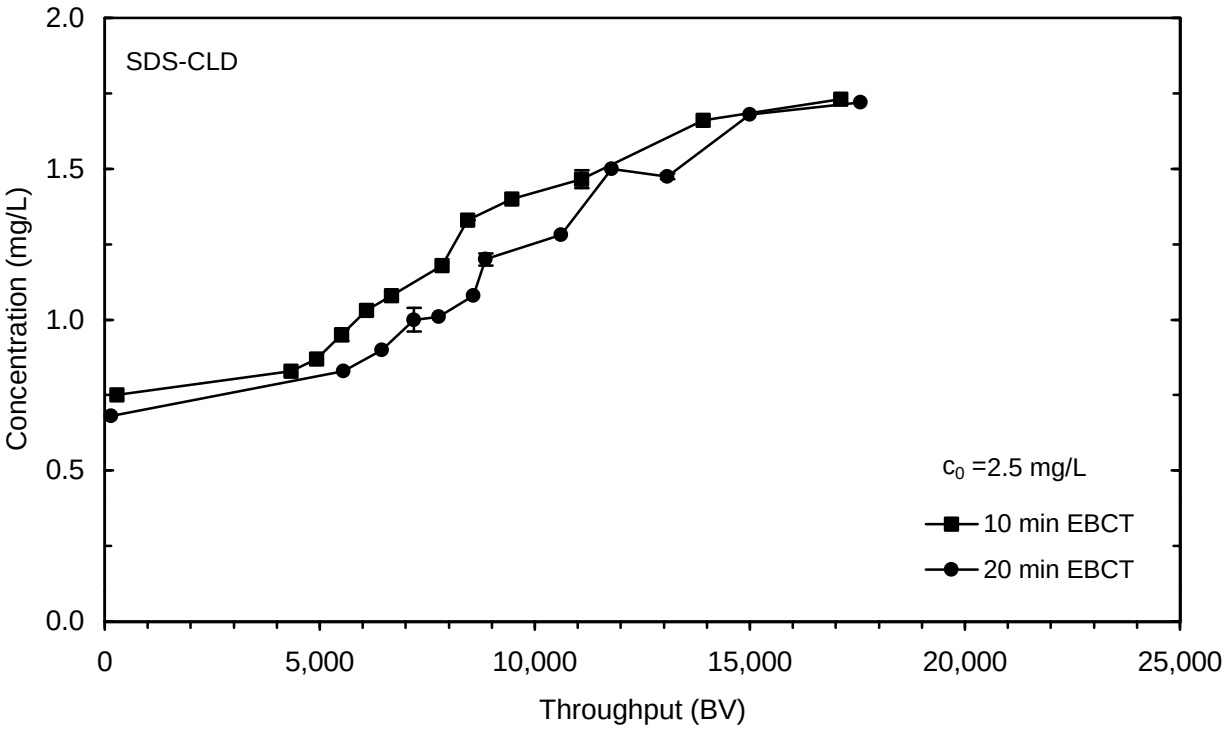


Figure 87 SDS-CLD breakthrough for 10 and 20 minute EBCT contactors during session 2 (September), plotted as throughput in bed volumes treated

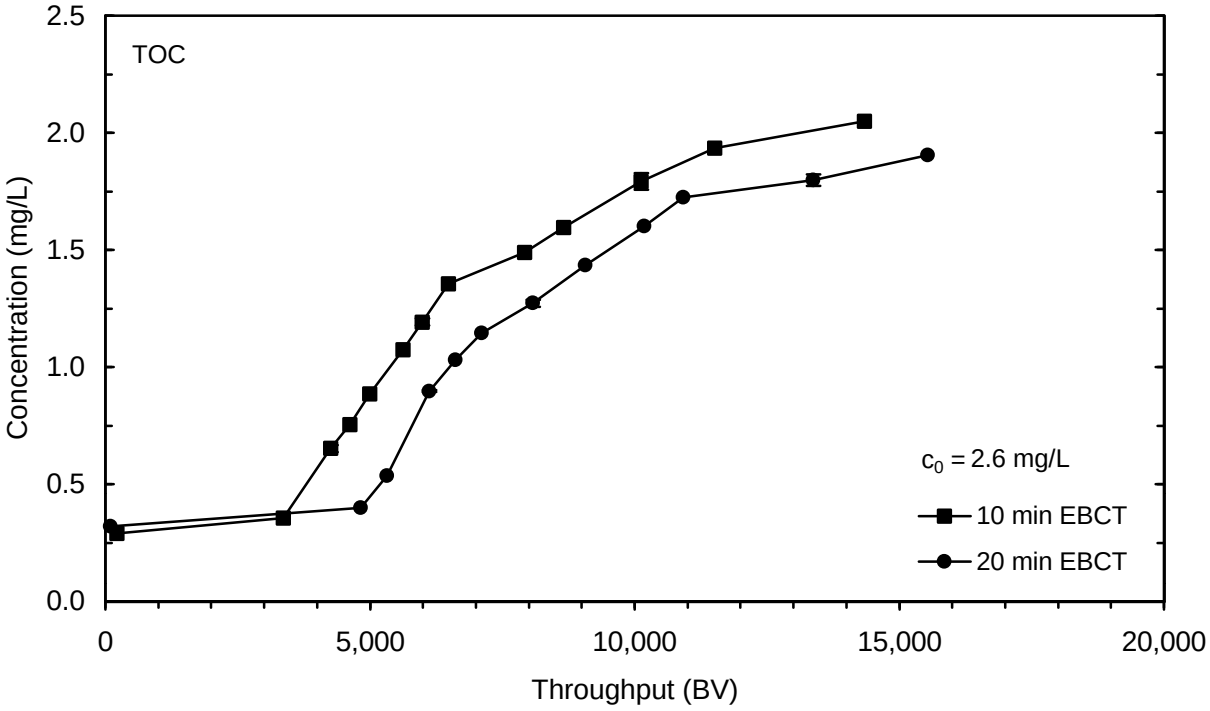


Figure 88 TOC breakthrough for 10 and 20 minute EBCT contactors during session 3 (January), plotted as throughput in bed volumes treated

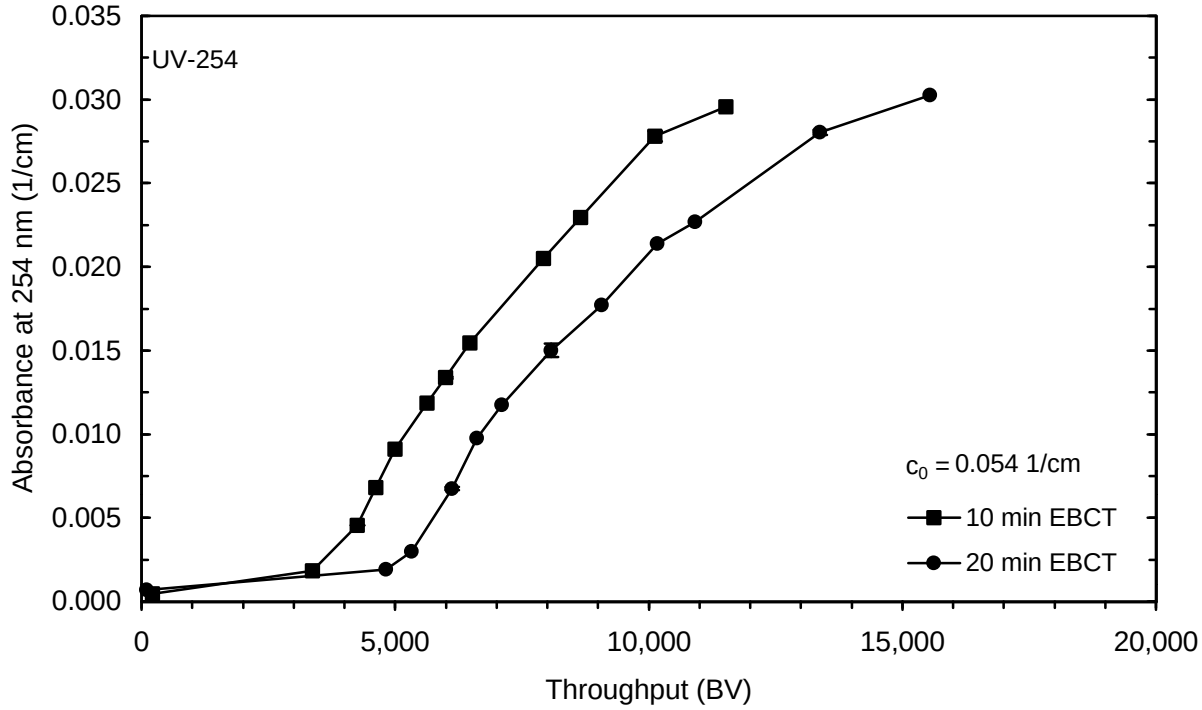


Figure 89 UV-254 breakthrough for 10 and 20 minute EBCT contactors during session 3 (January), plotted as throughput in bed volumes treated

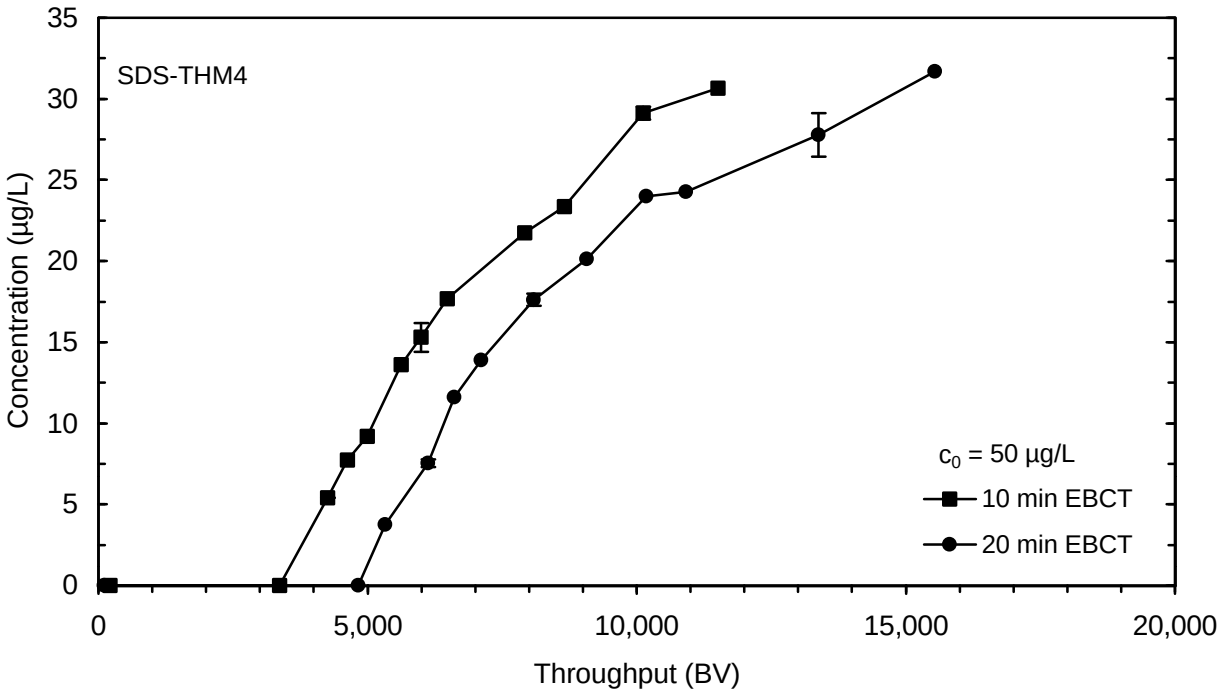


Figure 90 SDS-THM4 breakthrough for 10 and 20 minute EBCT contactors during session 3 (January), plotted as throughput in bed volumes treated

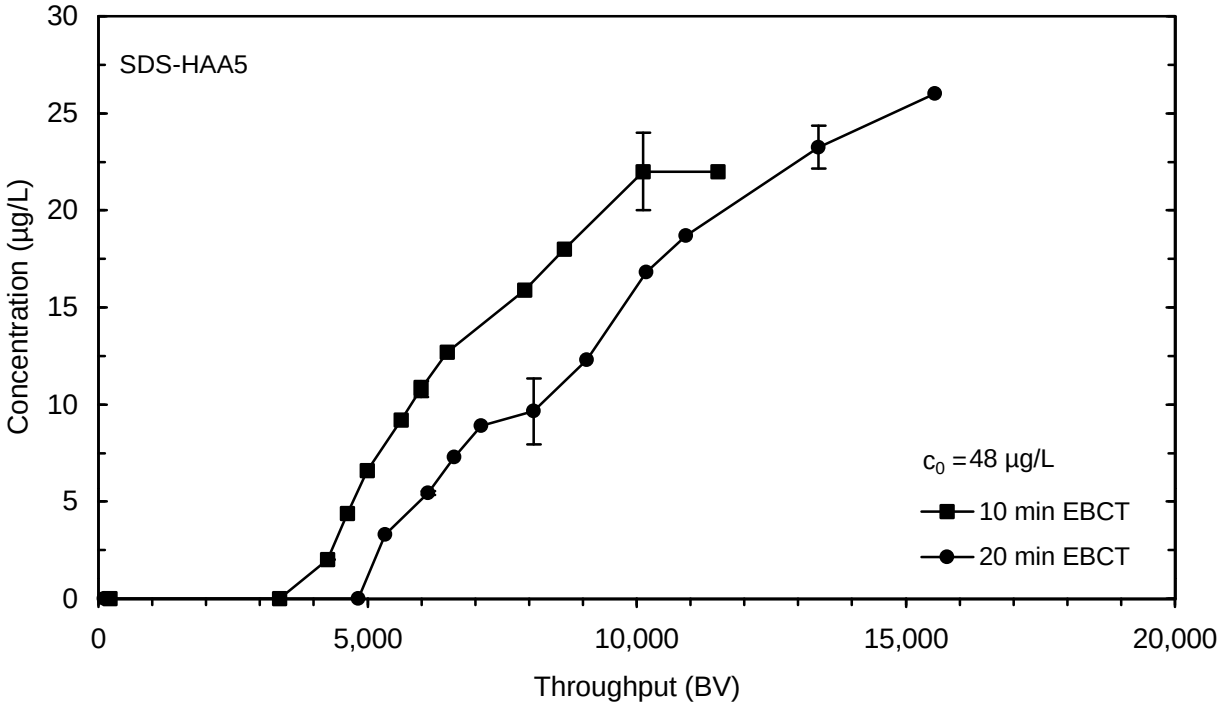


Figure 91 SDS-HAA5 breakthrough for 10 and 20 minute EBCT contactors during session 3 (January), plotted as throughput in bed volumes treated

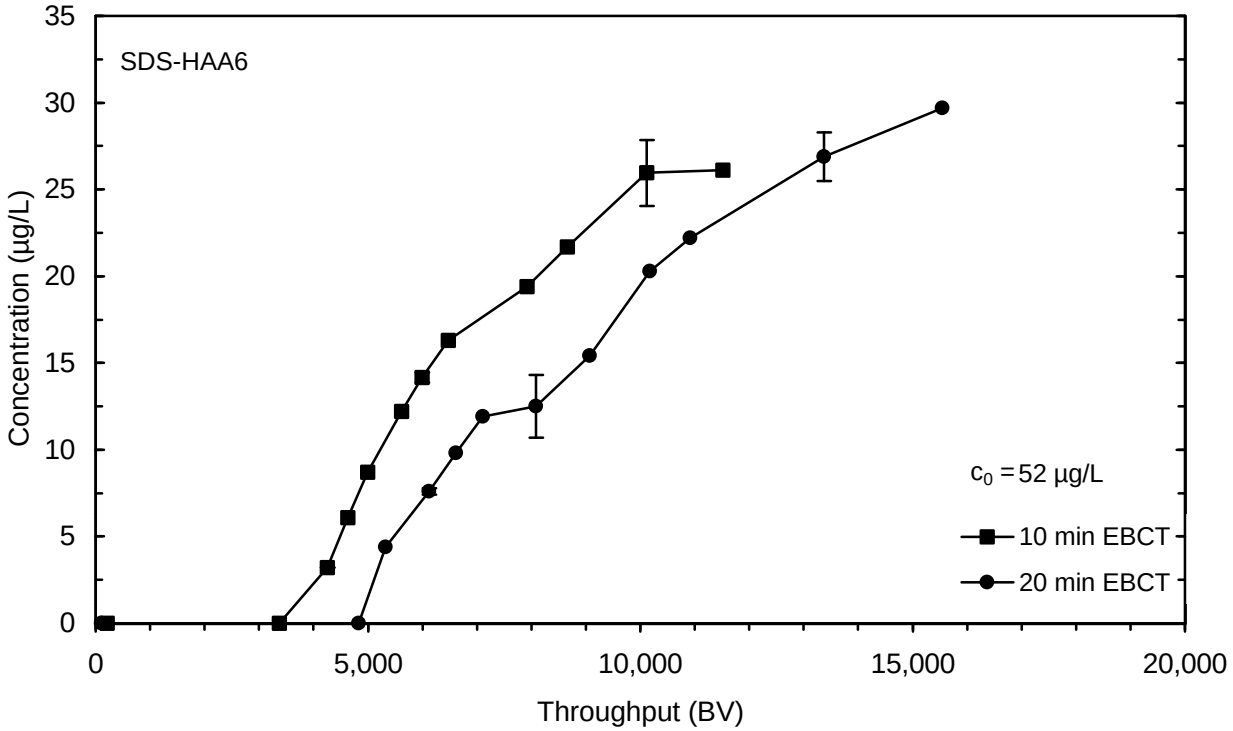


Figure 92 SDS-HAA6 breakthrough for 10 and 20 minute EBCT contactors during session 3 (January), plotted as throughput in bed volumes treated

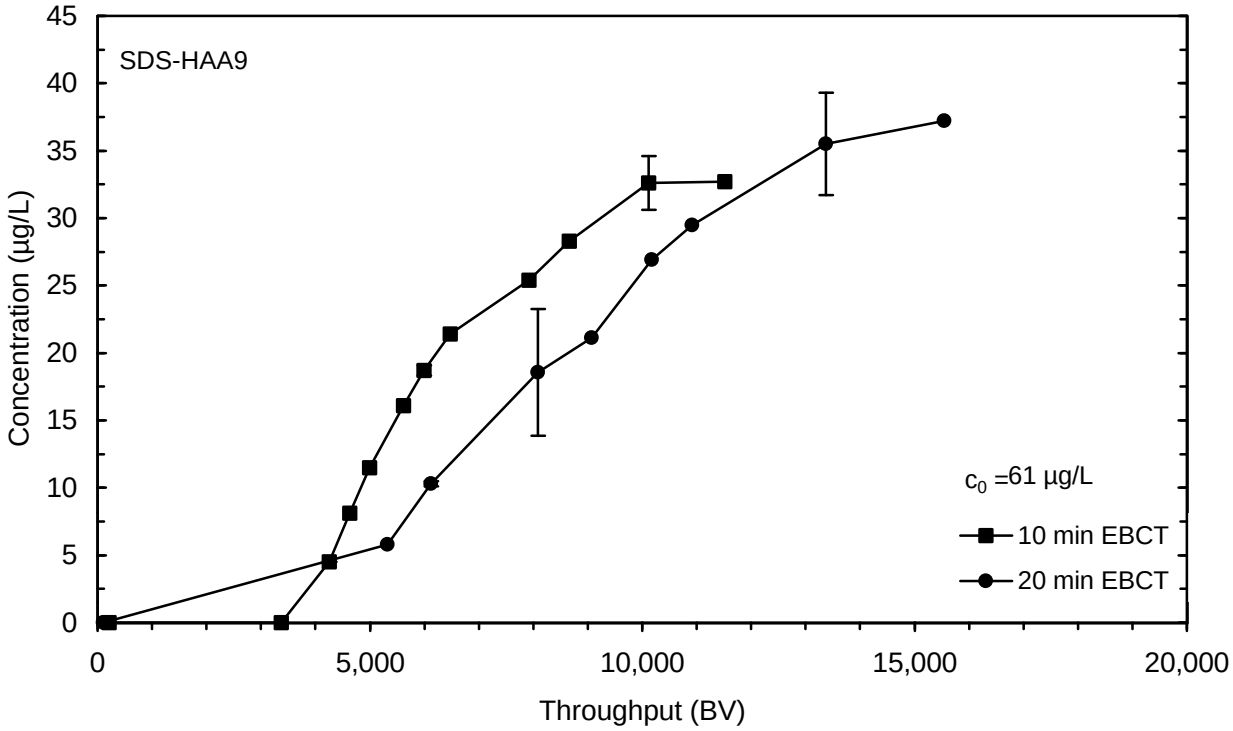


Figure 93 SDS-HAA9 breakthrough for 10 and 20 minute EBCT contactors during session 3 (January), plotted as throughput in bed volumes treated

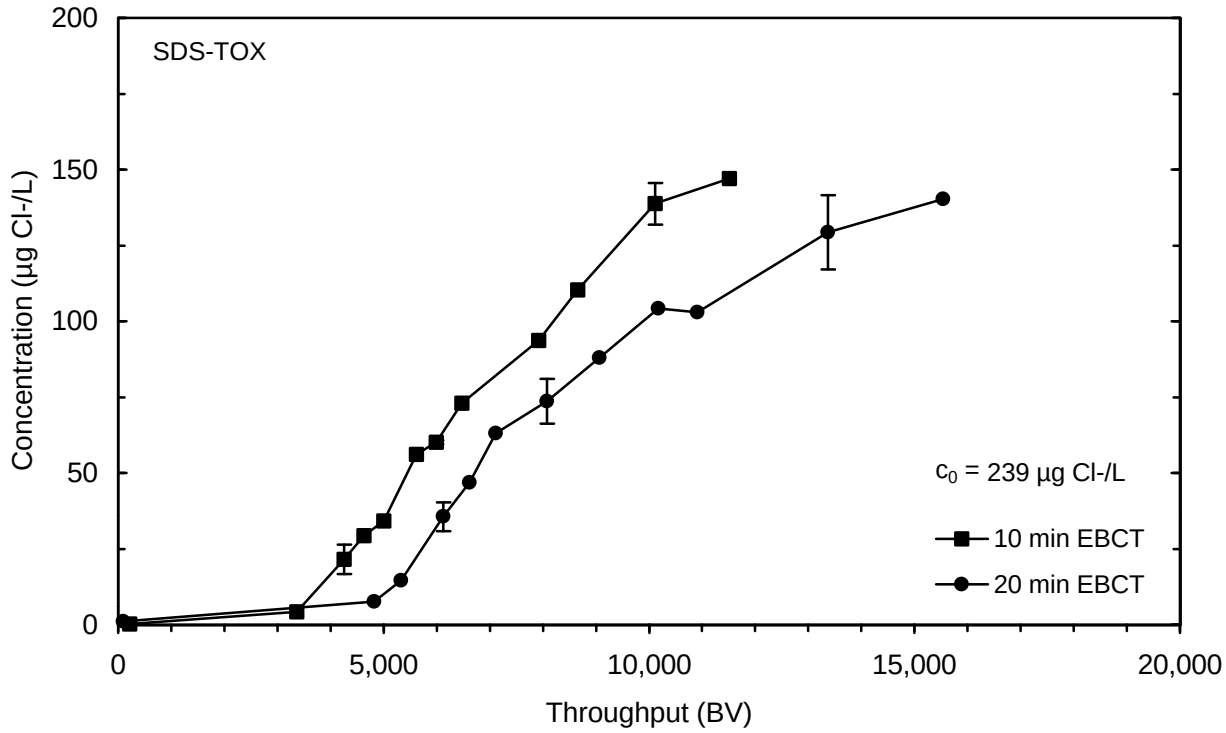


Figure 94 SDS-TOX breakthrough for 10 and 20 minute EBCT contactors during session 3 (January), plotted as throughput in bed volumes treated

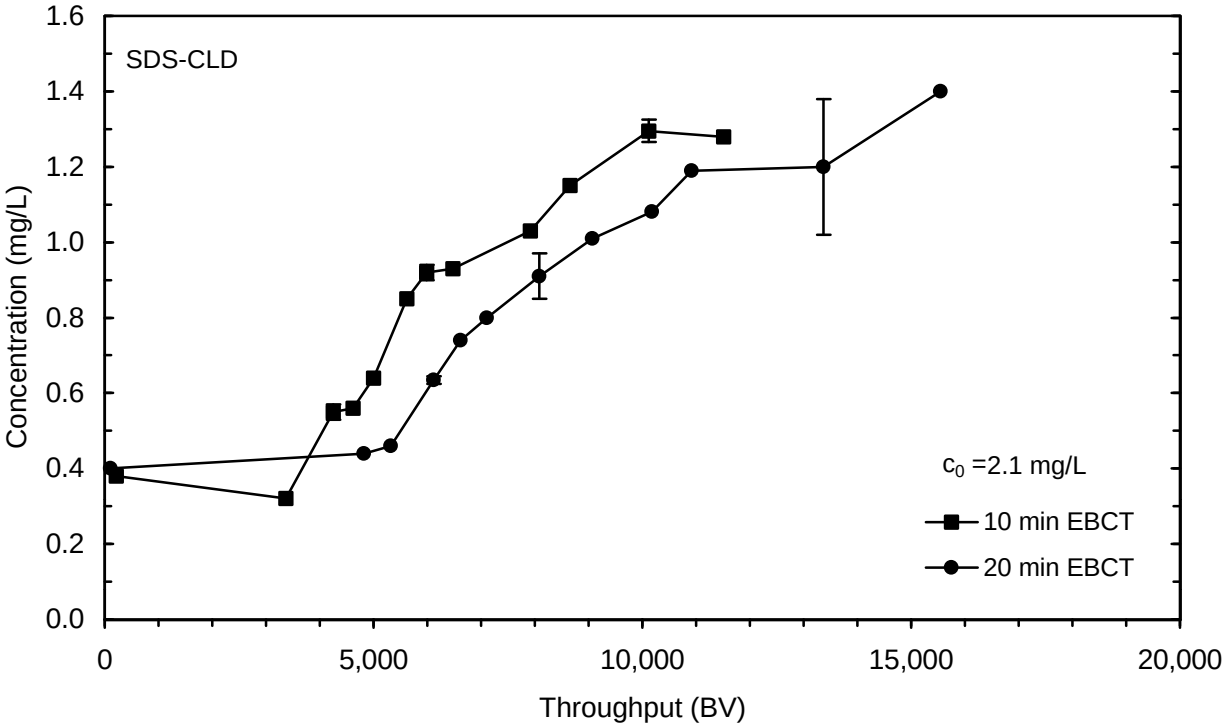


Figure 95 SDS-CLD breakthrough for 10 and 20 minute EBCT contactors during session 3 (January), plotted as throughput in bed volumes treated

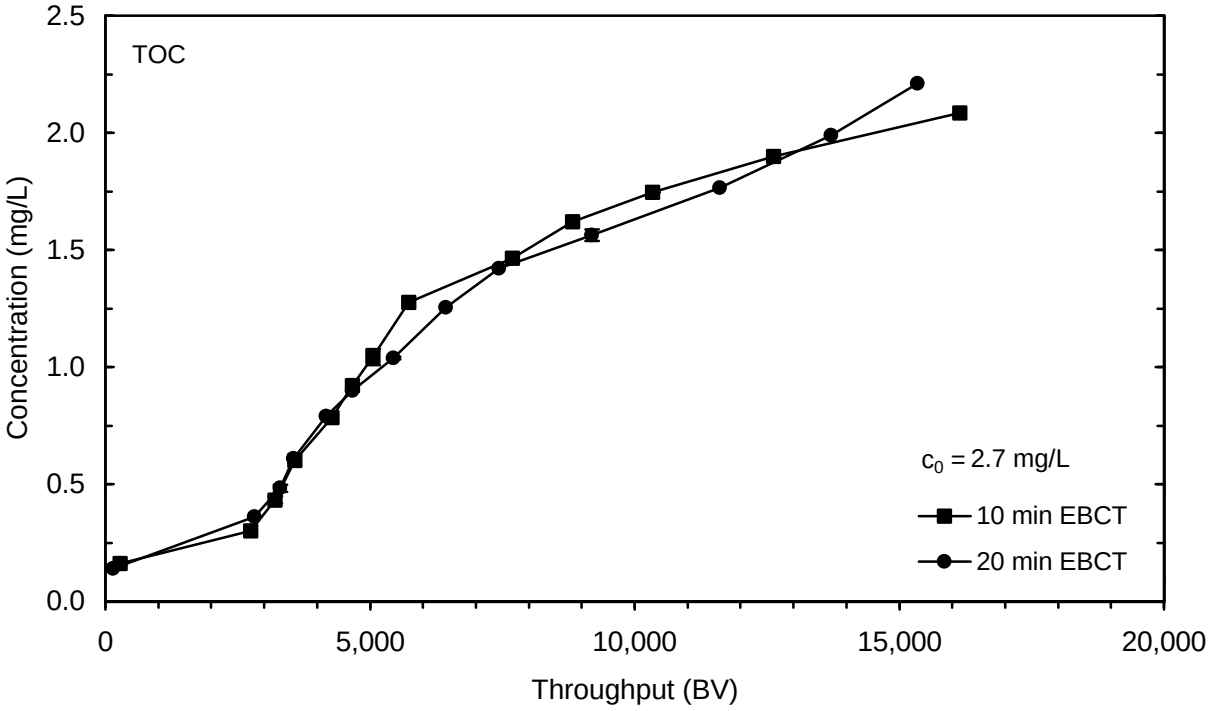


Figure 96 TOC breakthrough for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite), plotted as throughput in bed volumes treated

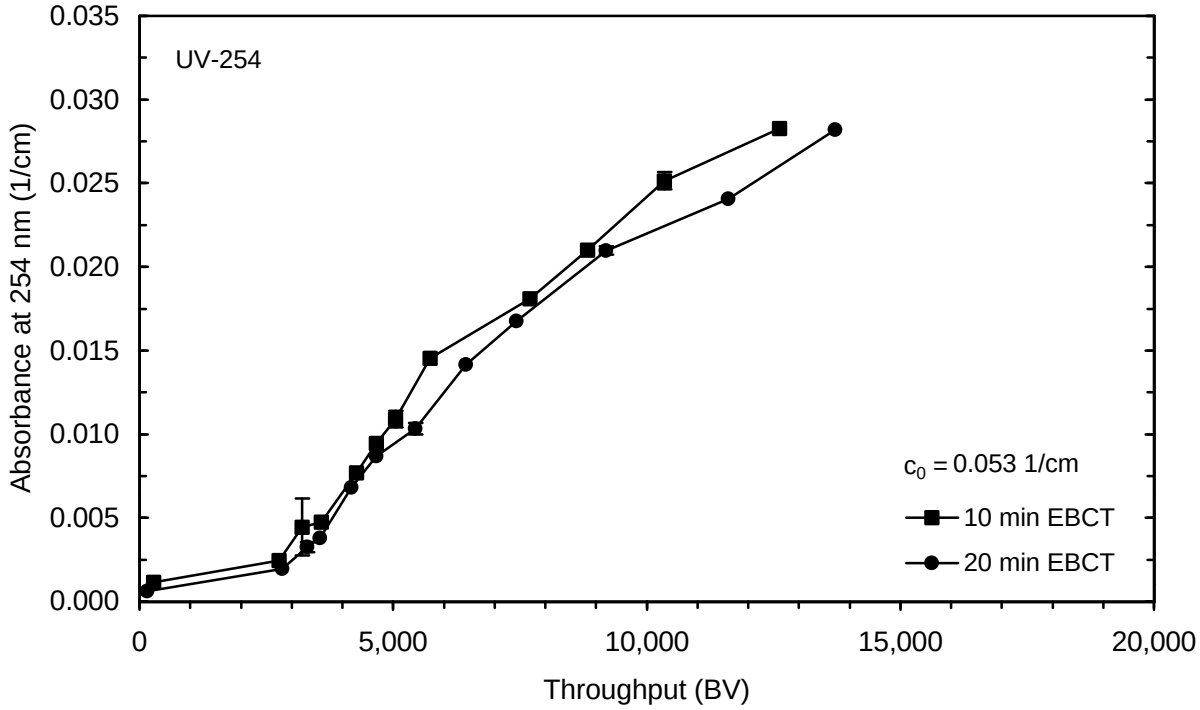


Figure 97 UV-254 breakthrough for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite), plotted as throughput in bed volumes treated

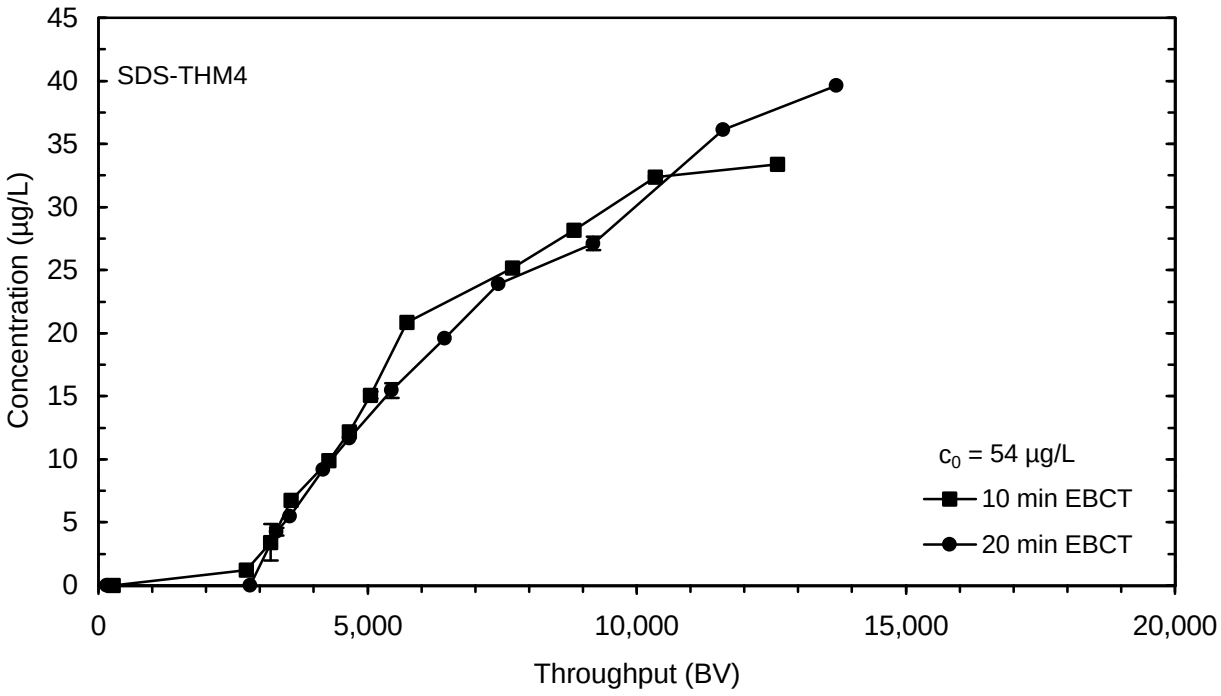


Figure 98 SDS-THM4 breakthrough for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite), plotted as throughput in bed volumes treated

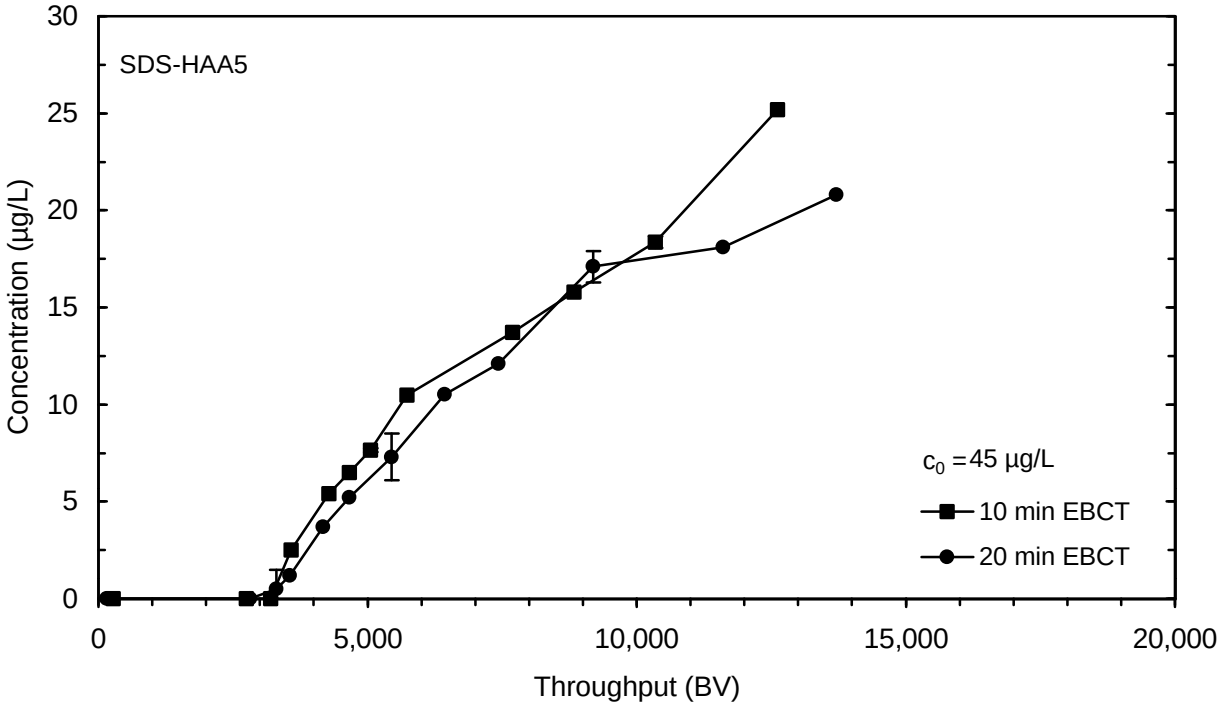


Figure 99 SDS-HAA5 breakthrough for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite), plotted as throughput in bed volumes treated

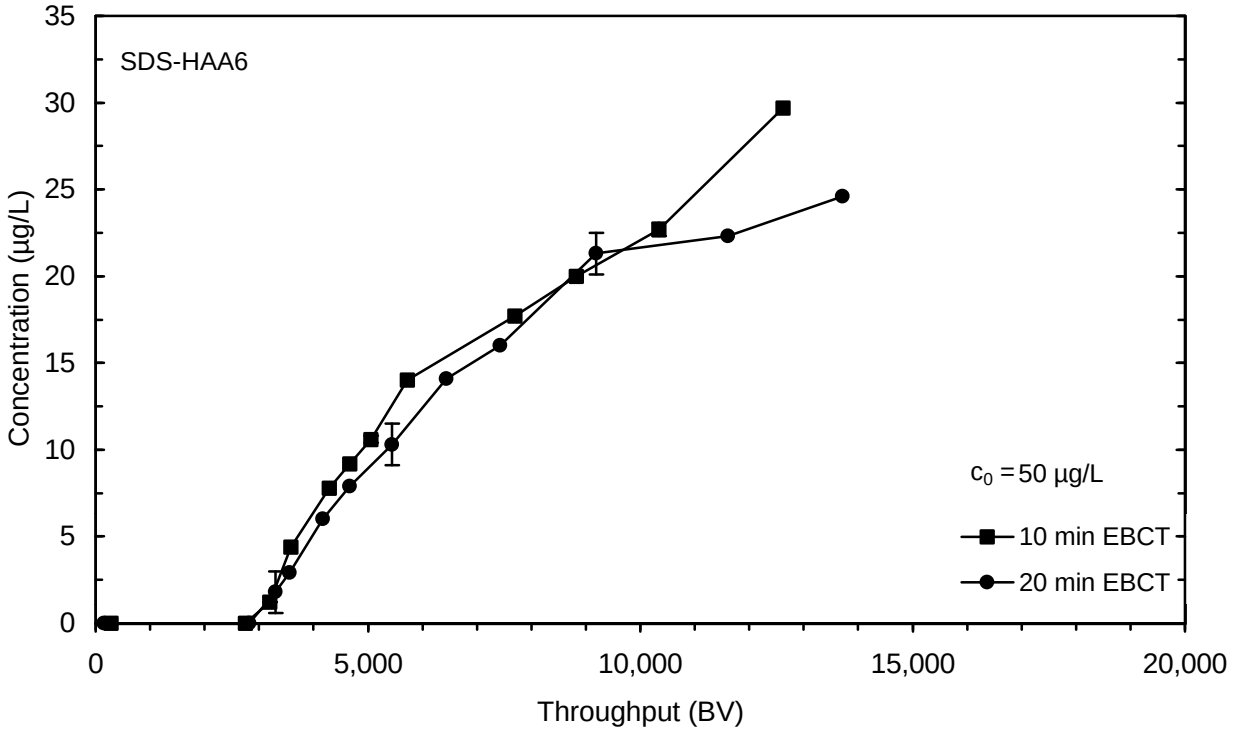


Figure 100 SDS-HAA6 breakthrough for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite), plotted as throughput in bed volumes treated

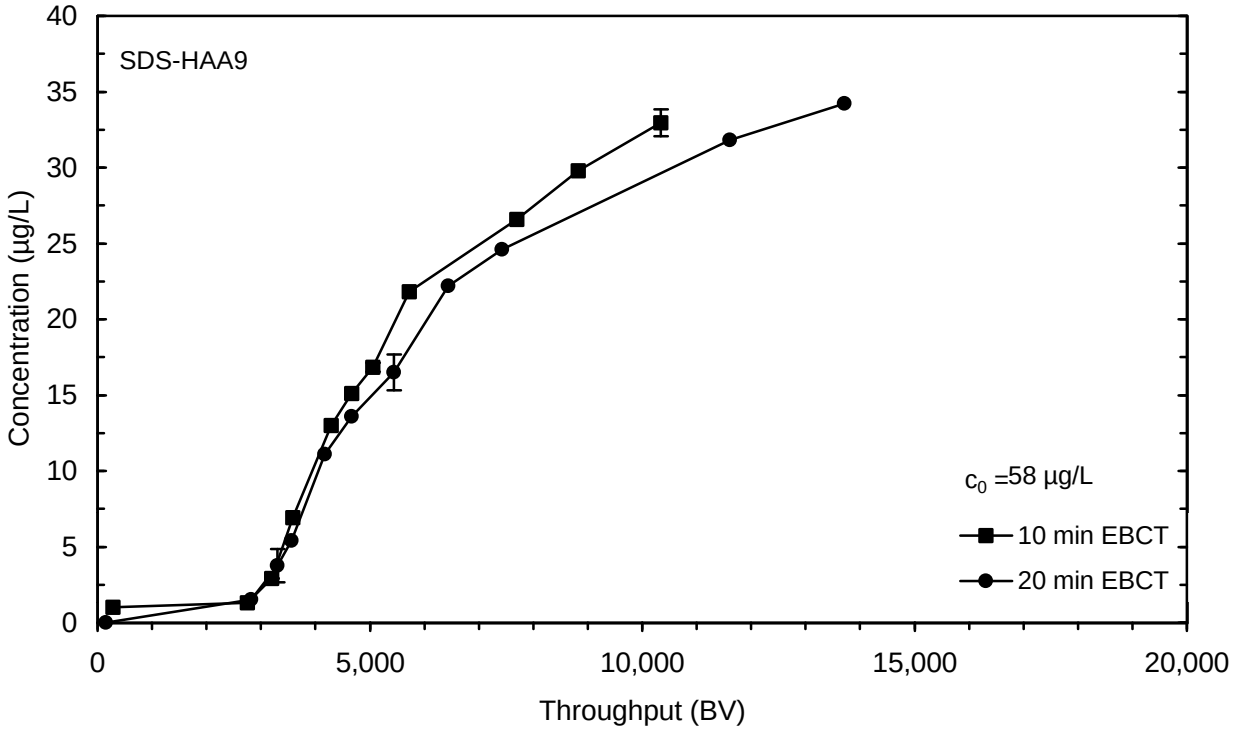


Figure 101 SDS-HAA9 breakthrough for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite), plotted as throughput in bed volumes treated

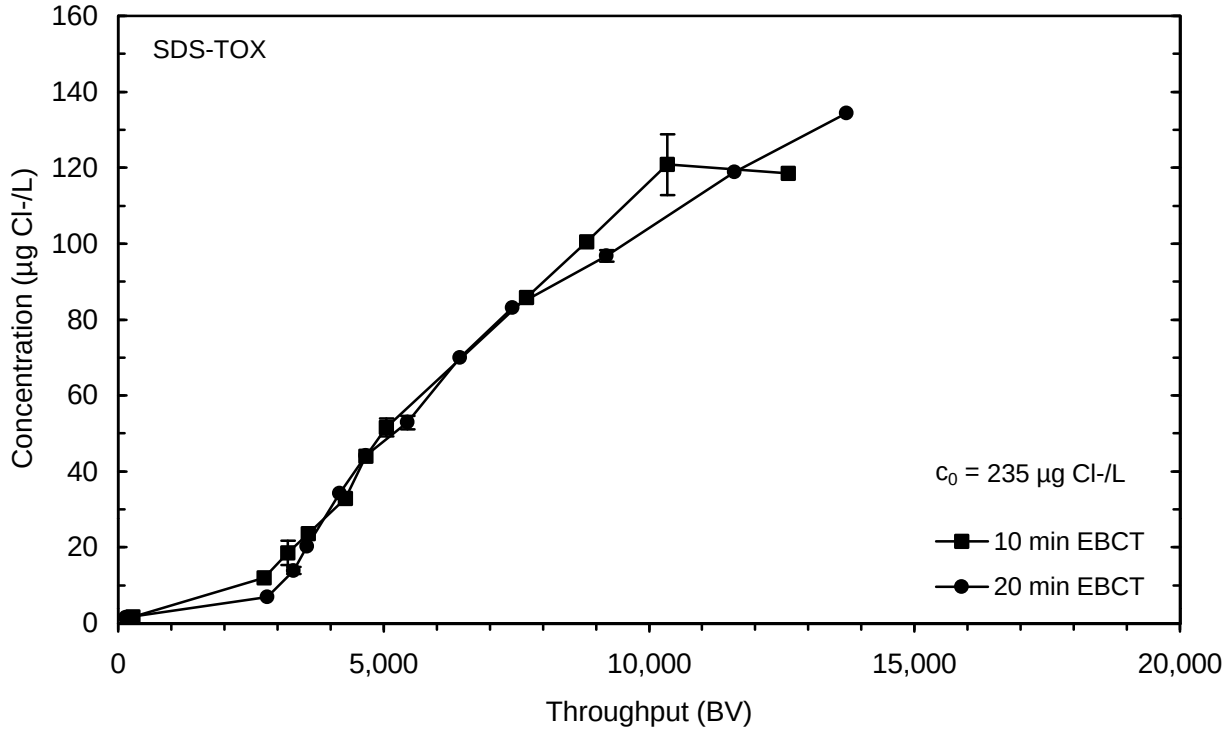


Figure 102 SDS-TOX breakthrough for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite), plotted as throughput in bed volumes treated

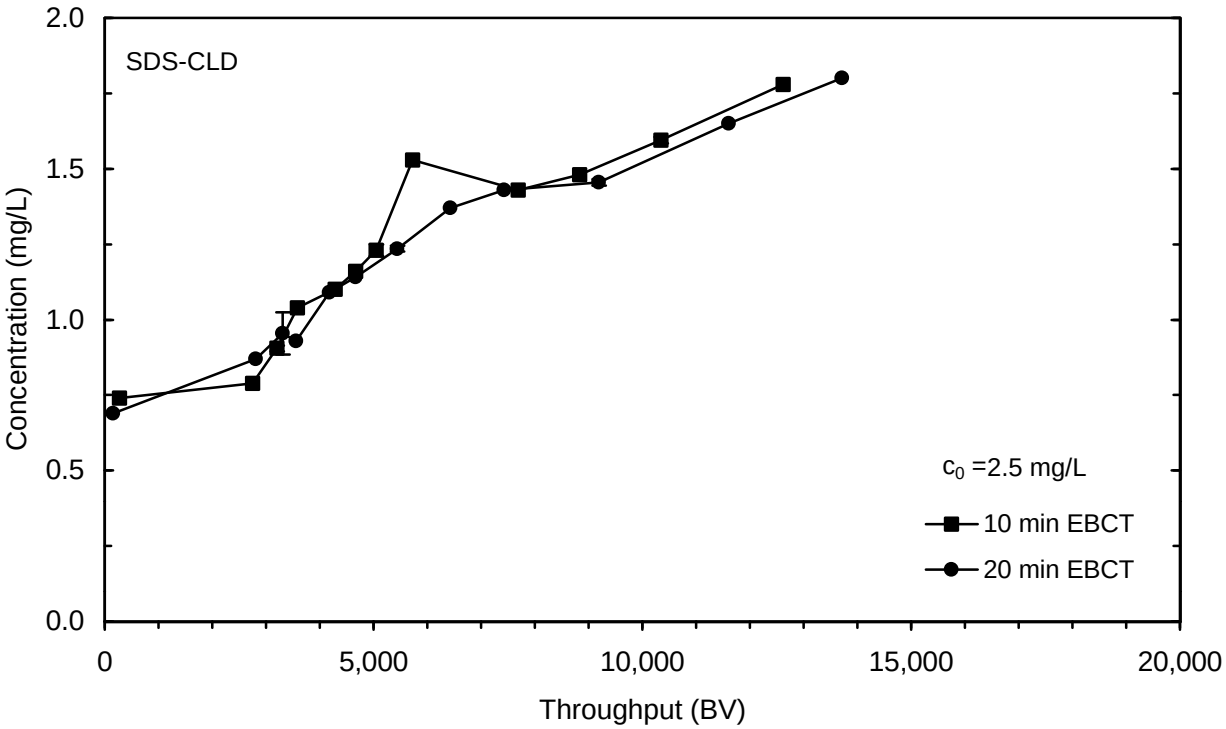


Figure 103 SDS-CLD breakthrough for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite), plotted as throughput in bed volumes treated

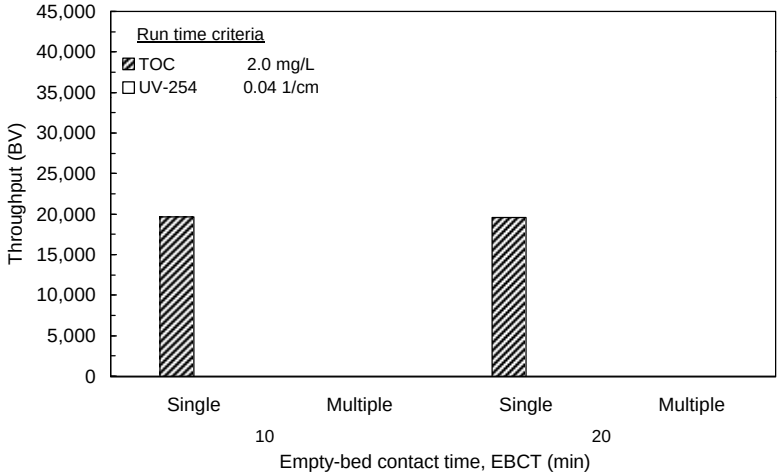


Figure 104 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 1 (June)

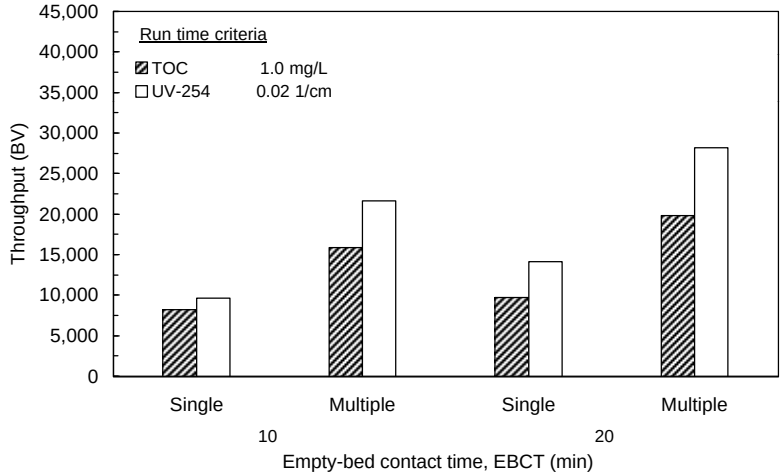


Figure 105 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 1 (June)

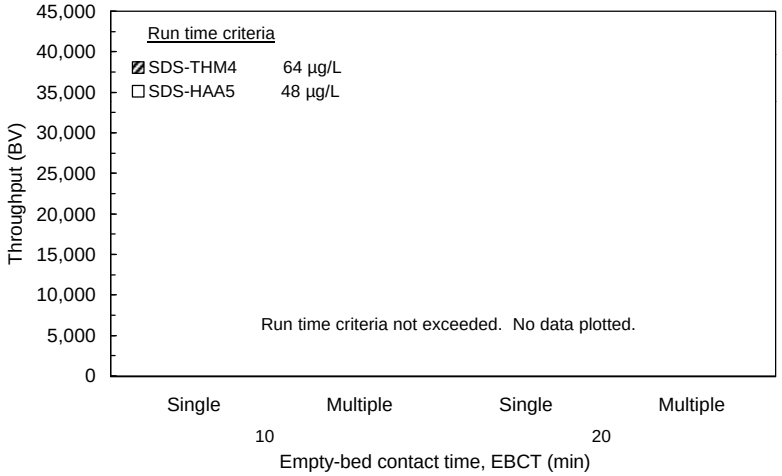


Figure 106 Throughput based on single contactors and effluent blending for Stage 1 SDS-THM4 and SDS-HAA5 effluent criteria during session 1 (June)

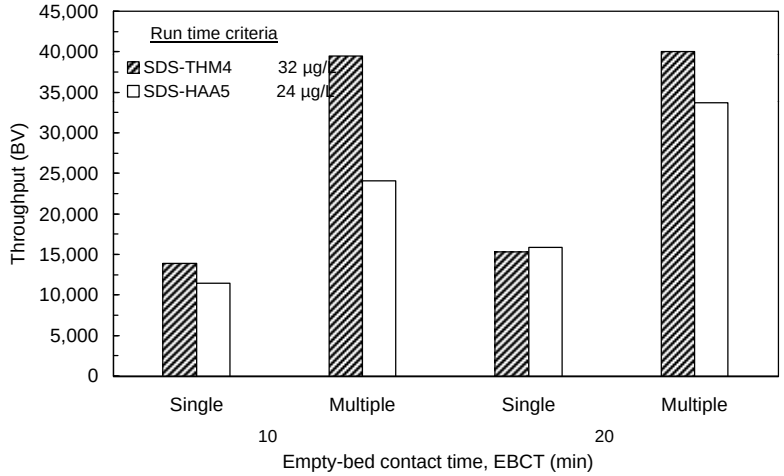


Figure 107 Throughput based on single contactors and effluent blending for Stage 2 SDS-THM4 and SDS-HAA5 effluent criteria during session 1 (June)

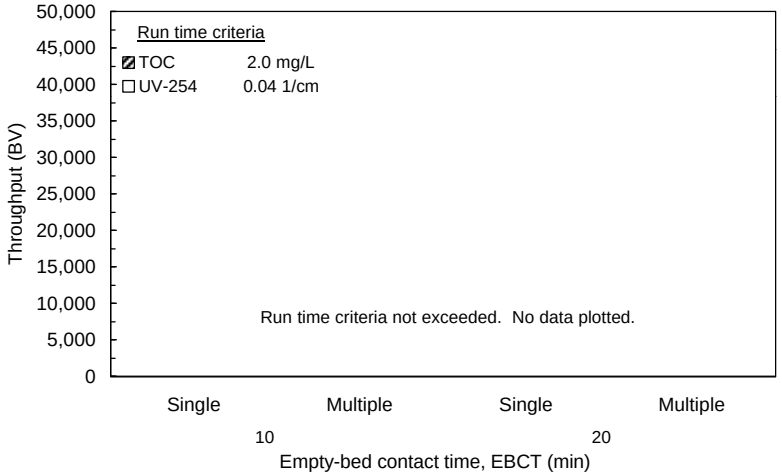


Figure 108 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 2 (September)

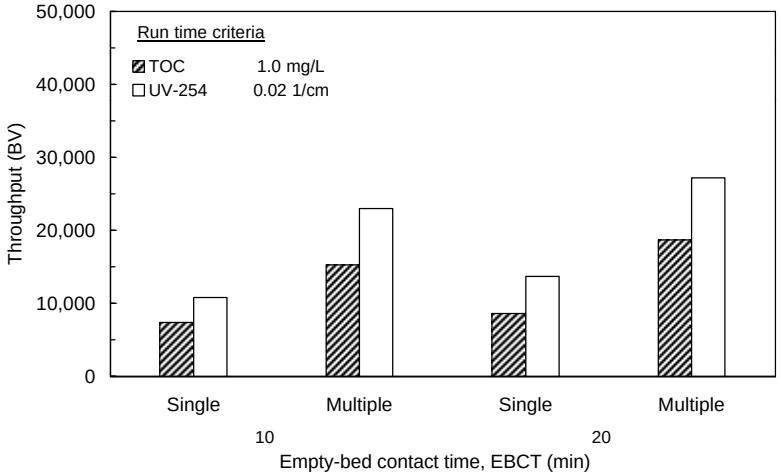


Figure 109 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 2 (September)

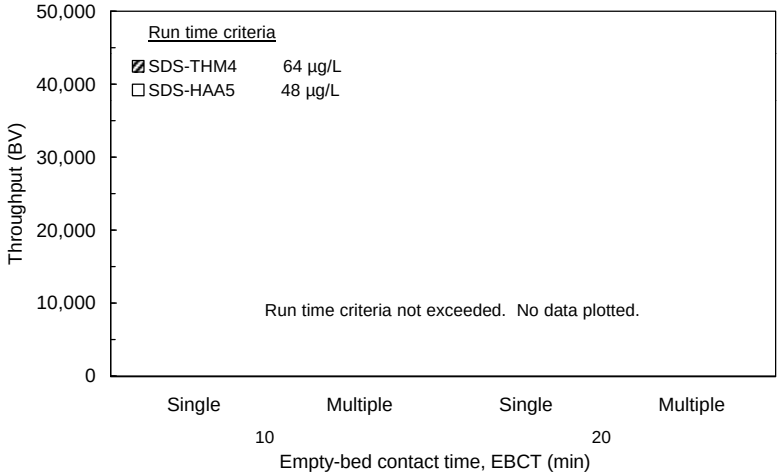


Figure 110 Throughput based on single contactors and effluent blending for Stage 1 SDS-THM4 and SDS-HAA5 effluent criteria during session 2 (September)

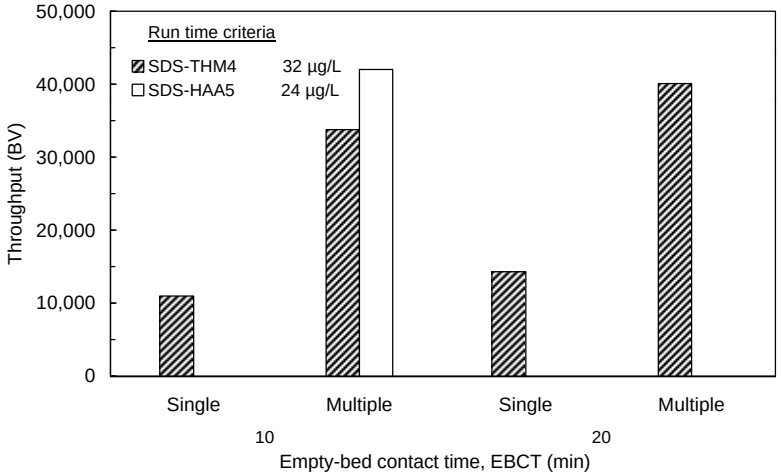


Figure 111 Throughput based on single contactors and effluent blending for Stage 2 SDS-THM4 and SDS-HAA5 effluent criteria during session 2 (September)

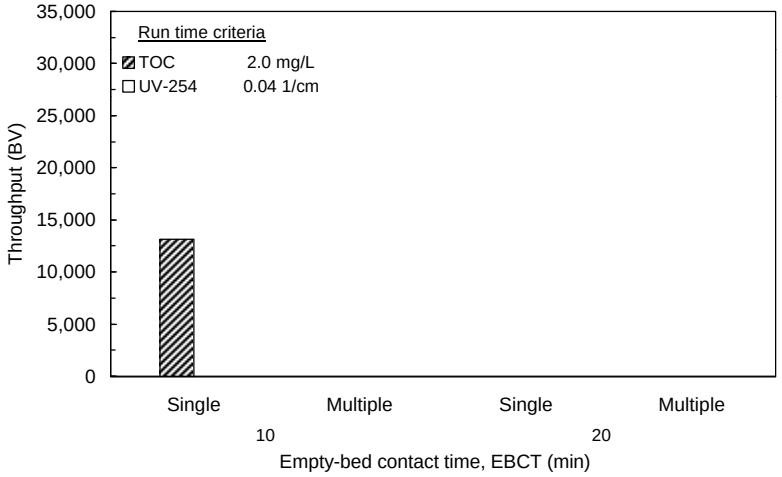


Figure 112 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 3 (January)

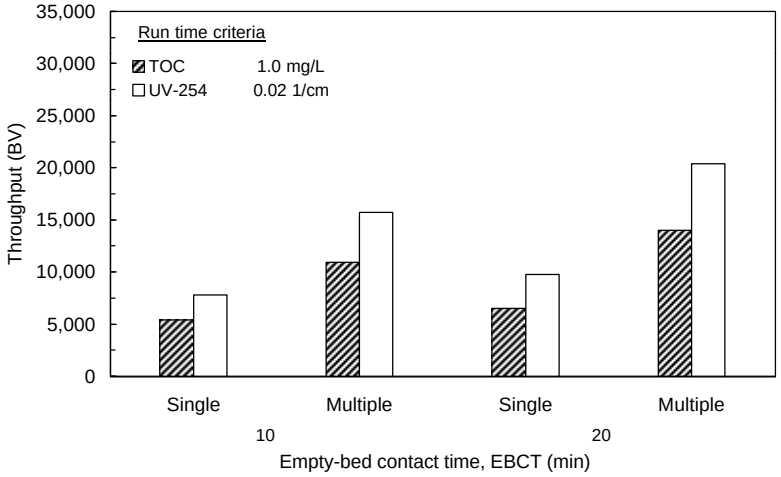


Figure 113 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 3 (January)

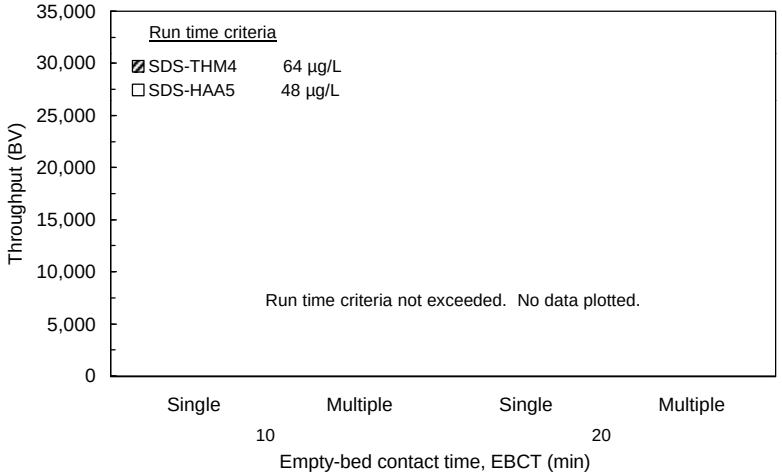


Figure 114 Throughput based on single contactors and effluent blending for Stage 1 SDS-THM4 and SDS-HAA5 effluent criteria during session 3 (January)

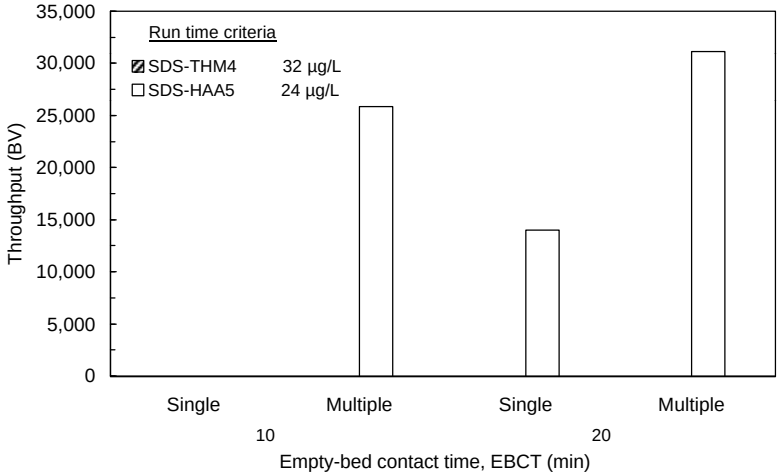


Figure 115 Throughput based on single contactors and effluent blending for Stage 2 SDS-THM4 and SDS-HAA5 effluent criteria during session 3 (January)

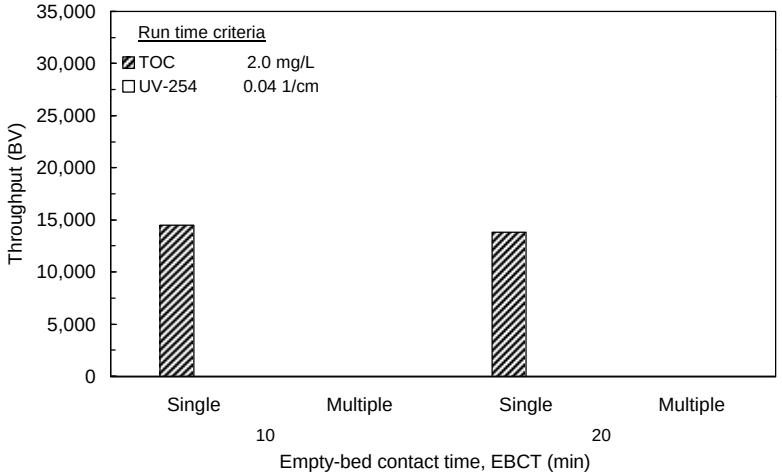


Figure 116 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 4 (Sept-Lignite)

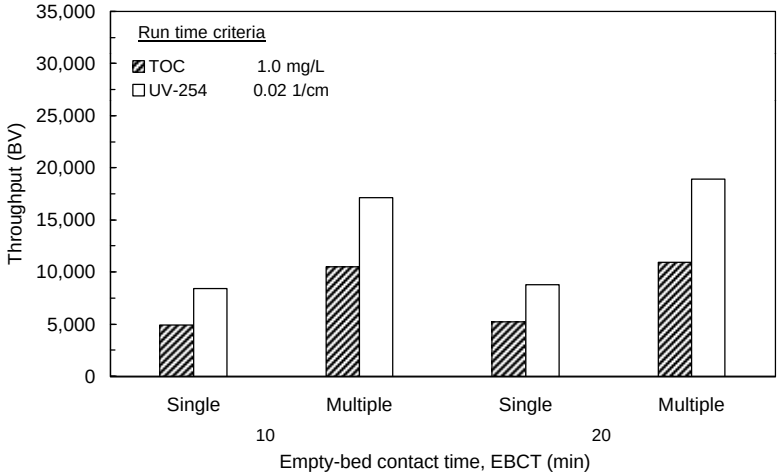


Figure 117 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 4 (Sept-Lignite)

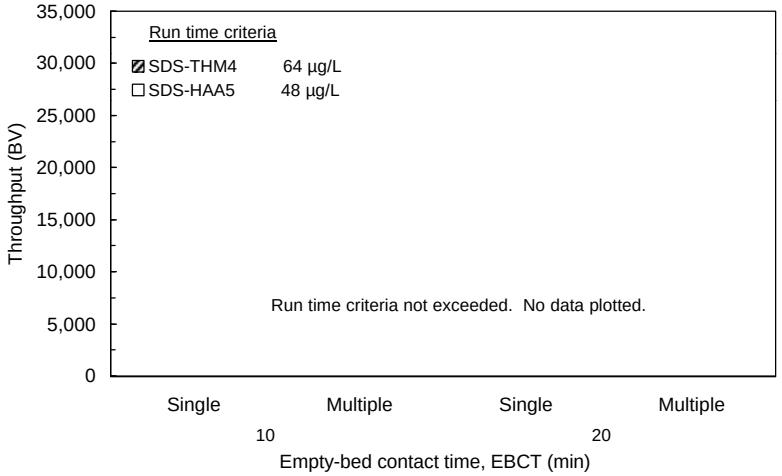


Figure 118 Throughput based on single contactors and effluent blending for Stage 1 SDS-THM4 and SDS-HAA5 effluent criteria during session 4 (Sept-Lignite)

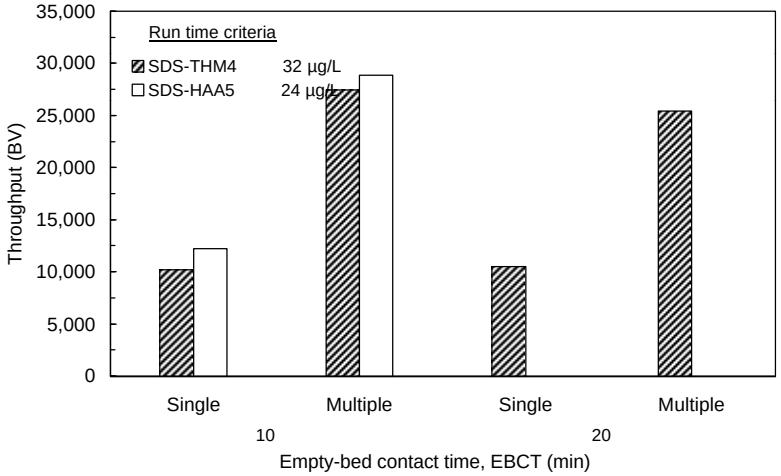


Figure 119 Throughput based on single contactors and effluent blending for Stage 2 SDS-THM4 and SDS-HAA5 effluent criteria during session 4 (Sept-Lignite)

11 *Blended Effluent Simulation and Breakthrough Curve Extrapolation*

11 Blended Effluent Simulation and Breakthrough Curve Extrapolation

The data generated by an RSSCT simulates the performance of a single GAC contactor for DBP precursor control. For single contactor operation, when the effluent water quality exceeds levels set as run time criteria, the GAC must be replaced with reactivated or virgin GAC. In practice, multiple GAC contactors in parallel are used, and GAC run times are lengthened significantly by operating the contactors in a staggered mode: the GAC in each contactor is replaced with reactivated or virgin GAC at regular intervals (Westrick and Cohen, 1976; Roberts and Summers, 1982). The effluent from all contactors is blended prior to disinfection. Since only the blended effluent must meet a given water quality objective, each contactor can be operated longer and produce a water quality in excess of the system water quality objective. As a prelude to any type of cost analysis, the impact of blended GAC contactor effluents should be considered.

It is possible to model the performance of contactors operated in parallel staggered mode using the data produced by a single RSSCT. The breakthrough curve data are first fit to the logistic function, a function that results in a characteristic S-shape curve typical of breakthrough curves:

$$C(t) = \frac{A_f - A_0}{1 + Be^{-Dt}} + A_0 \qquad (2)$$

This form of the logistic function is a variation of that presented in Chowdhury et al. (1996). The parameters A_f, A_0, B, and D are varied for a best-fit of the data by a sum of squares minimization algorithm. An equation that simulates a blended effluent scenario can be derived by the following integration of the logistic function:

$$\overline{C}(t) = \frac{1}{t}\int_0^t C(t)dt \qquad (3)$$

For applications involving 10 or more staggered contactors operated in parallel, Equation 3 provides a good approximation of blended effluent water quality (Roberts and Summers, 1982). Integration of Equation 2 and substitution into Equation 3 yields:

$$\overline{C}(t) = A_f + \frac{A_f - A_0}{Dt}\ln\frac{1 + Be^{-Dt}}{1 + B} \qquad (4)$$

After a best fit of the breakthrough data to Equation 2 was determined (using a least squares minimization approach), the parameter values were input into Equation 4. A plot of Equation 4, therefore, gives the blended effluent concentration for any contactor run time. A summary of the best fit parameter values and r^2 values for fits to all 64 breakthrough sets is given in Table 36. As can be seen by the high r^2 values, >0.92, the model fit the data well. For all breakthrough curves, except those for SDS-CLD, the value for A_0 is zero and A_0 can be dropped from

Equations 2 and 4, yielding a three parameter model. The parameter A_0 is needed for SDS-CLD to account for the high initial breakthrough.

For the June session, Figures 120 through 127 contain single column and blended effluent breakthrough curves for both 10 and 20 minute EBCT contactors for TOC, UV_{254}, SDS-THM4, SDS-HAA5, SDS-HAA6, SDS-HAA9, SDS-TOX, and SDS-CLD. The analysis summarized in these plots demonstrates the significant impact on overall costs of accounting for a blended effluent situation. For instance, the 20 minute EBCT contactor TOC breakthrough curve plotted in Figure 120 reaches an effluent concentration of 1.0 mg/L after 134 days. However, the multiple contactor blended effluent breakthrough curve does not reach an effluent TOC concentration of 1.0 mg/L until after 276 days of single contactor operation time (a 106 percent increase). Thus, the operation time for each single contactor as a part of multiple GAC contactors operated in parallel staggered mode is more than doubled. A similar analysis can be made for SDS-THM4 and SDS-HAA5.

The single contactor and blended effluent (multiple contactors) comparisons are presented for the September, January, and September-lignite sessions for all parameters in Figures 128 through 151.

Table 37 summarizes the run time for a 10 minute EBCT contactor, assuming a blended effluent, for the June session. For each parameter and criterion, the value of other parameters is given when the run time criterion is met. Table 37 also includes, when applicable, run time calculations based on effluent blending of extrapolated breakthrough curves (described below). Tables 38 through 40 summarize the same information for the September, January, and September-lignite sessions. Tables 41 through 44 summarize the same information for the 20 minute EBCT contactor for all sessions.

For single and multiple contactor configurations, Tables 45 through 48 summarize the percent increase in run times observed between a 10 and 20 minute EBCT contactor, for all sessions. Based on the range of run time criteria applied, the average increase in run time between a 10 and 20 minute EBCT contactor over all bituminous coal-based GAC sessions was 156 and 153 percent for single and multiple contactor configurations, respectively. The average increase was only 113 and 114 for single and multiple contactor configurations, respectively, for the session evaluating lignite coal-based GAC.

By accounting for multiple contactor configurations, the estimated 10 minute EBCT contactor run time increased by an average of 122 percent over all sessions, as compared to single contactor performance. Thus, when 10 or more contactors are operated in staggered mode, the run time of each contactor is 122 percent longer than that of a single GAC contactor. For 20 minute EBCT contactors, the run time increase gained by effluent blending was similar: 118 percent.

The carbon usage rate (CUR) is a measure of the amount of carbon needed to treat water to the given GAC effluent run time criterion. The CUR is calculated by the following equation:

$$\mathrm{CUR} = \frac{\mathrm{EBCT} * r}{\mathrm{RT}} \qquad (5)$$

where r is the GAC density and RT is the run time. The CUR is normally reported with units of lbs/MG. Tables 49 through 52 summarize the percent decrease in CUR observed between 10 and 20 minute EBCT contactors for both single and multiple contactor configurations for all sessions. On average over all bituminous coal-based GAC sessions, the CUR for 20 minute EBCT contactors was 21 percent lower than the CUR for 10 minute EBCT contactors, based on single contactor breakthrough data. The difference was similar, 20 percent, based on multiple contactor effluent blending. For the lignite coal-based GAC session, the decrease in CUR was 6 percent, based on either single contactor or multiple contactor effluent blending. A value for r of 31 and 25 lb/ft^3 was used to calculate the CUR for bituminous and coal based-GAC runs, respectively.

For a 10 minute EBCT contactor, the CUR based on effluent blending was on average 55 percent lower than the CUR based on single contactor data, for all sessions. The same difference was 54 percent for 20 minute EBCT contactors.

A seasonal comparison of multiple contactor simulation run times is summarized in Table 53, for a 10 minute EBCT, and in Table 54, for a 20 minute EBCT. The mean, standard deviation, and percent standard deviation of run times over all four sessions are listed in each table, providing a measure of the degree of seasonal variability evident in GAC performance.

Bar graph summaries of run times to effluent criteria for single and multiple contactor configurations and for 10 and 20 minute EBCTs for the June session are shown in Figures 152 through 155. The same data are shown for the September, January, and September-lignite sessions in Figures 156 through 167.

The calculated CURs are presented in a bar graph format for single and multiple contactor configurations and for both the 10 and 20 minute EBCTs for all four sessions in Figures 168 through 183.

For many breakthrough curves, the blended effluent simulation results did not exceed run time criteria. To increase the benefit of the data set, a breakthrough curve extrapolation procedure was developed to allow reasonable and conservative run time estimates to be made, when blended effluent levels did not exceed the reactivation criteria. To the original breakthrough curve data set for each parameter, three points were added at 150, 200, and 250 percent of the run time at which the last sample point was reported (t_{max}), based on the following set of equations:

Point	Run time	Concentration	
A	$1.5t_{max}$	$C(t_{max}) + 0.5[C_{inf} - C(t_{max})]$	(6)
B	$2.0t_{max}$	$C(t_{max}) + 0.6[C_{inf} - C(t_{max})]$	(7)
C	$2.5t_{max}$	$C(t_{max}) + 0.7[C_{inf} - C(t_{max})]$	(8)

where C_{inf} is the influent concentration for each parameter, and $C(t_{max})$ is the effluent concentration of the parameter at t_{max}.

The logistic function curve was fit to the data set including the three extrapolation points. The integrated form of the logistic function (Equation 4) was again used to estimate blended effluent water quality for the extrapolation. The run time and CUR data contained in the figures and tables presented earlier in this section include the estimates derived by the extrapolation procedure, when necessary. No breakthrough curves were extrapolated beyond 250 percent of the maximum run time. Figures 184 through 239 contain the extrapolated breakthrough curves for all parameters, EBCTs, and quarters. Table 55 summarizes the best fit parameter values and r^2 values for all curve fits.

Parameter	Coefficient	10 minute EBCT				20 minute EBCT			
		June	September	January	Sept-Lignite	June	September	January	Sept-Lignite
TOC	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	2.79	2.34	2.41	2.53	2.75	2.27	2.47	2.41
	B	16.7	11.2	12.6	12.5	12.5	17.3	9.5	9.4
	D	0.140	0.089	0.100	0.110	0.047	0.045	0.036	0.043
	r^2	0.974	0.969	0.988	0.990	0.986	0.991	0.992	0.976
UV_{254}	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	0.050	0.038	0.040	0.035	0.049	0.038	0.037	0.037
	B	22.8	20.0	20.0	20.0	20.0	20.0	20.0	12.4
	D	0.116	0.105	0.097	0.129	0.043	0.041	0.043	0.040
	r^2	0.976	0.986	0.991	0.987	0.982	0.990	0.991	0.977
SDS-THM4	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	42.2	38.1	76.6	64.7	30.7	35.8	81.9	65.6
	B	30.6	23.8	20.0	12.6	51.9	24.4	14.5	15.2
	D	0.157	0.135	0.106	0.113	0.094	0.056	0.037	0.052
	r^2	0.973	0.965	0.984	0.970	0.996	0.985	0.980	0.980
SDS-HAA5	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	15.4	17.9	19.2	18.3	18.3	17.4	19.2	17.7
	B	84.6	60.9	50.2	27.3	23.4	37.3	21.9	27.1
	D	0.223	0.157	0.145	0.133	0.042	0.059	0.044	0.052
	r^2	0.898	0.966	0.960	0.973	0.986	0.885	0.975	0.957
SDS-HAA6	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	19.3	22.3	24.6	23.1	21.6	21.8	24.0	22.7
	B	110.2	45.8	50.1	24.6	23.3	32.7	23.7	23.3
	D	0.240	0.151	0.150	0.138	0.048	0.059	0.049	0.053
	r^2	0.931	0.966	0.965	0.972	0.984	0.899	0.972	0.950
SDS-HAA9	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	23.1	24.9	28.0	27.8	20.4	23.5	27.1	30.0
	B	121.0	31.3	42.5	34.0	77.6	43.5	19.1	12.7
	D	0.234	0.147	0.151	0.157	0.085	0.079	0.049	0.038
	r^2	0.959	0.979	0.972	0.941	0.986	0.943	0.982	0.894
SDS-TOX	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	122	114	155	147	129	118	148	141
	B	89.5	37.7	29.1	21.1	759.0	37.3	21.7	14.1
	D	0.182	0.133	0.112	0.118	0.086	0.050	0.043	0.041
	r^2	0.977	0.983	0.986	0.989	0.985	0.979	0.982	0.978
SDS-CLD	A_o	0.27	0.27	0.71	1.87	0.33	0.28	0.89	1.41
	A_f	1.47	1.07	2.03	2.96	1.36	1.13	1.85	3.15
	B	5.3	20.3	9.0	19.8	9.7	20.0	24.3	4.7
	D	0.078	0.112	0.079	0.129	0.040	0.043	0.048	0.034
	r^2	0.946	0.980	0.984	0.982	0.956	0.985	0.998	0.987

Table 36 Summary of logistic function curve fit parameters and r2 values

Parameter	Units	Influent concen-tration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (blended effluent)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	*	*							
			1.0	110	15,880	1.0	0.014	14	15	17	21	72
			1.4†	154#	22,150	1.4	0.020	21	22	25	31	109
UV_{254}	(1/cm)	0.057	0.040	*	*							
			0.020	150#	21,650	1.3	0.020	21	22	25	30	107
			0.028†	230#	33,120	1.7	0.028	29	30	33	39	146
SDS-THM4	(µg/L)	59	80	*	*							
			64	*	*							
			32	274#	39,480	1.8	0.031	32	33	36	41	158
SDS-HAA5	(µg/L)	56	48	*	*							
			24	167#	24,100	1.4	0.022	23	24	27	33	117
SDS-HAA6	(µg/L)	60	48	*	*							
			24	146#	21,060	1.3	0.019	20	21	24	29	104
SDS-HAA9	(µg/L)	67	48	*	*							
			24	120#	17,220	1.1	0.015	16	16	19	24	82
SDS-TOX	(µg Cl^-/L)	274	120	172#	24,710	1.5	0.023	24	25	28	33	120
			70	107	15,480	1.0	0.013	13	14	16	20	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Value of listed parameter is left blank.
#Run time estimated from breakthrough curve extrapolation procedure.

Table 37 Run times to selected GAC effluent criteria based on effluent blending (10 minute EBCT) during session 1, June

Parameter	Units	Influent concen-tration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (blended effluent)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	*	*							
			1.0	106	15,280	1.0	0.012	17	9	11	17	56
			1.3†	149#	21,480	1.3	0.019	25	14	17	25	86
UV_{254}	(1/cm)	0.053	0.040	*	*							
			0.020	160#	22,970	1.4	0.020	26	15	18	26	92
			0.027†	226#	32,590	1.7	0.027	32	21	24	32	121
SDS-THM4	(µg/L)	54	80	*	*							
			64	*	*							
			32	234#	33,740	1.7	0.027	32	21	25	33	123
SDS-HAA5	(µg/L)	45	48	*	*							
			24	292#	41,980	1.8	0.030	34	24	28	36	137
SDS-HAA6	(µg/L)	50	48	*	*							
			24	220#	31,610	1.6	0.026	31	20	24	32	119
SDS-HAA9	(µg/L)	58	48	*	*							
			24	141#	20,350	1.3	0.018	24	13	16	24	81
SDS-TOX	(µg Cl^-/L)	235	120	224#	32,260	1.6	0.026	31	21	24	32	120
			70	126#	18,150	1.2	0.015	22	11	14	21	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Value of listed parameter is left blank.

#Run time estimated from breakthrough curve extrapolation procedure.

Table 38 Run times to selected GAC effluent criteria based on effluent blending (10 minute EBCT) during session 2, September

Parameter	Units	Influent concen-tration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (blended effluent)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.6	2.0	*	*							
			1.0	76	10,950	1.0	0.012	13	9	12	15	58
			1.3†	105#	15,160	1.3	0.019	20	15	18	23	91
UV_{254}	(1/cm)	0.054	0.040	*	*							
			0.020	109#	15,720	1.4	0.020	21	16	19	24	95
			0.027†	157#	22,580	1.6	0.027	27	22	25	31	126
SDS-THM4	(µg/L)	50	80	*	*							
			64	*	*							
			32	*	*							
SDS-HAA5	(µg/L)	48	48	*	*							
			24	179#	25,840	1.7	0.029	29	24	27	33	136
SDS-HAA6	(µg/L)	52	48	*	*							
			24	145#	20,820	1.6	0.026	26	21	24	30	120
SDS-HAA9	(µg/L)	61	48	*	*							
			24	111#	15,920	1.4	0.020	21	16	19	24	96
SDS-TOX	(µg Cl^-/L)	239	120	144#	20,790	1.6	0.026	26	21	24	30	120
			70	85#	12,280	1.1	0.015	16	11	14	18	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Value of listed parameter is left blank.

#Run time estimated from breakthrough curve extrapolation procedure.

Table 39 Run times to selected GAC effluent criteria based on effluent blending (10 minute EBCT) during session 3, January

Parameter	Units	Influent concen-tration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (blended effluent)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	*	*							
			1.0	73	10,500	1.0	0.012	16	8	11	17	54
			1.3†	108#	15,550	1.3	0.018	23	14	17	25	82
UV_{254}	(1/cm)	0.053	0.040	*	*							
			0.020	119#	17,140	1.4	0.020	25	16	19	27	90
			0.027†	170#	24,530	1.7	0.027	31	22	25	33	118
SDS-THM4	(µg/L)	54	80	*	*							
			64	*	*							
			32	191#	27,460	1.7	0.028	32	23	27	*	126
SDS-HAA5	(µg/L)	45	48	*	*							
			24	200#	28,850	1.8	0.029	33	24	28	*	129
SDS-HAA6	(µg/L)	50	48	*	*							
			24	155#	22,330	1.6	0.025	29	20	24	31	112
SDS-HAA9	(µg/L)	58	48	*	*							
			24	102#	14,750	1.3	0.017	22	13	16	24	77
SDS-TOX	(µg Cl^-/L)	235	120	174#	25,080	1.7	0.027	31	22	26	33	120
			70	94#	13,500	1.2	0.015	20	12	15	22	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Value of listed parameter is left blank.
#Run time estimated from breakthrough curve extrapolation procedure.

Table 40 Run times to selected GAC effluent criteria based on effluent blending (10 minute EBCT) during session 4, Sept-Lignite

Parameter	Units	Influent concen-tration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (blended effluent)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	*	*							
			1.0	276#	19,850	1.0	0.012	17	12	15	18	64
			1.4†	392#	28,240	1.4	0.020	25	20	23	28	102
UV_{254}	(1/cm)	0.057	0.040	*	*							
			0.020	392#	28,200	1.4	0.020	25	20	23	28	102
			0.028†	591#	42,520	1.7	0.028	33	28	31	37	140
SDS-THM4	(µg/L)	59	80	*	*							
			64	*	*							
			32	556#	40,020	1.7	0.027	32	27	30	35	135
SDS-HAA5	(µg/L)	56	48	*	*							
			24	468#	33,710	1.5	0.024	29	24	27	32	120
SDS-HAA6	(µg/L)	60	48	*	*							
			24	410#	29,500	1.4	0.021	26	21	24	29	106
SDS-HAA9	(µg/L)	67	48	*	*							
			24	342#	24,630	1.2	0.017	22	17	20	24	87
SDS-TOX	(µg Cl^-/L)	274	120	469#	33,790	1.5	0.024	29	24	27	32	120
			70	292#	21,010	1.1	0.013	18	14	16	20	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Value of listed parameter is left blank.

#Run time estimated from breakthrough curve extrapolation procedure.

Table 41 Run times to selected GAC effluent criteria based on effluent blending (20 minute EBCT) during session 1, June

Parameter	Units	Influent concentration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (blended effluent)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	*	*							
			1.0	259	18,660	1.0	0.012	17	9	11	15	54
			1.3†	354#	25,480	1.3	0.019	25	14	17	23	85
UV_{254}	(1/cm)	0.053	0.040	*	*							
			0.020	378#	27,180	1.4	0.020	26	15	18	24	91
			0.027†	535#	38,490	1.7	0.027	31	20	24	31	119
SDS-THM4	(µg/L)	54	80	*	*							
			64	*	*							
			32	557#	40,130	1.7	0.027	32	21	25	31	122
SDS-HAA5	(µg/L)	45	48	*	*							
			24	*	*							
SDS-HAA6	(µg/L)	50	48	*	*							
			24	538#	38,710	1.7	0.027	32	20	24	31	119
SDS-HAA9	(µg/L)	58	48	*	*							
			24	374#	26,930	1.4	0.020	26	15	18	24	90
SDS-TOX	(µg Cl^-/L)	235	120	545#	39,240	1.7	0.027	32	21	24	31	120
			70	302#	21,740	1.2	0.015	21	11	14	19	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Value of listed parameter is left blank.

#Run time estimated from breakthrough curve extrapolation procedure.

Table 42 Run times to selected GAC effluent criteria based on effluent blending (20 minute EBCT) during session 2, September

Parameter	Units	Influent concen-tration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (blended effluent)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.6	2.0	*	*							
			1.0	195	14,020	1.0	0.012	13	10	12	16	59
			1.3†	261#	18,810	1.3	0.018	19	15	18	23	87
UV_{254}	(1/cm)	0.054	0.040	*	*							
			0.020	283#	20,410	1.4	0.020	21	17	19	25	94
			0.027†	408#	29,360	1.7	0.027	27	23	26	33	124
SDS-THM4	(µg/L)	50	80	*	*							
			64	*	*							
			32	*	*							
SDS-HAA5	(µg/L)	48	48	*	*							
			24	433#	31,160	1.7	0.028	28	24	27	34	128
SDS-HAA6	(µg/L)	52	48	*	*							
			24	359#	25,860	1.6	0.025	25	21	24	30	114
SDS-HAA9	(µg/L)	61	48	*	*							
			24	272#	19,550	1.4	0.019	20	16	18	24	90
SDS-TOX	(µg Cl^-/L)	239	120	387#	27,850	1.6	0.026	26	22	25	32	120
			70	218#	15,690	1.2	0.015	16	12	14	19	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Value of listed parameter is left blank.

#Run time estimated from breakthrough curve extrapolation procedure.

Table 43 Run times to selected GAC effluent criteria based on effluent blending (20 minute EBCT) during session 3, January

Parameter	Units	Influent concen-tration	Breakthrough criterion	Value of listed parameter when breakthrough criterion is met (blended effluent)								
				Run time (days)	Throughput (bed volumes)	TOC (mg/L)	UV_{254} (1/cm)	SDS-THM4 (µg/L)	SDS-HAA5 (µg/L)	SDS-HAA6 (µg/L)	SDS-HAA9 (µg/L)	SDS-TOX (µg Cl^-/L)
TOC	(mg/L)	2.7	2.0	*	*							
			1.0	151	10,910	1.0	0.011	16	8	11	16	55
			1.3†	224#	16,130	1.3	0.017	24	12	16	23	82
UV_{254}	(1/cm)	0.053	0.040	*	*							
			0.020	263#	18,920	1.5	0.020	27	15	19	26	96
			0.027†	378#	27,240	1.7	0.027	33	21	25	32	124
SDS-THM4	(µg/L)	54	80	*	*							
			64	*	*							
			32	353#	25,420	1.7	0.025	32	20	24	31	119
SDS-HAA5	(µg/L)	45	48	*	*							
			24	*	*							
SDS-HAA6	(µg/L)	50	48	*	*							
			24	365#	26,260	1.7	0.026	32	20	24	32	121
SDS-HAA9	(µg/L)	58	48	*	*							
			24	239#	17,190	1.4	0.018	25	14	17	24	87
SDS-TOX	(µg Cl^-/L)	235	120	358#	25,790	1.7	0.026	32	20	24	31	120
			70	194#	13,940	1.2	0.014	21	10	13	20	70

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Value of listed parameter is left blank.
#Run time estimated from breakthrough curve extrapolation procedure.

Table 44 Run times to selected GAC effluent criteria based on effluent blending (20 minute EBCT) during session 4, Sept-Lignite

Parameter	Units	Influent concen-tration	Breakthrough criterion	Run time (days) at given EBCT (min)				Increase in run time (%)			
				10		20		10 to 20 min EBCT		Single to multiple contactors EBCT (min)	
				Contactor configuration				Contactor configuration			
				Single	Multiple	Single	Multiple	Single	Multiple	10	20
TOC	(mg/L)	2.7	2.0	136	*	272	*	100			
			1.0	57	110	134	276	136	150	94	105
			1.4†	64	154	174	392	171	155	140	126
UV-254	(1/cm)	0.057	0.040	*	*	*	*				
			0.020	67	150	197	392	195	161	125	99
			0.028†	109	230	*	591		157	111	
SDS-THM4	(µg/L)	59	80	*	*	*	*				
			64	*	*	*	*				
			32	96	274	213	556	121	103	185	161
SDS-HAA5	(µg/L)	56	48	*	*	*	*				
			24	79	167	221	468	178	180	111	112
SDS-HAA6	(µg/L)	60	48	*	*	*	*				
			24	66	146	203	410	206	180	121	102
SDS-HAA9	(µg/L)	67	48	*	*	*	*				
			24	61	120	164	342	169	186	96	109
SDS-TOX	(µg Cl^-/L)	274	120	72	172	209	469	192	174	140	125
			70	60	107	151	292	152	172	80	94

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Calculated values are left blank.

#Run time estimated from breakthrough curve extrapolation procedure.

Table 45 Summary of GAC run times to selected GAC effluent criteria during session 1, June

Parameter	Units	Influent concen-tration	Breakthrough criterion	Run time (days) at given EBCT (min)				Increase in run time (%)			
				10		20		10 to 20 min EBCT		Single to multiple contactors EBCT (min)	
				Contactor configuration				Contactor configuration			
				Single	Multiple	Single	Multiple	Single	Multiple	10	20
TOC	(mg/L)	2.7	2.0	*	*	*	*				
			1.0	51	106	119	259	134	144	108	117
			1.3†	63	149	158	354	152	137	138	124
UV-254	(1/cm)	0.053	0.040	*	*	*	*				
			0.020	75	160	190	378	155	137	114	99
			0.027†	104	226	243	535	134	136	118	120
SDS-THM4	(µg/L)	54	80	*	*	*	*				
			64	*	*	*	*				
			32	76	234	199	557	162	138	209	181
SDS-HAA5	(µg/L)	45	48	*	*	*	*				
			24	*	292	*	*				
SDS-HAA6	(µg/L)	50	48	*	*	*	*				
			24	101	220	*	538		145	117	
SDS-HAA9	(µg/L)	58	48	*	*	*	*				
			24	63	141	170	374	169	165	123	120
SDS-TOX	(µg Cl^-/L)	235	120	100	224	*	545		143	124	
			70	62	126	153	302	149	140	105	97

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Calculated values are left blank.

#Run time estimated from breakthrough curve extrapolation procedure.

Table 46 Summary of GAC run times to selected GAC effluent criteria during session 2, September

Parameter	Units	Influent concen-tration	Breakthrough criterion	Run time (days) at given EBCT (min)				Increase in run time (%)			
				10		20		10 to 20 min EBCT		Single to multiple contactors EBCT (min)	
				Contactor configuration				Contactor configuration			
				Single	Multiple	Single	Multiple	Single	Multiple	10	20
TOC	(mg/L)	2.6	2.0	91	*	*	*				
			1.0	37	76	90	195	142	156	104	116
			1.3†	44	105	116	261	163	148	138	125
UV-254	(1/cm)	0.054	0.040	*	*	*	*				
			0.020	54	109	136	283	151	160	102	109
			0.027†	69	157	180	408	161	160	128	127
SDS-THM4	(µg/L)	50	80	*	*	*	*				
			64	*	*	*	*				
			32	*	*	*	*				
SDS-HAA5	(µg/L)	48	48	*	*	*	*				
			24	*	179	194	433		141		123
SDS-HAA6	(µg/L)	52	48	*	*	*	*				
			24	66	145	165	359	151	148	120	118
SDS-HAA9	(µg/L)	61	48	*	*	*	*				
			24	51	111	134	272	160	146	115	103
SDS-TOX	(µg Cl^-/L)	239	120	64	144	174	387	173	168	127	123
			70	44	85	107	218	143	156	93	103

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Calculated values are left blank.

#Run time estimated from breakthrough curve extrapolation procedure.

Table 47 Summary of GAC run times to selected GAC effluent criteria during session 3, January

Parameter	Units	Influent concen-tration	Breakthrough criterion	Run time (days) at given EBCT (min)				Increase in run time (%)			
				10		20		10 to 20 min EBCT		Single to multiple contactors EBCT (min)	
				Contactor configuration				Contactor configuration			
				Single	Multiple	Single	Multiple	Single	Multiple	10	20
TOC	(mg/L)	2.7	2.0	101	*	192	*	90			
			1.0	34	73	73	151	113	108	114	108
			1.3†	44	108	96	224	117	107	143	132
UV-254	(1/cm)	0.053	0.040	*	*	*	*				
			0.020	59	119	122	263	108	121	103	115
			0.027†	79	170	179	378	126	122	115	111
SDS-THM4	(µg/L)	54	80	*	*	*	*				
			64	*	*	*	*				
			32	71	191	146	353	106	85	169	142
SDS-HAA5	(µg/L)	45	48	*	*	*	*				
			24	85	200	*	*			136	
SDS-HAA6	(µg/L)	50	48	*	*	*	*				
			24	75	155	183	365	145	135	107	99
SDS-HAA9	(µg/L)	58	48	*	*	*	*				
			24	46	102	100	239	117	133	123	139
SDS-TOX	(µg Cl^-/L)	235	120	*	174	163	358		106		119
			70	45	94	89	194	99	107	108	117

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Calculated values are left blank.

#Run time estimated from breakthrough curve extrapolation procedure.

Table 48 Summary of GAC run times to selected GAC effluent criteria during session 4, Sept-Lignite

Parameter	Units	Influent concen-tration	Breakthrough criterion	Carbon usage rate, CUR (lbs/MG) at given EBCT (min)				Decrease in CUR (%)			
				10		20		10 to 20 min EBCT		Single to multiple contactors EBCT (min)	
				Contactor configuration				Contactor configuration			
				Single	Multiple	Single	Multiple	Single	Multiple	10	20
TOC	(mg/L)	2.7	2.0	210	*	210	*	0			
			1.0	510	260	430	210	16	19	49	51
			1.4†	450	190	330	150	27	21	58	55
UV-254	(1/cm)	0.057	0.040	*	*	*	*				
			0.020	430	190	290	150	33	21	56	48
			0.028†	260	130	*	100		23	50	
SDS-THM4	(µg/L)	59	80	*	*	*	*				
			64	*	*	*	*				
			32	300	100	270	100	10	0	67	63
SDS-HAA5	(µg/L)	56	48	*	*	*	*				
			24	360	170	260	120	28	29	53	54
SDS-HAA6	(µg/L)	60	48	*	*	*	*				
			24	440	200	280	140	36	30	55	50
SDS-HAA9	(µg/L)	67	48	*	*	*	*				
			24	470	240	350	170	26	29	49	51
SDS-TOX	(µg Cl^-/L)	274	120	400	170	280	120	30	29	58	57
			70	480	270	380	200	21	26	44	47

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Calculated values are left blank.

Table 49 Summary of carbon usage rates to selected GAC effluent criteria during session 1, June

Parameter	Units	Influent concen-tration	Breakthrough criterion	Carbon usage rate, CUR (lbs/MG) at given EBCT (min)				Decrease in CUR (%)			
				10		20		10 to 20 min EBCT		Single to multiple contactors EBCT (min)	
				Contactor configuration				Contactor configuration			
				Single	Multiple	Single	Multiple	Single	Multiple	10	20
TOC	(mg/L)	2.7	2.0	*	*	*	*				
			1.0	560	270	480	220	14	19	52	54
			1.3†	460	190	360	160	22	16	59	56
UV-254	(1/cm)	0.053	0.040	*	*	*	*				
			0.020	390	180	300	150	23	17	54	50
			0.027†	280	130	240	110	14	15	54	54
SDS-THM4	(µg/L)	54	80	*	*	*	*				
			64	*	*	*	*				
			32	380	120	290	100	24	17	68	66
SDS-HAA5	(µg/L)	45	48	*	*	*	*				
			24	*	100	*	*				
SDS-HAA6	(µg/L)	50	48	*	*	*	*				
			24	280	130	*	110		15	54	
SDS-HAA9	(µg/L)	58	48	*	*	*	*				
			24	450	200	340	150	24	25	56	56
SDS-TOX	(µg Cl^-/L)	235	120	290	130	*	110		15	55	
			70	470	230	380	190	19	17	51	50

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Calculated values are left blank.

Table 50 Summary of carbon usage rates to selected GAC effluent criteria during session 2, September

Parameter	Units	Influent concen-tration	Breakthrough criterion	Carbon usage rate, CUR (lbs/MG) at given EBCT (min)				Decrease in CUR (%)			
				10		20		10 to 20 min EBCT		Single to multiple contactors EBCT (min)	
				Contactor configuration				Contactor configuration			
				Single	Multiple	Single	Multiple	Single	Multiple	10	20
TOC	(mg/L)	2.6	2.0	320	*	*	*				
			1.0	770	380	640	300	17	21	51	53
			1.3†	650	270	490	220	25	19	58	55
UV-254	(1/cm)	0.054	0.040	*	*	*	*				
			0.020	530	260	420	200	21	23	51	52
			0.027†	420	180	320	140	24	22	57	56
SDS-THM4	(µg/L)	50	80	*	*	*	*				
			64	*	*	*	*				
			32	*	*	*	*				
SDS-HAA5	(µg/L)	48	48	*	*	*	*				
			24	*	160	300	130		19		57
SDS-HAA6	(µg/L)	52	48	*	*	*	*				
			24	440	200	350	160	20	20	55	54
SDS-HAA9	(µg/L)	61	48	*	*	*	*				
			24	560	260	430	210	23	19	54	51
SDS-TOX	(µg Cl^-/L)	239	120	450	200	330	150	27	25	56	55
			70	650	340	540	260	17	24	48	52

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Calculated values are left blank.

Table 51 Summary of carbon usage rates to selected GAC effluent criteria during session 3, January

Parameter	Units	Influent concen-tration	Breakthrough criterion	Carbon usage rate, CUR (lbs/MG) at given EBCT (min)				Decrease in CUR (%)			
				10		20		10 to 20 min EBCT		Single to multiple contactors EBCT (min)	
				Contactor configuration				Contactor configuration			
				Single	Multiple	Single	Multiple	Single	Multiple	10	20
TOC	(mg/L)	2.7	2.0	230	*	240	*	-4			
			1.0	680	320	640	310	6	3	53	52
			1.3†	520	210	480	210	8	0	60	56
UV-254	(1/cm)	0.053	0.040	*	*	*	*				
			0.020	400	200	380	180	5	10	50	53
			0.027†	290	140	260	120	10	14	52	54
SDS-THM4	(µg/L)	54	80	*	*	*	*				
			64	*	*	*	*				
			32	330	120	320	130	3	-8	64	59
SDS-HAA5	(µg/L)	45	48	*	*	*	*				
			24	270	120	*	*			56	
SDS-HAA6	(µg/L)	50	48	*	*	*	*				
			24	310	150	250	130	19	13	52	48
SDS-HAA9	(µg/L)	58	48	*	*	*	*				
			24	500	230	470	190	6	17	54	60
SDS-TOX	(µg Cl^-/L)	235	120	*	130	280	130		0		54
			70	520	250	520	240	0	4	52	54

†GAC effluent concentration equal to 50 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Calculated values are left blank.

Table 52 Summary of carbon usage rates to selected GAC effluent criteria during session 4, Sept-Lignite

Parameter	Units	Value	Run time (days)				Sessions 1 - 3		
			Session				Mean	Standard deviation	Percent standard deviation (%)
			1 June	2 September	3 January	4 Sept-Lignite			
TOC	(mg/L)	2.0	*	*	*	*			
		1.0	110	106	76	73	97	±19	19%
		c/c_0 = 50%†	154#	149#	105#	108#	136	±27	20%
UV-254	(1/cm)	0.040	*	*	*	*			
		0.020	150#	160#	109#	119#	140	±27	19%
		c/c_0 = 50%†	230#	226#	157#	170#	204	±41	20%
SDS-THM4	(µg/L)	80	*	*	*	*			
		64	*	*	*	*			
		32	274#	234#	*	191#	254	±28	11%
SDS-HAA5	(µg/L)	48	*	*	*	*			
		24	167#	292#	179#	200#	213	±68	32%
SDS-HAA6	(µg/L)	48	*	*	*	*			
		24	146#	220#	145#	155#	170	±43	25%
SDS-HAA9	(µg/L)	48	*	*	*	*			
		24	120#	141#	111#	102#	124	±16	13%
SDS-TOX	(µg Cl^-/L)	120	172#	224#	144#	174#	180	±40	22%
		70	107	126#	85#	94#	106	±20	19%
Extrapolated run time (days)		--	309	297	200	219	269	±60	22%

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Calculated values are left blank.

#Run time estimated from breakthrough curve extrapolation procedure.

Table 53 Run times to selected GAC effluent criteria based on effluent blending (10 minute EBCT)

Parameter	Units	Value	Run time (days)				Sessions 1 - 3		
			Session				Mean	Standard deviation	Percent standard deviation (%)
			1 June	2 September	3 January	4 Sept-Lignite			
TOC	(mg/L)	2.0	*	*	*	*			
		1.0	276#	259	195	151	243	±43	18%
		$c/c_0 = 50\%$†	392#	354#	261#	224#	336	±67	20%
UV-254	(1/cm)	0.040	*	*	*	*			
		0.020	392#	378#	283#	263#	351	±59	17%
		$c/c_0 = 50\%$†	591#	535#	408#	378#	511	±94	18%
SDS-THM4	(µg/L)	80	*	*	*	*			
		64	*	*	*	*			
		32	556#	557#	*	353#	557	±1	0%
SDS-HAA5	(µg/L)	48	*	*	*	*			
		24	468#	*	433#	*	450	±25	6%
SDS-HAA6	(µg/L)	48	*	*	*	*			
		24	410#	538#	359#	365#	436	±92	21%
SDS-HAA9	(µg/L)	48	*	*	*	*			
		24	342#	374#	272#	239#	329	±52	16%
SDS-TOX	(µg Cl^-/L)	120	469#	545#	387#	358#	467	±79	17%
		70	292#	302#	218#	194#	271	±46	17%
Extrapolated run time (days)		--	654	610	540	476	601	±58	10%

†GAC effluent concentration equal to 50 percent of the average influent concentration.

*Effluent concentration criteria not exceeded during GAC run time (including extrapolation procedure). Calculated values are left blank.

#Run time estimated from breakthrough curve extrapolation procedure.

Table 54 Run times to selected GAC effluent criteria based on effluent blending (20 minute EBCT)

Parameter	Coefficient	10 minute EBCT				20 minute EBCT			
		June	September	January	Sept-Lignite	June	September	January	Sept-Lignite
TOC	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	3.27	2.80	2.89	2.90	3.33	2.75	2.98	2.88
	B	9.1	7.2	6.7	9.5	8.1	9.2	6.3	6.3
	D	0.090	0.057	0.058	0.084	0.030	0.028	0.023	0.027
	r^2	0.950	0.946	0.949	0.972	0.960	0.956	0.967	0.949
UV_{254}	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	0.064	0.055	0.055	0.051	0.067	0.055	0.055	0.053
	B	13.5	10.5	10.0	10.2	12.6	12.6	10.7	9.3
	D	0.074	0.056	0.051	0.067	0.026	0.024	0.022	0.023
	r^2	0.936	0.937	0.945	0.928	0.954	0.946	0.939	0.943
SDS-THM4	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	52.4	49.2	100.3	83.4	54.5	49.5	103.1	82.6
	B	14.1	8.8	9.3	9.3	11.8	12.2	10.7	8.7
	D	0.096	0.069	0.057	0.075	0.033	0.033	0.025	0.031
	r^2	0.931	0.904	0.939	0.948	0.905	0.939	0.960	0.946
SDS-HAA5	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	26.3	27.2	29.0	24.7	28.3	27.2	29.4	24.5
	B	7.1	9.5	9.5	13.5	14.9	9.8	11.0	13.2
	D	0.046	0.055	0.050	0.079	0.023	0.023	0.022	0.028
	r^2	0.820	0.892	0.871	0.927	0.947	0.806	0.914	0.904
SDS-HAA6	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	29.3	31.7	33.8	29.6	31.5	31.6	34.2	29.3
	B	7.6	8.3	9.6	12.6	12.4	9.3	10.0	11.9
	D	0.059	0.057	0.059	0.087	0.025	0.025	0.024	0.031
	r^2	0.834	0.901	0.886	0.937	0.935	0.830	0.904	0.908
SDS-HAA9	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	30.5	34.0	37.1	33.1	31.0	33.5	37.2	34.2
	B	12.4	5.8	7.4	16.8	9.4	5.4	8.6	10.8
	D	0.089	0.055	0.057	0.108	0.025	0.024	0.025	0.031
	r^2	0.896	0.877	0.873	0.923	0.866	0.799	0.914	0.885
SDS-TOX	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	162	183	223	194	169	184	224	194
	B	23.3	10.6	10.6	13.6	71.3	14.0	11.0	10.3
	D	0.096	0.052	0.051	0.078	0.046	0.024	0.022	0.025
	r^2	0.923	0.898	0.924	0.957	0.945	0.915	0.928	0.946

Table 55 Summary of logistic function curve fit parameters and r2 values for curve fits after breakthrough curve extrapolation

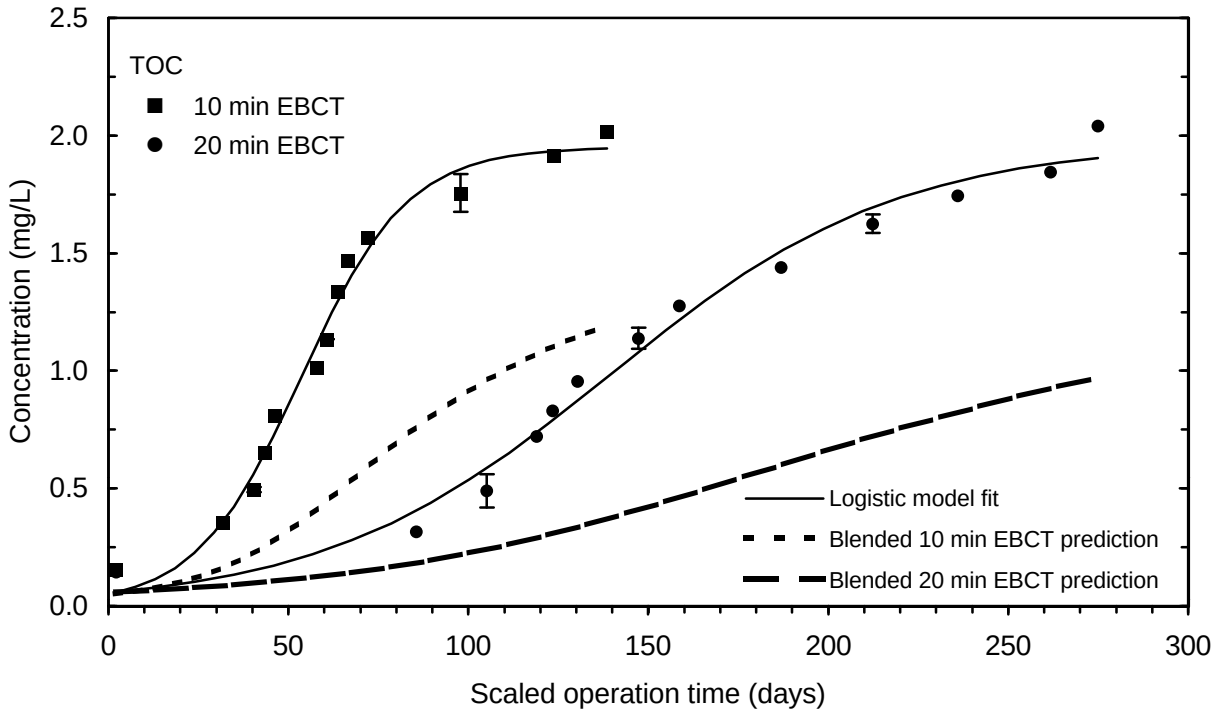


Figure 120 TOC breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (June)

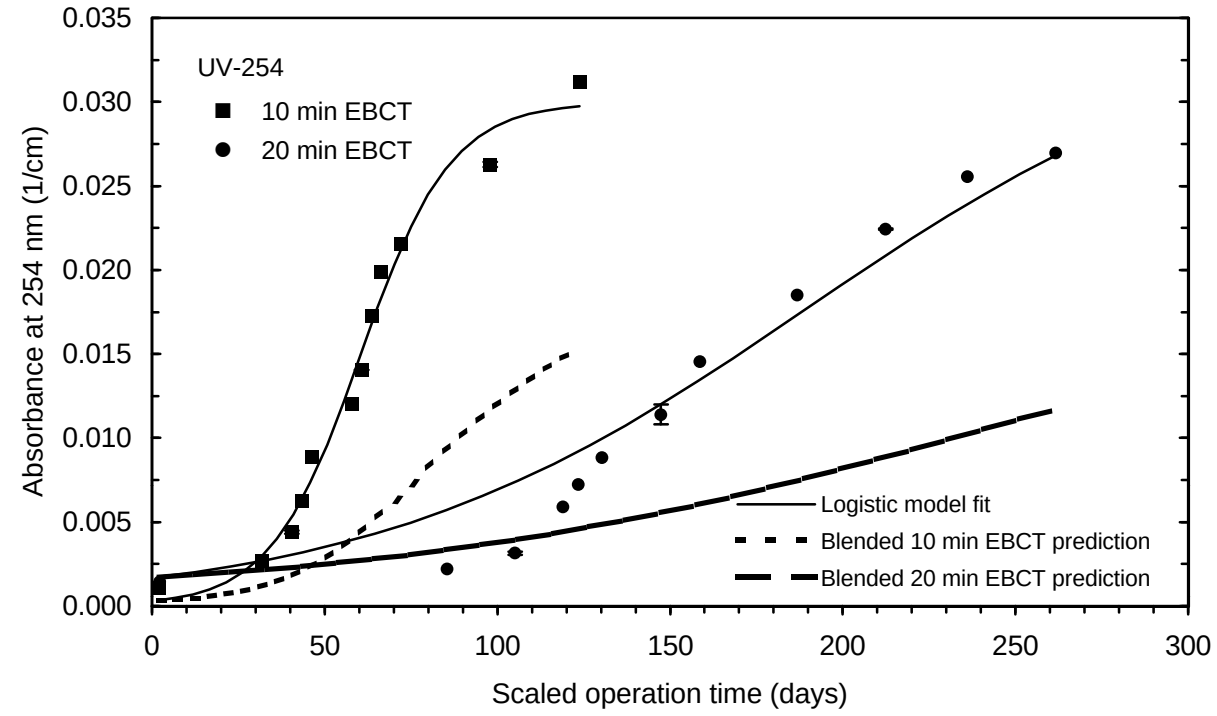


Figure 121 UV-254 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (June)

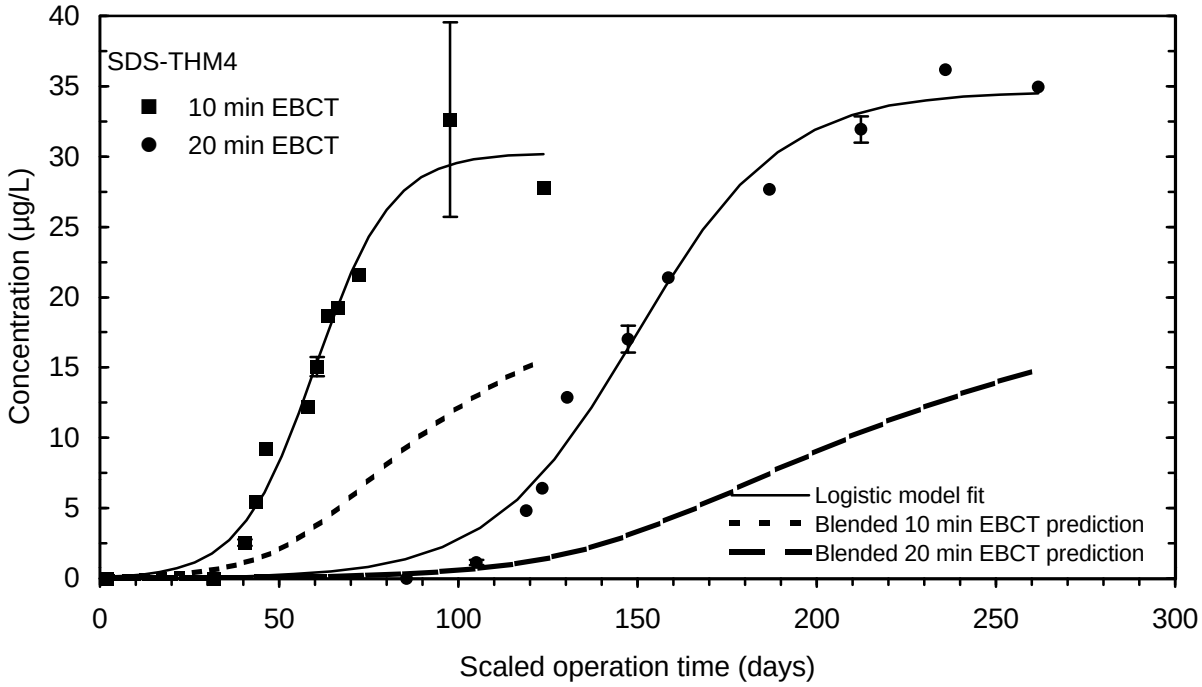


Figure 122 SDS-THM4 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (June)

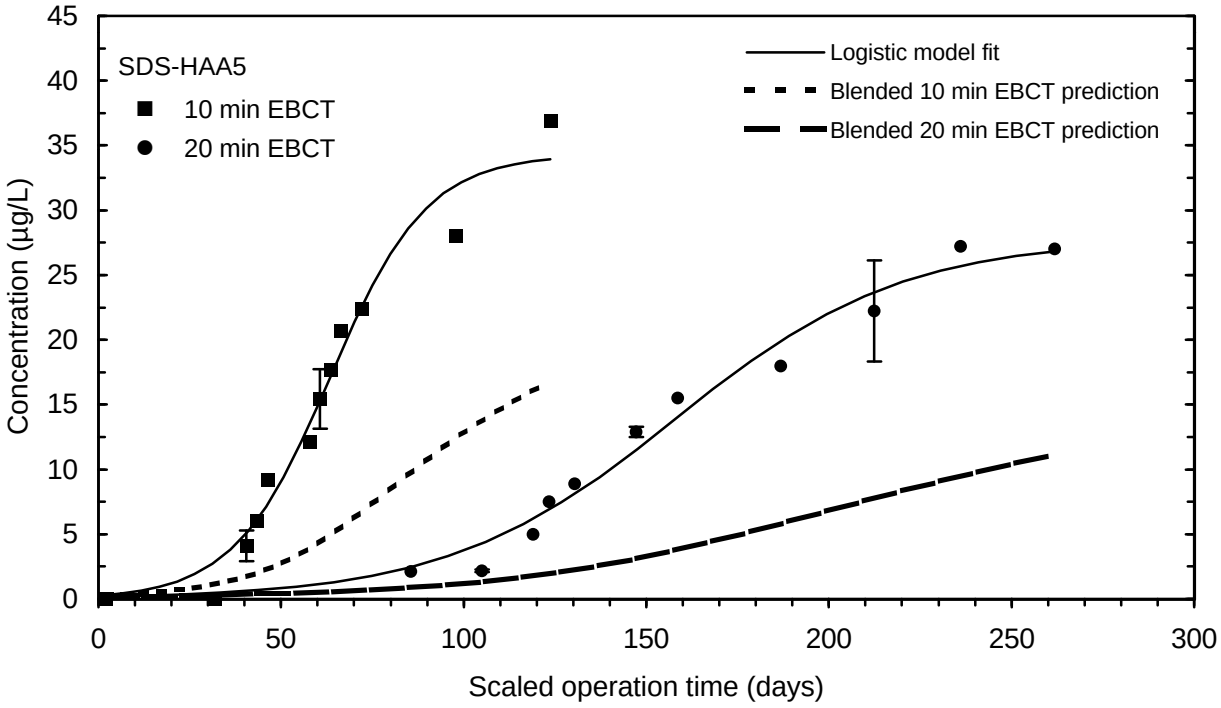


Figure 123 SDS-HAA5 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (June)

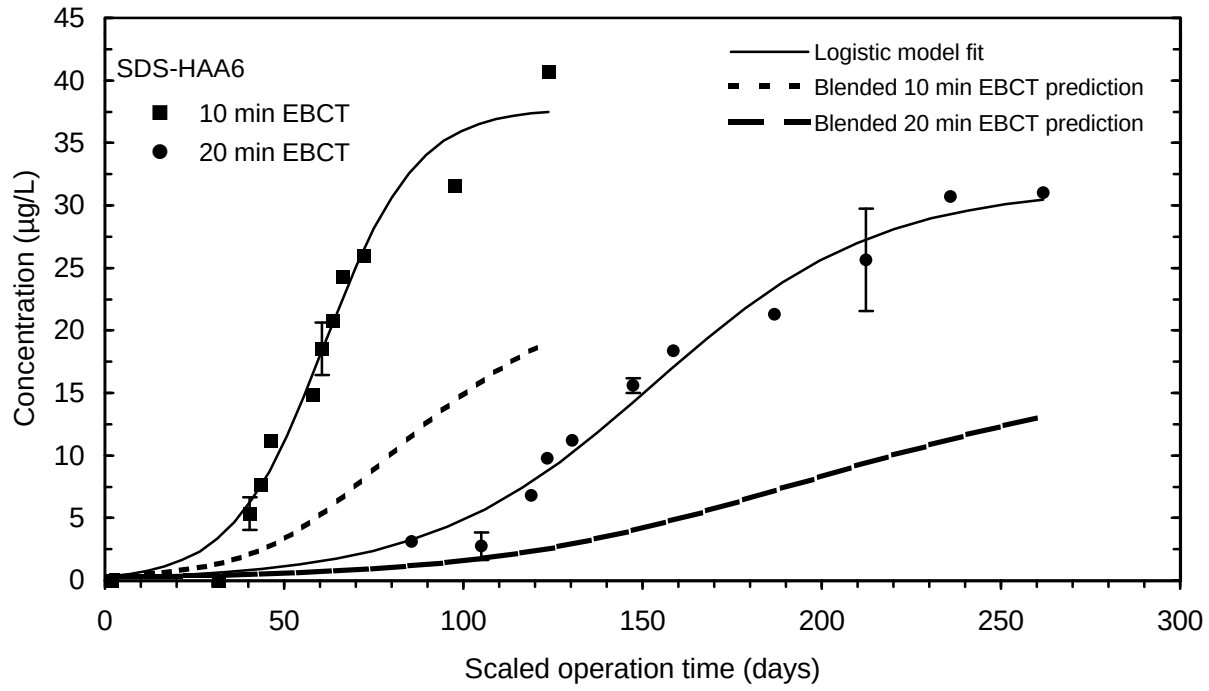


Figure 124 SDS-HAA6 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (June)

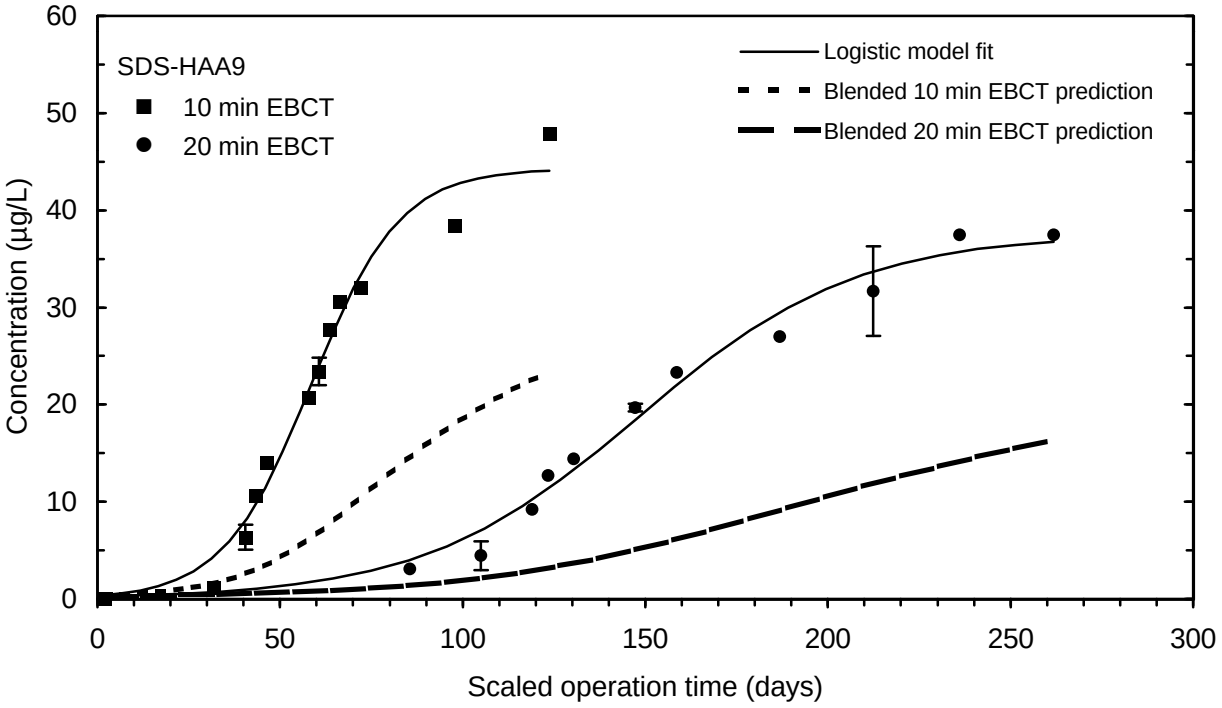


Figure 125 SDS-HAA9 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (June)

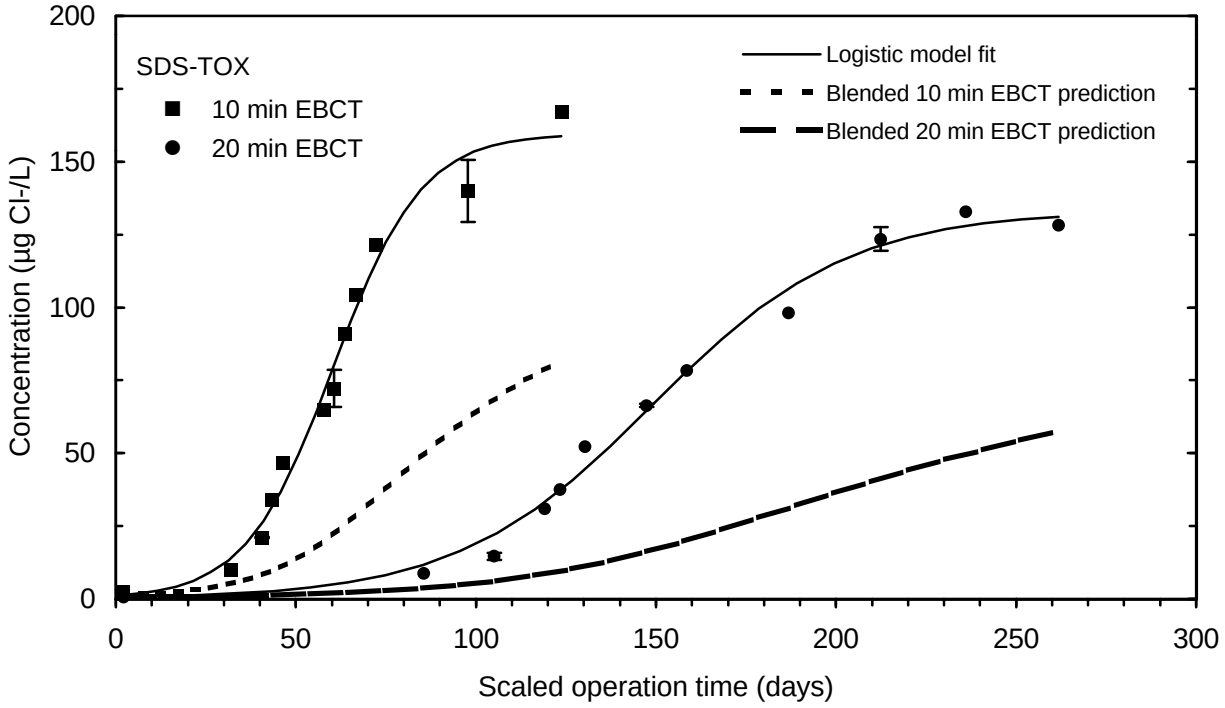


Figure 126 SDS-TOX breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (June)

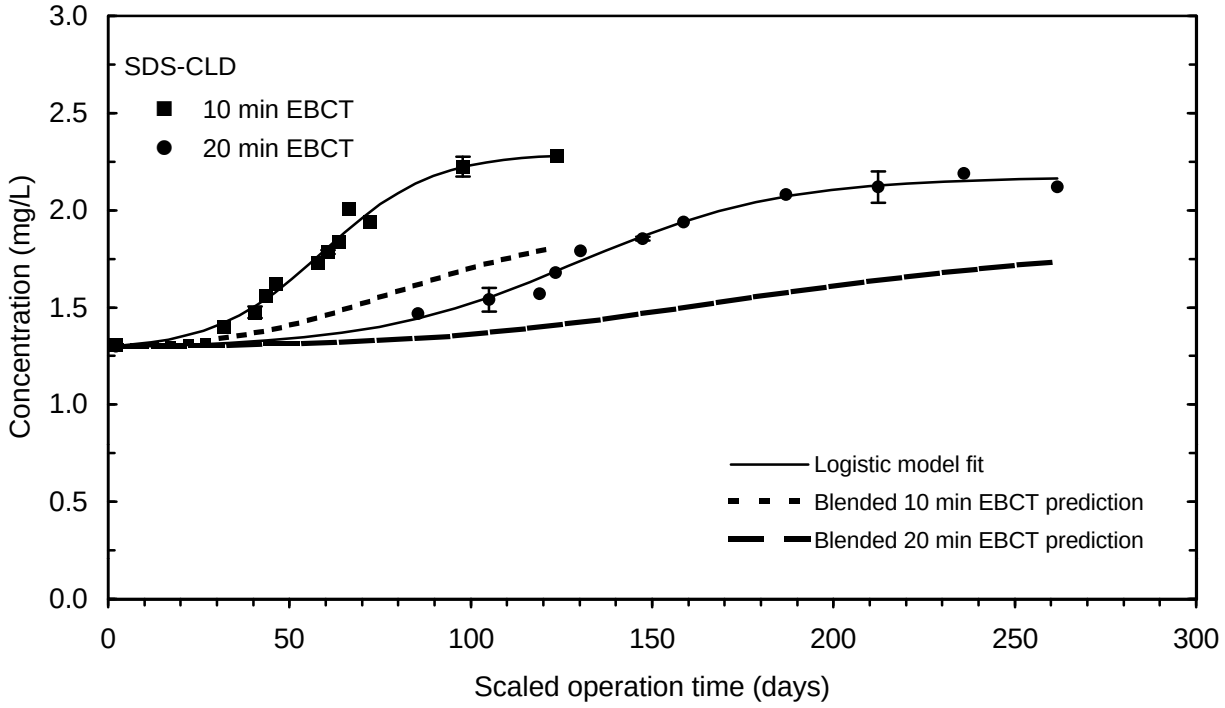


Figure 127 SDS-CLD breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (June)

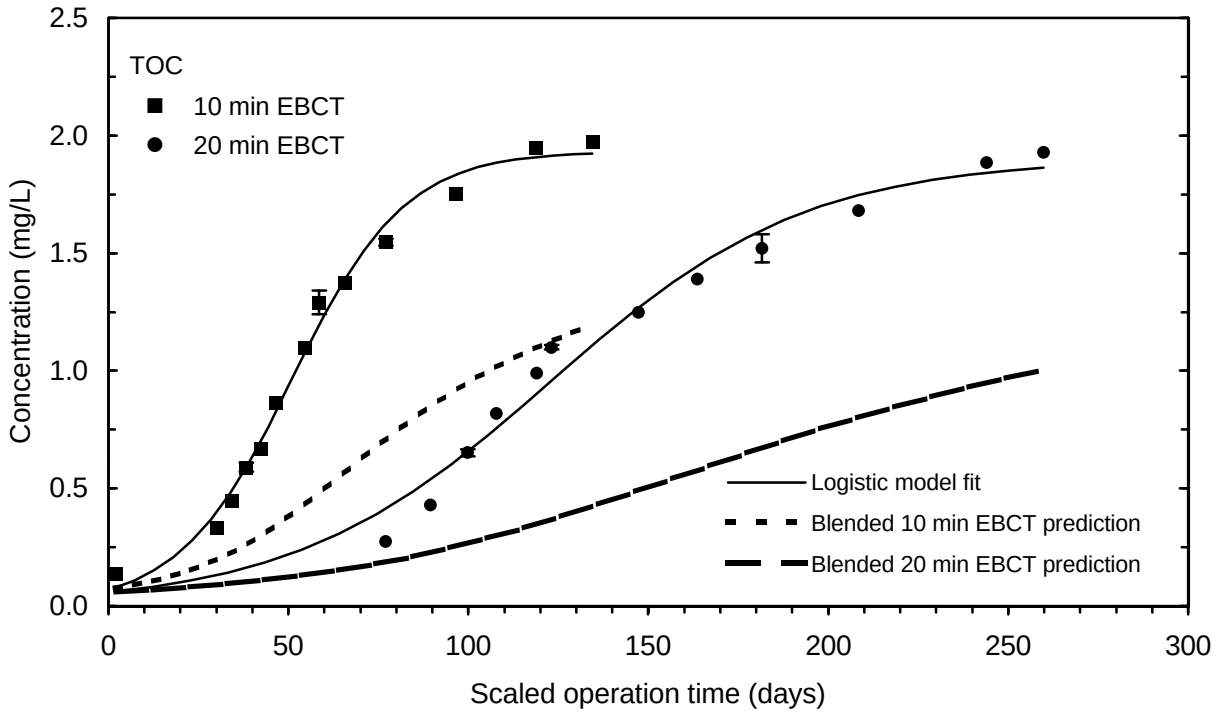


Figure 128 TOC breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (September)

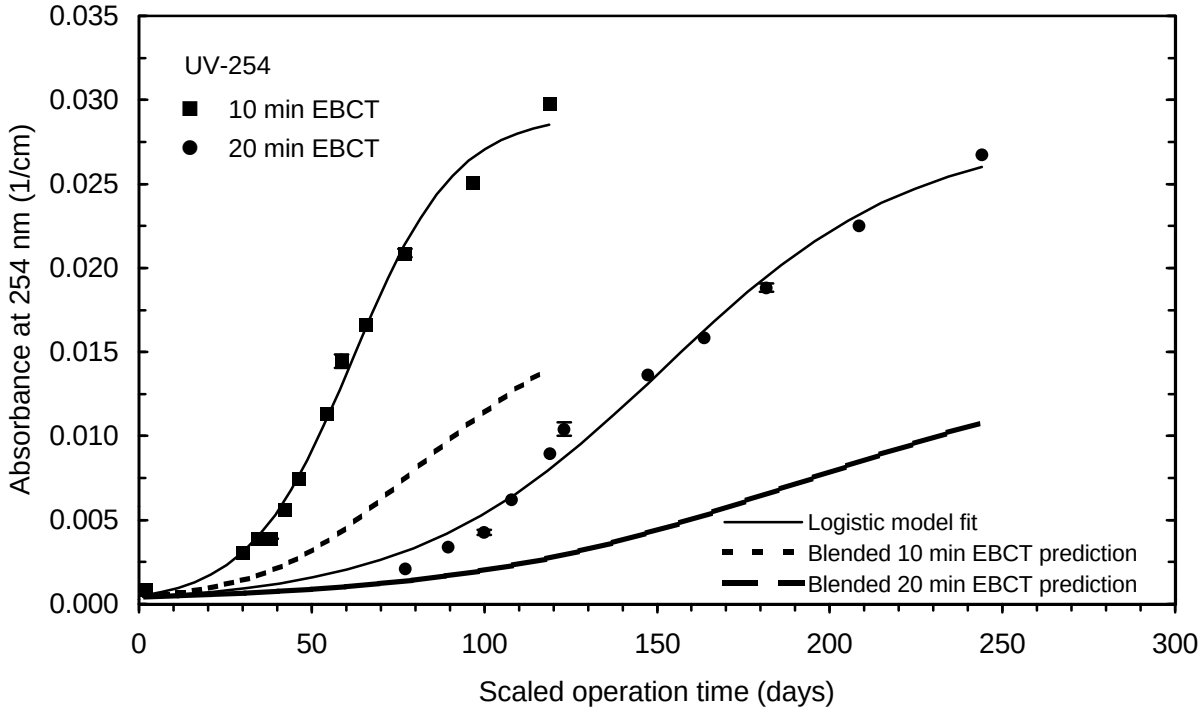


Figure 129 UV-254 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (September)

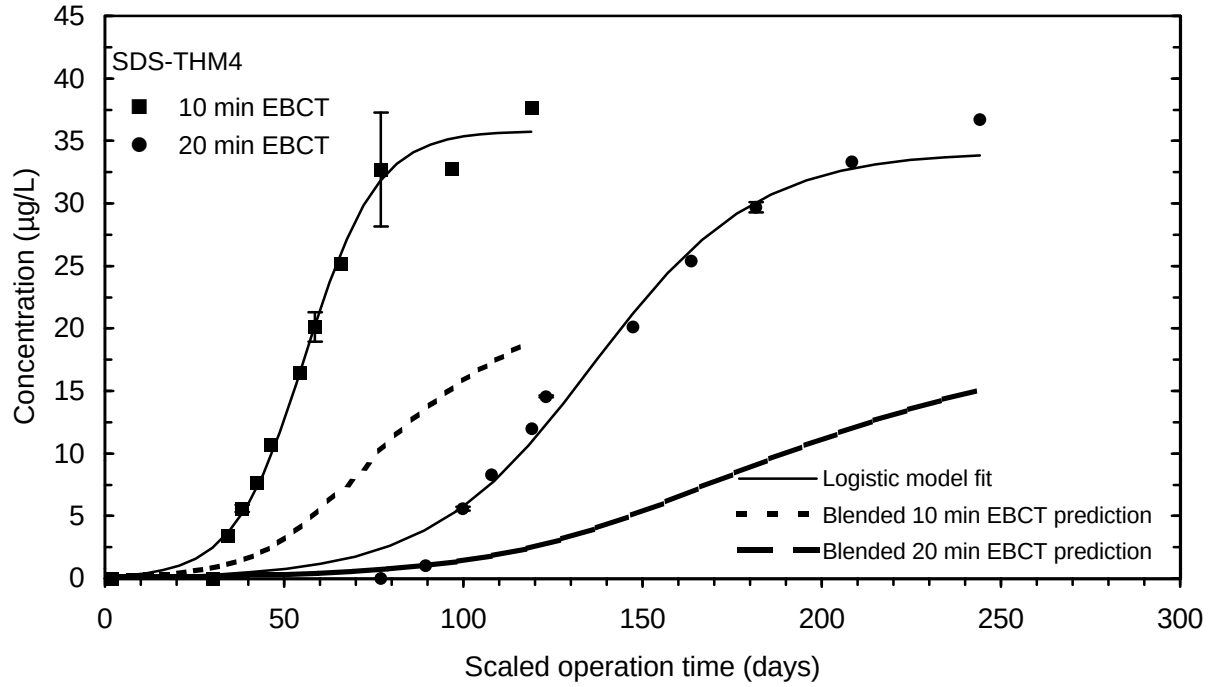


Figure 130 SDS-THM4 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (September)

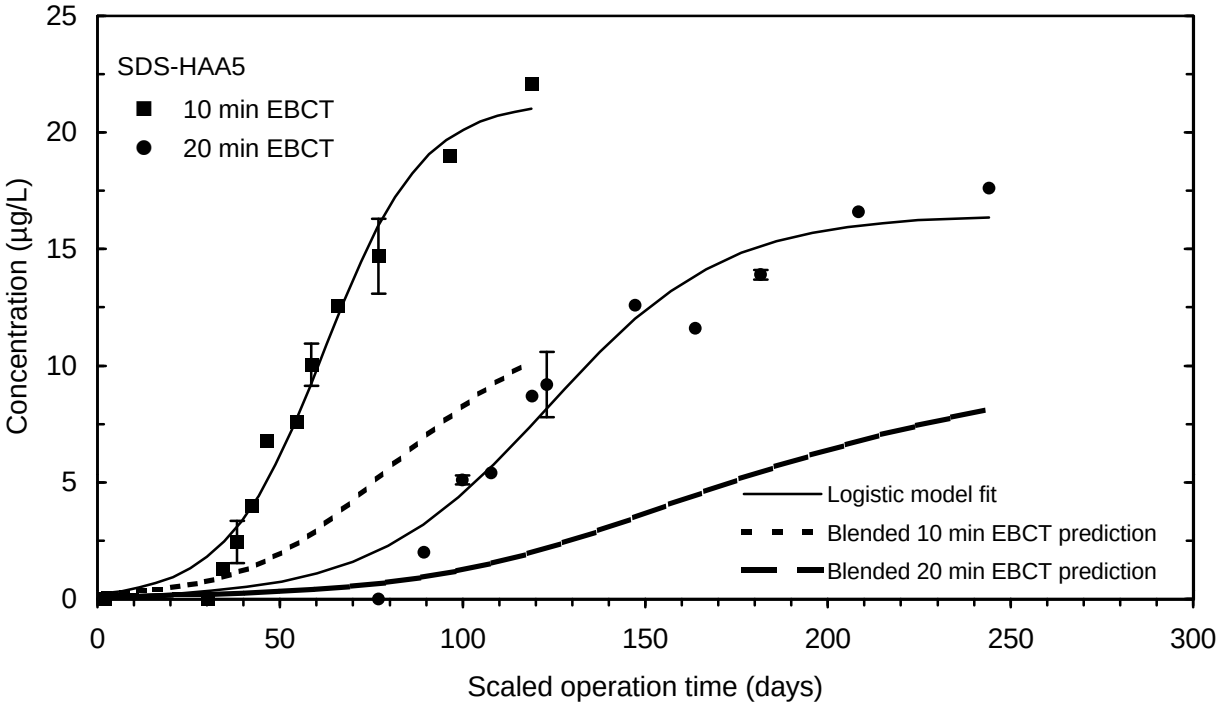


Figure 131 SDS-HAA5 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (September)

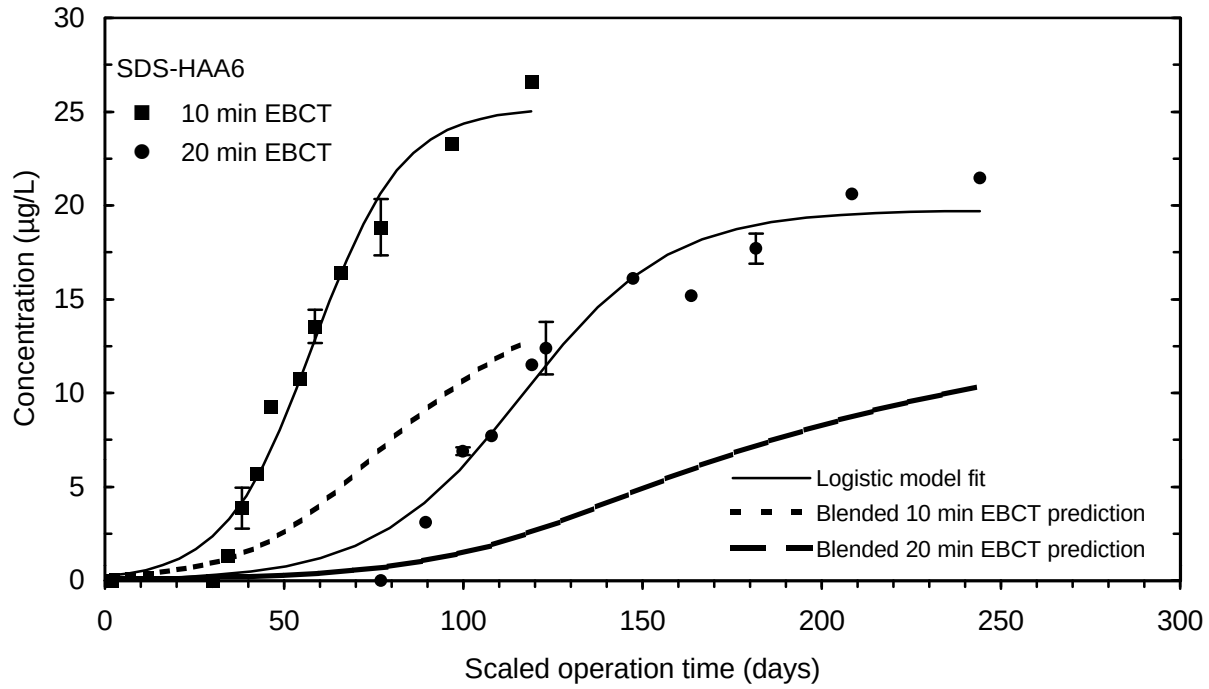


Figure 132 SDS-HAA6 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (September)

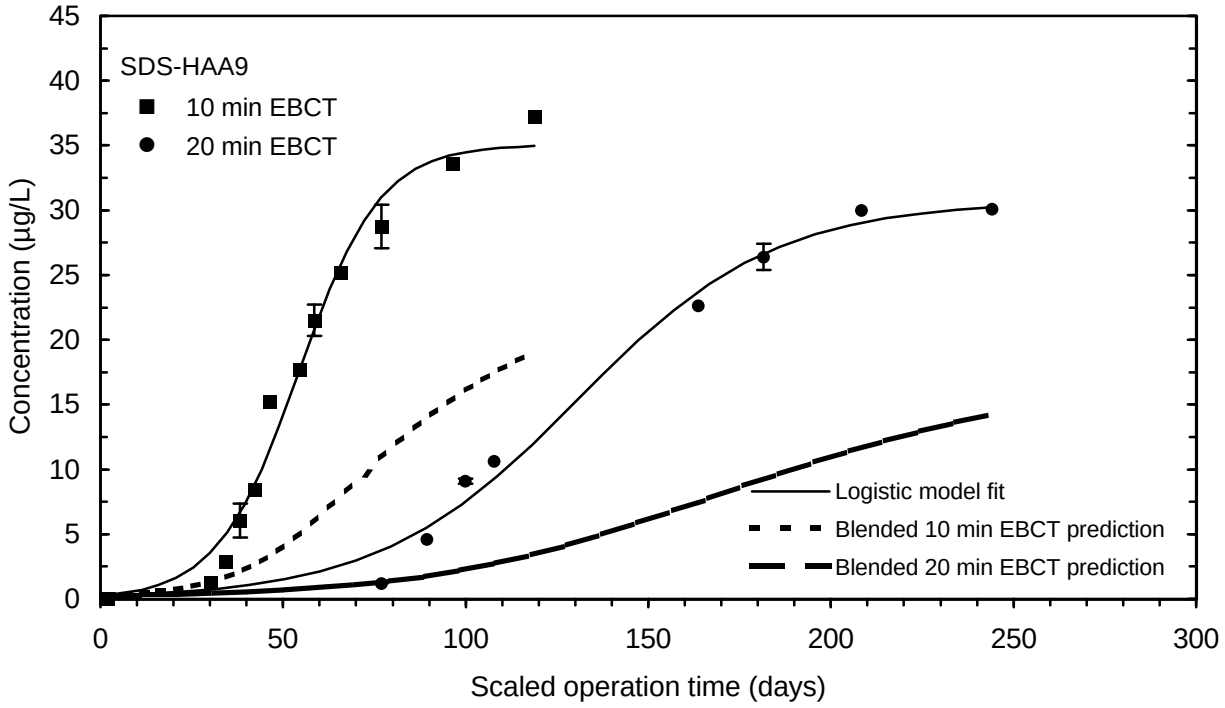


Figure 133 SDS-HAA9 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (September)

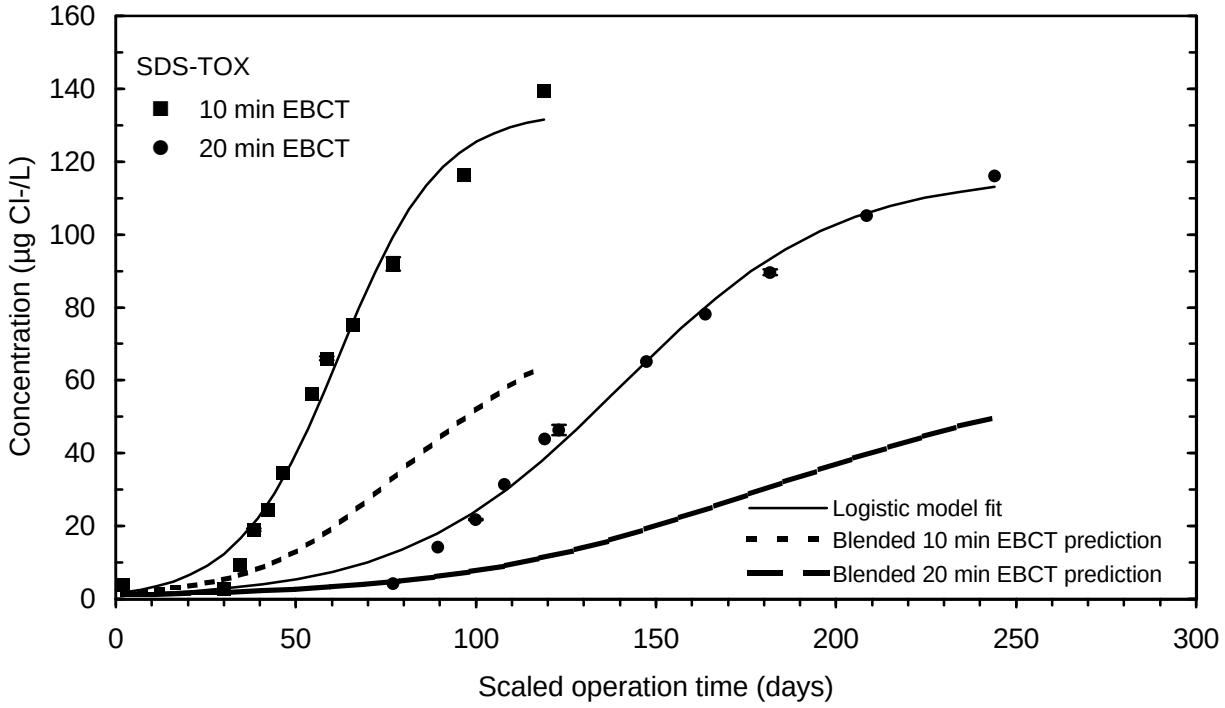


Figure 134 SDS-TOX breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (September)

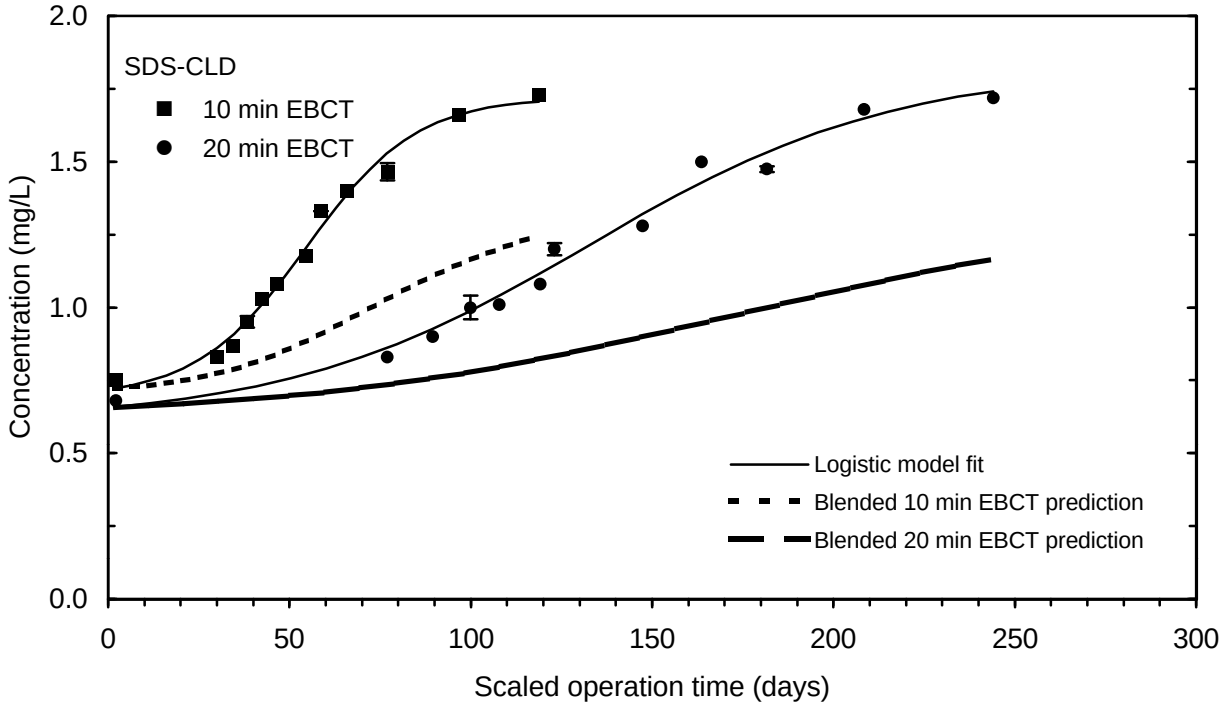


Figure 135 SDS-CLD breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (September)

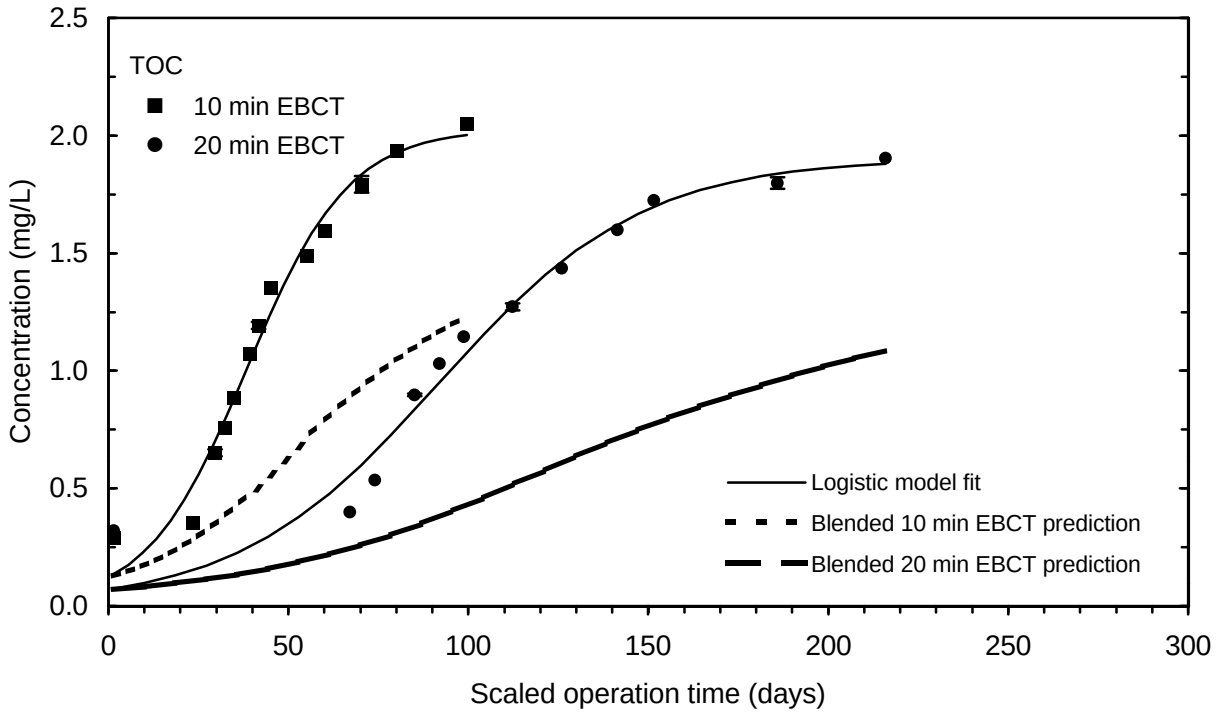


Figure 136 TOC breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (January)

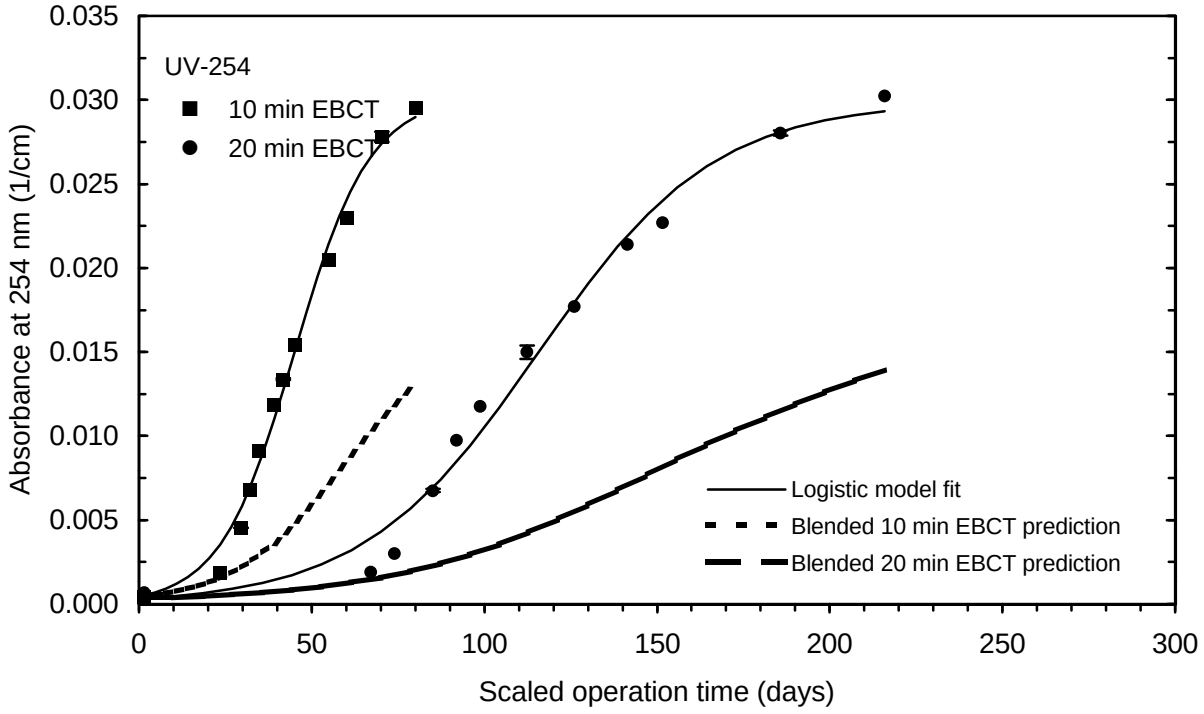


Figure 137 UV-254 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (January)

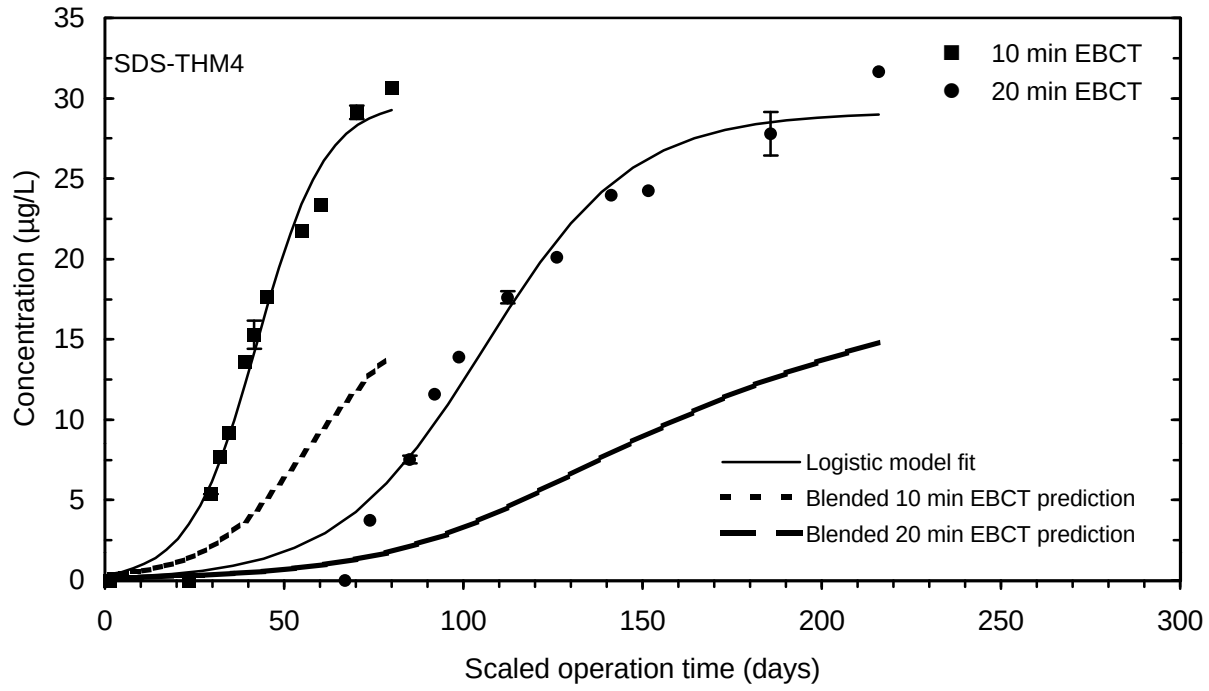


Figure 138 SDS-THM4 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (January)

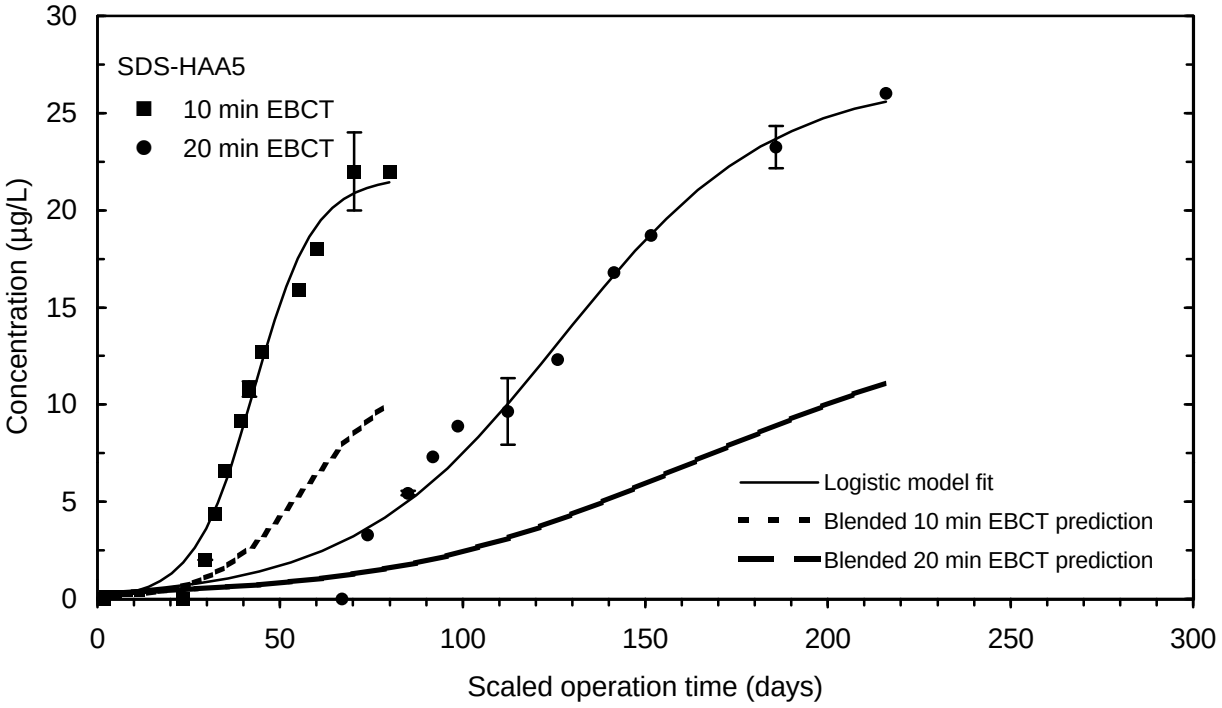


Figure 139 SDS-HAA5 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (January)

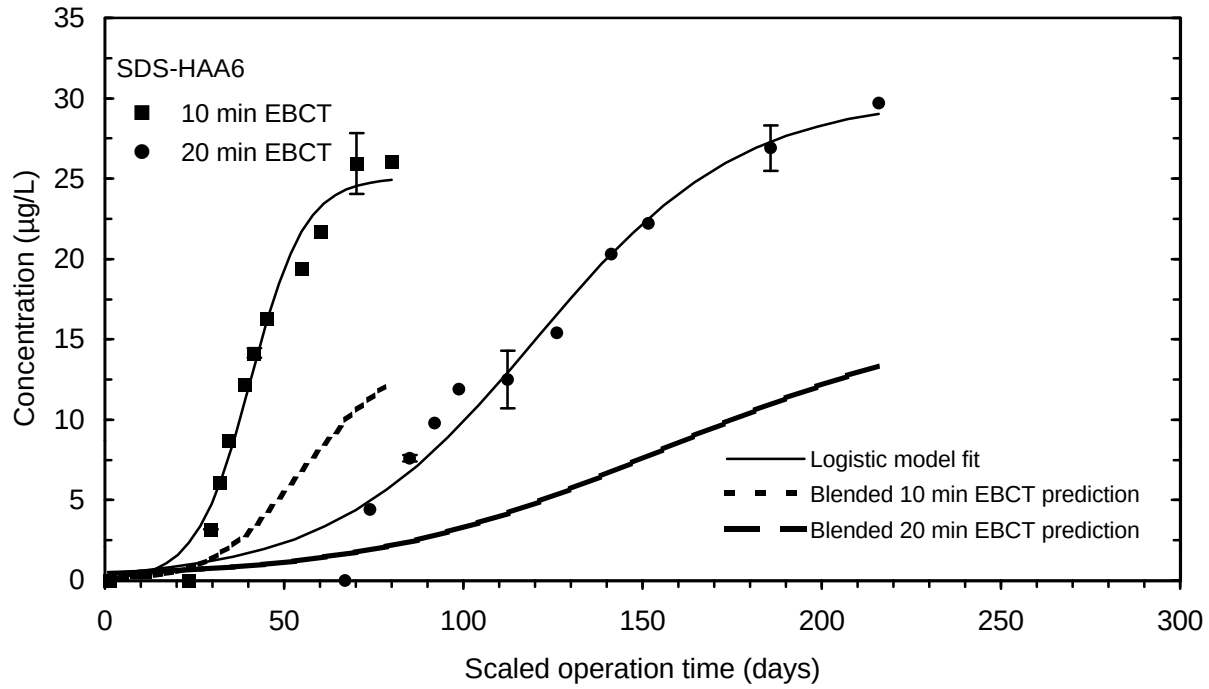


Figure 140 SDS-HAA6 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (January)

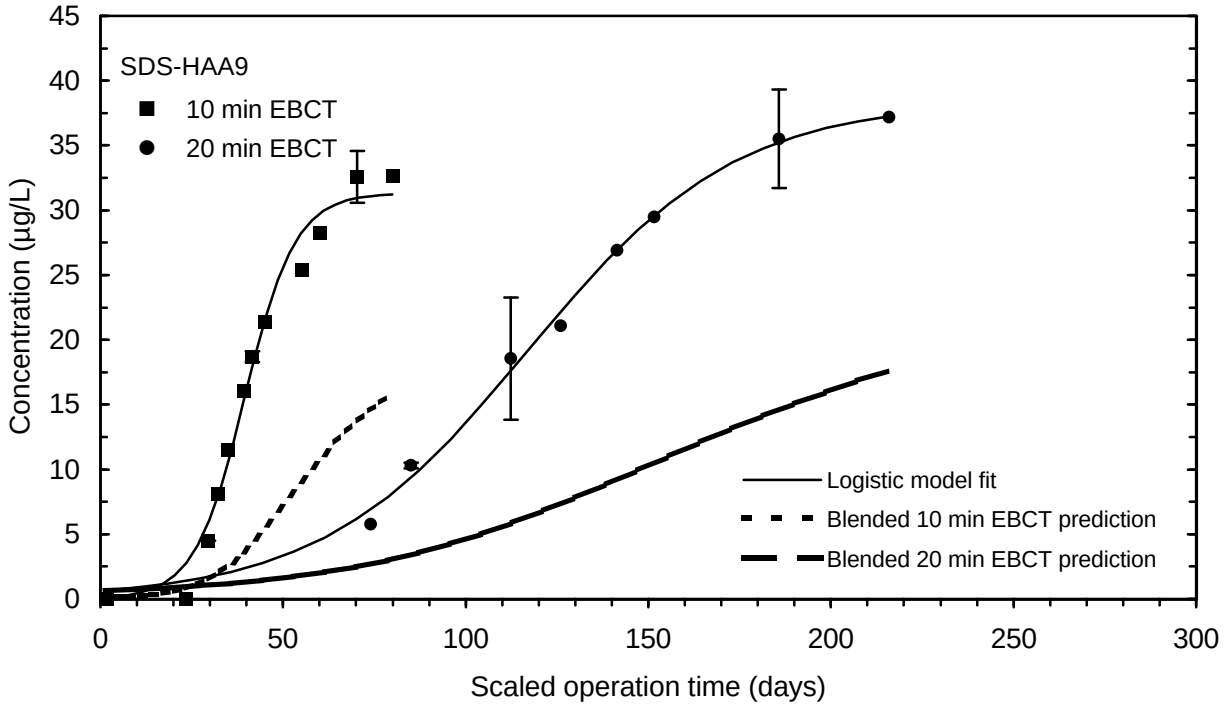


Figure 141 SDS-HAA9 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (January)

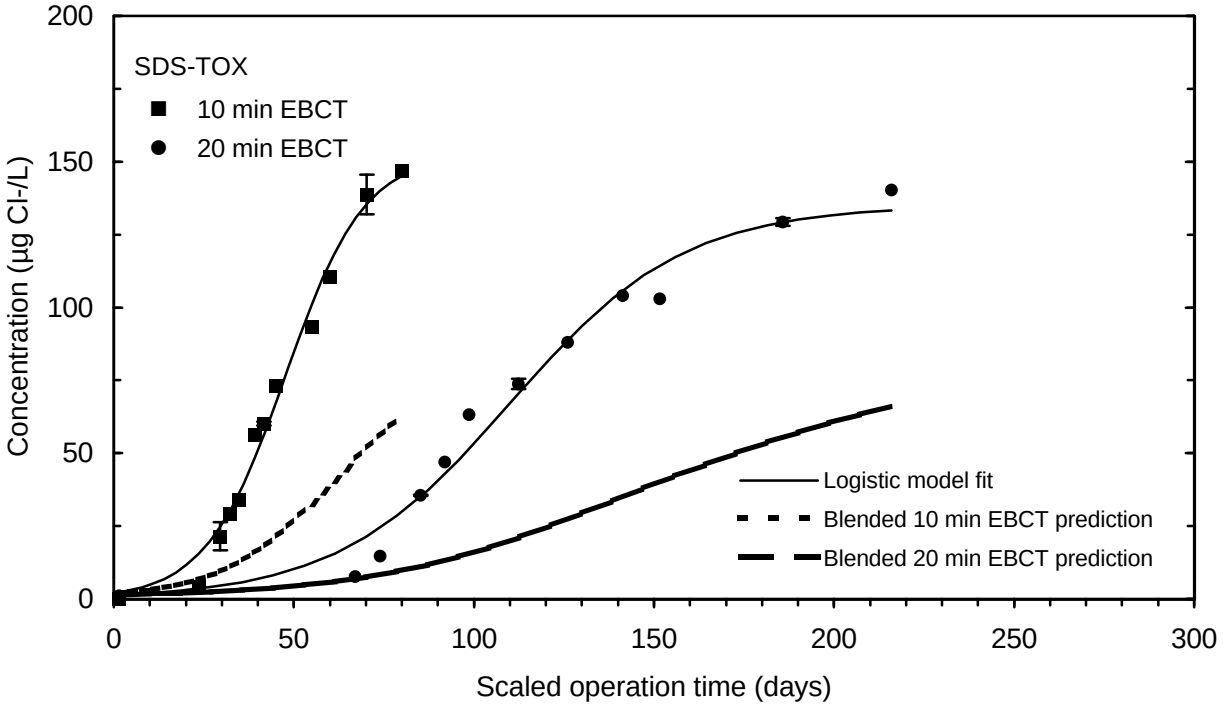


Figure 142 SDS-TOX breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (January)

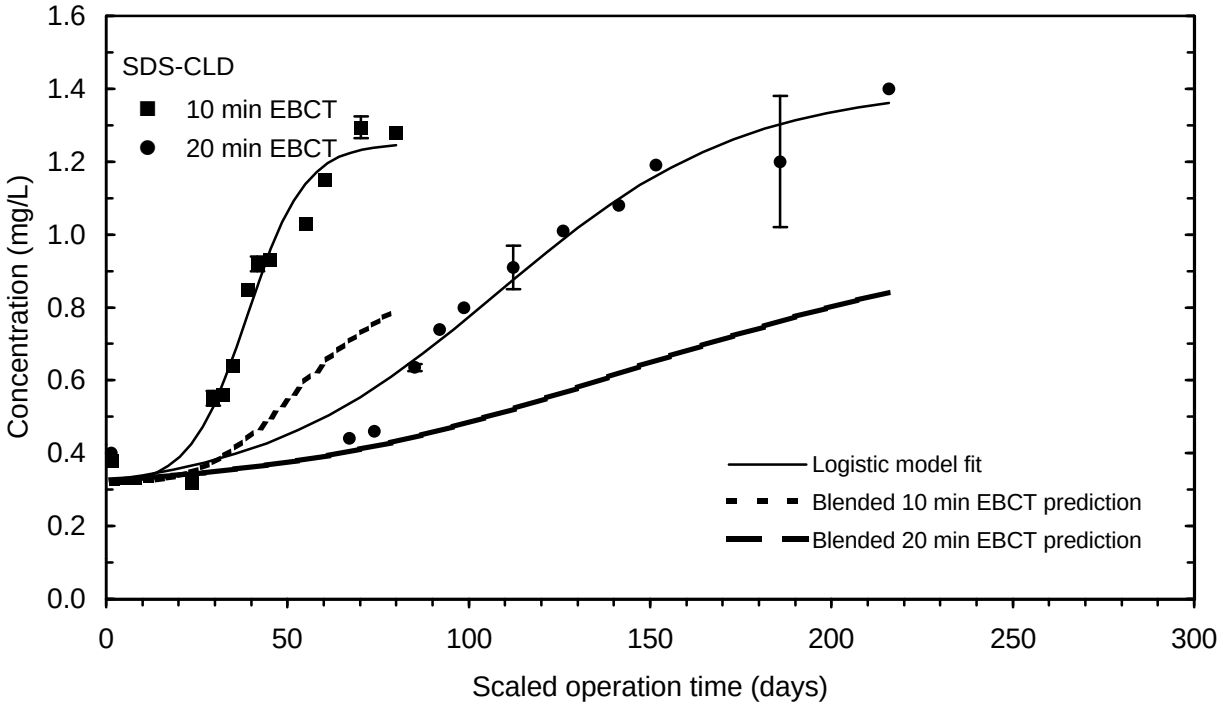


Figure 143 SDS-CLD breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (January)

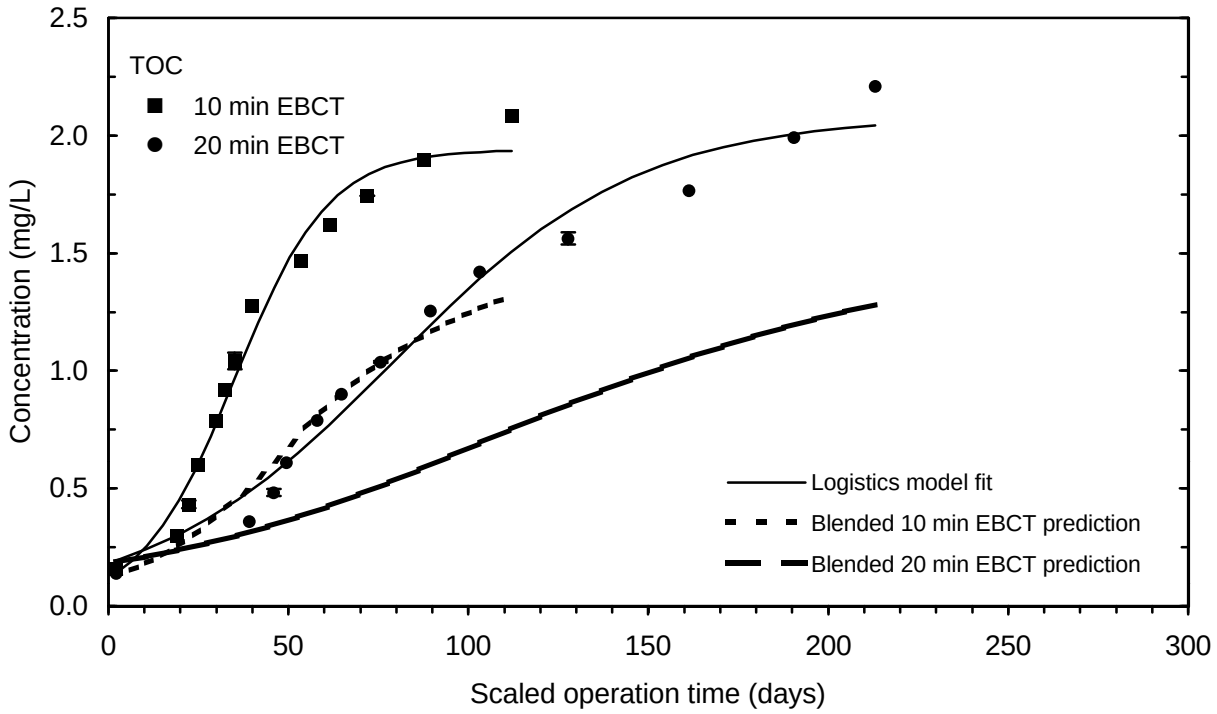


Figure 144 TOC breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite)

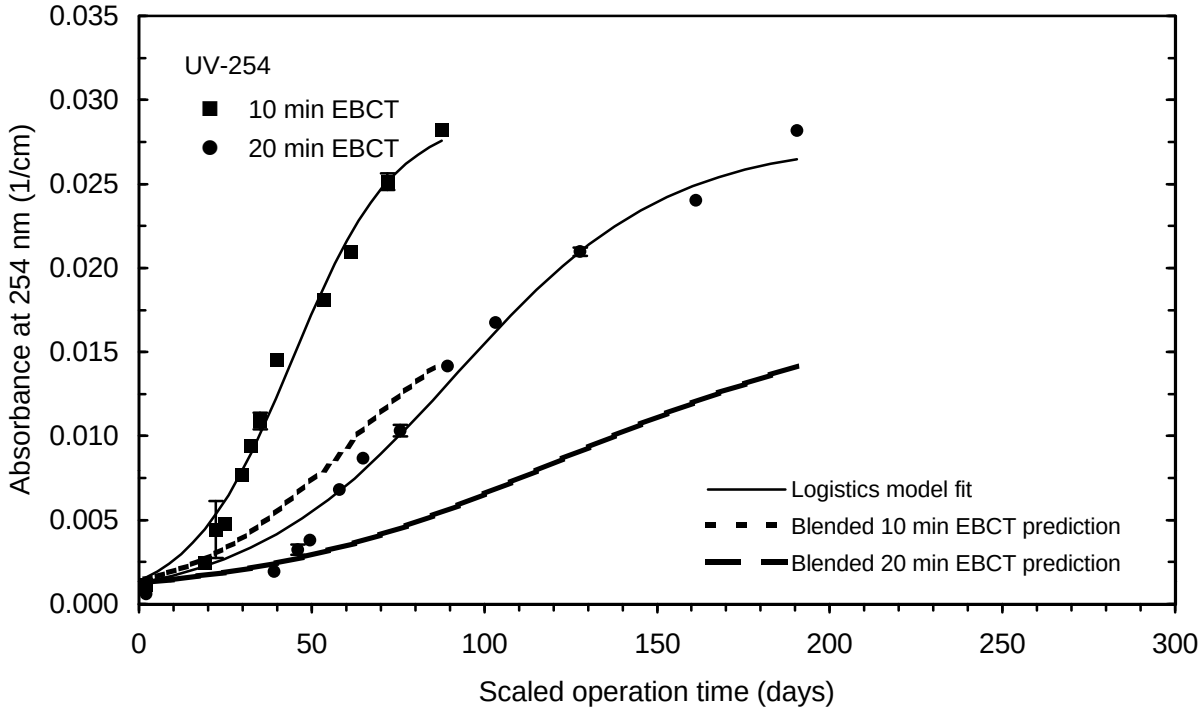


Figure 145 UV-254 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite)

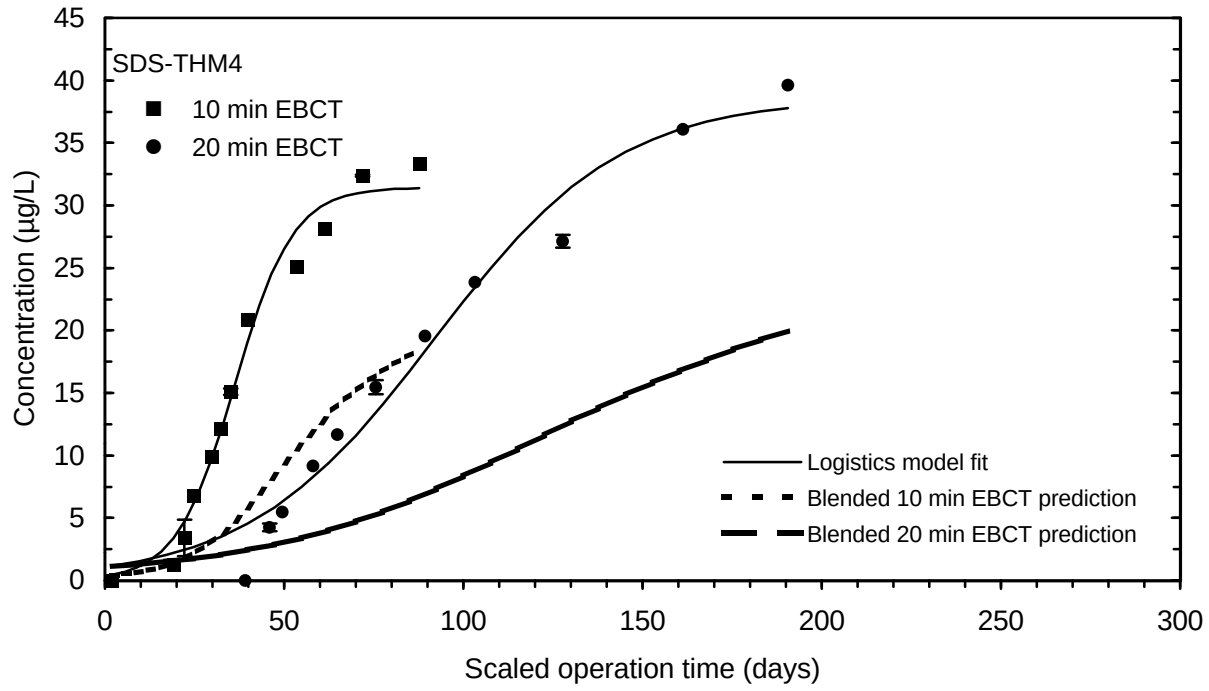


Figure 146 SDS-THM4 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite)

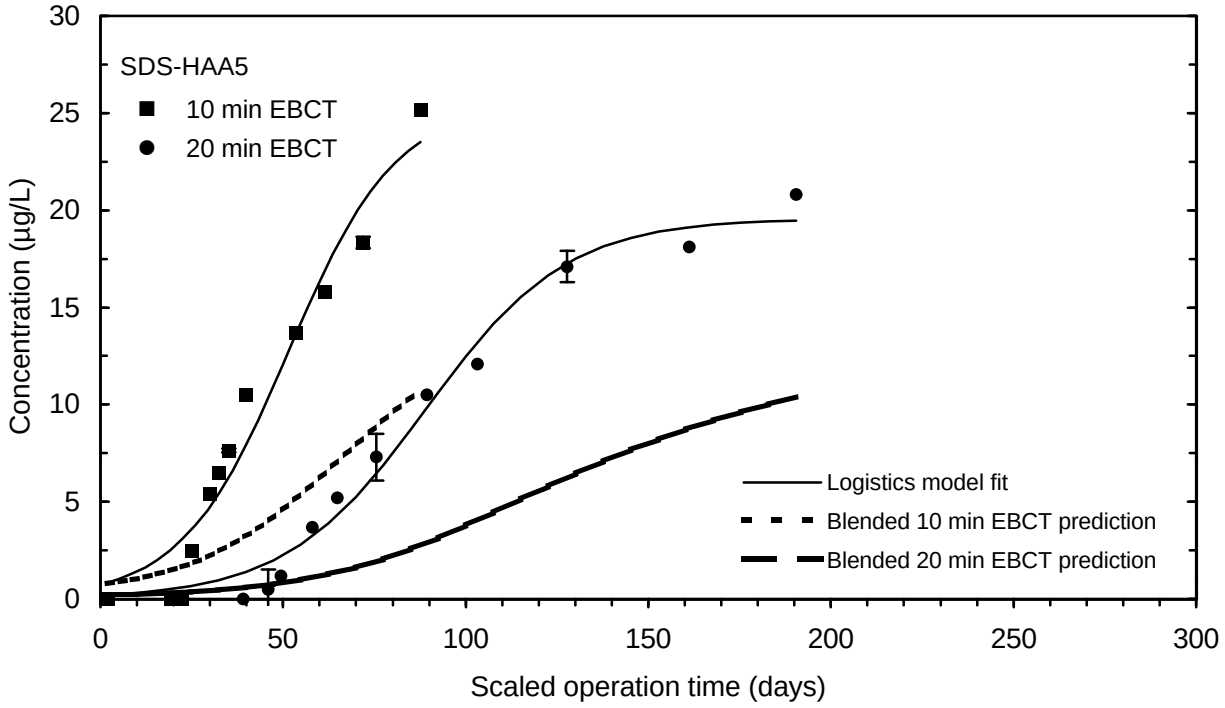


Figure 147 SDS-HAA5 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite)

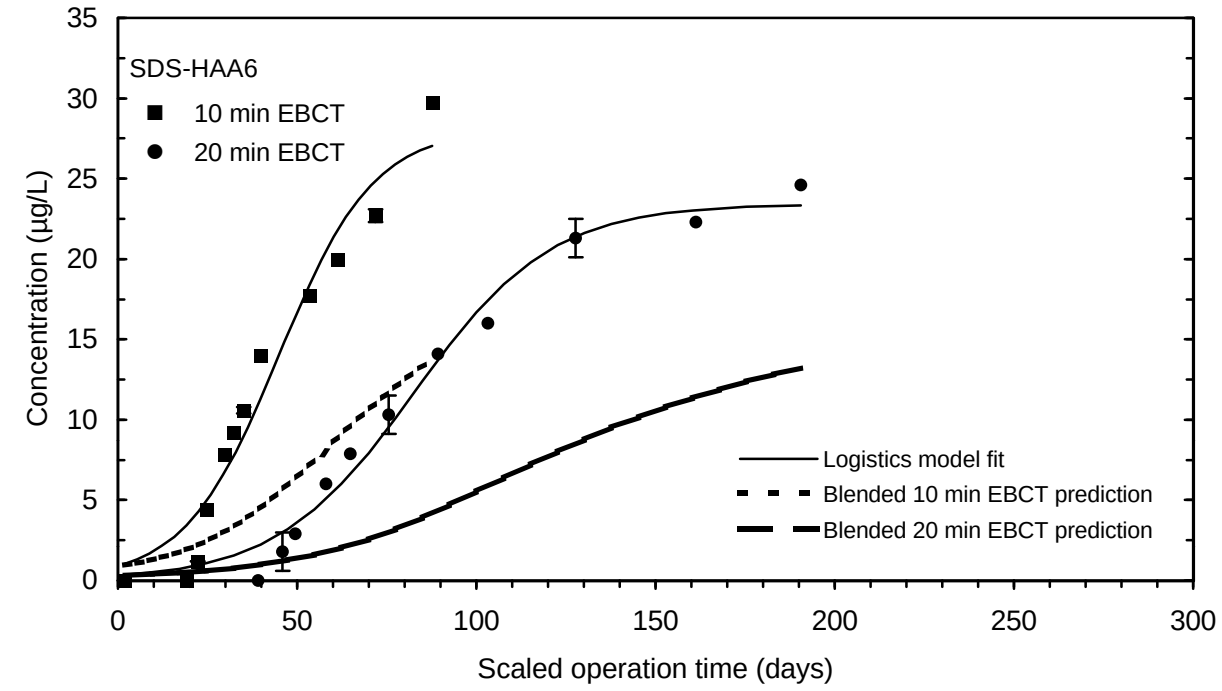


Figure 148 SDS-HAA6 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite)

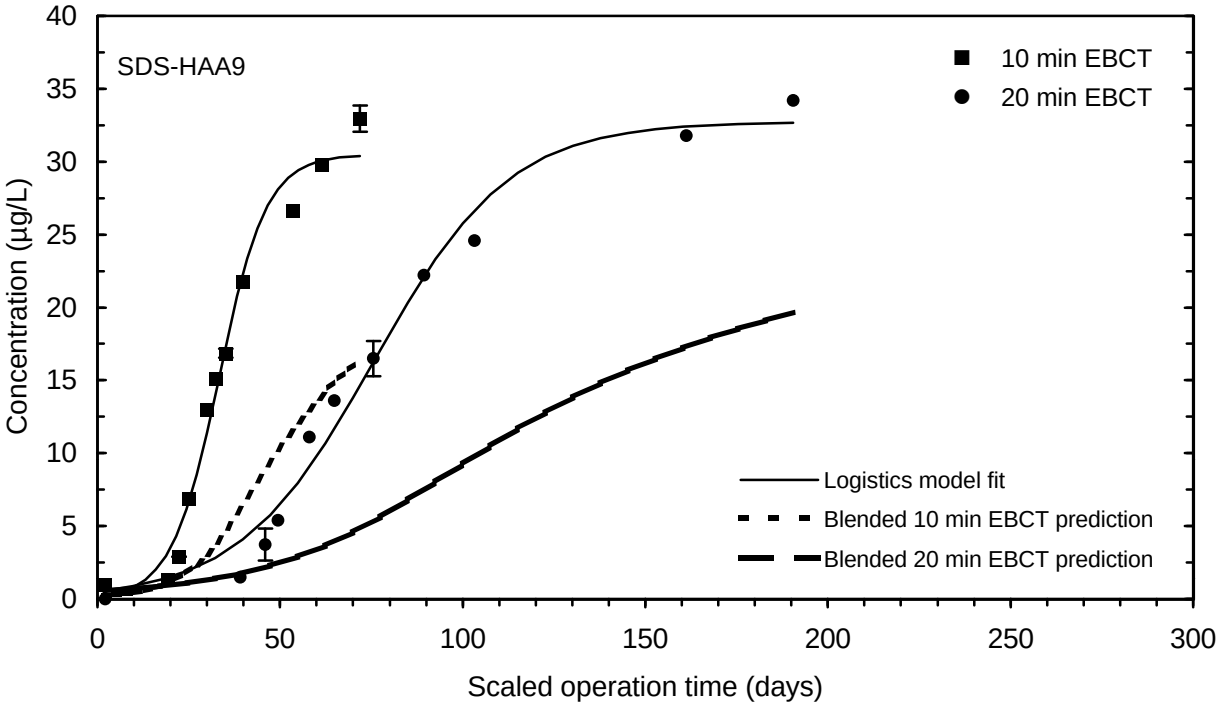


Figure 149 SDS-HAA9 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite)

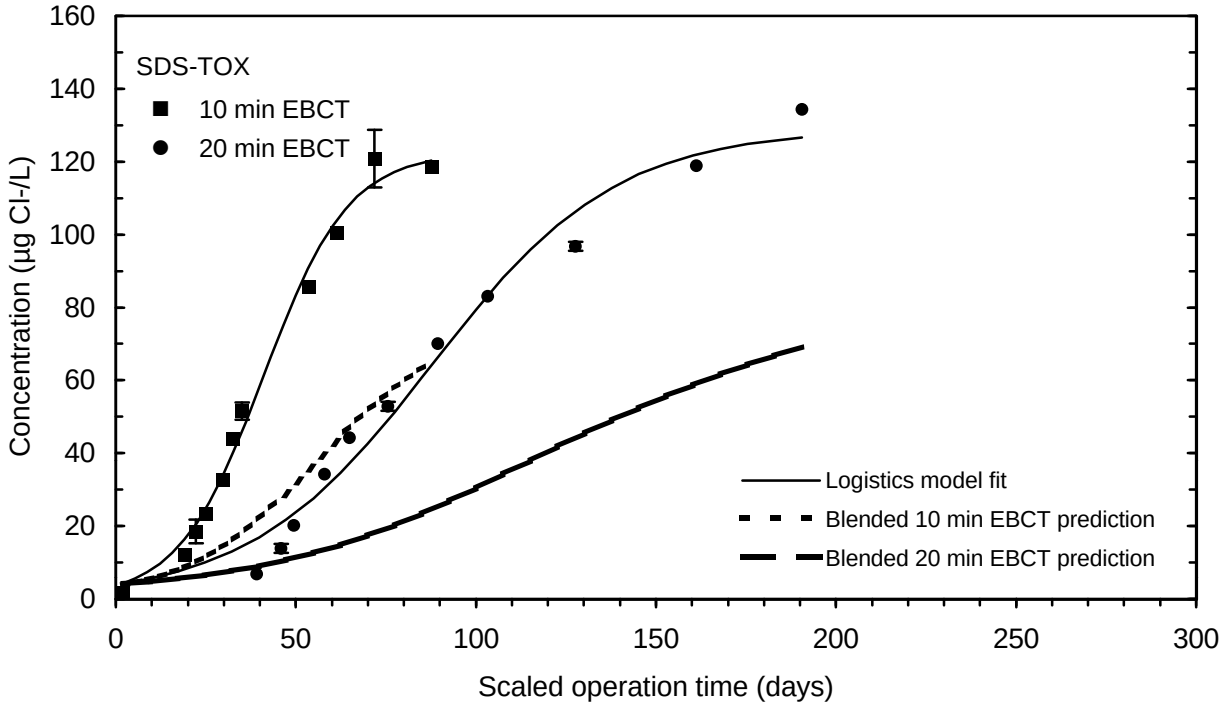


Figure 150 SDS-TOX breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite)

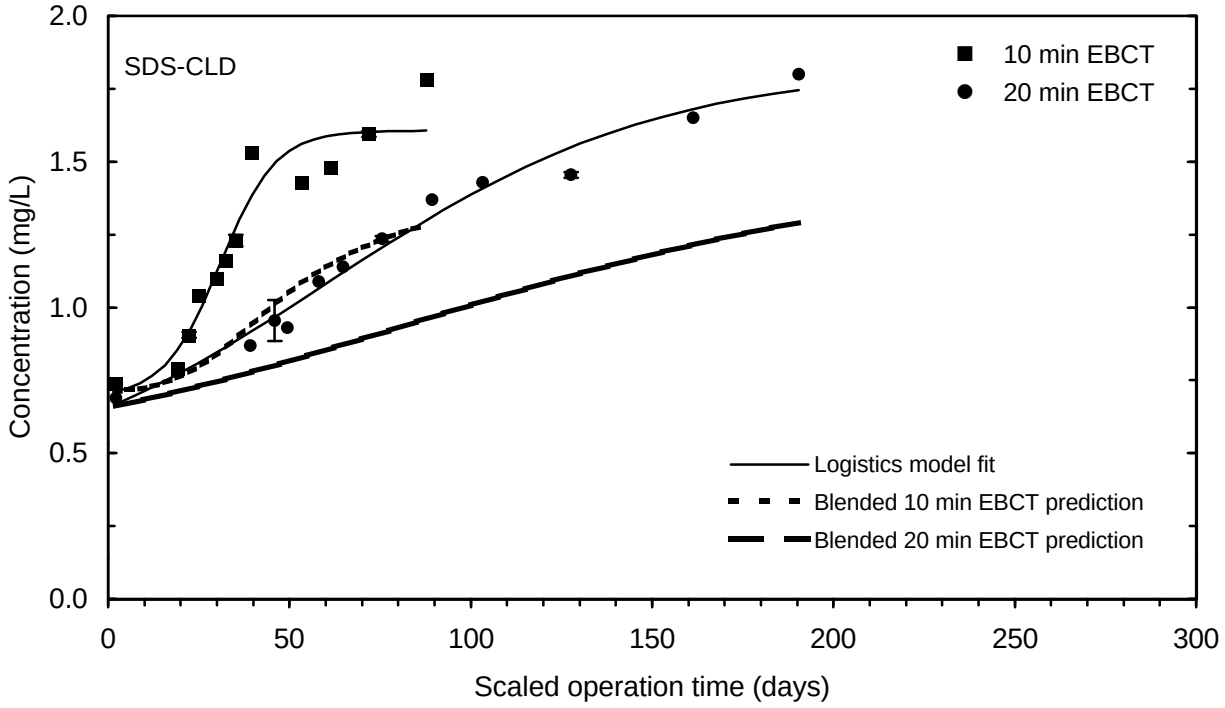


Figure 151 SDS-CLD breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (Sept-Lignite)

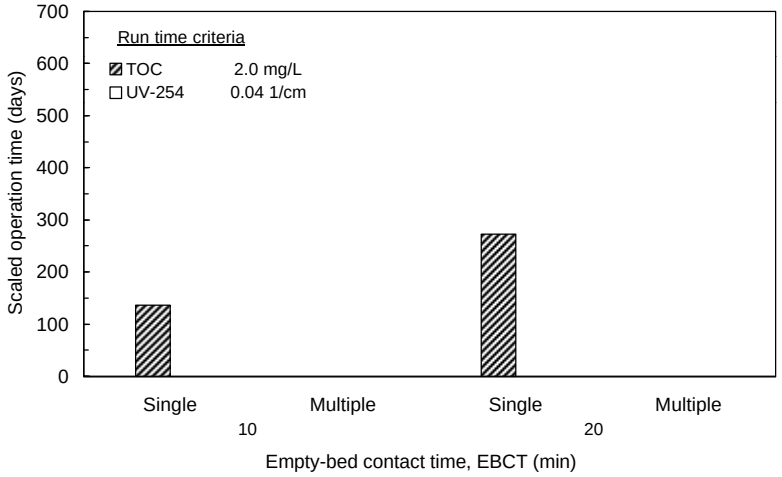


Figure 152 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 1 (June)

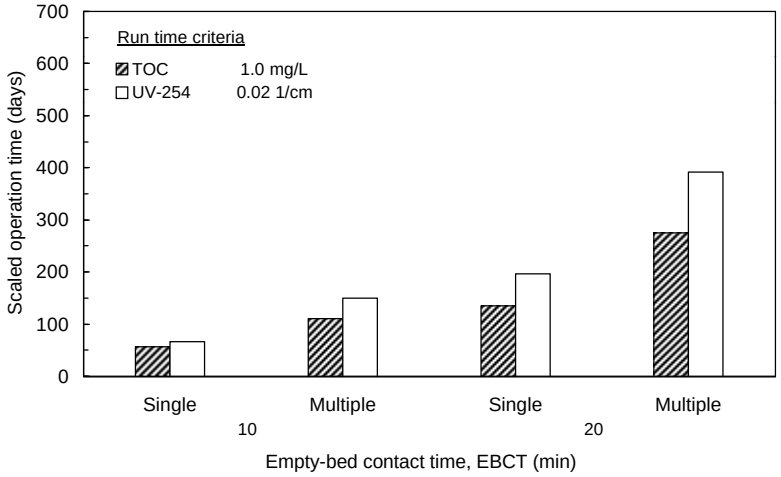


Figure 153 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 1 (June)

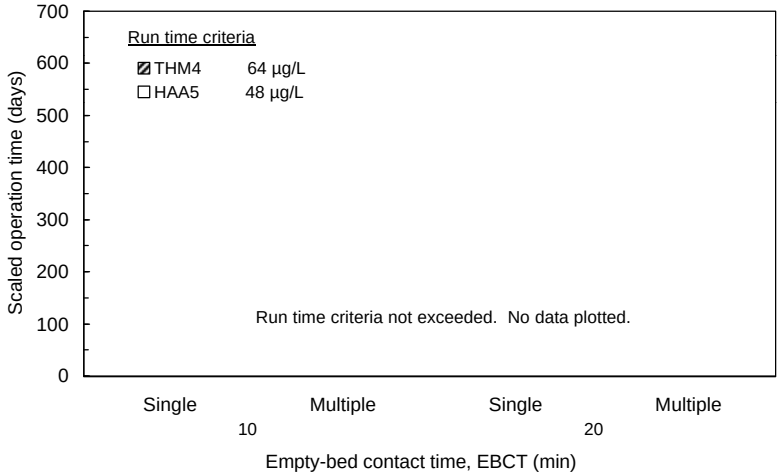


Figure 154 GAC run times based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 1 (June)

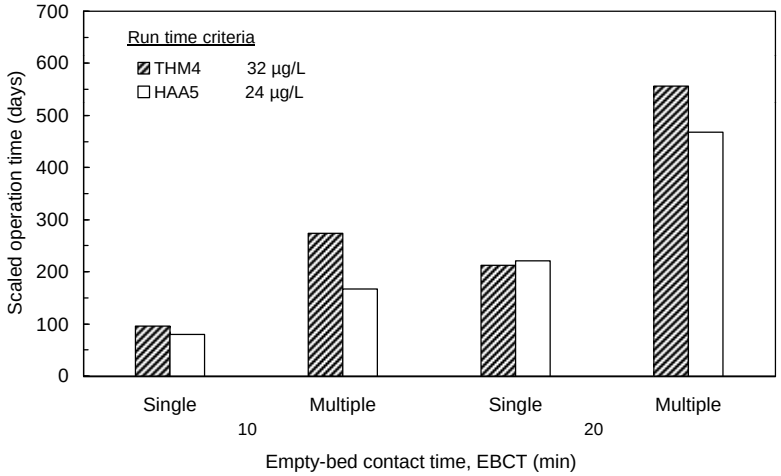


Figure 155 GAC run times based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 1 (June)

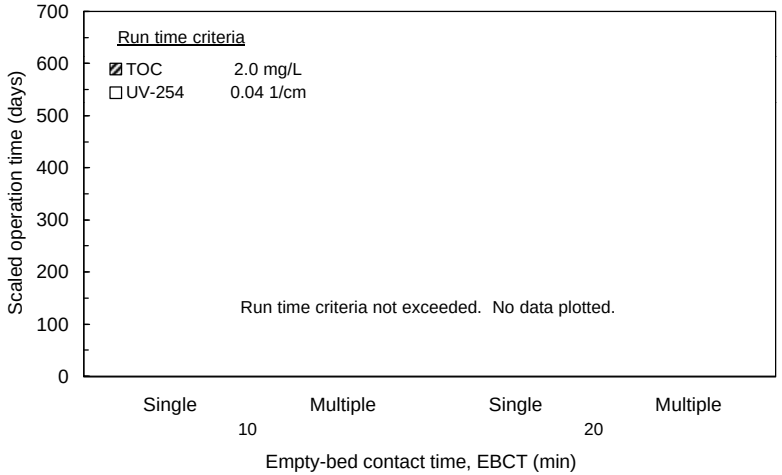


Figure 156 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 2 (September)

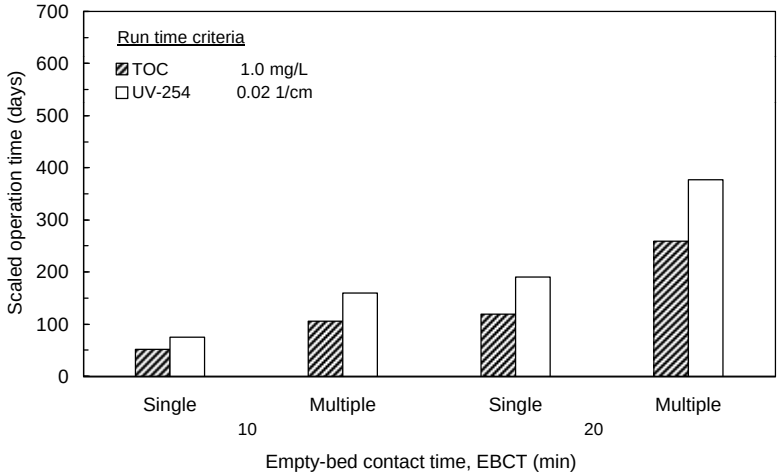


Figure 157 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 2 (September)

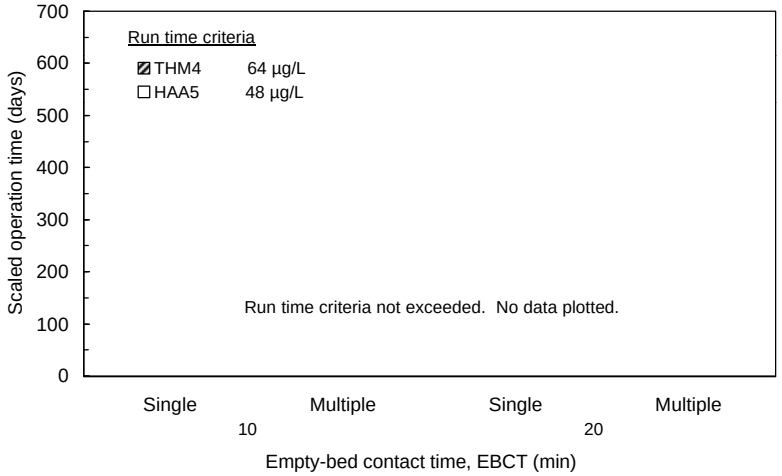


Figure 158 GAC run times based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 2 (September)

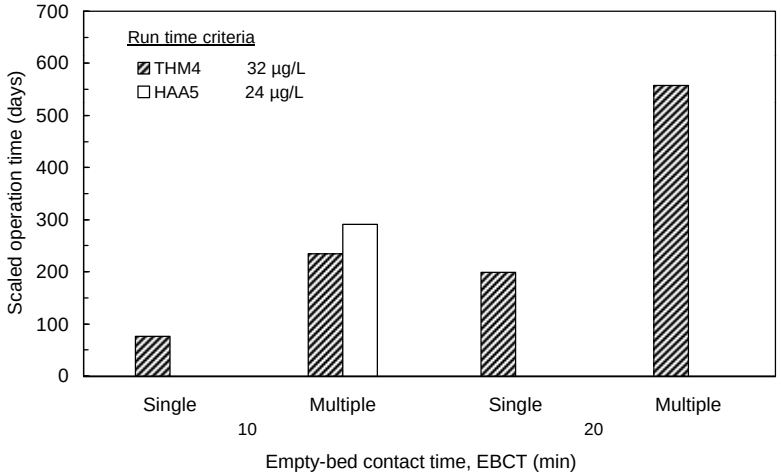


Figure 159 GAC run times based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 2 (September)

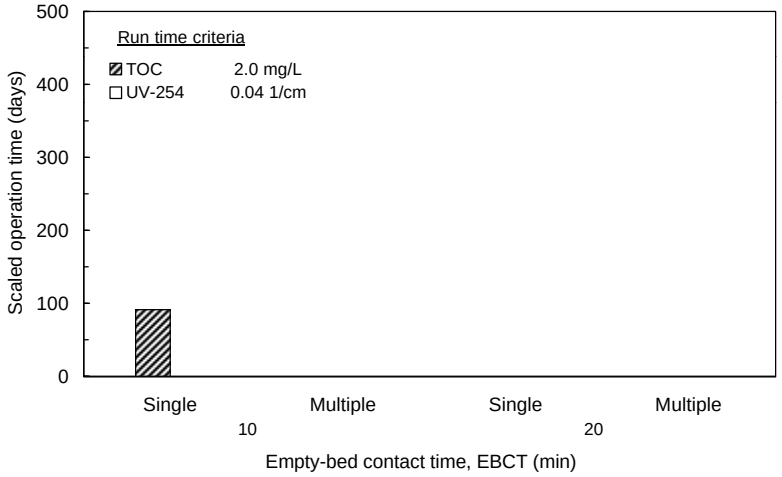


Figure 160 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 3 (January)

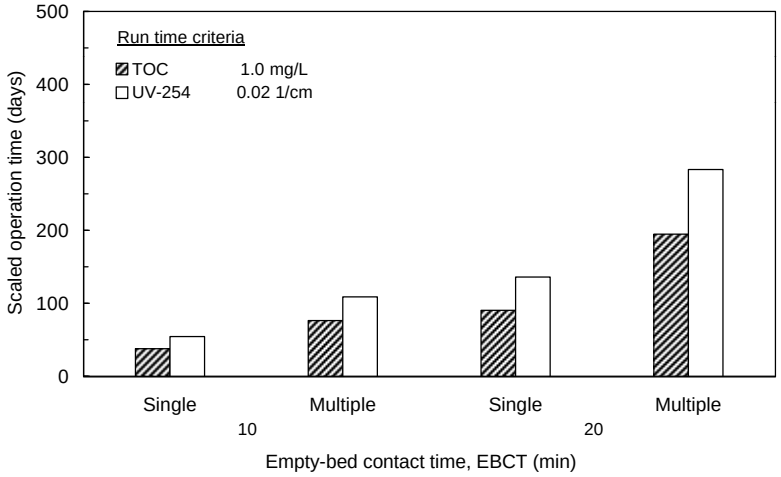


Figure 161 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 3 (January)

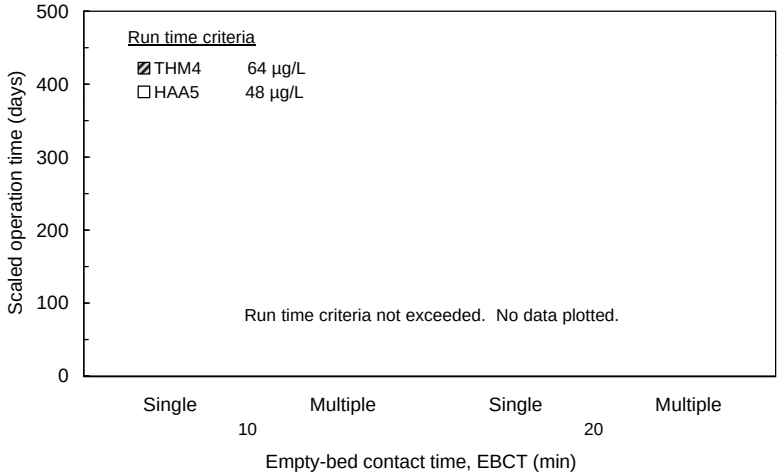


Figure 162 GAC run times based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 3 (January)

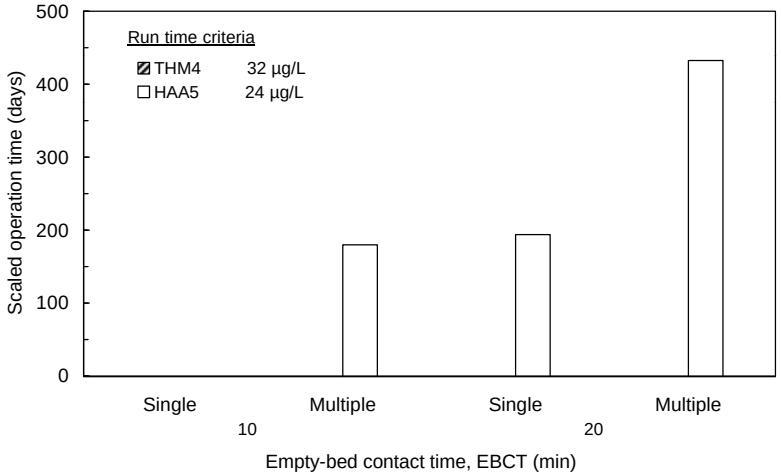


Figure 163 GAC run times based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 3 (January)

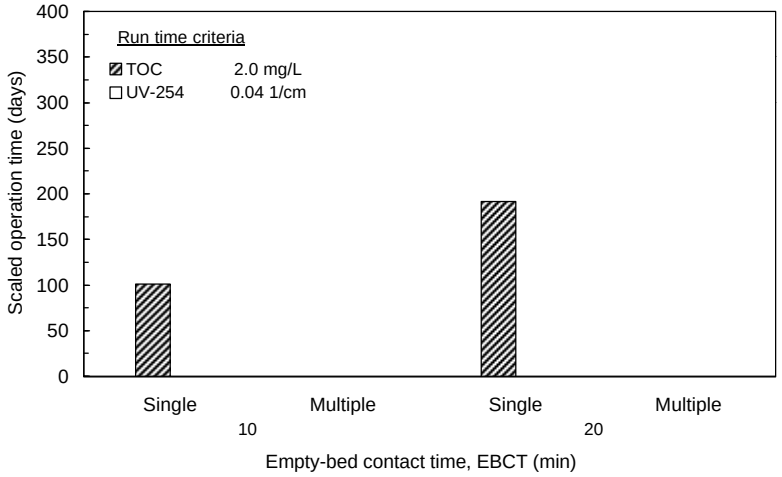


Figure 164 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 4 (Sept-Lignite)

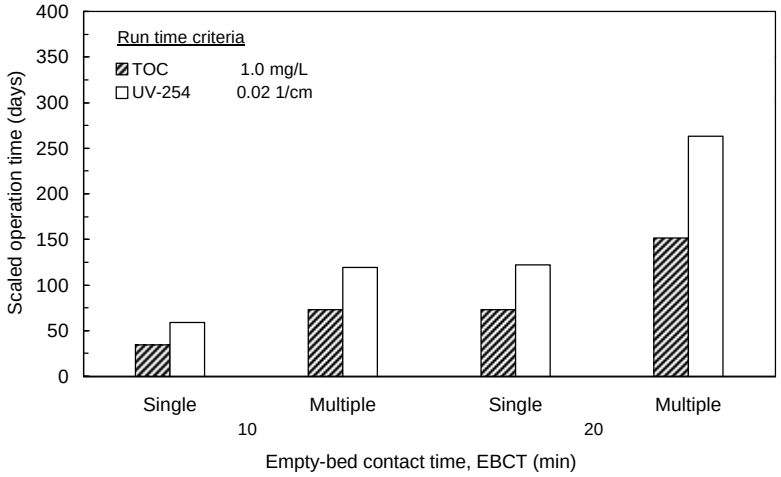


Figure 165 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 4 (Sept-Lignite)

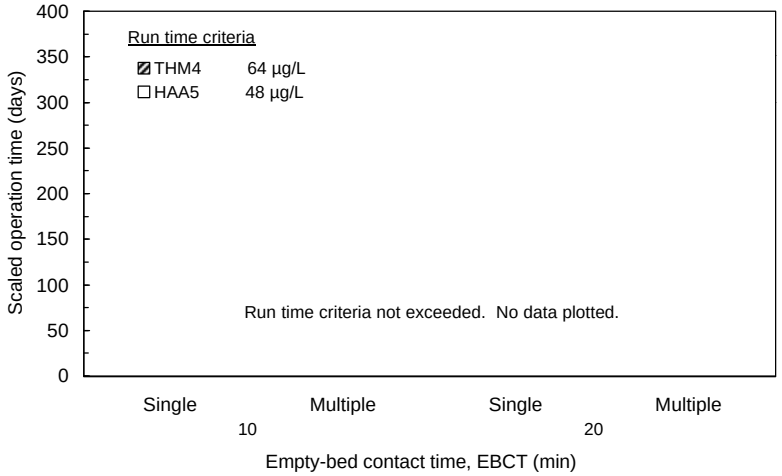


Figure 166 GAC run times based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 4 (Sept-Lignite)

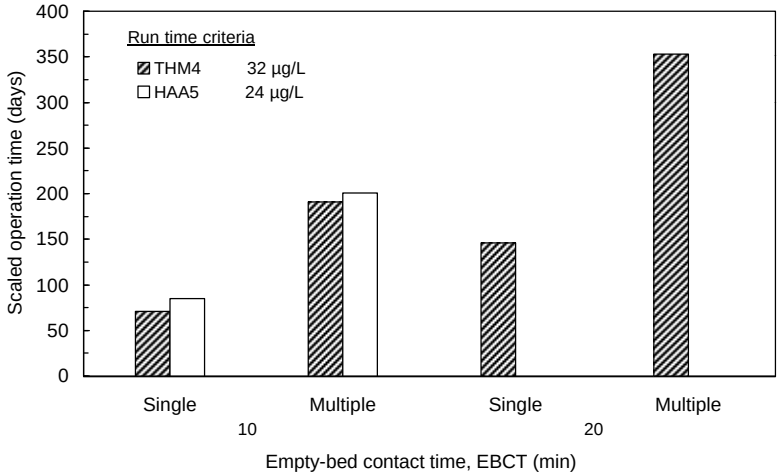


Figure 167 GAC run times based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 4 (Sept-Lignite)

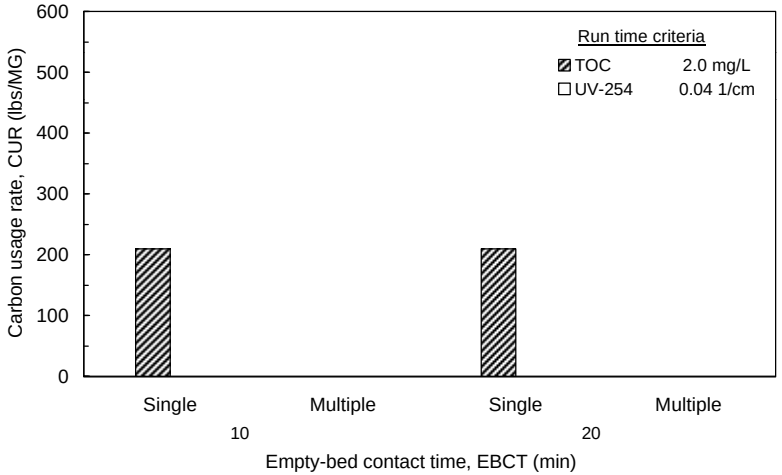


Figure 168 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 1 (June)

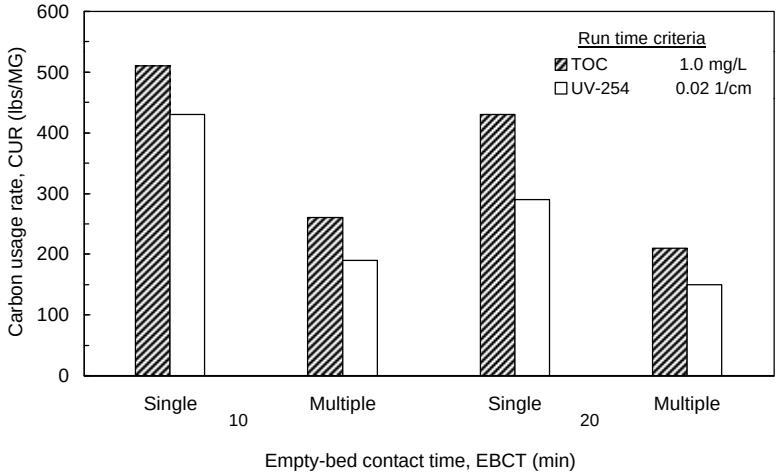


Figure 169 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 1 (June)

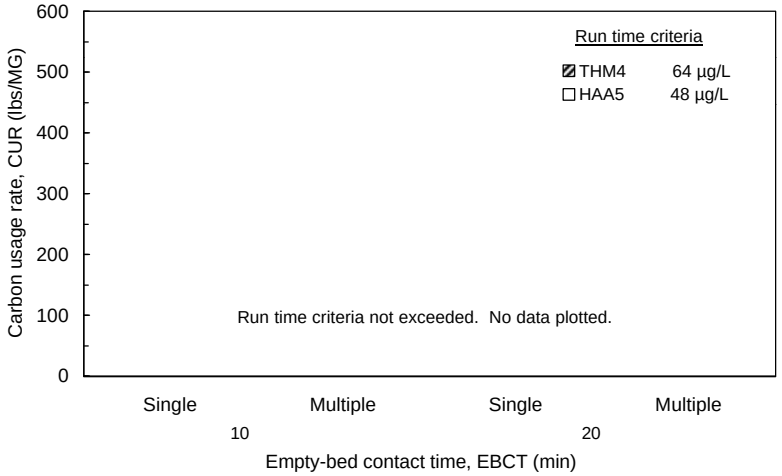


Figure 170 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 1 (June)

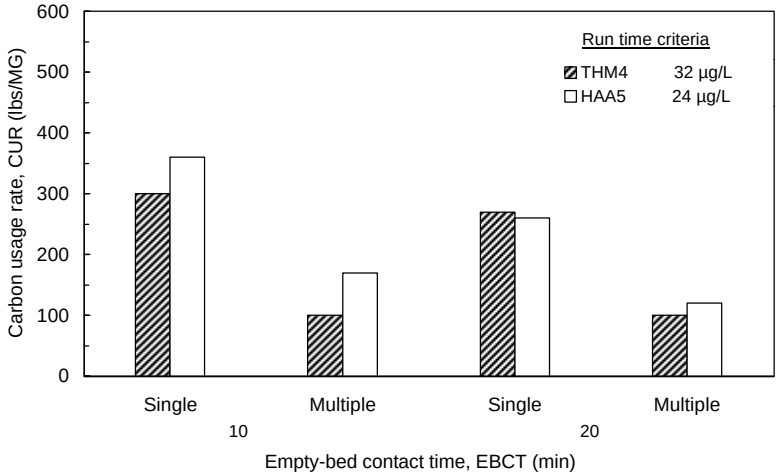


Figure 171 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 1 (June)

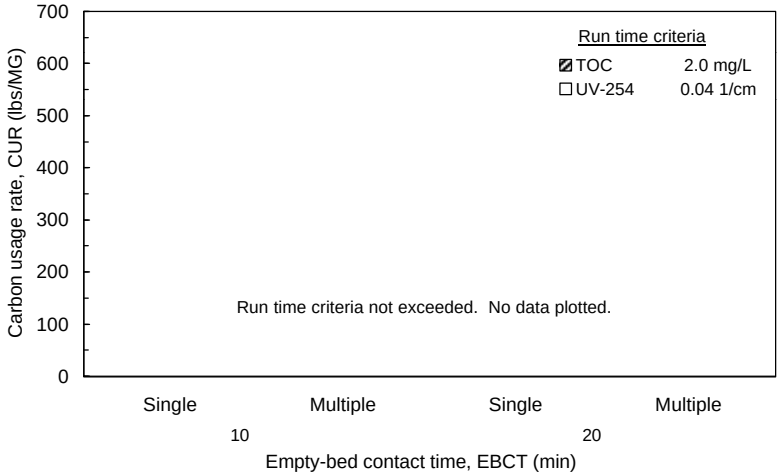


Figure 172 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 2 (September)

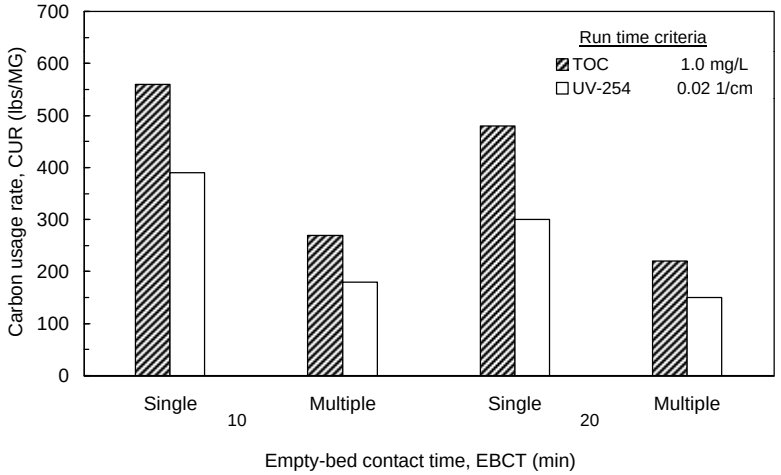


Figure 173 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 2 (September)

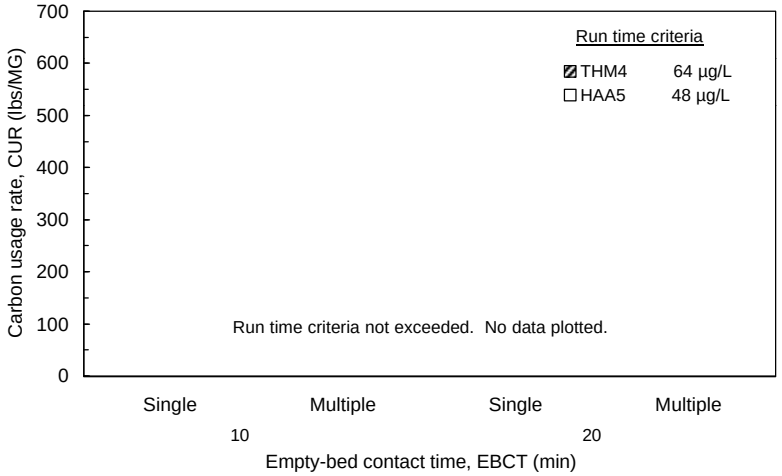


Figure 174 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 2 (September)

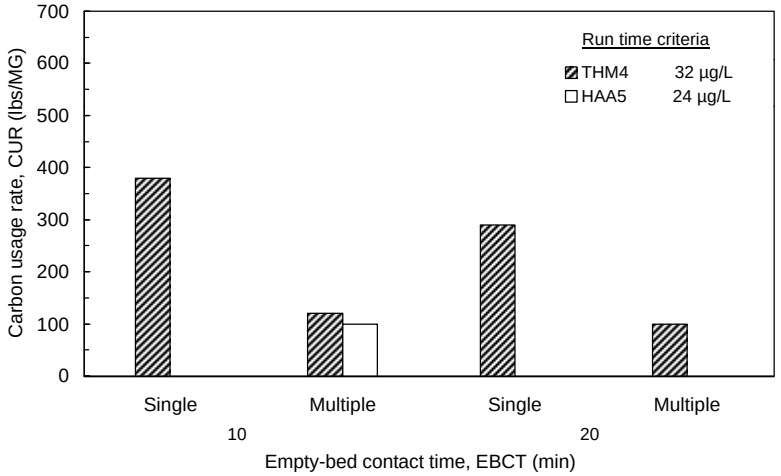


Figure 175 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 2 (September)

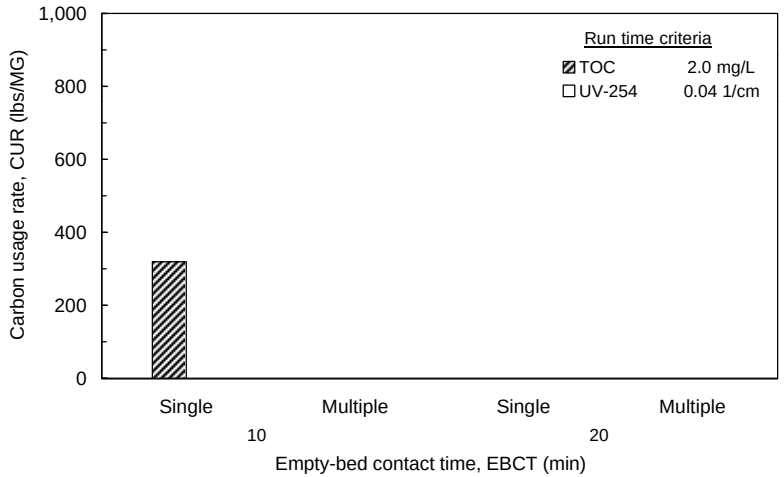


Figure 176 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 3 (January)

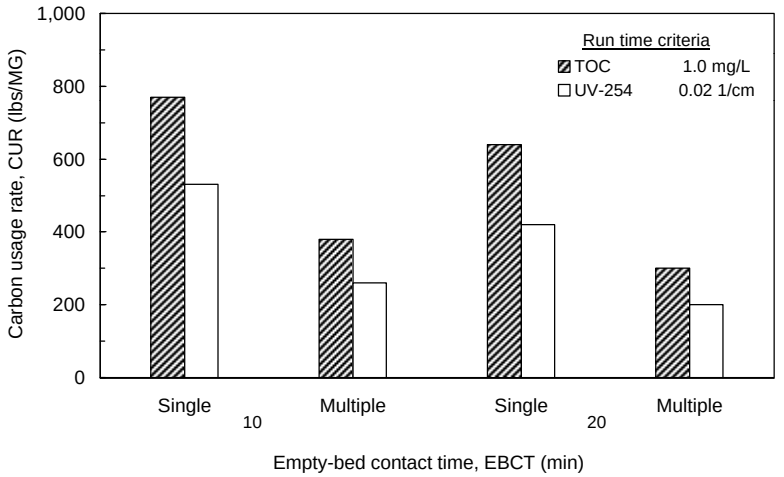


Figure 177 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 3 (January)

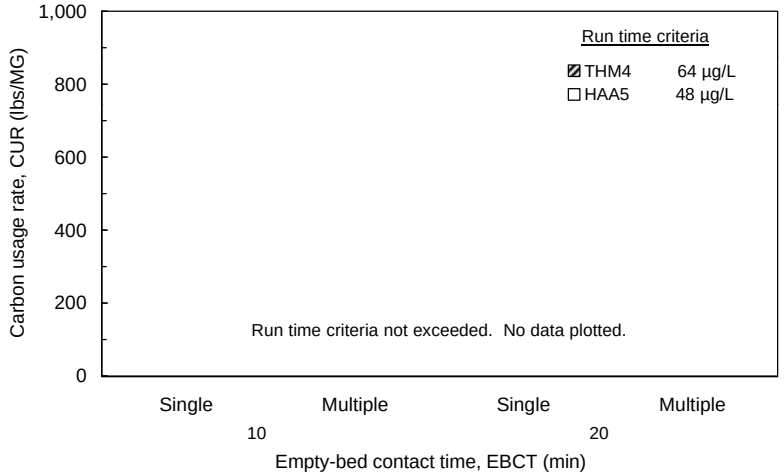


Figure 178 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 3 (January)

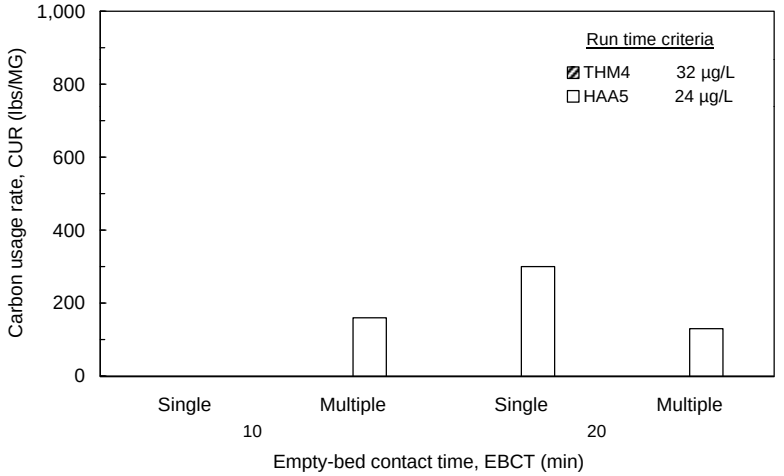


Figure 179 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 3 (January)

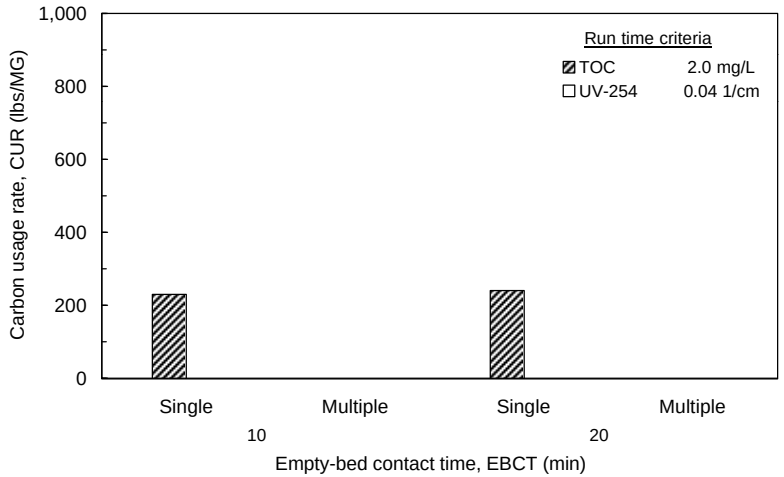


Figure 180 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 4 (Sept-Lignite)

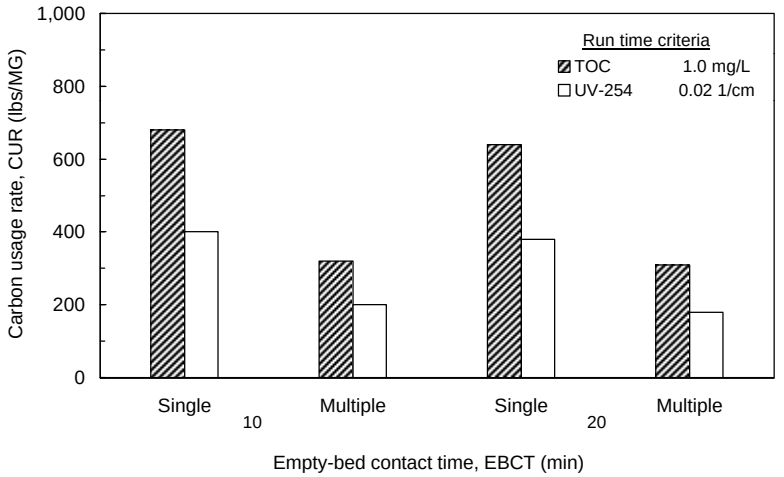


Figure 181 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 4 (Sept-Lignite)

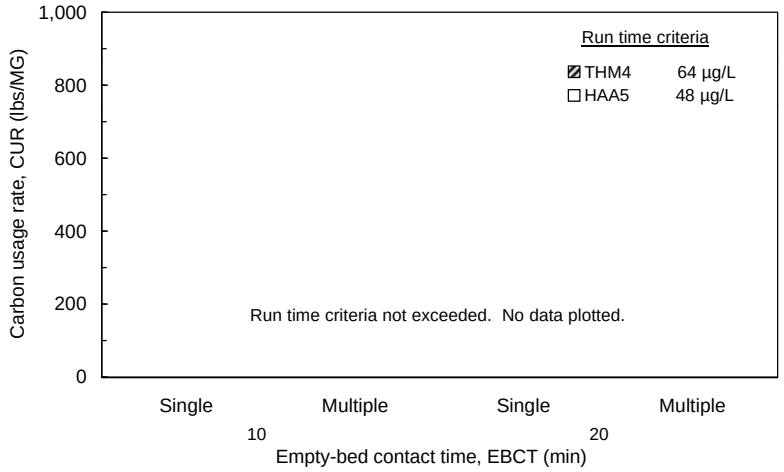


Figure 182 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 4 (Sept-Lignite)

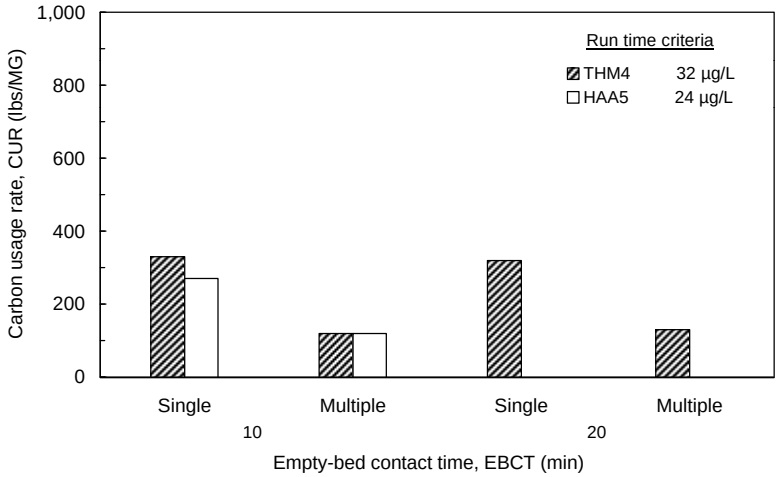


Figure 183 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 4 (Sept-Lignite)

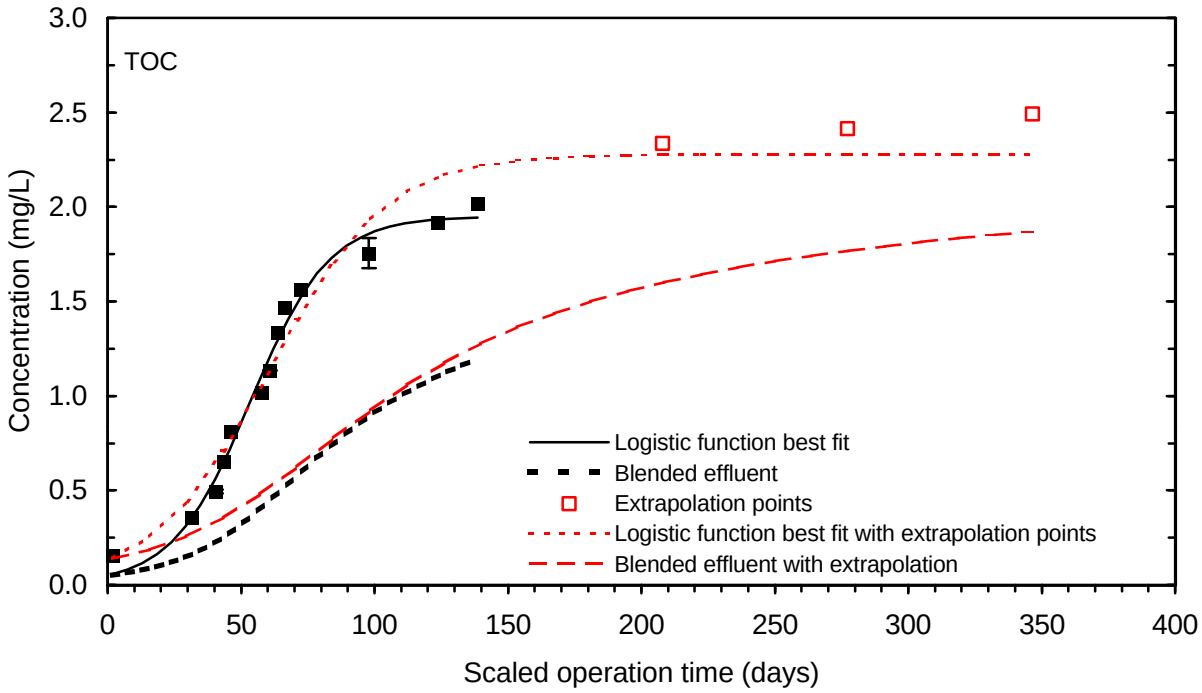


Figure 184 Single contactor and blended effluent extrapolated TOC breakthrough curve (10 minute EBCT) during session 1, June

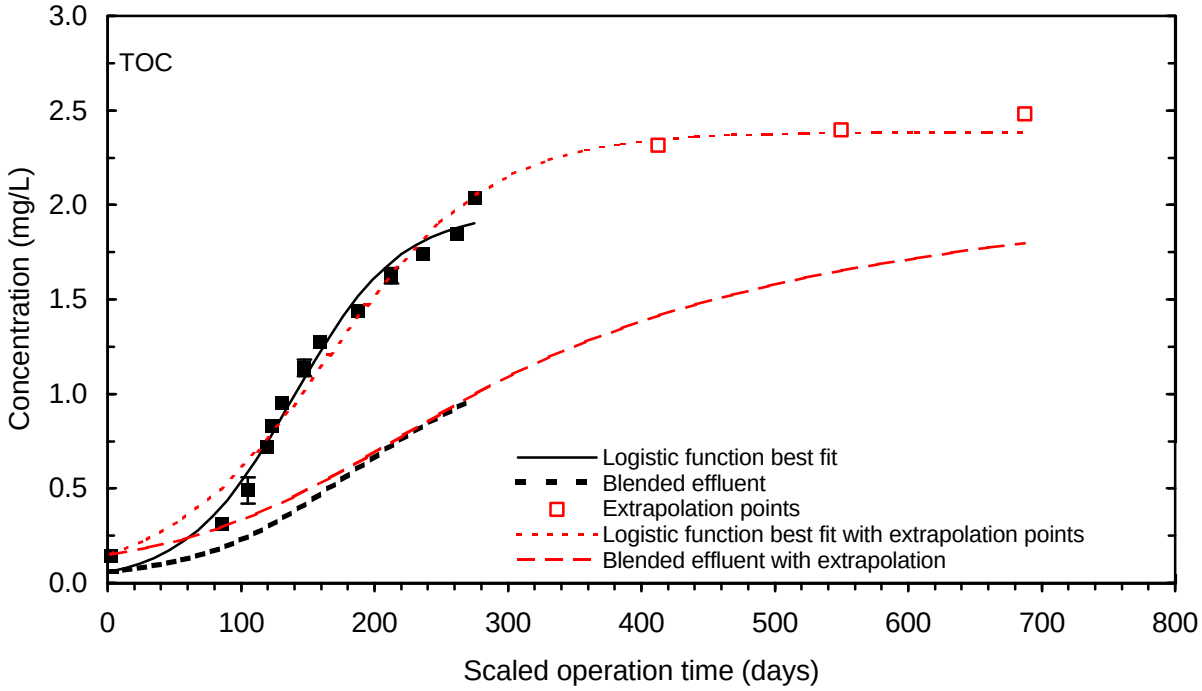


Figure 185 Single contactor and blended effluent extrapolated TOC breakthrough curve (20 minute EBCT) during session 1, June

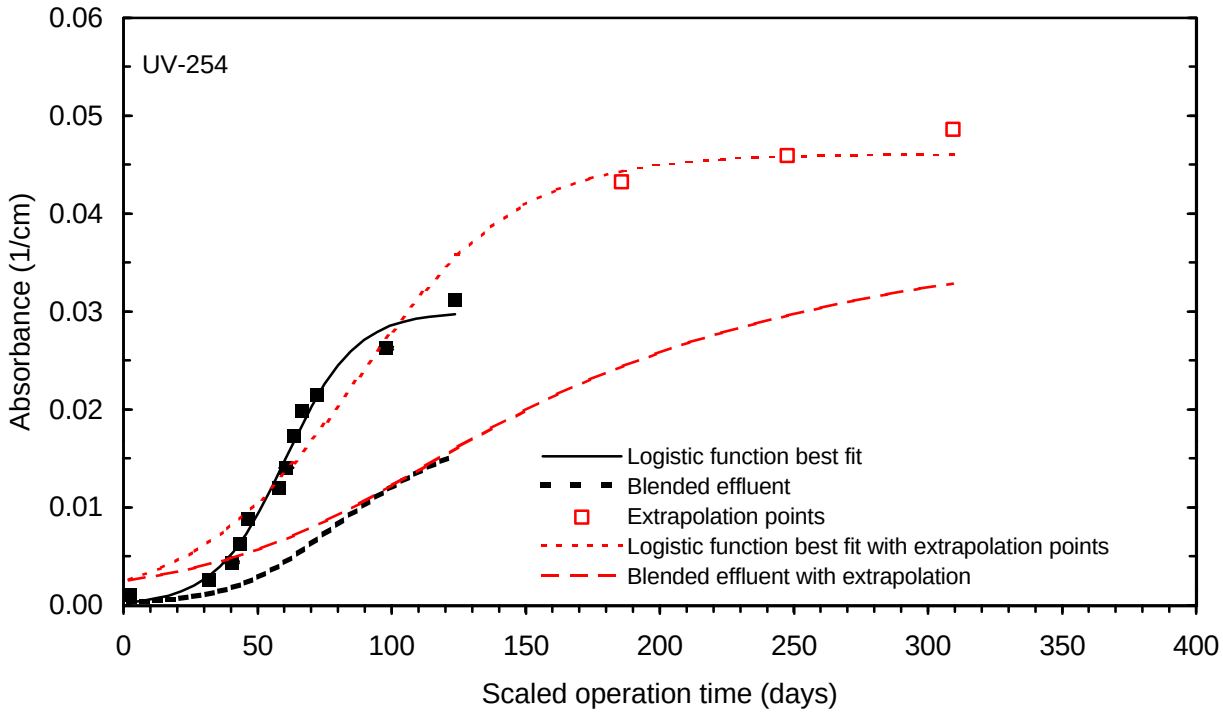


Figure 186 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (10 minute EBCT) during session 1, June

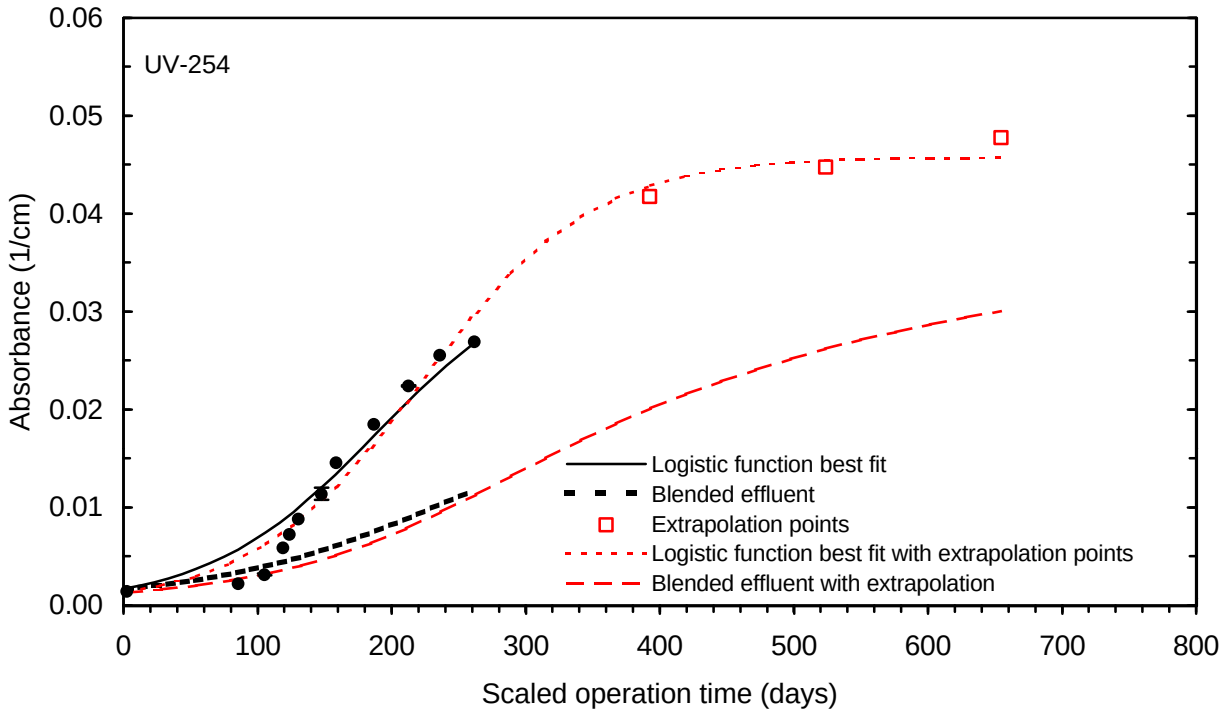


Figure 187 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (20 minute EBCT) during session 1, June

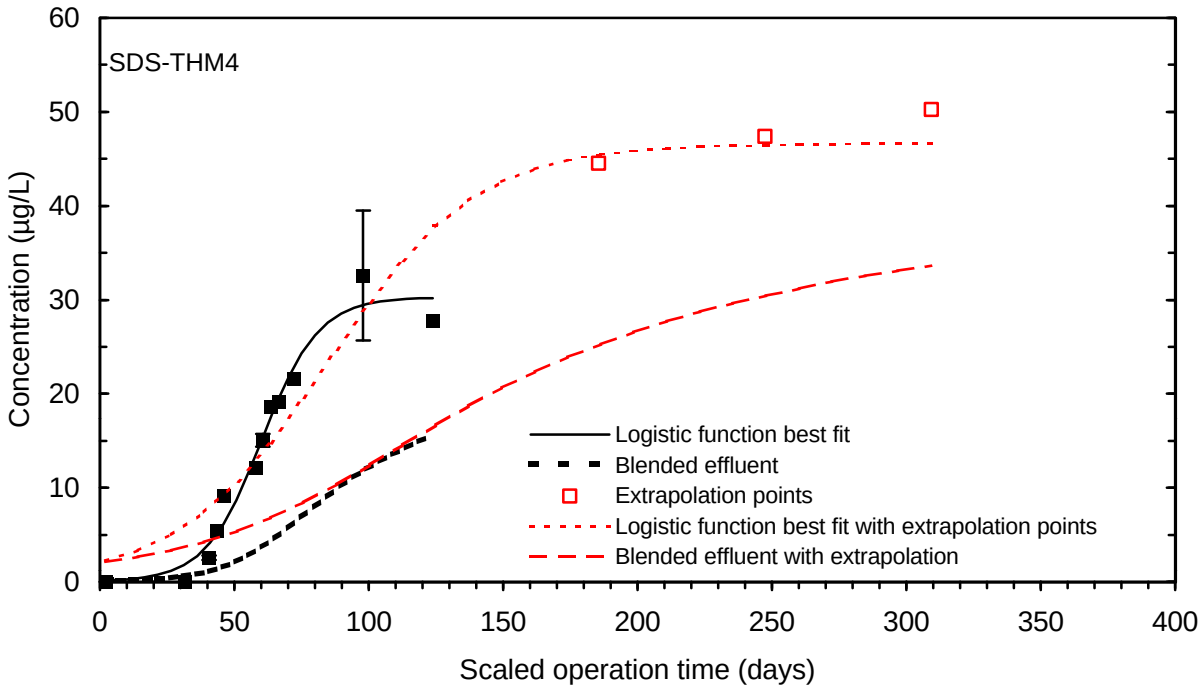


Figure 188 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (10 minute EBCT) during session 1, June

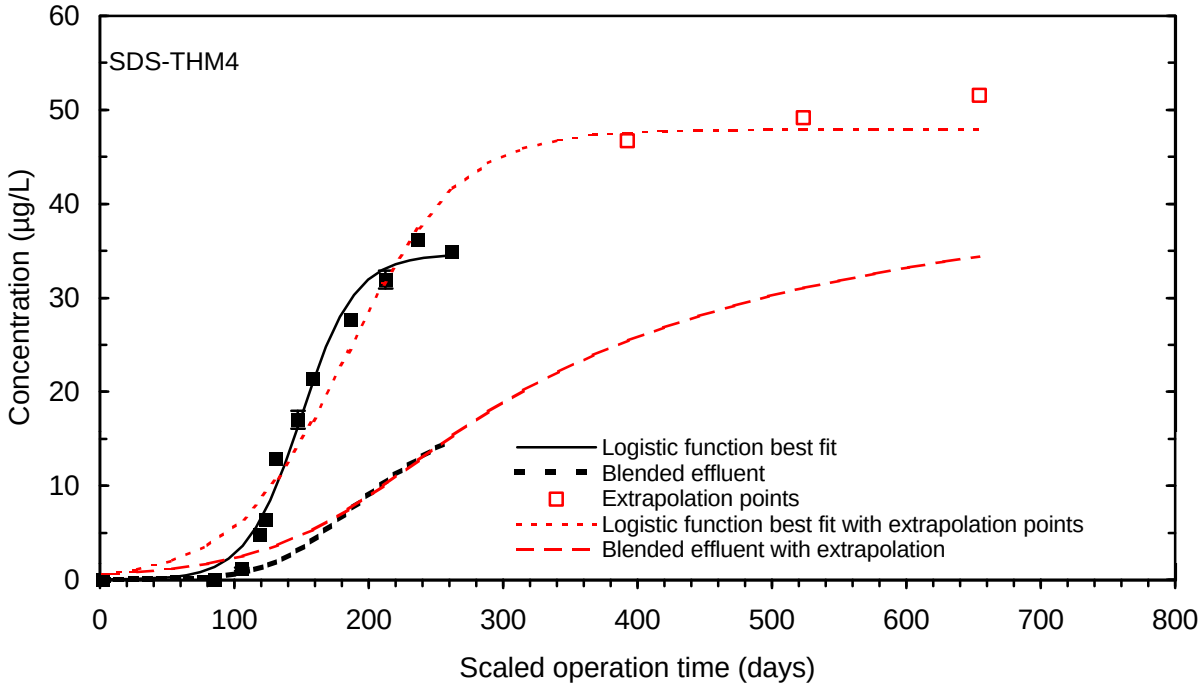


Figure 189 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (20 minute EBCT) during session 1, June

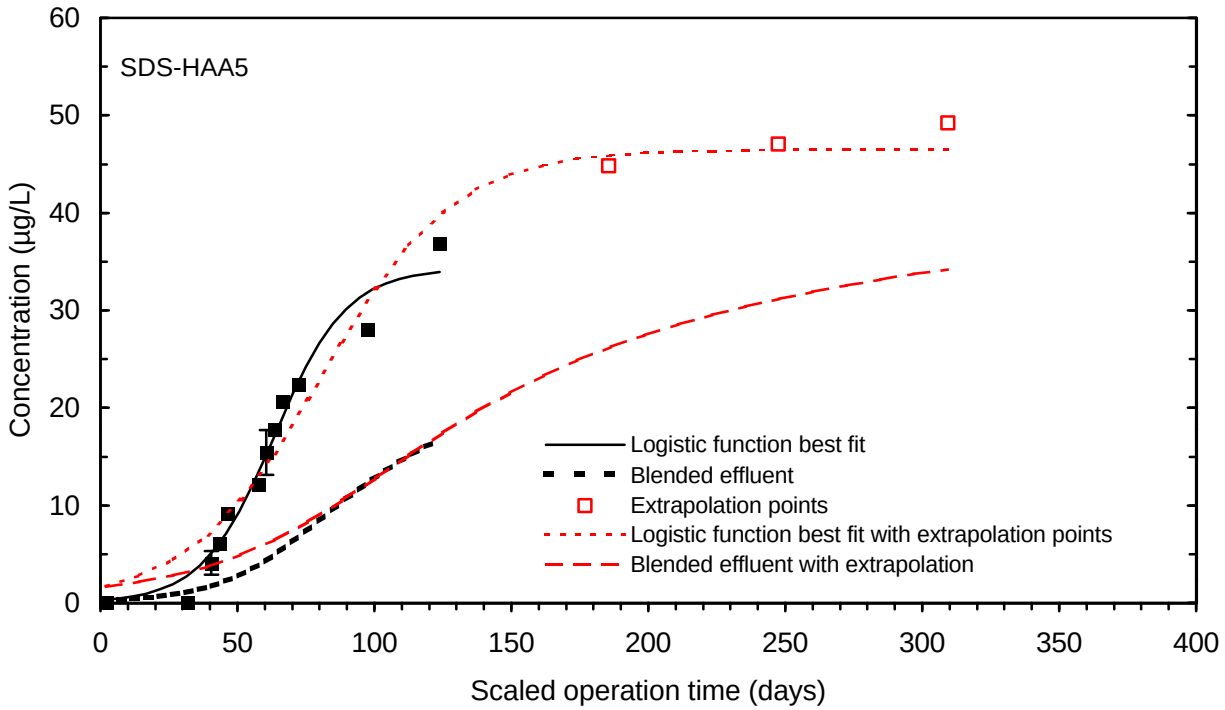


Figure 190 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (10 minute EBCT) during session 1, June

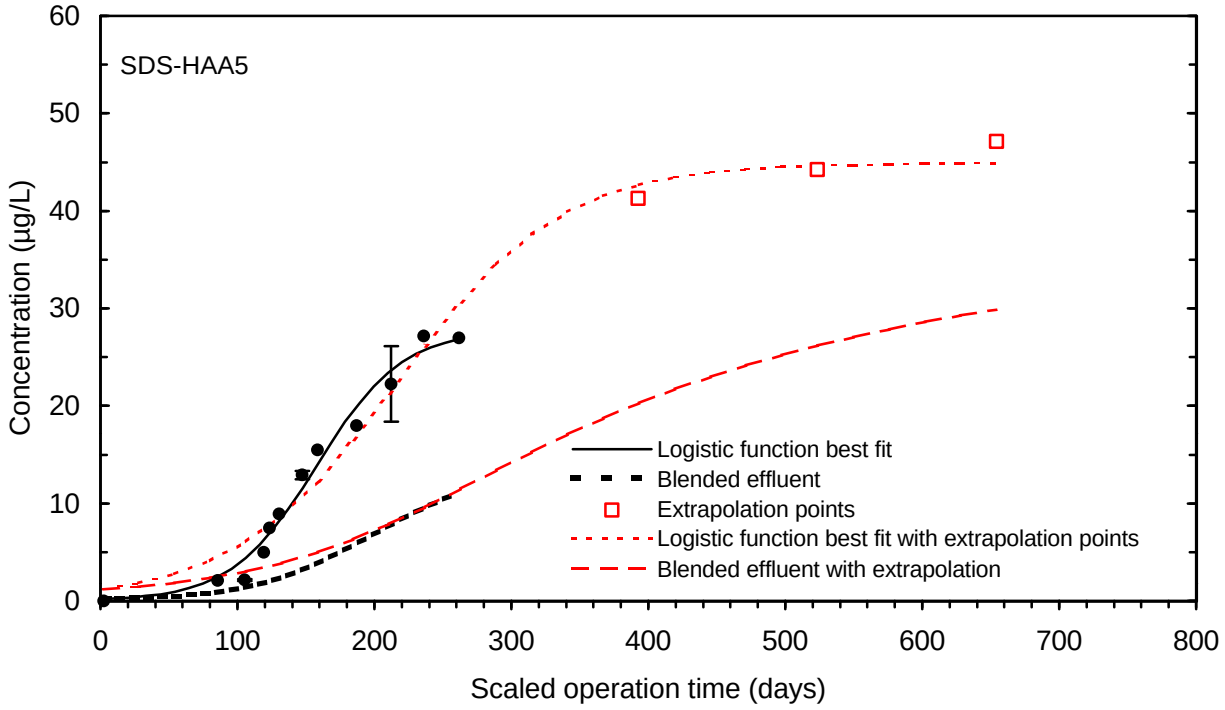


Figure 191 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (20 minute EBCT) during session 1, June

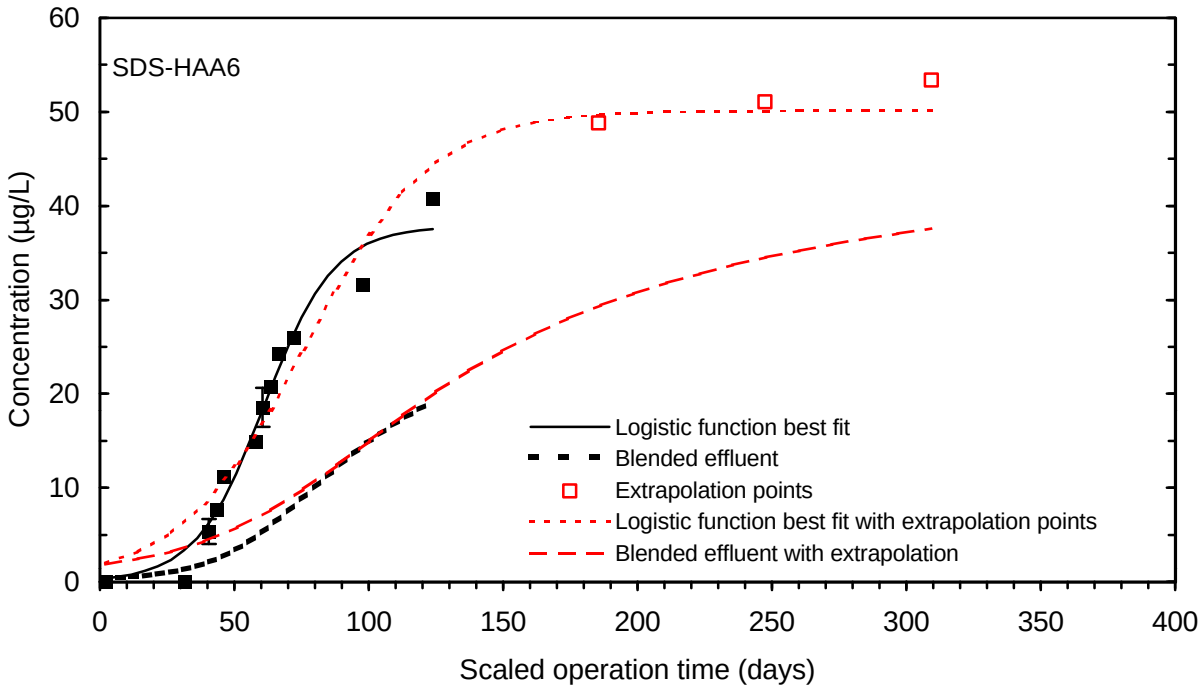


Figure 192 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (10 minute EBCT) during session 1, June

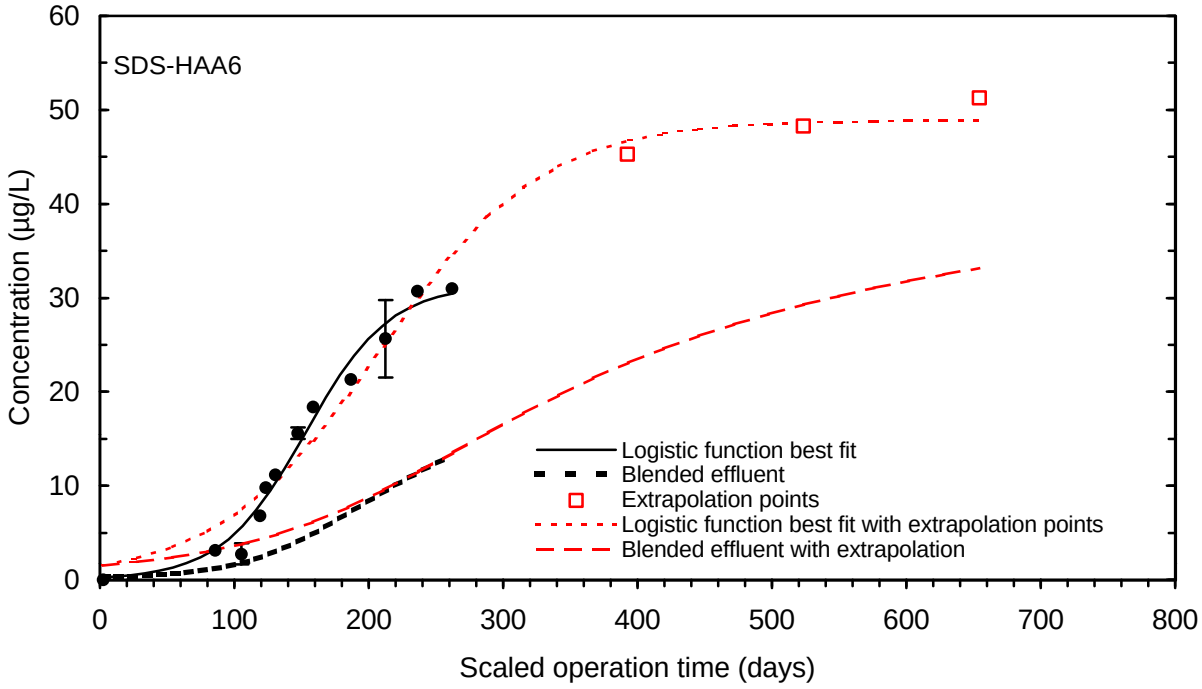


Figure 193 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (20 minute EBCT) during session 1, June

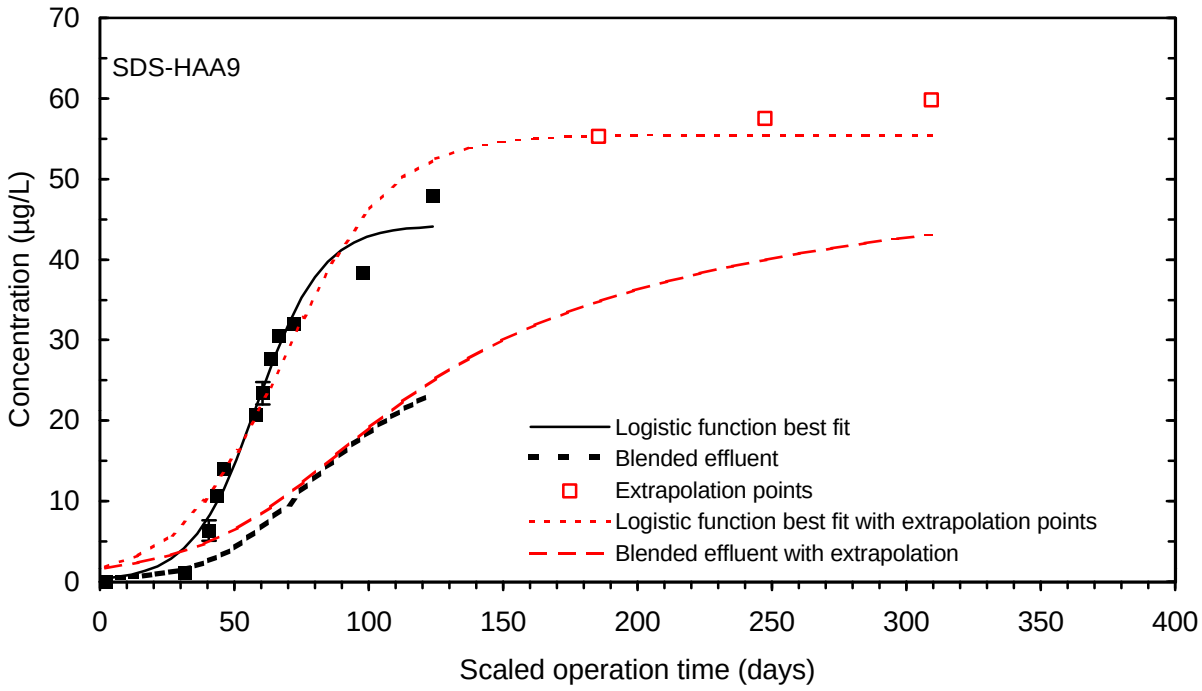


Figure 194 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (10 minute EBCT) during session 1, June

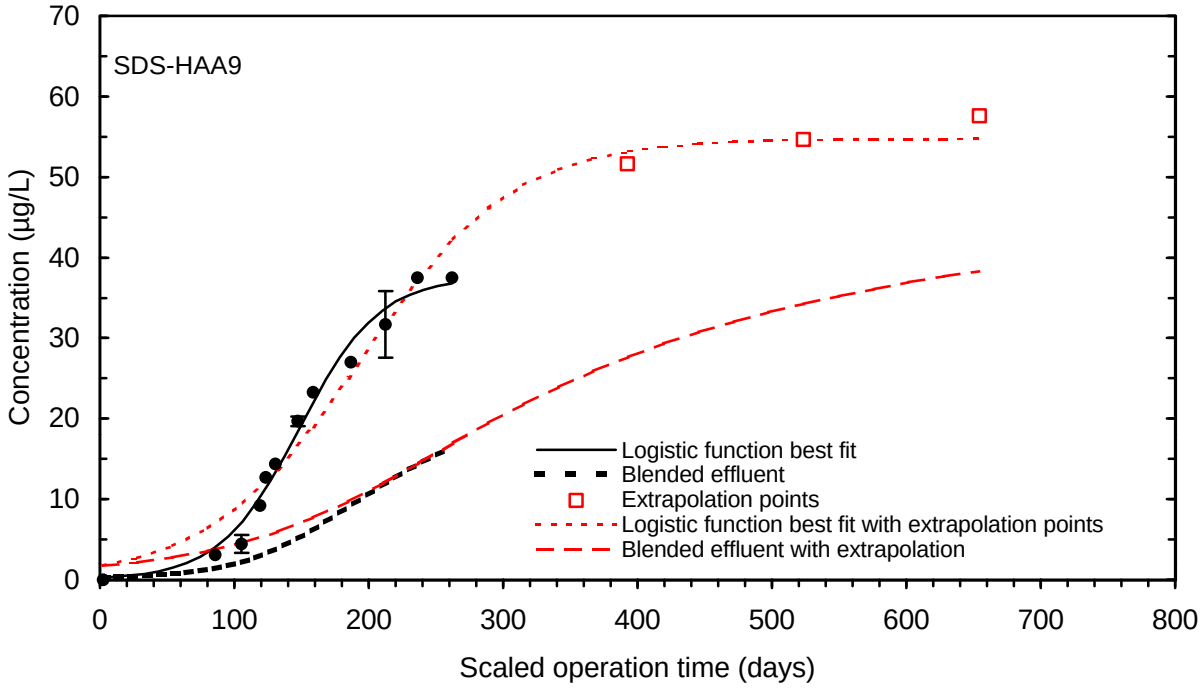


Figure 195 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (20 minute EBCT) during session 1, June

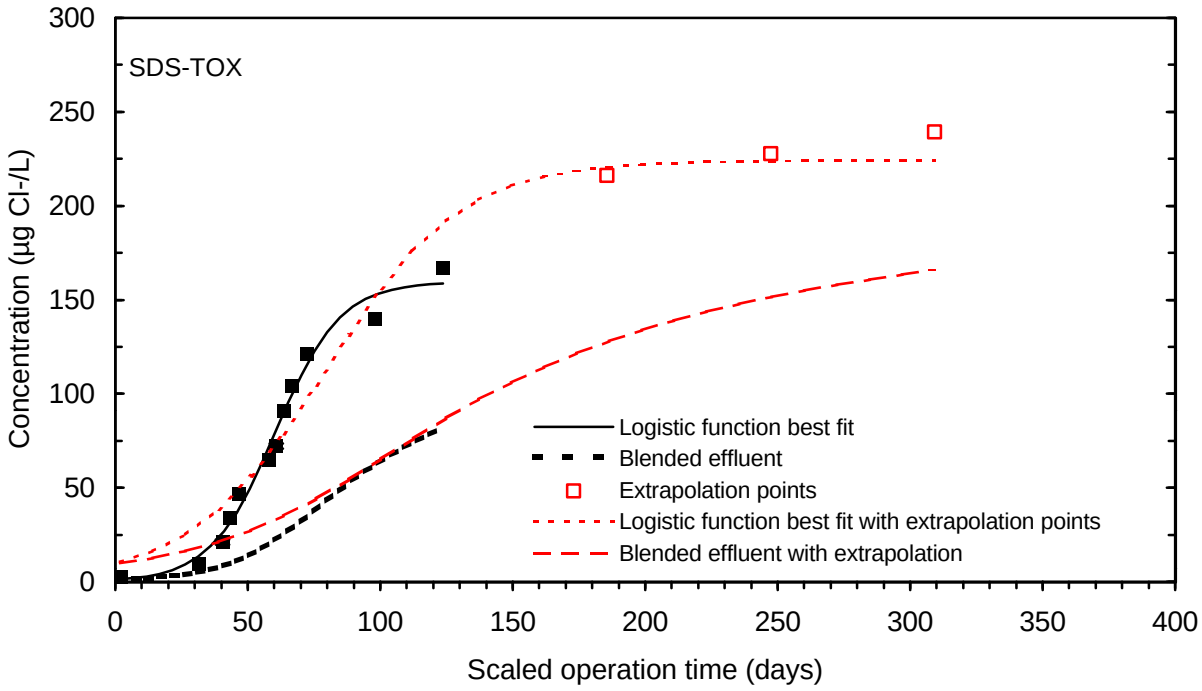


Figure 196 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (10 minute EBCT) during session 1, June

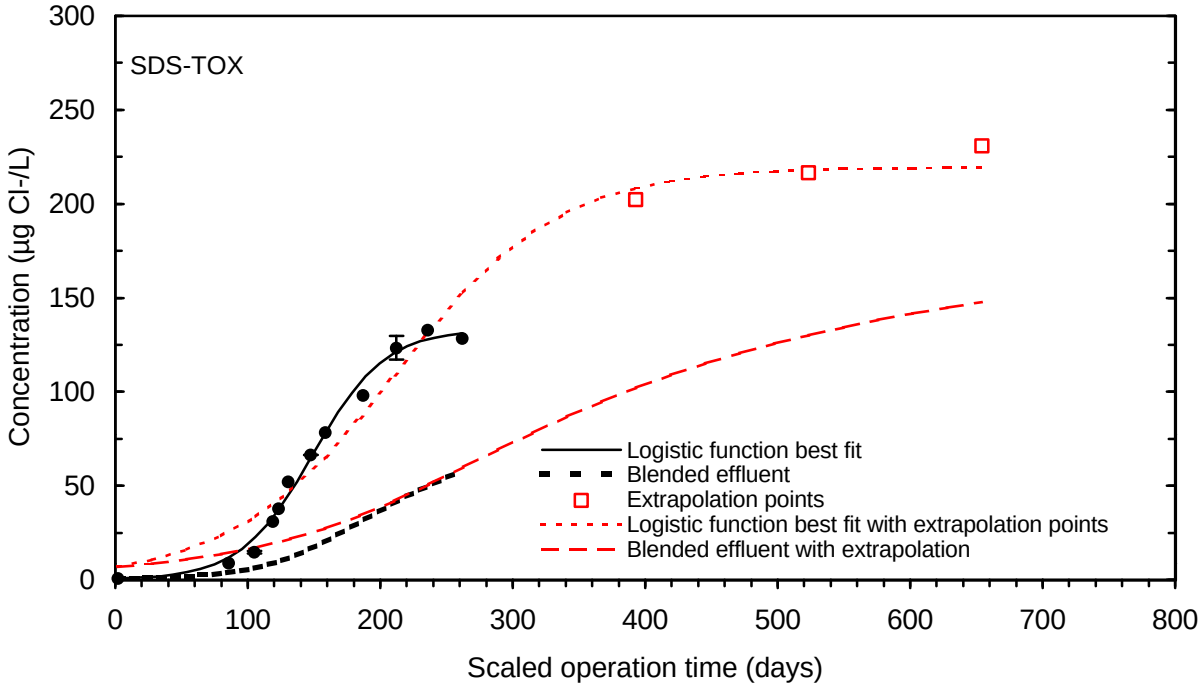


Figure 197 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (20 minute EBCT) during session 1, June

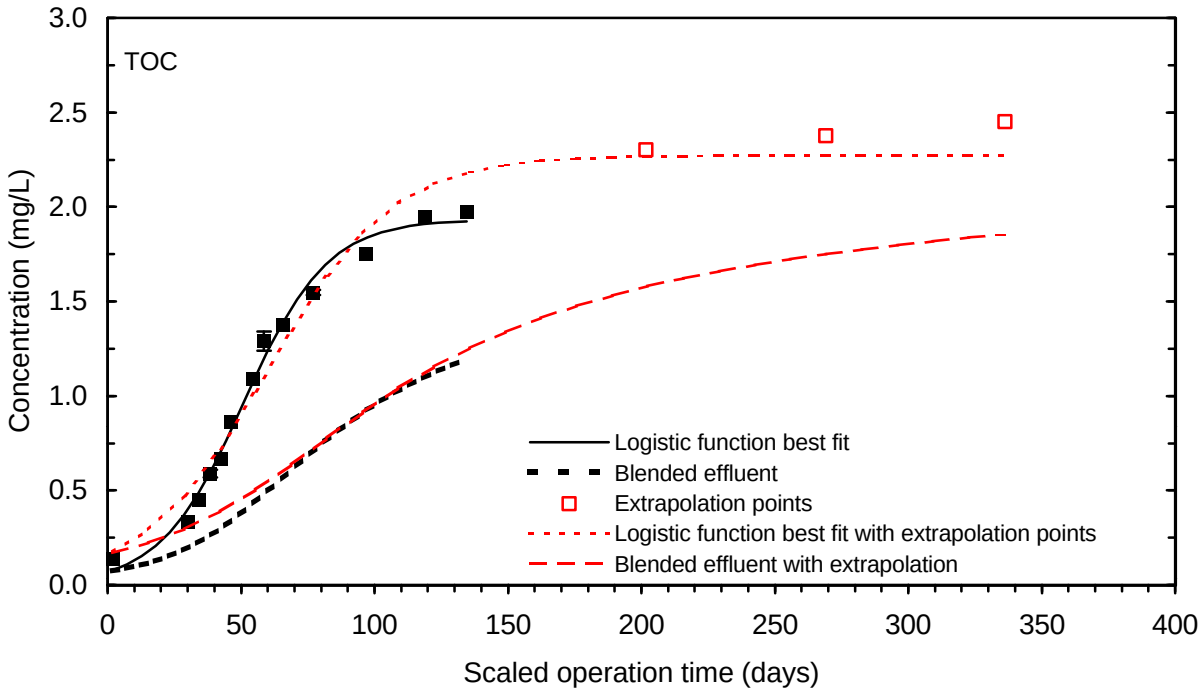


Figure 198 Single contactor and blended effluent extrapolated TOC breakthrough curve (10 minute EBCT) during session 2, September

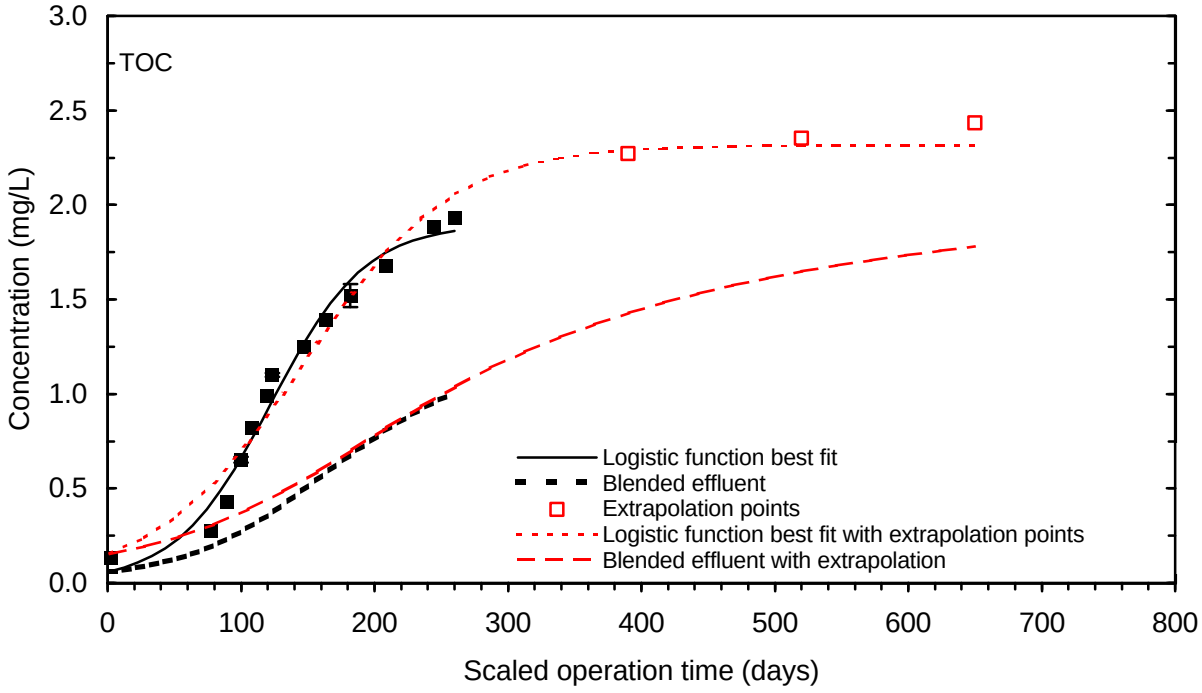


Figure 199 Single contactor and blended effluent extrapolated TOC breakthrough curve (20 minute EBCT) during session 2, September

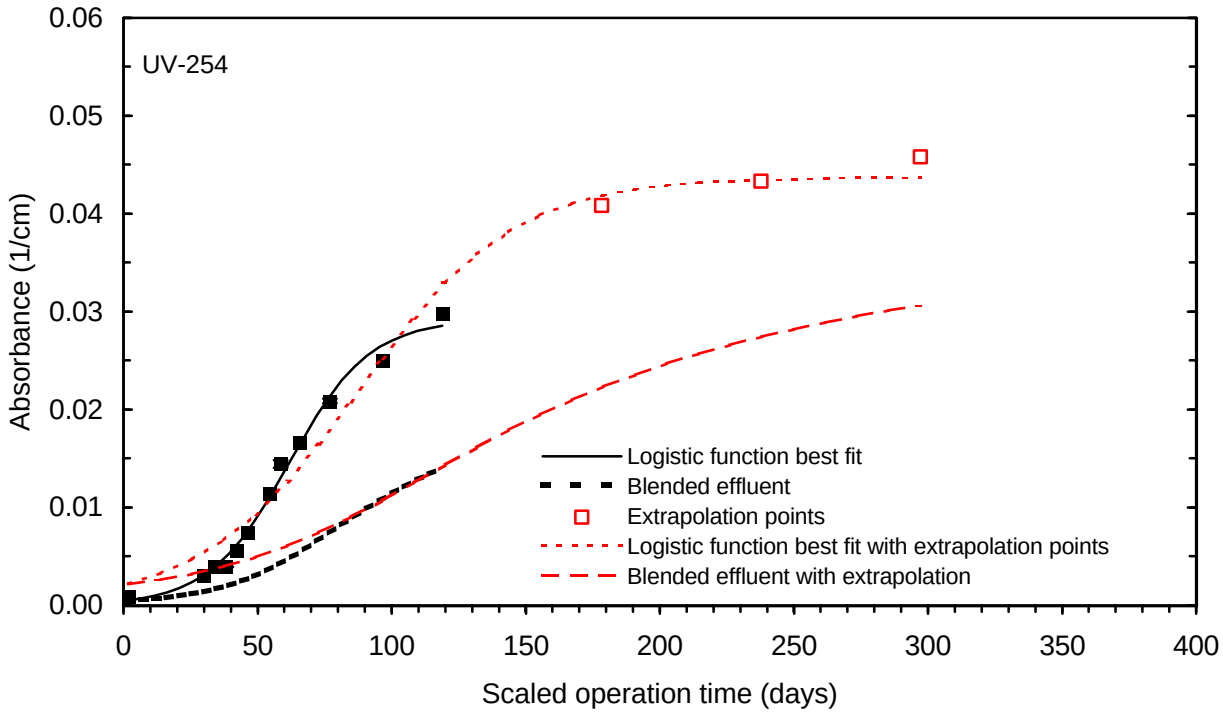


Figure 200 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (10 minute EBCT) during session 2, September

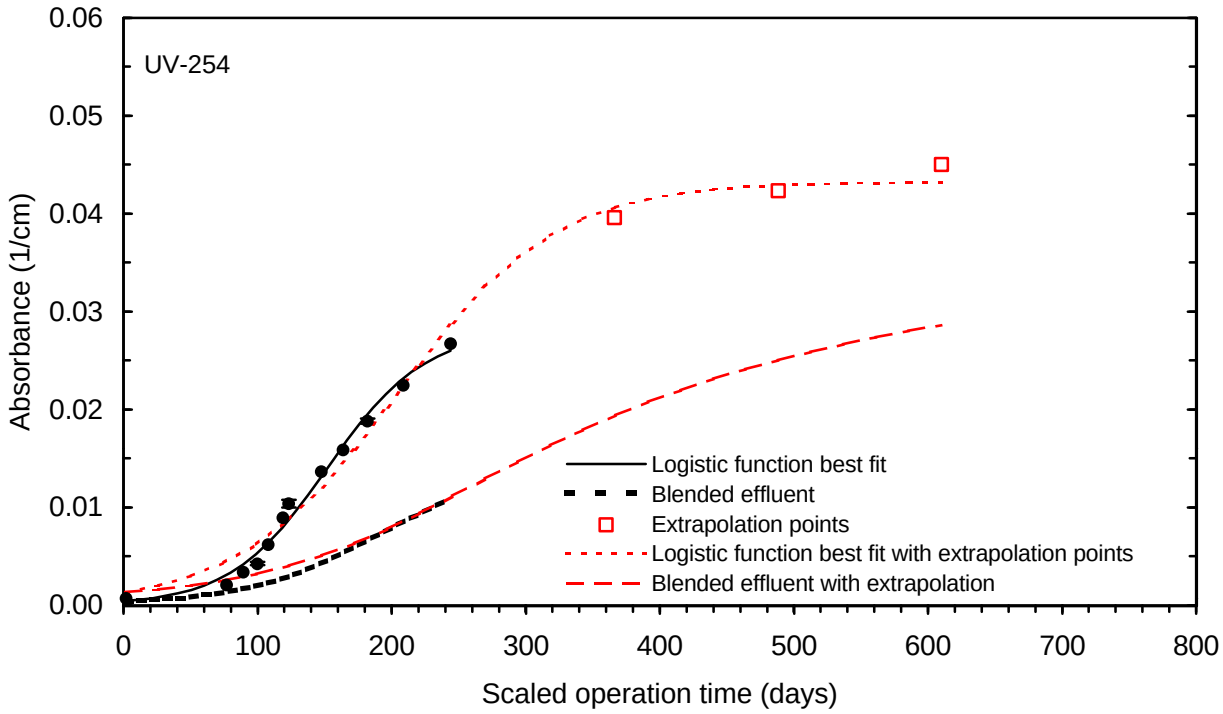


Figure 201 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (20 minute EBCT) during session 2, September

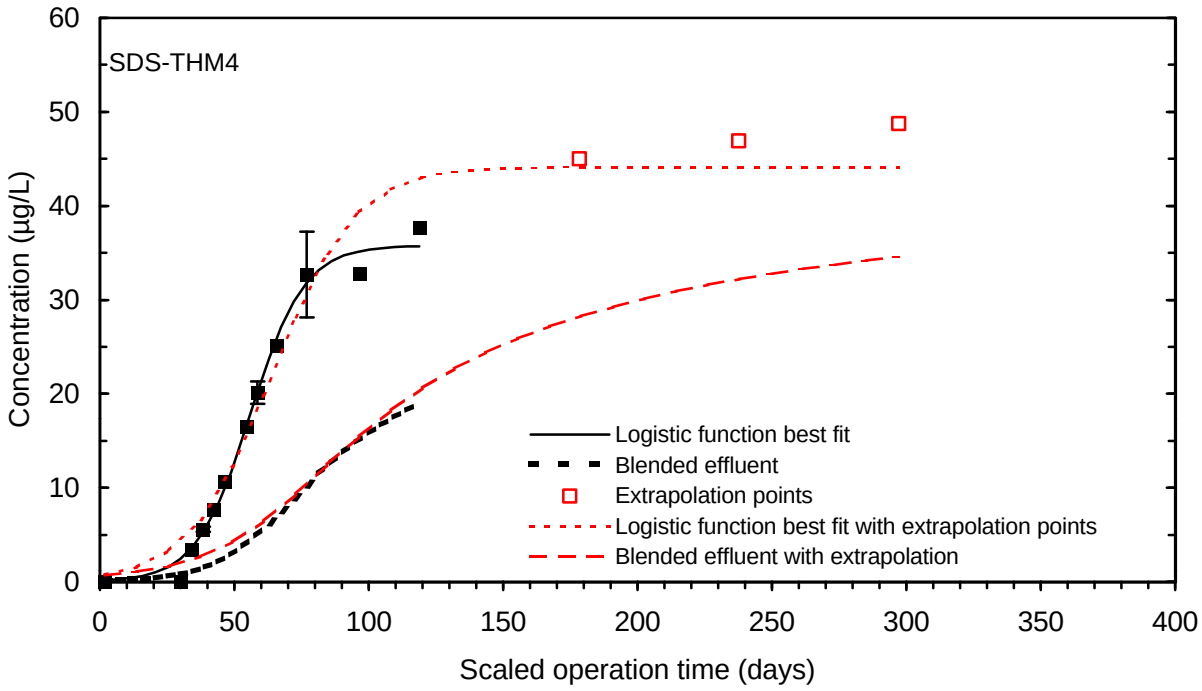


Figure 202 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (10 minute EBCT) during session 2, September

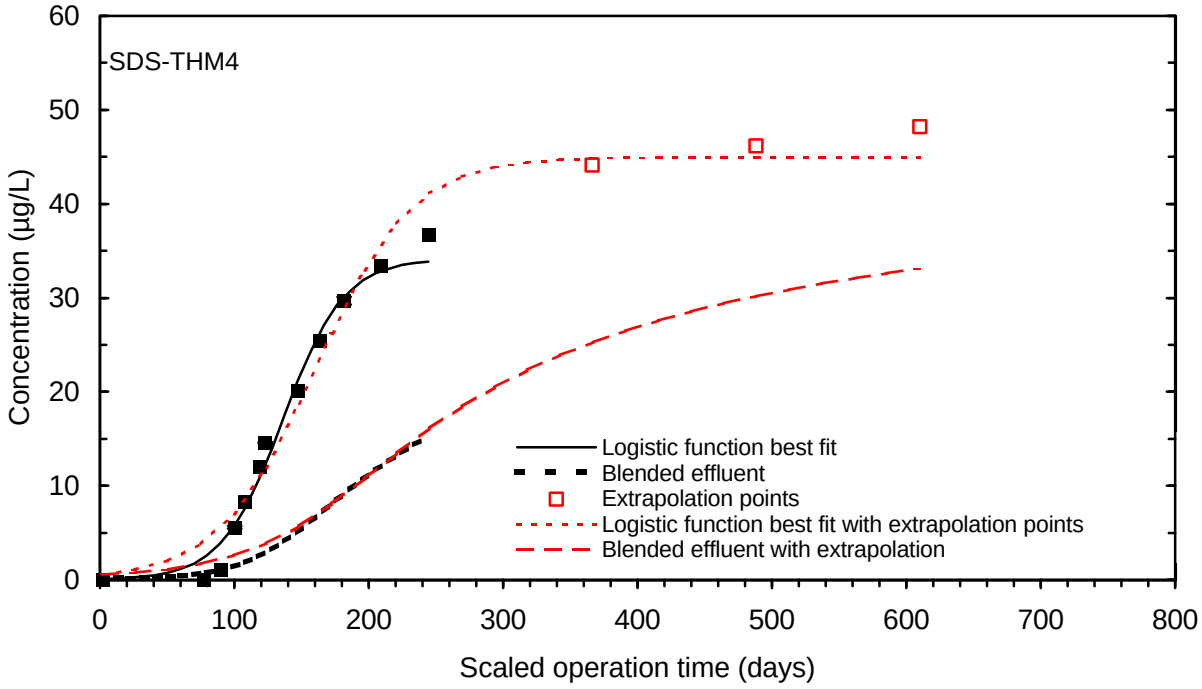


Figure 203 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (20 minute EBCT) during session 2, September

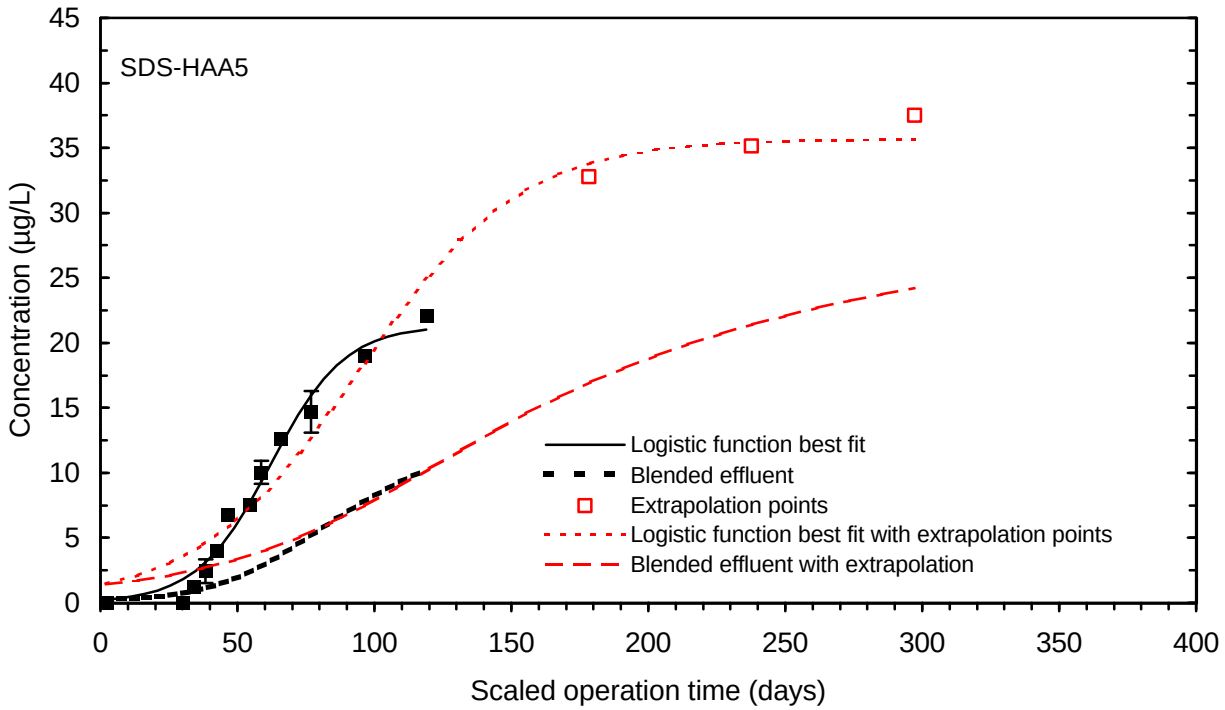


Figure 204 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (10 minute EBCT) during session 2, September

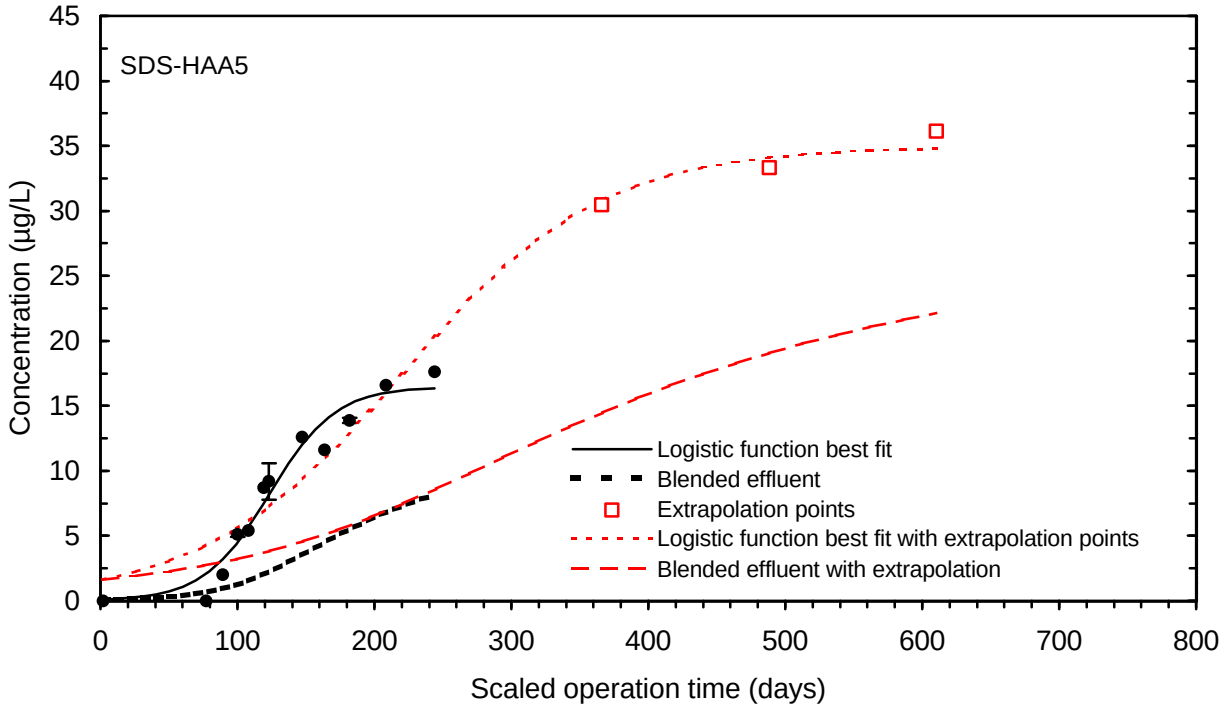


Figure 205 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (20 minute EBCT) during session 2, September

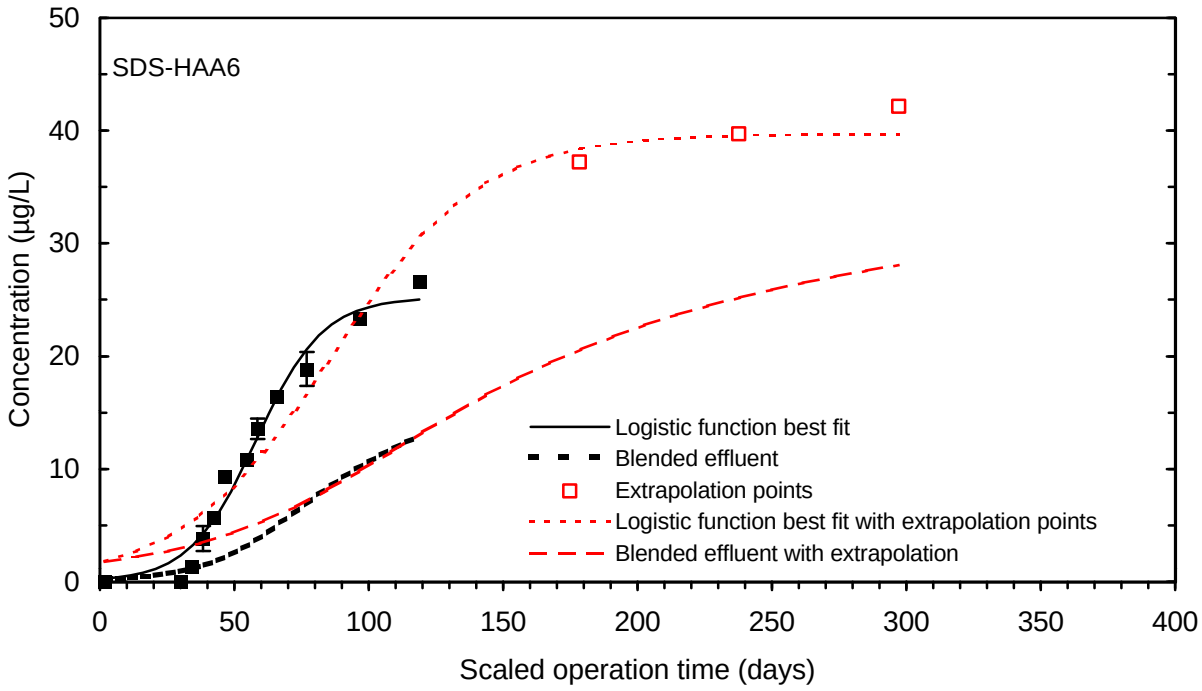


Figure 206 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (10 minute EBCT) during session 2, September

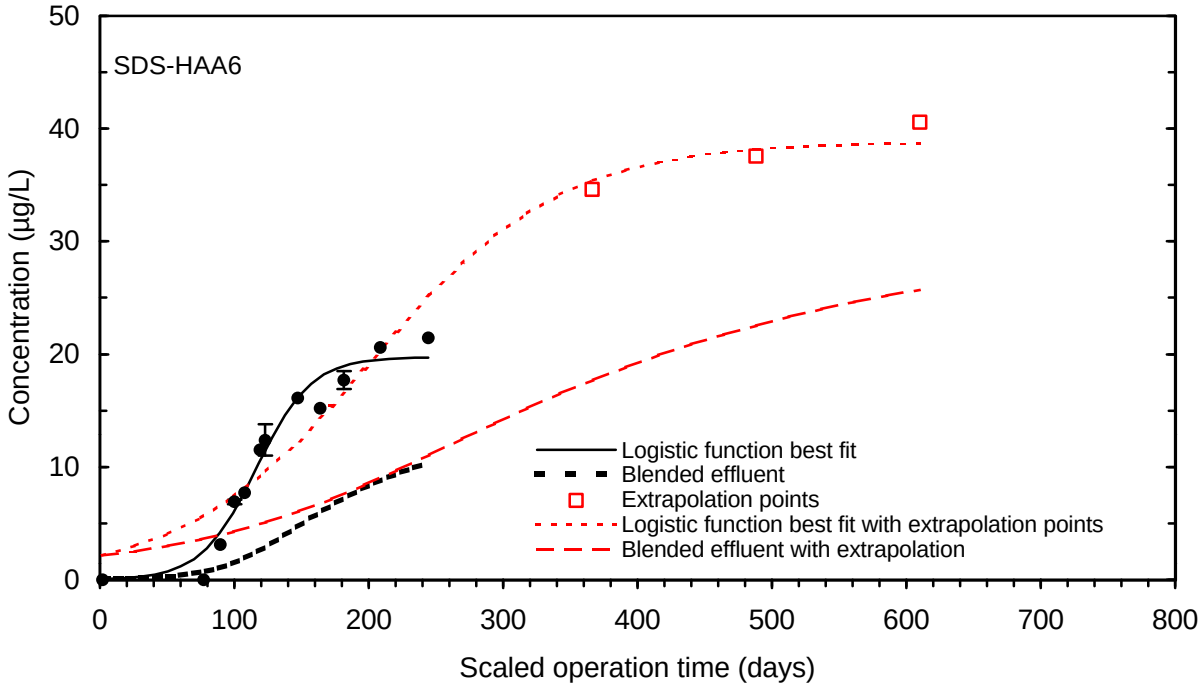


Figure 207 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (20 minute EBCT) during session 2, September

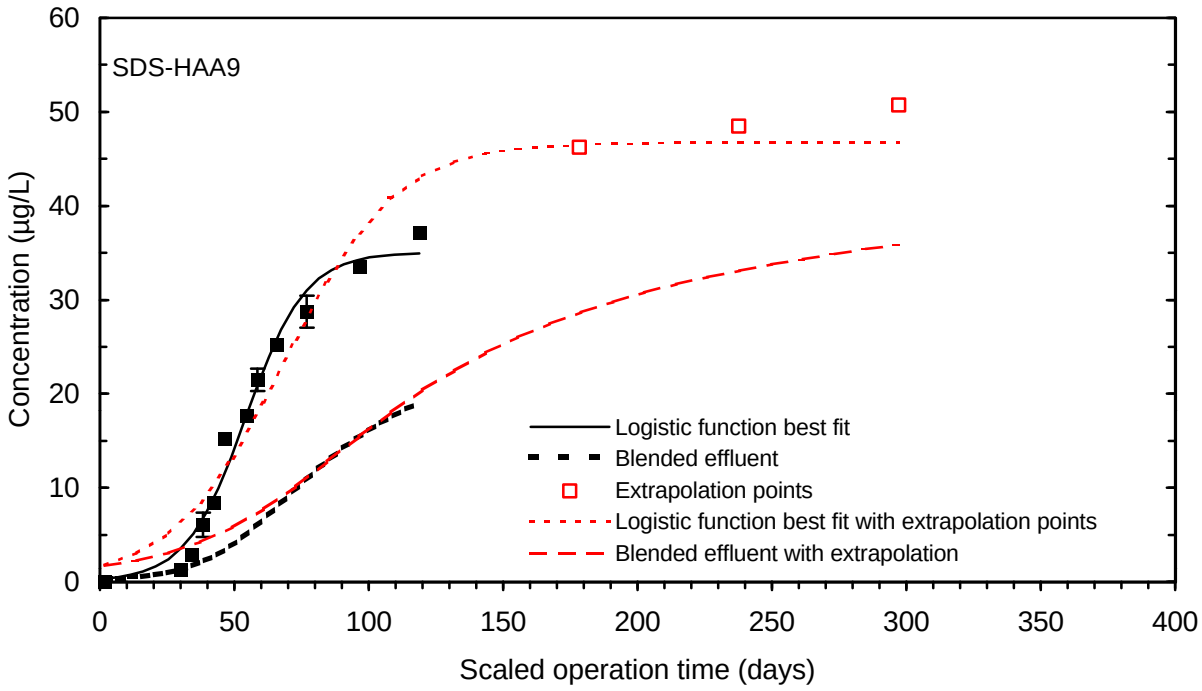


Figure 208 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (10 minute EBCT) during session 2, September

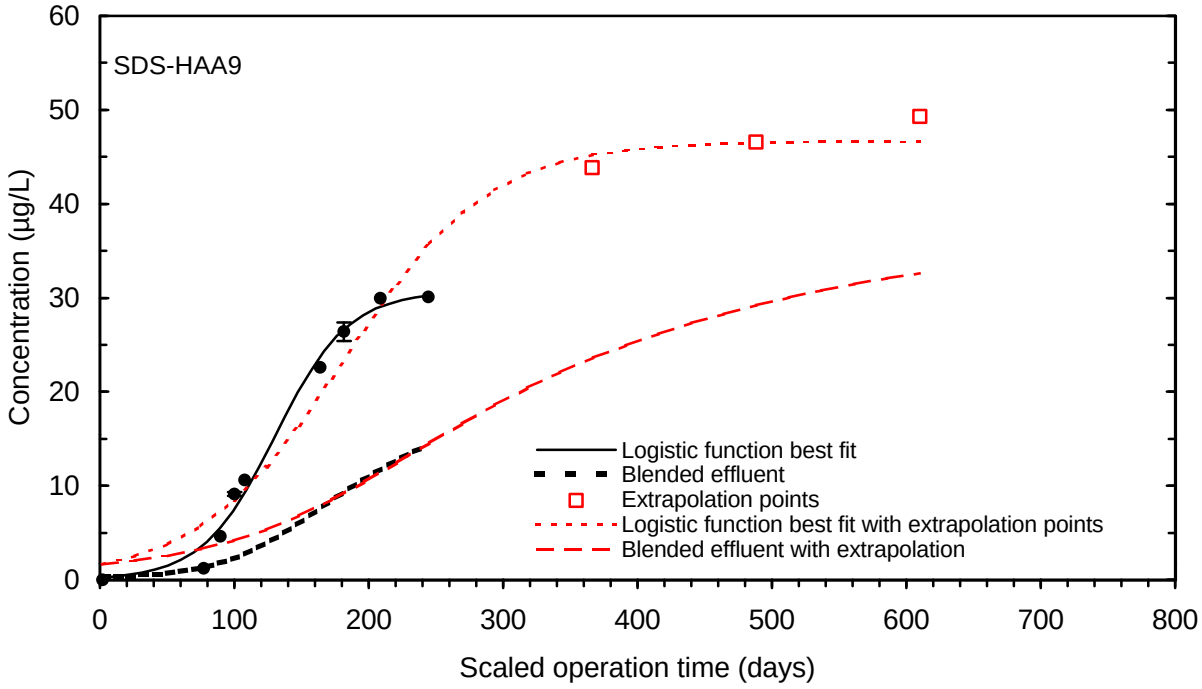


Figure 209 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (20 minute EBCT) during session 2, September

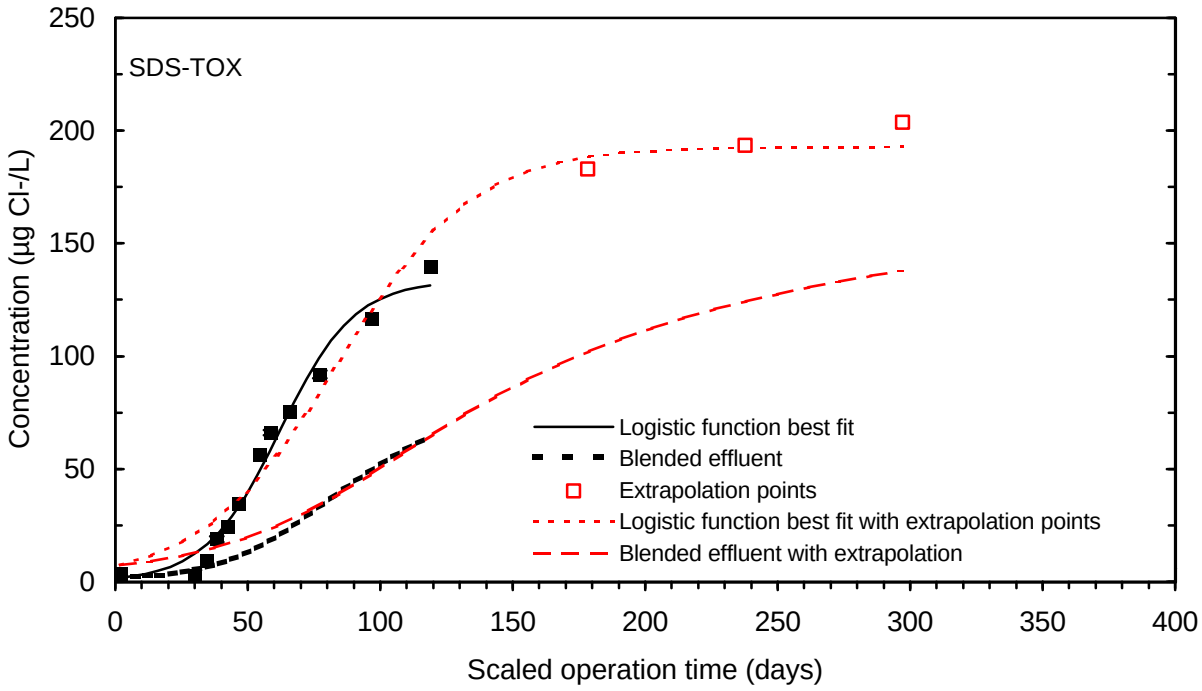


Figure 210 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (10 minute EBCT) during session 2, September

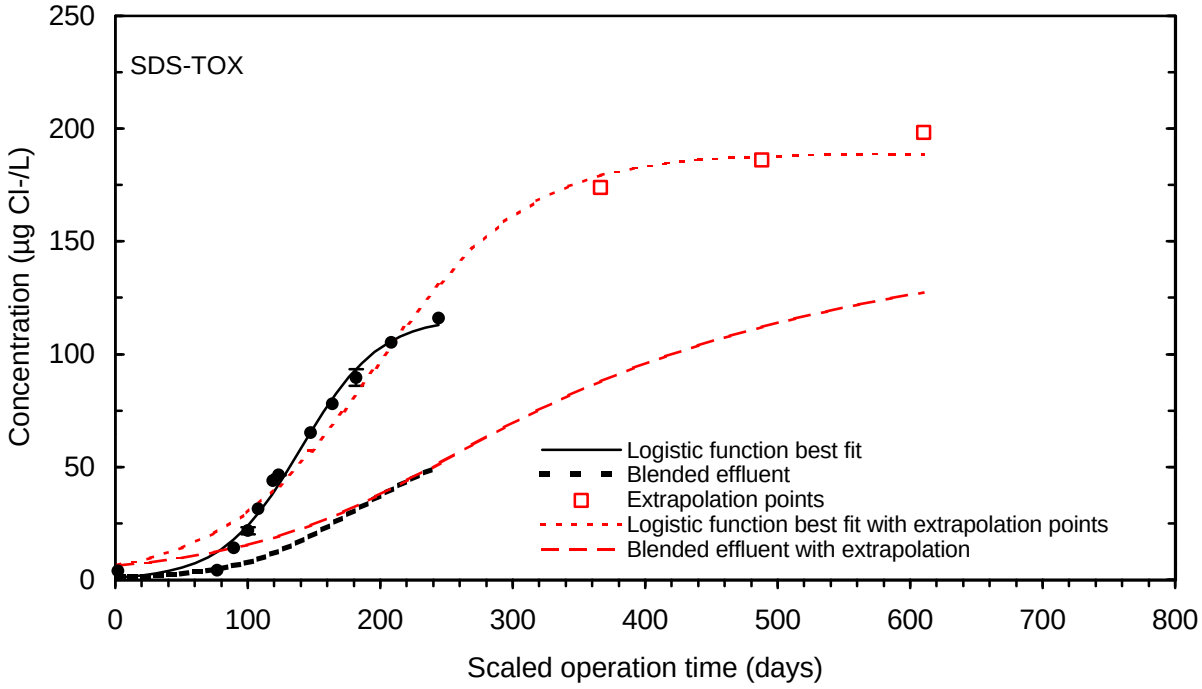


Figure 211 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (20 minute EBCT) during session 2, September

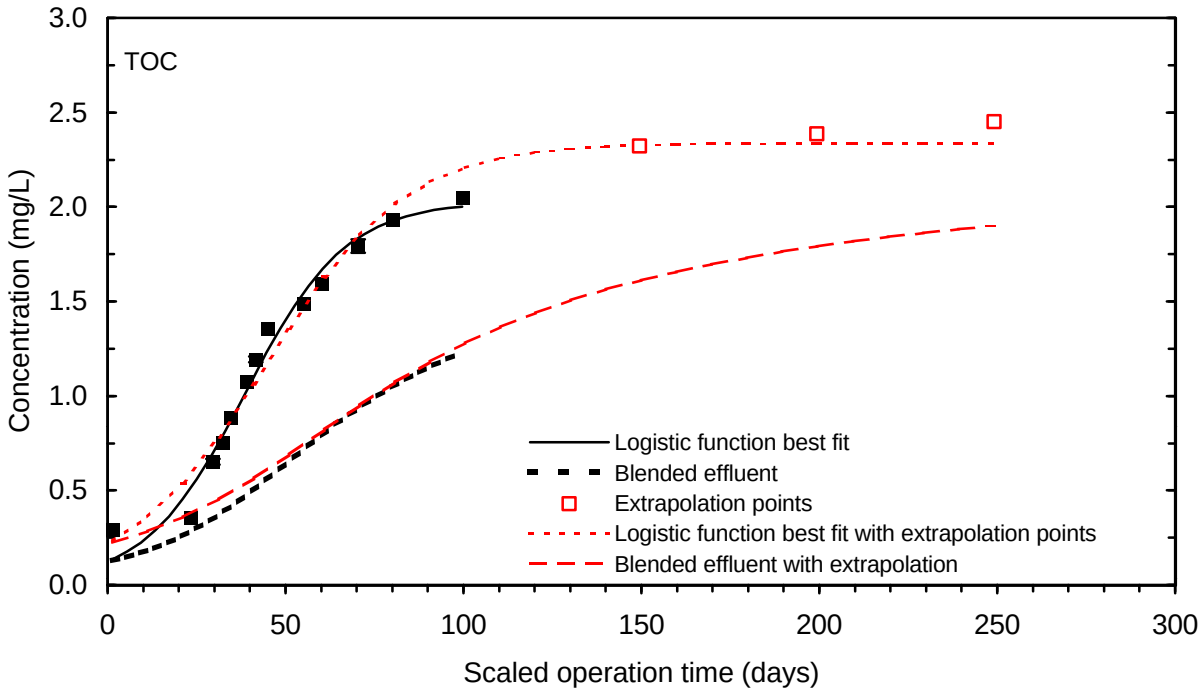


Figure 212 Single contactor and blended effluent extrapolated TOC breakthrough curve (10 minute EBCT) during session 3, January

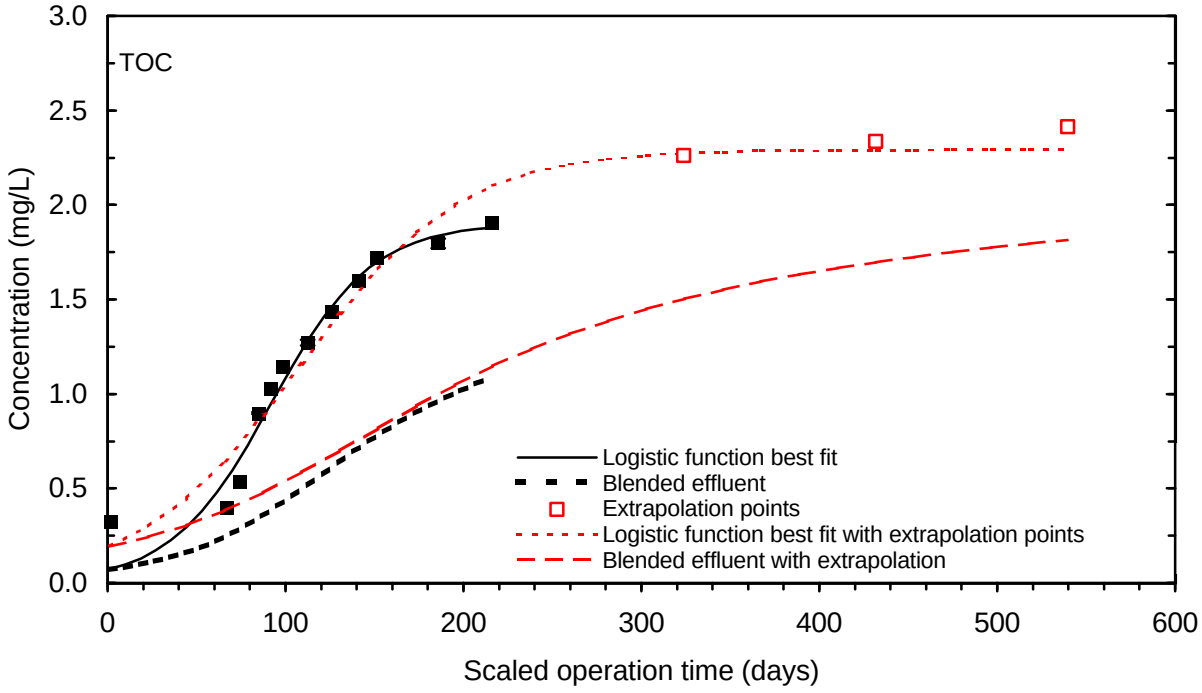


Figure 213 Single contactor and blended effluent extrapolated TOC breakthrough curve (20 minute EBCT) during session 3, January

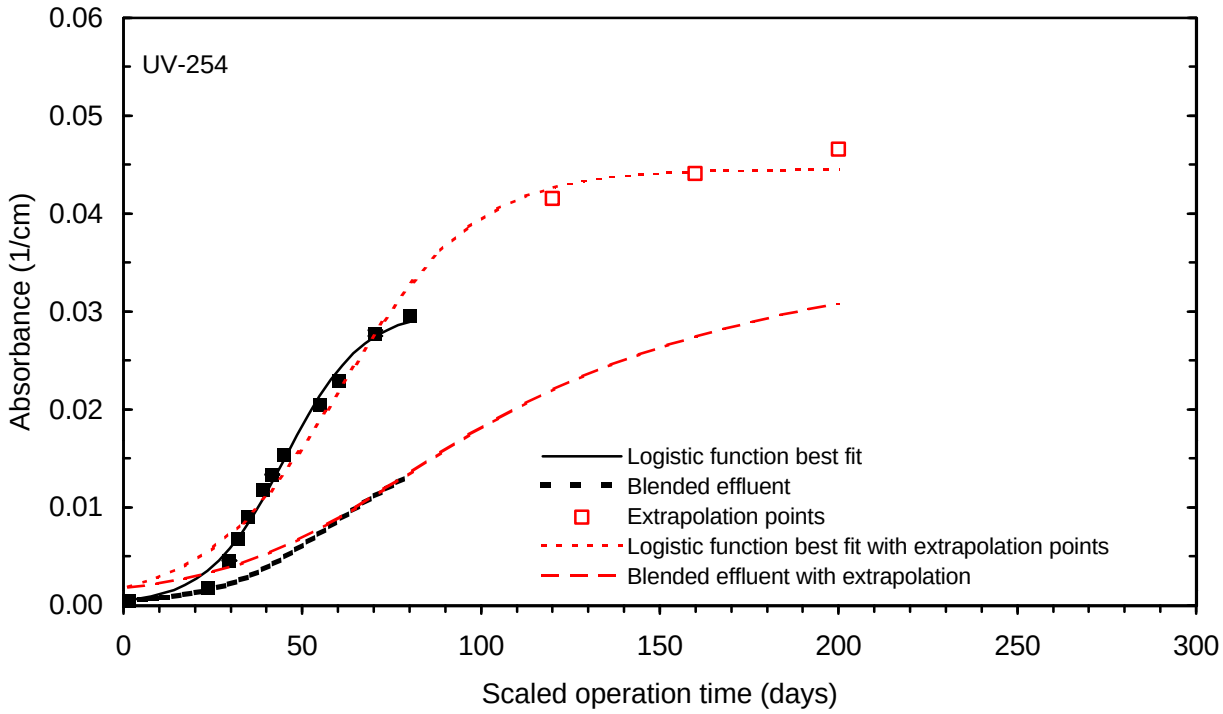


Figure 214 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (10 minute EBCT) during session 3, January

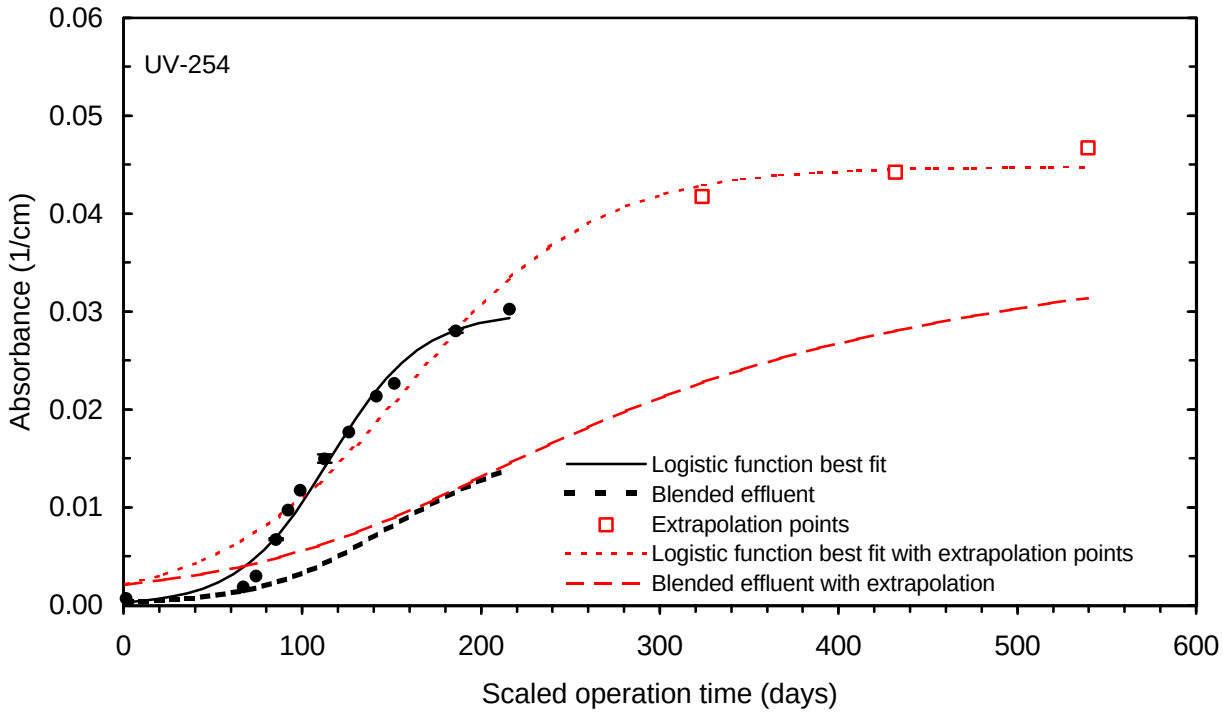


Figure 215 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (20 minute EBCT) during session 3, January

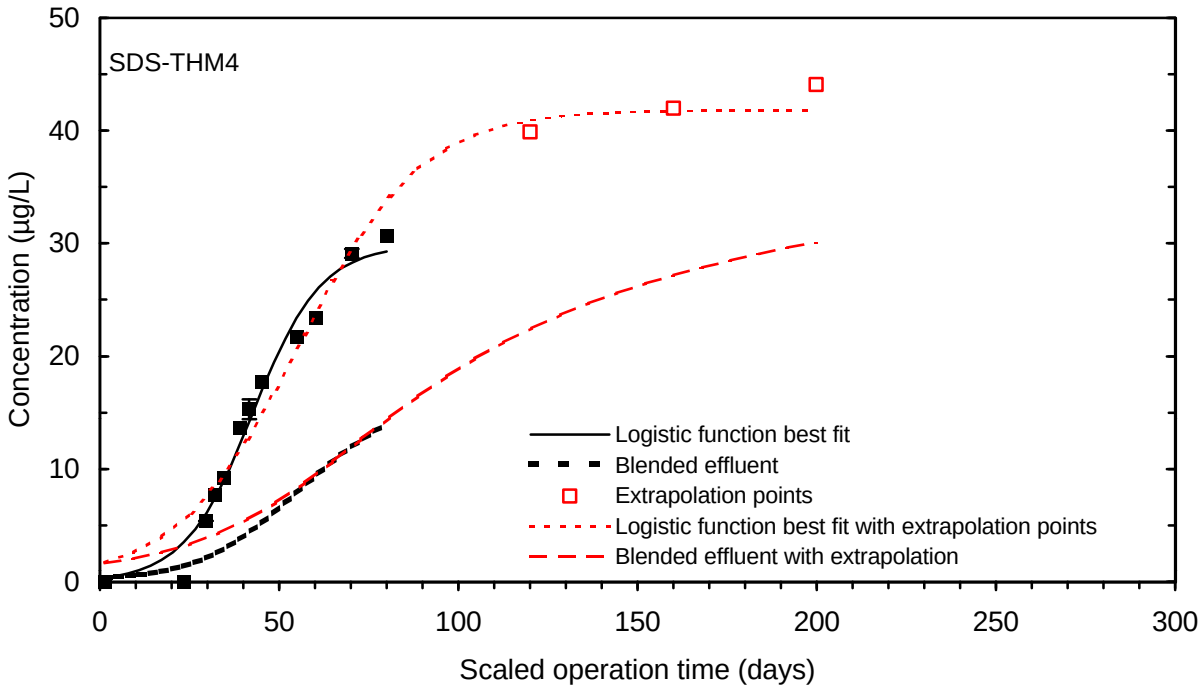


Figure 216 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (10 minute EBCT) during session 3, January

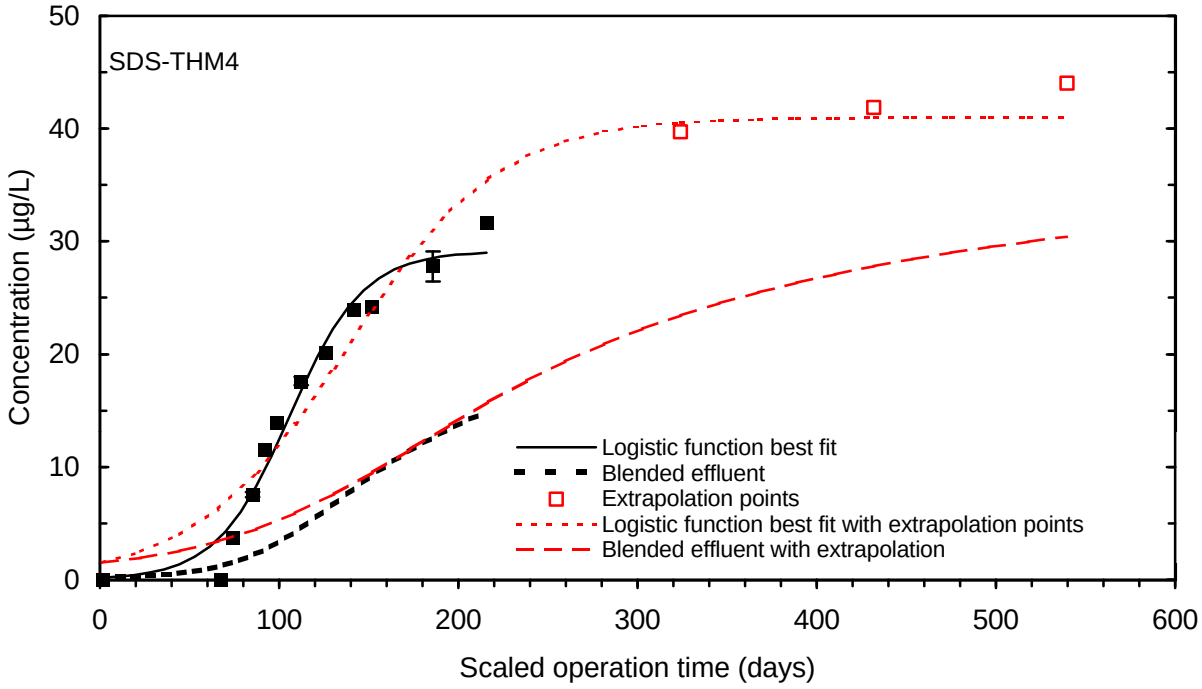


Figure 217 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (20 minute EBCT) during session 3, January

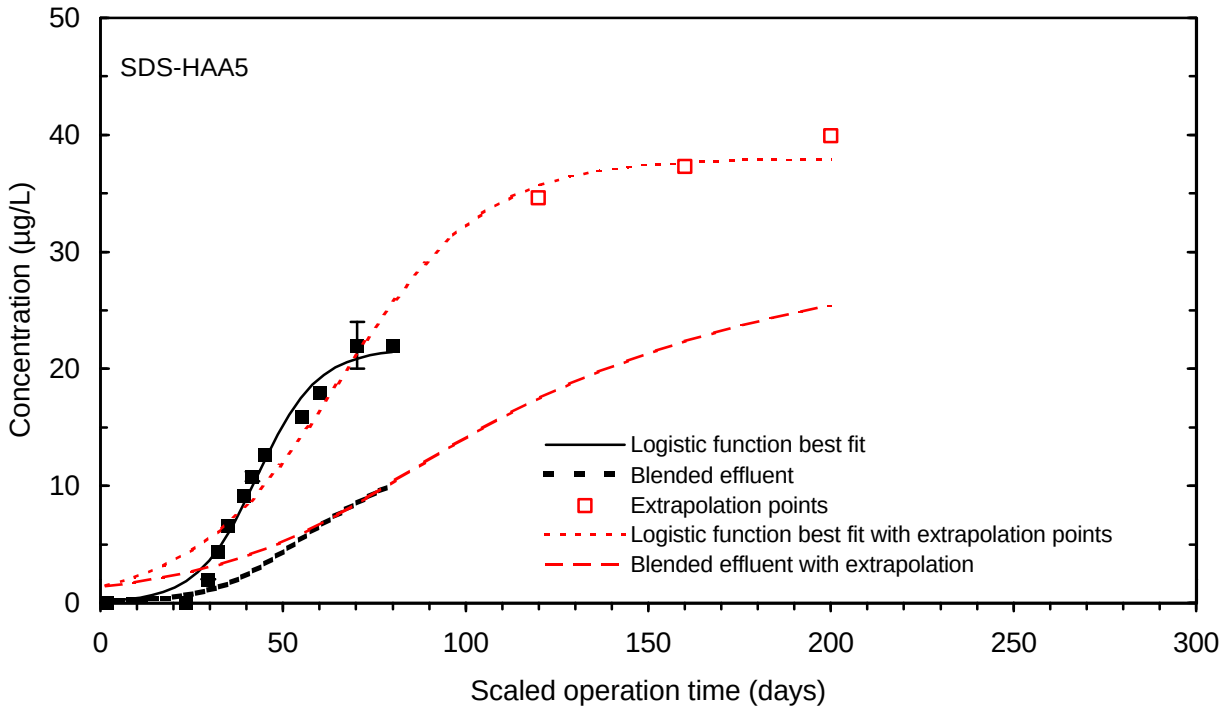


Figure 218 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (10 minute EBCT) during session 3, January

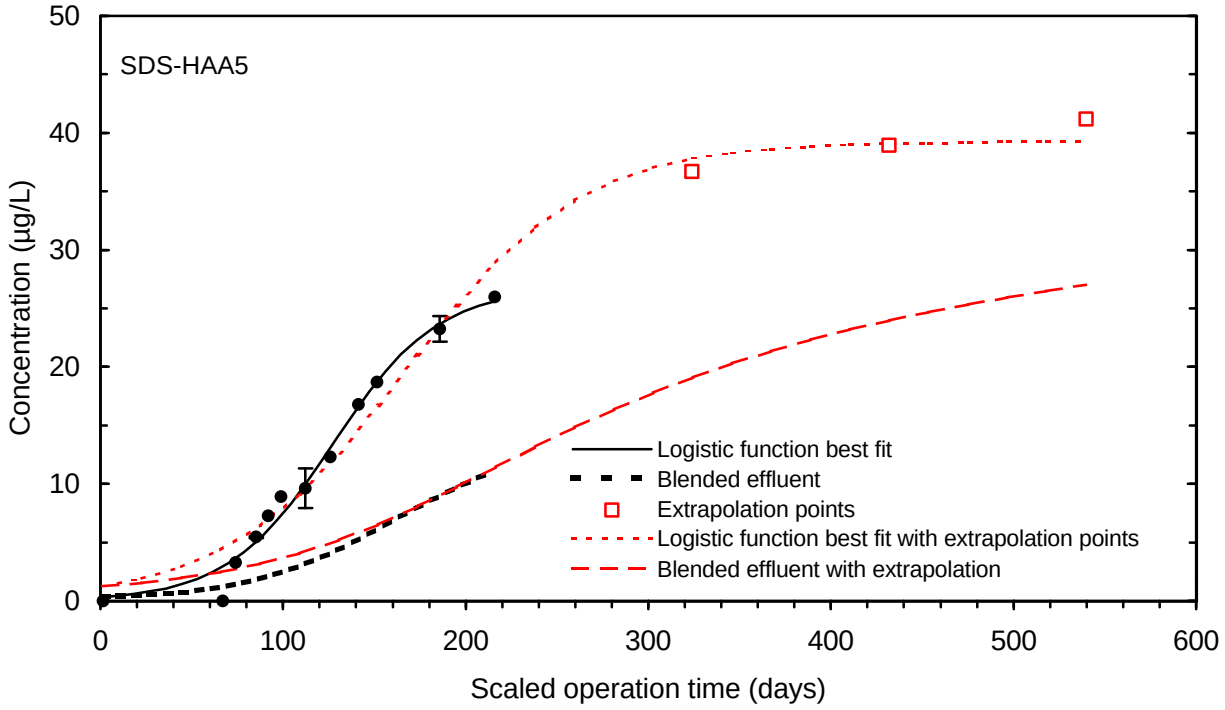


Figure 219 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (20 minute EBCT) during session 3, January

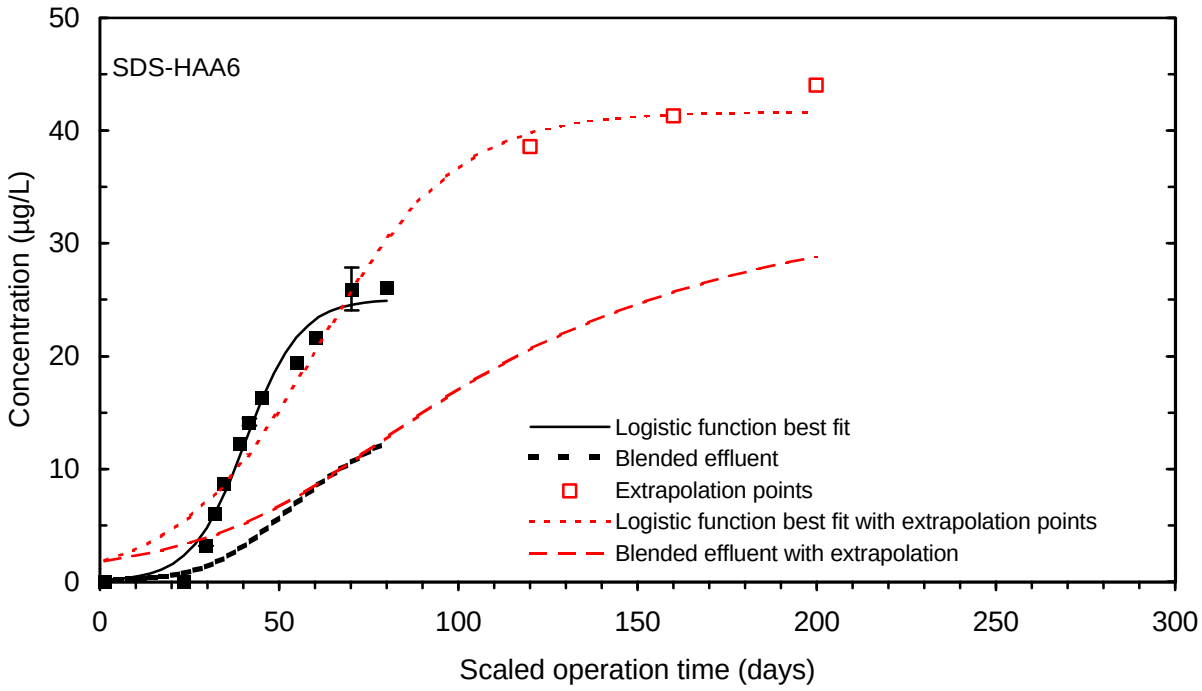


Figure 220 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (10 minute EBCT) during session 3, January

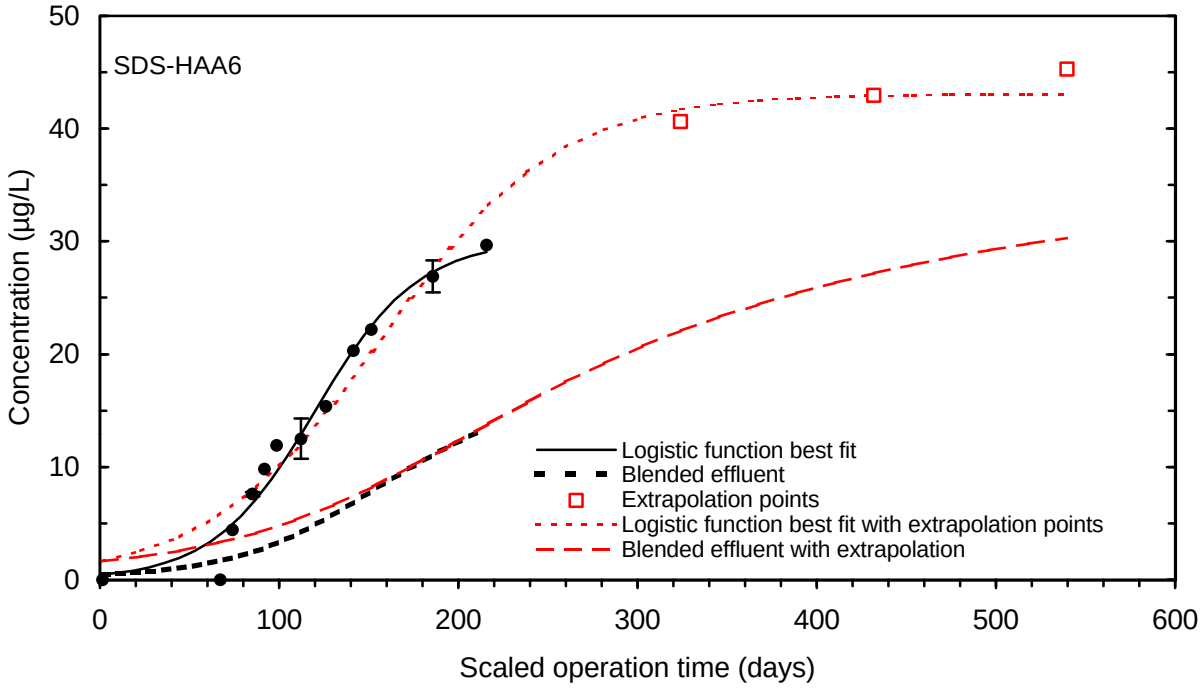


Figure 221 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (20 minute EBCT) during session 3, January

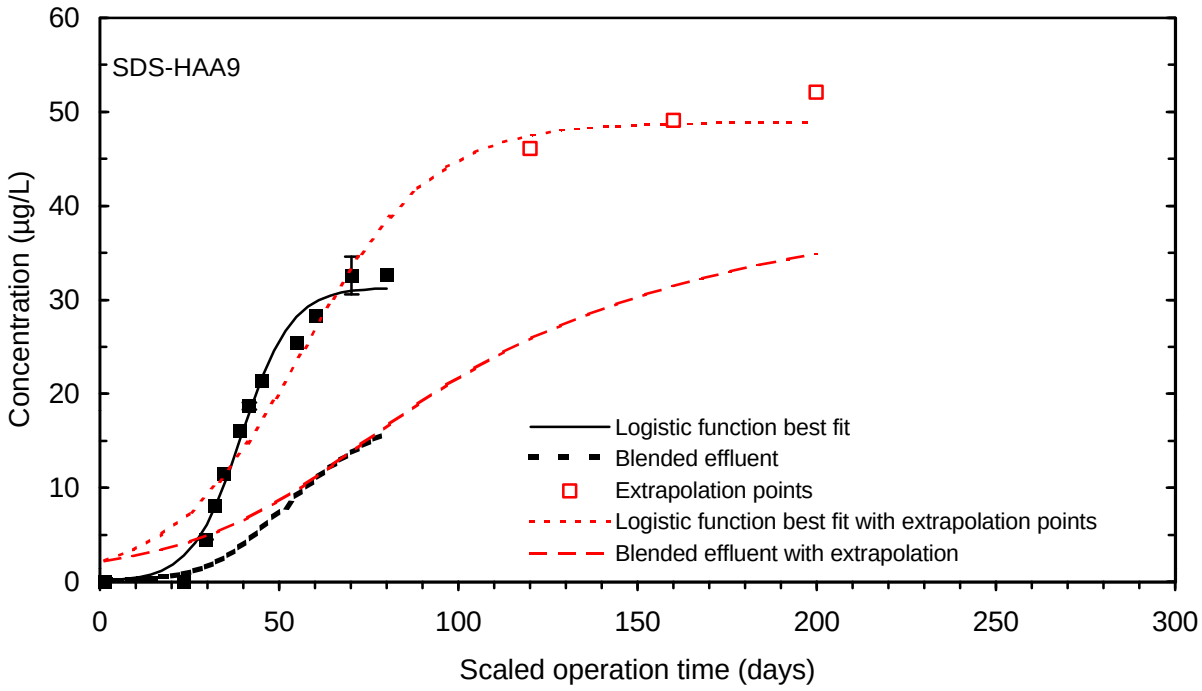


Figure 222 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (10 minute EBCT) during session 3, January

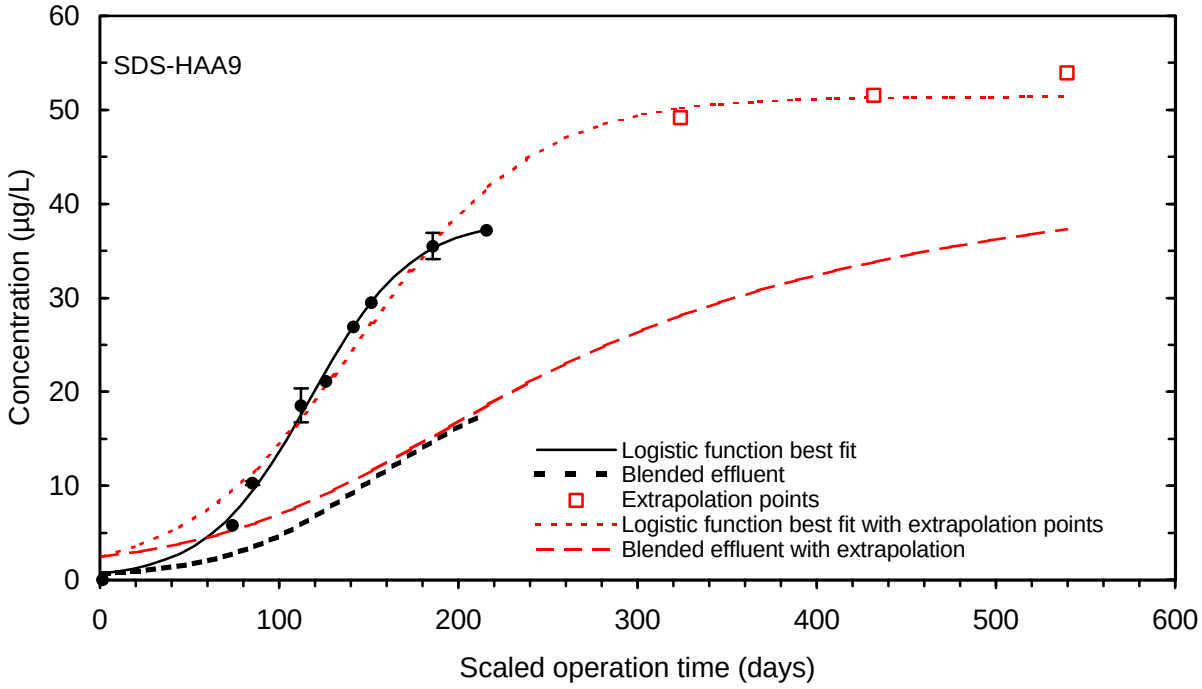


Figure 223 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (20 minute EBCT) during session 3, January

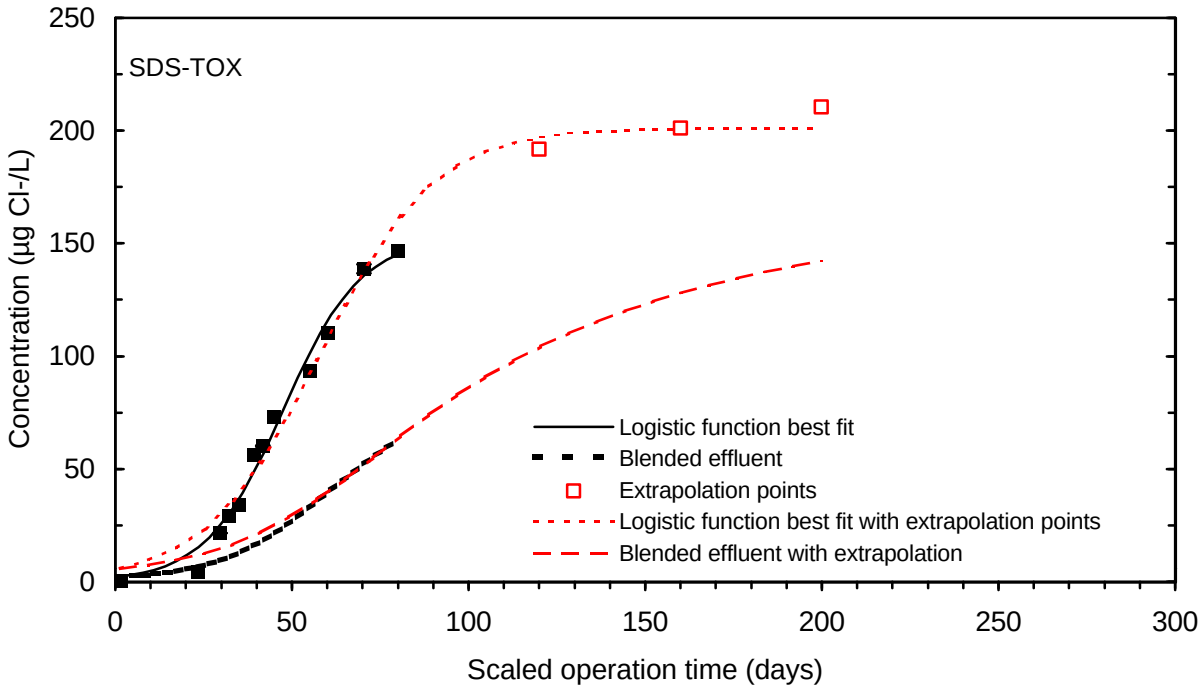


Figure 224 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (10 minute EBCT) during session 3, January

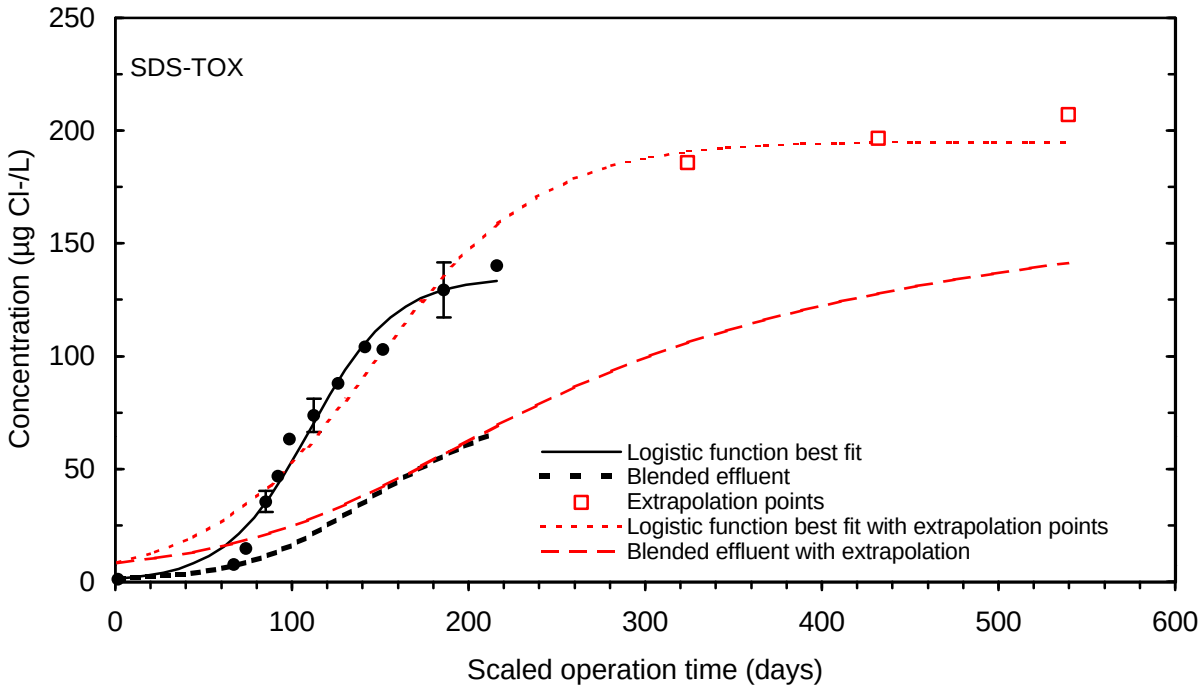


Figure 225 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (20 minute EBCT) during session 3, January

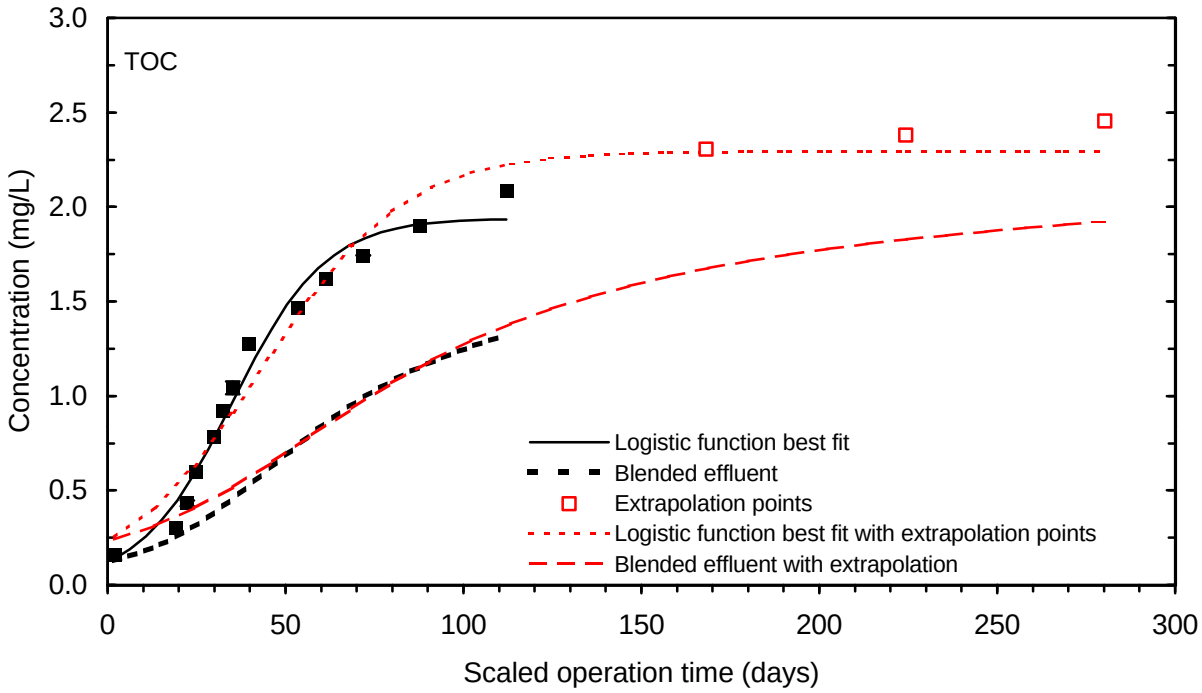


Figure 226 Single contactor and blended effluent extrapolated TOC breakthrough curve (10 minute EBCT) during session 4, Sept-Lignite

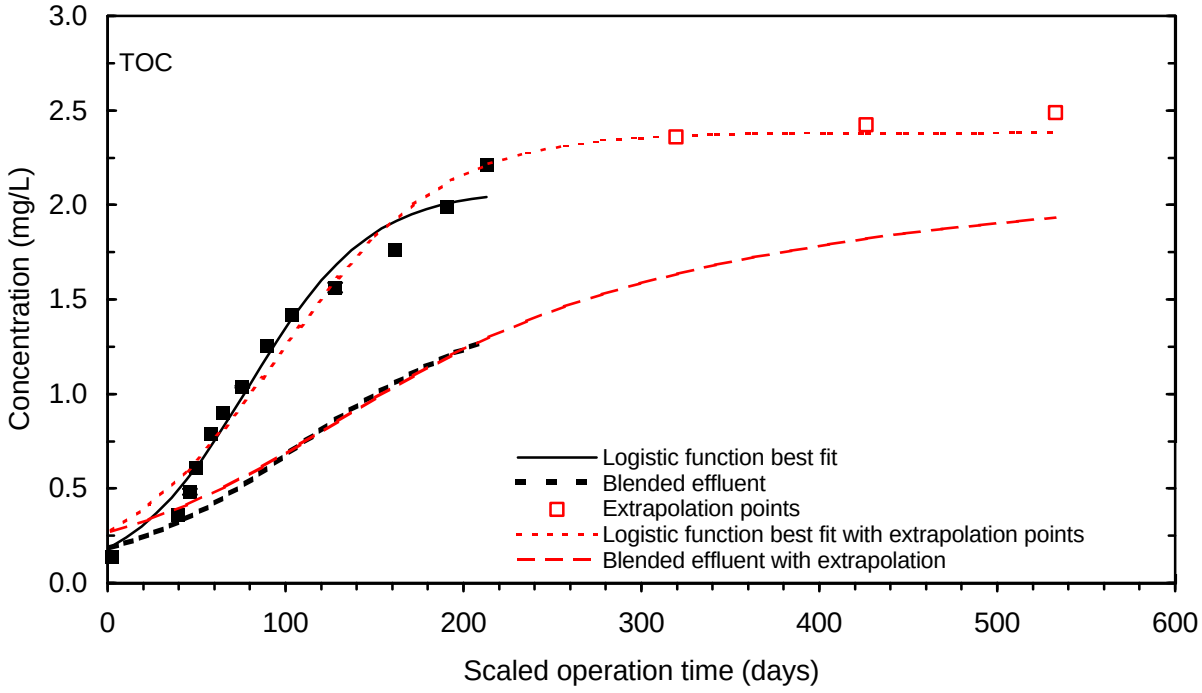


Figure 227 Single contactor and blended effluent extrapolated TOC breakthrough curve (20 minute EBCT) during session 4, Sept-Lignite

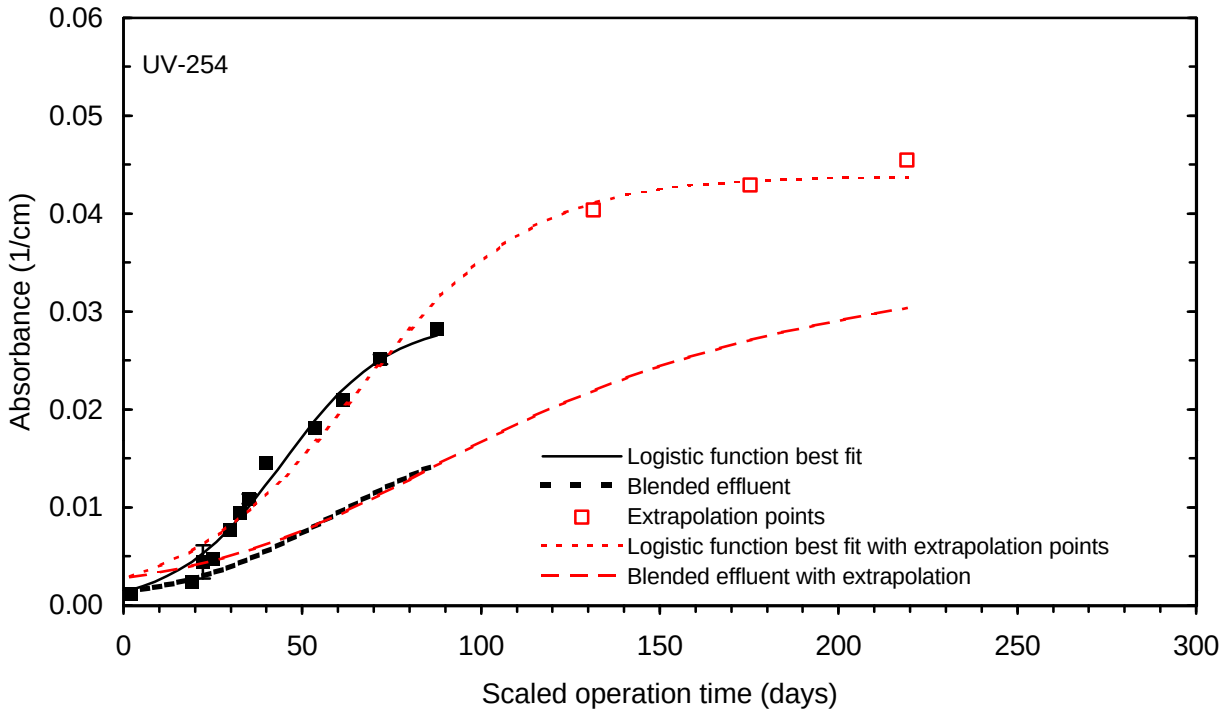


Figure 228 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (10 minute EBCT) during session 4, Sept-Lignite

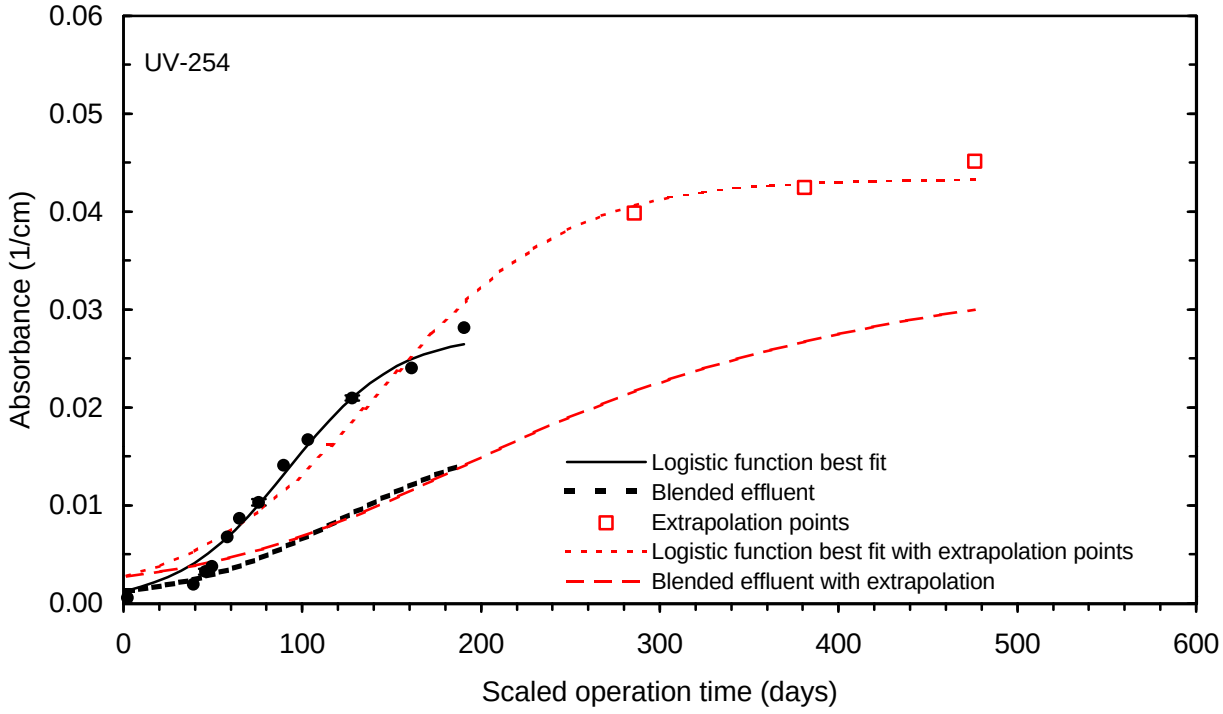


Figure 229 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (20 minute EBCT) during session 4, Sept-Lignite

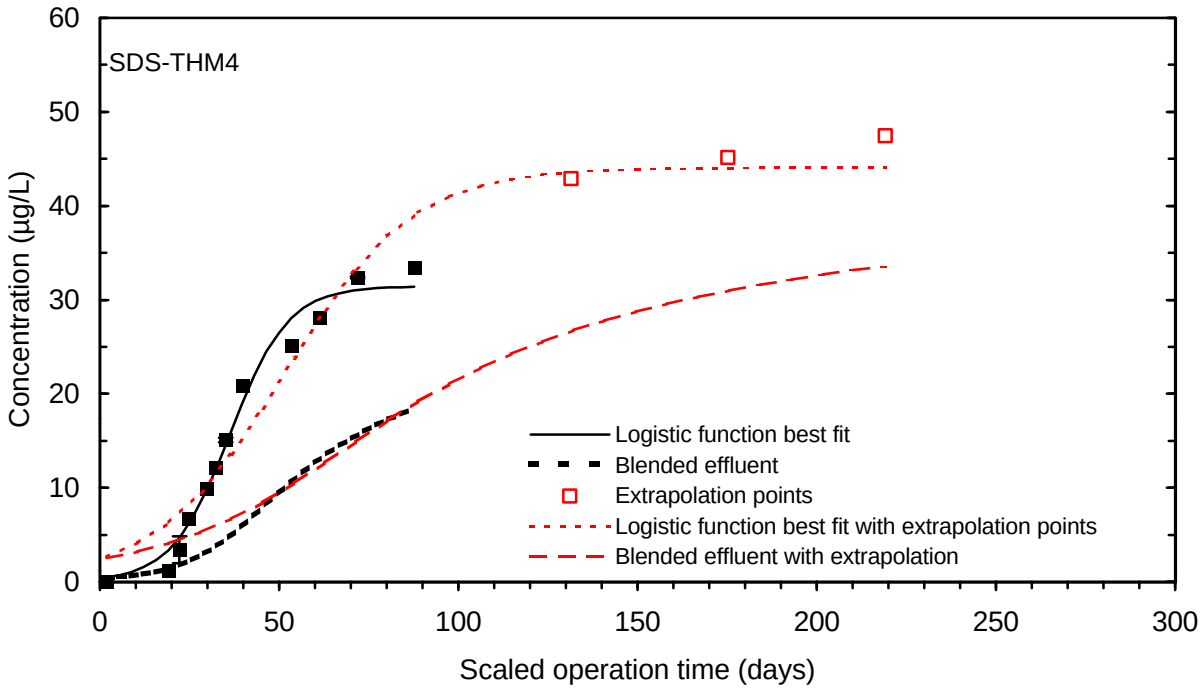


Figure 230 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (10 minute EBCT) during session 4, Sept-Lignite

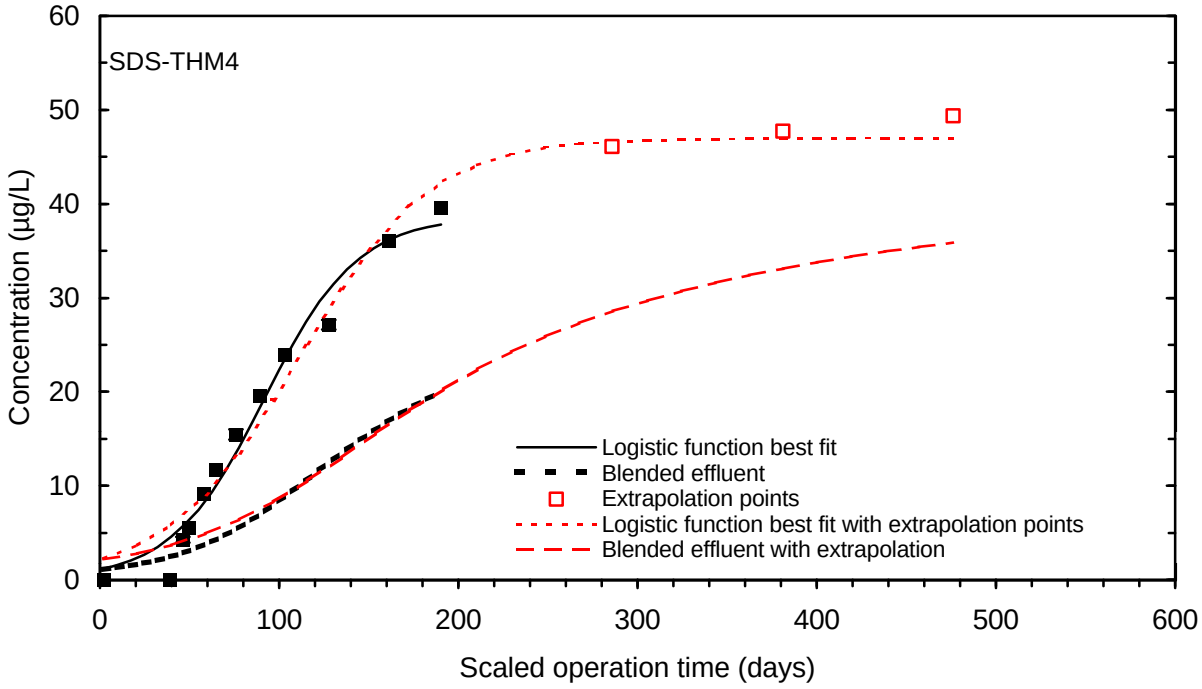


Figure 231 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (20 minute EBCT) during session 4, Sept-Lignite

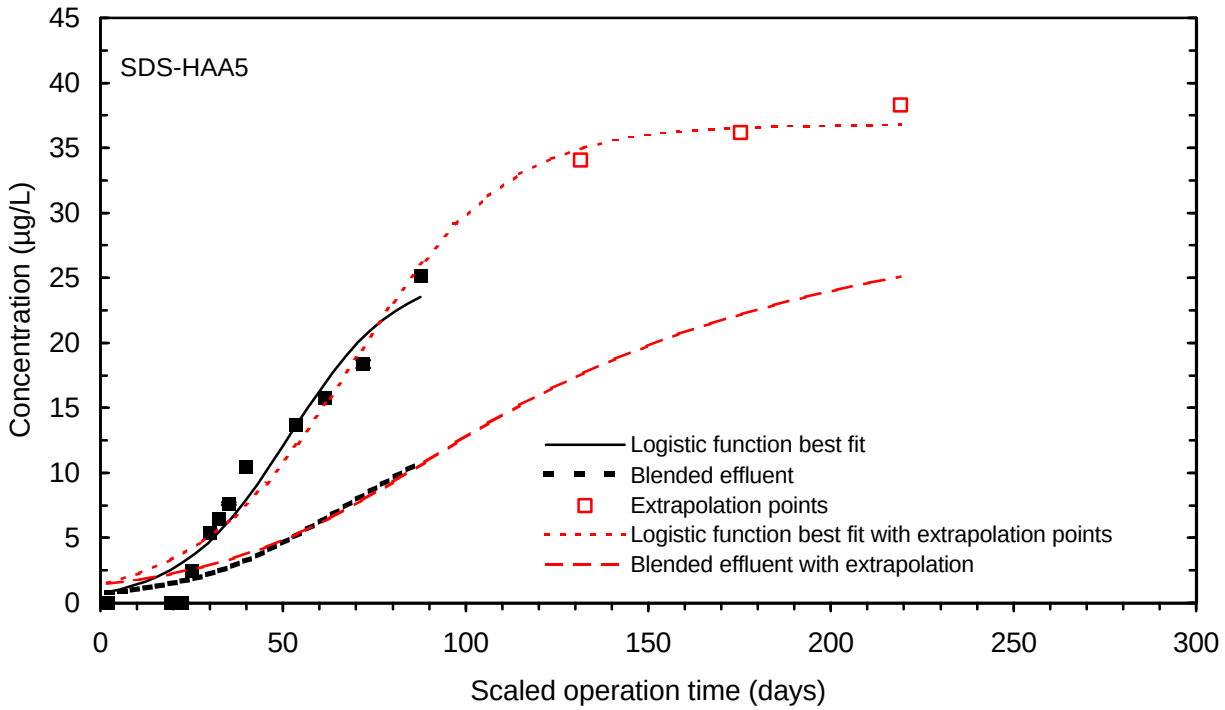


Figure 232 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (10 minute EBCT) during session 4, Sept-Lignite

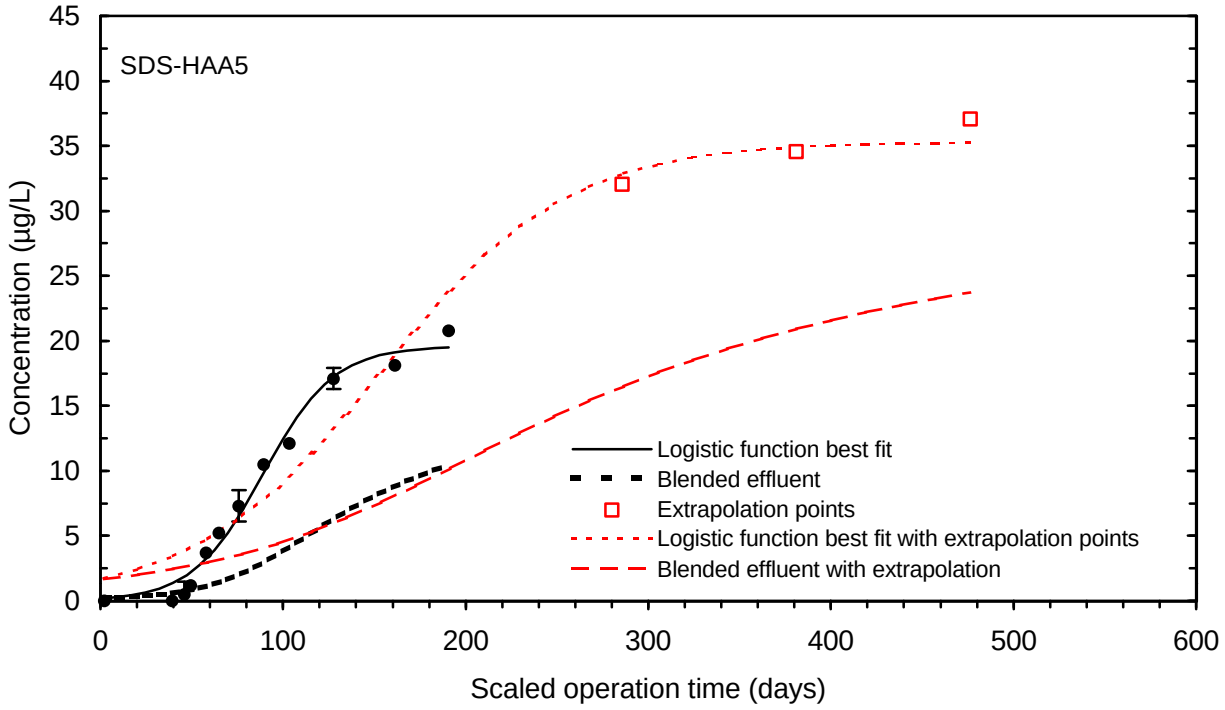


Figure 233 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (20 minute EBCT) during session 4, Sept-Lignite

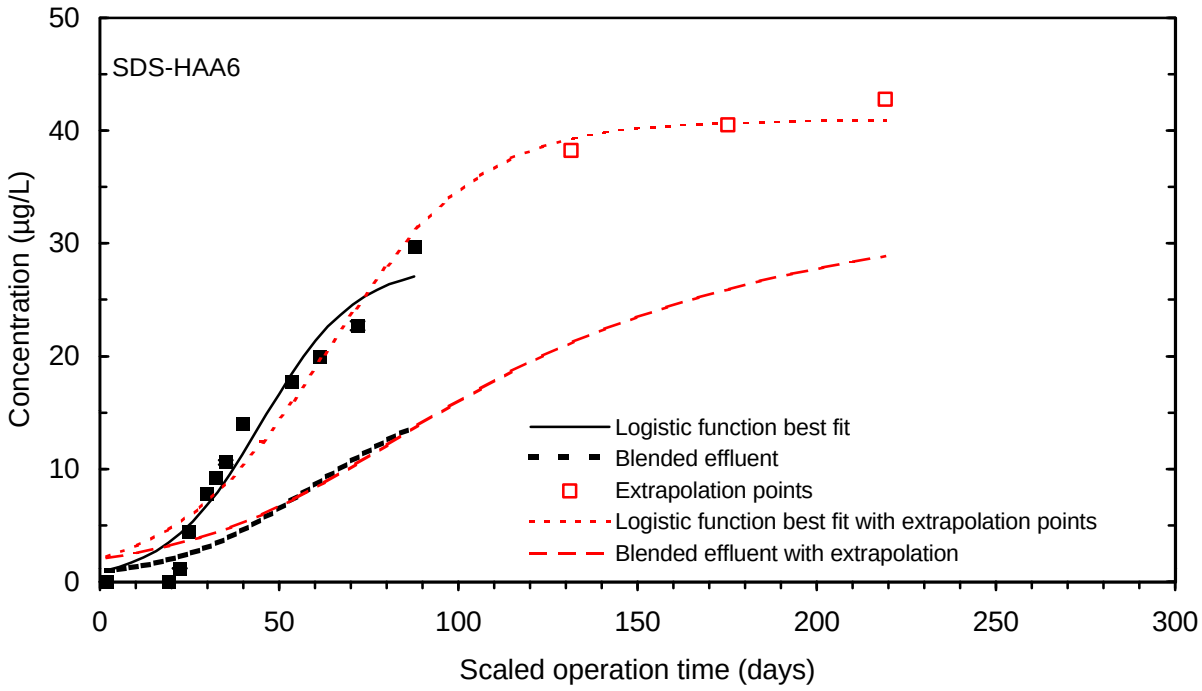


Figure 234 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (10 minute EBCT) during session 4, Sept-Lignite

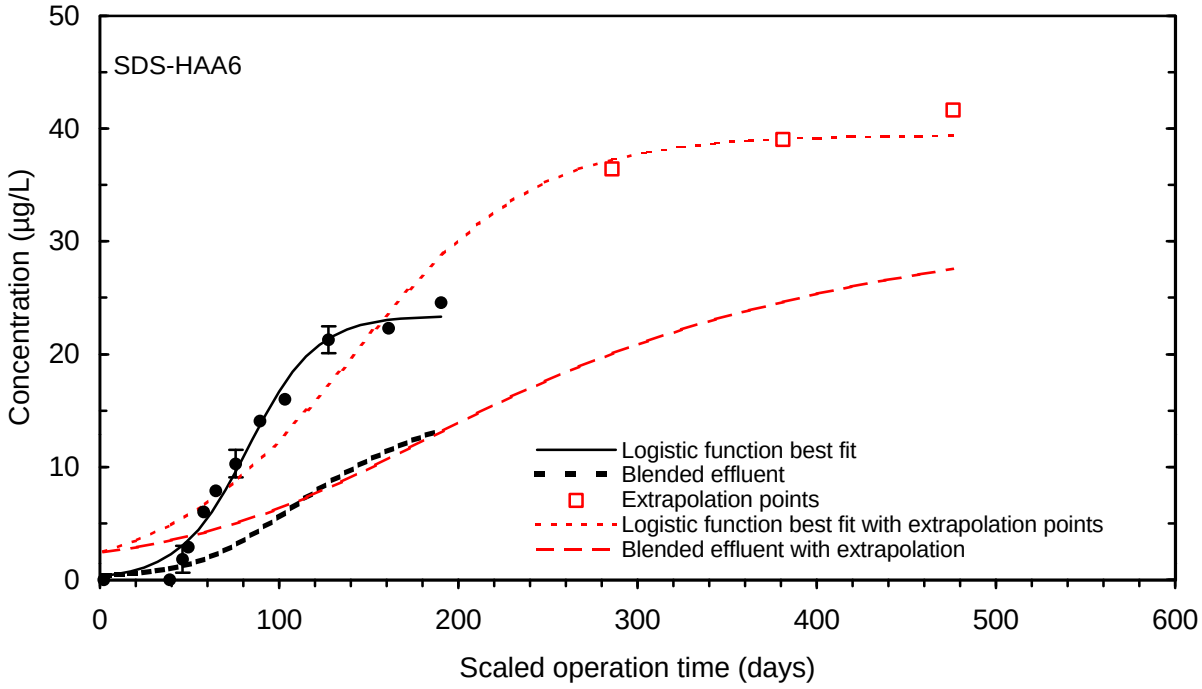


Figure 235 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (20 minute EBCT) during session 4, Sept-Lignite

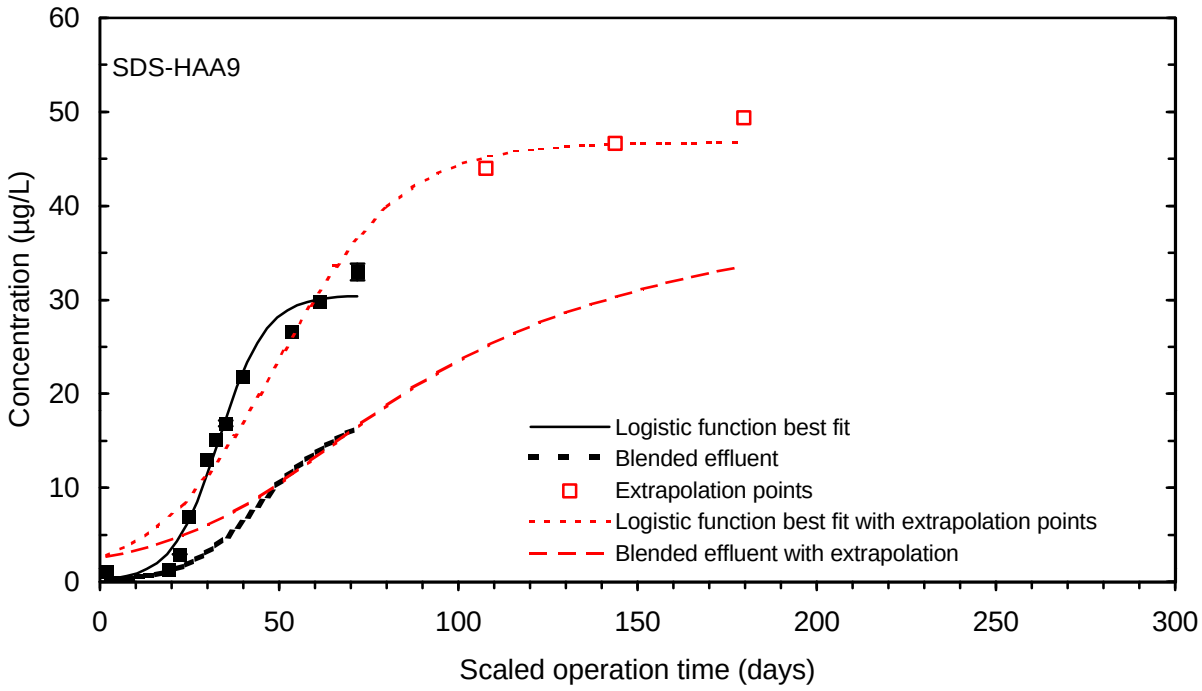


Figure 236 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (10 minute EBCT) during session 4, Sept-Lignite

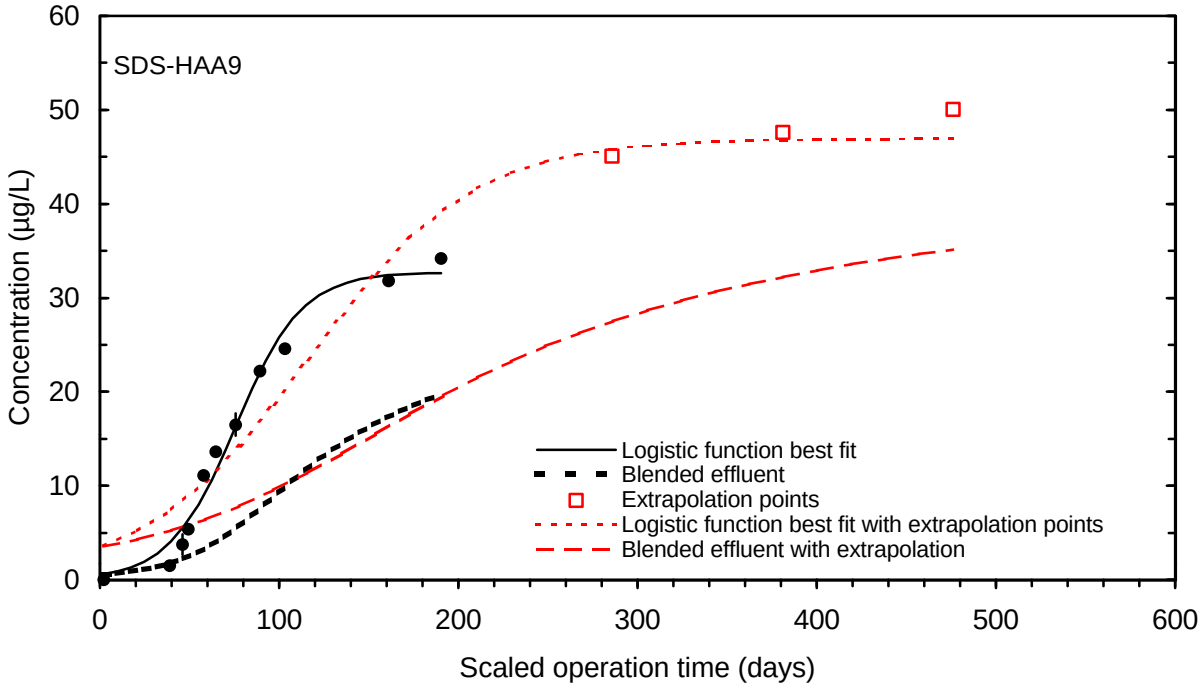


Figure 237 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (20 minute EBCT) during session 4, Sept-Lignite

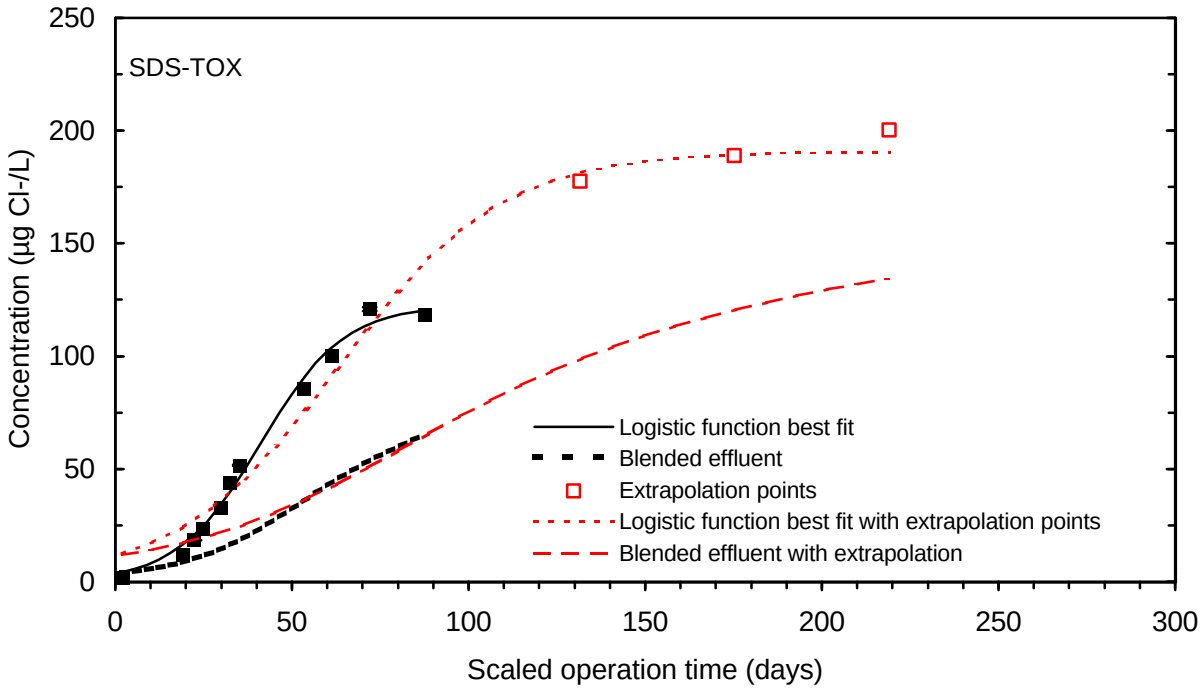


Figure 238 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (10 minute EBCT) during session 4, Sept-Lignite

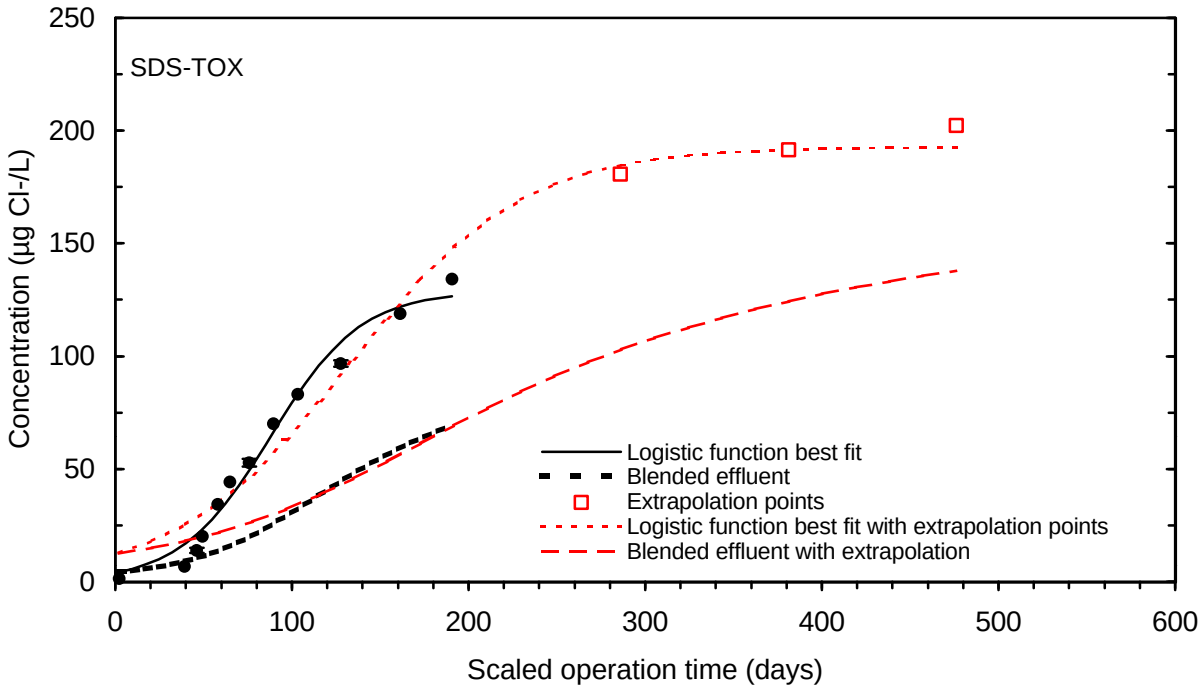


Figure 239 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (20 minute EBCT) during session 4, Sept-Lignite

12 *Normalized DBP Precursor Breakthrough*

12 Normalized DBP Precursor Breakthrough

An additional method of analyzing GAC breakthrough data is to divide the GAC effluent concentrations of each parameter by their respective GAC influent concentrations. The relative breakthrough patterns of each parameter can then be compared on a percent breakthrough level. This type of analysis helps determine whether surrogates for DBP precursor breakthrough are reliable indicators of DBP precursor breakthrough. Furthermore, the normalized comparison analysis can determine how well the surrogates serve as indicators of DBP precursor breakthrough.

The normalized breakthrough patterns for all parameters during the June session for the 10 minute EBCT contactor are shown in Figure 240. High initial relative levels of chlorine demand are present, due mostly to the presence of inorganic chlorine demand. The normalized breakthrough of TOC occurs earlier and remains at a higher percent breakthrough than DBP precursors throughout the run time. Therefore, based on the June 10 minute EBCT contactor, TOC breakthrough can be used as a conservative indicator of DBP precursor breakthrough. The same pattern was observed for the 20 minute EBCT contactor for the June session (Figure 241).

For both breakthrough curves, the relative breakthrough order of parameters is similar. It should be noted that the relative breakthrough of SDS-HAA9 is much higher than that of SDS-HAA6 or SDS-HAA5. Thus, if only HAA5 or HAA6 are analyzed, the removal of HAA precursors by GAC might be overstated.

The normalized breakthrough patterns for both EBCTs and all parameters for the September, January, and September-lignite sessions are shown in Figures 242 through 247. Overall, on a normalized basis, TOC consistently served as a conservative indicator for DBP precursor breakthrough.

During all four quarters, and for both EBCTs, normalized UV_{254} and SDS-TOX breakthrough patterns were very similar. Thus, percent UV_{254} breakthrough can be used as a predictive tool for TOX breakthrough, once the influent TOX concentration is known. This relationship was independent of any variability in TOX precursor material during the three seasonal sessions and independent of the type of GAC evaluated.

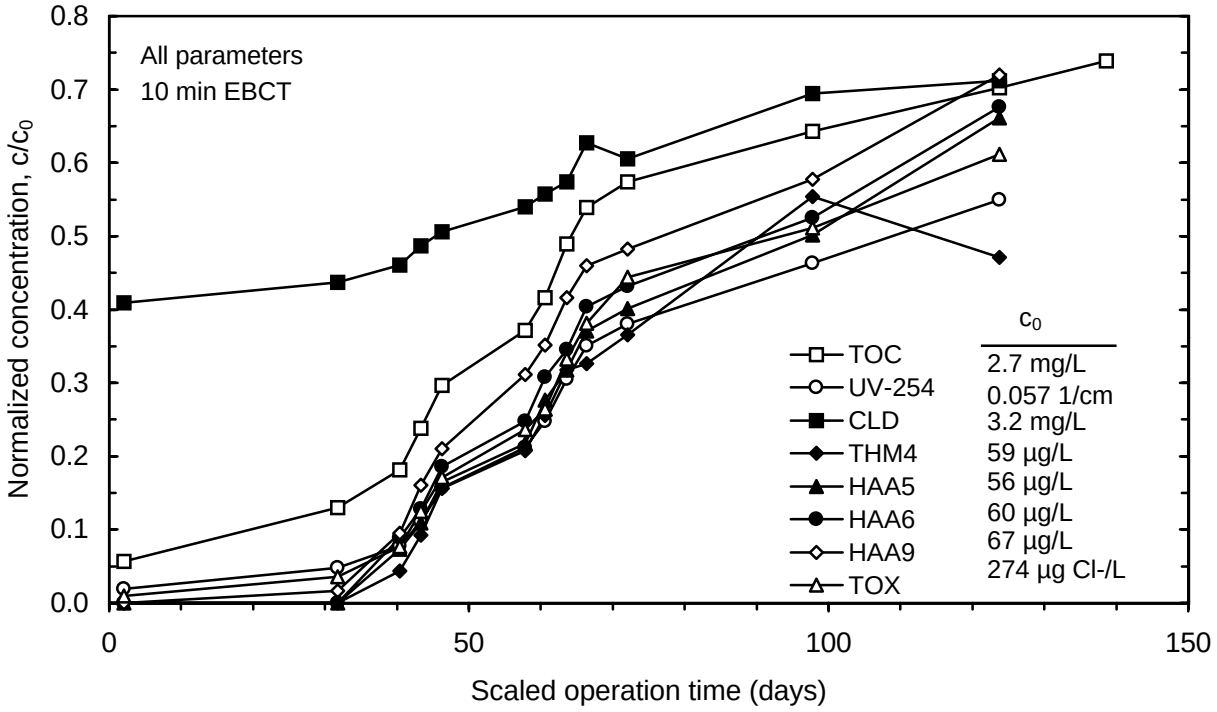


Figure 240 Normalized breakthrough patterns (10 minute EBCT) during session 1, June

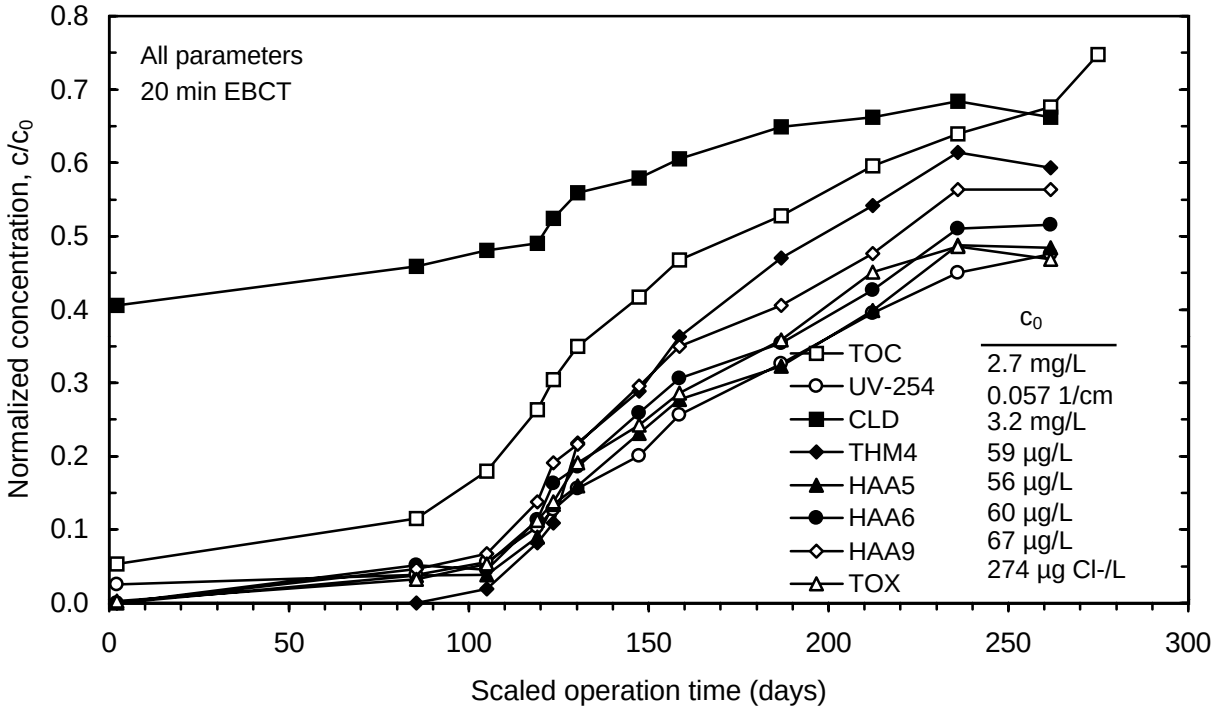


Figure 241 Normalized breakthrough patterns (20 minute EBCT) during session 1, June

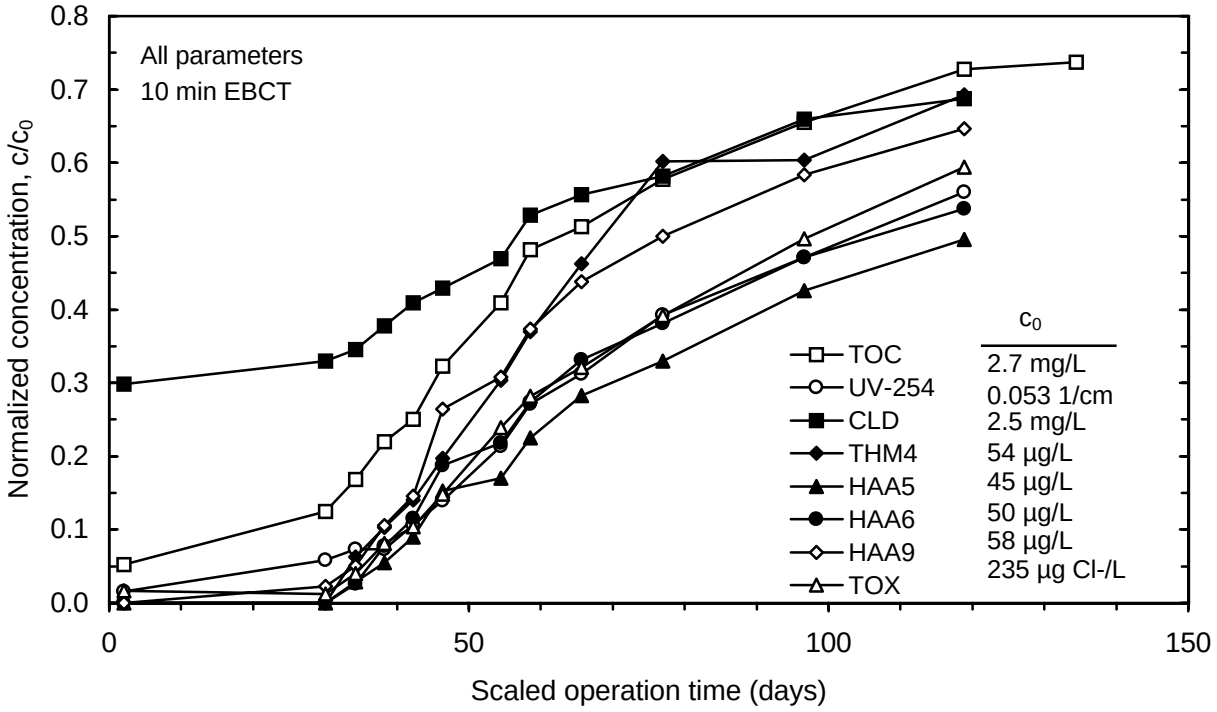


Figure 242 Normalized breakthrough patterns (10 minute EBCT) during session 2, September

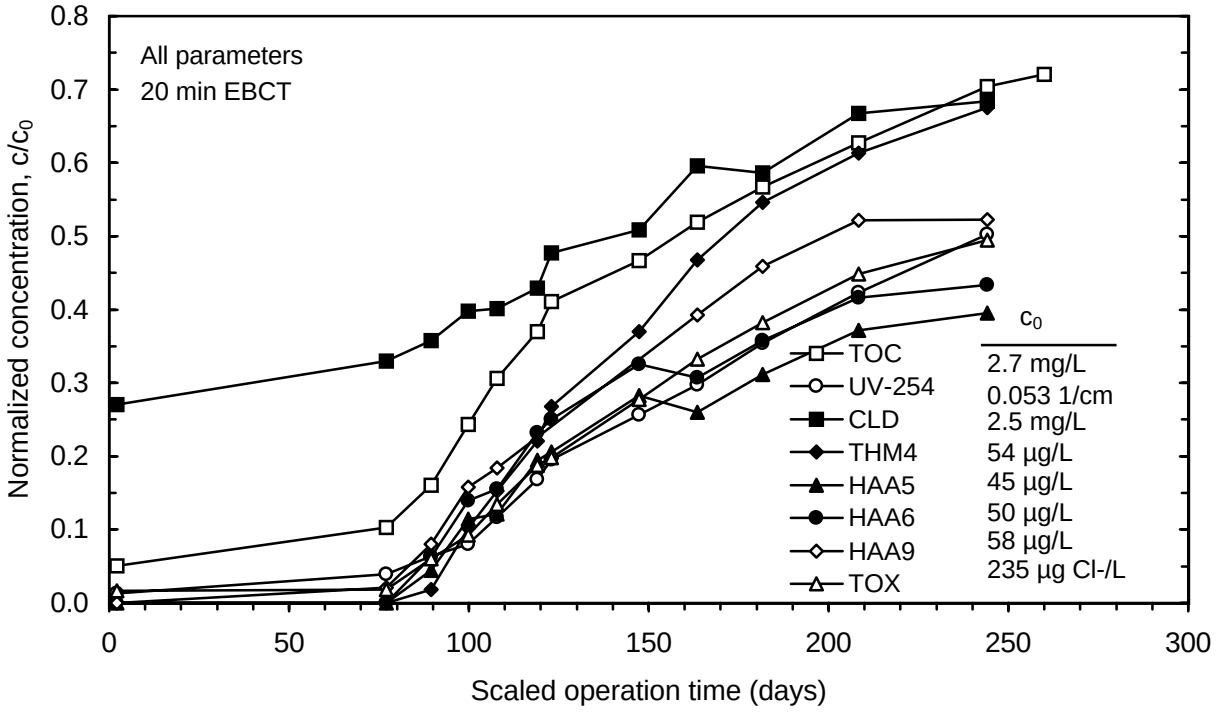


Figure 243 Normalized breakthrough patterns (20 minute EBCT) during session 2, September

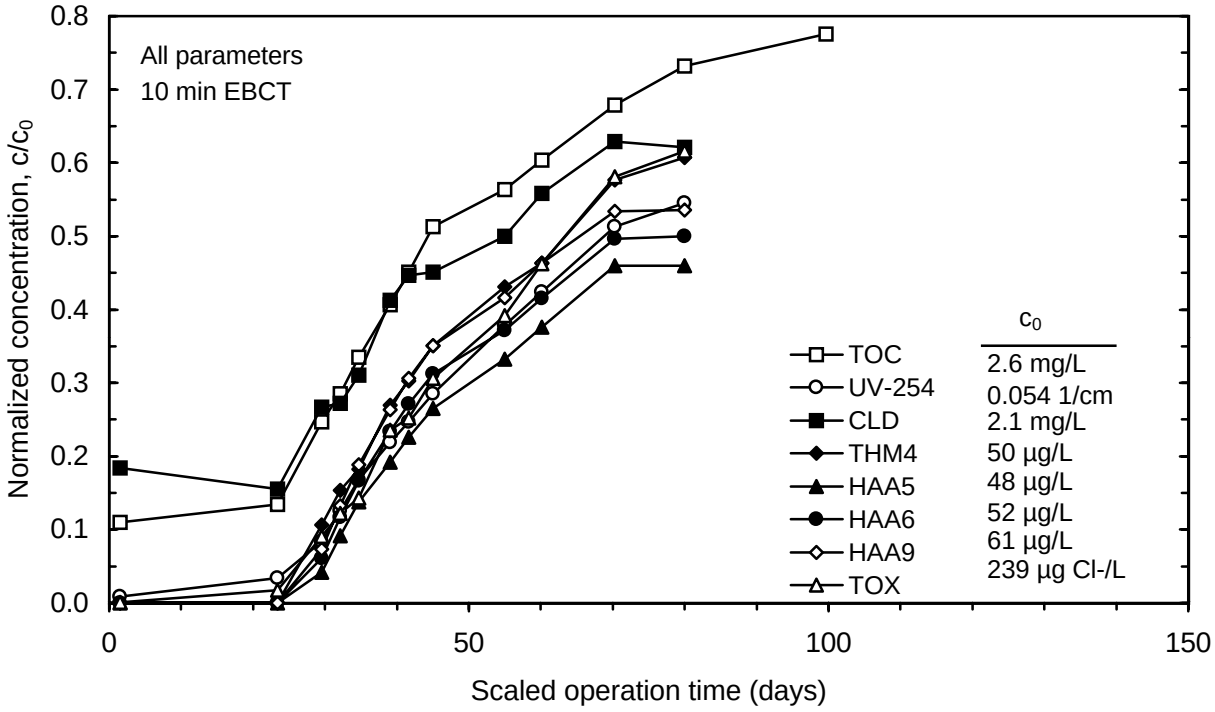


Figure 244 Normalized breakthrough patterns (10 minute EBCT) during session 3, January

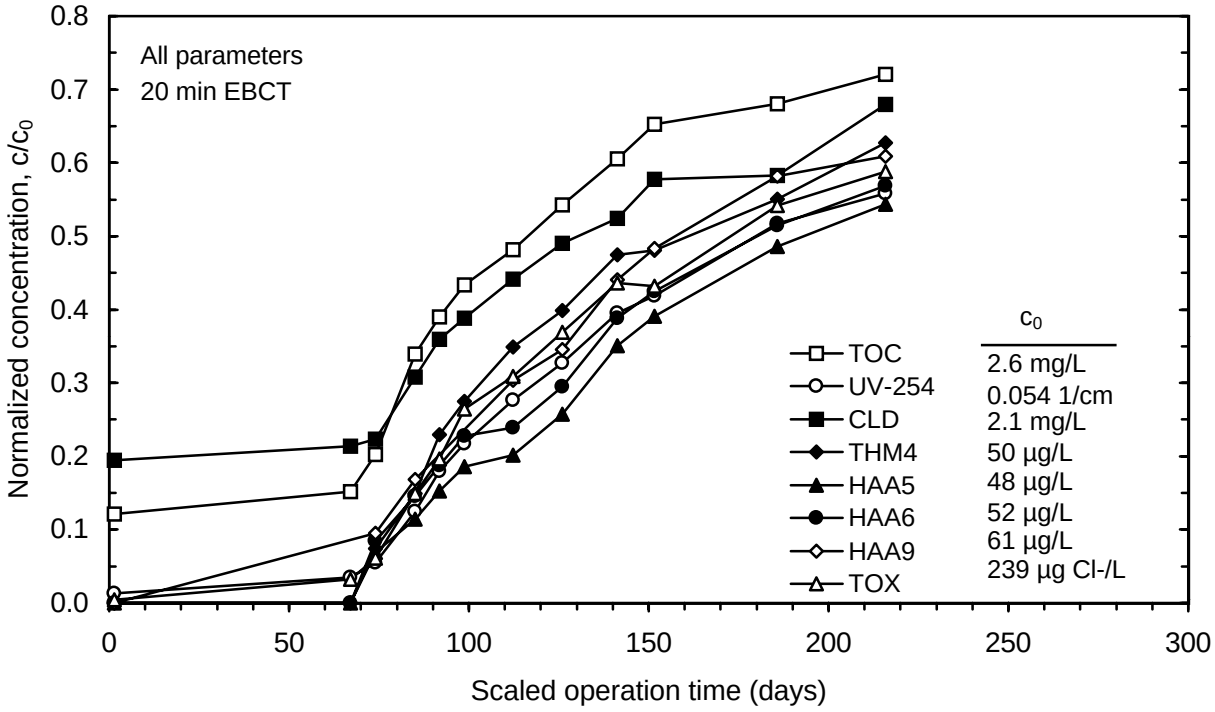


Figure 245 Normalized breakthrough patterns (20 minute EBCT) during session 3, January

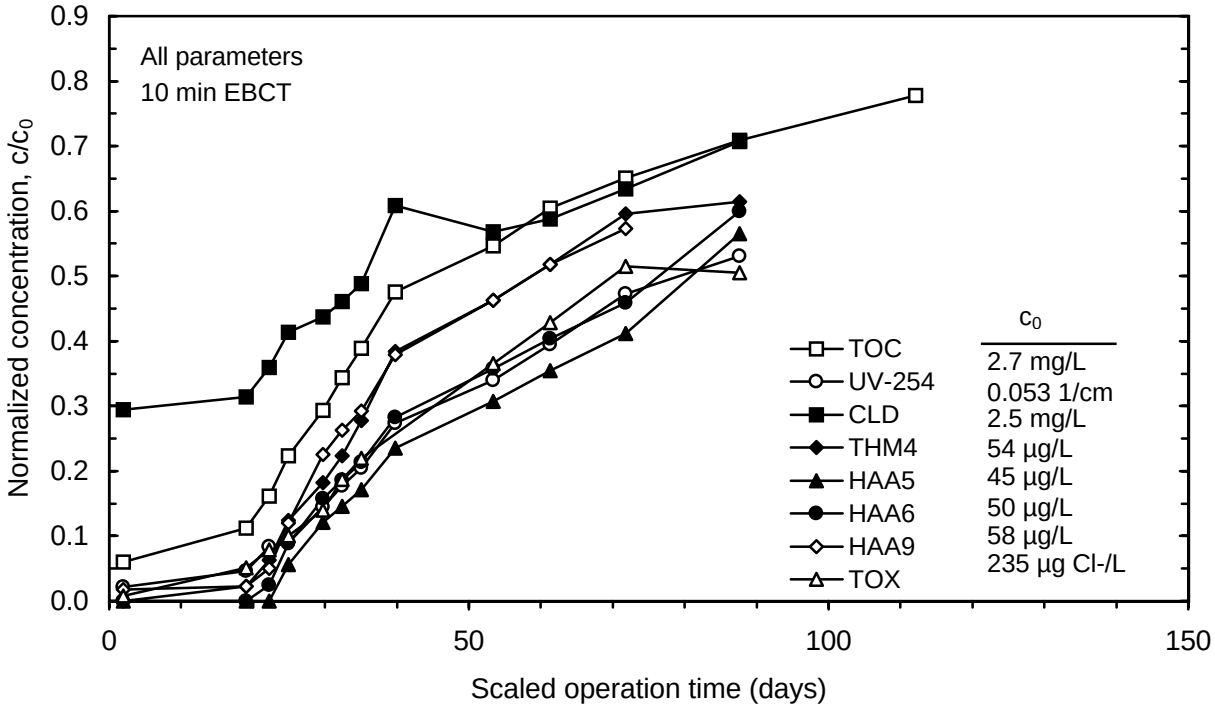


Figure 246 Normalized breakthrough patterns (10 minute EBCT) during session 4, Sept-Lignite

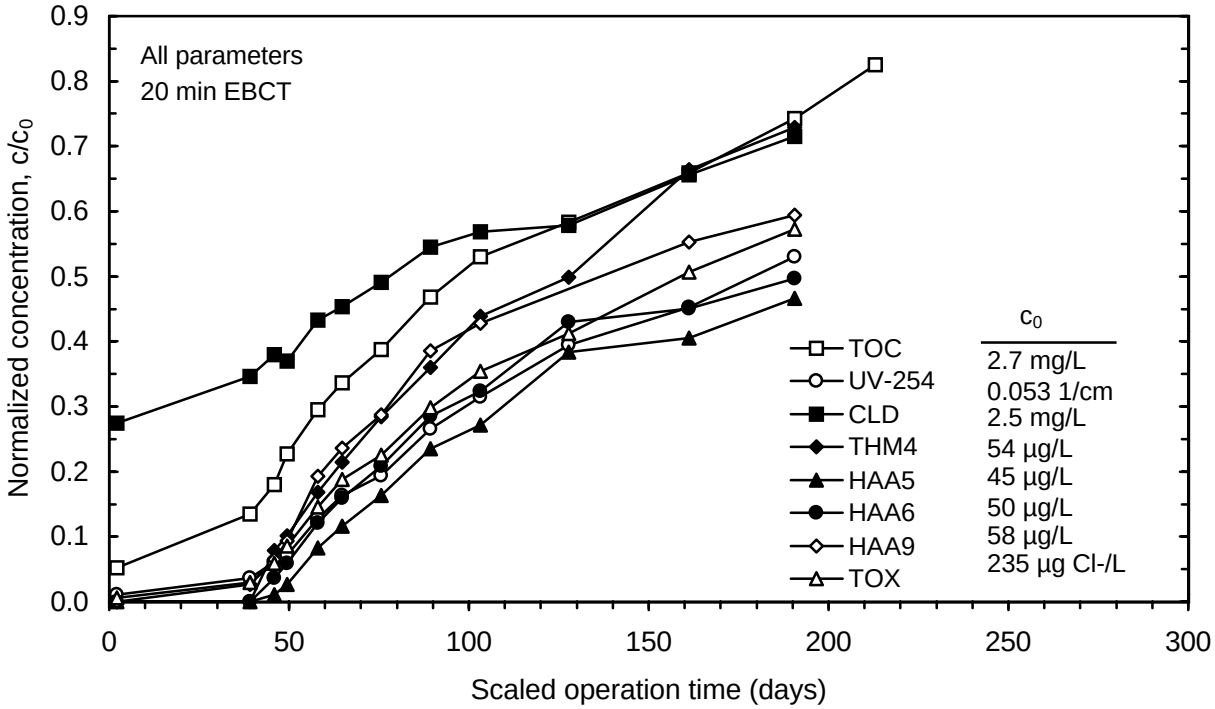


Figure 247 Normalized breakthrough patterns (20 minute EBCT) during session 4, Sept-Lignite

13 *TOC-DBP and UV_{254}-DBP Relationships*

13 TOC-DBP and UV_{254}-DBP Relationships

Paired concentration plots of GAC effluent SDS-THM4, SDS-HAA5, SDS-HAA6, SDS-HAA9, and SDS-TOX against GAC effluent TOC and UV_{254} were generated on a concentration and on a normalized (percent breakthrough) basis. These plots are summarized in Figures 248 through 251. Both EBCTs evaluated and all four sessions are presented on the same plots.

In general, TOC and UV_{254} served as good predictors of GAC effluent DBP formation regardless of EBCT and GAC type. A slight seasonal effect is visible during the June session, where formed DBP levels were slightly higher (per mg TOC) than during other sessions. This comparison is valid because the chlorination SDS conditions were the same for all sessions.

In the paired normalized concentration data plots shown in Figures 250 and 251, a line with a slope of 1 and y-intercept of 0 is also plotted. The general trend of the data in comparison to this line indicates whether the percent breakthrough of the surrogate parameter (TOC or UV_{254}) directly predicts the percent breakthrough of the formed DBP (data falls on the line), or if the surrogate parameter serves as a conservative indicator of the formed DBP breakthrough (data falls below the line). TOC served as a conservative indicator of DBP formation for all DBPs. UV_{254} directly predicted the percent DBP breakthrough of SDS-HAA5, SDS-HAA6, and SDS-TOX. Any seasonal effects are less apparent in these plots, and there is no distinguishable effect of GAC type.

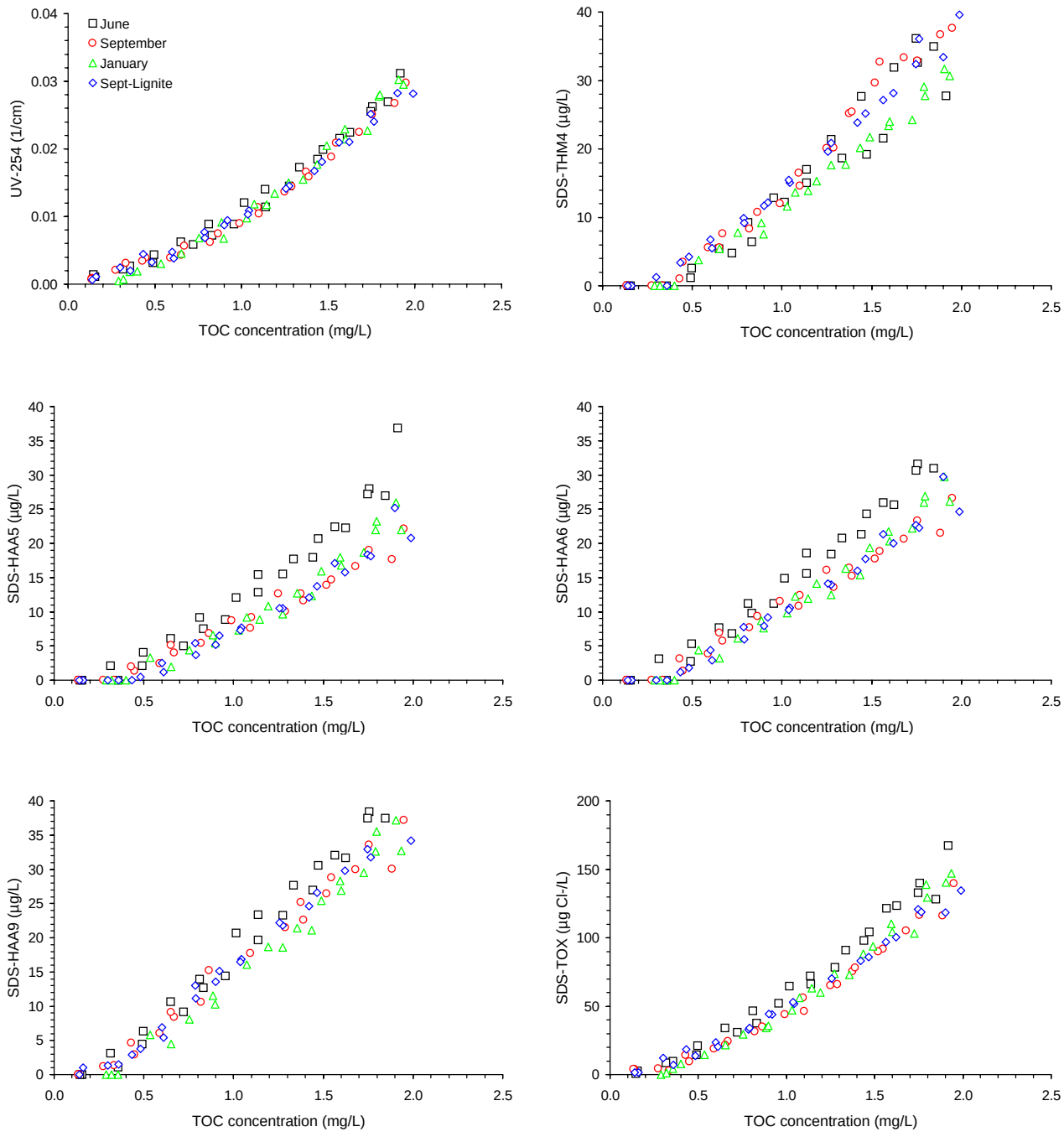


Figure 248 Correlation based on GAC effluent TOC concentration for both 10 and 20 minute EBCT contactors and all sessions

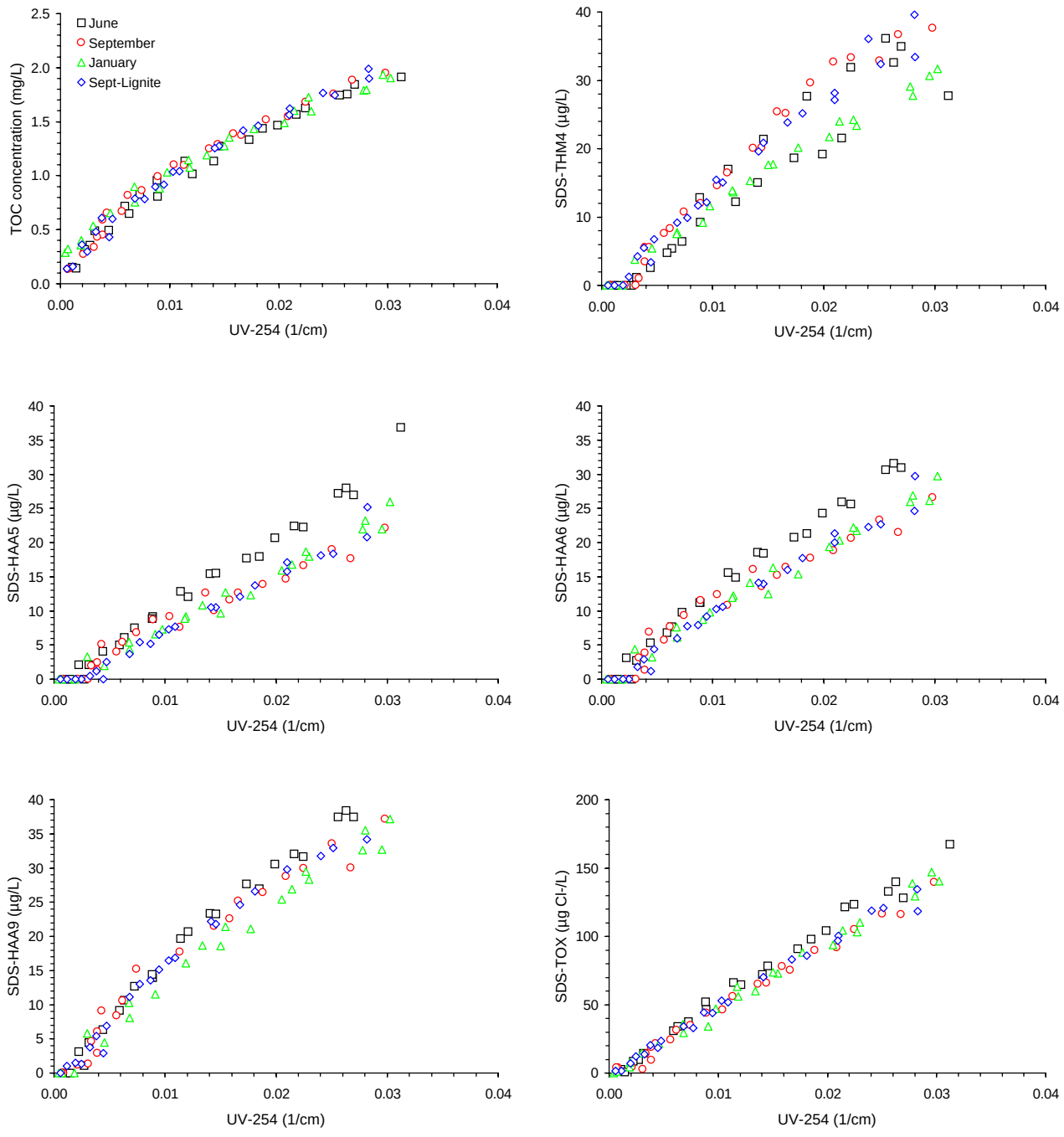


Figure 249 Correlation based on GAC effluent UV-254 for both 10 and 20 minute EBCT contactors and all sessions

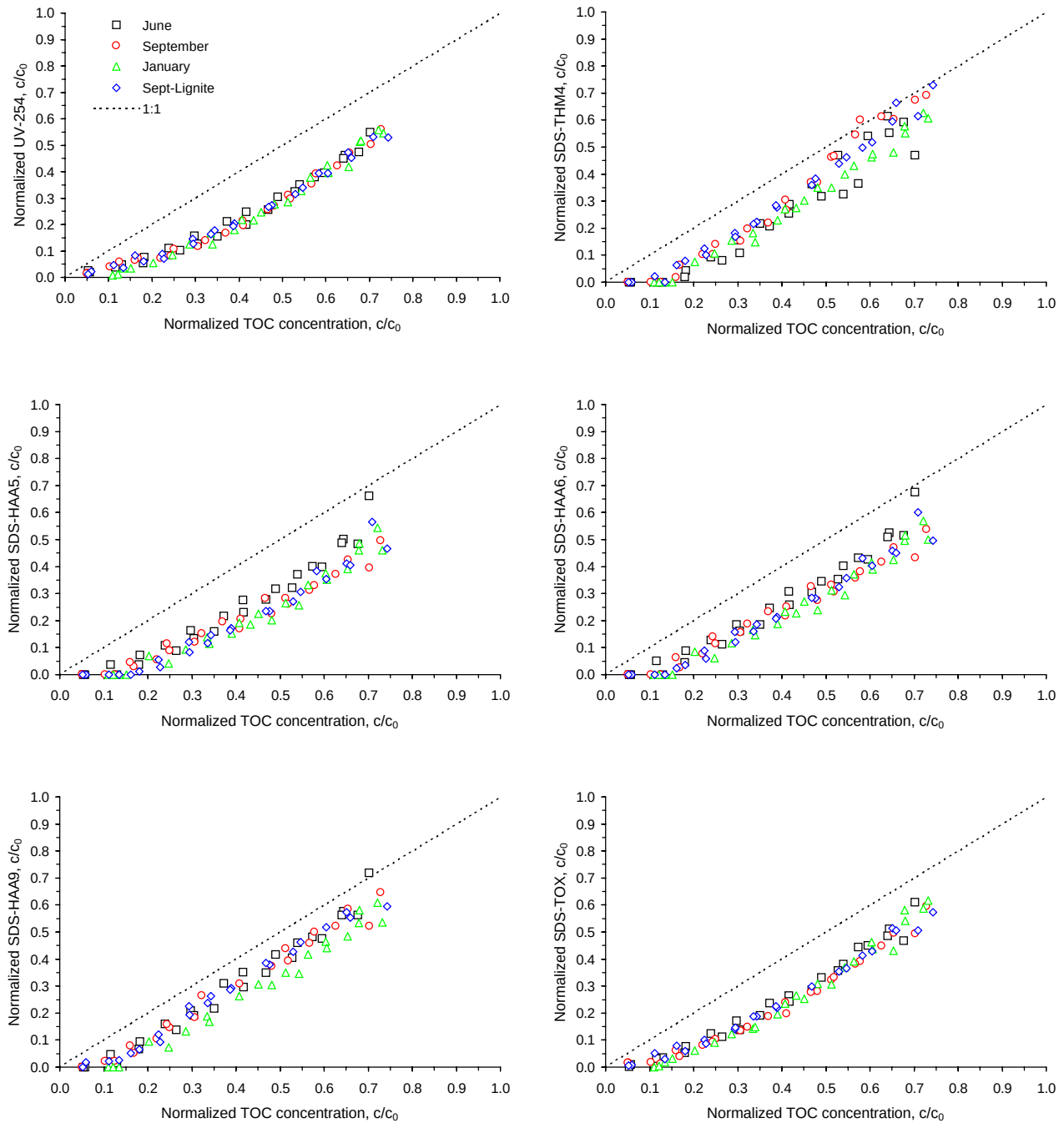


Figure 250 Correlation based on normalized GAC effluent TOC concentration for both 10 and 20 minute EBCT contactors and all sessions

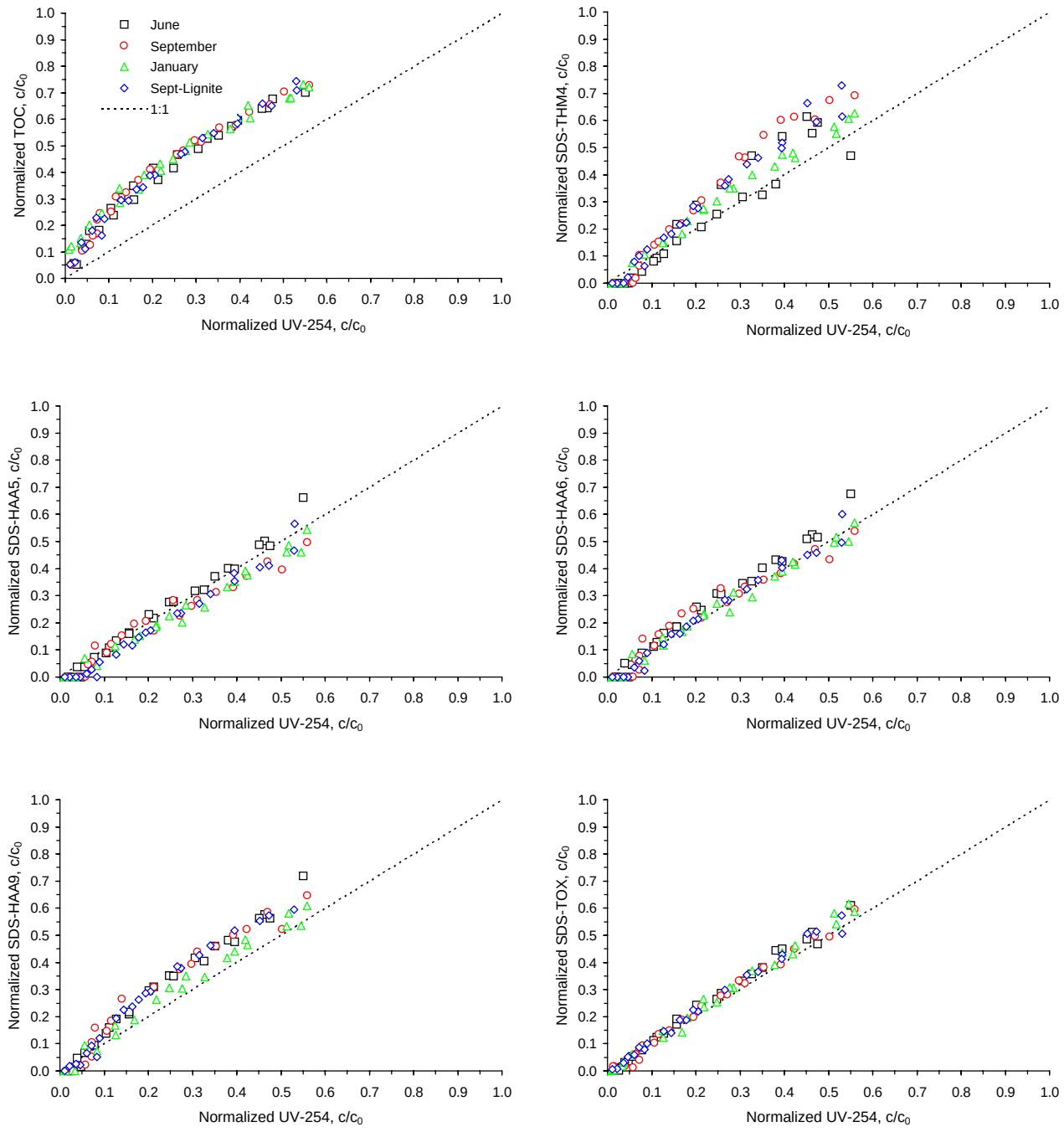


Figure 251 Correlation based on normalized GAC effluent UV-254 for both 10 and 20 minute EBCT contactors and all sessions

14 *TOC Breakthrough Performance Evaluation*

14 TOC Breakthrough Performance Evaluation

Based on a correlation that relates influent TOC concentration to bed volumes to 50 percent TOC breakthrough, BV_{50} (Summers et al. 1994; Hooper et al. 1996), the GAC performance of the Akron Water Supply Plant water source after coagulation can be evaluated. The correlation is given by the following equation:

$$BV_{50} = \frac{18{,}000}{TOC_0} \qquad (9)$$

where TOC_0 is the mean influent TOC concentration, in mg/L. For all EBCTs and quarters evaluated, the BV_{50} obtained during each run was plotted in Figure 252. The performance of an average water is given by the dashed line, which represents Equation 9. Figure 252 shows that in general, GAC performance was close to that predicted by Equation 9.

For the three seasonal sessions evaluating bituminous coal-based GAC, bed volumes to 50 percent TOC breakthrough (BV_{50}) ranged from 6,380 to 9,280 bed volumes. Based on the influent TOC concentrations of each of the three sessions, Equation 9 predicts an average BV_{50} of 6,700 bed volumes. Therefore, average GAC run times averaged about 22 percent longer than expected for the 10 minute EBCT contactor.

For the 20 minute EBCT contactor runs the BV_{50} ranged from 8,380 to 12,520 bed volumes during the three bituminous coal-based GAC sessions. The average was about 61 percent longer than expected, based on the correlation results. The better than expected performance of this water source may be attributed in part to the relatively low influent pH (6.3 to 7.1) level. The longer run times for both EBCTs occurred during the June and September sessions, when the pH levels were 6.3 and 6.8, respectively.

The BV_{50} for the lignite coal-based GAC run was 6,400 and 6,900 bed volumes for the 10 and 20 minute EBCT contactors, respectively. This compares to 9,000 and 11,400 bed volume BV_{50} values observed during the same session for the bituminous coal-based GAC 10 and 20 minute EBCT contactors, respectively. The BV_{50} values for the bituminous coal-based GAC runs were 41 and 65 percent higher than the lignite coal-based GAC 10 and 20 minute EBCT contactors, respectively. However, the lignite coal-based GAC has a 20 percent lower bed density and thus an equivalent EBCT contains 20 percent less GAC by weight compared to the bituminous coal-based GAC.

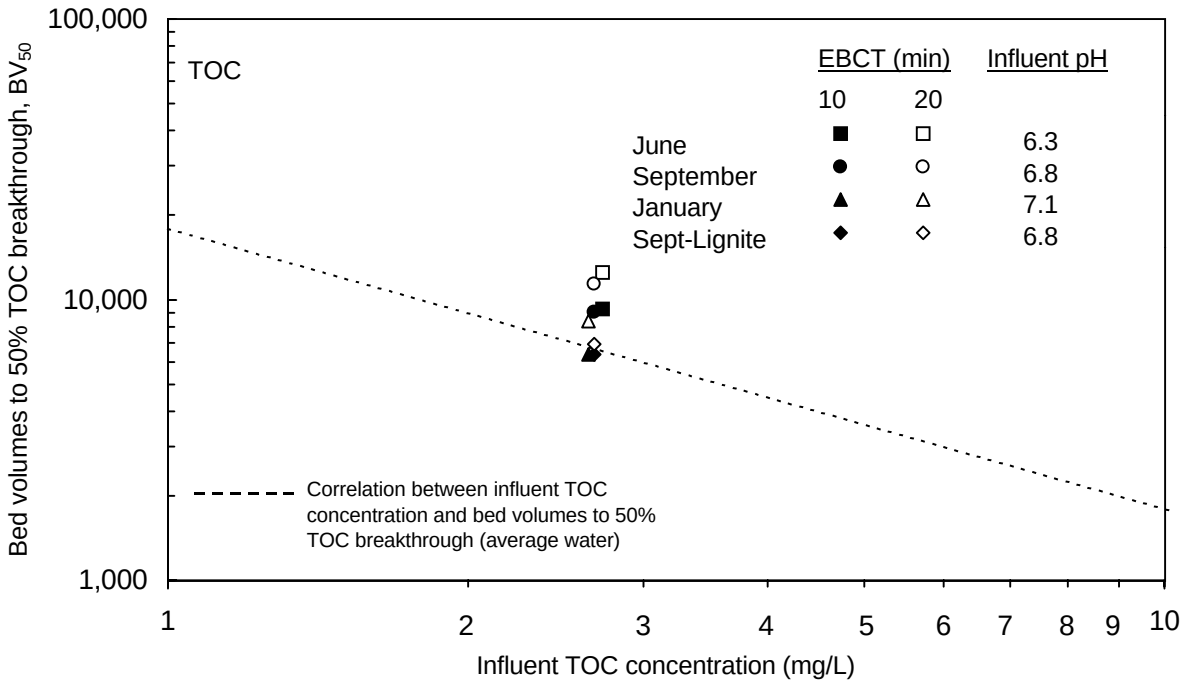


Figure 252 Comparison between GAC performance during treatment study testing and average water GAC performance

15 *Cost Information and Analysis*

15 Cost Information and Analysis

A simple cost analysis was performed based on the data obtained during the treatment study using an EPA cost model (Clark and Adams, 1991). The cost analysis included the cost of on-site spent carbon reactivation. Costs were evaluated using either steel pressure contactors or concrete gravity contactors and were determined in cents/1,000 gal for both capital and operations and maintenance (O&M) costs. Based on the maximum plant capacity of 67 MGD, 10 concrete gravity (785 ft^2) or 23 steel pressure contactors were required (20 ft diameter; 314 ft^2). Hydraulic loading at plant capacity is 5.9 gpm/ft^2. Although plant production varies throughout the year, the average 1998 production of 42 MGD was used for modeling purposes. Hydraulic loading under average plant flow conditions was 2.4 gpm/ft^2. The economic input data to the model are summarized in Table 56.

For the cost modeling purposes, it was assumed that GAC reactivation would be performed on-site. An average reactivation cost was determined based on reactivation by fluidized bed, infrared, and multihearth technologies. Individual costs for each reactivation technology are not reported, as little variability was observed in reactivation costs among the three technologies.

The cost model sizes the contactors based on the plant capacity flow. The EBCT input into the model is the EBCT under plant capacity conditions. Therefore, under average flow conditions, the EBCT in each contactor will be higher, leading to longer intervals between GAC reactivation and lower O&M costs, and the costs reported here are conservative estimates.

The capital costs are based on the economic input values, EBCT, type of contactor, and spent carbon reactivation demand. The O&M costs were determined based on the service life of each contactor. The service life input into the model was the run time to Stage 2 THM4 or HAA5 MCL (with a 20 percent safety factor). The DBP MCL associated with the shortest (limiting) run time was used for each breakthrough curve. Optimal operation of parallel contactors in staggered mode was assumed. Thus, the blended effluent analysis run times determined in section 11 (including breakthrough curve extrapolation calculations when necessary) were used to model costs for steel pressure contactors. A cost of 70 cents/lb GAC was used for both bituminous and lignite GACs. Table 57 summarizes the estimated run times used as input to the cost model.

Table 58 summarizes the GAC cost analysis results for bituminous coal-based GAC contactors. Capital, O&M, and total costs are given for all sessions, both EBCTs, and two contactor types (concrete gravity and steel pressure), assuming on-site reactivation. The costs are given in cents/1,000 gallons water treated. The mean and standard deviation over all three sessions of testing are given.

Independent of EBCT, concrete gravity construction was more cost-effective than steel pressure contactors. Overall, the most cost-effective option for GAC treatment was 10 minute EBCT concrete gravity contactors. The total cost was estimated at an average of 20 cents/1,000 gal. For 20 minute EBCT contactors, the total cost estimate averaged 25 cents/1,000 gal. For steel pressure contactors, the total costs were 27 and 42 cents/1,000 gal for EBCTs of 10 and 20 minutes, respectively. A bar graph comparison between 10 and 20 minute EBCT contactors,

concrete gravity or steel pressure contactors, and capital, O&M, and total costs is shown in Figure 253.

A comparison of the impact of GAC type on costs for GAC treatment to Stage 2 MCLs is given in Table 59. For 10 minute EBCT contactors, the total costs for GAC treatment using lignite coal-based GAC were slightly higher than that using bituminous coal-based GAC. The increase in costs averaged 4 percent using concrete gravity contactors, and 2 percent using steel pressure contactors. Capital costs were nearly identical, while O&M costs for lignite coal-based GAC was 8 to 10 percent than that for bituminous-coal based GAC. Manufacturers' specifications for bed densities of bituminous and lignite coal-based GACs of 31 and 25 lb/ft^3, respectively, were utilized.

For 20 minute EBCT contactors, the total cost of GAC treatment with lignite coal-based GAC were 3 percent higher for concrete gravity contactors and 1 percent higher with steel pressure contactors than the total cost using bituminous coal-based GAC. Again, capital costs were very similar, while O&M costs were 6 to 8 percent higher for a system using lignite coal-based GAC.

Parameter	Value
Capital recovery interest rate (%)	10
Capital recovery period (years)	20
Overhead & profit factor (% of construction costs)	5
Special sitework factor (% of construction costs)	5
Construction contingencies (% of construction costs)	10
Engineering fee factor (% of construction costs)	10
ENR construction cost index (CCI base year 1913) and date	6,006 (May 1998)
Producers Price Index (PPI base year 1967=100) and date	371 (April 1998)
Labor rate + fringe ($/manhour)	25
Labor overhead factor (% of labor)	10
Electric rate ($/kWh)	0.086
Fuel oil rate ($/gallon)	0.95
Natural gas rate ($/cu.ft.)	0.0055
Process water rate ($/1,000 gal)	0.35
Modifications to existing plant (% of construction cost)	5

Table 56 Economic input data to cost model

EBCT (min)	Session	Run time (days) for contactor configuration: Single	Multiple (10 or more)
10	June	96	167†
	September	76	234†
	January	*	179†
	Sept-Lignite	71	191†
	Mean	81	193
	St. dev.	13	29
20	June	213	468†
	September	199	557†
	January	*	433†
	Sept-Lignite	146	468†
	Mean	186	482
	St. dev.	35	53

†Extrapolation beyond maximum run time required for estimate
*Effluent did not exceed run time criteria

Table 57 Summary of GAC run times to meet the placeholders for Stage 2 MCLs

Contactor construction	Quarter	Cost (cents/1,000 gal): 10 minute EBCT Capital	10 minute EBCT O&M	10 minute EBCT Total	20 minute EBCT Capital	20 minute EBCT O&M	20 minute EBCT Total
Concrete gravity	June	14	7	20	20	6	25
	September	13	6	19	19	5	25
	January	14	6	20	20	6	25
	Mean	14	6	20	20	5	25
	St. dev.	0	0	1	0	0	0
Steel pressure	June	20	8	28	35	7	42
	September	20	7	27	35	7	42
	January	20	8	28	35	7	43
	Mean	20	7	27	35	7	42
	St. dev.	0	1	1	0	0	0

Table 58 Summary of GAC adsorption costs for compliance with the placeholders for Stage 2 MCLs

Contactor construction	GAC type	Cost (cents/1,000 gal) 10 minute EBCT Capital	O&M	Total	20 minute EBCT Capital	O&M	Total
Concrete gravity	Bituminous	13	5.6	19	19	5.1	25
	Lignite	14	6.1	20	20	5.6	25
Percent difference (%)		1	10	4	1	8	2
Steel pressure	Bituminous	20	6.8	27	35	6.8	42
	Lignite	20	7.3	27	35	7.2	42
Percent difference (%)		1	8	3	0	6	1

Table 59 Summary of GAC adsorption costs for proposed Stage 2 MCL compliance for two GAC types

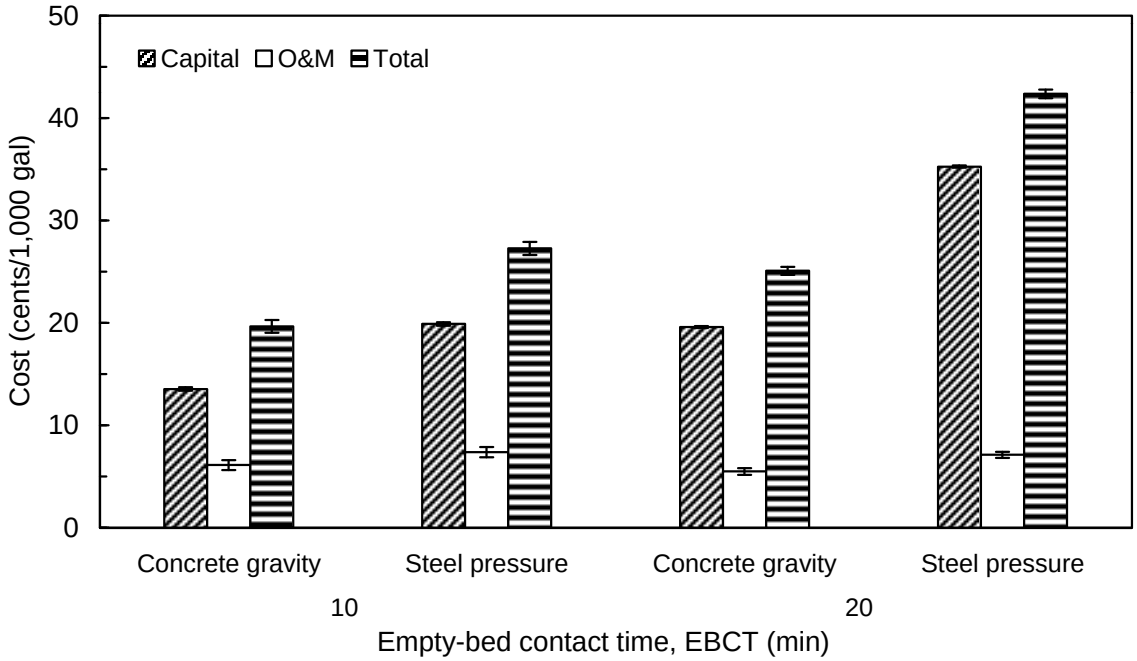


Figure 253 Average costs for GAC treatment with on-site reactivation

16 *Summary of Significant Results*

16 Summary of Significant Results

Based on compliance with the placeholders for Stage 2 DBP MCLs, the formation of either THM4 or HAA5 were the controlling parameters for determining GAC reactivation frequencies during different runs. To meet the placeholder for Stage 2 DBP MCLs (using a 20 percent safety factor), bituminous coal-based GAC run times ranged from 76 to 96 days for 10 minute EBCT contactors and 199 to 213 days for 20 minute EBCT contactors. In practice, multiple contactors are operated in staggered fashion and their effluents are blended prior to disinfection. Therefore, run times to a given effluent criterion are extended as compared to a single contactor, because the poorer quality water from "older" contactors is blended with water from "newer" contactors. Based on this configuration, bituminous coal-based GAC run times to meet the placeholder for Stage 2 MCLs ranged from 167 to 234 days using 10 minute EBCT contactors and 433 to 557 days for 20 minute EBCT contactors.

In parallel with the second seasonal variability session, a lignite coal-based GAC type was investigated. Two RSSCTs were operated, simulating full-scale EBCTs of 10 and 20 minutes. The design and operation of the lignite coal-based GAC RSSCTs allowed for a direct comparison between DBP precursor removal by bituminous and lignite coal-based GACs. Run times to meet the placeholders for Stage 2 DBP MCLs (with a 20 percent safety factor) using lignite coal-based GAC were 71 and 146 days for 10 and 20 minute EBCT contactors, respectively. These single contactor run times were 7 and 27 percent short than those for bituminous coal-based GAC 10 and 20 minute EBCT contactors, respectively. Based on operation in parallel staggered mode, run times for lignite coal-based GAC were 191 and 468 days for 10 and 20 minute EBCT contactors, respectively. These run times were 18 and 16 percent shorter than those for contactors using bituminous coal-based GAC.

Based on an EPA cost model, the average cost for bituminous coal-based GAC to maintain formed DBP levels below the placeholders for Stage 2 MCLs (with a 20 percent safety factor) using concrete gravity contactors was 20 and 25 cents/1,000 gallons for 10 and 20 minute EBCT contactors, respectively, operated in parallel staggered mode. The average cost for steel pressure contactors was 27 and 42 cents/1,000 gallons for 10 and 20 minute EBCT contactors, respectively, operated in parallel staggered mode. These costs are based on the use of bituminous coal-based GAC. GAC treatment using lignite coal-based GAC was slightly more expensive, due to shorter run times, ranging from 1 to 4 percent higher than costs using bituminous coal-based GAC. The analysis performed accounted for the 19 percent lower bed density of lignite coal-based GAC as compared to bituminous coal-based GAC, since GAC is purchased on a weight basis.

For the three seasonal sessions evaluating bituminous coal-based GAC, the 10 minute EBCT contactor averaged 8,200 bed volumes to 50 percent TOC breakthrough (BV_{50}). Based on the influent TOC concentrations of each of the three sessions, an average BV_{50} of 6,700 bed volumes was predicted. Therefore, GAC run times averaged about 22 percent higher than predicted for the 10 minute EBCT contactor. For the 20 minute EBCT contactor the average BV_{50} during the three bituminous coal-based GAC sessions was 10,800 bed volumes, or about 61 percent higher than predicted. The better than expected performance of this water source may be attributed in

part to the relatively low influent pH (6.3 to 7.1) level. The longer run times were associated with the sessions with the lower influent pH levels.

On a throughput basis, normalized for EBCT, the 20 minute EBCT contactor outperformed the 10 minute EBCT contactor for bituminous coal-based GAC. Thus, the carbon usage rate and O&M costs for a 20 minute EBCT contactor are lower than those for a 10 minute EBCT contactor. However, due to higher capital costs for 20 minute EBCT contactors, use of 10 minute EBCT contactors was more cost-effective. For lignite coal-based GAC, on a throughput basis, performance of the two EBCTs were very similar.

Although significant changes in influent TOC concentration due to seasonal variability were not observed, seasonal variability in influent pH seemed to have the greatest impact of GAC performance, due to improved adsorption of DBP precursors at lower pH levels.

A normalized breakthrough evaluation showed that TOC served as a conservative indicator for the breakthrough of all DBP precursors, while UV_{254} served as an excellent predictor of SDS-TOX breakthrough.

17 *QA/QC Summary*

17 QA/QC Summary

All analyses performed during the treatment study followed the methods and QA/QC procedures required by the *DBP/ICR Analytical Methods Manual*. A summary of the data analyzed during this treatment study and all the required QA/QC information is summarized in electronic form in portable document format as an attachment to this report. The EPA has requested that the results of laboratory duplicate analyses, laboratory fortified matrix spike analyses, and any performance evaluation (PE) analyses be reported in the *Treatment Study Summary Report Spreadsheet*, an electronic Excel workbook supplied by EPA. The required data has been input into this file, and an electronic version of it is included as an attachment to this report.

As required by the ICR, three field duplicates were collected from each RSSCT. The results of the duplicate analyses are summarized in Table 60, including the mean relative percent difference (RPD), calculated by the following formula:

$$\mathrm{RPD} = \frac{(C - C_2) \bullet 100\%}{(C_1 - C_2)} \qquad (11)$$

where C_1 is the larger of the two observed values, and C_2 is the smaller of the two observed values. The 25th, 50th, and 75th percentile distributions of the observed RPDs are also summarized in Table 60.

17.1 Calibration Procedures

Calibration procedures for bromide, haloacetic acids, total organic carbon, total organic halide, and trihalomethanes analyzed during this study are summarized in the following sections.

17.1.1 Bromide (EPA Method 300.0 A)

Five calibration standards and a blank are prepared by adding accurately measured volumes of ICR stock standard to volumetric flask and diluting to volume with reagent water. The calibration standards range from 0.02 to 0.50 mg/L. Using a 200 µL injection volume, the peak area responses against the concentration are tabulated and a linear curve is established. The calibration correlation coefficient must be equal to or greater than 0.995. After establishing the calibration the fourth calibration standard is analyzed. The recovery must be within 90-110 percent of the true value. Next a second source standard at the mid-level is analyzed and the recovery must be within 90-110 percent of the true value prior to proceeding with ICR protocol.

17.1.2 Haloacetic Acids (Standard Method 6251 B)

An internal standard calibration procedure is used for this method. A calibration mix containing all target analytes is prepared and diluted to a minimum of five calibration concentration levels. The lowest calibration standard is at a concentration equal to the minimum reporting level. The

standards are extracted and injected using the same procedure that is used to process the actual samples. A working calibration curve is calculated for each analyte. If the relative standard deviation (RSD) of the response factors is less than 20 percent over the working range, linearity through the origin is assumed, and the average response factor may be used in place of the calibration curve. If the RSD for any analyte is greater than 20 percent, the calibration curve as a second order fit is used.

17.1.3 Total Organic Carbon (Standard Method 5310 C)

The instrument calibration accuracy is verified daily by analysis of a 4.00 mg/L as carbon standard solution of potassium hydrogen phthalate. Recovery of the standard must be between 99 and 101 percent. When outside of this range, the slope of a linear regression between standard amount and area count and the origin is adjusted and the standard is reanalyzed to ensure a recovery between 99 and 101 percent. Calibration check standards and samples are then analyzed as described in the *DBP/ICR Analytical Methods Manual*.

17.1.4 Total Organic Halide (Standard Method 5320 B)

An instrument calibration verification is performed yearly. The 2,4,6-trichlorophenol standard is injected directly onto the nitrate-washed method blank. Concentrations of 0.5, 1, 2.5, 5, 10, and 20 µg as Cl^- are included in the curve. A first order curve with correlation coefficient greater than 0.99 must be obtained, and is only used to verify instrument performance.

At the beginning of each daily run, and after cell cleaning during the day, three NaCl injections of 5 µg as Cl^- are made directly into the titration cell. This serves as a cell performance check. Recovery of the NaCl standard must be within 3 percent of the historic mean. Typically, recovery is 95 to 105 percent.

17.1.5 Trihalomethanes (EPA Method 551.1)

An initial calibration curve is extracted and analyzed for each set of samples to be analyzed for trihalomethanes. The concentrations of each of the levels of aqueous calibration standards are given in Table 61.

Level 1 represents concentrations near the MDL for each analyte. The concentrations of the remaining levels define the working range of the detector. Levels 4 and 5 are specified by the ICR Methods Manual to be used as continuing calibration checks.

Each analysis run is started with a methyl tert-butyl ether (MtBE) solvent blank. This is a check on the extraction solvent as well as on the instrument system. If this run is acceptable, the extracts of the six levels of the calibration curve are analyzed (2-µL injection volume). The Chemstation Chromatography Software System is used to generate a calibration curve by plotting the areas against the concentrations of the six calibration extracts. The curve is defined as first order; correlation coefficients must be greater than 0.99.

Analyte	Count	Mean RPD	Percentiles 25th	50th	75th
TOC	24	2.6	1.1	2.2	3.4
UV-254	24	3.7	0.6	1.7	3.4
pH	22	0.6	0.3	0.6	0.9
Temperature	22	0.5	0.0	0.2	0.5
SDS-TOX	24	6.1	1.6	5.0	7.9
SDS-THM4	24	6.7	1.8	4.1	6.2
SDS-HAA5	22	18.5	3.3	6.8	16.1
SDS-HAA6	23	12.0	2.8	6.6	13.0
SDS-HAA9	22	9.5	2.2	5.8	13.6
SDS-chlorine residual	24	2.4	0.7	1.4	3.3
THM Species					
SDS-$CHCl_3$	24	14.7	2.6	6.3	9.6
SDS-BDCM	22	5.5	2.3	4.2	6.5
SDS-DBCM	23	5.5	1.0	3.2	6.3
SDS-$CHBr_3$	0	NA	NA	NA	NA
HAA Species					
SDS-MCAA	2	200.0	NA	NA	NA
SDS-DCAA	22	12.0	1.8	2.8	4.6
SDS-TCAA	19	14.3	1.8	3.5	6.6
SDS-MBAA	1	200.0	NA	NA	NA
SDS-DBAA	12	83.9	0.0	3.4	200.0
SDS-BCAA	23	14.0	1.1	3.5	8.9
SDS-TBAA	0	NA	NA	NA	NA
SDS-CDBAA	8	53.9	4.3	6.6	57.1
SDS-DCBAA	21	5.2	1.5	4.9	5.3

RPD: relative percent difference
NA: not applicable

Table 60 Summary of field duplicate precision for both EBCTs and all sessions

Level	Concentration (µg/L)
1	0.5
2	1.0
3	5.0
4	20.
5	40.
6	80.

Table 61 Trihalomethane aqueous calibration standard concentrations (EPA Method 551.1)

18 *References*

18 References

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Appendix: Summary of Treatment Study Data

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #1

Client: Akron Public Utilities Bureau **Study#:** 33

													SDS Chlorination Conditions*								
No.	Sample ID	Client Sample ID	Start Date/Time	End Date/Time	Stop T (days)	Run L (days)	F-S L (days)	TOC (mg/L)	UV254 (1/cm)	Temp (ºC)	pH	Dose (mg/L)	Res. (mg/L)	Dem (mg/L)	Temp (ºC)	pH	Time hrs	Alk. (mg/L)	Hard-Tot (mg/L as CaCO3)	Hard-CA	Turb. (ntu)
Effluent C		**EBCT:** 10 min	**Carbon Type:** Bituminous		**Influent pH:**		**Scaling Factor:** 12.6														
1	9706-129	33.10.EFF-1	6/22/97 14:10	6/22/97 19:36		0.16	2	0.16	0.001	23.2	6.5	2.83	1.52	1.31	13.0	7.27	48.2				
2	9706-168	33.10.Eff.11d	6/24/97 22:54	6/25/97 4:15		2.52	32	0.35	0.003	22.6	7.3	2.97	1.57	1.40	13.0	7.29	48.0				
3	9706-176	33.10.Eff.14	6/25/97 15:36	6/25/97 20:58	0.00	3.22	40	0.49	0.004	23.2	7.2	2.86	1.37	1.49	13.0	7.17	48.0				
3d	9706-177	33.10.Eff.14d	6/25/97 15:36	6/25/97 20:58	0.00	3.22	40	0.50	0.004	22.6	7.1	2.86	1.40	1.46	13.0	7.20	48.1				
4	9706-178	33.10.Eff.15	6/25/97 21:08	6/26/97 2:34	0.00	3.45	43	0.65	0.006	23.2	7.3	3.17	1.61	1.56	13.0	7.25	48.0				
5	9706-179	33.10.Eff.16	6/26/97 2:44	6/26/97 8:08	0.00	3.68	46	0.81	0.009	22.6	7.4	3.27	1.65	1.62	13.0	7.31	48.1				
6	9706-189	33.10.Eff.20	6/27/97 0:47	6/27/97 6:06	0.00	4.60	58	1.02	0.012	23.2	7.3	3.08	1.35	1.73	13.0	7.17	48.1				
7	9706-193	33.10.Eff.21	6/27/97 5:42	6/27/97 11:44	0.00	4.82	61	1.14	0.014	22.8	7.2	3.14	1.36	1.78	13.0	7.24	48.0				
7d	9706-194	33.10.Eff.21d	6/27/97 5:42	6/27/97 11:44	0.00	4.82	61	1.13	0.014	23.3	7.1	3.14	1.35	1.79	13.0	7.21	48.0				
8	9706-197	33.10.Eff-22	6/27/97 11:54	6/27/97 17:03	0.00	5.06	64	1.34	0.017	23.2	7.2	3.23	1.39	1.84	13.0	7.23	48.0				
9	9706-199	33.10.Eff-23	6/27/97 17:13	6/27/97 22:27	0.00	5.28	66	1.47	0.020	23.1	7.1	3.25	1.24	2.01	12.9	7.23	48.0				
10	9706-203	33.10.Eff-24	6/28/97 4:05	6/28/97 9:26	0.00	5.74	72	1.56	0.022	22.5	7.4	3.29	1.35	1.94	12.9	7.26	48.2				
11	9706-238	33.10.Eff.29	6/30/97 5:06	6/30/97 10:20	0.00	7.78	98	1.79	0.026	23.1	7.2	3.40	1.15	2.25	12.9	7.25	48.2				
11d	9706-239	33.10.Eff.29d	6/30/97 5:06	6/30/97 10:26	0.00	7.78	98	1.71	0.026	23.0	7.0	3.40	1.20	2.20	12.9	7.22	48.3				
12	9707-23	33.10.Eff-32	7/2/97 6:27	7/2/97 13:31	0.03	9.84	124	1.92	0.031	22.7	7.2	3.45	1.17	2.28	13.0	7.27	47.9				
13	9707-31	33.10.Eff.33	7/3/97 13:00	7/3/97 15:45	0.03	11.03	139	2.01		23.2	7.2										
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous		**Influent pH:**		**Scaling Factor:** 12.6														
1	9706-130	33.20.EFF-1	6/22/97 14:05	6/22/97 20:12		0.17	2	0.15	0.001	24.0	6.7	2.83	1.53	1.30	13.0	7.24	48.1				
2	9706-210	33.20.Eff.14	6/29/97 6:48	6/29/97 12:17	0.06	6.80	85	0.32	0.002	22.3	6.7	2.74	1.27	1.47	13.0	7.29	48.0				
3	9707-2	33.20.Eff.17	6/30/97 20:10	7/1/97 1:36	0.06	8.36	105	0.53	0.003	22.1	7.1	2.80	1.23	1.57	12.9	7.28	47.9				
3d	9707-3	33.20.Eff.17d	6/30/97 20:10	7/1/97 1:36	0.06	8.36	105	0.46	0.003	22.2	7.1	2.80	1.29	1.51	12.9	7.29	48.0				
4	9707-19	33.20.Eff.20	7/1/97 22:56	7/2/97 4:12	0.06	9.47	119	0.72	0.006	21.7	6.7	2.91	1.34	1.57	13.0	7.31	48.0				
5	9707-24	33.20.Eff.22	7/2/97 6:27	7/2/97 13:31	0.06	9.82	123	0.83	0.007	21.8	6.8	2.96	1.28	1.68	13.0	7.31	48.0				
6	9707-25	33.20.Eff.23	7/2/97 20:34	7/3/97 1:43	0.06	10.37	130	0.95	0.009	21.9	6.8	3.08	1.29	1.79	13.1	7.31	48.0				
7	9707-38	33.20.Eff.29	7/4/97 4:50	7/4/97 10:12	0.06	11.72	147	1.16	0.012	21.6	6.7	3.16	1.31	1.85	13.1	7.32	48.1				
7d	9707-39	33.20.Eff.29d	7/4/97 4:50	7/4/97 10:12	0.06	11.72	147	1.12	0.011	21.6	6.7	3.16	1.30	1.86	13.1	7.30	48.1				
8	9707-48	33.20.Eff.32	7/5/97 2:28	7/5/97 7:45	0.06	12.62	159	1.27	0.015	21.2	6.9	3.24	1.30	1.94	13.1	7.29	48.1				
9	9707-100	33.20.Eff.37	7/7/97 8:28	7/7/97 13:45	0.06	14.87	187	1.44	0.018	22.8	6.9	3.34	1.26	2.08	13.1	7.30	47.8				
10	9707-109	33.20.Eff.40	7/9/97 9:06	7/9/97 14:17	0.06	16.89	212	1.65	0.022	22.6	6.9	3.43	1.27	2.16	13.1	7.32	48.2				
10d	9707-110	33.20.Eff.40d	7/9/97 9:06	7/9/97 14:17	0.06	16.89	212	1.61	0.022	22.7	7.0	3.43	1.35	2.08	13.1	7.31	48.3				
11	9707-126	33.20.Eff.41	7/11/97 7:35	7/11/97 10:12	0.06	18.77	236	1.75	0.026	22.0	7.0	3.51	1.32	2.19	13.1	7.32	48.3				
12	9707-139	33.20.Eff.42	7/13/97 9:01	7/13/97 11:42	0.07	20.82	262	1.85	0.027	21.6	7.0	3.58	1.46	2.12	13.1	7.34	48.1				

ND: Non-detect. Blank Results: Either analysis was not performed or result did not meet ICR QC requirements.

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #1

Client: Akron Public Utilities Bureau **Study#:** 33

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L)					Haloacetic Acids (µg/L)										NH3-N	Brom
						CF	BDCM	DBCM	BF	TTHM	MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9	(mg/L)	(µg/L)
Effluent C		**EBCT:** 10 min	**Carbon Type:** Bituminous			**Influent pH:**			**Scaling Factor:** 12.6														
1	9706-129	33.10.EFF-1	2	0.16	3	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
2	9706-168	33.10.Eff.11d	32	0.35	10	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	1	ND	ND	**ND**	**1**		
3	9706-176	33.10.Eff.14	40	0.49	21	1.4	ND	1.1	ND	**2.4**	ND	2	2	ND	1	1	1	ND	ND	**6**	**7**		
3d	9706-177	33.10.Eff.14d	40	0.50	21	1.5	ND	1.2	ND	**2.7**	ND	2	2	ND	ND	1	1	ND	ND	**5**	**6**		
4	9706-178	33.10.Eff.15	43	0.65	34	2.5	0.7	2.2	ND	**5.4**	ND	3	2	ND	1	2	3	ND	ND	**8**	**11**		
5	9706-179	33.10.Eff.16	46	0.81	47	4.2	1.4	3.6	ND	**9.2**	ND	4	4	1	1	2	3	ND	ND	**11**	**14**		
6	9706-189	33.10.Eff.20	58	1.02	65	5.4	1.7	5.1	ND	**12.2**	ND	5	6	ND	1	3	4	2	ND	**15**	**21**		
7	9706-193	33.10.Eff.21	61	1.14	69	7.4	2.0	6.0	ND	**15.4**	ND	5	8	ND	1	3	5	ND	ND	**18**	**23**		
7d	9706-194	33.10.Eff.21d	61	1.13	75	6.9	1.9	6.0	ND	**14.7**	2	6	8	ND	1	3	5	ND	ND	**20**	**24**		
8	9706-197	33.10.Eff-22	64	1.34	91	9.8	1.9	7.0	ND	**18.7**	ND	6	9	1	1	3	5	2	ND	**21**	**28**		
9	9706-199	33.10.Eff-23	66	1.47	104	10.4	1.7	7.2	ND	**19.2**	ND	8	13	ND	ND	4	6	ND	ND	**24**	**31**		
10	9706-203	33.10.Eff-24	72	1.56	121	12.6	1.6	7.4	ND	**21.6**	ND	8	14	ND	ND	4	6	ND	ND	**26**	**32**		
11	9706-238	33.10.Eff.29	98	1.79	135	18.5	2.3	8.4	ND	**29.2**													
11d	9706-239	33.10.Eff.29d	98	1.71	145	22.4	1.7	12.0	ND	**36.1**	ND	11	17	ND	ND	4	7	ND	ND	**32**	**38**		
12	9707-23	33.10.Eff-32	124	1.92	167	19.8	ND	8.0	ND	**27.8**	3	13	21	ND	ND	4	7	ND	ND	**41**	**48**		
13	9707-31	33.10.Eff.33	139	2.01																			
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous			**Influent pH:**			**Scaling Factor:** 12.6														
1	9706-130	33.20.EFF-1	2	0.15	1	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
2	9706-210	33.20.Eff.14	85	0.32	9	ND	ND	ND	ND	**ND**	ND	1	1	ND	ND	1	ND	ND	ND	**3**	**3**		
3	9707-2	33.20.Eff.17	105	0.53	14	1.2	ND	ND	ND	**1.2**	ND	2	ND	ND	ND	1	2	ND	ND	**3**	**5**		
3d	9707-3	33.20.Eff.17d	105	0.46	15	1.1	ND	ND	ND	**1.1**	ND	2	ND	ND	ND	ND	2	ND	ND	**2**	**4**		
4	9707-19	33.20.Eff.20	119	0.72	31	2.6	ND	2.2	ND	**4.8**	ND	3	2	ND	ND	2	2	ND	ND	**7**	**9**		
5	9707-24	33.20.Eff.22	123	0.83	38	2.5	1.2	2.7	ND	**6.4**	ND	3	4	ND	ND	2	3	ND	ND	**10**	**13**		
6	9707-25	33.20.Eff.23	130	0.95	52	5.6	2.2	5.0	ND	**12.9**	ND	4	5	ND	ND	2	3	ND	ND	**11**	**14**		
7	9707-38	33.20.Eff.29	147	1.16	66	8.6	2.5	6.5	ND	**17.5**	ND	5	8	ND	ND	3	4	ND	ND	**15**	**20**		
7d	9707-39	33.20.Eff.29d	147	1.12	66	7.9	2.5	6.1	ND	**16.5**	ND	5	8	ND	ND	3	4	ND	ND	**16**	**20**		
8	9707-48	33.20.Eff.32	159	1.27	78	11.0	2.7	7.7	ND	**21.4**	ND	6	10	ND	ND	3	5	ND	ND	**18**	**23**		
9	9707-100	33.20.Eff.37	187	1.44	98	15.8	2.6	9.3	ND	**27.7**	ND	7	10	ND	1	3	6	ND	ND	**21**	**27**		
10	9707-109	33.20.Eff.40	212	1.65	120	20.1	2.3	10.0	ND	**32.4**	4	9	12	ND	ND	4	6	ND	ND	**28**	**34**		
10d	9707-110	33.20.Eff.40d	212	1.61	127	19.1	2.3	10.0	ND	**31.5**	ND	8	12	ND	ND	3	6	ND	ND	**24**	**29**		
11	9707-126	33.20.Eff.41	236	1.75	133	23.5	2.2	10.4	ND	**36.2**	3	10	15	ND	ND	4	7	ND	ND	**31**	**38**		
12	9707-139	33.20.Eff.42	262	1.85	128	22.7	1.9	10.3	ND	**35.0**	ND	11	16	ND	ND	4	7	ND	ND	**31**	**38**		

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #1

Client: Akron Public Utilities Bureau **Study#:** 33

No.	Sample ID	Client Sample ID	Start Date/Time	End Date/Time	Stop T (days)	Run L (days)	F-S L (days)	TOC (mg/L)	UV254 (1/cm)	Temp (ºC)	pH	SDS Chlorination Conditions* Dose (mg/L)	Res. (mg/L)	Dem (mg/L)	Temp (ºC)	pH	Time hrs	Alk. (mg/L)	Hard-Tot (mg/L as CaCO3)	Hard-CA	Turb. (ntu)
13	9707-143	33.20.Eff.45	7/14/97 11:45	7/14/97 11:45	0.08	21.87	275	2.04													
Influent A		**EBCT:**	**Carbon Type:**		**Influent pH:**		**Scaling Factor:**	12.6													
1	9706-127	33.10.20.INF.A-1	6/22/97 18:15	6/22/97 18:15		0.22	3											22	90	66	
2	9706-236	33.10.20.Inf.A.2	6/30/97 10:45	6/30/97 10:45		7.91	99											21	92	74	
Influent B		**EBCT:**	**Carbon Type:**		**Influent pH:**		**Scaling Factor:**	12.6													
1	9706-128	33.10.20 INF.B-1	6/22/97 18:15	6/22/97 18:15		0.22	3	2.71	0.055	19.2	6.3	4.56	1.38	3.18	13.0	7.26	48.3				0.15
2	9706-237	33.10.20.Inf.B.2	6/30/97 11:00	6/30/97 11:00		7.92	100	2.62	0.056	15.8	6.3	4.49	1.30	3.19	12.9	7.28	48.3				0.20
3	9707-134	33.10.20.Inf.B-3	7/13/97 9:10	7/13/97 9:10		20.84	262	2.86	0.059	17.1	6.3	4.56	1.32	3.24	13.1	7.28	48.1				0.20
PreStudy		**EBCT:**	**Carbon Type:**		**Influent pH:**		**Scaling Factor:**														
1	9707-128	Sand Filter Effluent	7/11/97 10:45					2.74													
2	9706-113	Settled Water on	6/20/97 9:00					2.76													
3	9706-114	Settled Water on	6/20/97 9:00					2.78													
4	9706-115	Settled Water on	6/20/97 9:00					2.76													
5	9706-116	Settled Water Barrel	6/20/97 11:00																		0.40
6	9706-117	Settled Water Barrel	6/20/97 11:00																		0.40
7	9706-118	Settled Water Barrel	6/20/97 11:00																		0.40
8	9706-119	Filtered GAC Influent	6/20/97 11:00																		0.15
9	9706-120	Settled Water During	6/17/97 8:35					3.26													
10	9706-126	Settled Water on	6/21/97 8:00					3.38													
11	9707-127	Sand Filter Influent	7/11/97 10:45					2.81													

***Target SDS Chlorination Conditions**

Free Cl2 Residual: mg/L **pH:** **Temperature:** ºC **Holding time:** hrs

Study Comments

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #1

Client: Akron Public Utilities Bureau **Study#:** 33

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L)					Haloacetic Acids (µg/L)											NH3-N (mg/L)	Brom (µg/L)
						CF	BDCM	DBCM	BF	TTHM	MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9		
13	9707-143	33.20.Eff.45	275	2.04																			
Influent A		**EBCT:**	**Carbon Type:**			**Influent pH:**			**Scaling Factor:**	12.6													
1	9706-127	33.10.20.INF.A-1	3																			ND	31
2	9706-236	33.10.20.Inf.A.2	99																			ND	29
Influent B		**EBCT:**	**Carbon Type:**			**Influent pH:**			**Scaling Factor:**	12.6													
1	9706-128	33.10.20 INF.B-1	3	2.71	276	44.9	0.5	13.1	ND	**58.5**	3	19	30	ND	ND	4	6	ND	ND	**56**	**62**		
2	9706-237	33.10.20.Inf.B.2	100	2.62	277	42.4	ND	15.5	ND	**57.9**	4	23	34	ND	ND	4	7	ND	ND	**65**	**72**		
3	9707-134	33.10.20.Inf.B-3	262	2.86	268	47.2	0.8	12.3	ND	**60.3**	ND	22	33	ND	ND	5	6	ND	ND	**60**	**66**		
PreStudy		**EBCT:**	**Carbon Type:**			**Influent pH:**			**Scaling Factor:**														
1	9707-128	Sand Filter Effluent		2.74																			
2	9706-113	Settled Water on Arrival		2.76																			
3	9706-114	Settled Water on Arrival		2.78																			
4	9706-115	Settled Water on Arrival		2.76																			
5	9706-116	Settled Water Barrel #1																					
6	9706-117	Settled Water Barrel #3																					
7	9706-118	Settled Water Barrel #5																					
8	9706-119	Filtered GAC Influent																					
9	9706-120	Settled Water During		3.26																			
10	9706-126	Settled Water on Arrival		3.38																			
11	9707-127	Sand Filter Influent		2.81																			

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #2/#3

Client: Akron Public Utilities Bureau **Study#:** 86

													SDS Chlorination Conditions*								
No.	Sample ID	Client Sample ID	Start Date/Time	End Date/Time	Stop T (days)	Run L (days)	F-S L (days)	TOC (mg/L)	UV254 (1/cm)	Temp (ºC)	pH	Dose (mg/L)	Res. (mg/L)	Dem (mg/L)	Temp (ºC)	pH	Time hrs	Alk. (mg/L)	Hard-Tot (mg/L as CaCO3)	Hard-CA	Turb. (ntu)
Effluent C		**EBCT:** 10 min	**Carbon Type:** Bituminous		**Influent pH:**		**Scaling Factor:** 12.6														
1	9710-13	86.Bit.10.E-1	10/3/97 15:05	10/3/97 19:05		0.16	2	0.14	0.001	23.1	7.6	2.25	1.50	0.75	13.0	7.39	47.9				
2	9710-22	86.Bit.10.E-3	10/5/97 18:40	10/6/97 2:40		2.39	30	0.34	0.003	22.6	7.7	2.15	1.32	0.83	13.1	7.34	48.5				
3	9710-23	86.Bit.10.E-4	10/6/97 2:50	10/6/97 10:19		2.72	34	0.45	0.004	22.9	7.7	2.38	1.51	0.87	13.0	7.39	48.1				
4	9710-28	86.Bit.10.E-5	10/6/97 10:29	10/6/97 18:07		3.04	38	0.58	0.004	23.5	7.7	2.45	1.51	0.94	13.0	7.35	48.1				
4d	9710-29	86.Bit.10.E-5d	10/6/97 10:29	10/6/97 18:07		3.04	38	0.60	0.004	23.6	7.6	2.45	1.49	0.96	13.0	7.36	48.2				
5	9710-35	86.Bit.10.E-6	10/6/97 18:17	10/7/97 1:43		3.36	42	0.67	0.006	22.8	7.7	2.49	1.46	1.03	13.0	7.32	48.2				
6	9710-36	86.Bit.10.E-7	10/7/97 1:53	10/7/97 9:31		3.69	46	0.86	0.007	22.6	7.6	2.59	1.51	1.08	13.0	7.33	48.2				
7	9710-47	86.Bit.10.E-9	10/7/97 17:25	10/8/97 1:04		4.33	54	1.10	0.011	22.3	7.7	2.53	1.35	1.18	13.1	7.35	48.5				
8	9710-49	86.Bit.10.E-10	10/8/97 1:14	10/8/97 8:51		4.66	59	1.31	0.014	22.4	7.8	2.63	1.30	1.33	13.1	7.33	48.5				
8d	9710-50	86.Bit.10.E-10d	10/8/97 1:14	10/8/97 8:51		4.66	59	1.27	0.015	22.4	7.7	2.63	1.30	1.33	13.1	7.34	48.5				
9	9710-68	86.Bit.10.E-12	10/8/97 16:43	10/8/97 20:37		5.23	66	1.38	0.017	23.3	7.6	2.73	1.33	1.40	13.0	7.33	48.1				
10	9710-89	86.Bit.10.E-15	10/9/97 12:09	10/9/97 20:11		6.12	77	1.54	0.021	21.3	7.4	2.82	1.34	1.48	13.0	7.32	48.1				
10d	9710-90	86.Bit.10.E-15d	10/9/97 12:09	10/9/97 20:11		6.12	77	1.56	0.021	20.9	7.3	2.82	1.37	1.45	13.0	7.31	48.1				
11	9710-121	86.Bit.10.E-17	10/11/97 3:43	10/11/97 7:39		7.68	97	1.75	0.025	20.7	7.5	2.93	1.27	1.66	12.9	7.32	47.7				
12	9710-141	86.Bit.10.E-19	10/12/97 20:29	10/13/97 3:52		9.46	119	1.95	0.030	21.5	7.5	3.04	1.31	1.73	12.9	7.31	48.0				
13	9710-167	86.Bit.10.E-20	10/14/97 2:57	10/14/97 9:03		10.70	134	1.98		21.0	7.6										
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous		**Influent pH:**		**Scaling Factor:** 12.6														
1	9710-12	86.Bit.20.E-1	10/3/97 13:50	10/3/97 17:37		0.17	2	0.14	0.001	22.5	7.6	2.25	1.57	0.68	13.0	7.35	48.0				
2	9710-88	86.Bit.20.E-9	10/9/97 11:00	10/9/97 18:35		6.13	77	0.28	0.002	22.6	7.3	2.15	1.32	0.83	12.9	7.31	47.9				
3	9710-112	86.Bit.20.E-12	10/10/97 10:39	10/10/97 18:18		7.11	89	0.43	0.003	22.7	7.4	2.23	1.33	0.90	12.9	7.30	47.9				
4	9710-125	86.Bit.20.E-14	10/11/97 6:30	10/11/97 14:07		7.94	100	0.65	0.004	21.8	7.4	2.35	1.33	1.02	12.9	7.33	47.9				
4d	9710-126	86.Bit.20.E-14d	10/11/97 6:30	10/11/97 14:07		7.94	100	0.66	0.004	22.0	7.4	2.35	1.37	0.98	12.9	7.34	48.0				
5	9710-134	86.Bit.20.E-15	10/11/97 21:50	10/12/97 5:19		8.58	108	0.82	0.006	21.8	7.3	2.44	1.43	1.01	12.9	7.32	48.0				
6	9710-146	86.Bit.20.E-17	10/12/97 19:18	10/13/97 2:48		9.47	119	0.99	0.009	22.0	7.5	2.53	1.45	1.08	13.0	7.33	48.3				
7	9710-156	86.Bit.20.E-18	10/13/97 2:58	10/13/97 10:20		9.79	123	1.11	0.011	22.2	7.7	2.58	1.37	1.21	13.0	7.33	48.3				
7d	9710-157	86.Bit.20.E-18d	10/13/97 2:58	10/13/97 10:20		9.79	123	1.10	0.010	22.3	7.6	2.58	1.39	1.19	13.0	7.33	48.3				
8	9710-194	86.Bit.20.E-21	10/15/97 1:06	10/15/97 8:46		11.72	147	1.25	0.014	19.4	7.4	2.68	1.40	1.28	13.0	7.33	47.0				
9	9710-201	86.Bit.20.E-22	10/16/97 9:52	10/16/97 14:21		13.01	164	1.39	0.016	21.2	7.5	2.76	1.26	1.50	13.0	7.35	48.8				
10	9710-220	86.Bit.20.E-24	10/17/97 18:56	10/18/97 2:28	0.01	14.45	182	1.49	0.019	20.5	7.4	2.83	1.36	1.47	13.0	7.33	48.3				
10d	9710-221	86.Bit.20.E-24d	10/17/97 18:56	10/18/97 2:28	0.01	14.45	182	1.55	0.019	20.5	7.3	2.83	1.35	1.48	13.0	7.33	48.4				
11	9710-230	86.Bit.20.E-27	10/19/97 22:05	10/20/97 5:35	0.01	16.58	208	1.68	0.022	20.7	7.5	2.92	1.24	1.68	13.0	7.33	48.6				
12	9710-274	86.Bit.20.E-28	10/22/97 18:11	10/23/97 1:35	0.01	19.42	244	1.89	0.027	21.1	7.3	3.04	1.32	1.72	13.1	7.30	48.1				

ND: Non-detect. Blank Results: Either analysis was not performed or result did not meet ICR QC requirements.

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #2/#3

Client: Akron Public Utilities Bureau **Study#:** 86

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L)					Haloacetic Acids (µg/L)										NH3-N	Brom
						CF	BDCM	DBCM	BF	TTHM	MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9	(mg/L)	(µg/L)
Effluent C		**EBCT:** 10 min	**Carbon Type:** Bituminous			**Influent pH:**			**Scaling Factor:** 12.6														
1	9710-13	86.Bit.10.E-1	2	0.14	4	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	ND	ND		**ND**			
2	9710-22	86.Bit.10.E-3	30	0.34	3	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	1	ND		**ND**			
3	9710-23	86.Bit.10.E-4	34	0.45	9	1.0	1.1	1.3	ND	**3.4**	ND	1	ND	ND	ND	ND	2	ND		**1**			
4	9710-28	86.Bit.10.E-5	38	0.58	19	1.7	1.8	2.2	ND	**5.7**	ND	2	1	ND	ND	2	2	ND		**4**			
4d	9710-29	86.Bit.10.E-5d	38	0.60	19	1.5	1.8	2.2	ND	**5.5**	ND	2	ND	ND	ND	1	2	ND		**3**			
5	9710-35	86.Bit.10.E-6	42	0.67	24	2.3	2.3	3.0	ND	**7.6**	ND	3	1	ND	ND	2	3	ND		**6**			
6	9710-36	86.Bit.10.E-7	46	0.86	35	3.5	3.1	4.2	ND	**10.7**	ND	4	2	ND	1	3	4	2		**9**			
7	9710-47	86.Bit.10.E-9	54	1.10	56	5.9	4.1	6.5	ND	**16.5**	ND	4	3	ND	ND	3	5	2		**11**			
8	9710-49	86.Bit.10.E-10	59	1.31	66	8.4	4.4	7.9	ND	**20.7**	ND	5	5	ND	ND	4	6	2		**13**			
8d	9710-50	86.Bit.10.E-10d	59	1.27	66	7.9	4.2	7.4	ND	**19.5**	ND	5	5	ND	1	4	6	2		**14**			
9	9710-68	86.Bit.10.E-12	66	1.38	75	10.8	4.7	9.6	ND	**25.2**	ND	6	6	ND	1	4	7	2		**16**			
10	9710-89	86.Bit.10.E-15	77	1.54	93	14.3	5.1	11.0	ND	**30.4**	ND	7	7	ND	ND	4	7	3		**18**			
10d	9710-90	86.Bit.10.E-15d	77	1.56	91	16.5	5.8	12.7	ND	**35.0**	ND	7	8	ND	1	4	8	2		**20**			
11	9710-121	86.Bit.10.E-17	97	1.75	117	17.9	4.0	10.9	ND	**32.8**	ND	8	10	ND	1	4	8	2		**23**			
12	9710-141	86.Bit.10.E-19	119	1.95	140	21.8	3.8	12.1	ND	**37.6**	ND	9	12	ND	1	5	8	2		**27**			
13	9710-167	86.Bit.10.E-20	134	1.98																			
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous			**Influent pH:**			**Scaling Factor:** 12.6														
1	9710-12	86.Bit.20.E-1	2	0.14	4	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	ND	ND		**ND**			
2	9710-88	86.Bit.20.E-9	77	0.28	4	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	1	ND		**ND**			
3	9710-112	86.Bit.20.E-12	89	0.43	14	ND	ND	1.0	ND	**1.0**	ND	2	ND	ND	ND	1	2	ND		**3**			
4	9710-125	86.Bit.20.E-14	100	0.65	23	1.7	1.8	2.0	ND	**5.5**	ND	3	1	ND	1	2	2	ND		**7**			
4d	9710-126	86.Bit.20.E-14d	100	0.66	21	1.5	1.9	2.2	ND	**5.6**	ND	3	1	ND	1	2	2	ND		**7**			
5	9710-134	86.Bit.20.E-15	108	0.82	32	2.7	2.4	3.2	ND	**8.3**	ND	3	2	ND	1	2	3	ND		**8**			
6	9710-146	86.Bit.20.E-17	119	0.99	44	4.0	3.3	4.7	ND	**12.0**	ND	3	3	1	1	3				**12**			
7	9710-156	86.Bit.20.E-18	123	1.11	46	5.3	3.7	5.6	ND	**14.6**	ND	4	4	ND	1	3				**12**			
7d	9710-157	86.Bit.20.E-18d	123	1.10	46	5.2	3.7	5.6	ND	**14.5**	ND	4	4	1	2	3				**13**			
8	9710-194	86.Bit.20.E-21	147	1.25	65	8.2	4.3	7.6	ND	**20.1**	ND	5	5	1	2	4				**16**			
9	9710-201	86.Bit.20.E-22	164	1.39	78	11.4	4.6	9.4	ND	**25.4**	ND	5	6	ND	1	4	5	3		**15**			
10	9710-220	86.Bit.20.E-24	182	1.49	88	14.4	4.9	10.6	ND	**29.9**	ND	6	7	ND	1	4	6	3		**18**			
10d	9710-221	86.Bit.20.E-24d	182	1.55	91	14.2	4.7	10.6	ND	**29.5**	ND	6	7	ND	1	4	6	3		**17**			
11	9710-230	86.Bit.20.E-27	208	1.68	105	17.6	4.5	11.2	ND	**33.3**	ND	7	9	ND	1	4	7	3		**21**			
12	9710-274	86.Bit.20.E-28	244	1.89	116	20.5	4.3	12.0	ND	**36.7**	ND	8	9	ND	1	4	6	2	ND	**21**	**30**		

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #2/#3

Client: Akron Public Utilities Bureau **Study#:** 86

													SDS Chlorination Conditions*								
No.	Sample ID	Client Sample ID	Start Date/Time	End Date/Time	Stop T (days)	Run L (days)	F-S L (days)	TOC (mg/L)	UV254 (1/cm)	Temp (ºC)	pH	Dose (mg/L)	Res. (mg/L)	Dem (mg/L)	Temp (ºC)	pH	Time hrs	Alk. (mg/L)	Hard-Tot (mg/L as CaCO3)	Hard-CA	Turb. (ntu)
13	9710-295	86.Bit.20.E-29	10/24/97 0:27	10/24/97 7:47	0.01	20.68	260	1.93													
Effluent C		**EBCT:** 10 min	**Carbon Type:** Lignite		**Influent pH:**		**Scaling Factor:** 12.6														
1	9710-41	86.Lig.10.E-1	10/7/97 13:00	10/7/97 16:24		0.15	2	0.16	0.001	23.4	7.5	2.05	1.31	0.74	13.1	7.34	48.5				
2	9710-65	86.Lig.10.E-4	10/8/97 21:44	10/9/97 1:06		1.52	19	0.30	0.002	22.4	7.6	2.15	1.36	0.79	13.0	7.34	47.9				
3	9710-66	86.Lig.10.E-5	10/9/97 1:16	10/9/97 7:53		1.73	22	0.44	0.004	22.3	7.5	2.22	1.31	0.91	13.0	7.33	47.9				
3d	9710-67	86.Lig.10.E-5d	10/9/97 4:40	10/9/97 7:53		1.80	23	0.42	0.005	22.3	7.4	2.22	1.32	0.90	13.0	7.33	48.0				
4	9710-75	86.Lig.10.E-6	10/9/97 8:03	10/9/97 12:57		1.98	25	0.60	0.005	23.1	7.5	2.31	1.27	1.04	13.0	7.32	48.0				
5	9710-95	86.Lig.10.E-8	10/9/97 16:34	10/9/97 23:01		2.37	30	0.79	0.008	22.7	7.7	2.41	1.31	1.10	12.9	7.31	47.7				
6	9710-96	86.Lig.10.E-9	10/9/97 23:11	10/10/97 2:32		2.58	32	0.92	0.009	22.5	7.5	2.49	1.33	1.16	12.9	7.33	47.7				
7	9710-97	86.Lig.10.E-10	10/10/97 2:42	10/10/97 9:17		2.79	35	1.06	0.011	22.6	7.5	2.56	1.34	1.22	12.9	7.32	47.8				
7d	9710-98	86.Lig.10.E-10d	10/10/97 2:42	10/10/97 9:17		2.79	35	1.02	0.011	22.6	7.4	2.56	1.32	1.24	12.9	7.32	47.8				
8	9710-116	86.Lig.10.E-14	10/10/97 1:18	10/11/97 4:38	0.00	3.16	40	1.27	0.015	22.1	7.6	2.67	1.14	1.53	12.9	7.32	47.9				
9	9710-130	86.Lig.10.E-16	10/11/97 15:26	10/11/97 18:37	0.00	4.25	53	1.46	0.018	23.0	7.6	2.78	1.35	1.43	12.9	7.33	48.0				
10	9710-135	86.Lig.10.E-18	10/12/97 4:48	10/12/97 11:26	0.00	4.88	61	1.62	0.021	21.8	7.6	2.86	1.38	1.48	12.9	7.31	48.0				
11	9710-144	86.Lig.10.E-20	10/13/97 0:57	10/13/97 7:26	0.00	5.71	72	1.75	0.025	22.5	7.6	2.93	1.34	1.59	12.9	7.33	47.9				
11d	9710-145	86.Lig.10.E-20d	10/13/97 0:57	10/13/97 7:26	0.00	5.71	72	1.75	0.025	22.5	7.5	2.93	1.33	1.60	12.9	7.34	48.0				
12	9710-189	86.Lig.10.E-21	10/14/97 7:08	10/14/97 13:34	0.00	6.97	88	1.90	0.028	22.0	7.6	3.04	1.26	1.78	13.0	7.32	47.0				
13	9710-200	86.Lig.10.E-25	10/16/97 7:23	10/16/97 10:47	0.00	8.92	112	2.09													
Effluent C		**EBCT:** 20 min	**Carbon Type:** Lignite		**Influent pH:**		**Scaling Factor:** 12.6														
1	9710-11	86.Lig.20.E-1	10/3/97 13:50	10/3/97 17:39		0.17	2	0.14	0.001	22.9	7.5	2.25	1.56	0.69	13.0	7.40	47.9				
2	9710-27	86.Lig.20.E-2	10/6/97 11:20	10/6/97 17:26		3.11	39	0.36	0.002	22.7	7.4	2.33	1.46	0.87	13.0	7.31	48.2				
3	9710-33	86.Lig.20.E-4	10/7/97 0:09	10/7/97 6:44		3.65	46	0.47	0.003	21.8	7.5	2.40	1.48	0.92	13.0	7.34	48.2				
3d	9710-34	86.Lig.20.E-4d	10/7/97 0:09	10/7/97 6:44		3.65	46	0.49	0.003	21.8	7.5	2.40	1.41	0.99	13.0	7.33	48.3				
4	9710-40	86.Lig.20.E-5	10/7/97 6:54	10/7/97 13:15		3.93	49	0.61	0.004	22.4	7.5	2.29	1.36	0.93	13.1	7.34	48.4				
5	9710-45	86.Lig.20.E-7	10/7/97 23:17	10/8/97 5:41		4.61	58	0.79	0.007	21.8	7.7	2.38	1.29	1.09	13.1	7.32	48.4				
6	9710-57	86.Lig.20.E-9	10/8/97 12:20	10/8/97 18:40		5.16	65	0.90	0.009	22.7	7.5	2.47	1.33	1.14	13.0	7.31	48.0				
7	9710-84	86.Lig.20.E-12	10/9/97 8:51	10/9/97 15:22		6.01	76	1.04	0.010			2.55	1.32	1.23	13.0	7.32	48.0				
7d	9710-85	86.Lig.20.E-12d	10/9/97 8:51	10/9/97 15:22		6.01	76	1.04	0.010			2.55	1.31	1.24	13.0	7.31	48.0				
8	9710-113	86.Lig.20.E-14	10/10/97 11:13	10/10/97 17:36	0.00	7.11	89	1.25	0.014	22.5	7.5	2.66	1.29	1.37	12.9	7.30	48.0				
9	9710-132	86.Lig.20.E-17	10/11/97 13:47	10/11/97 19:59	0.00	8.21	103	1.42	0.017	22.1	7.4	2.75	1.32	1.43	12.9	7.34	48.0				
10	9710-163	86.Lig.20.E-23	10/13/97 12:25	10/13/97 18:49	0.00	10.16	128	1.55	0.021	22.3	7.4	2.83	1.38	1.45	13.0	7.31	48.5				
10d	9710-164	86.Lig.20.E-23d	10/13/97 12:25	10/13/97 18:49	0.00	10.16	128	1.58	0.021	22.3	7.5	2.83	1.37	1.46	13.0	7.33	48.5				

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #2/#3

Client: Akron Public Utilities Bureau **Study#:** 86

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L)					Haloacetic Acids (µg/L)										NH3-N	Brom
						CF	BDCM	DBCM	BF	TTHM	MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9	(mg/L)	(µg/L)
13	9710-295	86.Bit.20.E-29	260	1.93																		
Effluent C		**EBCT:** 10 min	**Carbon Type:** Lignite			**Influent pH:**			**Scaling Factor:** 12.6													
1	9710-41	86.Lig.10.E-1	2	0.16	2	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	1	ND		**ND**		
2	9710-65	86.Lig.10.E-4	19	0.30	12	ND	ND	ND	1.2	**1.2**	ND	ND	ND	ND	ND	ND	1	ND		**ND**		
3	9710-66	86.Lig.10.E-5	22	0.44	20	ND	1.3	1.4	ND	**2.7**	ND	ND	ND	ND	ND	1	2	ND		**1**		
3d	9710-67	86.Lig.10.E-5d	23	0.42	17	1.1	1.5	1.6	ND	**4.1**	ND	ND	ND	ND	ND	1	2	ND		**1**		
4	9710-75	86.Lig.10.E-6	25	0.60	24	1.8	2.3	2.7	ND	**6.7**	ND	2	1	ND	ND	2	3	ND		**4**		
5	9710-95	86.Lig.10.E-8	30	0.79	33	3.1	2.9	3.9	ND	**9.9**	ND	3	2	ND	1	2	3	2		**8**		
6	9710-96	86.Lig.10.E-9	32	0.92	44	3.9	3.4	4.9	ND	**12.2**	ND	3	2	ND	1	3	4	2		**9**		
7	9710-97	86.Lig.10.E-10	35	1.06	50	5.7	3.7	5.8	ND	**15.2**	ND	4	3	ND	1	3	4	2		**11**		
7d	9710-98	86.Lig.10.E-10d	35	1.02	53	5.7	3.6	5.7	ND	**15.0**	ND	4	3	ND	1	3	4	2		**11**		
8	9710-116	86.Lig.10.E-14	40	1.27		9.0	4.1	7.7	ND	**20.9**	ND	5	4	ND	1	4	6	2		**14**		
9	9710-130	86.Lig.10.E-16	53	1.46	86	11.9	4.3	9.0	ND	**25.1**	ND	6	6	ND	1	4	7	2		**18**		
10	9710-135	86.Lig.10.E-18	61	1.62	101	14.0	4.2	9.9	ND	**28.1**	ND	7	8	ND	1	4	8	2		**20**		
11	9710-144	86.Lig.10.E-20	72	1.75	117	17.3	4.1	11.0	ND	**32.4**	ND	8	9	ND	1	4	8	2		**23**		
11d	9710-145	86.Lig.10.E-20d	72	1.75	125	17.4	4.0	10.9	ND	**32.3**	ND	8	9	ND	1	4	8	2		**23**		
12	9710-189	86.Lig.10.E-21	88	1.90	119	18.8	3.7	11.0	ND	**33.4**	ND	10	13	1	1	5				**30**		
13	9710-200	86.Lig.10.E-25	112	2.09																		
Effluent C		**EBCT:** 20 min	**Carbon Type:** Lignite			**Influent pH:**			**Scaling Factor:** 12.6													
1	9710-11	86.Lig.20.E-1	2	0.14	1	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	ND	ND		**ND**		
2	9710-27	86.Lig.20.E-2	39	0.36	7	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	2	ND		**ND**		
3	9710-33	86.Lig.20.E-4	46	0.47	13	1.0	1.4	1.7	ND	**4.1**	ND	1	ND	ND	ND	1	2	ND		**2**		
3d	9710-34	86.Lig.20.E-4d	46	0.49	14	1.2	1.5	1.7	ND	**4.4**	ND	ND	ND	ND	ND	1	2	ND		**1**		
4	9710-40	86.Lig.20.E-5	49	0.61	20	1.5	1.9	2.1	ND	**5.5**	ND	1	ND	ND	ND	2	3	ND		**3**		
5	9710-45	86.Lig.20.E-7	58	0.79	34	2.7	2.8	3.6	ND	**9.2**	ND	2	2	ND	ND	2	3	2		**6**		
6	9710-57	86.Lig.20.E-9	65	0.90	44	3.8	3.3	4.6	ND	**11.7**	ND	3	2	ND	ND	3	4	2		**8**		
7	9710-84	86.Lig.20.E-12	76	1.04	54	5.5	3.8	5.9	ND	**15.2**	ND	4	3	ND	ND	3	4	2		**10**		
7d	9710-85	86.Lig.20.E-12d	76	1.04	52	5.6	3.9	6.2	ND	**15.7**	ND	4	3	ND	1	3	4	2		**11**		
8	9710-113	86.Lig.20.E-14	89	1.25	70	8.2	4.0	7.3	ND	**19.6**	ND	5	4	ND	1	4	6	2		**14**		
9	9710-132	86.Lig.20.E-17	103	1.42	83	10.5	4.4	8.9	ND	**23.9**	ND	6	5	ND	1	4	6	2		**16**		
10	9710-163	86.Lig.20.E-23	128	1.55	96	13.7	4.1	9.6	ND	**27.4**	ND	7	9	ND	1	4				**22**		
10d	9710-164	86.Lig.20.E-23d	128	1.58	98	13.3	4.1	9.5	ND	**26.9**	ND	7	8	ND	1	4				**21**		

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #2/#3

Client: Akron Public Utilities Bureau **Study#:** 86

													SDS Chlorination Conditions*								
No.	Sample ID	Client Sample ID	Start Date/Time	End Date/Time	Stop T (days)	Run L (days)	F-S L (days)	TOC (mg/L)	UV254 (1/cm)	Temp (ºC)	pH	Dose (mg/L)	Res. (mg/L)	Dem (mg/L)	Temp (ºC)	pH	Time hrs	Alk. (mg/L)	Hard-Tot (mg/L as CaCO3)	Hard-CA	Turb. (ntu)
11	9710-202	86.Lig.20.E-25	10/16/97 9:43	10/16/97 13:32	0.17	12.83	161	1.77	0.024	21.0	7.6	2.97	1.32	1.65	13.0	7.35	48.2				
12	9710-226	86.Lig.20.E-27	10/18/97 16:40	10/18/97 22:53	0.18	15.15	190	1.99	0.028	21.3	7.3	3.09	1.29	1.80	13.0	7.32	48.3				
13	9710-235	86.Lig.20.E-29	10/20/97 14:09	10/20/97 15:35	0.18	16.95	213	2.21													
Influent A		**EBCT:**	**Carbon Type:**			**Influent pH:**		**Scaling Factor:**	12.6												
1	9710-4	86.INF.A-1	10/3/97 13:50	10/3/97 13:50		0.09	1											55	127	100	
2	9710-76	86.INF.A-2	10/9/97 14:30	10/9/97 14:30		6.11	77											57	129	100	
3	9710-203	86.INF.A-3	10/16/97 15:10	10/16/97 15:10		13.14	165											53	130	104	
Influent B		**EBCT:**	**Carbon Type:**			**Influent pH:**		**Scaling Factor:**	12.6												
1	9710-5	86.INF.B-1	10/3/97 13:50	10/3/97 13:50		0.09	1	2.72	0.054	18.9	6.8	4.05	1.52	2.53	13.0	7.31	48.0				0.10
2	9710-39	86.INF.B-2	10/7/97 13:30	10/7/97 13:30		4.07	51	2.71	0.053	16.5	6.8	4.05	1.53	2.52	13.0	7.32	48.2				0.10
3	9710-128	86.INF.B-3	10/11/97 15:00	10/11/97 15:00		8.14	102	2.60	0.053	15.7	6.7	3.85	1.37	2.48	13.0	7.17	48.6				0.05
4	9710-195	86.INF.B-4	10/15/97 13:15	10/15/97 13:15		12.06	152	2.72	0.054	14.6	6.8	3.85	1.36	2.49	13.0	7.20	47.0				0.10
5	9710-237	86.INF.B-5	10/20/97 17:50	10/20/97 17:50		17.25	217	2.65	0.052	17.3	6.8	3.85	1.29	2.56	13.0	7.27	48.7				0.10
PreStudy		**EBCT:**	**Carbon Type:**			**Influent pH:**		**Scaling Factor:**													
1	9709-156	Settled water	9/23/97 11:00					3.17													
2	9709-157	Filtered water	9/23/97 11:00					2.75													
3	9709-158	Settled water - barrel	9/24/97 12:00					2.96													
4	9709-159	Filtered water -	9/24/97 17:00					2.94													
5	9709-162	Settled water - barrel	9/25/97 9:15					2.81													

***Target SDS Chlorination Conditions**

Free Cl2 Residual: mg/L **pH:** **Temperature:** ºC **Holding time:** hrs

Study Comments

Chlorine and chlorine dioxide feeds were shutoff the afternoon of the day before sampling.

Two GAC types are being evaluated during Session #2, Bituminous (F-400, Calgon Carbon Corp.) and Lignite (Norit Americas, Inc.).

Temperature and pH were not recorded for sample ID 9710-85 and 9710-85 (Lignite, 20 min EBCT).

Results for TOX analysis for sample 9710-116 (86.Lig.10.E-14) not reported due to high RPD between replicate analysed performed on both bottles sampled for TOX (60% RPD).

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #2/#3

Client: Akron Public Utilities Bureau **Study#:** 86

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L)					Haloacetic Acids (µg/L)											NH3-N (mg/L)	Brom (µg/L)
						CF	BDCM	DBCM	BF	TTHM	MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9		
11	9710-202	86.Lig.20.E-25	161	1.77	119	19.9	4.4	12.1	ND	**36.4**	ND	8	9	ND	1	4	7	3		**22**			
12	9710-226	86.Lig.20.E-27	190	1.99	134	23.0	4.0	12.6	ND	**39.6**	ND	9	11	ND	1	4	7	3		**25**			
13	9710-235	86.Lig.20.E-29	213	2.21																			
Influent A		**EBCT:**	**Carbon Type:**			**Influent pH:**			**Scaling Factor:**	12.6													
1	9710-4	86.INF.A-1	1																			0.07	36
2	9710-76	86.INF.A-2	77																			0.08	36
3	9710-203	86.INF.A-3	165																			0.08	37
Influent B		**EBCT:**	**Carbon Type:**			**Influent pH:**			**Scaling Factor:**	12.6													
1	9710-5	86.INF.B-1	1	2.72	268	36.6	2.5	13.8	ND	**52.9**	3	16	24	ND	ND	5	10	ND		**48**			
2	9710-39	86.INF.B-2	51	2.71	230	34.5	3.2	14.2	ND	**51.8**	3	16	25	ND	ND	5	10	2		**49**			
3	9710-128	86.INF.B-3	102	2.60	223	37.7	2.4	14.1	ND	**54.1**	3	17	28	ND	1	5				**54**			
4	9710-195	86.INF.B-4	152	2.72	234	38.1	2.3	15.9	ND	**56.4**	2	17	29	ND	1	5				**54**			
5	9710-237	86.INF.B-5	217	2.65	219	39.5	2.7	14.4	ND	**56.7**	ND	15	24	ND	ND	5	9	2		**44**			
PreStudy		**EBCT:**	**Carbon Type:**			**Influent pH:**			**Scaling Factor:**														
1	9709-156	Settled water		3.17																			
2	9709-157	Filtered water		2.75																			
3	9709-158	Settled water - barrel 2		2.96																			
4	9709-159	Filtered water - barrel 2		2.94																			
5	9709-162	Settled water - barrel 3		2.81																			

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #4

Client: Akron Public Utilities Bureau **Study#:** 104

													SDS Chlorination Conditions*								
No.	Sample ID	Client Sample ID	Start Date/Time	End Date/Time	Stop T (days)	Run L (days)	F-S L (days)	TOC (mg/L)	UV254 (1/cm)	Temp (ºC)	pH	Dose (mg/L)	Res. (mg/L)	Dem (mg/L)	Temp (ºC)	pH	Time hrs	Alk. (mg/L)	Hard-Tot (mg/L as CaCO3)	Hard-CA	Turb. (ntu)
Effluent C		**EBCT:** 10 min	**Carbon Type:** Bituminous		**Influent pH:** 7.13		**Scaling Factor:** 12.6														
1	9801-24	104-10.EFF-1	1/12/98 11:30	1/12/98 15:14		0.12	2	0.29	0.000	21.1	7.8	1.80	1.42	0.38	12.9	7.39	48.0				
2	9801-32	104.10.Eff-5	1/14/98 5:00	1/14/98 9:18		1.86	23	0.35	0.002	20.3	7.9	1.95	1.63	0.32	12.9	7.40	48.1				
3	9801-39	104.10.Eff-6	1/14/98 15:40	1/14/98 22:05		2.35	30	0.66	0.005	20.8	7.7	2.11	1.55	0.56	12.9	7.39	48.1				
3d	9801-40	104.10.Eff-6d	1/14/98 15:40	1/14/98 22:05		2.35	30	0.65	0.005			2.09	1.55	0.54	12.9	7.39	48.1				
4	9801-36	104.10.Eff-7	1/14/98 22:05	1/15/98 1:33		2.55	32	0.76	0.007	20.7	7.8	2.19	1.63	0.56	12.9	7.41	48.1				
5	9801-37	104.10.Eff-8	1/15/98 1:33	1/15/98 7:58		2.76	35	0.89	0.009	21.7	7.7	2.06	1.42	0.64	12.9	7.39	47.6				
6	9801-44	104.10.Eff-10	1/15/98 11:23	1/15/98 14:42		3.11	39	1.08	0.012	21.4	7.7	2.47	1.62	0.85	12.9	7.42	48.1				
7	9801-45	104.10.Eff-11	1/15/98 14:42	1/15/98 21:11		3.31	42	1.20	0.013	21.3	7.7	2.57	1.64	0.93	12.9	7.42	48.1				
7d	9801-46	104.10.Eff-11d	1/15/98 14:42	1/15/98 21:11		3.31	42	1.19	0.013	21.5	7.7	2.55	1.64	0.91	12.9	7.43	48.2				
8	9801-47	104.10.Eff-12	1/15/98 21:11	1/16/98 3:36		3.58	45	1.36	0.015	21.8	7.7	2.70	1.77	0.93	12.9	7.43	48.2				
9	9801-56	104.10.Eff-14	1/16/98 16:18	1/16/98 22:44		4.38	55	1.49	0.020	21.5	7.7	2.49	1.46	1.03	12.9	7.37	47.7				
10	9801-58	104.10.Eff-16	1/17/98 2:06	1/17/98 8:25		4.78	60	1.60	0.023	21.7	7.7	2.57	1.42	1.15	12.9	7.36	47.7				
11	9801-68	104.10.Eff-18	1/17/98 15:51	1/18/98 9:28		5.59	70	1.81	0.028	21.0	7.6	2.71	1.40	1.31	12.9	7.43	47.8				
11d	9801-69	104.10.Eff-18d	1/17/98 15:51	1/18/98 9:28		5.59	70	1.77	0.028	21.0	7.5	2.71	1.43	1.28	12.9	7.42	47.9				
12	9801-74	104.10.Eff-20	1/18/98 15:55	1/18/98 22:26		6.36	80	1.94	0.030	22.0	7.7	2.81	1.53	1.28	12.9	7.39	48.0				
13	9801-97	104.10.Eff-21	1/20/98 7:00	1/20/98 10:25		7.93	100	2.05		21.9	7.7										
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous		**Influent pH:** 7.13		**Scaling Factor:** 12.6														
1	9801-23	104-20.EFF-1	1/12/98 11:30	1/12/98 14:53		0.11	1	0.32	0.001	21.3	8.6	1.85	1.45	0.40	12.9	7.46	48.0				
2	9801-66	104.20.Eff-10	1/17/98 15:05	1/17/98 21:48		5.33	67	0.40	0.002	22.6	7.8	1.72	1.28	0.44	13.0	7.35	48.2				
3	9801-71	104.20.Eff-12	1/18/98 4:22	1/18/98 11:02		5.88	74	0.54	0.003	21.8	7.9	1.82	1.36	0.46	12.9	7.35	47.8				
4	9801-75	104.20.Eff-13	1/19/98 1:29	1/19/98 8:16		6.77	85	0.90	0.007	22.0	7.9	2.08	1.44	0.64	12.9	7.38	47.9				
4d	9801-76	104.20.Eff-13d	1/19/98 1:29	1/19/98 8:16		6.77	85	0.90	0.007	22.0	7.9	2.08	1.45	0.63	12.9	7.37	47.9				
5	9801-84	104.20.EFF-15	1/19/98 15:16	1/19/98 21:45	0.02	7.31	92	1.03	0.010	21.8	7.9	2.17	1.43	0.74	13.0	7.36	48.2				
6	9801-96	104.20.Eff-17	1/20/98 4:15	1/20/98 10:46	0.02	7.85	99	1.15	0.012	22.1	7.8	2.25	1.45	0.80	13.0	7.37	48.3				
7	9801-107	104.20.Eff-21	1/21/98 6:06	1/21/98 12:37	0.02	8.93	112	1.27	0.015	21.9	7.8	2.28	1.40	0.88	13.0	7.36	48.2				
7d	9801-108	104.20.Eff-21d	1/21/98 6:06	1/21/98 12:37	0.02	8.93	112	1.28	0.015	22.0	7.8	2.28	1.34	0.94	13.0	7.37	48.2				
8	9801-113	104.20.Eff-24	1/22/98 8:20	1/22/98 14:53	0.02	10.02	126	1.44	0.018	22.0	7.8	2.38	1.37	1.01	13.0	7.39	48.2				
9	9801-127	104.20.Eff-27	1/23/98 13:39	1/23/98 20:08	0.02	11.24	141	1.60	0.021	22.1	7.8	2.50	1.42	1.08	13.1	7.41	48.0				
10	9801-130	104.20.Eff-30	1/24/98 9:11	1/24/98 15:43	0.02	12.06	152	1.73	0.023	22.2	7.8	2.59	1.40	1.19	13.1	7.39	48.0				
11	9801-155	104.20.Eff-38	1/27/98 2:26	1/27/98 8:59	0.02	14.78	186	1.81	0.028	22.2	7.9	2.59	1.48	1.11	13.1	7.43	48.1				
11d	9801-156	104.20.Eff-38d	1/27/98 2:26	1/27/98 8:59	0.02	14.78	186	1.79	0.028	22.2	7.9	2.58	1.29	1.29	13.1	7.43	48.1				
12	9801-173	104.20.Eff-40	1/29/98 13:32	1/29/98 16:52	0.02	17.17	216	1.90	0.030	22.2	8.0	2.63	1.23	1.40	13.1	7.40	48.1				

ND: Non-detect. Blank Results: Either analysis was not performed or result did not meet ICR QC requirements.

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #4

Client: Akron Public Utilities Bureau **Study#:** 104

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L)					Haloacetic Acids (µg/L)										NH3-N	Brom
						CF	BDCM	DBCM	BF	TTHM	MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9	(mg/L)	(µg/L)
Effluent C		**EBCT:** 10 min	**Carbon Type:** Bituminous			**Influent pH:** 7.13			**Scaling Factor:** 12.6														
1	9801-24	104-10.EFF-1	2	0.29	0	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
2	9801-32	104.10.Eff-5	23	0.35	4	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
3	9801-39	104.10.Eff-6	30	0.66	19	1.5	1.8	2.1	ND	**5.4**	ND	2	ND	ND	ND	1	1	ND	ND	**3**	**5**		
3d	9801-40	104.10.Eff-6d	30	0.65	24	1.6	1.7	2.0	ND	**5.4**	ND	2	ND	ND	ND	1	1	ND	ND	**3**	**5**		
4	9801-36	104.10.Eff-7	32	0.76	29	2.4	2.4	3.0	ND	**7.7**	ND	3	1	ND	ND	2	2	ND	ND	**6**	**8**		
5	9801-37	104.10.Eff-8	35	0.89	34	2.9	2.7	3.6	ND	**9.2**	ND	4	2	ND	1	2	3	ND	ND	**9**	**12**		
6	9801-44	104.10.Eff-10	39	1.08	56	5.3	3.1	5.3	ND	**13.6**	ND	6	3	ND	ND	3	4	ND	ND	**12**	**16**		
7	9801-45	104.10.Eff-11	42	1.20	61	6.6	3.1	6.0	ND	**15.7**	ND	7	5	ND	ND	3	5	ND	ND	**14**	**19**		
7d	9801-46	104.10.Eff-11d	42	1.19	60	6.3	3.0	5.6	ND	**14.9**	ND	6	4	ND	ND	3	5	ND	ND	**14**	**19**		
8	9801-47	104.10.Eff-12	45	1.36	73	8.2	3.0	6.5	ND	**17.7**	ND	7	6	ND	ND	4	5	ND	ND	**16**	**21**		
9	9801-56	104.10.Eff-14	55	1.49	94	11.3	3.0	7.5	ND	**21.7**	ND	8	8	ND	ND	4	6	ND	ND	**19**	**25**		
10	9801-58	104.10.Eff-16	60	1.60	110	12.7	2.9	7.8	ND	**23.4**	ND	9	9	ND	ND	4	7	ND	ND	**22**	**28**		
11	9801-68	104.10.Eff-18	70	1.81	135	17.0	2.8	9.1	ND	**28.9**	ND	11	12	ND	ND	4	7	ND	ND	**27**	**34**		
11d	9801-69	104.10.Eff-18d	70	1.77	142	17.2	2.9	9.3	ND	**29.3**	ND	10	11	ND	ND	4	7	ND	ND	**25**	**32**		
12	9801-74	104.10.Eff-20	80	1.94	147	18.6	2.6	9.4	ND	**30.7**	ND	10	12	ND	ND	4	7	ND	ND	**26**	**33**		
13	9801-97	104.10.Eff-21	100	2.05																			
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous			**Influent pH:** 7.13			**Scaling Factor:** 12.6														
1	9801-23	104-20.EFF-1	1	0.32	1	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
2	9801-66	104.20.Eff-10	67	0.40	8	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	ND			**ND**			
3	9801-71	104.20.Eff-12	74	0.54	15	1.1	1.3	1.3	ND	**3.7**	ND	3	ND	ND	ND	1	1	ND	ND	**4**	**6**		
4	9801-75	104.20.Eff-13	85	0.90	38	2.1	2.3	2.9	ND	**7.4**	ND	4	2	ND	ND	2	3	ND	ND	**8**	**10**		
4d	9801-76	104.20.Eff-13d	85	0.90	33	2.3	2.4	3.0	ND	**7.6**	ND	4	2	ND	ND	2	3	ND	ND	**8**	**10**		
5	9801-84	104.20.EFF-15	92	1.03	47	4.0	3.0	4.6	ND	**11.6**	ND	4	2	ND	1	3	4			**10**			
6	9801-96	104.20.Eff-17	99	1.15	63	5.4	3.2	5.3	ND	**13.9**	ND	5	3	ND	1	3	5			**12**			
7	9801-107	104.20.Eff-21	112	1.27	70	7.7	3.2	6.5	ND	**17.4**	ND	4	5	ND	ND	3	5	ND		**12**			
7d	9801-108	104.20.Eff-21d	112	1.28	77	7.8	3.3	6.6	ND	**17.8**	ND	4	5	ND	1	3	5	3		**13**			
8	9801-113	104.20.Eff-24	126	1.44	88	9.8	3.1	7.2	ND	**20.1**	ND	5	6	ND	1	3	6	ND		**15**			
9	9801-127	104.20.Eff-27	141	1.60	104	12.9	3.1	8.0	ND	**24.0**	ND	7	9	ND	1	4	7	ND		**20**			
10	9801-130	104.20.Eff-30	152	1.73	103	13.4	2.9	8.0	ND	**24.3**	ND	8	10	ND	1	4	7	ND		**22**			
11	9801-155	104.20.Eff-38	186	1.81	123	16.1	2.7	8.4	ND	**27.1**	ND	10	14	ND	ND	4	8	2		**28**			
11d	9801-156	104.20.Eff-38d	186	1.79	135	16.9	2.7	8.9	ND	**28.5**	ND	10	13	ND	ND	4	7	ND		**26**			
12	9801-173	104.20.Eff-40	216	1.90	140	19.6	2.7	9.4	ND	**31.7**	ND	11	15	ND	ND	4	8	ND		**30**			

ND: Non-detect. Blank Results: Either analysis was not performed or result did not meet ICR QC requirements.

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #4

Client: Akron Public Utilities Bureau **Study#:** 104

No.	Sample ID	Client Sample ID	Start Date/Time	End Date/Time	Stop T (days)	Run L (days)	F-S L (days)	TOC (mg/L)	UV254 (1/cm)	Temp (ºC)	pH	SDS Chlorination Conditions* Dose (mg/L)	Res. (mg/L)	Dem (mg/L)	Temp (ºC)	pH	Time hrs	Alk. (mg/L)	Hard-Tot (mg/L as CaCO3)	Hard-CA	Turb. (ntu)
Influent A	**EBCT:**	**Carbon Type:**		**Influent pH:** 7.13	**Scaling Factor:** 12.6																
1	9801-21	104.INF.A-1	1/12/98 11:15	1/12/98 11:15		0.03	0											47	105	77	
2	9801-86	104.Inf.A-2	1/20/98 7:55	1/20/98 7:55		7.89	99											45	106	79	
Influent B	**EBCT:**	**Carbon Type:**		**Influent pH:** 7.13	**Scaling Factor:** 12.6																
1	9801-22	104.INF.B-1	1/12/98 11:15	1/12/98 11:15		0.03	0	2.80	0.055		7.1	3.95	1.80	2.15	12.9	7.32	48.0				0.10
2	9801-33	104.Inf.B-2	1/14/98 10:20	1/14/98 10:20		1.99	25	2.64		17.4	7.1										
3	9801-87	104.Inf.B-3	1/20/98 8:00	1/20/98 8:00		7.90	99	2.56	0.054	17.4	7.1	3.45	1.42	2.03	13.0	7.31	48.3				0.05
4	9801-169	104.INF.B-6	1/29/98 14:10	1/29/98 14:10		17.15	216	2.56	0.053	18.6	7.1	3.41	1.41	2.00	13.1	7.34	48.1				0.15
PreStudy	**EBCT:**	**Carbon Type:**		**Influent pH:**	**Scaling Factor:**																
1	9801-13	Filtered Water on	1/9/98 9:45					2.66													
2	9801-11	Settled Water on	1/7/98 14:40					2.94													
3	9801-1	Settled Water at Plant	1/6/98 8:30					3.07													
4	9801-2	Filtered Water at Plant	1/6/98 8:45					2.63													

***Target SDS Chlorination Conditions**

Free Cl2 Residual: 1.35 mg/L **pH:** 7.3 **Temperature:** 13.0 ºC **Holding time:** 48.0 hrs

Study Comments

The temperature was not recorded on the first influent sample. A second influent was taken later and the temperature was measured on it.

The 10 minute column broke through faster than expected. A 3-L sample at the third sampling point had to be split in order to obtain duplicate samples at either the third or fourth sampling point. The pH and temperature of the duplicate sample could not be taken, since the 3-L sample had been stored in the cold room prior to splitting.

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #4

Client: Akron Public Utilities Bureau **Study#:** 104

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L)					Haloacetic Acids (µg/L)											NH3-N (mg/L)	Brom (µg/L)
						CF	BDCM	DBCM	BF	TTHM	MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9		
Influent A		**EBCT:**	**Carbon Type:**			**Influent pH:** 7.13			**Scaling Factor:** 12.6														
1	9801-21	104.INF.A-1	0																			ND	ND
2	9801-86	104.Inf.A-2	99																			ND	ND
Influent B		**EBCT:**	**Carbon Type:**			**Influent pH:** 7.13			**Scaling Factor:** 12.6														
1	9801-22	104.INF.B-1	0	2.80	239	39.4	1.6	10.2	ND	**51.3**	ND	20	29	ND	ND	5	9	ND	ND	**54**	**63**		
2	9801-33	104.Inf.B-2	25	2.64																			
3	9801-87	104.Inf.B-3	99	2.56	241	39.3	1.5	10.5	ND	**51.3**	2	19	27	ND	ND	4	10			**52**			
4	9801-169	104.INF.B-6	216	2.56	236	36.7	1.6	10.5	ND	**48.8**	2	17	27	ND	ND	4	9	ND		**50**			
PreStudy		**EBCT:**	**Carbon Type:**			**Influent pH:**			**Scaling Factor:**														
1	9801-13	Filtered Water on Arrival		2.66																			
2	9801-11	Settled Water on Arrival		2.94																			
3	9801-1	Settled Water at Plant		3.07																			
4	9801-2	Filtered Water at Plant		2.63																			

Summers & Hooper, Inc.

6 Knollcrest Drive
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Phone: (513) 679-2200
Fax: (513) 679-2201

Laboratory Report

Client:

Mr. Bill Marchand
Civil Engineer
Akron Public Utilities Bureau
146 South High Street
P.O. Box 3665
Akron, OH 44309-3665

Phone: 330-375-2690 Fax: 330-375-2418

Study Title: ICR RSSCT #1

Study #: 33

Reviewed By: _____

Stuart M. Hooper

Date Reviewed: 7/13/99

Electronic copies of the results and quality control data are available upon request.

Summers & Hooper, Inc.
6 Knollcrest Drive
Cincinnati, OH 45237
Phone: (513) 679-2200
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Laboratory Test Results

Mr. Bill Marchand
Civil Engineer
Akron Public Utilities Bureau
146 South High Street
P.O. Box 3665
Akron, OH 44309-3665

Phone: 330-375-2690 Fax: 330-375-2418

Study#: 33
Study Title: ICR RSSCT #1

Sample ID: Settled Water on Arrival Barrel #1 **S&H ID:** 9706-113 **Date Sampled:** 6/20/97 9:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1	TOC-ICR	TOC	2.78	mg/L	SM 5310 C	1	0.50	6/20/97		6/21/97	7-0-65
2	TOC-ICR	TOC (Dupl)	2.74	mg/L	SM 5310 C	1	0.50	6/20/97		6/21/97	7-0-65
			2.76	**mg/L**	**1.4 % RPD**						

Sample ID: Settled Water on Arrival Barrel #3 **S&H ID:** 9706-114 **Date Sampled:** 6/20/97 9:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
3	TOC-ICR	TOC	2.75	mg/L	SM 5310 C	1	0.50	6/20/97		6/20/97	7-0-65
4	TOC-ICR	TOC (Dupl)	2.81	mg/L	SM 5310 C	1	0.50	6/20/97		6/20/97	7-0-65
			2.78	**mg/L**	**2.2 % RPD**						

Sample ID: Settled Water on Arrival Barrel #5 **S&H ID:** 9706-115 **Date Sampled:** 6/20/97 9:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
5	TOC-ICR	TOC	2.77	mg/L	SM 5310 C	1	0.50	6/20/97		6/21/97	7-0-65
6	TOC-ICR	TOC (Dupl)	2.75	mg/L	SM 5310 C	1	0.50	6/20/97		6/21/97	7-0-65
			2.76	**mg/L**	**0.7 % RPD**						

Sample ID: Settled Water Barrel #1 **S&H ID:** 9706-116 **Date Sampled:** 6/20/97 11:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
7	TURB	Turbidity	0.40	ntu	SM 2130 B	1	0.05	6/20/97		6/20/97	9-0-2

Sample ID: Settled Water Barrel #3 **S&H ID:** 9706-117 **Date Sampled:** 6/20/97 11:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
8	TURB	Turbidity	0.40	ntu	SM 2130 B	1	0.05	6/20/97		6/20/97	9-0-2

Sample ID: Settled Water Barrel #5 **S&H ID:** 9706-118 **Date Sampled:** 6/20/97 11:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
9	TURB	Turbidity	0.40	ntu	SM 2130 B	1	0.05	6/20/97		6/20/97	9-0-2

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

Sample ID: Filtered GAC Influent Barrel #3 **S&H ID:** 9706-119 **Date Sampled:** 6/20/97 11:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
10	TURB	Turbidity	0.15	ntu	SM 2130 B	1	0.05	6/20/97		6/20/97	9-0-2

Sample ID: Settled Water During Sampling **S&H ID:** 9706-120 **Date Sampled:** 6/17/97 8:35:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
11	TOC-ICR	TOC	3.25	mg/L	SM 5310 C	1	0.50	6/17/97		6/20/97	7-0-65
12	TOC-ICR	TOC (Dupl)	3.27	mg/L	SM 5310 C	1	0.50	6/17/97		6/20/97	7-0-65
			3.26	**mg/L**	**0.6 % RPD**						

Sample ID: Settled Water on Arrival Barrel #5 +Shake + Rolled **S&H ID:** 9706-126 **Date Sampled:** 6/21/97 8:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
13	TOC-ICR	TOC	3.35	mg/L	SM 5310 C	1	0.50	6/21/97		6/21/97	7-0-66
14	TOC-ICR	TOC (Dupl)	3.42	mg/L	SM 5310 C	1	0.50	6/21/97		6/21/97	7-0-66
			3.38	**mg/L**	**2.1 % RPD**						

Sample ID: 33.10.20.INF.A-1 **S&H ID:** 9706-127 **Date Sampled:** 6/22/97 6:15:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
15	ALK	Alkalinity	22	mg/L	SM 2320 B	1	5	6/22/97		6/23/97	1-0-3
16	NH3	Ammonia Nitrogen	ND	mg/L	EPA 350.1	1	0.05	6/22/97		7/15/97	MW64348
17	BR	Bromide	0.031	mg/L	EPA 300.0 A	1	0.020	6/22/97		7/9/97	MW64164
18	CaHard	Calcium Hardness	66	mg/L CaCO3	SM 3500-Ca D	1	5	6/22/97		6/23/97	33-0-3
19	TotHard	Total Hardness	90	mg/L CaCO3	SM 2340 C	1	5	6/22/97		6/23/97	3-0-3

Sample ID: 33.10.20 INF.B-1 **S&H ID:** 9706-128 **Date Sampled:** 6/22/97 6:15:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
20	Cl2Dose	Chlorine Dose	4.56	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/25/97		6/25/97	n/a
21	Cl2Res	Chlorine Residual	1.38	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/25/97		6/27/97	n/a
22	HAA	Bromochloroacetic acid	4.3	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
23	HAA	Bromodichloroacetic acid	6.0	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
24	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	6/27/97	7/8/97	7/14/97	MW64364
25	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
26	HAA	Dichloroacetic acid	19.0	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
27	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
28	HAA	Monochloroacetic acid	2.9	µg/L	SM 6251 B	1	2.0	6/27/97	7/8/97	7/14/97	MW64364
29	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	6/27/97	7/8/97	7/14/97	MW64364

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

30	HAA	Trichloroacetic acid	30.0	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
31	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	6/25/97		6/27/97	n/a
32	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	6/25/97		6/25/97	n/a
33	pH	pH	6.3	Unit	SM 4500-H+ B	1	n/a	6/22/97		6/22/97	n/a
34	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/25/97		6/27/97	n/a
35	TEMP	Temperature	19.2	ºC	SM 2550 B	1	n/a	6/22/97		6/22/97	n/a
36	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	6/25/97		6/27/97	n/a
37	TOC-ICR	TOC	2.74	mg/L	SM 5310 C	1	0.50	6/22/97		6/23/97	7-0-67
38	TOC-ICR	TOC (Dupl)	2.68	mg/L	SM 5310 C	1	0.50	6/22/97		6/23/97	7-0-67
			2.71	**mg/L**	**2.2 % RPD**						
39	TOX-ICR	TOX	276	µg Cl-/L	SM 5320 B	1	25	6/27/97		7/5/97	12-0-31
40	TOX-ICR	TOX (Dupl)	276	µg Cl-/L	SM 5320 B	1	25	6/27/97		7/5/97	12-0-31
			276	**µg Cl-/L**	**0.0 % RPD**						
41	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.0	%	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
42	THM-ICR	Bromodichloromethane	13.1	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
43	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
44	THM-ICR	Chloroform	44.9	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
45	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
46	TURB	Turbidity	0.15	ntu	SM 2130 B	1	0.05	6/22/97		6/22/97	9-0-2
47	UV-ICR	UV	0.055	1/cm	SM 5910 B	1	0.009	6/22/97		6/23/97	8-0-39
48	UV-ICR	UV (Dupl)	0.056	1/cm	SM 5910 B	1	0.009	6/22/97		6/23/97	8-0-39
			0.056	**1/cm**	**1.8 % RPD**						

Sample ID: 33.10.EFF-1 **S&H ID:** 9706-129 **Date Sampled:** 6/22/97 7:36:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
49	Cl2Dose	Chlorine Dose	2.83	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/25/97		6/25/97	n/a
50	Cl2Res	Chlorine Residual	1.52	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/25/97		6/27/97	n/a
51	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
52	HAA	Bromodichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
53	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	6/27/97	7/8/97	7/14/97	MW64364
54	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
55	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
56	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
57	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	6/27/97	7/8/97	7/14/97	MW64364
58	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	6/27/97	7/8/97	7/14/97	MW64364
59	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
60	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	6/25/97		6/27/97	n/a
61	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	6/25/97		6/25/97	n/a
62	pH	pH	6.6	Unit	SM 4500-H+ B	1	n/a	6/22/97		6/22/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

63	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/25/97		6/27/97	n/a
64	TEMP	Temperature	23.2	ºC	SM 2550 B	1	n/a	6/22/97		6/22/97	n/a
65	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	6/25/97		6/27/97	n/a
66	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	6/22/97		6/23/97	7-0-67
67	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	6/22/97		6/23/97	7-0-67
			ND	**mg/L**							
68	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	6/27/97		7/5/97	12-0-31
69	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	6/27/97		7/5/97	12-0-31
			ND	**µg Cl-/L**							
70	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.6	%	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
71	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
72	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
73	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
74	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
75	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	6/22/97		6/23/97	8-0-39
76	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	6/22/97		6/23/97	8-0-39
			ND	**1/cm**							

Sample ID: 33.20.EFF-1 **S&H ID:** 9706-130 **Date Sampled:** 6/22/97 8:12:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
77	Cl2Dose	Chlorine Dose	2.83	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/25/97		6/25/97	n/a
78	Cl2Res	Chlorine Residual	1.53	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/25/97		6/27/97	n/a
79	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
80	HAA	Bromodichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
81	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	6/27/97	7/8/97	7/14/97	MW64364
82	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
83	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
84	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
85	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	6/27/97	7/8/97	7/14/97	MW64364
86	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	6/27/97	7/8/97	7/14/97	MW64364
87	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/27/97	7/8/97	7/14/97	MW64364
88	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	6/25/97		6/27/97	n/a
89	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	6/25/97		6/25/97	n/a
90	pH	pH	6.7	Unit	SM 4500-H+ B	1	n/a	6/22/97		6/22/97	n/a
91	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/25/97		6/27/97	n/a
92	TEMP	Temperature	24.0	ºC	SM 2550 B	1	n/a	6/22/97		6/22/97	n/a
93	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	6/25/97		6/27/97	n/a
94	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	6/22/97		6/23/97	7-0-67

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

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95	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	6/22/97		6/23/97	7-0-67
			ND	**mg/L**							
96	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	6/27/97		7/5/97	12-0-31
97	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	6/27/97		7/5/97	12-0-31
			ND	**µg Cl-/L**							
98	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.6	%	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
99	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
100	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
101	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
102	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	6/27/97	7/1/97	7/1/97	0-22-0
103	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	6/22/97		6/23/97	8-0-39
104	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	6/22/97		6/23/97	8-0-39
105	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	6/22/97		6/23/97	8-0-39
			ND	**1/cm**							

Sample ID: 33.10.Eff.11d **S&H ID:** 9706-168 **Date Sampled:** 6/25/97 4:15:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
106	Cl2Dose	Chlorine Dose	2.97	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/27/97		6/27/97	n/a
107	Cl2Res	Chlorine Residual	1.57	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/27/97		6/29/97	n/a
108	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/29/97	7/8/97	7/14/97	MW64364
109	HAA	Bromodichloroacetic acid	1.1	µg/L	SM 6251 B	1	1.0	6/29/97	7/8/97	7/14/97	MW64364
110	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	6/29/97	7/8/97	7/14/97	MW64364
111	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/29/97	7/8/97	7/14/97	MW64364
112	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/29/97	7/8/97	7/14/97	MW64364
113	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/29/97	7/8/97	7/14/97	MW64364
114	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	6/29/97	7/8/97	7/14/97	MW64364
115	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	6/29/97	7/8/97	7/14/97	MW64364
116	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/29/97	7/8/97	7/14/97	MW64364
117	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	6/27/97		6/29/97	n/a
118	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	6/27/97		6/27/97	n/a
119	pH	pH	7.3	Unit	SM 4500-H+ B	1	n/a	6/25/97		6/25/97	n/a
120	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/27/97		6/29/97	n/a
121	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	6/25/97		6/25/97	n/a
122	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	6/27/97		6/29/97	n/a
123	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	6/25/97		6/25/97	7-0-69
124	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	6/25/97		6/25/97	7-0-69
			ND	**mg/L**							
125	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	6/29/97		7/5/97	12-0-31
126	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	6/29/97		7/5/97	12-0-31
			ND	**µg Cl-/L**							

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

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127	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.4	%	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
128	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
129	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
130	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
131	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
132	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	6/25/97		6/25/97	8-0-41
133	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	6/25/97		6/25/97	8-0-41
			ND	**1/cm**							

Sample ID: 33.10.Eff.14 **S&H ID:** 9706-176 **Date Sampled:** 6/25/97 8:58:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
134	Cl2Dose	Chlorine Dose	2.86	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/29/97		6/29/97	n/a
135	Cl2Res	Chlorine Residual	1.37	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/29/97		7/1/97	n/a
136	HAA	Bromochloroacetic acid	1.3	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
137	HAA	Bromodichloroacetic acid	1.0	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
138	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
139	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
140	HAA	Dichloroacetic acid	1.8	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
141	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
142	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
143	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/1/97	7/10/97	7/15/97	MW64390
144	HAA	Trichloroacetic acid	1.8	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
145	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	6/29/97		7/1/97	n/a
146	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	6/29/97		6/29/97	n/a
147	pH	pH	7.2	Unit	SM 4500-H+ B	1	n/a	6/25/97		6/25/97	n/a
148	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/29/97		7/1/97	n/a
149	TEMP	Temperature	23.2	ºC	SM 2550 B	1	n/a	6/25/97		6/25/97	n/a
150	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	6/29/97		7/1/97	n/a
151	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	6/25/97		6/26/97	7-0-70
152	TOC-ICR	TOC (Dupl)	0.50	mg/L	SM 5310 C	1	0.50	6/25/97		6/26/97	7-0-70
			ND	**mg/L**							
153	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
154	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
			ND	**µg Cl-/L**							
155	THM-ICR	1,2,3-Trichloropropane (Surrogate)	86.8	%	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
156	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	84.8	%	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
			85.8	**%**	**2.3 % RPD**						
157	THM-ICR	Bromodichloromethane	1.0	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

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158	THM-ICR	Bromodichloromethane (Lab Dupl)	1.1	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
			1.1	**µg/L**	**9.1 % RPD**						
159	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
160	THM-ICR	Bromoform (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
			ND	**µg/L**							
161	THM-ICR	Chloroform	1.3	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
162	THM-ICR	Chloroform (Lab Dupl)	1.4	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
			1.4	**µg/L**	**7.1 % RPD**						
163	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
164	THM-ICR	Dibromochloromethane (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
			ND	**µg/L**							
165	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	6/25/97		6/26/97	8-0-42
166	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	6/25/97		6/26/97	8-0-42
			ND	**1/cm**							

Sample ID: 33.10.Eff.14d **S&H ID:** 9706-177 **Date Sampled:** 6/25/97 8:58:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
167	Cl2Dose	Chlorine Dose	2.86	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/29/97		6/29/97	n/a
168	Cl2Res	Chlorine Residual	1.40	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/29/97		7/1/97	n/a
169	HAA	Bromochloroacetic acid	1.2	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
170	HAA	Bromodichloroacetic acid	1.0	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
171	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
172	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
173	HAA	Dichloroacetic acid	1.8	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
174	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
175	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
176	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/1/97	7/10/97	7/15/97	MW64390
177	HAA	Trichloroacetic acid	1.7	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
178	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	6/29/97		7/1/97	n/a
179	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	6/29/97		6/29/97	n/a
180	pH	pH	7.1	Unit	SM 4500-H+ B	1	n/a	6/25/97		6/25/97	n/a
181	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/29/97		7/1/97	n/a
182	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	6/25/97		6/25/97	n/a
183	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	6/29/97		7/1/97	n/a
184	TOC-ICR	TOC	0.50	mg/L	SM 5310 C	1	0.50	6/25/97		6/26/97	7-0-70
185	TOC-ICR	TOC (Dupl)	0.50	mg/L	SM 5310 C	1	0.50	6/25/97		6/26/97	7-0-70
			0.50	**mg/L**	**0.0 % RPD**						
186	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
187	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
			ND	**µg Cl-/L**							

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

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Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

188	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.4	%	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
189	THM-ICR	Bromodichloromethane	1.2	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
190	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
191	THM-ICR	Chloroform	1.5	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
192	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
193	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	6/25/97		6/26/97	8-0-42
194	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	6/25/97		6/26/97	8-0-42
			ND	**1/cm**							

Sample ID: 33.10.Eff.15 **S&H ID:** 9706-178 **Date Sampled:** 6/26/97 2:34:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
195	Cl2Dose	Chlorine Dose	3.17	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/27/97		6/27/97	n/a
196	Cl2Res	Chlorine Residual	1.61	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/27/97		6/29/97	n/a
197	HAA	Bromochloroacetic acid	1.6	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
198	HAA	Bromodichloroacetic acid	3.0	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
199	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	6/29/97	7/10/97	7/15/97	MW64390
200	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
201	HAA	Dichloroacetic acid	2.6	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
202	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
203	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	6/29/97	7/10/97	7/15/97	MW64390
204	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	6/29/97	7/10/97	7/15/97	MW64390
205	HAA	Trichloroacetic acid	2.4	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
206	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	6/27/97		6/29/97	n/a
207	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	6/27/97		6/27/97	n/a
208	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	6/26/97		6/26/97	n/a
209	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/27/97		6/29/97	n/a
210	TEMP	Temperature	23.2	ºC	SM 2550 B	1	n/a	6/26/97		6/26/97	n/a
211	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	6/27/97		6/29/97	n/a
212	TOC-ICR	TOC	0.65	mg/L	SM 5310 C	1	0.50	6/26/97		6/26/97	7-0-70
213	TOC-ICR	TOC (Dupl)	0.65	mg/L	SM 5310 C	1	0.50	6/26/97		6/26/97	7-0-70
			0.65	**mg/L**	**0.0 % RPD**						
214	TOX-ICR	TOX	35	µg Cl-/L	SM 5320 B	1	25	6/29/97		7/5/97	12-0-31
215	TOX-ICR	TOX (Dupl)	33	µg Cl-/L	SM 5320 B	1	25	6/29/97		7/5/97	12-0-31
			34	**µg Cl-/L**	**5.9 % RPD**						
216	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.6	%	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
217	THM-ICR	Bromodichloromethane	2.2	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
218	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
219	THM-ICR	Chloroform	2.5	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

220	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
221	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	6/26/97		6/26/97	8-0-42
222	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	6/26/97		6/26/97	8-0-42
			ND	**1/cm**							

Sample ID: 33.10.Eff.16 **S&H ID:** 9706-179 **Date Sampled:** 6/26/97 8:08:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
223	Cl2Dose	Chlorine Dose	3.27	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/27/97		6/27/97	n/a
224	Cl2Res	Chlorine Residual	1.65	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/27/97		6/29/97	n/a
225	HAA	Bromochloroacetic acid	2.0	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
226	HAA	Bromodichloroacetic acid	2.8	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
227	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	6/29/97	7/10/97	7/15/97	MW64390
228	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
229	HAA	Dichloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
230	HAA	Monobromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
231	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	6/29/97	7/10/97	7/15/97	MW64390
232	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	6/29/97	7/10/97	7/15/97	MW64390
233	HAA	Trichloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	6/29/97	7/10/97	7/15/97	MW64390
234	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	6/27/97		6/29/97	n/a
235	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	6/27/97		6/27/97	n/a
236	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	6/26/97		6/26/97	n/a
237	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/27/97		6/29/97	n/a
238	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	6/26/97		6/26/97	n/a
239	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	6/27/97		6/29/97	n/a
240	TOC-ICR	TOC	0.81	mg/L	SM 5310 C	1	0.50	6/26/97		6/26/97	7-0-70
241	TOC-ICR	TOC (Dupl)	0.81	mg/L	SM 5310 C	1	0.50	6/26/97		6/26/97	7-0-70
			0.81	**mg/L**	**0.0 % RPD**						
242	TOX-ICR	TOX	46	µg Cl-/L	SM 5320 B	1	25	6/29/97		7/5/97	12-0-31
243	TOX-ICR	TOX (Dupl)	48	µg Cl-/L	SM 5320 B	1	25	6/29/97		7/5/97	12-0-31
			47	**µg Cl-/L**	**4.3 % RPD**						
244	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.6	%	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
245	THM-ICR	Bromodichloromethane	3.6	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
246	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
247	THM-ICR	Chloroform	4.2	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
248	THM-ICR	Dibromochloromethane	1.4	µg/L	EPA 551.1	1	1.0	6/29/97	7/1/97	7/1/97	0-22-0
249	UV-ICR	UV	0.009	1/cm	SM 5910 B	1	0.009	6/26/97		6/26/97	8-0-42
250	UV-ICR	UV (Dupl)	0.009	1/cm	SM 5910 B	1	0.009	6/26/97		6/26/97	8-0-42
			0.009	**1/cm**	**0.0 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

Sample ID: 33.10.Eff.20 **S&H ID:** 9706-189 **Date Sampled:** 6/27/97 6:06:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
251	Cl2Dose	Chlorine Dose	3.08	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/29/97		6/29/97	n/a
252	Cl2Res	Chlorine Residual	1.35	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/29/97		7/1/97	n/a
253	HAA	Bromochloroacetic acid	2.8	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
254	HAA	Bromodichloroacetic acid	3.6	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
255	HAA	Chlorodibromoacetic acid	2.2	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
256	HAA	Dibromoacetic acid	1.3	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
257	HAA	Dichloroacetic acid	4.6	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
258	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
259	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
260	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/1/97	7/10/97	7/15/97	MW64390
261	HAA	Trichloroacetic acid	6.2	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
262	pH	Cl2 pH - Final	7.1	Unit	SM 4500-H+ B	1	n/a	6/29/97		7/1/97	n/a
263	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	6/29/97		6/29/97	n/a
264	pH	pH	7.3	Unit	SM 4500-H+ B	1	n/a	6/27/97		6/27/97	n/a
265	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/29/97		7/1/97	n/a
266	TEMP	Temperature	23.2	ºC	SM 2550 B	1	n/a	6/27/97		6/27/97	n/a
267	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	6/29/97		7/1/97	n/a
268	TOC-ICR	TOC	1.01	mg/L	SM 5310 C	1	0.50	6/27/97		6/27/97	7-0-71
269	TOC-ICR	TOC (Dupl)	1.02	mg/L	SM 5310 C	1	0.50	6/27/97		6/27/97	7-0-71
			1.02	**mg/L**	**1.0 % RPD**						
270	TOX-ICR	TOX	65	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
271	TOX-ICR	TOX (Dupl)	65	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
			65	**µg Cl-/L**	**0.0 % RPD**						
272	THM-ICR	1,2,3-Trichloropropane (Surrogate)	86.4	%	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
273	THM-ICR	Bromodichloromethane	5.1	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
274	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
275	THM-ICR	Chloroform	5.4	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
276	THM-ICR	Dibromochloromethane	1.7	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
277	UV-ICR	UV	0.012	1/cm	SM 5910 B	1	0.009	6/27/97		6/27/97	8-0-43
278	UV-ICR	UV (Dupl)	0.012	1/cm	SM 5910 B	1	0.009	6/27/97		6/27/97	8-0-43
			0.012	**1/cm**	**0.0 % RPD**						

Sample ID: 33.10.Eff.21 **S&H ID:** 9706-193 **Date Sampled:** 6/27/97 11:44:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
279	Cl2Dose	Chlorine Dose	3.14	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/29/97		6/29/97	n/a
280	Cl2Res	Chlorine Residual	1.36	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/29/97		7/1/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

281	HAA	Bromochloroacetic acid	3.2	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
282	HAA	Bromodichloroacetic acid	5.2	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
283	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
284	HAA	Dibromoacetic acid	1.3	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
285	HAA	Dichloroacetic acid	5.3	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
286	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
287	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
288	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/1/97	7/10/97	7/15/97	MW64390
289	HAA	Trichloroacetic acid	7.7	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
290	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	6/29/97		7/1/97	n/a
291	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	6/29/97		6/29/97	n/a
292	pH	pH	7.2	Unit	SM 4500-H+ B	1	n/a	6/27/97		6/27/97	n/a
293	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/29/97		7/1/97	n/a
294	TEMP	Temperature	22.8	ºC	SM 2550 B	1	n/a	6/27/97		6/27/97	n/a
295	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	6/29/97		7/1/97	n/a
296	TOC-ICR	TOC	1.12	mg/L	SM 5310 C	1	0.50	6/27/97		6/27/97	7-0-71
297	TOC-ICR	TOC (Dupl)	1.15	mg/L	SM 5310 C	1	0.50	6/27/97		6/27/97	7-0-71
			1.14	**mg/L**	**2.6 % RPD**						
298	TOX-ICR	TOX	71	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/12/97	12-0-33
299	TOX-ICR	TOX (Dupl)	67	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/12/97	12-0-33
			69	**µg Cl-/L**	**5.8 % RPD**						
300	THM-ICR	1,2,3-Trichloropropane (Surrogate)	88.8	%	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
301	THM-ICR	Bromodichloromethane	6.0	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
302	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
303	THM-ICR	Chloroform	7.4	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
304	THM-ICR	Dibromochloromethane	2.0	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
305	UV-ICR	UV	0.014	1/cm	SM 5910 B	1	0.009	6/27/97		6/27/97	8-0-43
306	UV-ICR	UV (Dupl)	0.014	1/cm	SM 5910 B	1	0.009	6/27/97		6/27/97	8-0-43
			0.014	**1/cm**	**0.0 % RPD**						

Sample ID: 33.10.Eff.21d **S&H ID:** 9706-194 **Date Sampled:** 6/27/97 11:44:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
307	Cl2Dose	Chlorine Dose	3.14	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/29/97		6/29/97	n/a
308	Cl2Res	Chlorine Residual	1.35	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/29/97		7/1/97	n/a
309	HAA	Bromochloroacetic acid	3.0	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
310	HAA	Bromodichloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
311	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
312	HAA	Dibromoacetic acid	1.3	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
313	HAA	Dichloroacetic acid	5.5	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

314	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
315	HAA	Monochloroacetic acid	2.0	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
316	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/1/97	7/10/97	7/15/97	MW64390
317	HAA	Trichloroacetic acid	7.8	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
318	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	6/29/97		7/1/97	n/a
319	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	6/29/97		6/29/97	n/a
320	pH	pH	7.2	Unit	SM 4500-H+ B	1	n/a	6/27/97		6/27/97	n/a
321	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/29/97		7/1/97	n/a
322	TEMP	Temperature	23.3	ºC	SM 2550 B	1	n/a	6/27/97		6/27/97	n/a
323	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	6/29/97		7/1/97	n/a
324	TOC-ICR	TOC	1.13	mg/L	SM 5310 C	1	0.50	6/27/97		6/27/97	7-0-71
325	TOC-ICR	TOC (Dupl)	1.14	mg/L	SM 5310 C	1	0.50	6/27/97		6/27/97	7-0-71
			1.13	**mg/L**	**0.9 % RPD**						
326	TOX-ICR	TOX	78	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
327	TOX-ICR	TOX (Dupl)	72	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
			75	**µg Cl-/L**	**8.0 % RPD**						
328	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.8	%	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
329	THM-ICR	Bromodichloromethane	6.0	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
330	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
331	THM-ICR	Chloroform	6.8	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
332	THM-ICR	Dibromochloromethane	1.8	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
333	UV-ICR	UV	0.014	1/cm	SM 5910 B	1	0.009	6/27/97		6/27/97	8-0-43
334	UV-ICR	UV (Dupl)	0.014	1/cm	SM 5910 B	1	0.009	6/27/97		6/27/97	8-0-43
			0.014	**1/cm**	**0.0 % RPD**						

Sample ID: 33.10.Eff-22 **S&H ID:** 9706-197 **Date Sampled:** 6/27/97 5:03:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
335	Cl2Dose	Chlorine Dose	3.23	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/29/97		6/29/97	n/a
336	Cl2Res	Chlorine Residual	1.39	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/29/97		7/1/97	n/a
337	HAA	Bromochloroacetic acid	3.1	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
338	HAA	Bromodichloroacetic acid	4.9	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
339	HAA	Chlorodibromoacetic acid	2.0	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
340	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
341	HAA	Dichloroacetic acid	6.2	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
342	HAA	Monobromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
343	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
344	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/1/97	7/10/97	7/15/97	MW64390
345	HAA	Trichloroacetic acid	9.3	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
346	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	6/29/97		7/1/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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347	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	6/29/97		6/29/97	n/a
348	pH	pH	7.2	Unit	SM 4500-H+ B	1	n/a	6/27/97		6/27/97	n/a
349	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/29/97		7/1/97	n/a
350	TEMP	Temperature	23.2	ºC	SM 2550 B	1	n/a	6/27/97		6/27/97	n/a
351	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	6/29/97		7/1/97	n/a
352	TOC-ICR	TOC	1.33	mg/L	SM 5310 C	1	0.50	6/27/97		6/27/97	7-0-71
353	TOC-ICR	TOC (Dupl)	1.34	mg/L	SM 5310 C	1	0.50	6/27/97		6/27/97	7-0-71
			1.34	**mg/L**	**0.7 % RPD**						
354	TOX-ICR	TOX	90	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
355	TOX-ICR	TOX (Dupl)	92	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
			91	**µg Cl-/L**	**2.2 % RPD**						
356	THM-ICR	1,2,3-Trichloropropane (Surrogate)	93.2	%	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
357	THM-ICR	Bromodichloromethane	7.0	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
358	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
359	THM-ICR	Chloroform	9.8	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
360	THM-ICR	Dibromochloromethane	1.9	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
361	UV-ICR	UV	0.017	1/cm	SM 5910 B	1	0.009	6/27/97		6/27/97	8-0-43
362	UV-ICR	UV (Dupl)	0.017	1/cm	SM 5910 B	1	0.009	6/27/97		6/27/97	8-0-43
			0.017	**1/cm**	**0.0 % RPD**						

Sample ID: 33.10.Eff-23 **S&H ID:** 9706-199 **Date Sampled:** 6/27/97 10:27:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
363	Cl2Dose	Chlorine Dose	3.25	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/1/97		7/1/97	n/a
364	Cl2Res	Chlorine Residual	1.24	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/1/97		7/3/97	n/a
365	HAA	Bromochloroacetic acid	3.6	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
366	HAA	Bromodichloroacetic acid	6.3	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
367	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
368	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
369	HAA	Dichloroacetic acid	7.7	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
370	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
371	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
372	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/3/97	7/10/97	7/11/97	MW64720
373	HAA	Trichloroacetic acid	13.0	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
374	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/3/97	n/a
375	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/1/97	n/a
376	pH	pH	7.2	Unit	SM 4500-H+ B	1	n/a	6/27/97		6/28/97	n/a
377	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	7/1/97		7/3/97	n/a
378	TEMP	Temperature	23.1	ºC	SM 2550 B	1	n/a	6/27/97		6/28/97	n/a
379	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	7/1/97		7/3/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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380	TOC-ICR	TOC	1.47	mg/L	SM 5310 C	1	0.50	6/27/97		6/28/97	7-0-72
381	TOC-ICR	TOC (Dupl)	1.47	mg/L	SM 5310 C	1	0.50	6/27/97		6/28/97	7-0-72
			1.47	**mg/L**	**0.0 % RPD**						
382	TOX-ICR	TOX	103	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32
383	TOX-ICR	TOX (Dupl)	106	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32
			105	**µg Cl-/L**	**2.9 % RPD**						
384	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.8	%	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
385	THM-ICR	Bromodichloromethane	7.2	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
386	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
387	THM-ICR	Chloroform	10.4	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
388	THM-ICR	Dibromochloromethane	1.6	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
389	UV-ICR	UV	0.020	1/cm	SM 5910 B	1	0.009	6/27/97		6/28/97	8-0-44
390	UV-ICR	UV (Dupl)	0.020	1/cm	SM 5910 B	1	0.009	6/27/97		6/28/97	8-0-44
			0.020	**1/cm**	**0.0 % RPD**						

Sample ID: 33.10.Eff-24 **S&H ID:** 9706-203 **Date Sampled:** 6/28/97 9:26:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
391	Cl2Dose	Chlorine Dose	3.29	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/1/97		7/1/97	n/a
392	Cl2Res	Chlorine Residual	1.35	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/1/97		7/3/97	n/a
393	HAA	Bromochloroacetic acid	3.6	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
394	HAA	Bromodichloroacetic acid	6.1	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
395	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
396	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
397	HAA	Dichloroacetic acid	8.4	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
398	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
399	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
400	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/3/97	7/10/97	7/11/97	MW64720
401	HAA	Trichloroacetic acid	14.0	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
402	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/3/97	n/a
403	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/1/97	n/a
404	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	6/28/97		6/28/97	n/a
405	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	7/1/97		7/3/97	n/a
406	TEMP	Temperature	22.5	ºC	SM 2550 B	1	n/a	6/28/97		6/28/97	n/a
407	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	7/1/97		7/3/97	n/a
408	TOC-ICR	TOC	1.56	mg/L	SM 5310 C	1	0.50	6/28/97		6/28/97	7-0-72
409	TOC-ICR	TOC (Dupl)	1.57	mg/L	SM 5310 C	1	0.50	6/28/97		6/28/97	7-0-72
			1.56	**mg/L**	**0.6 % RPD**						
410	TOX-ICR	TOX	121	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/5/97	12-0-31
411	TOX-ICR	TOX (Dupl)	122	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/5/97	12-0-31

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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			122	**µg Cl-/L**	**0.8 % RPD**						
412	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.8	%	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
413	THM-ICR	Bromodichloromethane	7.4	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
414	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
415	THM-ICR	Chloroform	12.6	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
416	THM-ICR	Dibromochloromethane	1.6	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
417	UV-ICR	UV	0.022	1/cm	SM 5910 B	1	0.009	6/28/97		6/28/97	8-0-44
418	UV-ICR	UV (Dupl)	0.022	1/cm	SM 5910 B	1	0.009	6/28/97		6/28/97	8-0-44
			0.022	**1/cm**	**0.0 % RPD**						

Sample ID: 33.20.Eff.14 **S&H ID:** 9706-210 **Date Sampled:** 6/29/97 12:17:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
419	Cl2Dose	Chlorine Dose	2.74	mg/L as Cl2	SM 4500-Cl B	1	n/a	6/29/97		6/29/97	n/a
420	Cl2Res	Chlorine Residual	1.27	mg/L as Cl2	SM 4500-Cl F	1	0.10	6/29/97		7/1/97	n/a
421	HAA	Bromochloroacetic acid	1.0	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
422	HAA	Bromodichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
423	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
424	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
425	HAA	Dichloroacetic acid	1.0	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
426	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
427	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/1/97	7/10/97	7/15/97	MW64390
428	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/1/97	7/10/97	7/15/97	MW64390
429	HAA	Trichloroacetic acid	1.1	µg/L	SM 6251 B	1	1.0	7/1/97	7/10/97	7/15/97	MW64390
430	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	6/29/97		7/1/97	n/a
431	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	6/29/97		6/29/97	n/a
432	pH	pH	6.7	Unit	SM 4500-H+ B	1	n/a	6/29/97		6/29/97	n/a
433	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	6/29/97		7/1/97	n/a
434	TEMP	Temperature	22.3	ºC	SM 2550 B	1	n/a	6/29/97		6/29/97	n/a
435	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	6/29/97		7/1/97	n/a
436	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	6/29/97		6/29/97	7-0-73
437	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	6/29/97		6/29/97	7-0-73
			ND	**mg/L**							
438	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
439	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	7/1/97		7/5/97	12-0-31
			ND	**µg Cl-/L**							
440	THM-ICR	1,2,3-Trichloropropane (Surrogate)	88.0	%	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
441	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
442	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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443	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
444	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	7/1/97	7/1/97	7/1/97	0-22-0
445	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	6/29/97		6/30/97	8-0-45
446	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	6/29/97		6/30/97	8-0-45
			ND	**1/cm**							

Sample ID: 33.10.20.Inf.A.2 **S&H ID:** 9706-236 **Date Sampled:** 6/30/97 10:45:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
447	ALK	Alkalinity	21	mg/L	SM 2320 B	1	5	6/30/97		7/1/97	1-0-3
448	NH3	Ammonia Nitrogen	ND	mg/L	EPA 350.1	1	0.05	6/30/97		7/15/97	MW64348
449	BR	Bromide	0.029	mg/L	EPA 300.0 A	1	0.020	6/30/97		7/17/97	MW64478
450	CaHard	Calcium Hardness	74	mg/L CaCO3	SM 3500-Ca D	1	5	6/30/97		7/1/97	33-0-3
451	TotHard	Total Hardness	92	mg/L CaCO3	SM 2340 C	1	5	6/30/97		7/1/97	3-0-3

Sample ID: 33.10.20.Inf.B.2 **S&H ID:** 9706-237 **Date Sampled:** 6/30/97 11:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
452	Cl2Dose	Chlorine Dose	4.49	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/1/97		7/1/97	n/a
453	Cl2Res	Chlorine Residual	1.30	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/1/97		7/3/97	n/a
454	HAA	Bromochloroacetic acid	4.3	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
455	HAA	Bromodichloroacetic acid	6.8	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
456	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
457	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
458	HAA	Dichloroacetic acid	23.0	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
459	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
460	HAA	Monochloroacetic acid	3.5	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
461	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/3/97	7/10/97	7/11/97	MW64720
462	HAA	Trichloroacetic acid	34.0	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
463	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/3/97	n/a
464	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/1/97	n/a
465	pH	pH	6.3	Unit	SM 4500-H+ B	1	n/a	6/30/97		6/30/97	n/a
466	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	7/1/97		7/3/97	n/a
467	TEMP	Temperature	15.8	ºC	SM 2550 B	1	n/a	6/30/97		6/30/97	n/a
468	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	7/1/97		7/3/97	n/a
469	TOC-ICR	TOC	2.61	mg/L	SM 5310 C	1	0.50	6/30/97		6/30/97	7-0-74
470	TOC-ICR	TOC (Dupl)	2.63	mg/L	SM 5310 C	1	0.50	6/30/97		6/30/97	7-0-74
			2.62	**mg/L**	**0.8 % RPD**						
471	TOX-ICR	TOX	278	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32
472	TOX-ICR	TOX (Dupl)	276	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

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			277	**µg Cl-/L**	**0.7 % RPD**						
473	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.4	%	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
474	THM-ICR	Bromodichloromethane	15.5	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
475	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
476	THM-ICR	Chloroform	42.4	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
477	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
478	TURB	Turbidity	0.20	ntu	SM 2130 B	1	0.05	6/30/97		6/30/97	9-0-2
479	UV-ICR	UV	0.056	1/cm	SM 5910 B	1	0.009	6/30/97		7/1/97	8-0-46
480	UV-ICR	UV (Dupl)	0.056	1/cm	SM 5910 B	1	0.009	6/30/97		7/1/97	8-0-46
			0.056	**1/cm**	**0.0 % RPD**						

Sample ID: 33.10.Eff.29 **S&H ID:** 9706-238 **Date Sampled:** 6/30/97 10:20:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
481	Cl2Dose	Chlorine Dose	3.40	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/1/97		7/1/97	n/a
482	Cl2Res	Chlorine Residual	1.15	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/1/97		7/3/97	n/a
483	HAA	Bromochloroacetic acid	NR	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
484	HAA	Bromodichloroacetic acid	NR	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
485	HAA	Chlorodibromoacetic acid	NR	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
486	HAA	Dibromoacetic acid	NR	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
487	HAA	Dichloroacetic acid	NR	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
488	HAA	Monobromoacetic acid	NR	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
489	HAA	Monochloroacetic acid	NR	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
490	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	7/3/97	7/10/97	7/11/97	MW64720
491	HAA	Trichloroacetic acid	NR	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
492	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/3/97	n/a
493	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/1/97	n/a
494	pH	pH	7.2	Unit	SM 4500-H+ B	1	n/a	6/30/97		6/30/97	n/a
495	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	7/1/97		7/3/97	n/a
496	TEMP	Temperature	23.1	ºC	SM 2550 B	1	n/a	6/30/97		6/30/97	n/a
497	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	7/1/97		7/3/97	n/a
498	TOC-ICR	TOC	1.83	mg/L	SM 5310 C	1	0.50	6/30/97		6/30/97	7-0-74
499	TOC-ICR	TOC (Dupl)	1.76	mg/L	SM 5310 C	1	0.50	6/30/97		6/30/97	7-0-74
			1.79	**mg/L**	**3.9 % RPD**						
500	TOX-ICR	TOX	136	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32
501	TOX-ICR	TOX (Dupl)	133	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32
			135	**µg Cl-/L**	**2.2 % RPD**						
502	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.0	%	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
503	THM-ICR	Bromodichloromethane	8.4	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

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Akron Public Utilities Bureau

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504	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
505	THM-ICR	Chloroform	18.5	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
506	THM-ICR	Dibromochloromethane	2.3	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
507	UV-ICR	UV	0.026	1/cm	SM 5910 B	1	0.009	6/30/97		7/1/97	8-0-46
508	UV-ICR	UV (Dupl)	0.026	1/cm	SM 5910 B	1	0.009	6/30/97		7/1/97	8-0-46
			0.026	**1/cm**	**0.0 % RPD**						

Sample ID: 33.10.Eff.29d **S&H ID:** 9706-239 **Date Sampled:** 6/30/97 10:26:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
509	Cl2Dose	Chlorine Dose	3.40	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/1/97		7/1/97	n/a
510	Cl2Res	Chlorine Residual	1.20	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/1/97		7/3/97	n/a
511	HAA	Bromochloroacetic acid	3.6	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
512	HAA	Bromodichloroacetic acid	6.8	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
513	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
514	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
515	HAA	Dichloroacetic acid	11.0	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
516	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
517	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
518	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/3/97	7/10/97	7/11/97	MW64720
519	HAA	Trichloroacetic acid	17.0	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
520	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/3/97	n/a
521	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/1/97	n/a
522	pH	pH	7.0	Unit	SM 4500-H+ B	1	n/a	6/30/97		6/30/97	n/a
523	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	7/1/97		7/3/97	n/a
524	TEMP	Temperature	23.0	ºC	SM 2550 B	1	n/a	6/30/97		6/30/97	n/a
525	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	7/1/97		7/3/97	n/a
526	TOC-ICR	TOC	1.72	mg/L	SM 5310 C	1	0.50	6/30/97		6/30/97	7-0-74
527	TOC-ICR	TOC (Dupl)	1.71	mg/L	SM 5310 C	1	0.50	6/30/97		6/30/97	7-0-74
			1.71	**mg/L**	**0.6 % RPD**						
528	TOX-ICR	TOX	144	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32
529	TOX-ICR	TOX (Dupl)	147	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32
			146	**µg Cl-/L**	**2.1 % RPD**						
530	THM-ICR	1,2,3-Trichloropropane (Surrogate)	88.8	%	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
531	THM-ICR	Bromodichloromethane	12.0	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
532	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
533	THM-ICR	Chloroform	22.4	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
534	THM-ICR	Dibromochloromethane	1.7	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
535	UV-ICR	UV	0.026	1/cm	SM 5910 B	1	0.009	6/30/97		7/1/97	8-0-46
536	UV-ICR	UV (Dupl)	0.026	1/cm	SM 5910 B	1	0.009	6/30/97		7/1/97	8-0-46

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

			0.026	**1/cm**	**0.0 % RPD**						

Sample ID: 33.20.Eff.17 **S&H ID:** 9707-2 **Date Sampled:** 7/1/97 1:36:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
537	Cl2Dose	Chlorine Dose	2.80	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/1/97		7/1/97	n/a
538	Cl2Res	Chlorine Residual	1.23	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/1/97		7/3/97	n/a
539	HAA	Bromochloroacetic acid	1.2	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
540	HAA	Bromodichloroacetic acid	1.9	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
541	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
542	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
543	HAA	Dichloroacetic acid	2.1	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
544	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
545	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
546	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/3/97	7/10/97	7/11/97	MW64720
547	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
548	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/3/97	n/a
549	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/1/97	n/a
550	pH	pH	7.1	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/1/97	n/a
551	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	7/1/97		7/3/97	n/a
552	TEMP	Temperature	22.1	ºC	SM 2550 B	1	n/a	7/1/97		7/1/97	n/a
553	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	7/1/97		7/3/97	n/a
554	TOC-ICR	TOC	0.52	mg/L	SM 5310 C	1	0.50	7/1/97		7/1/97	7-0-75
555	TOC-ICR	TOC (Dupl)	0.53	mg/L	SM 5310 C	1	0.50	7/1/97		7/1/97	7-0-75
			0.53	**mg/L**	**1.9 % RPD**						
556	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32
557	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32
			ND	**µg Cl-/L**							
558	THM-ICR	1,2,3-Trichloropropane (Surrogate)	90.8	%	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
559	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
560	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
561	THM-ICR	Chloroform	1.2	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
562	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
563	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	7/1/97		7/1/97	8-0-46
564	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	7/1/97		7/1/97	8-0-46
			ND	**1/cm**							

Sample ID: 33.20.Eff.17d **S&H ID:** 9707-3 **Date Sampled:** 7/1/97 1:36:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

565	Cl2Dose	Chlorine Dose	2.80	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/1/97		7/1/97	n/a
566	Cl2Res	Chlorine Residual	1.29	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/1/97		7/3/97	n/a
567	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
568	HAA	Bromodichloroacetic acid	1.5	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
569	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
570	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
571	HAA	Dichloroacetic acid	2.2	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
572	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
573	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/3/97	7/10/97	7/11/97	MW64720
574	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/3/97	7/10/97	7/11/97	MW64720
575	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/3/97	7/10/97	7/11/97	MW64720
576	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/3/97	n/a
577	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/1/97	n/a
578	pH	pH	7.1	Unit	SM 4500-H+ B	1	n/a	7/1/97		7/1/97	n/a
579	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	7/1/97		7/3/97	n/a
580	TEMP	Temperature	22.2	ºC	SM 2550 B	1	n/a	7/1/97		7/1/97	n/a
581	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	7/1/97		7/3/97	n/a
582	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	7/1/97		7/1/97	7-0-75
583	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	7/1/97		7/1/97	7-0-75
			ND	**mg/L**							
584	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32
585	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	7/3/97		7/6/97	12-0-32
			ND	**µg Cl-/L**							
586	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.0	%	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
587	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	100.4	%	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
			102.2	**%**	**3.5 % RPD**						
588	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
589	THM-ICR	Bromodichloromethane (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
			ND	**µg/L**							
590	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
591	THM-ICR	Bromoform (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
			ND	**µg/L**							
592	THM-ICR	Chloroform	1.1	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
593	THM-ICR	Chloroform (Lab Dupl)	1.1	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
			1.1	**µg/L**	**0.0 % RPD**						
594	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
595	THM-ICR	Dibromochloromethane (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	7/3/97	7/7/97	7/9/97	0-23-0
			ND	**µg/L**							
596	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	7/1/97		7/1/97	8-0-46
597	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	7/1/97		7/1/97	8-0-46

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

			ND	**1/cm**							

Sample ID: 33.20.Eff.20 **S&H ID:** 9707-19 **Date Sampled:** 7/2/97 4:12:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
598	Cl2Dose	Chlorine Dose	2.91	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/2/97		7/2/97	n/a
599	Cl2Res	Chlorine Residual	1.34	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/2/97		7/4/97	n/a
600	HAA	Bromochloroacetic acid	1.8	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
601	HAA	Bromodichloroacetic acid	2.4	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
602	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/4/97	7/10/97	7/11/97	MW64720
603	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
604	HAA	Dichloroacetic acid	2.7	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
605	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
606	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/4/97	7/10/97	7/11/97	MW64720
607	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/4/97	7/10/97	7/11/97	MW64720
608	HAA	Trichloroacetic acid	2.3	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
609	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/2/97		7/4/97	n/a
610	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/2/97		7/2/97	n/a
611	pH	pH	6.7	Unit	SM 4500-H+ B	1	n/a	7/2/97		7/2/97	n/a
612	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	7/2/97		7/4/97	n/a
613	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	7/2/97		7/2/97	n/a
614	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	7/2/97		7/4/97	n/a
615	TOC-ICR	TOC	0.72	mg/L	SM 5310 C	1	0.50	7/2/97		7/2/97	7-0-76
616	TOC-ICR	TOC (Dupl)	0.72	mg/L	SM 5310 C	1	0.50	7/2/97		7/2/97	7-0-76
			0.72	**mg/L**	**0.0 % RPD**						
617	TOX-ICR	TOX	34	µg Cl-/L	SM 5320 B	1	25	7/4/97		7/12/97	12-0-33
618	TOX-ICR	TOX (Dupl)	27	µg Cl-/L	SM 5320 B	1	25	7/4/97		7/12/97	12-0-33
			31	**µg Cl-/L**	**22.6 % RPD**						
619	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.6	%	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
620	THM-ICR	Bromodichloromethane	2.2	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
621	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
622	THM-ICR	Chloroform	2.6	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
623	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
624	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	7/2/97		7/3/97	8-0-47
625	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	7/2/97		7/3/97	8-0-47
			ND	**1/cm**							

Sample ID: 33.10.Eff-32 **S&H ID:** 9707-23 **Date Sampled:** 7/2/97 1:31:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
626	Cl2Dose	Chlorine Dose	3.45	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/2/97		7/2/97	n/a
627	Cl2Res	Chlorine Residual	1.17	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/2/97		7/4/97	n/a
628	HAA	Bromochloroacetic acid	3.8	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
629	HAA	Bromodichloroacetic acid	7.2	µg/L	SM 6251 B	1	2.0	7/4/97	7/10/97	7/11/97	MW64720
630	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/4/97	7/10/97	7/11/97	MW64720
631	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
632	HAA	Dichloroacetic acid	13.0	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
633	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
634	HAA	Monochloroacetic acid	2.9	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
635	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/4/97	7/10/97	7/11/97	MW64720
636	HAA	Trichloroacetic acid	21.0	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
637	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	7/2/97		7/4/97	n/a
638	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/2/97		7/2/97	n/a
639	pH	pH	7.2	Unit	SM 4500-H+ B	1	n/a	7/2/97		7/2/97	n/a
640	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	7/2/97		7/4/97	n/a
641	TEMP	Temperature	22.7	ºC	SM 2550 B	1	n/a	7/2/97		7/2/97	n/a
642	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	7/2/97		7/4/97	n/a
643	TOC-ICR	TOC	1.89	mg/L	SM 5310 C	1	0.50	7/2/97		7/2/97	7-0-76
644	TOC-ICR	TOC (Dupl)	1.94	mg/L	SM 5310 C	1	0.50	7/2/97		7/2/97	7-0-76
			1.92	**mg/L**	**2.6 % RPD**						
645	TOX-ICR	TOX	173	µg Cl-/L	SM 5320 B	1	25	7/4/97		7/12/97	12-0-33
646	TOX-ICR	TOX (Dupl)	162	µg Cl-/L	SM 5320 B	1	25	7/4/97		7/12/97	12-0-33
			168	**µg Cl-/L**	**6.5 % RPD**						
647	THM-ICR	1,2,3-Trichloropropane (Surrogate)	106.8	%	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
648	THM-ICR	Bromodichloromethane	8.0	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
649	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
650	THM-ICR	Chloroform	19.8	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
651	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
652	UV-ICR	UV	0.031	1/cm	SM 5910 B	1	0.009	7/2/97		7/3/97	8-0-47
653	UV-ICR	UV (Dupl)	0.031	1/cm	SM 5910 B	1	0.009	7/2/97		7/3/97	8-0-47
			0.031	**1/cm**	**0.0 % RPD**						

Sample ID: 33.20.Eff.22 **S&H ID:** 9707-24 **Date Sampled:** 7/2/97 1:31:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
654	Cl2Dose	Chlorine Dose	2.96	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/2/97		7/2/97	n/a
655	Cl2Res	Chlorine Residual	1.28	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/2/97		7/4/97	n/a
656	HAA	Bromochloroacetic acid	2.3	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
657	HAA	Bromodichloroacetic acid	2.9	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
658	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/4/97	7/10/97	7/11/97	MW64720

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

659	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
660	HAA	Dichloroacetic acid	3.3	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
661	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
662	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/4/97	7/10/97	7/11/97	MW64720
663	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/4/97	7/10/97	7/11/97	MW64720
664	HAA	Trichloroacetic acid	4.2	µg/L	SM 6251 B	1	1.0	7/4/97	7/10/97	7/11/97	MW64720
665	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/2/97		7/4/97	n/a
666	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/2/97		7/2/97	n/a
667	pH	pH	6.8	Unit	SM 4500-H+ B	1	n/a	7/2/97		7/2/97	n/a
668	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	7/2/97		7/4/97	n/a
669	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	7/2/97		7/2/97	n/a
670	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	7/2/97		7/4/97	n/a
671	TOC-ICR	TOC	0.83	mg/L	SM 5310 C	1	0.50	7/2/97		7/2/97	7-0-76
672	TOC-ICR	TOC (Dupl)	0.83	mg/L	SM 5310 C	1	0.50	7/2/97		7/2/97	7-0-76
			0.83	**mg/L**	**0.0 % RPD**						
673	TOX-ICR	TOX	40	µg Cl-/L	SM 5320 B	1	25	7/4/97		7/12/97	12-0-33
674	TOX-ICR	TOX (Dupl)	35	µg Cl-/L	SM 5320 B	1	25	7/4/97		7/12/97	12-0-33
			38	**µg Cl-/L**	**13.2 % RPD**						
675	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.4	%	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
676	THM-ICR	Bromodichloromethane	2.7	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
677	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
678	THM-ICR	Chloroform	2.5	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
679	THM-ICR	Dibromochloromethane	1.2	µg/L	EPA 551.1	1	1.0	7/4/97	7/7/97	7/9/97	0-23-0
680	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	7/2/97		7/3/97	8-0-47
681	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	7/2/97		7/3/97	8-0-47
			ND	**1/cm**							

Sample ID: 33.20.Eff.23 **S&H ID:** 9707-25 **Date Sampled:** 7/3/97 1:43:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
682	Cl2Dose	Chlorine Dose	3.08	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/5/97		7/5/97	n/a
683	Cl2Res	Chlorine Residual	1.29	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/5/97		7/7/97	n/a
684	HAA	Bromochloroacetic acid	2.3	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
685	HAA	Bromodichloroacetic acid	3.2	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
686	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/7/97	7/10/97	7/11/97	MW64720
687	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
688	HAA	Dichloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
689	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
690	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/7/97	7/10/97	7/11/97	MW64720
691	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/7/97	7/10/97	7/11/97	MW64720

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

692	HAA	Trichloroacetic acid	5.4	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
693	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/5/97		7/7/97	n/a
694	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/5/97		7/5/97	n/a
695	pH	pH	6.8	Unit	SM 4500-H+ B	1	n/a	7/3/97		7/3/97	n/a
696	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	7/5/97		7/7/97	n/a
697	TEMP	Temperature	21.9	ºC	SM 2550 B	1	n/a	7/3/97		7/3/97	n/a
698	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	7/5/97		7/7/97	n/a
699	TOC-ICR	TOC	0.95	mg/L	SM 5310 C	1	0.50	7/3/97		7/3/97	7-0-77
700	TOC-ICR	TOC (Dupl)	0.96	mg/L	SM 5310 C	1	0.50	7/3/97		7/3/97	7-0-77
			0.95	**mg/L**	**1.1 % RPD**						
701	TOX-ICR	TOX	51	µg Cl-/L	SM 5320 B	1	25	7/7/97		7/13/97	12-0-34
702	TOX-ICR	TOX (Dupl)	54	µg Cl-/L	SM 5320 B	1	25	7/7/97		7/13/97	12-0-34
			53	**µg Cl-/L**	**5.7 % RPD**						
703	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.4	%	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
704	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	94.8	%	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
			98.6	**%**	**7.7 % RPD**						
705	THM-ICR	Bromodichloromethane	5.1	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
706	THM-ICR	Bromodichloromethane (Lab Dupl)	5.0	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
			5.0	**µg/L**	**2.0 % RPD**						
707	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
708	THM-ICR	Bromoform (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
			ND	**µg/L**							
709	THM-ICR	Chloroform	5.6	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
710	THM-ICR	Chloroform (Lab Dupl)	5.7	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
			5.7	**µg/L**	**1.8 % RPD**						
711	THM-ICR	Dibromochloromethane	2.2	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
712	THM-ICR	Dibromochloromethane (Lab Dupl)	2.3	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
			2.3	**µg/L**	**4.3 % RPD**						
713	UV-ICR	UV	0.009	1/cm	SM 5910 B	1	0.009	7/3/97		7/3/97	8-0-47
714	UV-ICR	UV (Dupl)	0.009	1/cm	SM 5910 B	1	0.009	7/3/97		7/3/97	8-0-47
			0.009	**1/cm**	**0.0 % RPD**						

Sample ID: 33.10.Eff.33 **S&H ID:** 9707-31 **Date Sampled:** 7/3/97 3:45:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
715	pH	pH	7.2	Unit	SM 4500-H+ B	1	n/a	7/3/97		7/3/97	n/a
716	TEMP	Temperature	23.2	ºC	SM 2550 B	1	n/a	7/3/97		7/3/97	n/a
717	TOC-ICR	TOC	2.00	mg/L	SM 5310 C	1	0.50	7/3/97		7/3/97	7-0-77
718	TOC-ICR	TOC (Dupl)	2.03	mg/L	SM 5310 C	1	0.50	7/3/97		7/3/97	7-0-77
			2.01	**mg/L**	**1.5 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

Sample ID: 33.20.Eff.29 **S&H ID:** 9707-38 **Date Sampled:** 7/4/97 10:12:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
719	Cl2Dose	Chlorine Dose	3.16	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/5/97		7/5/97	n/a
720	Cl2Res	Chlorine Residual	1.31	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/5/97		7/7/97	n/a
721	HAA	Bromochloroacetic acid	2.6	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
722	HAA	Bromodichloroacetic acid	4.2	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
723	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/7/97	7/10/97	7/11/97	MW64720
724	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
725	HAA	Dichloroacetic acid	4.6	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
726	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
727	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/7/97	7/10/97	7/11/97	MW64720
728	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/7/97	7/10/97	7/11/97	MW64720
729	HAA	Trichloroacetic acid	8.1	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
730	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/5/97		7/7/97	n/a
731	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/5/97		7/5/97	n/a
732	pH	pH	6.7	Unit	SM 4500-H+ B	1	n/a	7/4/97		7/4/97	n/a
733	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	7/5/97		7/7/97	n/a
734	TEMP	Temperature	21.6	ºC	SM 2550 B	1	n/a	7/4/97		7/4/97	n/a
735	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	7/5/97		7/7/97	n/a
736	TOC-ICR	TOC	1.16	mg/L	SM 5310 C	1	0.50	7/4/97		7/4/97	7-0-78
737	TOC-ICR	TOC (Dupl)	1.16	mg/L	SM 5310 C	1	0.50	7/4/97		7/4/97	7-0-78
			1.16	**mg/L**	**0.0 % RPD**						
738	TOX-ICR	TOX	65	µg Cl-/L	SM 5320 B	1	25	7/7/97		7/13/97	12-0-34
739	TOX-ICR	TOX (Dupl)	68	µg Cl-/L	SM 5320 B	1	25	7/7/97		7/13/97	12-0-34
			67	**µg Cl-/L**	**4.5 % RPD**						
740	THM-ICR	1,2,3-Trichloropropane (Surrogate)	90.8	%	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
741	THM-ICR	Bromodichloromethane	6.5	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
742	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
743	THM-ICR	Chloroform	8.6	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
744	THM-ICR	Dibromochloromethane	2.5	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
745	UV-ICR	UV	0.012	1/cm	SM 5910 B	1	0.009	7/4/97		7/5/97	8-0-49
746	UV-ICR	UV (Dupl)	0.012	1/cm	SM 5910 B	1	0.009	7/4/97		7/5/97	8-0-49
			0.012	**1/cm**	**0.0 % RPD**						

Sample ID: 33.20.Eff.29d **S&H ID:** 9707-39 **Date Sampled:** 7/4/97 10:12:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
747	Cl2Dose	Chlorine Dose	3.16	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/5/97		7/5/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

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748	Cl2Res	Chlorine Residual	1.30	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/5/97		7/7/97	n/a
749	HAA	Bromochloroacetic acid	2.8	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
750	HAA	Bromodichloroacetic acid	4.0	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
751	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/7/97	7/10/97	7/11/97	MW64720
752	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
753	HAA	Dichloroacetic acid	4.8	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
754	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
755	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/7/97	7/10/97	7/11/97	MW64720
756	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/7/97	7/10/97	7/11/97	MW64720
757	HAA	Trichloroacetic acid	8.3	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
758	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/5/97		7/7/97	n/a
759	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/5/97		7/5/97	n/a
760	pH	pH	6.7	Unit	SM 4500-H+ B	1	n/a	7/4/97		7/4/97	n/a
761	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	7/5/97		7/7/97	n/a
762	TEMP	Temperature	21.6	ºC	SM 2550 B	1	n/a	7/4/97		7/4/97	n/a
763	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	7/5/97		7/7/97	n/a
764	TOC-ICR	TOC	1.10	mg/L	SM 5310 C	1	0.50	7/4/97		7/4/97	7-0-78
765	TOC-ICR	TOC (Dupl)	1.13	mg/L	SM 5310 C	1	0.50	7/4/97		7/4/97	7-0-78
			1.12	**mg/L**	**2.7 % RPD**						
766	TOX-ICR	TOX	68	µg Cl-/L	SM 5320 B	1	25	7/7/97		7/12/97	12-0-33
767	TOX-ICR	TOX (Dupl)	64	µg Cl-/L	SM 5320 B	1	25	7/7/97		7/13/97	12-0-34
			66	**µg Cl-/L**	**6.1 % RPD**						
768	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.8	%	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
769	THM-ICR	Bromodichloromethane	6.1	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
770	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
771	THM-ICR	Chloroform	7.9	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
772	THM-ICR	Dibromochloromethane	2.5	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
773	UV-ICR	UV	0.011	1/cm	SM 5910 B	1	0.009	7/4/97		7/5/97	8-0-49
774	UV-ICR	UV (Dupl)	0.011	1/cm	SM 5910 B	1	0.009	7/4/97		7/5/97	8-0-49
			0.011	**1/cm**	**0.0 % RPD**						

Sample ID: 33.20.Eff.32 **S&H ID:** 9707-48 **Date Sampled:** 7/5/97 7:45:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
775	Cl2Dose	Chlorine Dose	3.24	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/5/97		7/5/97	n/a
776	Cl2Res	Chlorine Residual	1.30	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/5/97		7/7/97	n/a
777	HAA	Bromochloroacetic acid	2.9	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
778	HAA	Bromodichloroacetic acid	4.9	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
779	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/7/97	7/10/97	7/11/97	MW64720
780	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

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781	HAA	Dichloroacetic acid	5.5	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
782	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
783	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/7/97	7/10/97	7/11/97	MW64720
784	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/7/97	7/10/97	7/11/97	MW64720
785	HAA	Trichloroacetic acid	10.0	µg/L	SM 6251 B	1	1.0	7/7/97	7/10/97	7/11/97	MW64720
786	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/5/97		7/7/97	n/a
787	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/5/97		7/5/97	n/a
788	pH	pH	6.9	Unit	SM 4500-H+ B	1	n/a	7/5/97		7/5/97	n/a
789	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	7/5/97		7/7/97	n/a
790	TEMP	Temperature	21.2	ºC	SM 2550 B	1	n/a	7/5/97		7/5/97	n/a
791	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	7/5/97		7/7/97	n/a
792	TOC-ICR	TOC	1.28	mg/L	SM 5310 C	1	0.50	7/5/97		7/5/97	7-0-79
793	TOC-ICR	TOC (Dupl)	1.27	mg/L	SM 5310 C	1	0.50	7/5/97		7/5/97	7-0-79
			1.27	**mg/L**	**0.8 % RPD**						
794	TOX-ICR	TOX	76	µg Cl-/L	SM 5320 B	1	25	7/7/97		7/12/97	12-0-33
795	TOX-ICR	TOX (Dupl)	81	µg Cl-/L	SM 5320 B	1	25	7/7/97		7/12/97	12-0-33
			79	**µg Cl-/L**	**6.3 % RPD**						
796	THM-ICR	1,2,3-Trichloropropane (Surrogate)	91.2	%	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
797	THM-ICR	Bromodichloromethane	7.7	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
798	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
799	THM-ICR	Chloroform	11.0	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
800	THM-ICR	Dibromochloromethane	2.7	µg/L	EPA 551.1	1	1.0	7/7/97	7/14/97	7/15/97	0-26-0
801	UV-ICR	UV	0.015	1/cm	SM 5910 B	1	0.009	7/5/97		7/5/97	8-0-49
802	UV-ICR	UV (Dupl)	0.014	1/cm	SM 5910 B	1	0.009	7/5/97		7/5/97	8-0-49
			0.014	**1/cm**	**7.1 % RPD**						

Sample ID: 33.20.Eff.37 **S&H ID:** 9707-100 **Date Sampled:** 7/7/97 1:45:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
803	Cl2Dose	Chlorine Dose	3.34	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/8/97		7/8/97	n/a
804	Cl2Res	Chlorine Residual	1.26	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/8/97		7/10/97	n/a
805	HAA	Bromochloroacetic acid	3.3	µg/L	SM 6251 B	1	1.0	7/10/97	7/22/97	7/28/97	MW64862
806	HAA	Bromodichloroacetic acid	5.7	µg/L	SM 6251 B	1	1.0	7/10/97	7/22/97	7/28/97	MW64862
807	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/10/97	7/22/97	7/28/97	MW64862
808	HAA	Dibromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	7/10/97	7/22/97	7/28/97	MW64862
809	HAA	Dichloroacetic acid	7.0	µg/L	SM 6251 B	1	1.0	7/10/97	7/22/97	7/28/97	MW64862
810	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/10/97	7/22/97	7/28/97	MW64862
811	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/10/97	7/22/97	7/28/97	MW64862
812	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/10/97	7/22/97	7/28/97	MW64862
813	HAA	Trichloroacetic acid	10.0	µg/L	SM 6251 B	1	1.0	7/10/97	7/22/97	7/28/97	MW64862

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

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Study Title: ICR RSSCT #1

814	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/8/97		7/10/97	n/a
815	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/8/97		7/8/97	n/a
816	pH	pH	6.9	Unit	SM 4500-H+ B	1	n/a	7/7/97		7/7/97	n/a
817	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	7/8/97		7/10/97	n/a
818	TEMP	Temperature	22.8	ºC	SM 2550 B	1	n/a	7/7/97		7/7/97	n/a
819	TIME	Cl2 Incubation Time	47.8	hrs	n/a	1	n/a	7/8/97		7/10/97	n/a
820	TOC-ICR	TOC	1.44	mg/L	SM 5310 C	1	0.50	7/7/97		7/7/97	7-0-81
821	TOC-ICR	TOC (Dupl)	1.44	mg/L	SM 5310 C	1	0.50	7/7/97		7/7/97	7-0-81
			1.44	**mg/L**	**0.0 % RPD**						
822	TOX-ICR	TOX	93	µg Cl-/L	SM 5320 B	1	25	7/10/97		7/17/97	12-0-35
823	TOX-ICR	TOX (Dupl)	103	µg Cl-/L	SM 5320 B	1	25	7/10/97		7/17/97	12-0-35
			98	**µg Cl-/L**	**10.2 % RPD**						
824	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.2	%	EPA 551.1	1	1.0	7/10/97	7/14/97	7/15/97	0-26-0
825	THM-ICR	Bromodichloromethane	9.3	µg/L	EPA 551.1	1	1.0	7/10/97	7/14/97	7/15/97	0-26-0
826	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/10/97	7/14/97	7/15/97	0-26-0
827	THM-ICR	Chloroform	15.8	µg/L	EPA 551.1	1	1.0	7/10/97	7/14/97	7/15/97	0-26-0
828	THM-ICR	Dibromochloromethane	2.6	µg/L	EPA 551.1	1	1.0	7/10/97	7/14/97	7/15/97	0-26-0
829	UV-ICR	UV	0.018	1/cm	SM 5910 B	1	0.009	7/7/97		7/8/97	8-0-49
830	UV-ICR	UV (Dupl)	0.018	1/cm	SM 5910 B	1	0.009	7/7/97		7/8/97	8-0-49
			0.018	**1/cm**	**0.0 % RPD**						

Sample ID: 33.20.Eff.40 **S&H ID:** 9707-109 **Date Sampled:** 7/9/97 2:17:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
831	Cl2Dose	Chlorine Dose	3.43	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/10/97		7/10/97	n/a
832	Cl2Res	Chlorine Residual	1.27	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/10/97		7/12/97	n/a
833	HAA	Bromochloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	7/12/97	7/23/97	7/25/97	MW64859
834	HAA	Bromodichloroacetic acid	6.3	µg/L	SM 6251 B	1	1.0	7/12/97	7/23/97	7/25/97	MW64859
835	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/12/97	7/23/97	7/25/97	MW64859
836	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/12/97	7/23/97	7/25/97	MW64859
837	HAA	Dichloroacetic acid	8.5	µg/L	SM 6251 B	1	1.0	7/12/97	7/23/97	7/25/97	MW64859
838	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/12/97	7/23/97	7/25/97	MW64859
839	HAA	Monochloroacetic acid	3.7	µg/L	SM 6251 B	1	2.0	7/12/97	7/23/97	7/25/97	MW64859
840	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/12/97	7/23/97	7/25/97	MW64859
841	HAA	Trichloroacetic acid	12.0	µg/L	SM 6251 B	1	1.0	7/12/97	7/23/97	7/25/97	MW64859
842	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/10/97		7/12/97	n/a
843	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/10/97		7/10/97	n/a
844	pH	pH	6.9	Unit	SM 4500-H+ B	1	n/a	7/9/97		7/9/97	n/a
845	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	7/10/97		7/12/97	n/a
846	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	7/9/97		7/9/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

847	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	7/10/97		7/12/97	n/a
848	TOC-ICR	TOC	1.62	mg/L	SM 5310 C	1	0.50	7/9/97		7/9/97	7-0-82
849	TOC-ICR	TOC (Dupl)	1.67	mg/L	SM 5310 C	1	0.50	7/9/97		7/9/97	7-0-82
			1.65	**mg/L**	**3.0 % RPD**						
850	TOX-ICR	TOX	125	µg Cl-/L	SM 5320 B	1	25	7/12/97		7/13/97	12-0-34
851	TOX-ICR	TOX (Dupl)	115	µg Cl-/L	SM 5320 B	1	25	7/12/97		7/13/97	12-0-34
			120	**µg Cl-/L**	**8.3 % RPD**						
852	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.4	%	EPA 551.1	1	1.0	7/12/97	7/14/97	7/15/97	0-26-0
853	THM-ICR	Bromodichloromethane	10.0	µg/L	EPA 551.1	1	1.0	7/12/97	7/14/97	7/15/97	0-26-0
854	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/12/97	7/14/97	7/15/97	0-26-0
855	THM-ICR	Chloroform	20.1	µg/L	EPA 551.1	1	1.0	7/12/97	7/14/97	7/15/97	0-26-0
856	THM-ICR	Dibromochloromethane	2.3	µg/L	EPA 551.1	1	1.0	7/12/97	7/14/97	7/15/97	0-26-0
857	UV-ICR	UV	0.022	1/cm	SM 5910 B	1	0.009	7/9/97		7/9/97	8-0-50
858	UV-ICR	UV (Dupl)	0.022	1/cm	SM 5910 B	1	0.009	7/9/97		7/9/97	8-0-50
			0.022	**1/cm**	**0.0 % RPD**						

Sample ID: 33.20.Eff.40d **S&H ID:** 9707-110 **Date Sampled:** 7/9/97 2:17:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
859	Cl2Dose	Chlorine Dose	3.43	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/10/97		7/10/97	n/a
860	Cl2Res	Chlorine Residual	1.35	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/10/97		7/12/97	n/a
861	HAA	Bromochloroacetic acid	3.3	µg/L	SM 6251 B	1	1.0	7/12/97	7/22/97	7/25/97	MW64859
862	HAA	Bromodichloroacetic acid	5.8	µg/L	SM 6251 B	1	1.0	7/12/97	7/22/97	7/25/97	MW64859
863	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/12/97	7/22/97	7/25/97	MW64859
864	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/12/97	7/22/97	7/25/97	MW64859
865	HAA	Dichloroacetic acid	8.3	µg/L	SM 6251 B	1	1.0	7/12/97	7/22/97	7/25/97	MW64859
866	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/12/97	7/22/97	7/25/97	MW64859
867	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/12/97	7/22/97	7/25/97	MW64859
868	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/12/97	7/22/97	7/25/97	MW64859
869	HAA	Trichloroacetic acid	12.0	µg/L	SM 6251 B	1	1.0	7/12/97	7/22/97	7/25/97	MW64859
870	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/10/97		7/12/97	n/a
871	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/10/97		7/10/97	n/a
872	pH	pH	7.0	Unit	SM 4500-H+ B	1	n/a	7/9/97		7/9/97	n/a
873	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	7/10/97		7/12/97	n/a
874	TEMP	Temperature	22.7	ºC	SM 2550 B	1	n/a	7/9/97		7/9/97	n/a
875	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	7/10/97		7/12/97	n/a
876	TOC-ICR	TOC	1.60	mg/L	SM 5310 C	1	0.50	7/9/97		7/9/97	7-0-82
877	TOC-ICR	TOC (Dupl)	1.61	mg/L	SM 5310 C	1	0.50	7/9/97		7/9/97	7-0-82
			1.61	**mg/L**	**0.6 % RPD**						
878	TOX-ICR	TOX	132	µg Cl-/L	SM 5320 B	1	25	7/12/97		7/13/97	12-0-34

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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879	TOX-ICR	TOX (Dupl)	121	µg Cl-/L	SM 5320 B	1	25	7/12/97		7/13/97	12-0-34
			127	**µg Cl-/L**	**8.7 % RPD**						
880	THM-ICR	1,2,3-Trichloropropane (Surrogate)	93.2	%	EPA 551.1	1	1.0	7/12/97	7/14/97	7/15/97	0-26-0
881	THM-ICR	Bromodichloromethane	10.0	µg/L	EPA 551.1	1	1.0	7/12/97	7/14/97	7/15/97	0-26-0
882	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/12/97	7/14/97	7/15/97	0-26-0
883	THM-ICR	Chloroform	19.1	µg/L	EPA 551.1	1	1.0	7/12/97	7/14/97	7/15/97	0-26-0
884	THM-ICR	Dibromochloromethane	2.3	µg/L	EPA 551.1	1	1.0	7/12/97	7/14/97	7/15/97	0-26-0
885	UV-ICR	UV	0.022	1/cm	SM 5910 B	1	0.009	7/9/97		7/9/97	8-0-50
886	UV-ICR	UV (Dupl)	0.022	1/cm	SM 5910 B	1	0.009	7/9/97		7/9/97	8-0-50
			0.022	**1/cm**	**0.0 % RPD**						

Sample ID: 33.20.Eff.41 **S&H ID:** 9707-126 **Date Sampled:** 7/11/97 10:12:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
887	Cl2Dose	Chlorine Dose	3.51	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/11/97		7/11/97	n/a
888	Cl2Res	Chlorine Residual	1.32	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/11/97		7/13/97	n/a
889	HAA	Bromochloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	7/13/97	7/23/97	7/25/97	MW64859
890	HAA	Bromodichloroacetic acid	6.8	µg/L	SM 6251 B	1	1.0	7/13/97	7/23/97	7/25/97	MW64859
891	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/13/97	7/23/97	7/25/97	MW64859
892	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/13/97	7/23/97	7/25/97	MW64859
893	HAA	Dichloroacetic acid	9.7	µg/L	SM 6251 B	1	1.0	7/13/97	7/23/97	7/25/97	MW64859
894	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/13/97	7/23/97	7/25/97	MW64859
895	HAA	Monochloroacetic acid	2.5	µg/L	SM 6251 B	1	2.0	7/13/97	7/23/97	7/25/97	MW64859
896	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/13/97	7/23/97	7/25/97	MW64859
897	HAA	Trichloroacetic acid	15.0	µg/L	SM 6251 B	1	1.0	7/13/97	7/23/97	7/25/97	MW64859
898	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	7/11/97		7/13/97	n/a
899	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	7/11/97		7/11/97	n/a
900	pH	pH	7.0	Unit	SM 4500-H+ B	1	n/a	7/11/97		7/11/97	n/a
901	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	7/11/97		7/13/97	n/a
902	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	7/11/97		7/11/97	n/a
903	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	7/11/97		7/13/97	n/a
904	TOC-ICR	TOC	1.74	mg/L	SM 5310 C	1	0.50	7/11/97		7/11/97	7-0-83
905	TOC-ICR	TOC (Dupl)	1.75	mg/L	SM 5310 C	1	0.50	7/11/97		7/11/97	7-0-83
			1.75	**mg/L**	**0.6 % RPD**						
906	TOX-ICR	TOX	133	µg Cl-/L	SM 5320 B	1	25	7/13/97		7/13/97	12-0-34
907	TOX-ICR	TOX (Dupl)	133	µg Cl-/L	SM 5320 B	1	25	7/13/97		7/13/97	12-0-34
			133	**µg Cl-/L**	**0.0 % RPD**						
908	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.0	%	EPA 551.1	1	1.0	7/13/97	7/14/97	7/15/97	0-26-0
909	THM-ICR	Bromodichloromethane	10.4	µg/L	EPA 551.1	1	1.0	7/13/97	7/14/97	7/15/97	0-26-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
910	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/13/97	7/14/97	7/15/97	0-26-0
911	THM-ICR	Chloroform	23.5	µg/L	EPA 551.1	1	1.0	7/13/97	7/14/97	7/15/97	0-26-0
912	THM-ICR	Dibromochloromethane	2.2	µg/L	EPA 551.1	1	1.0	7/13/97	7/14/97	7/15/97	0-26-0
913	UV-ICR	UV	0.026	1/cm	SM 5910 B	1	0.009	7/11/97		7/11/97	8-0-51
914	UV-ICR	UV (Dupl)	0.026	1/cm	SM 5910 B	1	0.009	7/11/97		7/11/97	8-0-51
			0.026	**1/cm**	**0.0 % RPD**						

Sample ID: Sand Filter Influent **S&H ID:** 9707-127 **Date Sampled:** 7/11/97 10:45:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
915	TOC-ICR	TOC	2.82	mg/L	SM 5310 C	1	0.50	7/11/97		7/11/97	7-0-83
916	TOC-ICR	TOC (Dupl)	2.80	mg/L	SM 5310 C	1	0.50	7/11/97		7/11/97	7-0-83
			2.81	**mg/L**	**0.7 % RPD**						

Sample ID: Sand Filter Effluent **S&H ID:** 9707-128 **Date Sampled:** 7/11/97 10:45:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
917	TOC-ICR	TOC	2.74	mg/L	SM 5310 C	1	0.50	7/11/97		7/11/97	7-0-83
918	TOC-ICR	TOC (Dupl)	2.74	mg/L	SM 5310 C	1	0.50	7/11/97		7/11/97	7-0-83
			2.74	**mg/L**	**0.0 % RPD**						

Sample ID: 33.10.20.Inf.B-3 **S&H ID:** 9707-134 **Date Sampled:** 7/13/97 9:10:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
919	Cl2Dose	Chlorine Dose	4.56	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/15/97		7/15/97	n/a
920	Cl2Res	Chlorine Residual	1.32	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/15/97		7/17/97	n/a
921	HAA	Bromochloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
922	HAA	Bromodichloroacetic acid	6.3	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
923	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/17/97	7/29/97	7/31/97	MW65020
924	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
925	HAA	Dichloroacetic acid	22.0	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
926	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
927	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/17/97	7/29/97	7/31/97	MW65020
928	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/17/97	7/29/97	7/31/97	MW65020
929	HAA	Trichloroacetic acid	33.0	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
930	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	7/15/97		7/17/97	n/a
931	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/15/97		7/15/97	n/a
932	pH	pH	6.4	Unit	SM 4500-H+ B	1	n/a	7/13/97		7/13/97	n/a
933	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	7/15/97		7/17/97	n/a
934	TEMP	Temperature	17.1	ºC	SM 2550 B	1	n/a	7/13/97		7/13/97	n/a
935	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	7/15/97		7/17/97	n/a
936	TOC-ICR	TOC	2.84	mg/L	SM 5310 C	1	0.50	7/13/97		7/13/97	7-0-84

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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937	TOC-ICR	TOC (Dupl)	2.87	mg/L	SM 5310 C	1	0.50	7/13/97		7/13/97	7-0-84
			2.86	**mg/L**	**1.0 % RPD**						
938	TOX-ICR	TOX	268	µg Cl-/L	SM 5320 B	1	25	7/17/97		7/23/97	12-0-39
939	TOX-ICR	TOX (Dupl)	268	µg Cl-/L	SM 5320 B	1	25	7/17/97		7/23/97	12-0-39
			268	**µg Cl-/L**	**0.0 % RPD**						
940	THM-ICR	1,2,3-Trichloropropane (Surrogate)	114.0	%	EPA 551.1	1	1.0	7/17/97	7/23/97	7/24/97	0-29-0
941	THM-ICR	1,2,3-Trichloropropane (Surrogate)	88.8	%	EPA 551.1	5	1.0	7/17/97	7/23/97	7/24/97	0-29-0
			101.4	**%**	**24.9 % RPD**						
942	THM-ICR	Bromodichloromethane	12.3	µg/L	EPA 551.1	1	1.0	7/17/97	7/23/97	7/24/97	0-29-0
943	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/17/97	7/23/97	7/24/97	0-29-0
944	THM-ICR	Chloroform	47.2	µg/L	EPA 551.1	5	1.0	7/17/97	7/23/97	7/24/97	0-29-0
945	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	7/17/97	7/23/97	7/24/97	0-29-0
946	TURB	Turbidity	0.20	ntu	SM 2130 B	1	0.05	7/13/97		7/13/97	9-0-2
947	UV-ICR	UV	0.059	1/cm	SM 5910 B	0	0.009	7/13/97		7/14/97	8-0-52
948	UV-ICR	UV (Dupl)	0.059	1/cm	SM 5910 B	0	0.009	7/13/97		7/14/97	8-0-52
			0.059	**1/cm**	**0.0 % RPD**						

Sample ID: 33.20.Eff.42 **S&H ID:** 9707-139 **Date Sampled:** 7/13/97 11:42:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
949	Cl2Dose	Chlorine Dose	3.58	mg/L as Cl2	SM 4500-Cl B	1	n/a	7/15/97		7/15/97	n/a
950	Cl2Res	Chlorine Residual	1.46	mg/L as Cl2	SM 4500-Cl F	1	0.10	7/15/97		7/17/97	n/a
951	HAA	Bromochloroacetic acid	4.0	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
952	HAA	Bromodichloroacetic acid	6.5	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
953	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/17/97	7/29/97	7/31/97	MW65020
954	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
955	HAA	Dichloroacetic acid	11.0	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
956	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
957	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	7/17/97	7/29/97	7/31/97	MW65020
958	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	7/17/97	7/29/97	7/31/97	MW65020
959	HAA	Trichloroacetic acid	16.0	µg/L	SM 6251 B	1	1.0	7/17/97	7/29/97	7/31/97	MW65020
960	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	7/15/97		7/17/97	n/a
961	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	7/15/97		7/15/97	n/a
962	pH	pH	7.0	Unit	SM 4500-H+ B	1	n/a	7/13/97		7/13/97	n/a
963	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	7/15/97		7/17/97	n/a
964	TEMP	Temperature	21.6	ºC	SM 2550 B	1	n/a	7/13/97		7/13/97	n/a
965	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	7/15/97		7/17/97	n/a
966	TOC-ICR	TOC	1.86	mg/L	SM 5310 C	1	0.50	7/13/97		7/13/97	7-0-84
967	TOC-ICR	TOC (Dupl)	1.83	mg/L	SM 5310 C	1	0.50	7/13/97		7/13/97	7-0-84
			1.85	**mg/L**	**1.6 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

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968	TOX-ICR	TOX	126	µg Cl-/L	SM 5320 B	1	25	7/17/97		7/23/97	12-0-39
969	TOX-ICR	TOX (Dupl)	130	µg Cl-/L	SM 5320 B	1	25	7/17/97		7/23/97	12-0-39
			128	**µg Cl-/L**	**3.1 % RPD**						
970	THM-ICR	1,2,3-Trichloropropane (Surrogate)	106.8	%	EPA 551.1	1	1.0	7/17/97	7/23/97	7/24/97	0-29-0
971	THM-ICR	Bromodichloromethane	10.3	µg/L	EPA 551.1	1	1.0	7/17/97	7/23/97	7/24/97	0-29-0
972	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	7/17/97	7/23/97	7/24/97	0-29-0
973	THM-ICR	Chloroform	22.7	µg/L	EPA 551.1	1	1.0	7/17/97	7/23/97	7/24/97	0-29-0
974	THM-ICR	Dibromochloromethane	1.9	µg/L	EPA 551.1	1	1.0	7/17/97	7/23/97	7/24/97	0-29-0
975	UV-ICR	UV	0.027	1/cm	SM 5910 B	0	0.009	7/13/97		7/14/97	8-0-52
976	UV-ICR	UV (Dupl)	0.027	1/cm	SM 5910 B	0	0.009	7/13/97		7/14/97	8-0-52
			0.027	**1/cm**	**0.0 % RPD**						

Sample ID: 33.20.Eff.45 **S&H ID:** 9707-143 **Date Sampled:** 7/14/97 11:45:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
977	TOC-ICR	TOC	2.02	mg/L	SM 5310 C	1	0.50	7/14/97		7/15/97	7-0-85
978	TOC-ICR	TOC (Dupl)	2.06	mg/L	SM 5310 C	1	0.50	7/14/97		7/15/97	7-0-85
			2.04	**mg/L**	**2.0 % RPD**						

End of laboratory test results

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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Quality Control Report

Mr. Bill Marchand
Civil Engineer
Akron Public Utilities Bureau
146 South High Street
P.O. Box 3665
Akron, OH 44309-3665

Phone: 330-375-2690 Fax: 330-375-2418

Study#: 33
Study Title: ICR RSSCT #1

Analysis: ALK (Alkalinity) **Method:** SM 2320 B

QC Batch ID: 1-0-3

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	mg/L			06/23/97	9706-142	5		
Standard	Standard	250	248	mg/L	99%		06/27/97	9706-195	5		
Matrix Spike	Matrix Spike	50	50	mg/L	100%		07/01/97	9706-236	5		
Method Blank	Method Blank		ND*	mg/L			07/01/97	9707-4	5		
Standard	Standard	250	246	mg/L	98%		07/01/97	9707-7	5		

Analysis: TotHard (Total Hardness) **Method:** SM 2340 C

QC Batch ID: 3-0-3

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	91	85	mg/L CaCO3	93%		06/23/97	9706-127	5		
Method Blank	Method Blank		ND*	mg/L CaCO3			06/23/97	9706-143	5		
Standard	Standard	100	100	mg/L CaCO3	100%		06/23/97	9706-140	5	90-110%	
Matrix Spike	Matrix Spike	91	85	mg/L CaCO3	93%		07/01/97	9706-236	5		
Method Blank	Method Blank		ND*	mg/L CaCO3			07/01/97	9707-6	5		
Standard	Standard	100	99	mg/L CaCO3	99%		07/01/97	9707-8	5	90-110%	

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-65

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.94	mg/L	98%		9706-121	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.88	mg/L	97%		9706-121	0.5		
		4.00	**3.91**	**mg/L**	**98%**	**1.3 %**				
Method Blank	Method Blank		ND*	mg/L			9706-122	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9706-122	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.51	mg/L	102%		9706-31	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9706-31	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.08	mg/L	102%		9706-32	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.08	mg/L	102%		9706-32	0.5	90-110%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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		4.00	**4.08**	**mg/L**	**102%**	**0.0 %**			90-110%	10%
Standard	Standard	10.00	10.04	mg/L	100%		9706-33	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.10	mg/L	101%		9706-33	0.5	90-110%	
		10.00	**10.07**	**mg/L**	**101%**	**0.6 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-66

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Method Blank	Method Blank		ND*	mg/L			9706-124	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9706-124	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.51	mg/L	102%		9706-31	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.50	mg/L	100%		9706-31	0.5	50-150%	
		0.50	**0.50**	**mg/L**	**100%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	4.14	mg/L	103%		9706-32	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.08	mg/L	102%		9706-32	0.5	90-110%	
		4.00	**4.11**	**mg/L**	**103%**	**1.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-67

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Matrix Spike	Matrix Spike	4.00	4.08	mg/L	102%		9706-130	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.02	mg/L	100%		9706-130	0.5		
		4.00	**4.05**	**mg/L**	**101%**	**1.5 %**				
Method Blank	Method Blank		ND*	mg/L			9706-134	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9706-134	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9706-31	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9706-31	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.13	mg/L	103%		9706-32	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.14	mg/L	103%		9706-32	0.5	90-110%	
		4.00	**4.14**	**mg/L**	**103%**	**0.2 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-69

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Matrix Spike	Matrix Spike	4.00	4.05	mg/L	101%		9706-172	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.03	mg/L	101%		9706-172	0.5		
		4.00	**4.04**	**mg/L**	**101%**	**0.7 %**				
Method Blank	Method Blank		ND*	mg/L			9706-181	0.5		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Method Blank (Dupl)	Method Blank		ND*	mg/L			9706-181	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9706-159	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9706-159	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.97	mg/L	99%		9706-160	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.98	mg/L	100%		9706-160	0.5	90-110%	
		4.00	**3.97**	**mg/L**	**99%**	**0.3 %**			90-110%	10%
Standard	Standard	10.00	10.03	mg/L	100%		9706-161	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.02	mg/L	100%		9706-161	0.5	90-110%	
		10.00	**10.02**	**mg/L**	**100%**	**0.1 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-70

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.96	mg/L	99%		9706-178	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.97	mg/L	99%		9706-178	0.5		
		4.00	**3.97**	**mg/L**	**99%**	**0.3 %**				
Method Blank	Method Blank		ND*	mg/L			9706-182	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9706-182	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.95	mg/L	99%		9706-160	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.99	mg/L	100%		9706-160	0.5	90-110%	
		4.00	**3.97**	**mg/L**	**99%**	**1.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-71

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.93	mg/L	98%		9706-193	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.00	mg/L	100%		9706-193	0.5		
		4.00	**3.97**	**mg/L**	**99%**	**1.5 %**				
Method Blank	Method Blank		ND*	mg/L			9706-191	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9706-191	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.04	mg/L	101%		9706-160	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.00	mg/L	100%		9706-160	0.5	90-110%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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		4.00	**4.02**	**mg/L**	**100%**	**1.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-72

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.98	mg/L	100%		9706-201	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.99	mg/L	100%		9706-201	0.5		
		4.00	**3.99**	**mg/L**	**100%**	**0.3 %**				
Method Blank	Method Blank		ND*	mg/L			9706-198	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9706-198	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.04	mg/L	101%		9706-160	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.04	mg/L	101%		9706-160	0.5	90-110%	
		4.00	**4.04**	**mg/L**	**101%**	**0.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-73

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.88	mg/L	97%		9706-208	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.95	mg/L	99%		9706-208	0.5		
		4.00	**3.91**	**mg/L**	**98%**	**1.8 %**				
Method Blank	Method Blank		ND*	mg/L			9706-211	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9706-211	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.51	mg/L	102%		9706-159	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.00	mg/L	100%		9706-160	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.01	mg/L	100%		9706-160	0.5	90-110%	
		4.00	**4.01**	**mg/L**	**100%**	**0.2 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-74

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.92	mg/L	98%		9706-241	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.92	mg/L	98%		9706-241	0.5		
		4.00	**3.92**	**mg/L**	**98%**	**0.3 %**				
Method Blank	Method Blank		ND*	mg/L			9706-235	0.5		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Method Blank (Dupl)	Method Blank		ND*	mg/L			9706-235	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.51	mg/L	102%		9706-159	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
		0.50	**0.51**	**mg/L**	**102%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	3.97	mg/L	99%		9706-160	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.96	mg/L	99%		9706-160	0.5	90-110%	
		4.00	**3.97**	**mg/L**	**99%**	**0.3 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-75

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.89	mg/L	97%		9707-2	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.88	mg/L	97%		9707-2	0.5		
		4.00	**3.88**	**mg/L**	**97%**	**0.3 %**				
Method Blank	Method Blank		ND*	mg/L			9707-1	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9707-1	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9706-159	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9706-159	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.01	mg/L	100%		9706-160	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.99	mg/L	100%		9706-160	0.5	90-110%	
		4.00	**4.00**	**mg/L**	**100%**	**0.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-76

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.98	mg/L	100%		9707-21	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.98	mg/L	100%		9707-21	0.5		
		4.00	**3.98**	**mg/L**	**100%**	**0.0 %**				
Method Blank	Method Blank		ND*	mg/L			9707-22	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9707-22	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.51	mg/L	102%		9706-159	0.5	50-150%	
		0.50	**0.51**	**mg/L**	**102%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	3.98	mg/L	100%		9706-160	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.01	mg/L	100%		9706-160	0.5	90-110%	
		4.00	**4.00**	**mg/L**	**100%**	**0.7 %**			90-110%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-77

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.95	mg/L	99%		9707-26	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.96	mg/L	99%		9707-26	0.5		
		4.00	**3.96**	**mg/L**	**99%**	**0.0 %**				
Method Blank	Method Blank		ND*	mg/L			9707-27	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9707-27	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.00	mg/L	100%		9706-160	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.04	mg/L	101%		9706-160	0.5	90-110%	
		4.00	**4.02**	**mg/L**	**100%**	**1.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-78

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.93	mg/L	98%		9707-39	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.01	mg/L	100%		9707-39	0.5		
		4.00	**3.97**	**mg/L**	**99%**	**2.0 %**				
Method Blank	Method Blank		ND*	mg/L			9707-37	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9707-37	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.55	mg/L	110%		9706-159	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9706-159	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**3.7 %**			50-150%	20%
Standard	Standard	4.00	4.04	mg/L	101%		9706-160	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.08	mg/L	102%		9706-160	0.5	90-110%	
		4.00	**4.06**	**mg/L**	**101%**	**1.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-79

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.94	mg/L	98%		9707-47	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.97	mg/L	99%		9707-47	0.5		
		4.00	**3.96**	**mg/L**	**99%**	**0.8 %**				
Method Blank	Method Blank		ND*	mg/L			9707-45	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9707-45	0.5		
			ND*	**mg/L**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	0.50	0.53	mg/L	106%		9706-159	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9706-159	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.99	mg/L	100%		9706-160	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.98	mg/L	100%		9706-160	0.5	90-110%	
		4.00	**3.99**	**mg/L**	**100%**	**0.3 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-81

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.01	mg/L	100%		9707-71	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.05	mg/L	101%		9707-71	0.5		
		4.00	**4.03**	**mg/L**	**101%**	**0.7 %**				
Method Blank	Method Blank		ND*	mg/L			9707-72	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9707-72	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9707-61	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9707-61	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.01	mg/L	100%		9707-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.05	mg/L	101%		9707-62	0.5	90-110%	
		4.00	**4.03**	**mg/L**	**101%**	**1.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-82

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.97	mg/L	99%		9707-104	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.10	mg/L	102%		9707-104	0.5		
		4.00	**4.04**	**mg/L**	**101%**	**3.0 %**				
Method Blank	Method Blank		ND*	mg/L			9707-106	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9707-106	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9707-61	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9707-61	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.01	mg/L	100%		9707-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.99	mg/L	100%		9707-62	0.5	90-110%	
		4.00	**4.00**	**mg/L**	**100%**	**0.5 %**			90-110%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-83

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.01	mg/L	100%		9707-126	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.98	mg/L	100%		9707-126	0.5		
		4.00	**3.99**	**mg/L**	**100%**	**0.8 %**				
Method Blank	Method Blank		ND*	mg/L			9707-125	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9707-125	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9707-61	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9707-61	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.08	mg/L	102%		9707-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.05	mg/L	101%		9707-62	0.5	90-110%	
		4.00	**4.07**	**mg/L**	**102%**	**0.7 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-84

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.12	mg/L	103%		9707-139	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.09	mg/L	102%		9707-139	0.5		
		4.00	**4.10**	**mg/L**	**102%**	**0.7 %**				
Method Blank	Method Blank		ND*	mg/L			9707-140	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9707-140	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.55	mg/L	110%		9707-61	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.57	mg/L	114%		9707-61	0.5	50-150%	
		0.50	**0.56**	**mg/L**	**112%**	**3.6 %**			50-150%	20%
Standard	Standard	4.00	4.09	mg/L	102%		9707-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.03	mg/L	101%		9707-62	0.5	90-110%	
		4.00	**4.06**	**mg/L**	**101%**	**1.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-85

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.89	mg/L	97%		9707-142	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.92	mg/L	98%		9707-142	0.5		
		4.00	**3.91**	**mg/L**	**98%**	**0.8 %**				
Method Blank	Method Blank		ND*	mg/L			9707-178	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9707-178	0.5		
			ND*	**mg/L**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	0.50	0.55	mg/L	110%		9707-61	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9707-61	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.92	mg/L	98%		9707-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.96	mg/L	99%		9707-62	0.5	90-110%	
		4.00	**3.94**	**mg/L**	**98%**	**1.0 %**			90-110%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-39

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9706-146	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-146	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9706-146	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-146	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9706-135	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**12.5 %**			75-125%	20%
Standard	Standard	0.088	0.086	1/cm	98%		9706-136	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9706-136	0.009	85-115%	
		0.088	**0.087**	**1/cm**	**99%**	**1.1 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-41

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9706-175	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-175	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9706-175	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-175	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.087	1/cm	99%		9706-136	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9706-136	0.009	85-115%	
		0.088	**0.087**	**1/cm**	**99%**	**1.1 %**			85-115%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-42

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9706-186	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-186	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9706-186	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-186	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9706-135	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**14.3 %**			75-125%	20%
Standard	Standard	0.088	0.087	1/cm	99%		9706-136	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9706-136	0.009	85-115%	
		0.088	**0.087**	**1/cm**	**99%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-43

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9706-196	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-196	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9706-196	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-196	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.087	1/cm	99%		9706-136	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9706-136	0.009	85-115%	
		0.088	**0.088**	**1/cm**	**100%**	**1.1 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-44

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9706-204	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-204	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9706-204	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-204	0.009		
			ND*	**1/cm**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.087	1/cm	99%		9706-136	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9706-136	0.009	85-115%	
		0.088	**0.087**	**1/cm**	**99%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-45

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9706-242	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-242	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9706-242	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9706-242	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.088	1/cm	100%		9706-136	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9706-136	0.009	85-115%	
		0.088	**0.088**	**1/cm**	**100%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-46

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9707-18	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-18	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9707-18	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-18	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9706-135	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9706-135	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.087	1/cm	99%		9706-136	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9706-136	0.009	85-115%	
		0.088	**0.087**	**1/cm**	**99%**	**0.0 %**			85-115%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-47

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9707-28	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-28	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9707-28	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-28	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9706-135	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**12.5 %**			75-125%	20%
Standard	Standard	0.088	0.088	1/cm	100%		9706-136	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9706-136	0.009	85-115%	
		0.088	**0.088**	**1/cm**	**100%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-49

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9707-51	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-51	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9707-51	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-51	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9706-135	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.087	1/cm	99%		9706-136	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9706-136	0.009	85-115%	
		0.088	**0.087**	**1/cm**	**99%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-49

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9707-105	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-105	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9707-105	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-105	0.009		
			ND*	**1/cm**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	0.009	0.008	1/cm	89%		9707-64	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9707-64	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.088	1/cm	100%		9707-65	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9707-65	0.009	85-115%	
		0.088	**0.088**	**1/cm**	**100%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-50

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9707-111	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-111	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9707-111	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-111	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9707-64	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9707-64	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.087	1/cm	99%		9707-65	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9707-65	0.009	85-115%	
		0.088	**0.087**	**1/cm**	**99%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-51

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9707-129	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-129	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9707-129	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-129	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9707-64	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9707-64	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.089	1/cm	101%		9707-65	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.089	1/cm	101%		9707-65	0.009	85-115%	
		0.088	**0.089**	**1/cm**	**101%**	**0.0 %**			85-115%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-52

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9707-168	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-168	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9707-168	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9707-168	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9707-64	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9707-64	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.088	1/cm	100%		9707-65	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9707-65	0.009	85-115%	
		0.088	**0.088**	**1/cm**	**100%**	**0.0 %**			85-115%	10%

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-31

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Standard - TCP Aqueous	Standard	25	24	µg Cl-/L	96%		9707-43	25	75-125%	
Standard - TCP Aqueous	Standard	200	205	µg Cl-/L	102%		9707-49	25	85-115%	
Standard - TCP Aqueous	Standard	400	405	µg Cl-/L	101%		9707-50	25		
Standard - TCP Aqueous (Dupl)	Standard	400	392	µg Cl-/L	98%		9707-50	25		
		400	**399**	**µg Cl-/L**	**100%**	**3.3 %**				
System Blank	Blank		ND*	µg Cl-/L			9707-44	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-32

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	200	215	µg Cl-/L	108%		9706-239	25		
Matrix Spike (Dupl)	Matrix Spike	200	198	µg Cl-/L	99%		9706-239	25		
		200	**207**	**µg Cl-/L**	**103%**	**8.2 %**				
Standard - TCP Aqueous	Standard	25	27	µg Cl-/L	108%		9707-53	25	75-125%	
Standard - TCP Aqueous	Standard	200	197	µg Cl-/L	98%		9707-55	25	85-115%	
Standard - TCP Aqueous (Dupl)	Standard	200	192	µg Cl-/L	96%		9707-55	25	85-115%	
		200	**194**	**µg Cl-/L**	**97%**	**2.6 %**			85-115%	20%
System Blank	Blank		ND*	µg Cl-/L			9707-54	25		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-33

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	24	µg Cl-/L	96%		9707-131	25	75-125%	
Standard - TCP Aqueous	Standard	200	191	µg Cl-/L	95%		9707-133	25	85-115%	
Standard - TCP Aqueous (Dupl)	Standard	200	193	µg Cl-/L	96%		9707-133	25	85-115%	
		200	**192**	**µg Cl-/L**	**96%**	**1.0 %**			85-115%	20%
System Blank	Blank		ND*	µg Cl-/L			9707-132	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-34

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	24	µg Cl-/L	96%		9707-136	25	75-125%	
Standard - TCP Aqueous	Standard	200	207	µg Cl-/L	103%		9707-138	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9707-137	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-35

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	23	µg Cl-/L	92%		9707-191	25	75-125%	
Standard - TCP Aqueous	Standard	200	211	µg Cl-/L	105%		9707-192	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9707-190	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-39

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	203	µg Cl-/L	101%		9707-139	25		
Matrix Spike (Dupl)	Matrix Spike	200	174	µg Cl-/L	87%		9707-139	25		
		200	**188**	**µg Cl-/L**	**94%**	**15.4 %**				
Standard - TCP Aqueous	Standard	25	24	µg Cl-/L	96%		9707-251	25	75-125%	
Standard - TCP Aqueous	Standard	200	178	µg Cl-/L	89%		9707-252	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9707-250	25		

Analysis: CaHard (Calcium Hardness) **Method:** SM 3500-Ca D

QC Batch ID: 33-0-3

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	93	93	mg/L CaCO3	100%		06/23/97	9706-127	5		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Quality Control Report

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

Method Blank	Method Blank		ND*	mg/L CaCO3		06/23/97	9706-144	5	
Standard	Standard	100	93	mg/L CaCO3	93%	06/23/97	9706-145	5	90-110%
Matrix Spike	Matrix Spike	93	95	mg/L CaCO3	102%	07/01/97	9706-236	5	
Method Blank	Method Blank		ND*	mg/L CaCO3		07/01/97	9707-5	5	
Standard	Standard	100	99	mg/L CaCO3	99%	07/01/97	9707-66	5	90-110%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-22-0

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Bromodichloromethane	Duplicate	1.0	1.1	µg/L		9.5%	9706-176	1		
Bromodichloromethane	Matrix Spike	20.0	22.4	µg/L	112%		9706-168	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9707-86	1		
Bromodichloromethane	Standard	20.0	21.9	µg/L	110%		9707-87	1	80-120%	
Bromodichloromethane	Standard	40.0	37.7	µg/L	94%		9707-88	1	80-120%	
Bromoform	Duplicate	ND	ND	µg/L		NA	9706-176	1		
Bromoform	Matrix Spike	20.0	22.2	µg/L	111%		9706-168	1		
Bromoform	Method Blank		ND*	µg/L			9707-86	1		
Bromoform	Standard	20.0	21.3	µg/L	106%		9707-87	1	80-120%	
Bromoform	Standard	40.0	40.0	µg/L	100%		9707-88	1	80-120%	
Chloroform	Duplicate	1.3	1.4	µg/L		7.4%	9706-176	1		
Chloroform	Matrix Spike	20.0	21.2	µg/L	106%		9706-168	1		
Chloroform	Method Blank		ND*	µg/L			9707-86	1		
Chloroform	Standard	20.0	19.2	µg/L	96%		9707-87	1	80-120%	
Chloroform	Standard	40.0	38.0	µg/L	95%		9707-88	1	80-120%	
Dibromochloromethane	Duplicate	ND	ND	µg/L		NA	9706-176	1		
Dibromochloromethane	Matrix Spike	20.0	21.6	µg/L	108%		9706-168	1		
Dibromochloromethane	Method Blank		ND*	µg/L			9707-86	1		
Dibromochloromethane	Standard	20.0	21.9	µg/L	110%		9707-87	1	80-120%	
Dibromochloromethane	Standard	40.0	40.1	µg/L	100%		9707-88	1	80-120%	

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-23-0

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Bromodichloromethane	Duplicate	ND	ND	µg/L		NA	9707-3	1		
Bromodichloromethane	Matrix Spike	20.0	22.2	µg/L	111%		9707-2	1		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Bromodichloromethane	Method Blank		ND*	µg/L			9707-93	1	
Bromodichloromethane	Standard	20.0	21.2	µg/L	106%		9707-94	1	80-120%
Bromodichloromethane	Standard	40.0	37.7	µg/L	94%		9707-95	1	80-120%
Bromoform	Duplicate	ND	ND	µg/L		NA	9707-3	1	
Bromoform	Matrix Spike	20.0	21.6	µg/L	108%		9707-2	1	
Bromoform	Method Blank		ND*	µg/L			9707-93	1	
Bromoform	Standard	20.0	20.0	µg/L	100%		9707-94	1	80-120%
Bromoform	Standard	40.0	39.9	µg/L	100%		9707-95	1	80-120%
Chloroform	Duplicate	1.1	1.1	µg/L		0.0%	9707-3	1	
Chloroform	Matrix Spike	20.0	20.3	µg/L	102%		9707-2	1	
Chloroform	Method Blank		ND*	µg/L			9707-93	1	
Chloroform	Standard	20.0	20.8	µg/L	104%		9707-94	1	80-120%
Chloroform	Standard	40.0	39.8	µg/L	99%		9707-95	1	80-120%
Dibromochloromethane	Duplicate	ND	ND	µg/L		NA	9707-3	1	
Dibromochloromethane	Matrix Spike	20.0	22.1	µg/L	111%		9707-2	1	
Dibromochloromethane	Method Blank		ND*	µg/L			9707-93	1	
Dibromochloromethane	Standard	20.0	21.9	µg/L	110%		9707-94	1	80-120%
Dibromochloromethane	Standard	40.0	38.0	µg/L	95%		9707-95	1	80-120%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-26-0

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Bromodichloromethane	Duplicate	5.1	5.0	µg/L		2.0%	9707-25	1		
Bromodichloromethane	Matrix Spike	20.0	21.6	µg/L	108%		9707-38	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9707-187	1		
Bromodichloromethane	Standard	20.0	20.7	µg/L	103%		9707-188	1	80-120%	
Bromoform	Duplicate	ND	ND	µg/L		NA	9707-25	1		
Bromoform	Matrix Spike	20.0	23.5	µg/L	118%		9707-38	1		
Bromoform	Method Blank		ND*	µg/L			9707-187	1		
Bromoform	Standard	20.0	20.0	µg/L	100%		9707-188	1	80-120%	
Chloroform	Duplicate	5.6	5.7	µg/L		1.8%	9707-25	1		
Chloroform	Matrix Spike	20.0	21.8	µg/L	109%		9707-38	1		
Chloroform	Method Blank		ND*	µg/L			9707-187	1		
Chloroform	Standard	20.0	18.6	µg/L	93%		9707-188	1	80-120%	
Dibromochloromethane	Duplicate	2.2	2.3	µg/L		4.4%	9707-25	1		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Dibromochloromethane	Matrix Spike	20.0	19.5	µg/L	97%		9707-38	1	
Dibromochloromethane	Method Blank		ND*	µg/L			9707-187	1	
Dibromochloromethane	Standard	20.0	20.7	µg/L	103%		9707-188	1	80-120%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-29-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Bromodichloromethane	Duplicate	6.8	6.8	µg/L		0.0%	9707-216	1		
Bromodichloromethane	Matrix Spike	20.0	18.9	µg/L	94%		9707-169	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9707-253	1		
Bromodichloromethane	Standard	20.0	21.2	µg/L	106%		9707-254	1	80-120%	
Bromodichloromethane	Standard	20.0	21.2	µg/L	106%		9707-254	1	80-120%	
Bromodichloromethane	Standard	40.0	39.0	µg/L	97%		9707-255	1	80-120%	
Bromoform	Duplicate	3.0	3.1	µg/L		3.3%	9707-216	1		
Bromoform	Matrix Spike	20.0	20.3	µg/L	102%		9707-169	1		
Bromoform	Method Blank		ND*	µg/L			9707-253	1		
Bromoform	Standard	20.0	20.4	µg/L	102%		9707-254	1	80-120%	
Bromoform	Standard	20.0	20.7	µg/L	103%		9707-254	1	80-120%	
Bromoform	Standard	40.0	40.1	µg/L	100%		9707-255	1	80-120%	
Chloroform	Duplicate	2.6	2.6	µg/L		0.0%	9707-216	1		
Chloroform	Matrix Spike	20.0	15.6	µg/L	78%		9707-169	1		
Chloroform	Method Blank		ND*	µg/L			9707-253	1		
Chloroform	Standard	20.0	20.0	µg/L	100%		9707-254	1	80-120%	
Chloroform	Standard	20.0	21.2	µg/L	106%		9707-254	1	80-120%	
Chloroform	Standard	40.0	41.4	µg/L	103%		9707-255	1	80-120%	
Dibromochloromethane	Duplicate	8.9	9.1	µg/L		2.2%	9707-216	1		
Dibromochloromethane	Matrix Spike	20.0	20.7	µg/L	103%		9707-169	1		
Dibromochloromethane	Method Blank		ND*	µg/L			9707-253	1		
Dibromochloromethane	Standard	20.0	21.5	µg/L	108%		9707-254	1	80-120%	
Dibromochloromethane	Standard	20.0	21.5	µg/L	108%		9707-254	1	80-120%	
Dibromochloromethane	Standard	40.0	39.7	µg/L	99%		9707-255	1	80-120%	

End of quality control report

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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QC Results from Montgomery Watson Laboratories

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Study#: 33
Study Title: ICR RSSCT #1

QC Batch ID: 64164 **Report #:** 35154

Analysis: BR **Method:** ML/EPA 300

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Bromide	0.020	0.022	110.0%		(50 - 150)
LCS2	Bromide	0.100	0.109	109.0%		(90 - 110)
MBLK	Bromide	ND	ND			(70 - 130)
MS	Bromide	0.1	0.112	112.0%		(80 - 120)
MSD	Bromide	0.1	0.110	110.0%		(80 - 120)

QC Batch ID: 64348 **Report #:** 35154, 35201

Analysis: NH3 **Method:** ML/EPA 350.1

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Ammonia Nitrogen	1.00	0.972	97.0%		(80 - 120)
LCS2	Ammonia Nitrogen	1.00	0.867	87.0%		(80 - 120)
MBLK	Ammonia Nitrogen	ND	ND			
MS	Ammonia Nitrogen	1.00	1.03	103.0%		(80 - 120)
MSD	Ammonia Nitrogen	1.00	1.03	103.0%		(80 - 120)

QC Batch ID: 64364 **Report #:** 35154

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	9.2	9.4		2.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	10	11	110.0%		(70 - 130)
DUP	Bromodichloroacetic acid	7.1	7.3		3.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1.0	1.4	140.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	10	13	130.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	2.5	2.5		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	1.0	1.4	140.0%		(50 - 150)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

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Study Title: ICR RSSCT #1

LCS2	Chlorodibromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	10	13	130.0%		(70 - 130)
DUP	Dibromoacetic acid	2.1	2.1		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1.0	1.1	110.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	10	12	120.0%		(70 - 130)
DUP	Dichloroacetic acid	27	25		8.0%	(0 - 20)
LCS1	Dichloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	10	14	140.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1.0	1.1	110.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	10	13	130.0%		(70 - 130)
DUP	Monochloroacetic acid	2.0	2.3		14.0%	(0 - 20)
LCS1	Monochloroacetic acid	2.0	1.5	75.0%		(50 - 150)
LCS2	Monochloroacetic acid	40	39	98.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	20	24	120.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	1.0	1.4	140.0%		(50 - 150)
LCS2	Tribromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Tribromoacetic acid	ND	ND			
MS	Tribromoacetic acid	10	10	100.0%		(70 - 130)
DUP	Trichloroacetic acid	9.5	9.6		1.0%	(0 - 20)
LCS1	Trichloroacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	10	12	120.0%		(70 - 130)

QC Batch ID: 64390 **Report #:** 35154
35201

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

DUP	Bromochloroacetic acid	2.8	2.8		0.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1.0	1.3	130.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	22	110.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	10	12	120.0%		(70 - 130)
DUP	Bromodichloroacetic acid	3.6	3.8		5.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1.0	0.8	80.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	23	115.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	10	12	120.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	2.2	1.9		15.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	1.0	1.5	150.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	24	120.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	10	14	140.0%		(70 - 130)
DUP	Dibromoacetic acid	1.3	1.3		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1.0	1.4	140.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	22	110.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	10	11	110.0%		(70 - 130)
DUP	Dichloroacetic acid	4.6	4.6		0.0%	(0 - 20)
LCS1	Dichloroacetic acid	1.0	1.1	110.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	10	9.0	90.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1.0	1.2	120.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	10	10	100.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2.0	1.5	75.0%		(50 - 150)
LCS2	Monochloroacetic acid	40	41	102.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	20	24	120.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	1.0	1.4	140.0%		(50 - 150)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

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LCS2	Tribromoacetic acid	20	23	115.0%		(80 - 120)
MBLK	Tribromoacetic acid	ND	ND			
MS	Tribromoacetic acid	10	12	120.0%		(70 - 130)
DUP	Trichloroacetic acid	6.2	6.2		0.0%	(0 - 20)
LCS1	Trichloroacetic acid	1.0	1.4	140.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	22	110.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	10	11	110.0%		(70 - 130)

QC Batch ID: 64478 **Report #:** 35201

Analysis: BR **Method:** ML/EPA 300

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Bromide	0.020	0.018	90.0%		(50 - 150)
LCS2	Bromide	0.100	0.102	102.0%		(90 - 110)
MBLK	Bromide	ND	ND			(70 - 130)
MS	Bromide	0.1	0.104	104.0%		(80 - 120)
MSD	Bromide	0.1	0.105	105.0%		(80 - 120)

QC Batch ID: 64720 **Report #:** 35272

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	3.6	3.5		3.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1.0	1.1	110.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	1.0	1.5	150.0%		(70 - 130)
DUP	Bromodichloroacetic acid	6.3	5.5		14.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1.0	1.5	150.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	22	110.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	1.0	0.5	50.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2.0	2.1	105.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	23	115.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	2.0	4.8	240.0%		(70 - 130)
DUP	Dibromoacetic acid	ND	ND		8.0%	(0 - 20)
LCS1	Dibromoacetic acid	1.0	1.3	130.0%		(50 - 150)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

LCS2	Dibromoacetic acid	20	22	110.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	1.0	0.9	90.0%		(70 - 130)
DUP	Dichloroacetic acid	7.7	8.2		6.0%	(0 - 20)
LCS1	Dichloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	1.0	0.0			(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1.0	1.1	110.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	1.0	2.6	260.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2.0	2.0	100.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	2.0	4.6	230.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4.0	2.0	50.0%		(50 - 150)
LCS2	Tribromoacetic acid	20	23	115.0%		(80 - 120)
MBLK	Tribromoacetic acid	ND	ND			
MS	Tribromoacetic acid	4.0	2.6	65.0%		(70 - 130)
DUP	Trichloroacetic acid	13	12		8.0%	(0 - 20)
LCS1	Trichloroacetic acid	1.0	1.3	130.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	1.0	2	200.0%		(70 - 130)

QC Batch ID: 64859 **Report #:** 35613

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	21	21		0.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	10	9.6	96.0%		(70 - 130)
DUP	Bromodichloroacetic acid	ND	ND		0.0%	(0 - 20)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

LCS1	Bromodichloroacetic acid	1.0	1.2	120.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	10	12	120.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2.0	1.7	85.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	22	110.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	10	14	140.0%		(70 - 130)
DUP	Dibromoacetic acid	6.8	6.8		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	10	9.5	95.0%		(70 - 130)
DUP	Dichloroacetic acid	30	31		3.0%	(0 - 20)
LCS1	Dichloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	10	9.1	91.0%		(70 - 130)
DUP	Monobromoacetic acid	7.1	7.3		3.0%	(0 - 20)
LCS1	Monobromoacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	10	8.7	87.0%		(70 - 130)
DUP	Monochloroacetic acid	14	14		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2.0	2.4	120.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	10	12	120.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4.0	2.1	52.0%		(50 - 150)
LCS2	Tribromoacetic acid	20	23	115.0%		(80 - 120)
MBLK	Tribromoacetic acid	ND	ND			
MS	Tribromoacetic acid	10	13	130.0%		(70 - 130)
DUP	Trichloroacetic acid	16	16		0.0%	(0 - 20)
LCS1	Trichloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	20	100.0%		(80 - 120)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	10	10	100.0%		(70 - 130)

QC Batch ID: 64862 **Report #:** 35391

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	10	10	100.0%		(70 - 130)
DUP	Bromodichloroacetic acid	1.0	1.0		0.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1.0	1.2	120.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	10	9.9	99.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2.0	1.8	90.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	10	11	110.0%		(70 - 130)
DUP	Dibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	10	10	100.0%		(70 - 130)
DUP	Dichloroacetic acid	3.8	3.8		0.0%	(0 - 20)
LCS1	Dichloroacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	10	10	100.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1.0	0.8	80.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	10	10	100.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2.0	1.4	70.0%		(50 - 150)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

LCS2	Monochloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	10	12	120.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4.0	2.2	55.0%		(50 - 150)
LCS2	Tribromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Tribromoacetic acid	ND	ND			
MS	Tribromoacetic acid	10	11	110.0%		(70 - 130)
DUP	Trichloroacetic acid	4.6	4.6		0.0%	(0 - 20)
LCS1	Trichloroacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	10	9.1	91.0%		(70 - 130)

QC Batch ID: 65020 **Report #:** 35613

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	20	20	100.0%		(70 - 130)
DUP	Bromodichloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1.0	1.2	120.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	18	90.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	20	21	105.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2.0	1.8	90.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	18	90.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	20	20	100.0%		(70 - 130)
DUP	Dibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	20	20	100.0%		(70 - 130)
DUP	Dichloroacetic acid	4.8	4.6		4.0%	(0 - 20)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 33
Study Title: ICR RSSCT #1

LCS1	Dichloroacetic acid	1.0	0.8	80.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	20	20	100.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1.0	0.7	70.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	20	21	105.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2.0	1.8	90.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	20	24	120.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4.0	NR			(50 - 150)
LCS2	Tribromoacetic acid	20	NR			(80 - 120)
MBLK	Tribromoacetic acid	ND	ND			
MS	Tribromoacetic acid	20	NR			(70 - 130)
DUP	Trichloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Trichloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	19	95.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	20	20	100.0%		(70 - 130)

End of MW QC report

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

Summers & Hooper, Inc.
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Comments

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Akron Public Utilities Bureau
146 South High Street
P.O. Box 3665
Akron, OH 44309-3665

Phone: 330-375-2690 Fax: 330-375-2418

Study#: 33
Study Title: ICR RSSCT #1

Analysis comments

Analysis: Turbidity
Method: SM 2130 B

Reported turbidity data has been rounded following the requirements of SM 2130 B, reproduced in the table below (Standard Methods, 1995). Note that the reported digits are not necessarily significant.

Turbidity Range	Report to Nearest
0-1.0	0.05
1-10	0.1
10-40	1
40-100	5
100-400	10
400-1000	50
> 1000	100

QC comments

QCBatch: 0-33-0 **Description:** MW Labs Report # 35154

NH3 Sample 9706-127: From MW Labs: "Sample pH=7, preserved before analysis."

QCBatch: 0-34-0 **Description:** MW Labs Report # 35201

NH3 Sample 9706-236: From MW Labs: "Sample pH=7, preserved before analysis."

QCBatch: 0-35-0 **Description:** MW Labs Report # 35272

Sample 9706-238 HAA analysis was not performed. From MW Labs: "Sample extract was not spiked with diazomethane."

End of comments

Summers & Hooper, Inc.

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Laboratory Report

Client:

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Phone: 330-375-2690 Fax: 330-375-2418

Study Title: ICR RSSCT #2/#3

Study #: 86

Reviewed By: _____

Stuart M. Hooper

Date Reviewed: 7/13/99

Electronic copies of the results and quality control data are available upon request.

Summers & Hooper, Inc.
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Laboratory Test Results

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Study#: 86
Study Title: ICR RSSCT #2/#3

Sample ID: Settled water **S&H ID:** 9709-156 **Date Sampled:** 9/23/97 11:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1	TOC-ICR	TOC	3.14	mg/L	SM 5310 C	1	0.50	9/23/97		9/24/97	7-0-117
2	TOC-ICR	TOC (Dupl)	3.19	mg/L	SM 5310 C	1	0.50	9/23/97		9/24/97	7-0-117
			3.17	**mg/L**	**1.6 % RPD**						

Sample ID: Filtered water **S&H ID:** 9709-157 **Date Sampled:** 9/23/97 11:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
3	TOC-ICR	TOC	2.76	mg/L	SM 5310 C	1	0.50	9/23/97		9/24/97	7-0-117
4	TOC-ICR	TOC (Dupl)	2.74	mg/L	SM 5310 C	1	0.50	9/23/97		9/24/97	7-0-117
			2.75	**mg/L**	**0.7 % RPD**						

Sample ID: Settled water - barrel 2 **S&H ID:** 9709-158 **Date Sampled:** 9/24/97 12:00:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
5	TOC-ICR	TOC	2.94	mg/L	SM 5310 C	1	0.50	9/24/97		9/24/97	7-0-117
6	TOC-ICR	TOC (Dupl)	2.98	mg/L	SM 5310 C	1	0.50	9/24/97		9/24/97	7-0-117
			2.96	**mg/L**	**1.4 % RPD**						

Sample ID: Filtered water - barrel 2 **S&H ID:** 9709-159 **Date Sampled:** 9/24/97 5:00:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
7	TOC-ICR	TOC	2.85	mg/L	SM 5310 C	1	0.50	9/24/97		9/24/97	7-0-117
8	TOC-ICR	TOC (Dupl)	3.03	mg/L	SM 5310 C	1	0.50	9/24/97		9/24/97	7-0-117
			2.94	**mg/L**	**6.1 % RPD**						

Sample ID: Settled water - barrel 3 **S&H ID:** 9709-162 **Date Sampled:** 9/25/97 9:15:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
9	TOC-ICR	TOC	2.78	mg/L	SM 5310 C	1	0.50	9/25/97		10/3/97	7-0-118
10	TOC-ICR	TOC (Dupl)	2.85	mg/L	SM 5310 C	1	0.50	9/25/97		10/3/97	7-0-118
			2.81	**mg/L**	**2.5 % RPD**						

Sample ID: 86.INF.A-1 **S&H ID:** 9710-4 **Date Sampled:** 10/3/97 1:50:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
11	ALK	Alkalinity	54	mg/L	SM 2320 B	1	5	10/3/97		10/3/97	1-0-9
12	ALK	Alkalinity (Dupl)	55	mg/L	SM 2320 B	1	5	10/3/97		10/3/97	1-0-9
			55	**mg/L**	**1.8 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

13	NH3	Ammonia Nitrogen	0.07	mg/L	EPA 350.1	1	0.05	10/3/97		10/21/97	MW68016
14	BR	Bromide	0.036	mg/L	EPA 300.0 A	1	0.020	10/3/97		10/14/97	MW67781
15	CaHard	Calcium Hardness	98	mg/L CaCO3	SM 3500-Ca D	1	10	10/3/97		10/3/97	33-0-9
16	CaHard	Calcium Hardness (Dupl)	102	mg/L CaCO3	SM 3500-Ca D	1	10	10/3/97		10/3/97	33-0-9
			100	**mg/L CaCO3**	**4.0 % RPD**						
17	TotHard	Total Hardness	124	mg/L CaCO3	SM 2340 C	1	5	10/3/97		10/3/97	3-0-9
18	TotHard	Total Hardness (Dupl)	129	mg/L CaCO3	SM 2340 C	1	5	10/3/97		10/3/97	3-0-9
			127	**mg/L CaCO3**	**3.9 % RPD**						

Sample ID: 86.INF.B-1 **S&H ID:** 9710-5 **Date Sampled:** 10/3/97 1:50:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
19	Cl2Dose	Chlorine Dose	4.05	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/6/97		10/6/97	n/a
20	Cl2Res	Chlorine Residual	1.52	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/6/97		10/8/97	n/a
21	HAA	Bromochloroacetic acid	5.1	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
22	HAA	Bromodichloroacetic acid	10.0	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
23	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/8/97	10/14/97	10/16/97	MW67927
24	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
25	HAA	Dichloroacetic acid	16.0	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
26	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
27	HAA	Monochloroacetic acid	2.5	µg/L	SM 6251 B	1	2.0	10/8/97	10/14/97	10/16/97	MW67927
28	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/8/97	10/14/97	10/16/97	MW67927
29	HAA	Trichloroacetic acid	24.0	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
30	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/8/97	n/a
31	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/6/97	n/a
32	pH	pH	6.8	Unit	SM 4500-H+ B	1	n/a	10/3/97		10/3/97	n/a
33	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/6/97		10/8/97	n/a
34	TEMP	Temperature	18.9	ºC	SM 2550 B	1	n/a	10/3/97		10/3/97	n/a
35	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/6/97		10/8/97	n/a
36	TOC-ICR	TOC	2.72	mg/L	SM 5310 C	1	0.50	10/3/97		10/3/97	7-0-118
37	TOC-ICR	TOC (Dupl)	2.72	mg/L	SM 5310 C	1	0.50	10/3/97		10/3/97	7-0-118
			2.72	**mg/L**	**0.0 % RPD**						
38	TOX-ICR	TOX	271	µg Cl-/L	SM 5320 B	1	25	10/8/97		10/10/97	12-0-65
39	TOX-ICR	TOX (Dupl)	265	µg Cl-/L	SM 5320 B	1	25	10/8/97		10/10/97	12-0-65
			268	**µg Cl-/L**	**2.2 % RPD**						
40	THM-ICR	1,2,3-Trichloropropane (Surrogate)	84.8	%	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
41	THM-ICR	Bromodichloromethane	13.8	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
42	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
43	THM-ICR	Chloroform	36.6	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
44	THM-ICR	Dibromochloromethane	2.5	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

45	TURB	Turbidity	0.10	ntu	SM 2130 B	1	0.05	10/3/97		10/3/97	9-0-6
46	UV-ICR	UV	0.055	1/cm	SM 5910 B	1	0.009	10/3/97		10/4/97	8-0-78
47	UV-ICR	UV (Dupl)	0.054	1/cm	SM 5910 B	1	0.009	10/3/97		10/4/97	8-0-78
			0.055	**1/cm**	**1.8 % RPD**						

Sample ID: 86.Lig.20.E-1 **S&H ID:** 9710-11 **Date Sampled:** 10/3/97 5:39:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
48	Cl2Dose	Chlorine Dose	2.25	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/6/97		10/6/97	n/a
49	Cl2Res	Chlorine Residual	1.56	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/6/97		10/8/97	n/a
50	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
51	HAA	Bromodichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
52	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/8/97	10/14/97	10/16/97	MW67927
53	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
54	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
55	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
56	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/8/97	10/14/97	10/16/97	MW67927
57	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/8/97	10/14/97	10/16/97	MW67927
58	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
59	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/8/97	n/a
60	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/6/97	n/a
61	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/3/97		10/3/97	n/a
62	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/6/97		10/8/97	n/a
63	TEMP	Temperature	22.9	ºC	SM 2550 B	1	n/a	10/3/97		10/3/97	n/a
64	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	10/6/97		10/8/97	n/a
65	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/3/97		10/3/97	7-0-118
66	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/3/97		10/3/97	7-0-118
			ND	**mg/L**							
67	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/8/97		10/10/97	12-0-65
68	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/8/97		10/10/97	12-0-65
			ND	**µg Cl-/L**							
69	THM-ICR	1,2,3-Trichloropropane (Surrogate)	88.8	%	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
70	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
71	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
72	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
73	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
74	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/3/97		10/4/97	8-0-78
75	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/3/97		10/4/97	8-0-78
			ND	**1/cm**							

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

Sample ID: 86.Bit.20.E-1 **S&H ID:** 9710-12 **Date Sampled:** 10/3/97 5:37:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
76	Cl2Dose	Chlorine Dose	2.25	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/6/97		10/6/97	n/a
77	Cl2Res	Chlorine Residual	1.57	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/6/97		10/8/97	n/a
78	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
79	HAA	Bromodichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
80	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/8/97	10/14/97	10/16/97	MW67927
81	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
82	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
83	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
84	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/8/97	10/14/97	10/16/97	MW67927
85	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/8/97	10/14/97	10/16/97	MW67927
86	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/16/97	MW67927
87	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/8/97	n/a
88	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/6/97	n/a
89	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/3/97		10/3/97	n/a
90	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/6/97		10/8/97	n/a
91	TEMP	Temperature	22.5	ºC	SM 2550 B	1	n/a	10/3/97		10/3/97	n/a
92	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/6/97		10/8/97	n/a
93	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/3/97		10/3/97	7-0-118
94	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/3/97		10/3/97	7-0-118
			ND	**mg/L**							
95	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/8/97		10/10/97	12-0-65
96	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/8/97		10/10/97	12-0-65
			ND	**µg Cl-/L**							
97	THM-ICR	1,2,3-Trichloropropane (Surrogate)	89.2	%	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
98	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
99	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
100	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
101	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
102	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/3/97		10/4/97	8-0-78
103	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/3/97		10/4/97	8-0-78
			ND	**1/cm**							

Sample ID: 86.Bit.10.E-1 **S&H ID:** 9710-13 **Date Sampled:** 10/3/97 7:05:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
104	Cl2Dose	Chlorine Dose	2.25	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/6/97		10/6/97	n/a
105	Cl2Res	Chlorine Residual	1.50	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/6/97		10/8/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

106	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/17/97	MW67927
107	HAA	Bromodichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/17/97	MW67927
108	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/8/97	10/14/97	10/17/97	MW67927
109	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/17/97	MW67927
110	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/17/97	MW67927
111	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/17/97	MW67927
112	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/8/97	10/14/97	10/17/97	MW67927
113	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/8/97	10/14/97	10/17/97	MW67927
114	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/8/97	10/14/97	10/17/97	MW67927
115	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/8/97	n/a
116	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/6/97	n/a
117	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/3/97		10/3/97	n/a
118	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/6/97		10/8/97	n/a
119	TEMP	Temperature	23.1	ºC	SM 2550 B	1	n/a	10/3/97		10/3/97	n/a
120	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	10/6/97		10/8/97	n/a
121	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/3/97		10/6/97	7-0-119
122	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/3/97		10/6/97	7-0-119
			ND	**mg/L**							
123	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/8/97		10/10/97	12-0-65
124	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/8/97		10/10/97	12-0-65
			ND	**µg Cl-/L**							
125	THM-ICR	1,2,3-Trichloropropane (Surrogate)	90.8	%	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
126	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
127	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
128	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
129	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	10/8/97	10/13/97	10/15/97	0-54-0
130	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/3/97		10/4/97	8-0-78
131	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/3/97		10/4/97	8-0-78
			ND	**1/cm**							

Sample ID: 86.Bit.10.E-3 **S&H ID:** 9710-22 **Date Sampled:** 10/6/97 2:40:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
132	Cl2Dose	Chlorine Dose	2.15	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/8/97		10/8/97	n/a
133	Cl2Res	Chlorine Residual	1.32	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/8/97		10/10/97	n/a
134	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
135	HAA	Bromodichloroacetic acid	1.3	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
136	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
137	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
138	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

139	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
140	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
141	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/10/97	10/16/97	10/18/97	MW67931
142	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
143	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/10/97	n/a
144	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
145	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/6/97	n/a
146	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	10/8/97		10/10/97	n/a
147	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	10/6/97		10/6/97	n/a
148	TIME	Cl2 Incubation Time	48.5	hrs	n/a	1	n/a	10/8/97		10/10/97	n/a
149	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
150	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
			ND	**mg/L**							
151	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/17/97	12-0-66
152	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/17/97	12-0-66
			ND	**µg Cl-/L**							
153	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.0	%	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
154	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
155	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
156	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
157	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
158	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/6/97		10/6/97	8-0-79
159	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/6/97		10/6/97	8-0-79
			ND	**1/cm**							

Sample ID: 86.Bit.10.E-4 **S&H ID:** 9710-23 **Date Sampled:** 10/6/97 10:19:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
160	Cl2Dose	Chlorine Dose	2.38	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/7/97		10/7/97	n/a
161	Cl2Res	Chlorine Residual	1.51	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/7/97		10/9/97	n/a
162	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
163	HAA	Bromodichloroacetic acid	1.6	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
164	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
165	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
166	HAA	Dichloroacetic acid	1.3	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
167	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
168	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
169	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/9/97	10/16/97	10/18/97	MW67931
170	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
171	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/9/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

172	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
173	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/6/97	n/a
174	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/7/97		10/9/97	n/a
175	TEMP	Temperature	22.9	ºC	SM 2550 B	1	n/a	10/6/97		10/6/97	n/a
176	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	10/7/97		10/9/97	n/a
177	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
178	TOC-ICR	TOC (Lab Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
179	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
180	TOC-ICR	TOC (Lab Dupl Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
			ND	**mg/L**							
181	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/10/97	12-0-65
182	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/10/97	12-0-65
			ND	**µg Cl-/L**							
183	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.0	%	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
184	THM-ICR	Bromodichloromethane	1.3	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
185	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
186	THM-ICR	Chloroform	1.0	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
187	THM-ICR	Dibromochloromethane	1.1	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
188	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/6/97		10/6/97	8-0-79
189	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/6/97		10/6/97	8-0-79
			ND	**1/cm**							

Sample ID: 86.Lig.20.E-2 **S&H ID:** 9710-27 **Date Sampled:** 10/6/97 5:26:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
190	Cl2Dose	Chlorine Dose	2.33	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/7/97		10/7/97	n/a
191	Cl2Res	Chlorine Residual	1.46	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/7/97		10/9/97	n/a
192	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
193	HAA	Bromodichloroacetic acid	1.5	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
194	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
195	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
196	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
197	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
198	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
199	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/9/97	10/16/97	10/18/97	MW67931
200	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
201	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/9/97	n/a
202	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
203	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/6/97	n/a
204	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/7/97		10/9/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

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Akron Public Utilities Bureau

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205	TEMP	Temperature	22.7	ºC	SM 2550 B	1	n/a	10/6/97		10/6/97	n/a
206	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	10/7/97		10/9/97	n/a
207	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
208	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
			ND	**mg/L**							
209	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
210	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
			ND	**µg Cl-/L**							
211	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.2	%	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
212	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
213	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
214	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
215	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
216	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/6/97		10/7/97	8-0-80
217	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/6/97		10/7/97	8-0-80
			ND	**1/cm**							

Sample ID: 86.Bit.10.E-5 **S&H ID:** 9710-28 **Date Sampled:** 10/6/97 6:07:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
218	Cl2Dose	Chlorine Dose	2.45	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/7/97		10/7/97	n/a
219	Cl2Res	Chlorine Residual	1.51	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/7/97		10/9/97	n/a
220	HAA	Bromochloroacetic acid	1.5	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
221	HAA	Bromodichloroacetic acid	2.3	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
222	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
223	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
224	HAA	Dichloroacetic acid	1.9	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
225	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
226	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
227	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/9/97	10/16/97	10/18/97	MW67931
228	HAA	Trichloroacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
229	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/9/97	n/a
230	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
231	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/6/97	n/a
232	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/7/97		10/9/97	n/a
233	TEMP	Temperature	23.5	ºC	SM 2550 B	1	n/a	10/6/97		10/6/97	n/a
234	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	10/7/97		10/9/97	n/a
235	TOC-ICR	TOC	0.59	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
236	TOC-ICR	TOC (Dupl)	0.57	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
			0.58	**mg/L**	**3.4 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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237	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
238	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
			ND	**µg Cl-/L**							
239	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.4	%	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
240	THM-ICR	Bromodichloromethane	2.2	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
241	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
242	THM-ICR	Chloroform	1.7	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
243	THM-ICR	Dibromochloromethane	1.8	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
244	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/6/97		10/7/97	8-0-80
245	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/6/97		10/7/97	8-0-80
			ND	**1/cm**							

Sample ID: 86.Bit.10.E-5d **S&H ID:** 9710-29 **Date Sampled:** 10/6/97 6:07:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
246	Cl2Dose	Chlorine Dose	2.45	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/7/97		10/7/97	n/a
247	Cl2Res	Chlorine Residual	1.49	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/7/97		10/9/97	n/a
248	HAA	Bromochloroacetic acid	1.3	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
249	HAA	Bromodichloroacetic acid	2.1	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
250	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
251	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
252	HAA	Dichloroacetic acid	2.0	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
253	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
254	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
255	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/9/97	10/16/97	10/18/97	MW67931
256	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
257	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/9/97	n/a
258	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
259	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/6/97		10/6/97	n/a
260	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/7/97		10/9/97	n/a
261	TEMP	Temperature	23.6	ºC	SM 2550 B	1	n/a	10/6/97		10/6/97	n/a
262	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	10/7/97		10/9/97	n/a
263	TOC-ICR	TOC	0.59	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
264	TOC-ICR	TOC (Dupl)	0.61	mg/L	SM 5310 C	1	0.50	10/6/97		10/6/97	7-0-119
			0.60	**mg/L**	**3.3 % RPD**						
265	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
266	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
			ND	**µg Cl-/L**							
267	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.0	%	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
268	THM-ICR	Bromodichloromethane	2.2	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

269	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
270	THM-ICR	Chloroform	1.5	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
271	THM-ICR	Dibromochloromethane	1.8	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
272	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/6/97		10/7/97	8-0-80
273	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/6/97		10/7/97	8-0-80
			ND	**1/cm**							

Sample ID: 86.Lig.20.E-4 **S&H ID:** 9710-33 **Date Sampled:** 10/7/97 6:44:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
274	Cl2Dose	Chlorine Dose	2.40	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/7/97		10/7/97	n/a
275	Cl2Res	Chlorine Residual	1.48	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/7/97		10/9/97	n/a
276	HAA	Bromochloroacetic acid	1.4	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
277	HAA	Bromodichloroacetic acid	1.9	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
278	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
279	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
280	HAA	Dichloroacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
281	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
282	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
283	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/9/97	10/16/97	10/18/97	MW67931
284	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
285	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/9/97	n/a
286	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
287	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
288	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/7/97		10/9/97	n/a
289	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	10/7/97		10/7/97	n/a
290	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	10/7/97		10/9/97	n/a
291	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
292	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
			ND	**mg/L**							
293	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
294	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
			ND	**µg Cl-/L**							
295	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.4	%	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
296	THM-ICR	Bromodichloromethane	1.7	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
297	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
298	THM-ICR	Chloroform	1.0	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
299	THM-ICR	Dibromochloromethane	1.4	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
300	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80
301	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

ND 1/cm

Sample ID: 86.Lig.20.E-4d **S&H ID:** 9710-34 **Date Sampled:** 10/7/97 6:44:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
302	Cl2Dose	Chlorine Dose	2.40	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/7/97		10/7/97	n/a
303	Cl2Res	Chlorine Residual	1.41	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/7/97		10/9/97	n/a
304	HAA	Bromochloroacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
305	HAA	Bromodichloroacetic acid	2.0	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
306	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
307	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
308	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
309	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
310	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
311	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/9/97	10/16/97	10/18/97	MW67931
312	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
313	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/9/97	n/a
314	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
315	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
316	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/7/97		10/9/97	n/a
317	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	10/7/97		10/7/97	n/a
318	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	10/7/97		10/9/97	n/a
319	TOC-ICR	TOC	0.50	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
320	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
			ND	**mg/L**							
321	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
322	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
			ND	**µg Cl-/L**							
323	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.0	%	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
324	THM-ICR	Bromodichloromethane	1.7	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
325	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
326	THM-ICR	Chloroform	1.2	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
327	THM-ICR	Dibromochloromethane	1.5	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
328	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80
329	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80
			ND	**1/cm**							

Sample ID: 86.Bit.10.E-6 **S&H ID:** 9710-35 **Date Sampled:** 10/7/97 1:43:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
330	Cl2Dose	Chlorine Dose	2.49	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/7/97		10/7/97	n/a
331	Cl2Res	Chlorine Residual	1.46	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/7/97		10/9/97	n/a
332	HAA	Bromochloroacetic acid	1.7	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
333	HAA	Bromodichloroacetic acid	2.7	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
334	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
335	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
336	HAA	Dichloroacetic acid	2.7	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
337	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
338	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
339	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/9/97	10/16/97	10/18/97	MW67931
340	HAA	Trichloroacetic acid	1.3	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
341	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/9/97	n/a
342	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
343	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
344	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/7/97		10/9/97	n/a
345	TEMP	Temperature	22.8	ºC	SM 2550 B	1	n/a	10/7/97		10/7/97	n/a
346	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	10/7/97		10/9/97	n/a
347	TOC-ICR	TOC	0.67	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
348	TOC-ICR	TOC (Dupl)	0.67	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
			0.67	**mg/L**	**0.0 % RPD**						
349	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
350	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
			ND	**µg Cl-/L**							
351	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.8	%	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
352	THM-ICR	Bromodichloromethane	3.0	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
353	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
354	THM-ICR	Chloroform	2.3	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
355	THM-ICR	Dibromochloromethane	2.3	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
356	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80
357	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80
			ND	**1/cm**							

Sample ID: 86.Bit.10.E-7 **S&H ID:** 9710-36 **Date Sampled:** 10/7/97 9:31:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
358	Cl2Dose	Chlorine Dose	2.59	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/7/97		10/7/97	n/a
359	Cl2Res	Chlorine Residual	1.51	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/7/97		10/9/97	n/a
360	HAA	Bromochloroacetic acid	2.5	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
361	HAA	Bromodichloroacetic acid	3.8	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
362	HAA	Chlorodibromoacetic acid	2.1	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

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363	HAA	Dibromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
364	HAA	Dichloroacetic acid	3.7	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
365	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
366	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
367	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/9/97	10/16/97	10/18/97	MW67931
368	HAA	Trichloroacetic acid	2.1	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
369	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/9/97	n/a
370	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
371	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
372	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/7/97		10/9/97	n/a
373	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	10/7/97		10/7/97	n/a
374	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	10/7/97		10/9/97	n/a
375	TOC-ICR	TOC	0.86	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
376	TOC-ICR	TOC (Dupl)	0.87	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
			0.86	**mg/L**	**1.2 % RPD**						
377	TOX-ICR	TOX	34	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
378	TOX-ICR	TOX (Dupl)	35	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
			35	**µg Cl-/L**	**2.9 % RPD**						
379	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.8	%	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
380	THM-ICR	Bromodichloromethane	4.2	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
381	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
382	THM-ICR	Chloroform	3.5	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
383	THM-ICR	Dibromochloromethane	3.1	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
384	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80
385	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80
			ND	**1/cm**							

Sample ID: 86.INF.B-2 **S&H ID:** 9710-39 **Date Sampled:** 10/7/97 1:30:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
386	Cl2Dose	Chlorine Dose	4.05	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/7/97		10/7/97	n/a
387	Cl2Res	Chlorine Residual	1.53	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/7/97		10/9/97	n/a
388	HAA	Bromochloroacetic acid	5.1	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
389	HAA	Bromodichloroacetic acid	10.0	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
390	HAA	Chlorodibromoacetic acid	2.0	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
391	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
392	HAA	Dichloroacetic acid	16.0	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
393	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
394	HAA	Monochloroacetic acid	2.5	µg/L	SM 6251 B	1	2.0	10/9/97	10/16/97	10/18/97	MW67931
395	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/9/97	10/16/97	10/18/97	MW67931

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

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Study Title: ICR RSSCT #2/#3

396	HAA	Trichloroacetic acid	25.0	µg/L	SM 6251 B	1	1.0	10/9/97	10/16/97	10/18/97	MW67931
397	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/9/97	n/a
398	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
399	pH	pH	6.8	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
400	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/7/97		10/9/97	n/a
401	TEMP	Temperature	16.5	ºC	SM 2550 B	1	n/a	10/7/97		10/7/97	n/a
402	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	10/7/97		10/9/97	n/a
403	TOC-ICR	TOC	2.69	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
404	TOC-ICR	TOC (Dupl)	2.73	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
			2.71	**mg/L**	**1.5 % RPD**						
405	TOX-ICR	TOX	226	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
406	TOX-ICR	TOX (Dupl)	234	µg Cl-/L	SM 5320 B	1	25	10/9/97		10/17/97	12-0-66
			230	**µg Cl-/L**	**3.5 % RPD**						
407	THM-ICR	1,2,3-Trichloropropane (Surrogate)	88.0	%	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
408	THM-ICR	Bromodichloromethane	14.2	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
409	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
410	THM-ICR	Chloroform	34.5	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
411	THM-ICR	Dibromochloromethane	3.2	µg/L	EPA 551.1	1	1.0	10/9/97	10/13/97	10/15/97	0-54-0
412	TURB	Turbidity	0.10	ntu	SM 2130 B	1	0.05	10/7/97		10/7/97	9-0-6
413	UV-ICR	UV	0.053	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80
414	UV-ICR	UV (Dupl)	0.053	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80
			0.053	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.20.E-5 **S&H ID:** 9710-40 **Date Sampled:** 10/7/97 1:15:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
415	Cl2Dose	Chlorine Dose	2.29	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/8/97		10/8/97	n/a
416	Cl2Res	Chlorine Residual	1.36	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/8/97		10/10/97	n/a
417	HAA	Bromochloroacetic acid	1.7	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
418	HAA	Bromodichloroacetic acid	2.5	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
419	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
420	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
421	HAA	Dichloroacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
422	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
423	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
424	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/10/97	10/16/97	10/18/97	MW67931
425	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
426	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/10/97	n/a
427	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
428	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

429	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	10/8/97		10/10/97	n/a
430	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	10/7/97		10/7/97	n/a
431	TIME	Cl2 Incubation Time	48.4	hrs	n/a	1	n/a	10/8/97		10/10/97	n/a
432	TOC-ICR	TOC	0.62	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
433	TOC-ICR	TOC (Dupl)	0.60	mg/L	SM 5310 C	1	0.50	10/7/97		10/7/97	7-0-120
			0.61	**mg/L**	**3.3 % RPD**						
434	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/22/97	12-0-69
435	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/22/97	12-0-69
			ND	**µg Cl-/L**							
436	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.0	%	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
437	THM-ICR	Bromodichloromethane	2.1	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
438	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
439	THM-ICR	Chloroform	1.5	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
440	THM-ICR	Dibromochloromethane	1.9	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
441	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80
442	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/7/97	8-0-80
			ND	**1/cm**							

Sample ID: 86.Lig.10.E-1 **S&H ID:** 9710-41 **Date Sampled:** 10/7/97 4:24:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
443	Cl2Dose	Chlorine Dose	2.05	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/8/97		10/8/97	n/a
444	Cl2Res	Chlorine Residual	1.31	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/8/97		10/10/97	n/a
445	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
446	HAA	Bromodichloroacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
447	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
448	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
449	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
450	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
451	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
452	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/10/97	10/16/97	10/18/97	MW67931
453	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
454	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/10/97	n/a
455	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
456	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/7/97		10/7/97	n/a
457	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	10/8/97		10/10/97	n/a
458	TEMP	Temperature	23.4	ºC	SM 2550 B	1	n/a	10/7/97		10/7/97	n/a
459	TIME	Cl2 Incubation Time	48.5	hrs	n/a	1	n/a	10/8/97		10/10/97	n/a
460	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/7/97		10/8/97	7-0-121

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

461	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/7/97		10/8/97	7-0-121
			ND	**mg/L**							
462	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/22/97	12-0-69
463	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/22/97	12-0-69
			ND	**µg Cl-/L**							
464	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.4	%	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
465	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
466	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
467	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
468	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
469	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/8/97	8-0-81
470	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/7/97		10/8/97	8-0-81
			ND	**1/cm**							

Sample ID: 86.Lig.20.E-7 **S&H ID:** 9710-45 **Date Sampled:** 10/8/97 5:41:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
471	Cl2Dose	Chlorine Dose	2.38	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/8/97		10/8/97	n/a
472	Cl2Res	Chlorine Residual	1.29	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/8/97		10/10/97	n/a
473	HAA	Bromochloroacetic acid	2.3	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
474	HAA	Bromodichloroacetic acid	3.1	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
475	HAA	Chlorodibromoacetic acid	2.0	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
476	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
477	HAA	Dichloroacetic acid	2.2	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
478	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
479	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
480	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/10/97	10/16/97	10/18/97	MW67931
481	HAA	Trichloroacetic acid	1.5	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
482	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/10/97	n/a
483	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
484	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
485	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	10/8/97		10/10/97	n/a
486	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	10/8/97		10/8/97	n/a
487	TIME	Cl2 Incubation Time	48.4	hrs	n/a	1	n/a	10/8/97		10/10/97	n/a
488	TOC-ICR	TOC	0.78	mg/L	SM 5310 C	1	0.50	10/8/97		10/8/97	7-0-121
489	TOC-ICR	TOC (Dupl)	0.80	mg/L	SM 5310 C	1	0.50	10/8/97		10/8/97	7-0-121
			0.79	**mg/L**	**2.5 % RPD**						
490	TOX-ICR	TOX	35	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/21/97	12-0-68
491	TOX-ICR	TOX (Dupl)	33	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/21/97	12-0-68
			34	**µg Cl-/L**	**5.9 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

492	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.6	%	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
493	THM-ICR	Bromodichloromethane	3.6	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
494	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
495	THM-ICR	Chloroform	2.7	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
496	THM-ICR	Dibromochloromethane	2.8	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
497	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/8/97		10/8/97	8-0-81
498	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/8/97		10/8/97	8-0-81
			ND	**1/cm**							

Sample ID: 86.Bit.10.E-9 **S&H ID:** 9710-47 **Date Sampled:** 10/8/97 1:04:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
499	Cl2Dose	Chlorine Dose	2.53	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/8/97		10/8/97	n/a
500	Cl2Res	Chlorine Residual	1.35	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/8/97		10/10/97	n/a
501	HAA	Bromochloroacetic acid	3.2	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
502	HAA	Bromodichloroacetic acid	4.6	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
503	HAA	Chlorodibromoacetic acid	2.3	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
504	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
505	HAA	Dichloroacetic acid	4.3	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
506	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
507	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
508	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/10/97	10/16/97	10/18/97	MW67931
509	HAA	Trichloroacetic acid	3.3	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
510	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/10/97	n/a
511	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
512	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
513	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	10/8/97		10/10/97	n/a
514	TEMP	Temperature	22.3	ºC	SM 2550 B	1	n/a	10/8/97		10/8/97	n/a
515	TIME	Cl2 Incubation Time	48.5	hrs	n/a	1	n/a	10/8/97		10/10/97	n/a
516	TOC-ICR	TOC	1.09	mg/L	SM 5310 C	1	0.50	10/8/97		10/8/97	7-0-121
517	TOC-ICR	TOC (Dupl)	1.10	mg/L	SM 5310 C	1	0.50	10/8/97		10/8/97	7-0-121
			1.10	**mg/L**	**0.9 % RPD**						
518	TOX-ICR	TOX	53	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/22/97	12-0-69
519	TOX-ICR	TOX (Dupl)	59	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/22/97	12-0-69
			56	**µg Cl-/L**	**10.7 % RPD**						
520	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.8	%	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
521	THM-ICR	Bromodichloromethane	6.5	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
522	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
523	THM-ICR	Chloroform	5.9	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

524	THM-ICR	Dibromochloromethane	4.1	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
525	UV-ICR	UV	0.012	1/cm	SM 5910 B	1	0.009	10/8/97		10/8/97	8-0-81
526	UV-ICR	UV (Dupl)	0.011	1/cm	SM 5910 B	1	0.009	10/8/97		10/8/97	8-0-81
			0.012	**1/cm**	**8.3 % RPD**						

Sample ID: 86.Bit.10.E-10 **S&H ID:** 9710-49 **Date Sampled:** 10/8/97 8:51:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
527	Cl2Dose	Chlorine Dose	2.63	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/8/97		10/8/97	n/a
528	Cl2Res	Chlorine Residual	1.30	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/8/97		10/10/97	n/a
529	HAA	Bromochloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
530	HAA	Bromodichloroacetic acid	5.5	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
531	HAA	Chlorodibromoacetic acid	2.3	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
532	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
533	HAA	Dichloroacetic acid	5.1	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
534	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
535	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
536	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/10/97	10/16/97	10/18/97	MW67931
537	HAA	Trichloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
538	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/10/97	n/a
539	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
540	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
541	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	10/8/97		10/10/97	n/a
542	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	10/8/97		10/8/97	n/a
543	TIME	Cl2 Incubation Time	48.5	hrs	n/a	1	n/a	10/8/97		10/10/97	n/a
544	TOC-ICR	TOC	1.30	mg/L	SM 5310 C	1	0.50	10/8/97		10/8/97	7-0-121
545	TOC-ICR	TOC (Dupl)	1.33	mg/L	SM 5310 C	1	0.50	10/8/97		10/8/97	7-0-121
			1.31	**mg/L**	**2.3 % RPD**						
546	TOX-ICR	TOX	69	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/22/97	12-0-69
547	TOX-ICR	TOX (Dupl)	63	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/22/97	12-0-69
			66	**µg Cl-/L**	**9.1 % RPD**						
548	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.6	%	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
549	THM-ICR	Bromodichloromethane	7.9	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
550	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
551	THM-ICR	Chloroform	8.4	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
552	THM-ICR	Dibromochloromethane	4.4	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
553	UV-ICR	UV	0.014	1/cm	SM 5910 B	1	0.009	10/8/97		10/8/97	8-0-81
554	UV-ICR	UV (Dupl)	0.014	1/cm	SM 5910 B	1	0.009	10/8/97		10/8/97	8-0-81
			0.014	**1/cm**	**0.0 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

Sample ID: 86.Bit.10.E-10d **S&H ID:** 9710-50 **Date Sampled:** 10/8/97 8:51:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
555	Cl2Dose	Chlorine Dose	2.63	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/8/97		10/8/97	n/a
556	Cl2Res	Chlorine Residual	1.30	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/8/97		10/10/97	n/a
557	HAA	Bromochloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
558	HAA	Bromodichloroacetic acid	5.7	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
559	HAA	Chlorodibromoacetic acid	2.4	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
560	HAA	Dibromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
561	HAA	Dichloroacetic acid	5.0	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
562	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
563	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/10/97	10/16/97	10/18/97	MW67931
564	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/10/97	10/16/97	10/18/97	MW67931
565	HAA	Trichloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	10/10/97	10/16/97	10/18/97	MW67931
566	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/10/97	n/a
567	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
568	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
569	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	10/8/97		10/10/97	n/a
570	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	10/8/97		10/8/97	n/a
571	TIME	Cl2 Incubation Time	48.5	hrs	n/a	1	n/a	10/8/97		10/10/97	n/a
572	TOC-ICR	TOC	1.27	mg/L	SM 5310 C	1	0.50	10/8/97		10/8/97	7-0-121
573	TOC-ICR	TOC (Dupl)	1.26	mg/L	SM 5310 C	1	0.50	10/8/97		10/8/97	7-0-121
			1.27	**mg/L**	**0.8 % RPD**						
574	TOX-ICR	TOX	68	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/21/97	12-0-68
575	TOX-ICR	TOX (Dupl)	64	µg Cl-/L	SM 5320 B	1	25	10/10/97		10/21/97	12-0-68
			66	**µg Cl-/L**	**6.1 % RPD**						
576	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.6	%	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
577	THM-ICR	Bromodichloromethane	7.4	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
578	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
579	THM-ICR	Chloroform	7.9	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
580	THM-ICR	Dibromochloromethane	4.2	µg/L	EPA 551.1	1	1.0	10/10/97	10/13/97	10/15/97	0-54-0
581	UV-ICR	UV	0.014	1/cm	SM 5910 B	1	0.009	10/8/97		10/8/97	8-0-81
582	UV-ICR	UV (Dupl)	0.015	1/cm	SM 5910 B	1	0.009	10/8/97		10/8/97	8-0-81
			0.014	**1/cm**	**7.1 % RPD**						

Sample ID: 86.Lig.20.E-9 **S&H ID:** 9710-57 **Date Sampled:** 10/8/97 6:40:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
583	Cl2Dose	Chlorine Dose	2.47	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/10/97		10/10/97	n/a
584	Cl2Res	Chlorine Residual	1.33	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/10/97		10/12/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

585	HAA	Bromochloroacetic acid	2.7	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
586	HAA	Bromodichloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
587	HAA	Chlorodibromoacetic acid	2.2	µg/L	SM 6251 B	1	2.0	10/12/97	10/16/97	10/19/97	MW67931
588	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
589	HAA	Dichloroacetic acid	3.2	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
590	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
591	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/16/97	10/19/97	MW67931
592	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/12/97	10/16/97	10/19/97	MW67931
593	HAA	Trichloroacetic acid	2.0	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
594	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/12/97	n/a
595	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
596	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
597	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/10/97		10/12/97	n/a
598	TEMP	Temperature	22.7	ºC	SM 2550 B	1	n/a	10/8/97		10/8/97	n/a
599	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/10/97		10/12/97	n/a
600	TOC-ICR	TOC	0.89	mg/L	SM 5310 C	1	0.50	10/8/97		10/9/97	7-0-122
601	TOC-ICR	TOC (Dupl)	0.91	mg/L	SM 5310 C	1	0.50	10/8/97		10/9/97	7-0-122
			0.90	**mg/L**	**2.2 % RPD**						
602	TOX-ICR	TOX	43	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
603	TOX-ICR	TOX (Dupl)	46	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
			45	**µg Cl-/L**	**6.7 % RPD**						
604	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.4	%	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
605	THM-ICR	Bromodichloromethane	4.6	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
606	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
607	THM-ICR	Chloroform	3.8	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
608	THM-ICR	Dibromochloromethane	3.3	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
609	UV-ICR	UV	0.009	1/cm	SM 5910 B	1	0.009	10/8/97		10/9/97	8-0-82
610	UV-ICR	UV (Dupl)	0.009	1/cm	SM 5910 B	1	0.009	10/8/97		10/9/97	8-0-82
			0.009	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.10.E-4 **S&H ID:** 9710-65 **Date Sampled:** 10/9/97 1:06:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
611	Cl2Dose	Chlorine Dose	2.15	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/10/97		10/10/97	n/a
612	Cl2Res	Chlorine Residual	1.36	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/10/97		10/12/97	n/a
613	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
614	HAA	Bromodichloroacetic acid	1.3	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
615	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
616	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
617	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

618	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
619	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
620	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/12/97	10/21/97	10/22/97	MW68137
621	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
622	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/12/97	n/a
623	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
624	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/9/97		10/9/97	n/a
625	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/10/97		10/12/97	n/a
626	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	10/9/97		10/9/97	n/a
627	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	10/10/97		10/12/97	n/a
628	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
629	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
			ND	**mg/L**							
630	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
631	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
			ND	**µg Cl-/L**							
632	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.6	%	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
633	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
634	THM-ICR	Bromoform	1.2	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
635	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
636	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
637	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/9/97	8-0-82
638	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/9/97	8-0-82
			ND	**1/cm**							

Sample ID: 86.Lig.10.E-5 **S&H ID:** 9710-66 **Date Sampled:** 10/9/97 7:53:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
639	Cl2Dose	Chlorine Dose	2.22	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/10/97		10/10/97	n/a
640	Cl2Res	Chlorine Residual	1.31	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/10/97		10/12/97	n/a
641	HAA	Bromochloroacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
642	HAA	Bromodichloroacetic acid	1.7	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
643	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
644	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
645	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
646	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
647	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
648	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/12/97	10/21/97	10/22/97	MW68137
649	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
650	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/12/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

651	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
652	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/9/97		10/9/97	n/a
653	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/10/97		10/12/97	n/a
654	TEMP	Temperature	22.3	ºC	SM 2550 B	1	n/a	10/9/97		10/9/97	n/a
655	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	10/10/97		10/12/97	n/a
656	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
657	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
			ND	**mg/L**							
658	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
659	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
			ND	**µg Cl-/L**							
660	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.2	%	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
661	THM-ICR	Bromodichloromethane	1.4	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
662	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
663	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
664	THM-ICR	Dibromochloromethane	1.3	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
665	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/9/97	8-0-82
666	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/9/97	8-0-82
			ND	**1/cm**							

Sample ID: 86.Lig.10.E-5d **S&H ID:** 9710-67 **Date Sampled:** 10/9/97 7:53:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
667	Cl2Dose	Chlorine Dose	2.22	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/10/97		10/10/97	n/a
668	Cl2Res	Chlorine Residual	1.32	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/10/97		10/12/97	n/a
669	HAA	Bromochloroacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
670	HAA	Bromodichloroacetic acid	1.7	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
671	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
672	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
673	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
674	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
675	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
676	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/12/97	10/21/97	10/22/97	MW68137
677	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
678	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/12/97	n/a
679	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
680	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	10/9/97		10/9/97	n/a
681	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/10/97		10/12/97	n/a
682	TEMP	Temperature	22.3	ºC	SM 2550 B	1	n/a	10/9/97		10/9/97	n/a
683	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/10/97		10/12/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

684	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
685	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
			ND	**mg/L**							
686	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
687	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
			ND	**µg Cl-/L**							
688	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.2	%	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
689	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	88.0	%	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
			92.6	**%**	**9.9 % RPD**						
690	THM-ICR	Bromodichloromethane	1.6	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
691	THM-ICR	Bromodichloromethane (Lab Dupl)	1.6	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
			1.6	**µg/L**	**0.0 % RPD**						
692	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
693	THM-ICR	Bromoform (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
			ND	**µg/L**							
694	THM-ICR	Chloroform	1.1	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
695	THM-ICR	Chloroform (Lab Dupl)	1.0	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
			1.1	**µg/L**	**9.1 % RPD**						
696	THM-ICR	Dibromochloromethane	1.4	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
697	THM-ICR	Dibromochloromethane (Lab Dupl)	1.5	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
			1.5	**µg/L**	**6.7 % RPD**						
698	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/9/97	8-0-82
699	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/9/97	8-0-82
			ND	**1/cm**							

Sample ID: 86.Bit.10.E-12 **S&H ID:** 9710-68 **Date Sampled:** 10/8/97 8:37:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
700	Cl2Dose	Chlorine Dose	2.73	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/10/97		10/10/97	n/a
701	Cl2Res	Chlorine Residual	1.33	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/10/97		10/12/97	n/a
702	HAA	Bromochloroacetic acid	3.8	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
703	HAA	Bromodichloroacetic acid	6.5	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
704	HAA	Chlorodibromoacetic acid	2.3	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
705	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
706	HAA	Dichloroacetic acid	5.7	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
707	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
708	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
709	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/12/97	10/21/97	10/22/97	MW68137
710	HAA	Trichloroacetic acid	5.7	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
711	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/12/97	n/a
712	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

713	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/8/97		10/8/97	n/a
714	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/10/97		10/12/97	n/a
715	TEMP	Temperature	23.3	ºC	SM 2550 B	1	n/a	10/8/97		10/8/97	n/a
716	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	10/10/97		10/12/97	n/a
717	TOC-ICR	TOC	1.37	mg/L	SM 5310 C	1	0.50	10/8/97		10/9/97	7-0-122
718	TOC-ICR	TOC (Dupl)	1.38	mg/L	SM 5310 C	1	0.50	10/8/97		10/9/97	7-0-122
			1.38	**mg/L**	**0.7 % RPD**						
719	TOX-ICR	TOX	75	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/23/97	12-0-70
720	TOX-ICR	TOX (Dupl)	76	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/23/97	12-0-70
			76	**µg Cl-/L**	**1.3 % RPD**						
721	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.0	%	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
722	THM-ICR	Bromodichloromethane	9.6	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
723	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
724	THM-ICR	Chloroform	10.8	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
725	THM-ICR	Dibromochloromethane	4.7	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
726	UV-ICR	UV	0.017	1/cm	SM 5910 B	1	0.009	10/8/97		10/9/97	8-0-82
727	UV-ICR	UV (Dupl)	0.017	1/cm	SM 5910 B	1	0.009	10/8/97		10/9/97	8-0-82
			0.017	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.10.E-6 **S&H ID:** 9710-75 **Date Sampled:** 10/9/97 12:57:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
728	Cl2Dose	Chlorine Dose	2.31	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/10/97		10/10/97	n/a
729	Cl2Res	Chlorine Residual	1.27	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/10/97		10/12/97	n/a
730	HAA	Bromochloroacetic acid	1.9	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
731	HAA	Bromodichloroacetic acid	2.5	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
732	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/16/97	10/19/97	MW67931
733	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
734	HAA	Dichloroacetic acid	1.5	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
735	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
736	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/16/97	10/19/97	MW67931
737	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/12/97	10/16/97	10/19/97	MW67931
738	HAA	Trichloroacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
739	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/12/97	n/a
740	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
741	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/9/97		10/9/97	n/a
742	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/10/97		10/12/97	n/a
743	TEMP	Temperature	23.1	ºC	SM 2550 B	1	n/a	10/9/97		10/9/97	n/a
744	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/10/97		10/12/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

745	TOC-ICR	TOC	0.59	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
746	TOC-ICR	TOC (Dupl)	0.61	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
			0.60	**mg/L**	**3.3 % RPD**						
747	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
748	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
			ND	**µg Cl-/L**							
749	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.4	%	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
750	THM-ICR	Bromodichloromethane	2.7	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
751	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
752	THM-ICR	Chloroform	1.8	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
753	THM-ICR	Dibromochloromethane	2.3	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
754	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/9/97	8-0-82
755	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/9/97	8-0-82
			ND	**1/cm**							

Sample ID: 86.INF.A-2 **S&H ID:** 9710-76 **Date Sampled:** 10/9/97 2:30:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
756	ALK	Alkalinity	58	mg/L	SM 2320 B	1	5	10/9/97		10/9/97	1-0-9
757	ALK	Alkalinity (Dupl)	56	mg/L	SM 2320 B	1	5	10/9/97		10/9/97	1-0-9
			57	**mg/L**	**3.5 % RPD**						
758	NH3	Ammonia Nitrogen	0.08	mg/L	EPA 350.1	1	0.05	10/9/97		10/21/97	MW68016
759	BR	Bromide	0.036	mg/L	EPA 300.0 A	1	0.020	10/9/97		10/22/97	MW68157
760	CaHard	Calcium Hardness	101	mg/L CaCO3	SM 3500-Ca D	1	10	10/9/97		10/9/97	33-0-9
761	CaHard	Calcium Hardness (Dupl)	99	mg/L CaCO3	SM 3500-Ca D	1	10	10/9/97		10/9/97	33-0-9
			100	**mg/L CaCO3**	**2.0 % RPD**						
762	TotHard	Total Hardness	128	mg/L CaCO3	SM 2340 C	1	5	10/9/97		10/9/97	3-0-9
763	TotHard	Total Hardness (Dupl)	130	mg/L CaCO3	SM 2340 C	1	5	10/9/97		10/9/97	3-0-9
			129	**mg/L CaCO3**	**1.6 % RPD**						

Sample ID: 86.Lig.20.E-12 **S&H ID:** 9710-84 **Date Sampled:** 10/9/97 3:22:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
764	Cl2Dose	Chlorine Dose	2.55	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/10/97		10/10/97	n/a
765	Cl2Res	Chlorine Residual	1.32	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/10/97		10/12/97	n/a
766	HAA	Bromochloroacetic acid	3.0	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
767	HAA	Bromodichloroacetic acid	4.0	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
768	HAA	Chlorodibromoacetic acid	2.2	µg/L	SM 6251 B	1	2.0	10/12/97	10/16/97	10/19/97	MW67931
769	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
770	HAA	Dichloroacetic acid	4.0	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
771	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
772	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/16/97	10/19/97	MW67931

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

773	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/12/97	10/16/97	10/19/97	MW67931
774	HAA	Trichloroacetic acid	2.7	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
775	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/12/97	n/a
776	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
777	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/10/97		10/12/97	n/a
778	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/10/97		10/12/97	n/a
779	TOC-ICR	TOC	1.03	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
780	TOC-ICR	TOC (Dupl)	1.04	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
			1.04	**mg/L**	**1.0 % RPD**						
781	TOX-ICR	TOX	55	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
782	TOX-ICR	TOX (Dupl)	52	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/22/97	12-0-69
			54	**µg Cl-/L**	**5.6 % RPD**						
783	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.0	%	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
784	THM-ICR	Bromodichloromethane	5.9	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
785	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
786	THM-ICR	Chloroform	5.5	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
787	THM-ICR	Dibromochloromethane	3.8	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
788	UV-ICR	UV	0.010	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
789	UV-ICR	UV (Dupl)	0.010	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
			0.010	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.20.E-12d **S&H ID:** 9710-85 **Date Sampled:** 10/9/97 3:22:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
790	Cl2Dose	Chlorine Dose	2.55	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/10/97		10/10/97	n/a
791	Cl2Res	Chlorine Residual	1.31	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/10/97		10/12/97	n/a
792	HAA	Bromochloroacetic acid	3.0	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
793	HAA	Bromodichloroacetic acid	4.2	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
794	HAA	Chlorodibromoacetic acid	2.0	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
795	HAA	Dibromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
796	HAA	Dichloroacetic acid	4.1	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
797	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
798	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
799	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/12/97	10/21/97	10/22/97	MW68137
800	HAA	Trichloroacetic acid	2.8	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
801	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/12/97	n/a
802	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
803	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/10/97		10/12/97	n/a
804	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/10/97		10/12/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

805	TOC-ICR	TOC	1.05	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
806	TOC-ICR	TOC (Dupl)	1.02	mg/L	SM 5310 C	1	0.50	10/9/97		10/9/97	7-0-122
			1.04	**mg/L**	**2.9 % RPD**						
807	TOX-ICR	TOX	50	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/23/97	12-0-70
808	TOX-ICR	TOX (Dupl)	54	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/23/97	12-0-70
			52	**µg Cl-/L**	**7.7 % RPD**						
809	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.0	%	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
810	THM-ICR	Bromodichloromethane	6.2	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
811	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
812	THM-ICR	Chloroform	5.6	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
813	THM-ICR	Dibromochloromethane	3.9	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
814	UV-ICR	UV	0.011	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
815	UV-ICR	UV (Dupl)	0.010	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
			0.010	**1/cm**	**10.0 % RPD**						

Sample ID: 86.Bit.20.E-9 **S&H ID:** 9710-88 **Date Sampled:** 10/9/97 6:35:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
816	Cl2Dose	Chlorine Dose	2.15	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
817	Cl2Res	Chlorine Residual	1.32	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
818	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
819	HAA	Bromodichloroacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
820	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
821	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
822	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
823	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
824	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
825	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
826	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
827	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
828	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
829	pH	pH	7.3	Unit	SM 4500-H+ B	1	n/a	10/9/97		10/9/97	n/a
830	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
831	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	10/9/97		10/9/97	n/a
832	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
833	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/9/97		10/10/97	7-0-122
834	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/9/97		10/10/97	7-0-122
			ND	**mg/L**							
835	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
836	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
			ND	**µg Cl-/L**							

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

837	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.0	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
838	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
839	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
840	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
841	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
842	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
843	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
			ND	**1/cm**							

Sample ID: 86.Bit.10.E-15 **S&H ID:** 9710-89 **Date Sampled:** 10/9/97 8:11:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
844	Cl2Dose	Chlorine Dose	2.82	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/10/97		10/10/97	n/a
845	Cl2Res	Chlorine Residual	1.34	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/10/97		10/12/97	n/a
846	HAA	Bromochloroacetic acid	4.2	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
847	HAA	Bromodichloroacetic acid	7.3	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
848	HAA	Chlorodibromoacetic acid	2.5	µg/L	SM 6251 B	1	2.0	10/12/97	10/16/97	10/19/97	MW67931
849	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
850	HAA	Dichloroacetic acid	6.6	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
851	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
852	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/16/97	10/19/97	MW67931
853	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/12/97	10/16/97	10/19/97	MW67931
854	HAA	Trichloroacetic acid	7.3	µg/L	SM 6251 B	1	1.0	10/12/97	10/16/97	10/19/97	MW67931
855	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/12/97	n/a
856	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
857	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	10/9/97		10/9/97	n/a
858	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/10/97		10/12/97	n/a
859	TEMP	Temperature	21.3	ºC	SM 2550 B	1	n/a	10/9/97		10/9/97	n/a
860	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	10/10/97		10/12/97	n/a
861	TOC-ICR	TOC	1.54	mg/L	SM 5310 C	1	0.50	10/9/97		10/10/97	7-0-122
862	TOC-ICR	TOC (Dupl)	1.54	mg/L	SM 5310 C	1	0.50	10/9/97		10/10/97	7-0-122
			1.54	**mg/L**	**0.0 % RPD**						
863	TOX-ICR	TOX	95	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/23/97	12-0-70
864	TOX-ICR	TOX (Dupl)	91	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/23/97	12-0-70
			93	**µg Cl-/L**	**4.3 % RPD**						
865	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.4	%	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
866	THM-ICR	Bromodichloromethane	11.0	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
867	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
868	THM-ICR	Chloroform	14.3	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

869	THM-ICR	Dibromochloromethane	5.1	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
870	UV-ICR	UV	0.021	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
871	UV-ICR	UV (Dupl)	0.021	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
			0.021	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.10.E-15d **S&H ID:** 9710-90 **Date Sampled:** 10/9/97 8:11:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
872	Cl2Dose	Chlorine Dose	2.82	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/10/97		10/10/97	n/a
873	Cl2Res	Chlorine Residual	1.37	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/10/97		10/12/97	n/a
874	HAA	Bromochloroacetic acid	4.1	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
875	HAA	Bromodichloroacetic acid	7.7	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
876	HAA	Chlorodibromoacetic acid	2.3	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
877	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
878	HAA	Dichloroacetic acid	6.8	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
879	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
880	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/12/97	10/21/97	10/22/97	MW68137
881	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/12/97	10/21/97	10/22/97	MW68137
882	HAA	Trichloroacetic acid	7.5	µg/L	SM 6251 B	1	1.0	10/12/97	10/21/97	10/22/97	MW68137
883	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/12/97	n/a
884	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
885	pH	pH (Dupl)	7.3	Unit	SM 4500-H+ B	1	n/a	10/9/97		10/9/97	n/a
886	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/10/97		10/12/97	n/a
887	TEMP	Temperature	20.9	ºC	SM 2550 B	1	n/a	10/9/97		10/9/97	n/a
888	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	10/10/97		10/12/97	n/a
889	TOC-ICR	TOC	1.55	mg/L	SM 5310 C	1	0.50	10/9/97		10/10/97	7-0-122
890	TOC-ICR	TOC (Dupl)	1.56	mg/L	SM 5310 C	1	0.50	10/9/97		10/10/97	7-0-122
			1.56	**mg/L**	**0.6 % RPD**						
891	TOX-ICR	TOX	93	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/23/97	12-0-70
892	TOX-ICR	TOX (Dupl)	89	µg Cl-/L	SM 5320 B	1	25	10/12/97		10/23/97	12-0-70
			91	**µg Cl-/L**	**4.4 % RPD**						
893	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.6	%	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
894	THM-ICR	Bromodichloromethane	12.7	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
895	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
896	THM-ICR	Chloroform	16.5	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
897	THM-ICR	Dibromochloromethane	5.8	µg/L	EPA 551.1	1	1.0	10/12/97	10/13/97	10/15/97	0-54-0
898	UV-ICR	UV	0.021	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
899	UV-ICR	UV (Dupl)	0.021	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
			0.021	**1/cm**	**0.0 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

Sample ID: 86.Lig.10.E-8 **S&H ID:** 9710-95 **Date Sampled:** 10/9/97 11:01:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
900	Cl2Dose	Chlorine Dose	2.41	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
901	Cl2Res	Chlorine Residual	1.31	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
902	HAA	Bromochloroacetic acid	2.4	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
903	HAA	Bromodichloroacetic acid	3.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
904	HAA	Chlorodibromoacetic acid	2.0	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
905	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
906	HAA	Dichloroacetic acid	2.5	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
907	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
908	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
909	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
910	HAA	Trichloroacetic acid	1.7	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
911	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
912	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
913	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	10/9/97		10/10/97	n/a
914	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
915	TEMP	Temperature	22.7	ºC	SM 2550 B	1	n/a	10/9/97		10/10/97	n/a
916	TIME	Cl2 Incubation Time	47.7	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
917	TOC-ICR	TOC	0.79	mg/L	SM 5310 C	1	0.50	10/9/97		10/10/97	7-0-123
918	TOC-ICR	TOC (Dupl)	0.78	mg/L	SM 5310 C	1	0.50	10/9/97		10/10/97	7-0-123
			0.79	**mg/L**	**1.3 % RPD**						
919	TOX-ICR	TOX	33	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/23/97	12-0-70
920	TOX-ICR	TOX (Dupl)	33	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/23/97	12-0-70
			33	**µg Cl-/L**	**0.0 % RPD**						
921	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.8	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
922	THM-ICR	Bromodichloromethane	3.9	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
923	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
924	THM-ICR	Chloroform	3.1	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
925	THM-ICR	Dibromochloromethane	2.9	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
926	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
927	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/9/97		10/10/97	8-0-84
			ND	**1/cm**							

Sample ID: 86.Lig.10.E-9 **S&H ID:** 9710-96 **Date Sampled:** 10/10/97 2:32:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
928	Cl2Dose	Chlorine Dose	2.49	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
929	Cl2Res	Chlorine Residual	1.33	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

930	HAA	Bromochloroacetic acid	2.7	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
931	HAA	Bromodichloroacetic acid	3.9	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
932	HAA	Chlorodibromoacetic acid	2.0	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
933	HAA	Dibromoacetic acid	1.3	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
934	HAA	Dichloroacetic acid	3.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
935	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
936	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
937	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
938	HAA	Trichloroacetic acid	2.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
939	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
940	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
941	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
942	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
943	TEMP	Temperature	22.5	ºC	SM 2550 B	1	n/a	10/10/97		10/10/97	n/a
944	TIME	Cl2 Incubation Time	47.7	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
945	TOC-ICR	TOC	0.92	mg/L	SM 5310 C	1	0.50	10/10/97		10/10/97	7-0-123
946	TOC-ICR	TOC (Dupl)	0.92	mg/L	SM 5310 C	1	0.50	10/10/97		10/10/97	7-0-123
			0.92	**mg/L**	**0.0 % RPD**						
947	TOX-ICR	TOX	44	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/23/97	12-0-70
948	TOX-ICR	TOX (Dupl)	44	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/23/97	12-0-70
			44	**µg Cl-/L**	**0.0 % RPD**						
949	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.2	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
950	THM-ICR	Bromodichloromethane	4.9	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
951	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
952	THM-ICR	Chloroform	3.9	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
953	THM-ICR	Dibromochloromethane	3.4	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
954	UV-ICR	UV	0.010	1/cm	SM 5910 B	1	0.009	10/10/97		10/10/97	8-0-84
955	UV-ICR	UV (Dupl)	0.009	1/cm	SM 5910 B	1	0.009	10/10/97		10/10/97	8-0-84
			0.009	**1/cm**	**11.1 % RPD**						

Sample ID: 86.Lig.10.E-10 **S&H ID:** 9710-97 **Date Sampled:** 10/10/97 9:17:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
956	Cl2Dose	Chlorine Dose	2.56	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
957	Cl2Res	Chlorine Residual	1.34	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
958	HAA	Bromochloroacetic acid	3.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
959	HAA	Bromodichloroacetic acid	4.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
960	HAA	Chlorodibromoacetic acid	2.0	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
961	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
962	HAA	Dichloroacetic acid	3.7	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

963	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
964	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
965	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
966	HAA	Trichloroacetic acid	2.8	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
967	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
968	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
969	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
970	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
971	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	10/10/97		10/10/97	n/a
972	TIME	Cl2 Incubation Time	47.8	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
973	TOC-ICR	TOC	1.04	mg/L	SM 5310 C	1	0.50	10/10/97		10/10/97	7-0-123
974	TOC-ICR	TOC (Dupl)	1.08	mg/L	SM 5310 C	1	0.50	10/10/97		10/10/97	7-0-123
			1.06	**mg/L**	**3.8 % RPD**						
975	TOX-ICR	TOX	49	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/23/97	12-0-70
976	TOX-ICR	TOX (Dupl)	52	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/23/97	12-0-70
			51	**µg Cl-/L**	**5.9 % RPD**						
977	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.8	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
978	THM-ICR	Bromodichloromethane	5.8	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
979	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
980	THM-ICR	Chloroform	5.7	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
981	THM-ICR	Dibromochloromethane	3.7	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
982	UV-ICR	UV	0.011	1/cm	SM 5910 B	1	0.009	10/10/97		10/10/97	8-0-84
983	UV-ICR	UV (Dupl)	0.011	1/cm	SM 5910 B	1	0.009	10/10/97		10/10/97	8-0-84
			0.011	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.10.E-10d **S&H ID:** 9710-98 **Date Sampled:** 10/10/97 9:17:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
984	Cl2Dose	Chlorine Dose	2.56	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
985	Cl2Res	Chlorine Residual	1.32	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
986	HAA	Bromochloroacetic acid	2.9	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
987	HAA	Bromodichloroacetic acid	4.4	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
988	HAA	Chlorodibromoacetic acid	2.1	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
989	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
990	HAA	Dichloroacetic acid	3.7	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
991	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
992	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
993	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
994	HAA	Trichloroacetic acid	2.7	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
995	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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996	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
997	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
998	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
999	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	10/10/97		10/10/97	n/a
1000	TIME	Cl2 Incubation Time	47.8	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1001	TOC-ICR	TOC	1.02	mg/L	SM 5310 C	1	0.50	10/10/97		10/10/97	7-0-123
1002	TOC-ICR	TOC (Dupl)	1.03	mg/L	SM 5310 C	1	0.50	10/10/97		10/10/97	7-0-123
			1.02	**mg/L**	**1.0 % RPD**						
1003	TOX-ICR	TOX	54	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
1004	TOX-ICR	TOX (Dupl)	52	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
			53	**µg Cl-/L**	**3.8 % RPD**						
1005	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.0	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1006	THM-ICR	Bromodichloromethane	5.7	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1007	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1008	THM-ICR	Chloroform	5.7	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1009	THM-ICR	Dibromochloromethane	3.6	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1010	UV-ICR	UV	0.011	1/cm	SM 5910 B	1	0.009	10/10/97		10/10/97	8-0-84
1011	UV-ICR	UV (Dupl)	0.011	1/cm	SM 5910 B	1	0.009	10/10/97		10/10/97	8-0-84
			0.011	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.20.E-12 **S&H ID:** 9710-112 **Date Sampled:** 10/10/97 6:18:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1012	Cl2Dose	Chlorine Dose	2.23	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1013	Cl2Res	Chlorine Residual	1.33	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
1014	HAA	Bromochloroacetic acid	1.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1015	HAA	Bromodichloroacetic acid	1.5	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1016	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1017	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1018	HAA	Dichloroacetic acid	2.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1019	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1020	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1021	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1022	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1023	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1024	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1025	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
1026	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1027	TEMP	Temperature	22.7	ºC	SM 2550 B	1	n/a	10/10/97		10/10/97	n/a
1028	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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1029	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	10/10/97		10/11/97	7-0-124
1030	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	10/10/97		10/11/97	7-0-124
			ND	**mg/L**							
1031	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
1032	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
			ND	**µg Cl-/L**							
1033	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.8	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1034	THM-ICR	Bromodichloromethane	1.0	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1035	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1036	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1037	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1038	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/10/97		10/11/97	8-0-85
1039	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/10/97		10/11/97	8-0-85
			ND	**1/cm**							

Sample ID: 86.Lig.20.E-14 **S&H ID:** 9710-113 **Date Sampled:** 10/10/97 5:36:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1040	Cl2Dose	Chlorine Dose	2.66	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1041	Cl2Res	Chlorine Residual	1.29	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
1042	HAA	Bromochloroacetic acid	3.6	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1043	HAA	Bromodichloroacetic acid	5.7	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1044	HAA	Chlorodibromoacetic acid	2.4	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1045	HAA	Dibromoacetic acid	1.4	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1046	HAA	Dichloroacetic acid	4.9	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1047	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1048	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1049	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1050	HAA	Trichloroacetic acid	4.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1051	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1052	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1053	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/10/97		10/10/97	n/a
1054	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1055	TEMP	Temperature	22.5	ºC	SM 2550 B	1	n/a	10/10/97		10/10/97	n/a
1056	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1057	TOC-ICR	TOC	1.26	mg/L	SM 5310 C	1	0.50	10/10/97		10/11/97	7-0-124
1058	TOC-ICR	TOC (Dupl)	1.25	mg/L	SM 5310 C	1	0.50	10/10/97		10/11/97	7-0-124
			1.25	**mg/L**	**0.8 % RPD**						
1059	TOX-ICR	TOX	69	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
1060	TOX-ICR	TOX (Dupl)	71	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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			70	**µg Cl-/L**	**2.9 % RPD**						
1061	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.6	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1062	THM-ICR	Bromodichloromethane	7.3	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1063	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1064	THM-ICR	Chloroform	8.2	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1065	THM-ICR	Dibromochloromethane	4.0	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1066	UV-ICR	UV	0.014	1/cm	SM 5910 B	1	0.009	10/10/97		10/11/97	8-0-85
1067	UV-ICR	UV (Dupl)	0.014	1/cm	SM 5910 B	1	0.009	10/10/97		10/11/97	8-0-85
			0.014	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.10.E-14 **S&H ID:** 9710-116 **Date Sampled:** 10/11/97 4:38:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1068	Cl2Dose	Chlorine Dose	2.67	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1069	Cl2Res	Chlorine Residual	1.14	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
1070	HAA	Bromochloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1071	HAA	Bromodichloroacetic acid	5.5	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1072	HAA	Chlorodibromoacetic acid	2.3	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1073	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1074	HAA	Dichloroacetic acid	5.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1075	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1076	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1077	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1078	HAA	Trichloroacetic acid	4.3	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1079	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1080	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1081	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/11/97		10/11/97	n/a
1082	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1083	TEMP	Temperature	22.1	ºC	SM 2550 B	1	n/a	10/11/97		10/11/97	n/a
1084	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1085	TOC-ICR	TOC	1.30	mg/L	SM 5310 C	1	0.50	10/11/97		10/11/97	7-0-124
1086	TOC-ICR	TOC (Dupl)	1.25	mg/L	SM 5310 C	1	0.50	10/11/97		10/11/97	7-0-124
			1.27	**mg/L**	**3.9 % RPD**						
1087	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.2	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1088	THM-ICR	Bromodichloromethane	7.7	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1089	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1090	THM-ICR	Chloroform	9.0	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1091	THM-ICR	Dibromochloromethane	4.1	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1092	UV-ICR	UV	0.015	1/cm	SM 5910 B	1	0.009	10/11/97		10/11/97	8-0-85

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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1093	UV-ICR	UV (Dupl)	0.014	1/cm	SM 5910 B	1	0.009	10/11/97		10/11/97	8-0-85
			0.014	**1/cm**	**7.1 % RPD**						

Sample ID: 86.Bit.10.E-17 **S&H ID:** 9710-121 **Date Sampled:** 10/11/97 7:39:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1094	Cl2Dose	Chlorine Dose	2.93	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1095	Cl2Res	Chlorine Residual	1.27	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
1096	HAA	Bromochloroacetic acid	4.3	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1097	HAA	Bromodichloroacetic acid	8.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1098	HAA	Chlorodibromoacetic acid	2.2	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1099	HAA	Dibromoacetic acid	1.3	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1100	HAA	Dichloroacetic acid	8.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1101	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1102	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1103	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1104	HAA	Trichloroacetic acid	9.6	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1105	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1106	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1107	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/11/97		10/11/97	n/a
1108	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1109	TEMP	Temperature	20.7	ºC	SM 2550 B	1	n/a	10/11/97		10/11/97	n/a
1110	TIME	Cl2 Incubation Time	47.7	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1111	TOC-ICR	TOC	1.76	mg/L	SM 5310 C	1	0.50	10/11/97		10/11/97	7-0-124
1112	TOC-ICR	TOC (Dupl)	1.75	mg/L	SM 5310 C	1	0.50	10/11/97		10/11/97	7-0-124
			1.75	**mg/L**	**0.6 % RPD**						
1113	TOX-ICR	TOX	114	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/23/97	12-0-70
1114	TOX-ICR	TOX (Dupl)	119	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/23/97	12-0-70
			117	**µg Cl-/L**	**4.3 % RPD**						
1115	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.2	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1116	THM-ICR	Bromodichloromethane	10.9	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1117	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1118	THM-ICR	Chloroform	17.9	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1119	THM-ICR	Dibromochloromethane	4.0	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1120	UV-ICR	UV	0.025	1/cm	SM 5910 B	1	0.009	10/11/97		10/11/97	8-0-85
1121	UV-ICR	UV (Dupl)	0.025	1/cm	SM 5910 B	1	0.009	10/11/97		10/11/97	8-0-85
			0.025	**1/cm**	**0.0 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

Sample ID: 86.Bit.20.E-14 **S&H ID:** 9710-125 **Date Sampled:** 10/11/97 2:07:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1122	Cl2Dose	Chlorine Dose	2.35	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1123	Cl2Res	Chlorine Residual	1.33	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
1124	HAA	Bromochloroacetic acid	1.8	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1125	HAA	Bromodichloroacetic acid	2.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1126	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1127	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1128	HAA	Dichloroacetic acid	2.9	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1129	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1130	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1131	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1132	HAA	Trichloroacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1133	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1134	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1135	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	10/11/97		10/11/97	n/a
1136	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1137	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	10/11/97		10/11/97	n/a
1138	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1139	TOC-ICR	TOC	0.64	mg/L	SM 5310 C	1	0.50	10/11/97		10/11/97	7-0-124
1140	TOC-ICR	TOC (Dupl)	0.65	mg/L	SM 5310 C	1	0.50	10/11/97		10/11/97	7-0-124
			0.65	**mg/L**	**1.5 % RPD**						
1141	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
1142	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
			ND	**µg Cl-/L**							
1143	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.2	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1144	THM-ICR	Bromodichloromethane	2.0	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1145	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1146	THM-ICR	Chloroform	1.7	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1147	THM-ICR	Dibromochloromethane	1.8	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1148	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/11/97		10/11/97	8-0-85
1149	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/11/97		10/11/97	8-0-85
			ND	**1/cm**							

Sample ID: 86.Bit.20.E-14d **S&H ID:** 9710-126 **Date Sampled:** 10/11/97 2:07:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1150	Cl2Dose	Chlorine Dose	2.35	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1151	Cl2Res	Chlorine Residual	1.37	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

1152	HAA	Bromochloroacetic acid	1.8	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1153	HAA	Bromodichloroacetic acid	2.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1154	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1155	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1156	HAA	Dichloroacetic acid	3.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1157	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1158	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1159	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1160	HAA	Trichloroacetic acid	1.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1161	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1162	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1163	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	10/11/97		10/11/97	n/a
1164	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1165	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	10/11/97		10/11/97	n/a
1166	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1167	TOC-ICR	TOC	0.66	mg/L	SM 5310 C	1	0.50	10/11/97		10/11/97	7-0-124
1168	TOC-ICR	TOC (Dupl)	0.66	mg/L	SM 5310 C	1	0.50	10/11/97		10/11/97	7-0-124
			0.66	**mg/L**	**0.0 % RPD**						
1169	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
1170	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
			ND	**µg Cl-/L**							
1171	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.4	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1172	THM-ICR	Bromodichloromethane	2.2	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1173	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1174	THM-ICR	Chloroform	1.5	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1175	THM-ICR	Dibromochloromethane	1.9	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1176	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/11/97		10/11/97	8-0-85
1177	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/11/97		10/11/97	8-0-85
			ND	**1/cm**							

Sample ID: 86.INF.B-3 **S&H ID:** 9710-128 **Date Sampled:** 10/11/97 3:00:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1178	Cl2Dose	Chlorine Dose	3.85	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/14/97		10/14/97	n/a
1179	Cl2Res	Chlorine Residual	1.37	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/14/97		10/16/97	n/a
1180	HAA	Bromochloroacetic acid	4.8	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1181	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1182	HAA	Dichloroacetic acid	17.0	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1183	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1184	HAA	Monochloroacetic acid	2.9	µg/L	SM 6251 B	1	2.0	10/16/97	10/23/97	10/27/97	MW68375

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

1185	HAA	Trichloroacetic acid	28.0	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1186	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/16/97	n/a
1187	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/14/97	n/a
1188	pH	pH	6.8	Unit	SM 4500-H+ B	1	n/a	10/11/97		10/11/97	n/a
1189	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/14/97		10/16/97	n/a
1190	TEMP	Temperature	15.7	ºC	SM 2550 B	1	n/a	10/11/97		10/11/97	n/a
1191	TIME	Cl2 Incubation Time	48.6	hrs	n/a	1	n/a	10/14/97		10/16/97	n/a
1192	TOC-ICR	TOC	2.60	mg/L	SM 5310 C	1	0.50	10/11/97		10/11/97	7-0-124
1193	TOC-ICR	TOC (Dupl)	2.60	mg/L	SM 5310 C	1	0.50	10/11/97		10/11/97	7-0-124
			2.60	**mg/L**	**0.0 % RPD**						
1194	TOX-ICR	TOX	228	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
1195	TOX-ICR	TOX (Dupl)	218	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
			223	**µg Cl-/L**	**4.5 % RPD**						
1196	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.4	%	EPA 551.1	1	1.0	10/16/97	10/21/97	10/21/97	0-57-0
1197	THM-ICR	Bromodichloromethane	14.1	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/21/97	0-57-0
1198	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/21/97	0-57-0
1199	THM-ICR	Chloroform	37.7	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/21/97	0-57-0
1200	THM-ICR	Dibromochloromethane	2.4	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/21/97	0-57-0
1201	TURB	Turbidity	0.05	ntu	SM 2130 B	1	0.05	10/11/97		10/11/97	9-0-6
1202	UV-ICR	UV	0.053	1/cm	SM 5910 B	1	0.009	10/11/97		10/11/97	8-0-85
1203	UV-ICR	UV (Dupl)	0.053	1/cm	SM 5910 B	1	0.009	10/11/97		10/11/97	8-0-85
			0.053	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.10.E-16 **S&H ID:** 9710-130 **Date Sampled:** 10/11/97 6:37:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1204	Cl2Dose	Chlorine Dose	2.78	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1205	Cl2Res	Chlorine Residual	1.35	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
1206	HAA	Bromochloroacetic acid	4.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1207	HAA	Bromodichloroacetic acid	6.6	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1208	HAA	Chlorodibromoacetic acid	2.3	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1209	HAA	Dibromoacetic acid	1.3	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1210	HAA	Dichloroacetic acid	6.4	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1211	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1212	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1213	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1214	HAA	Trichloroacetic acid	6.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1215	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1216	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1217	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/11/97		10/12/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

1218	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1219	TEMP	Temperature	23.0	ºC	SM 2550 B	1	n/a	10/11/97		10/11/97	n/a
1220	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1221	TOC-ICR	TOC	1.45	mg/L	SM 5310 C	1	0.50	10/11/97		10/12/97	7-0-125
1222	TOC-ICR	TOC (Dupl)	1.48	mg/L	SM 5310 C	1	0.50	10/11/97		10/12/97	7-0-125
			1.46	**mg/L**	**2.1 % RPD**						
1223	TOX-ICR	TOX	85	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
1224	TOX-ICR	TOX (Dupl)	87	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
			86	**µg Cl-/L**	**2.3 % RPD**						
1225	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.4	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1226	THM-ICR	Bromodichloromethane	9.0	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1227	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1228	THM-ICR	Chloroform	11.9	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1229	THM-ICR	Dibromochloromethane	4.3	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1230	UV-ICR	UV	0.018	1/cm	SM 5910 B	1	0.009	10/11/97		10/13/97	8-0-86
1231	UV-ICR	UV (Dupl)	0.018	1/cm	SM 5910 B	1	0.009	10/11/97		10/13/97	8-0-86
			0.018	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.20.E-17 **S&H ID:** 9710-132 **Date Sampled:** 10/11/97 7:59:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1232	Cl2Dose	Chlorine Dose	2.75	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1233	Cl2Res	Chlorine Residual	1.32	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
1234	HAA	Bromochloroacetic acid	3.9	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1235	HAA	Bromodichloroacetic acid	6.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1236	HAA	Chlorodibromoacetic acid	2.4	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1237	HAA	Dibromoacetic acid	1.3	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1238	HAA	Dichloroacetic acid	5.6	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1239	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1240	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1241	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1242	HAA	Trichloroacetic acid	5.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1243	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1244	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1245	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	10/11/97		10/12/97	n/a
1246	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1247	TEMP	Temperature	22.1	ºC	SM 2550 B	1	n/a	10/11/97		10/11/97	n/a
1248	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1249	TOC-ICR	TOC	1.41	mg/L	SM 5310 C	1	0.50	10/11/97		10/12/97	7-0-125

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

1250	TOC-ICR	TOC (Dupl)	1.43	mg/L	SM 5310 C	1	0.50	10/11/97		10/12/97	7-0-125
			1.42	**mg/L**	**1.4 % RPD**						
1251	TOX-ICR	TOX	81	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/27/97	12-0-72
1252	TOX-ICR	TOX (Dupl)	85	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/27/97	12-0-72
			83	**µg Cl-/L**	**4.8 % RPD**						
1253	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.2	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1254	THM-ICR	Bromodichloromethane	8.9	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1255	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1256	THM-ICR	Chloroform	10.5	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1257	THM-ICR	Dibromochloromethane	4.4	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1258	UV-ICR	UV	0.017	1/cm	SM 5910 B	1	0.009	10/11/97		10/13/97	8-0-86
1259	UV-ICR	UV (Dupl)	0.017	1/cm	SM 5910 B	1	0.009	10/11/97		10/13/97	8-0-86
			0.017	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.20.E-15 **S&H ID:** 9710-134 **Date Sampled:** 10/12/97 5:19:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1260	Cl2Dose	Chlorine Dose	2.44	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1261	Cl2Res	Chlorine Residual	1.43	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
1262	HAA	Bromochloroacetic acid	2.3	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1263	HAA	Bromodichloroacetic acid	2.9	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1264	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1265	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1266	HAA	Dichloroacetic acid	2.8	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1267	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1268	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1269	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1270	HAA	Trichloroacetic acid	1.5	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1271	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1272	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1273	pH	pH	7.3	Unit	SM 4500-H+ B	1	n/a	10/12/97		10/12/97	n/a
1274	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1275	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	10/12/97		10/12/97	n/a
1276	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1277	TOC-ICR	TOC	0.82	mg/L	SM 5310 C	1	0.50	10/12/97		10/12/97	7-0-125
1278	TOC-ICR	TOC (Dupl)	0.82	mg/L	SM 5310 C	1	0.50	10/12/97		10/12/97	7-0-125
			0.82	**mg/L**	**0.0 % RPD**						
1279	TOX-ICR	TOX	30	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
1280	TOX-ICR	TOX (Dupl)	33	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
			32	**µg Cl-/L**	**9.4 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

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1281	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.4	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1282	THM-ICR	Bromodichloromethane	3.2	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1283	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1284	THM-ICR	Chloroform	2.7	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1285	THM-ICR	Dibromochloromethane	2.4	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1286	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	10/12/97		10/13/97	8-0-86
1287	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	10/12/97		10/13/97	8-0-86
			ND	**1/cm**							

Sample ID: 86.Lig.10.E-18 **S&H ID:** 9710-135 **Date Sampled:** 10/12/97 11:26:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1288	Cl2Dose	Chlorine Dose	2.86	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1289	Cl2Res	Chlorine Residual	1.38	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
1290	HAA	Bromochloroacetic acid	4.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1291	HAA	Bromodichloroacetic acid	7.5	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1292	HAA	Chlorodibromoacetic acid	2.3	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1293	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1294	HAA	Dichloroacetic acid	7.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1295	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1296	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1297	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1298	HAA	Trichloroacetic acid	7.5	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1299	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1300	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1301	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/12/97		10/12/97	n/a
1302	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1303	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	10/12/97		10/12/97	n/a
1304	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1305	TOC-ICR	TOC	1.61	mg/L	SM 5310 C	1	0.50	10/12/97		10/12/97	7-0-125
1306	TOC-ICR	TOC (Dupl)	1.63	mg/L	SM 5310 C	1	0.50	10/12/97		10/12/97	7-0-125
			1.62	**mg/L**	**1.2 % RPD**						
1307	TOX-ICR	TOX	99	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
1308	TOX-ICR	TOX (Dupl)	102	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/24/97	12-0-71
			101	**µg Cl-/L**	**3.0 % RPD**						
1309	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.6	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1310	THM-ICR	Bromodichloromethane	9.9	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1311	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1312	THM-ICR	Chloroform	14.0	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

1313	THM-ICR	Dibromochloromethane	4.2	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1314	UV-ICR	UV	0.021	1/cm	SM 5910 B	1	0.009	10/12/97		10/13/97	8-0-86
1315	UV-ICR	UV (Dupl)	0.021	1/cm	SM 5910 B	1	0.009	10/12/97		10/13/97	8-0-86
			0.021	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.10.E-19 **S&H ID:** 9710-141 **Date Sampled:** 10/13/97 3:52:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1316	Cl2Dose	Chlorine Dose	3.04	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1317	Cl2Res	Chlorine Residual	1.31	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
1318	HAA	Bromochloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1319	HAA	Bromodichloroacetic acid	8.4	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1320	HAA	Chlorodibromoacetic acid	2.2	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1321	HAA	Dibromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1322	HAA	Dichloroacetic acid	9.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1323	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1324	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1325	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1326	HAA	Trichloroacetic acid	12.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1327	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1328	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1329	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1330	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1331	TEMP	Temperature	21.5	ºC	SM 2550 B	1	n/a	10/13/97		10/13/97	n/a
1332	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1333	TOC-ICR	TOC	1.93	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
1334	TOC-ICR	TOC (Dupl)	1.97	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
			1.95	**mg/L**	**2.1 % RPD**						
1335	TOX-ICR	TOX	140	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/27/97	12-0-72
1336	TOX-ICR	TOX (Dupl)	139	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/27/97	12-0-72
			140	**µg Cl-/L**	**0.7 % RPD**						
1337	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.8	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1338	THM-ICR	Bromodichloromethane	12.1	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1339	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1340	THM-ICR	Chloroform	21.8	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1341	THM-ICR	Dibromochloromethane	3.8	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1342	UV-ICR	UV	0.030	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
1343	UV-ICR	UV (Dupl)	0.030	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
			0.030	**1/cm**	**0.0 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

Sample ID: 86.Lig.10.E-20 **S&H ID:** 9710-144 **Date Sampled:** 10/13/97 7:26:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1344	Cl2Dose	Chlorine Dose	2.93	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1345	Cl2Res	Chlorine Residual	1.34	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a
1346	HAA	Bromochloroacetic acid	4.4	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1347	HAA	Bromodichloroacetic acid	8.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1348	HAA	Chlorodibromoacetic acid	2.4	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1349	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1350	HAA	Dichloroacetic acid	8.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1351	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1352	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1353	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1354	HAA	Trichloroacetic acid	9.3	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1355	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1356	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1357	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1358	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1359	TEMP	Temperature	22.5	ºC	SM 2550 B	1	n/a	10/13/97		10/13/97	n/a
1360	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1361	TOC-ICR	TOC	1.74	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
1362	TOC-ICR	TOC (Dupl)	1.75	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
			1.75	**mg/L**	**0.6 % RPD**						
1363	TOX-ICR	TOX	114	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/27/97	12-0-72
1364	TOX-ICR	TOX (Dupl)	120	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/27/97	12-0-72
			117	**µg Cl-/L**	**5.1 % RPD**						
1365	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.6	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1366	THM-ICR	Bromodichloromethane	11.0	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1367	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1368	THM-ICR	Chloroform	17.3	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1369	THM-ICR	Dibromochloromethane	4.1	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1370	UV-ICR	UV	0.025	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
1371	UV-ICR	UV (Dupl)	0.025	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
			0.025	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.10.E-20d **S&H ID:** 9710-145 **Date Sampled:** 10/13/97 7:26:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1372	Cl2Dose	Chlorine Dose	2.93	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/13/97		10/13/97	n/a
1373	Cl2Res	Chlorine Residual	1.33	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/13/97		10/15/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

1374	HAA	Bromochloroacetic acid	4.3	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1375	HAA	Bromodichloroacetic acid	7.7	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1376	HAA	Chlorodibromoacetic acid	2.3	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1377	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1378	HAA	Dichloroacetic acid	8.0	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1379	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1380	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/15/97	10/22/97	10/24/97	MW68367
1381	HAA	Tribromoacetic acid	NR	µg/L	SM 6251 B	1	4.0	10/15/97	10/22/97	10/24/97	MW68367
1382	HAA	Trichloroacetic acid	9.1	µg/L	SM 6251 B	1	1.0	10/15/97	10/22/97	10/24/97	MW68367
1383	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/15/97	n/a
1384	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1385	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1386	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	10/13/97		10/15/97	n/a
1387	TEMP	Temperature	22.5	ºC	SM 2550 B	1	n/a	10/13/97		10/13/97	n/a
1388	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	10/13/97		10/15/97	n/a
1389	TOC-ICR	TOC	1.75	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
1390	TOC-ICR	TOC (Dupl)	1.74	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
			1.75	**mg/L**	**0.6 % RPD**						
1391	TOX-ICR	TOX	122	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/27/97	12-0-72
1392	TOX-ICR	TOX (Dupl)	128	µg Cl-/L	SM 5320 B	1	25	10/15/97		10/27/97	12-0-72
			125	**µg Cl-/L**	**4.8 % RPD**						
1393	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.0	%	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1394	THM-ICR	Bromodichloromethane	10.9	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1395	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1396	THM-ICR	Chloroform	17.4	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1397	THM-ICR	Dibromochloromethane	4.0	µg/L	EPA 551.1	1	1.0	10/15/97	10/21/97	10/21/97	0-57-0
1398	UV-ICR	UV	0.025	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
1399	UV-ICR	UV (Dupl)	0.025	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
			0.025	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.20.E-17 **S&H ID:** 9710-146 **Date Sampled:** 10/13/97 2:48:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1400	Cl2Dose	Chlorine Dose	2.53	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/14/97		10/14/97	n/a
1401	Cl2Res	Chlorine Residual	1.45	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/14/97		10/16/97	n/a
1402	HAA	Bromochloroacetic acid	2.8	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1403	HAA	Dibromoacetic acid	1.4	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1404	HAA	Dichloroacetic acid	3.4	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1405	HAA	Monobromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1406	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/16/97	10/23/97	10/27/97	MW68375

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

1407	HAA	Trichloroacetic acid	2.9	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1408	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/16/97	n/a
1409	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/14/97	n/a
1410	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1411	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/14/97		10/16/97	n/a
1412	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	10/13/97		10/13/97	n/a
1413	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	10/14/97		10/16/97	n/a
1414	TOC-ICR	TOC	0.99	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
1415	TOC-ICR	TOC (Dupl)	0.99	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
			0.99	**mg/L**	**0.0 % RPD**						
1416	TOX-ICR	TOX	44	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
1417	TOX-ICR	TOX (Dupl)	44	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
			44	**µg Cl-/L**	**0.0 % RPD**						
1418	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.8	%	EPA 551.1	1	1.0	10/16/97	10/21/97	10/21/97	0-57-0
1419	THM-ICR	Bromodichloromethane	4.7	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/21/97	0-57-0
1420	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/21/97	0-57-0
1421	THM-ICR	Chloroform	4.0	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/21/97	0-57-0
1422	THM-ICR	Dibromochloromethane	3.3	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/21/97	0-57-0
1423	UV-ICR	UV	0.009	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
1424	UV-ICR	UV (Dupl)	0.009	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
			0.009	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.20.E-18 **S&H ID:** 9710-156 **Date Sampled:** 10/13/97 10:20:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1425	Cl2Dose	Chlorine Dose	2.58	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/14/97		10/14/97	n/a
1426	Cl2Res	Chlorine Residual	1.37	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/14/97		10/16/97	n/a
1427	HAA	Bromochloroacetic acid	3.2	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1428	HAA	Dibromoacetic acid	1.4	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1429	HAA	Dichloroacetic acid	3.6	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1430	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1431	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/16/97	10/23/97	10/27/97	MW68375
1432	HAA	Trichloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1433	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/16/97	n/a
1434	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/14/97	n/a
1435	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1436	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/14/97		10/16/97	n/a
1437	TEMP	Temperature	22.2	ºC	SM 2550 B	1	n/a	10/13/97		10/13/97	n/a
1438	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	10/14/97		10/16/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

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1439	TOC-ICR	TOC	1.09	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
1440	TOC-ICR	TOC (Dupl)	1.12	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
			1.11	**mg/L**	**2.7 % RPD**						
1441	TOX-ICR	TOX	48	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
1442	TOX-ICR	TOX (Dupl)	45	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
			47	**µg Cl-/L**	**6.4 % RPD**						
1443	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.0	%	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1444	THM-ICR	Bromodichloromethane	5.6	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1445	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1446	THM-ICR	Chloroform	5.3	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1447	THM-ICR	Dibromochloromethane	3.7	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1448	UV-ICR	UV	0.010	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
1449	UV-ICR	UV (Dupl)	0.011	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
			0.010	**1/cm**	**10.0 % RPD**						

Sample ID: 86.Bit.20.E-18d **S&H ID:** 9710-157 **Date Sampled:** 10/13/97 10:20:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1450	Cl2Dose	Chlorine Dose	2.58	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/14/97		10/14/97	n/a
1451	Cl2Res	Chlorine Residual	1.39	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/14/97		10/16/97	n/a
1452	HAA	Bromochloroacetic acid	3.2	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1453	HAA	Dibromoacetic acid	1.5	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1454	HAA	Dichloroacetic acid	3.8	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1455	HAA	Monobromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1456	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/16/97	10/23/97	10/27/97	MW68375
1457	HAA	Trichloroacetic acid	3.6	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1458	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/16/97	n/a
1459	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/14/97	n/a
1460	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1461	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/14/97		10/16/97	n/a
1462	TEMP	Temperature	22.3	ºC	SM 2550 B	1	n/a	10/13/97		10/13/97	n/a
1463	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	10/14/97		10/16/97	n/a
1464	TOC-ICR	TOC	1.10	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
1465	TOC-ICR	TOC (Dupl)	1.09	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
			1.10	**mg/L**	**0.9 % RPD**						
1466	TOX-ICR	TOX	47	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
1467	TOX-ICR	TOX (Dupl)	46	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
			47	**µg Cl-/L**	**2.1 % RPD**						
1468	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.8	%	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

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1469	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	97.6	%	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
			98.2	**%**	**1.2 % RPD**						
1470	THM-ICR	Bromodichloromethane	5.7	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1471	THM-ICR	Bromodichloromethane (Lab Dupl)	5.6	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
			5.7	**µg/L**	**1.8 % RPD**						
1472	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1473	THM-ICR	Bromoform (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
			ND	**µg/L**							
1474	THM-ICR	Chloroform	5.2	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1475	THM-ICR	Chloroform (Lab Dupl)	5.2	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
			5.2	**µg/L**	**0.0 % RPD**						
1476	THM-ICR	Dibromochloromethane	3.7	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1477	THM-ICR	Dibromochloromethane (Lab Dupl)	3.6	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
			3.7	**µg/L**	**2.7 % RPD**						
1478	UV-ICR	UV	0.010	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
1479	UV-ICR	UV (Dupl)	0.010	1/cm	SM 5910 B	1	0.009	10/13/97		10/13/97	8-0-87
			0.010	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.20.E-23 **S&H ID:** 9710-163 **Date Sampled:** 10/13/97 6:49:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1480	Cl2Dose	Chlorine Dose	2.83	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/14/97		10/14/97	n/a
1481	Cl2Res	Chlorine Residual	1.38	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/14/97		10/16/97	n/a
1482	HAA	Bromochloroacetic acid	4.4	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1483	HAA	Dibromoacetic acid	1.4	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1484	HAA	Dichloroacetic acid	7.4	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1485	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1486	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/16/97	10/23/97	10/27/97	MW68375
1487	HAA	Trichloroacetic acid	8.7	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1488	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/16/97	n/a
1489	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/14/97	n/a
1490	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1491	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/14/97		10/16/97	n/a
1492	TEMP	Temperature	22.3	ºC	SM 2550 B	1	n/a	10/13/97		10/13/97	n/a
1493	TIME	Cl2 Incubation Time	48.5	hrs	n/a	1	n/a	10/14/97		10/16/97	n/a
1494	TOC-ICR	TOC	1.56	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
1495	TOC-ICR	TOC (Dupl)	1.54	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
			1.55	**mg/L**	**1.3 % RPD**						
1496	TOX-ICR	TOX	96	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
1497	TOX-ICR	TOX (Dupl)	96	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
			96	**µg Cl-/L**	**0.0 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

1498	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.2	%	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1499	THM-ICR	Bromodichloromethane	9.6	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1500	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1501	THM-ICR	Chloroform	13.7	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1502	THM-ICR	Dibromochloromethane	4.1	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1503	UV-ICR	UV	0.021	1/cm	SM 5910 B	1	0.009	10/13/97		10/15/97	8-0-88
1504	UV-ICR	UV (Dupl)	0.021	1/cm	SM 5910 B	1	0.009	10/13/97		10/15/97	8-0-88
			0.021	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.20.E-23d **S&H ID:** 9710-164 **Date Sampled:** 10/13/97 6:49:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1505	Cl2Dose	Chlorine Dose	2.83	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/14/97		10/14/97	n/a
1506	Cl2Res	Chlorine Residual	1.37	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/14/97		10/16/97	n/a
1507	HAA	Bromochloroacetic acid	4.0	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1508	HAA	Dibromoacetic acid	1.4	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1509	HAA	Dichloroacetic acid	6.9	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1510	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1511	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/16/97	10/23/97	10/27/97	MW68375
1512	HAA	Trichloroacetic acid	8.4	µg/L	SM 6251 B	1	1.0	10/16/97	10/23/97	10/27/97	MW68375
1513	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/16/97	n/a
1514	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/14/97	n/a
1515	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/13/97		10/13/97	n/a
1516	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/14/97		10/16/97	n/a
1517	TEMP	Temperature	22.3	ºC	SM 2550 B	1	n/a	10/13/97		10/13/97	n/a
1518	TIME	Cl2 Incubation Time	48.5	hrs	n/a	1	n/a	10/14/97		10/16/97	n/a
1519	TOC-ICR	TOC	1.57	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
1520	TOC-ICR	TOC (Dupl)	1.58	mg/L	SM 5310 C	1	0.50	10/13/97		10/13/97	7-0-126
			1.58	**mg/L**	**0.6 % RPD**						
1521	TOX-ICR	TOX	95	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
1522	TOX-ICR	TOX (Dupl)	100	µg Cl-/L	SM 5320 B	1	25	10/16/97		10/28/97	12-0-73
			98	**µg Cl-/L**	**5.1 % RPD**						
1523	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.6	%	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1524	THM-ICR	Bromodichloromethane	9.5	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1525	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1526	THM-ICR	Chloroform	13.3	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1527	THM-ICR	Dibromochloromethane	4.1	µg/L	EPA 551.1	1	1.0	10/16/97	10/21/97	10/22/97	0-57-0
1528	UV-ICR	UV	0.021	1/cm	SM 5910 B	1	0.009	10/13/97		10/15/97	8-0-88
1529	UV-ICR	UV (Dupl)	0.021	1/cm	SM 5910 B	1	0.009	10/13/97		10/15/97	8-0-88

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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			0.021	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.10.E-20 **S&H ID:** 9710-167 **Date Sampled:** 10/14/97 9:03:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1530	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/14/97	n/a
1531	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	10/14/97		10/14/97	n/a
1532	TOC-ICR	TOC	1.99	mg/L	SM 5310 C	1	0.50	10/14/97		10/14/97	7-0-127
1533	TOC-ICR	TOC (Dupl)	1.96	mg/L	SM 5310 C	1	0.50	10/14/97		10/14/97	7-0-127
			1.98	**mg/L**	**1.5 % RPD**						

Sample ID: 86.Lig.10.E-21 **S&H ID:** 9710-189 **Date Sampled:** 10/14/97 1:34:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1534	Cl2Dose	Chlorine Dose	3.04	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/16/97		10/16/97	n/a
1535	Cl2Res	Chlorine Residual	1.26	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/16/97		10/18/97	n/a
1536	HAA	Bromochloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1537	HAA	Dibromoacetic acid	1.3	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1538	HAA	Dichloroacetic acid	9.9	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1539	HAA	Monobromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1540	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/18/97	10/23/97	10/27/97	MW68375
1541	HAA	Trichloroacetic acid	13.0	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1542	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/16/97		10/18/97	n/a
1543	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/16/97		10/16/97	n/a
1544	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	10/14/97		10/14/97	n/a
1545	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/16/97		10/18/97	n/a
1546	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	10/14/97		10/14/97	n/a
1547	TIME	Cl2 Incubation Time	47.0	hrs	n/a	1	n/a	10/16/97		10/18/97	n/a
1548	TOC-ICR	TOC	1.90	mg/L	SM 5310 C	1	0.50	10/14/97		10/14/97	7-0-127
1549	TOC-ICR	TOC (Dupl)	1.90	mg/L	SM 5310 C	1	0.50	10/14/97		10/14/97	7-0-127
			1.90	**mg/L**	**0.0 % RPD**						
1550	TOX-ICR	TOX	120	µg Cl-/L	SM 5320 B	1	25	10/18/97		10/28/97	12-0-73
1551	TOX-ICR	TOX (Dupl)	118	µg Cl-/L	SM 5320 B	1	25	10/18/97		10/28/97	12-0-73
			119	**µg Cl-/L**	**1.7 % RPD**						
1552	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.8	%	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1553	THM-ICR	Bromodichloromethane	11.0	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1554	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1555	THM-ICR	Chloroform	18.8	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1556	THM-ICR	Dibromochloromethane	3.7	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1557	UV-ICR	UV	0.028	1/cm	SM 5910 B	1	0.009	10/14/97		10/15/97	8-0-88

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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1558	UV-ICR	UV (Dupl)	0.028	1/cm	SM 5910 B	1	0.009	10/14/97		10/15/97	8-0-88
			0.028	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.20.E-21 **S&H ID:** 9710-194 **Date Sampled:** 10/15/97 8:46:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1559	Cl2Dose	Chlorine Dose	2.68	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/16/97		10/16/97	n/a
1560	Cl2Res	Chlorine Residual	1.40	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/16/97		10/18/97	n/a
1561	HAA	Bromochloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1562	HAA	Dibromoacetic acid	1.5	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1563	HAA	Dichloroacetic acid	4.8	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1564	HAA	Monobromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1565	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/18/97	10/23/97	10/27/97	MW68375
1566	HAA	Trichloroacetic acid	5.3	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1567	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/16/97		10/18/97	n/a
1568	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/16/97		10/16/97	n/a
1569	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	10/15/97		10/15/97	n/a
1570	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/16/97		10/18/97	n/a
1571	TEMP	Temperature	19.4	ºC	SM 2550 B	1	n/a	10/15/97		10/15/97	n/a
1572	TIME	Cl2 Incubation Time	47.0	hrs	n/a	1	n/a	10/16/97		10/18/97	n/a
1573	TOC-ICR	TOC	1.25	mg/L	SM 5310 C	1	0.50	10/15/97		10/15/97	7-0-128
1574	TOC-ICR	TOC (Dupl)	1.25	mg/L	SM 5310 C	1	0.50	10/15/97		10/15/97	7-0-128
			1.25	**mg/L**	**0.0 % RPD**						
1575	TOX-ICR	TOX	64	µg Cl-/L	SM 5320 B	1	25	10/18/97		10/30/97	12-0-74
1576	TOX-ICR	TOX (Dupl)	66	µg Cl-/L	SM 5320 B	1	25	10/18/97		10/30/97	12-0-74
			65	**µg Cl-/L**	**3.1 % RPD**						
1577	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.6	%	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1578	THM-ICR	Bromodichloromethane	7.6	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1579	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1580	THM-ICR	Chloroform	8.2	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1581	THM-ICR	Dibromochloromethane	4.3	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1582	UV-ICR	UV	0.014	1/cm	SM 5910 B	1	0.009	10/15/97		10/15/97	8-0-88
1583	UV-ICR	UV (Dupl)	0.014	1/cm	SM 5910 B	1	0.009	10/15/97		10/15/97	8-0-88
			0.014	**1/cm**	**0.0 % RPD**						

Sample ID: 86.INF.B-4 **S&H ID:** 9710-195 **Date Sampled:** 10/15/97 1:15:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1584	Cl2Dose	Chlorine Dose	3.85	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/16/97		10/16/97	n/a
1585	Cl2Res	Chlorine Residual	1.36	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/16/97		10/18/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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1586	HAA	Bromochloroacetic acid	4.9	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1587	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1588	HAA	Dichloroacetic acid	17.0	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1589	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1590	HAA	Monochloroacetic acid	2.0	µg/L	SM 6251 B	1	2.0	10/18/97	10/23/97	10/27/97	MW68375
1591	HAA	Trichloroacetic acid	29.0	µg/L	SM 6251 B	1	1.0	10/18/97	10/23/97	10/27/97	MW68375
1592	pH	Cl2 pH - Final	7.2	Unit	SM 4500-H+ B	1	n/a	10/16/97		10/18/97	n/a
1593	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/16/97		10/16/97	n/a
1594	pH	pH	6.8	Unit	SM 4500-H+ B	1	n/a	10/15/97		10/15/97	n/a
1595	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/16/97		10/18/97	n/a
1596	TEMP	Temperature	14.6	ºC	SM 2550 B	1	n/a	10/15/97		10/15/97	n/a
1597	TIME	Cl2 Incubation Time	47.0	hrs	n/a	1	n/a	10/16/97		10/18/97	n/a
1598	TOC-ICR	TOC	2.70	mg/L	SM 5310 C	1	0.50	10/15/97		10/15/97	7-0-128
1599	TOC-ICR	TOC (Dupl)	2.74	mg/L	SM 5310 C	1	0.50	10/15/97		10/15/97	7-0-128
			2.72	**mg/L**	**1.5 % RPD**						
1600	TOX-ICR	TOX	237	µg Cl-/L	SM 5320 B	1	25	10/18/97		10/30/97	12-0-74
1601	TOX-ICR	TOX (Dupl)	231	µg Cl-/L	SM 5320 B	1	25	10/18/97		10/30/97	12-0-74
			234	**µg Cl-/L**	**2.6 % RPD**						
1602	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.8	%	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1603	THM-ICR	Bromodichloromethane	15.9	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1604	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1605	THM-ICR	Chloroform	38.1	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1606	THM-ICR	Dibromochloromethane	2.3	µg/L	EPA 551.1	1	1.0	10/18/97	10/21/97	10/22/97	0-57-0
1607	TURB	Turbidity	0.10	ntu	SM 2130 B	1	0.05	10/15/97		10/15/97	9-0-6
1608	UV-ICR	UV	0.054	1/cm	SM 5910 B	1	0.009	10/15/97		10/15/97	8-0-88
1609	UV-ICR	UV (Dupl)	0.054	1/cm	SM 5910 B	1	0.009	10/15/97		10/15/97	8-0-88
			0.054	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.10.E-25 **S&H ID:** 9710-200 **Date Sampled:** 10/16/97 10:47:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1610	TOC-ICR	TOC	2.09	mg/L	SM 5310 C	1	0.50	10/16/97		10/17/97	7-0-129
1611	TOC-ICR	TOC (Dupl)	2.08	mg/L	SM 5310 C	1	0.50	10/16/97		10/17/97	7-0-129
			2.09	**mg/L**	**0.5 % RPD**						

Sample ID: 86.Bit.20.E-22 **S&H ID:** 9710-201 **Date Sampled:** 10/16/97 2:21:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1612	Cl2Dose	Chlorine Dose	2.76	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/20/97		10/20/97	n/a
1613	Cl2Res	Chlorine Residual	1.26	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/20/97		10/22/97	n/a
1614	HAA	Bromochloroacetic acid	3.6	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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1615	HAA	Bromodichloroacetic acid	4.8	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1616	HAA	Chlorodibromoacetic acid	2.6	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1617	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1618	HAA	Dichloroacetic acid	4.9	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1619	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1620	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1621	HAA	Trichloroacetic acid	5.5	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1622	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/22/97	n/a
1623	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/20/97	n/a
1624	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/16/97		10/16/97	n/a
1625	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/20/97		10/22/97	n/a
1626	TEMP	Temperature	21.2	ºC	SM 2550 B	1	n/a	10/16/97		10/16/97	n/a
1627	TIME	Cl2 Incubation Time	48.8	hrs	n/a	1	n/a	10/20/97		10/22/97	n/a
1628	TOC-ICR	TOC	1.37	mg/L	SM 5310 C	1	0.50	10/16/97		10/17/97	7-0-129
1629	TOC-ICR	TOC (Dupl)	1.41	mg/L	SM 5310 C	1	0.50	10/16/97		10/17/97	7-0-129
			1.39	**mg/L**	**2.9 % RPD**						
1630	TOX-ICR	TOX	78	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
1631	TOX-ICR	TOX (Dupl)	78	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
			78	**µg Cl-/L**	**0.0 % RPD**						
1632	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.0	%	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1633	THM-ICR	Bromodichloromethane	9.4	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1634	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1635	THM-ICR	Chloroform	11.4	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1636	THM-ICR	Dibromochloromethane	4.6	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1637	UV-ICR	UV	0.016	1/cm	SM 5910 B	1	0.009	10/16/97		10/17/97	8-0-89
1638	UV-ICR	UV (Dupl)	0.016	1/cm	SM 5910 B	1	0.009	10/16/97		10/17/97	8-0-89
			0.016	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.20.E-25 **S&H ID:** 9710-202 **Date Sampled:** 10/16/97 1:32:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1639	Cl2Dose	Chlorine Dose	2.97	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/20/97		10/20/97	n/a
1640	Cl2Res	Chlorine Residual	1.32	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/20/97		10/22/97	n/a
1641	HAA	Bromochloroacetic acid	4.2	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1642	HAA	Bromodichloroacetic acid	6.7	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1643	HAA	Chlorodibromoacetic acid	2.8	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1644	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1645	HAA	Dichloroacetic acid	7.6	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1646	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1647	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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1648	HAA	Trichloroacetic acid	9.4	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1649	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/22/97	n/a
1650	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/20/97	n/a
1651	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/16/97		10/16/97	n/a
1652	pH	pH (Dupl)	7.6	Unit	SM 4500-H+ B	1	n/a	10/16/97		10/16/97	n/a
			7.5	**Unit**	**1.3 % RPD**						
1653	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/20/97		10/22/97	n/a
1654	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	10/16/97		10/16/97	n/a
1655	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	10/20/97		10/22/97	n/a
1656	TOC-ICR	TOC	1.76	mg/L	SM 5310 C	1	0.50	10/16/97		10/17/97	7-0-129
1657	TOC-ICR	TOC (Dupl)	1.77	mg/L	SM 5310 C	1	0.50	10/16/97		10/17/97	7-0-129
			1.77	**mg/L**	**0.6 % RPD**						
1658	TOX-ICR	TOX	120	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
1659	TOX-ICR	TOX (Dupl)	118	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
			119	**µg Cl-/L**	**1.7 % RPD**						
1660	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.0	%	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1661	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	99.2	%	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
			101.6	**%**	**4.7 % RPD**						
1662	THM-ICR	Bromodichloromethane	11.9	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1663	THM-ICR	Bromodichloromethane (Lab Dupl)	12.3	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
			12.1	**µg/L**	**3.3 % RPD**						
1664	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1665	THM-ICR	Bromoform (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
			ND	**µg/L**							
1666	THM-ICR	Chloroform	19.7	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1667	THM-ICR	Chloroform (Lab Dupl)	20.0	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
			19.9	**µg/L**	**1.5 % RPD**						
1668	THM-ICR	Dibromochloromethane	4.4	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1669	THM-ICR	Dibromochloromethane (Lab Dupl)	4.4	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
			4.4	**µg/L**	**0.0 % RPD**						
1670	UV-ICR	UV	0.024	1/cm	SM 5910 B	1	0.009	10/16/97		10/17/97	8-0-89
1671	UV-ICR	UV (Dupl)	0.024	1/cm	SM 5910 B	1	0.009	10/16/97		10/17/97	8-0-89
			0.024	**1/cm**	**0.0 % RPD**						

Sample ID: 86.INF.A-3 **S&H ID:** 9710-203 **Date Sampled:** 10/16/97 3:10:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1672	ALK	Alkalinity	52	mg/L	SM 2320 B	1	5	10/16/97		10/16/97	1-0-9
1673	ALK	Alkalinity (Dupl)	52	mg/L	SM 2320 B	1	5	10/16/97		10/16/97	1-0-9
			52	**mg/L**	**0.0 % RPD**						
1674	NH3	Ammonia Nitrogen	0.08	mg/L	EPA 350.1	1	0.05	10/16/97		10/27/97	MW68401

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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1675	BR	Bromide	0.037	mg/L	EPA 300.0 A	1	0.020	10/16/97		10/28/97	MW68323
1676	CaHard	Calcium Hardness	107	mg/L CaCO3	SM 3500-Ca D	1	10	10/16/97		10/16/97	33-0-9
1677	CaHard	Calcium Hardness (Dupl)	101	mg/L CaCO3	SM 3500-Ca D	1	10	10/16/97		10/16/97	33-0-9
			104	**mg/L CaCO3**	**5.8 % RPD**						
1678	TotHard	Total Hardness	130	mg/L CaCO3	SM 2340 C	1	5	10/16/97		10/16/97	3-0-9
1679	TotHard	Total Hardness (Dupl)	129	mg/L CaCO3	SM 2340 C	1	5	10/16/97		10/16/97	3-0-9
			130	**mg/L CaCO3**	**0.8 % RPD**						

Sample ID: 86.Bit.20.E-24 **S&H ID:** 9710-220 **Date Sampled:** 10/18/97 2:28:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1680	Cl2Dose	Chlorine Dose	2.83	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/20/97		10/20/97	n/a
1681	Cl2Res	Chlorine Residual	1.36	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/20/97		10/22/97	n/a
1682	HAA	Bromochloroacetic acid	4.1	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1683	HAA	Bromodichloroacetic acid	6.0	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1684	HAA	Chlorodibromoacetic acid	2.8	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1685	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1686	HAA	Dichloroacetic acid	5.8	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1687	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1688	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1689	HAA	Trichloroacetic acid	7.0	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1690	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/22/97	n/a
1691	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/20/97	n/a
1692	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	10/18/97		10/18/97	n/a
1693	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/20/97		10/22/97	n/a
1694	TEMP	Temperature	20.5	ºC	SM 2550 B	1	n/a	10/18/97		10/18/97	n/a
1695	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	10/20/97		10/22/97	n/a
1696	TOC-ICR	TOC	1.49	mg/L	SM 5310 C	1	0.50	10/18/97		10/20/97	7-0-130
1697	TOC-ICR	TOC (Dupl)	1.49	mg/L	SM 5310 C	1	0.50	10/18/97		10/20/97	7-0-130
			1.49	**mg/L**	**0.0 % RPD**						
1698	TOX-ICR	TOX	87	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
1699	TOX-ICR	TOX (Dupl)	88	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
			88	**µg Cl-/L**	**1.1 % RPD**						
1700	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.0	%	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1701	THM-ICR	Bromodichloromethane	10.6	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1702	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1703	THM-ICR	Chloroform	14.4	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1704	THM-ICR	Dibromochloromethane	4.9	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1705	UV-ICR	UV	0.019	1/cm	SM 5910 B	1	0.009	10/18/97		10/19/97	8-0-90
1706	UV-ICR	UV (Dupl)	0.019	1/cm	SM 5910 B	1	0.009	10/18/97		10/19/97	8-0-90

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

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			0.019	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.20.E-24d **S&H ID:** 9710-221 **Date Sampled:** 10/18/97 2:28:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1707	Cl2Dose	Chlorine Dose	2.83	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/20/97		10/20/97	n/a
1708	Cl2Res	Chlorine Residual	1.35	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/20/97		10/22/97	n/a
1709	HAA	Bromochloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1710	HAA	Bromodichloroacetic acid	5.8	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1711	HAA	Chlorodibromoacetic acid	2.8	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1712	HAA	Dibromoacetic acid	1.2	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1713	HAA	Dichloroacetic acid	5.7	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1714	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1715	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1716	HAA	Trichloroacetic acid	6.9	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1717	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/22/97	n/a
1718	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/20/97	n/a
1719	pH	pH	7.3	Unit	SM 4500-H+ B	1	n/a	10/18/97		10/18/97	n/a
1720	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/20/97		10/22/97	n/a
1721	TEMP	Temperature	20.5	ºC	SM 2550 B	1	n/a	10/18/97		10/18/97	n/a
1722	TIME	Cl2 Incubation Time	48.4	hrs	n/a	1	n/a	10/20/97		10/22/97	n/a
1723	TOC-ICR	TOC	1.57	mg/L	SM 5310 C	1	0.50	10/18/97		10/20/97	7-0-130
1724	TOC-ICR	TOC (Dupl)	1.53	mg/L	SM 5310 C	1	0.50	10/18/97		10/20/97	7-0-130
			1.55	**mg/L**	**2.6 % RPD**						
1725	TOX-ICR	TOX	96	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
1726	TOX-ICR	TOX (Dupl)	87	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
			92	**µg Cl-/L**	**9.8 % RPD**						
1727	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.4	%	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1728	THM-ICR	Bromodichloromethane	10.6	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1729	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1730	THM-ICR	Chloroform	14.2	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1731	THM-ICR	Dibromochloromethane	4.7	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1732	UV-ICR	UV	0.019	1/cm	SM 5910 B	1	0.009	10/18/97		10/19/97	8-0-90
1733	UV-ICR	UV (Dupl)	0.019	1/cm	SM 5910 B	1	0.009	10/18/97		10/19/97	8-0-90
			0.019	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.20.E-27 **S&H ID:** 9710-226 **Date Sampled:** 10/18/97 10:53:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1734	Cl2Dose	Chlorine Dose	3.09	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/20/97		10/20/97	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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Akron Public Utilities Bureau

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1735	Cl2Res	Chlorine Residual	1.29	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/20/97		10/22/97	n/a
1736	HAA	Bromochloroacetic acid	3.8	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1737	HAA	Bromodichloroacetic acid	7.0	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1738	HAA	Chlorodibromoacetic acid	2.6	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1739	HAA	Dibromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1740	HAA	Dichloroacetic acid	8.8	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1741	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1742	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1743	HAA	Trichloroacetic acid	11.0	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1744	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/22/97	n/a
1745	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/20/97	n/a
1746	pH	pH	7.3	Unit	SM 4500-H+ B	1	n/a	10/18/97		10/18/97	n/a
1747	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/20/97		10/22/97	n/a
1748	TEMP	Temperature	21.3	ºC	SM 2550 B	1	n/a	10/18/97		10/18/97	n/a
1749	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	10/20/97		10/22/97	n/a
1750	TOC-ICR	TOC	2.00	mg/L	SM 5310 C	1	0.50	10/18/97		10/20/97	7-0-130
1751	TOC-ICR	TOC (Dupl)	1.98	mg/L	SM 5310 C	1	0.50	10/18/97		10/20/97	7-0-130
			1.99	**mg/L**	**1.0 % RPD**						
1752	TOX-ICR	TOX	130	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
1753	TOX-ICR	TOX (Dupl)	139	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
			135	**µg Cl-/L**	**6.7 % RPD**						
1754	THM-ICR	1,2,3-Trichloropropane (Surrogate)	105.6	%	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1755	THM-ICR	Bromodichloromethane	12.6	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1756	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1757	THM-ICR	Chloroform	23.0	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1758	THM-ICR	Dibromochloromethane	4.0	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1759	UV-ICR	UV	0.028	1/cm	SM 5910 B	1	0.009	10/18/97		10/19/97	8-0-90
1760	UV-ICR	UV (Dupl)	0.028	1/cm	SM 5910 B	1	0.009	10/18/97		10/19/97	8-0-90
			0.028	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.20.E-27 **S&H ID:** 9710-230 **Date Sampled:** 10/20/97 5:35:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1761	Cl2Dose	Chlorine Dose	2.92	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/20/97		10/20/97	n/a
1762	Cl2Res	Chlorine Residual	1.24	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/20/97		10/22/97	n/a
1763	HAA	Bromochloroacetic acid	4.0	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1764	HAA	Bromodichloroacetic acid	6.7	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1765	HAA	Chlorodibromoacetic acid	2.7	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1766	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1767	HAA	Dichloroacetic acid	6.7	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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1768	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1769	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1770	HAA	Trichloroacetic acid	8.8	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1771	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/22/97	n/a
1772	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/20/97	n/a
1773	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/20/97	n/a
1774	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/20/97		10/22/97	n/a
1775	TEMP	Temperature	20.7	ºC	SM 2550 B	1	n/a	10/20/97		10/20/97	n/a
1776	TIME	Cl2 Incubation Time	48.6	hrs	n/a	1	n/a	10/20/97		10/22/97	n/a
1777	TOC-ICR	TOC	1.68	mg/L	SM 5310 C	1	0.50	10/20/97		10/20/97	7-0-130
1778	TOC-ICR	TOC (Dupl)	1.68	mg/L	SM 5310 C	1	0.50	10/20/97		10/20/97	7-0-130
			1.68	**mg/L**	**0.0 % RPD**						
1779	TOX-ICR	TOX	103	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
1780	TOX-ICR	TOX (Dupl)	107	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/4/97	12-0-77
			105	**µg Cl-/L**	**3.8 % RPD**						
1781	THM-ICR	1,2,3-Trichloropropane (Surrogate)	106.8	%	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1782	THM-ICR	Bromodichloromethane	11.2	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1783	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1784	THM-ICR	Chloroform	17.6	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1785	THM-ICR	Dibromochloromethane	4.5	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1786	UV-ICR	UV	0.022	1/cm	SM 5910 B	1	0.009	10/20/97		10/21/97	8-0-91
1787	UV-ICR	UV (Dupl)	0.022	1/cm	SM 5910 B	1	0.009	10/20/97		10/21/97	8-0-91
			0.022	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Lig.20.E-29 **S&H ID:** 9710-235 **Date Sampled:** 10/20/97 3:35:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1788	TOC-ICR	TOC	2.20	mg/L	SM 5310 C	1	0.50	10/20/97		10/20/97	7-0-130
1789	TOC-ICR	TOC (Dupl)	2.22	mg/L	SM 5310 C	1	0.50	10/20/97		10/20/97	7-0-130
			2.21	**mg/L**	**0.9 % RPD**						

Sample ID: 86.INF.B-5 **S&H ID:** 9710-237 **Date Sampled:** 10/20/97 5:50:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1790	Cl2Dose	Chlorine Dose	3.85	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/20/97		10/20/97	n/a
1791	Cl2Res	Chlorine Residual	1.29	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/20/97		10/22/97	n/a
1792	HAA	Bromochloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1793	HAA	Bromodichloroacetic acid	8.5	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1794	HAA	Chlorodibromoacetic acid	2.4	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1795	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1796	HAA	Dichloroacetic acid	15.0	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

1797	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1798	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/22/97	10/29/97	10/31/97	MW68488
1799	HAA	Trichloroacetic acid	24.0	µg/L	SM 6251 B	1	1.0	10/22/97	10/29/97	10/31/97	MW68488
1800	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/22/97	n/a
1801	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/20/97	n/a
1802	pH	pH	6.8	Unit	SM 4500-H+ B	1	n/a	10/20/97		10/20/97	n/a
1803	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	10/20/97		10/22/97	n/a
1804	TEMP	Temperature	17.3	ºC	SM 2550 B	1	n/a	10/20/97		10/20/97	n/a
1805	TIME	Cl2 Incubation Time	48.7	hrs	n/a	1	n/a	10/20/97		10/22/97	n/a
1806	TOC-ICR	TOC	2.63	mg/L	SM 5310 C	1	0.50	10/20/97		10/23/97	7-0-133
1807	TOC-ICR	TOC (Dupl)	2.66	mg/L	SM 5310 C	1	0.50	10/20/97		10/23/97	7-0-133
			2.65	**mg/L**	**1.1 % RPD**						
1808	TOX-ICR	TOX	223	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/5/97	12-0-78
1809	TOX-ICR	TOX (Dupl)	214	µg Cl-/L	SM 5320 B	1	25	10/22/97		11/5/97	12-0-78
			219	**µg Cl-/L**	**4.1 % RPD**						
1810	THM-ICR	1,2,3-Trichloropropane (Surrogate)	106.8	%	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1811	THM-ICR	Bromodichloromethane	14.4	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1812	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1813	THM-ICR	Chloroform	39.5	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1814	THM-ICR	Dibromochloromethane	2.7	µg/L	EPA 551.1	1	1.0	10/22/97	10/29/97	10/29/97	0-58-0
1815	TURB	Turbidity	0.10	ntu	SM 2130 B	1	0.05	10/20/97		10/20/97	9-0-6
1816	UV-ICR	UV	0.052	1/cm	SM 5910 B	1	0.009	10/20/97		10/21/97	8-0-91
1817	UV-ICR	UV (Dupl)	0.052	1/cm	SM 5910 B	1	0.009	10/20/97		10/21/97	8-0-91
			0.052	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.20.E-28 **S&H ID:** 9710-274 **Date Sampled:** 10/23/97 1:35:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1818	Cl2Dose	Chlorine Dose	3.04	mg/L as Cl2	SM 4500-Cl B	1	n/a	10/23/97		10/23/97	n/a
1819	Cl2Res	Chlorine Residual	1.32	mg/L as Cl2	SM 4500-Cl F	1	0.10	10/23/97		10/25/97	n/a
1820	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	105.2	%	EPA 552.2	1	1.0	10/25/97	10/29/97	10/30/97	0-59-0
1821	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.0	%	EPA 552.2	1	1.0	10/25/97	10/29/97	10/30/97	0-59-0
1822	HAA	Bromochloroacetic acid	4.4	µg/L	SM 6251 B	1	1.0	10/25/97	10/31/97	11/3/97	MW68912
1823	HAA-ICR	Bromochloroacetic acid	3.3	µg/L	EPA 552.2	1	1.0	10/25/97	10/29/97	10/30/97	0-59-0
1824	HAA	Bromodichloroacetic acid	8.4	µg/L	SM 6251 B	1	1.0	10/25/97	10/31/97	11/3/97	MW68912
1825	HAA-ICR	Bromodichloroacetic acid	4.4	µg/L	EPA 552.2	1	1.0	10/25/97	10/29/97	10/30/97	0-59-0
1826	HAA	Chlorodibromoacetic acid	3.4	µg/L	SM 6251 B	1	2.0	10/25/97	10/31/97	11/3/97	MW68912
1827	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	10/25/97	10/29/97	10/30/97	0-59-0
1828	HAA	Dibromoacetic acid	1.4	µg/L	SM 6251 B	1	1.0	10/25/97	10/31/97	11/3/97	MW68912

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

1829	HAA-ICR	Dibromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	10/25/97	10/29/97	10/30/97	0-59-0
1830	HAA	Dichloroacetic acid	8.0	µg/L	SM 6251 B	1	1.0	10/25/97	10/31/97	11/3/97	MW68912
1831	HAA-ICR	Dichloroacetic acid	7.7	µg/L	EPA 552.2	1	1.0	10/25/97	10/29/97	10/30/97	0-59-0
1832	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	10/25/97	10/31/97	11/3/97	MW68912
1833	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	10/25/97	10/29/97	10/30/97	0-59-0
1834	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	10/25/97	10/31/97	11/3/97	MW68912
1835	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	10/25/97	10/29/97	10/30/97	0-59-0
1836	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	10/25/97	10/29/97	10/30/97	0-59-0
1837	HAA	Trichloroacetic acid	11.0	µg/L	SM 6251 B	1	1.0	10/25/97	10/31/97	11/3/97	MW68912
1838	HAA-ICR	Trichloroacetic acid	7.1	µg/L	EPA 552.2	1	1.0	10/25/97	10/29/97	10/30/97	0-59-0
1839	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	10/23/97		10/25/97	n/a
1840	pH	Cl2 pH - Initial	7.2	Unit	SM 4500-H+ B	1	n/a	10/23/97		10/23/97	n/a
1841	pH	pH	7.3	Unit	SM 4500-H+ B	1	n/a	10/23/97		10/23/97	n/a
1842	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	10/23/97		10/25/97	n/a
1843	TEMP	Temperature	21.1	ºC	SM 2550 B	1	n/a	10/23/97		10/23/97	n/a
1844	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	10/23/97		10/25/97	n/a
1845	TOC-ICR	TOC	1.91	mg/L	SM 5310 C	1	0.50	10/23/97		10/23/97	7-0-133
1846	TOC-ICR	TOC (Dupl)	1.86	mg/L	SM 5310 C	1	0.50	10/23/97		10/23/97	7-0-133
			1.89	**mg/L**	**2.6 % RPD**						
1847	TOX-ICR	TOX	118	µg Cl-/L	SM 5320 B	1	25	10/25/97		11/5/97	12-0-78
1848	TOX-ICR	TOX (Dupl)	114	µg Cl-/L	SM 5320 B	1	25	10/25/97		11/5/97	12-0-78
			116	**µg Cl-/L**	**3.4 % RPD**						
1849	THM-ICR	1,2,3-Trichloropropane (Surrogate)	106.4	%	EPA 551.1	1	1.0	10/25/97	10/29/97	10/29/97	0-58-0
1850	THM-ICR	Bromodichloromethane	12.0	µg/L	EPA 551.1	1	1.0	10/25/97	10/29/97	10/29/97	0-58-0
1851	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	10/25/97	10/29/97	10/29/97	0-58-0
1852	THM-ICR	Chloroform	20.5	µg/L	EPA 551.1	1	1.0	10/25/97	10/29/97	10/29/97	0-58-0
1853	THM-ICR	Dibromochloromethane	4.3	µg/L	EPA 551.1	1	1.0	10/25/97	10/29/97	10/29/97	0-58-0
1854	UV-ICR	UV	0.027	1/cm	SM 5910 B	1	0.009	10/23/97		10/24/97	8-0-92
1855	UV-ICR	UV (Dupl)	0.027	1/cm	SM 5910 B	1	0.009	10/23/97		10/24/97	8-0-92
			0.027	**1/cm**	**0.0 % RPD**						

Sample ID: 86.Bit.20.E-29 **S&H ID:** 9710-295 **Date Sampled:** 10/24/97 7:47:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1856	TOC-ICR	TOC	1.90	mg/L	SM 5310 C	1	0.50	10/24/97		10/24/97	7-0-134
1857	TOC-ICR	TOC (Dupl)	1.96	mg/L	SM 5310 C	1	0.50	10/24/97		10/24/97	7-0-134
			1.93	**mg/L**	**3.1 % RPD**						

End of laboratory test results

ND (non-detect): Result is below mininum reporting level (MRL).

NR (not reportable): Result did not meet QC criteria.

Summers & Hooper, Inc.
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Quality Control Report

Mr. Bill Marchand
Civil Engineer
Akron Public Utilities Bureau
146 South High Street
P.O. Box 3665
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Phone: 330-375-2690 Fax: 330-375-2418

Study#: 86
Study Title: ICR RSSCT #2/#3

Analysis: ALK (Alkalinity) **Method:** SM 2320 B

QC Batch ID: 1-0-9

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	100	96	mg/L	96%		10/03/97	9710-4	5		
Matrix Spike (Dupl)	Matrix Spike	100	94	mg/L	94%		10/03/97	9710-4	5		
		100	**95**	**mg/L**	**95%**	**2.1 %**					
Method Blank	Method Blank		ND*	mg/L			10/03/97	9710-2	5		
Standard	Standard	100	98	mg/L	98%		10/03/97	9710-3	5		
Standard (Dupl)	Standard	100	99	mg/L	99%		10/03/97	9710-3	5		
		100	**98**	**mg/L**	**98%**	**1.0 %**					
Matrix Spike	Matrix Spike	100	97	mg/L	97%		10/09/97	9710-76	5		
Matrix Spike (Dupl)	Matrix Spike	100	98	mg/L	98%		10/09/97	9710-76	5		
		100	**97**	**mg/L**	**97%**	**1.0 %**					
Method Blank	Method Blank		ND*	mg/L			10/09/97	9710-77	5		
Standard	Standard	100	98	mg/L	98%		10/09/97	9710-78	5		
Standard (Dupl)	Standard	100	101	mg/L	101%		10/09/97	9710-78	5		
		100	**99**	**mg/L**	**99%**	**3.0 %**					
Matrix Spike	Matrix Spike	100	96	mg/L	96%		10/16/97	9710-203	5		
Matrix Spike (Dupl)	Matrix Spike	100	98	mg/L	98%		10/16/97	9710-203	5		
		100	**97**	**mg/L**	**97%**	**1.0 %**					
Method Blank	Method Blank		ND*	mg/L			10/16/97	9710-204	5		
Standard	Standard	100	98	mg/L	98%		10/16/97	9710-207	5		
Standard (Dupl)	Standard	100	98	mg/L	98%		10/16/97	9710-207	5		
		100	**98**	**mg/L**	**98%**	**0.0 %**					

Analysis: TotHard (Total Hardness) **Method:** SM 2340 C

QC Batch ID: 3-0-9

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	105	110	mg/L CaCO3	105%		10/03/97	9710-4	5		
Matrix Spike (Dupl)	Matrix Spike	105	106	mg/L CaCO3	101%		10/03/97	9710-4	5		
		105	**108**	**mg/L CaCO3**	**103%**	**4.6 %**					
Method Blank	Method Blank		ND*	mg/L CaCO3			10/03/97	9710-7	5		
Standard	Standard	100	96	mg/L CaCO3	96%		10/03/97	9710-8	5	90-110%	
Standard (Dupl)	Standard	100	99	mg/L CaCO3	99%		10/03/97	9710-8	5	90-110%	
		100	**98**	**mg/L CaCO3**	**98%**	**3.1 %**				90-110%	10%
Matrix Spike	Matrix Spike	105	106	mg/L CaCO3	101%		10/09/97	9710-76	5		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Quality Control Report

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Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

Matrix Spike (Dupl)	Matrix Spike	105	104	mg/L CaCO3	99%		10/09/97	9710-76	5		
		105	**105**	**mg/L CaCO3**	**100%**	**1.9 %**					
Method Blank	Method Blank		ND*	mg/L CaCO3			10/09/97	9710-79	5		
Standard	Standard	100	101	mg/L CaCO3	101%		10/09/97	9710-80	5	90-110%	
Standard (Dupl)	Standard	100	100	mg/L CaCO3	100%		10/09/97	9710-80	5	90-110%	
		100	**100**	**mg/L CaCO3**	**100%**	**1.0 %**				90-110%	10%
Matrix Spike	Matrix Spike	139	140	mg/L CaCO3	101%		10/16/97	9710-203	5		
Matrix Spike (Dupl)	Matrix Spike	139	138	mg/L CaCO3	99%		10/16/97	9710-203	5		
		139	**138**	**mg/L CaCO3**	**99%**	**1.4 %**					
Method Blank	Method Blank		ND*	mg/L CaCO3			10/16/97	9710-205	5		
Standard	Standard	100	97	mg/L CaCO3	97%		10/16/97	9710-208	5	90-110%	
Standard (Dupl)	Standard	100	98	mg/L CaCO3	98%		10/16/97	9710-208	5	90-110%	
		100	**98**	**mg/L CaCO3**	**98%**	**1.0 %**				90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-117

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.31	mg/L	108%		9709-156	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.40	mg/L	110%		9709-156	0.5		
		4.00	**4.36**	**mg/L**	**109%**	**2.3 %**				
Method Blank	Method Blank		ND*	mg/L			9709-160	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9709-160	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9709-31	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9709-31	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**3.8 %**			50-150%	20%
Standard	Standard	4.00	4.10	mg/L	102%		9709-32	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.13	mg/L	103%		9709-32	0.5	90-110%	
		4.00	**4.11**	**mg/L**	**103%**	**0.7 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-118

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.29	mg/L	107%		9710-12	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.33	mg/L	108%		9710-12	0.5		
		4.00	**4.31**	**mg/L**	**108%**	**0.9 %**				
Method Blank	Method Blank		ND*	mg/L			9710-6	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-6	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9709-169	0.5	50-150%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Quality Control Report

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
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		0.50	**0.53**	**mg/L**	**106%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.09	mg/L	102%		9709-170	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.09	mg/L	102%		9709-170	0.5	90-110%	
		4.00	**4.09**	**mg/L**	**102%**	**0.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-119

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.24	mg/L	106%		9710-20	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.16	mg/L	104%		9710-20	0.5		
		4.00	**4.20**	**mg/L**	**105%**	**1.9 %**				
Method Blank	Method Blank		ND*	mg/L			9710-19	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-19	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9709-169	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.10	mg/L	102%		9709-170	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.08	mg/L	102%		9709-170	0.5	90-110%	
		4.00	**4.09**	**mg/L**	**102%**	**0.5 %**			90-110%	10%
Standard	Standard	10.00	10.17	mg/L	102%		9709-171	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.34	mg/L	103%		9709-171	0.5	90-110%	
		10.00	**10.26**	**mg/L**	**103%**	**1.7 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-120

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.13	mg/L	103%		9710-36	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.16	mg/L	104%		9710-36	0.5		
		4.00	**4.14**	**mg/L**	**103%**	**0.7 %**				
Method Blank	Method Blank		ND*	mg/L			9710-31	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-31	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9709-169	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.10	mg/L	102%		9709-170	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.11	mg/L	103%		9709-170	0.5	90-110%	
		4.00	**4.11**	**mg/L**	**103%**	**0.2 %**			90-110%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-121

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.11	mg/L	103%		9710-48	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.13	mg/L	103%		9710-48	0.5		
		4.00	**4.12**	**mg/L**	**103%**	**0.2 %**				
Method Blank	Method Blank		ND*	mg/L			9710-43	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-43	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9709-169	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.08	mg/L	102%		9709-170	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.99	mg/L	100%		9709-170	0.5	90-110%	
		4.00	**4.03**	**mg/L**	**101%**	**2.2 %**			90-110%	10%
Standard	Standard	10.00	10.18	mg/L	102%		9709-171	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.28	mg/L	103%		9709-171	0.5	90-110%	
		10.00	**10.24**	**mg/L**	**102%**	**1.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-122

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.16	mg/L	104%		9710-66	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.11	mg/L	103%		9710-66	0.5		
		4.00	**4.13**	**mg/L**	**103%**	**1.2 %**				
Method Blank	Method Blank		ND*	mg/L			9710-72	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-72	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.51	mg/L	102%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9709-169	0.5	50-150%	
		0.50	**0.51**	**mg/L**	**102%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	3.94	mg/L	98%		9709-170	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.95	mg/L	99%		9709-170	0.5	90-110%	
		4.00	**3.94**	**mg/L**	**98%**	**0.3 %**			90-110%	10%
Standard	Standard	4.00	4.01	mg/L	100%		9709-170	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.01	mg/L	100%		9709-170	0.5	90-110%	
		4.00	**4.01**	**mg/L**	**100%**	**0.0 %**			90-110%	10%
Standard	Standard	10.00	10.01	mg/L	100%		9709-171	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.04	mg/L	100%		9709-171	0.5	90-110%	
		10.00	**10.02**	**mg/L**	**100%**	**0.3 %**			90-110%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-123

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.25	mg/L	106%		9710-96	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.40	mg/L	110%		9710-96	0.5		
		4.00	**4.32**	**mg/L**	**108%**	**3.5 %**				
Method Blank	Method Blank		ND*	mg/L			9710-100	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-100	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.56	mg/L	112%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9709-169	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**7.4 %**			50-150%	20%
Standard	Standard	4.00	3.93	mg/L	98%		9709-170	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.00	mg/L	100%		9709-170	0.5	90-110%	
		4.00	**3.96**	**mg/L**	**99%**	**1.8 %**			90-110%	10%
Standard	Standard	10.00	9.97	mg/L	100%		9709-171	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.91	mg/L	99%		9709-171	0.5	90-110%	
		10.00	**9.94**	**mg/L**	**99%**	**0.6 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-124

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.03	mg/L	101%		9710-121	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.00	mg/L	100%		9710-121	0.5		
		4.00	**4.01**	**mg/L**	**100%**	**0.7 %**				
Method Blank	Method Blank		ND*	mg/L			9710-114	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-114	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.65	mg/L	130%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.60	mg/L	120%		9709-169	0.5	50-150%	
		0.50	**0.63**	**mg/L**	**126%**	**7.9 %**			50-150%	20%
Standard	Standard	4.00	3.94	mg/L	98%		9709-170	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.97	mg/L	99%		9709-170	0.5	90-110%	
		4.00	**3.96**	**mg/L**	**99%**	**0.8 %**			90-110%	10%
Standard	Standard	10.00	10.02	mg/L	100%		9709-171	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.07	mg/L	101%		9709-171	0.5	90-110%	
		10.00	**10.04**	**mg/L**	**100%**	**0.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-125

QC Type	Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Matrix Spike	Matrix Spike	4.00	4.13	mg/L	103%		9710-131	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.14	mg/L	103%		9710-131	0.5		
		4.00	**4.13**	**mg/L**	**103%**	**0.2 %**				
Method Blank	Method Blank		ND*	mg/L			9710-129	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-129	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.55	mg/L	110%		9709-169	0.5	50-150%	
		0.50	**0.55**	**mg/L**	**110%**	**1.8 %**			50-150%	20%
Standard	Standard	4.00	4.12	mg/L	103%		9709-170	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.11	mg/L	103%		9709-170	0.5	90-110%	
		4.00	**4.11**	**mg/L**	**103%**	**0.2 %**			90-110%	10%
Standard	Standard	10.00	10.39	mg/L	104%		9709-171	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.38	mg/L	104%		9709-171	0.5	90-110%	
		10.00	**10.39**	**mg/L**	**104%**	**0.1 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-126

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Matrix Spike	Matrix Spike	4.00	3.84	mg/L	96%		9710-142	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.91	mg/L	98%		9710-142	0.5		
		4.00	**3.88**	**mg/L**	**97%**	**1.8 %**				
Method Blank	Method Blank		ND*	mg/L			9710-140	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-140	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.51	mg/L	102%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9709-169	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.95	mg/L	99%		9710-136	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.96	mg/L	99%		9710-136	0.5	90-110%	
		4.00	**3.96**	**mg/L**	**99%**	**0.3 %**			90-110%	10%
Standard	Standard	10.00	10.01	mg/L	100%		9709-171	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.06	mg/L	101%		9709-171	0.5	90-110%	
		10.00	**10.03**	**mg/L**	**100%**	**0.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-127

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Matrix Spike	Matrix Spike	4.00	3.99	mg/L	100%		9710-190	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.00	mg/L	100%		9710-190	0.5		
		4.00	**4.00**	**mg/L**	**100%**	**0.5 %**				
Method Blank	Method Blank		ND*	mg/L			9710-191	0.5		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-191	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.55	mg/L	110%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9709-169	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.03	mg/L	101%		9710-136	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.02	mg/L	100%		9710-136	0.5	90-110%	
		4.00	**4.03**	**mg/L**	**101%**	**0.2 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-128

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Matrix Spike	Matrix Spike	4.00	4.06	mg/L	101%		9710-194	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.06	mg/L	101%		9710-194	0.5		
		4.00	**4.06**	**mg/L**	**101%**	**0.0 %**				
Method Blank	Method Blank		ND*	mg/L			9710-192	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-192	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9709-169	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.09	mg/L	102%		9710-136	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.09	mg/L	102%		9710-136	0.5	90-110%	
		4.00	**4.09**	**mg/L**	**102%**	**0.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-129

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Matrix Spike	Matrix Spike	4.00	4.08	mg/L	102%		9710-201	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.09	mg/L	102%		9710-201	0.5		
		4.00	**4.08**	**mg/L**	**102%**	**0.2 %**				
Method Blank	Method Blank		ND*	mg/L			9710-210	0.5		
Method Blank	Method Blank		ND*	mg/L			9710-210	0.5		
Standard	Standard	0.50	0.55	mg/L	110%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9709-169	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.02	mg/L	100%		9710-136	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.03	mg/L	101%		9710-136	0.5	90-110%	
		4.00	**4.02**	**mg/L**	**100%**	**0.2 %**			90-110%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-130

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.12	mg/L	103%		9710-225	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.15	mg/L	104%		9710-225	0.5		
		4.00	**4.14**	**mg/L**	**103%**	**0.7 %**				
Method Blank	Method Blank		ND*	mg/L			9710-229	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-229	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.51	mg/L	102%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.51	mg/L	102%		9709-169	0.5	50-150%	
		0.50	**0.51**	**mg/L**	**102%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.14	mg/L	103%		9710-136	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.11	mg/L	103%		9710-136	0.5	90-110%	
		4.00	**4.12**	**mg/L**	**103%**	**0.7 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-133

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	3.99	mg/L	100%		9710-273	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.08	mg/L	102%		9710-273	0.5		
		4.00	**4.04**	**mg/L**	**101%**	**2.2 %**				
Method Blank	Method Blank		ND*	mg/L			9710-264	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-264	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.55	mg/L	110%		9709-169	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9709-169	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**3.7 %**			50-150%	20%
Standard	Standard	4.00	4.06	mg/L	101%		9710-136	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.07	mg/L	102%		9710-136	0.5	90-110%	
		4.00	**4.07**	**mg/L**	**102%**	**0.2 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-134

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.04	mg/L	101%		9710-295	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.04	mg/L	101%		9710-295	0.5		
		4.00	**4.04**	**mg/L**	**101%**	**0.0 %**				
Method Blank	Method Blank		ND*	mg/L			9710-289	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9710-289	0.5		
			ND*	**mg/L**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	0.50	0.52	mg/L	104%		9710-284	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9710-284	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.08	mg/L	102%		9710-136	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.06	mg/L	101%		9710-136	0.5	90-110%	
		4.00	**4.07**	**mg/L**	**102%**	**0.5 %**			90-110%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-78

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9710-16	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-16	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-16	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-16	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.009	1/cm	100%		9709-172	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9709-172	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.098	1/cm	111%		9709-173	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.098	1/cm	111%		9709-173	0.009	85-115%	
		0.088	**0.098**	**1/cm**	**111%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-79

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9710-26	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-26	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-26	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-26	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.010	1/cm	111%		9709-172	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.010	1/cm	111%		9709-172	0.009	75-125%	
		0.009	**0.010**	**1/cm**	**111%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.098	1/cm	111%		9709-173	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.098	1/cm	111%		9709-173	0.009	85-115%	
		0.088	**0.098**	**1/cm**	**111%**	**0.0 %**			85-115%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Study#: 86
Study Title: ICR RSSCT #2/#3

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-80

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9710-37	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-37	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-37	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-37	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.009	1/cm	100%		9709-172	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9709-172	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.097	1/cm	110%		9709-173	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.096	1/cm	109%		9709-173	0.009	85-115%	
		0.088	**0.097**	**1/cm**	**110%**	**1.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-81

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9710-54	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-54	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-54	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-54	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.010	1/cm	111%		9709-172	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.010	1/cm	111%		9709-172	0.009	75-125%	
		0.009	**0.010**	**1/cm**	**111%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.095	1/cm	108%		9710-53	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.095	1/cm	108%		9710-53	0.009	85-115%	
		0.088	**0.095**	**1/cm**	**108%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-82

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9710-86	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-86	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-86	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-86	0.009		
			ND*	**1/cm**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.095	1/cm	108%		9710-53	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.095	1/cm	108%		9710-53	0.009	85-115%	
		0.088	**0.095**	**1/cm**	**108%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-84

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9710-109	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-109	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-109	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-109	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.093	1/cm	106%		9710-53	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.093	1/cm	106%		9710-53	0.009	85-115%	
		0.088	**0.093**	**1/cm**	**106%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-85

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9710-124	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-124	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-124	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-124	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.010	1/cm	111%		9709-169	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.010	1/cm	111%		9709-169	0.009	75-125%	
		0.009	**0.010**	**1/cm**	**111%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.097	1/cm	110%		9710-53	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.096	1/cm	109%		9710-53	0.009	85-115%	
		0.088	**0.096**	**1/cm**	**109%**	**1.0 %**			85-115%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Study Title: ICR RSSCT #2/#3

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-86

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9710-151	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-151	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-151	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-151	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.097	1/cm	110%		9710-53	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.096	1/cm	109%		9710-53	0.009	85-115%	
		0.088	**0.097**	**1/cm**	**110%**	**1.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-87

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9710-160	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-160	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-160	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-160	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.098	1/cm	111%		9710-53	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.097	1/cm	110%		9710-53	0.009	85-115%	
		0.088	**0.098**	**1/cm**	**111%**	**1.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-88

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9710-197	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-197	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-197	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-197	0.009		
			ND*	**1/cm**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	0.009	0.010	1/cm	111%		9710-87	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.010	1/cm	111%		9710-87	0.009	75-125%	
		0.009	**0.010**	**1/cm**	**111%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.096	1/cm	109%		9710-53	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.096	1/cm	109%		9710-53	0.009	85-115%	
		0.088	**0.096**	**1/cm**	**109%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-89

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9710-219	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-219	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-219	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-219	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.093	1/cm	106%		9710-53	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.093	1/cm	106%		9710-53	0.009	85-115%	
		0.088	**0.093**	**1/cm**	**106%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-90

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9710-227	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-227	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-227	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-227	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.091	1/cm	103%		9710-53	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.091	1/cm	103%		9710-53	0.009	85-115%	
		0.088	**0.091**	**1/cm**	**103%**	**0.0 %**			85-115%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-91

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9710-250	0.5		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-250	0.5		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-250	0.5		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-250	0.5		
			ND*	**1/cm**						
Standard	Standard	0.009	0.010	1/cm	111%		9710-87	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.010	1/cm	111%		9710-87	0.009	75-125%	
		0.009	**0.010**	**1/cm**	**111%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.088	1/cm	100%		9710-53	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9710-53	0.009	85-115%	
		0.088	**0.088**	**1/cm**	**100%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-92

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9710-298	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-298	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9710-298	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9710-298	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9710-87	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.086	1/cm	98%		9710-53	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9710-53	0.009	85-115%	
		0.088	**0.086**	**1/cm**	**98%**	**1.2 %**			85-115%	10%

Analysis: TURB (Turbidity) **Method:** SM 2130 B

QC Batch ID: 9-0-6

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Standard	Standard	4.51	4.50	ntu	100%		10/03/97	9902-79	0.05		
Standard	Standard	4.51	4.49	ntu	100%		10/07/97	9902-79	0.05		
Standard	Standard	4.51	4.48	ntu	99%		10/11/97	9902-79	0.05		
Standard	Standard	4.51	4.49	ntu	100%		10/15/97	9902-79	0.05		
Standard	Standard	4.51	4.49	ntu	100%		10/20/97	9902-79	0.05		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	4.51	4.49	ntu	100%	10/23/97	9902-79	0.05
Standard	Standard	4.51	4.48	ntu	99%	10/31/97	9902-79	0.05
Standard	Standard	4.51	4.50	ntu	100%	11/01/97	9902-79	0.05
Standard	Standard	4.51	4.51	ntu	100%	11/07/97	9902-79	0.05
Standard	Standard	4.51	4.51	ntu	100%	11/16/97	9902-79	0.05

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-65

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Standard - TCP Aqueous	Standard	25	27	µg Cl-/L	108%		9710-104	25	75-125%	
Standard - TCP Aqueous	Standard	200	229	µg Cl-/L	115%		9710-105	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9710-103	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-66

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Matrix Spike	Matrix Spike	200	192	µg Cl-/L	96%		9710-22	25		
Matrix Spike (Dupl)	Matrix Spike	200	201	µg Cl-/L	100%		9710-22	25		
		200	**196**	**µg Cl-/L**	**98%**	**5.1 %**				
Standard - TCP Aqueous	Standard	25	25	µg Cl-/L	100%		9710-214	25	75-125%	
Standard - TCP Aqueous	Standard	200	201	µg Cl-/L	100%		9710-215	25	85-115%	
Standard - TCP Aqueous	Standard	500	501	µg Cl-/L	100%		9710-218	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9710-213	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-68

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Matrix Spike	Matrix Spike	200	203	µg Cl-/L	101%		9710-180	25		
Matrix Spike (Dupl)	Matrix Spike	200	183	µg Cl-/L	92%		9710-180	25		
		200	**193**	**µg Cl-/L**	**96%**	**10.9 %**				
Standard - TCP Aqueous	Standard	25	26	µg Cl-/L	104%		9710-240	25	75-125%	
Standard - TCP Aqueous	Standard	200	195	µg Cl-/L	97%		9710-241	25	85-115%	
Standard - TCP Aqueous	Standard	500	462	µg Cl-/L	92%		9710-242	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9710-239	25		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Study Title: ICR RSSCT #2/#3

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-69

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	24	µg Cl-/L	96%		9710-261	25	75-125%	
Standard - TCP Aqueous	Standard	200	186	µg Cl-/L	93%		9710-262	25	85-115%	
Standard - TCP Aqueous	Standard	500	473	µg Cl-/L	95%		9710-263	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9710-260	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-70

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	192	µg Cl-/L	96%		9710-85	25		
Matrix Spike (Dupl)	Matrix Spike	200	197	µg Cl-/L	98%		9710-85	25		
		200	**194**	**µg Cl-/L**	**97%**	**2.6 %**				
Standard - TCP Aqueous	Standard	25	25	µg Cl-/L	100%		9710-279	25	75-125%	
Standard - TCP Aqueous	Standard	200	194	µg Cl-/L	97%		9710-280	25	85-115%	
Standard - TCP Aqueous	Standard	500	528	µg Cl-/L	106%		9710-281	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9710-278	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-71

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	23	µg Cl-/L	92%		9710-292	25	75-125%	
Standard - TCP Aqueous	Standard	200	194	µg Cl-/L	97%		9710-293	25	85-115%	
Standard - TCP Aqueous	Standard	500	481	µg Cl-/L	96%		9710-294	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9710-291	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-72

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	26	µg Cl-/L	104%		9710-307	25	75-125%	
Standard - TCP Aqueous	Standard	160	167	µg Cl-/L	104%		9710-308	25		
System Blank	Blank		ND*	µg Cl-/L			9710-306	25		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-73

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	181	µg Cl-/L	91%		9710-146	25		
Matrix Spike (Dupl)	Matrix Spike	200	187	µg Cl-/L	94%		9710-146	25		
		200	**184**	**µg Cl-/L**	**92%**	**3.3 %**				
Standard - TCP Aqueous	Standard	25	23	µg Cl-/L	92%		9710-323	25	75-125%	
Standard - TCP Aqueous	Standard	200	188	µg Cl-/L	94%		9710-324	25	85-115%	
Standard - TCP Aqueous	Standard	500	460	µg Cl-/L	92%		9710-325	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9710-322	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-74

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	24	µg Cl-/L	96%		9710-362	25	75-125%	
Standard - TCP Aqueous	Standard	200	190	µg Cl-/L	95%		9710-363	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9710-361	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-77

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous (Dupl)	Standard	25	27	µg Cl-/L	108%		9711-39	25	75-125%	
Standard - TCP Aqueous	Standard	200	187	µg Cl-/L	94%		9711-40	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9711-38	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-78

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	192	µg Cl-/L	96%		9710-274	25		
Matrix Spike (Dupl)	Matrix Spike	200	193	µg Cl-/L	96%		9710-274	25		
		200	**192**	**µg Cl-/L**	**96%**	**0.5 %**				
Standard - TCP Aqueous	Standard	25	25	µg Cl-/L	100%		9711-65	25	75-125%	
Standard - TCP Aqueous	Standard	200	191	µg Cl-/L	95%		9711-66	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9711-64	25		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Study Title: ICR RSSCT #2/#3

Analysis: CaHard (Calcium Hardness) **Method:** SM 3500-Ca D

QC Batch ID: 33-0-9

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	108	113	mg/L CaCO3	105%		10/03/97	9710-4	10		
Matrix Spike (Dupl)	Matrix Spike	108	115	mg/L CaCO3	106%		10/03/97	9710-4	10		
		108	**114**	**mg/L CaCO3**	**106%**	**1.8 %**					
Method Blank	Method Blank		ND*	mg/L CaCO3			10/03/97	9710-9	10		
Standard	Standard	100	99	mg/L CaCO3	99%		10/03/97	9710-10	10	90-110%	
Standard (Dupl)	Standard	100	99	mg/L CaCO3	99%		10/03/97	9710-10	10	90-110%	
		100	**99**	**mg/L CaCO3**	**99%**	**0.0 %**				90-110%	10%
Matrix Spike	Matrix Spike	108	118	mg/L CaCO3	109%		10/09/97	9710-76	10		
Matrix Spike (Dupl)	Matrix Spike	108	114	mg/L CaCO3	106%		10/09/97	9710-76	10		
		108	**116**	**mg/L CaCO3**	**107%**	**3.4 %**					
Method Blank	Method Blank		ND*	mg/L CaCO3			10/09/97	9710-81	10		
Standard	Standard	100	101	mg/L CaCO3	101%		10/09/97	9710-82	10	90-110%	
Standard (Dupl)	Standard	100	100	mg/L CaCO3	100%		10/09/97	9710-82	10	90-110%	
		100	**100**	**mg/L CaCO3**	**100%**	**1.0 %**				90-110%	10%
Matrix Spike	Matrix Spike	143	144	mg/L CaCO3	101%		10/16/97	9710-203	10		
Matrix Spike (Dupl)	Matrix Spike	143	139	mg/L CaCO3	97%		10/16/97	9710-203	10		
		143	**142**	**mg/L CaCO3**	**99%**	**3.5 %**					
Method Blank	Method Blank		ND*	mg/L CaCO3			10/16/97	9710-206	10		
Standard	Standard	100	98	mg/L CaCO3	98%		10/16/97	9710-209	10	90-110%	
Standard (Dupl)	Standard	100	100	mg/L CaCO3	100%		10/16/97	9710-209	10	90-110%	
		100	**99**	**mg/L CaCO3**	**99%**	**2.0 %**				90-110%	10%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-54-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromodichloromethane	Duplicate	1.6	1.6	µg/L		0.0%	9710-67	1		
Bromodichloromethane	Matrix Spike	20.0	21.4	µg/L	107%		9710-13	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9710-152	1		
Bromodichloromethane	Secondary Source Std	20.0	22.2	µg/L	111%		9710-153	1	70-130%	
Bromodichloromethane	Standard	20.0	22.8	µg/L	114%		9710-154	1	80-120%	
Bromodichloromethane	Standard	20.0	21.6	µg/L	108%		9710-154	1	80-120%	
Bromodichloromethane	Standard	40.0	40.1	µg/L	100%		9710-155	1	80-120%	
Bromodichloromethane	Standard	40.0	40.9	µg/L	102%		9710-155	1	80-120%	
Bromoform	Duplicate	ND	ND	µg/L		NA	9710-67	1		
Bromoform	Matrix Spike	20.0	21.3	µg/L	106%		9710-13	1		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Study Title: ICR RSSCT #2/#3

Bromoform	Method Blank		ND*	µg/L			9710-152	1	
Bromoform	Secondary Source Std	20.0	21.6	µg/L	108%		9710-153	1	70-130%
Bromoform	Standard	20.0	21.7	µg/L	109%		9710-154	1	80-120%
Bromoform	Standard	20.0	21.2	µg/L	106%		9710-154	1	80-120%
Bromoform	Standard	40.0	42.3	µg/L	106%		9710-155	1	80-120%
Bromoform	Standard	40.0	42.4	µg/L	106%		9710-155	1	80-120%
Chloroform	Duplicate	1.1	1.0	µg/L		9.5%	9710-67	1	
Chloroform	Matrix Spike	20.0	22.0	µg/L	110%		9710-13	1	
Chloroform	Method Blank		ND*	µg/L			9710-152	1	
Chloroform	Secondary Source Std	20.0	22.7	µg/L	114%		9710-153	1	70-130%
Chloroform	Standard	20.0	23.5	µg/L	118%		9710-154	1	80-120%
Chloroform	Standard	20.0	22.3	µg/L	112%		9710-154	1	80-120%
Chloroform	Standard	40.0	40.3	µg/L	101%		9710-155	1	80-120%
Chloroform	Standard	40.0	41.1	µg/L	103%		9710-155	1	80-120%
Dibromochloromethane	Duplicate	1.4	1.5	µg/L		6.9%	9710-67	1	
Dibromochloromethane	Matrix Spike	20.0	21.2	µg/L	106%		9710-13	1	
Dibromochloromethane	Method Blank		ND*	µg/L			9710-152	1	
Dibromochloromethane	Secondary Source Std	20.0	22.4	µg/L	112%		9710-153	1	70-130%
Dibromochloromethane	Standard	20.0	22.5	µg/L	113%		9710-154	1	80-120%
Dibromochloromethane	Standard	20.0	22.9	µg/L	115%		9710-154	1	80-120%
Dibromochloromethane	Standard	40.0	40.0	µg/L	100%		9710-155	1	80-120%
Dibromochloromethane	Standard	40.0	41.2	µg/L	103%		9710-155	1	80-120%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-57-0

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Bromodichloromethane	Duplicate	5.7	5.6	µg/L		1.8%	9710-157	1		
Bromodichloromethane	Matrix Spike	20.0	20.9	µg/L	104%		9710-113	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9710-251	1		
Bromodichloromethane	Secondary Source Std	20.0	21.4	µg/L	107%		9710-252	1	70-130%	
Bromodichloromethane	Standard	20.0	20.0	µg/L	100%		9710-253	1	80-120%	
Bromodichloromethane	Standard	20.0	20.6	µg/L	103%		9710-253	1	80-120%	
Bromodichloromethane	Standard	40.0	39.9	µg/L	100%		9710-254	1	80-120%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Bromodichloromethane	Standard	40.0	41.9 µg/L	105%		9710-254	1	80-120%
Bromoform	Duplicate	ND	ND µg/L		NA	9710-157	1	
Bromoform	Matrix Spike	20.0	20.2 µg/L	101%		9710-113	1	
Bromoform	Method Blank		ND* µg/L			9710-251	1	
Bromoform	Secondary Source Std	20.0	20.2 µg/L	101%		9710-252	1	70-130%
Bromoform	Standard	20.0	20.5 µg/L	102%		9710-253	1	80-120%
Bromoform	Standard	20.0	22.1 µg/L	111%		9710-253	1	80-120%
Bromoform	Standard	40.0	40.0 µg/L	100%		9710-254	1	80-120%
Bromoform	Standard	40.0	43.1 µg/L	108%		9710-254	1	80-120%
Chloroform	Duplicate	5.2	5.2 µg/L		0.0%	9710-157	1	
Chloroform	Matrix Spike	20.0	19.5 µg/L	97%		9710-113	1	
Chloroform	Method Blank		ND* µg/L			9710-251	1	
Chloroform	Secondary Source Std	20.0	21.5 µg/L	108%		9710-252	1	70-130%
Chloroform	Standard	20.0	20.0 µg/L	100%		9710-253	1	80-120%
Chloroform	Standard	20.0	21.2 µg/L	106%		9710-253	1	80-120%
Chloroform	Standard	40.0	39.4 µg/L	98%		9710-254	1	80-120%
Chloroform	Standard	40.0	42.2 µg/L	106%		9710-254	1	80-120%
Dibromochloromethane	Duplicate	3.7	3.6 µg/L		2.7%	9710-157	1	
Dibromochloromethane	Matrix Spike	20.0	21.1 µg/L	106%		9710-113	1	
Dibromochloromethane	Method Blank		ND* µg/L			9710-251	1	
Dibromochloromethane	Secondary Source Std	20.0	20.9 µg/L	104%		9710-252	1	70-130%
Dibromochloromethane	Standard	20.0	20.1 µg/L	101%		9710-253	1	80-120%
Dibromochloromethane	Standard	20.0	21.0 µg/L	105%		9710-253	1	80-120%
Dibromochloromethane	Standard	40.0	40.3 µg/L	101%		9710-254	1	80-120%
Dibromochloromethane	Standard	40.0	42.8 µg/L	107%		9710-254	1	80-120%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-58-0

								Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Bromodichloromethane	Duplicate	11.9	12.3	µg/L		3.3%	9710-202	1		
Bromodichloromethane	Matrix Spike	20.0	20.5	µg/L	102%		9710-230	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9710-349	1		
Bromodichloromethane	Standard	20.0	22.4	µg/L	112%		9710-350	1	80-120%	
Bromodichloromethane	Standard	20.0	22.6	µg/L	113%		9710-350	1	80-120%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Bromodichloromethane	Standard	40.0	38.6	µg/L	97%		9710-351	1	80-120%
Bromoform	Duplicate	ND	ND	µg/L		NA	9710-202	1	
Bromoform	Matrix Spike	20.0	19.1	µg/L	96%		9710-230	1	
Bromoform	Method Blank		ND*	µg/L			9710-349	1	
Bromoform	Standard	20.0	21.5	µg/L	108%		9710-350	1	80-120%
Bromoform	Standard	20.0	22.2	µg/L	111%		9710-350	1	80-120%
Bromoform	Standard	40.0	41.5	µg/L	104%		9710-351	1	80-120%
Chloroform	Duplicate	19.7	20.0	µg/L		1.5%	9710-202	1	
Chloroform	Matrix Spike	20.0	20.1	µg/L	101%		9710-230	1	
Chloroform	Method Blank		ND*	µg/L			9710-349	1	
Chloroform	Standard	20.0	22.9	µg/L	115%		9710-350	1	80-120%
Chloroform	Standard	20.0	23.3	µg/L	117%		9710-350	1	80-120%
Chloroform	Standard	40.0	38.0	µg/L	95%		9710-351	1	80-120%
Dibromochloromethane	Duplicate	4.4	4.4	µg/L		0.0%	9710-202	1	
Dibromochloromethane	Matrix Spike	20.0	21.2	µg/L	106%		9710-230	1	
Dibromochloromethane	Method Blank		ND*	µg/L			9710-349	1	
Dibromochloromethane	Standard	20.0	21.7	µg/L	109%		9710-350	1	80-120%
Dibromochloromethane	Standard	20.0	22.4	µg/L	112%		9710-350	1	80-120%
Dibromochloromethane	Standard	40.0	40.3	µg/L	101%		9710-351	1	80-120%

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-59-0

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Bromochloroacetic acid	Duplicate	3.1	3.3	µg/L		6.2%	9710-334	1		
Bromochloroacetic acid	Duplicate	4.6	5.6	µg/L		19.6%	9710-347	1		
Bromochloroacetic acid	Matrix Spike	40.0	43.7	µg/L	109%		9710-339	1		
Bromochloroacetic acid	Method Blank		ND*	µg/L			9710-352	1		
Bromochloroacetic acid	Secondary Source Std	20.0	20.9	µg/L	104%		9710-353	1	70-130%	
Bromochloroacetic acid	Standard	20.0	20.4	µg/L	102%		9710-354	1	80-120%	
Bromochloroacetic acid	Standard	20.0	20.2	µg/L	101%		9710-354	1	80-120%	
Bromochloroacetic acid	Standard	20.0	21.3	µg/L	106%		9710-354	1	80-120%	
Bromochloroacetic acid	Standard	40.0	39.7	µg/L	99%		9710-355	1	80-120%	
Bromochloroacetic acid	Standard	40.0	38.9	µg/L	97%		9710-355	1	80-120%	
Bromodichloroacetic acid	Duplicate	3.8	4.0	µg/L		5.1%	9710-334	1		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Bromodichloroacetic acid	Duplicate	3.8	4.8	µg/L		23.3%	9710-347	1	
Bromodichloroacetic acid	Matrix Spike	40.0	44.9	µg/L	112%		9710-339	1	
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9710-352	1	
Bromodichloroacetic acid	Secondary Source Std		ND	µg/L			9710-353	1	
Bromodichloroacetic acid	Standard	20.0	20.2	µg/L	101%		9710-354	1	80-120%
Bromodichloroacetic acid	Standard	20.0	20.5	µg/L	102%		9710-354	1	80-120%
Bromodichloroacetic acid	Standard	20.0	21.1	µg/L	106%		9710-354	1	80-120%
Bromodichloroacetic acid	Standard	40.0	40.1	µg/L	100%		9710-355	1	80-120%
Bromodichloroacetic acid	Standard	40.0	38.9	µg/L	97%		9710-355	1	80-120%
Chlorodibromoacetic acid	Duplicate	ND	ND	µg/L		NA	9710-334	2	
Chlorodibromoacetic acid	Duplicate	ND	ND	µg/L		NA	9710-347	2	
Chlorodibromoacetic acid	Matrix Spike	40.0	44.9	µg/L	112%		9710-339	2	
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9710-352	2	
Chlorodibromoacetic acid	Secondary Source Std		ND	µg/L			9710-353	2	
Chlorodibromoacetic acid	Standard	20.0	20.6	µg/L	103%		9710-354	2	80-120%
Chlorodibromoacetic acid	Standard	20.0	21.2	µg/L	106%		9710-354	2	80-120%
Chlorodibromoacetic acid	Standard	20.0	22.0	µg/L	110%		9710-354	2	80-120%
Chlorodibromoacetic acid	Standard	40.0	40.2	µg/L	101%		9710-355	2	80-120%
Chlorodibromoacetic acid	Standard	40.0	39.8	µg/L	99%		9710-355	2	80-120%
Dibromoacetic acid	Duplicate	ND	ND	µg/L		NA	9710-334	1	
Dibromoacetic acid	Duplicate	ND	ND	µg/L		NA	9710-347	1	
Dibromoacetic acid	Matrix Spike	40.0	42.6	µg/L	106%		9710-339	1	
Dibromoacetic acid	Method Blank		ND*	µg/L			9710-352	1	
Dibromoacetic acid	Secondary Source Std	20.0	20.1	µg/L	101%		9710-353	1	70-130%
Dibromoacetic acid	Standard	20.0	20.0	µg/L	100%		9710-354	1	80-120%
Dibromoacetic acid	Standard	20.0	20.0	µg/L	100%		9710-354	1	80-120%
Dibromoacetic acid	Standard	20.0	21.3	µg/L	106%		9710-354	1	80-120%
Dibromoacetic acid	Standard	40.0	39.4	µg/L	98%		9710-355	1	80-120%
Dibromoacetic acid	Standard	40.0	38.3	µg/L	96%		9710-355	1	80-120%
Dichloroacetic acid	Duplicate	37.0	38.8	µg/L		4.7%	9710-334	1	
Dichloroacetic acid	Duplicate	63.5	72.2	µg/L		12.8%	9710-347	1	
Dichloroacetic acid	Matrix Spike	40.0	36.9	µg/L	92%		9710-339	1	
Dichloroacetic acid	Method Blank		ND*	µg/L			9710-352	1	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Quality Control Report

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Study#: 86
Study Title: ICR RSSCT #2/#3

Dichloroacetic acid	Secondary Source Std	20.0	22.5 µg/L	113%		9710-353	1	70-130%
Dichloroacetic acid	Standard	20.0	20.9 µg/L	104%		9710-354	1	80-120%
Dichloroacetic acid	Standard	20.0	20.6 µg/L	103%		9710-354	1	80-120%
Dichloroacetic acid	Standard	20.0	21.6 µg/L	108%		9710-354	1	80-120%
Dichloroacetic acid	Standard	40.0	38.7 µg/L	97%		9710-355	1	80-120%
Dichloroacetic acid	Standard	40.0	39.5 µg/L	99%		9710-355	1	80-120%
Monobromoacetic acid	Duplicate	ND	ND µg/L		NA	9710-334	1	
Monobromoacetic acid	Duplicate	ND	ND µg/L		NA	9710-347	1	
Monobromoacetic acid	Matrix Spike	40.0	44.9 µg/L	112%		9710-339	1	
Monobromoacetic acid	Method Blank		ND* µg/L			9710-352	1	
Monobromoacetic acid	Secondary Source Std	20.0	22.9 µg/L	115%		9710-353	1	70-130%
Monobromoacetic acid	Standard	20.0	20.4 µg/L	102%		9710-354	1	80-120%
Monobromoacetic acid	Standard	20.0	21.3 µg/L	106%		9710-354	1	80-120%
Monobromoacetic acid	Standard	20.0	22.2 µg/L	111%		9710-354	1	80-120%
Monobromoacetic acid	Standard	40.0	38.7 µg/L	97%		9710-355	1	80-120%
Monobromoacetic acid	Standard	40.0	39.7 µg/L	99%		9710-355	1	80-120%
Monochloroacetic acid	Duplicate	4.4	3.9 µg/L		12.0%	9710-334	2	
Monochloroacetic acid	Duplicate	5.9	6.2 µg/L		5.0%	9710-347	2	
Monochloroacetic acid	Matrix Spike	40.0	36.6 µg/L	92%		9710-339	2	
Monochloroacetic acid	Method Blank		ND* µg/L			9710-352	2	
Monochloroacetic acid	Secondary Source Std	20.0	21.8 µg/L	109%		9710-353	2	70-130%
Monochloroacetic acid	Standard	20.0	22.6 µg/L	113%		9710-354	2	80-120%
Monochloroacetic acid	Standard	20.0	21.1 µg/L	106%		9710-354	2	80-120%
Monochloroacetic acid	Standard	20.0	21.7 µg/L	109%		9710-354	2	80-120%
Monochloroacetic acid	Standard	40.0	39.5 µg/L	99%		9710-355	2	80-120%
Monochloroacetic acid	Standard	40.0	41.5 µg/L	104%		9710-355	2	80-120%
Tribromoacetic acid	Duplicate	ND	ND µg/L		NA	9710-334	4	
Tribromoacetic acid	Duplicate	ND	ND µg/L		NA	9710-347	4	
Tribromoacetic acid	Matrix Spike	40.0	45.3 µg/L	113%		9710-339	4	
Tribromoacetic acid	Method Blank		ND* µg/L			9710-352	4	
Tribromoacetic acid	Secondary Source Std		ND µg/L			9710-353	4	
Tribromoacetic acid	Standard	20.0	20.8 µg/L	104%		9710-354	4	80-120%
Tribromoacetic acid	Standard	20.0	21.6 µg/L	108%		9710-354	4	80-120%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Quality Control Report

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

Tribromoacetic acid	Standard	20.0	23.5 µg/L	118%		9710-354	4	80-120%
Tribromoacetic acid	Standard	40.0	39.1 µg/L	98%		9710-355	4	80-120%
Tribromoacetic acid	Standard	40.0	41.5 µg/L	104%		9710-355	4	80-120%
Trichloroacetic acid	Duplicate	39.8	41.3 µg/L		3.7%	9710-334	1	
Trichloroacetic acid	Duplicate	50.5	65.5 µg/L		25.9%	9710-347	1	
Trichloroacetic acid	Matrix Spike	40.0	41.5 µg/L	104%		9710-339	1	
Trichloroacetic acid	Method Blank		ND* µg/L			9710-352	1	
Trichloroacetic acid	Secondary Source Std	20.0	18.5 µg/L	93%		9710-353	1	70-130%
Trichloroacetic acid	Standard	20.0	20.3 µg/L	102%		9710-354	1	80-120%
Trichloroacetic acid	Standard	20.0	20.4 µg/L	102%		9710-354	1	80-120%
Trichloroacetic acid	Standard	20.0	20.6 µg/L	103%		9710-354	1	80-120%
Trichloroacetic acid	Standard	40.0	39.6 µg/L	99%		9710-355	1	80-120%
Trichloroacetic acid	Standard	40.0	39.2 µg/L	98%		9710-355	1	80-120%

End of quality control report

Summers & Hooper, Inc.
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QC Results from Montgomery Watson Laboratories

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Akron, OH 44309-3665
Phone: 330-375-2690 Fax: 330-375-2418

Study#: 86
Study Title: ICR RSSCT #2/#3

QC Batch ID: 67781 **Report #:** 37836

Analysis: BR **Method:** ML/EPA 300

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Bromide	0.020	0.018	90.0%		(50 - 150)
LCS2	Bromide	0.100	0.100	100.0%		(90 - 110)
MBLK	Bromide	ND	ND			(70 - 130)
MS	Bromide	0.1	0.101	101.0%		(70 - 130)
MSD	Bromide	0.1	0.100	100.0%		(70 - 130)

QC Batch ID: 67927 **Report #:** 37836

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	20	19	95.0%		(70 - 130)
DUP	Bromodichloroacetic acid	1.6	1.5		6.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1.0	1.3	130.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	20	20	100.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2.0	1.6	80.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	20	21	105.0%		(70 - 130)
DUP	Dibromoacetic acid	1.2	1.1		9.0%	(0 - 20)
LCS1	Dibromoacetic acid	1.0	0.8	80.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	20	19	95.0%		(70 - 130)
DUP	Dichloroacetic acid	ND	ND		0.0%	(0 - 20)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

LCS1	Dichloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	20	20	100.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	20	21	105.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2.0	2.1	105.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	20	21	105.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	NR		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4.0	NR			(50 - 150)
LCS2	Tribromoacetic acid	20	NR			(80 - 120)
MBLK	Tribromoacetic acid	ND	NR			
MS	Tribromoacetic acid	20	NR			(70 - 130)
DUP	Trichloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Trichloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	20	19	95.0%		(70 - 130)

QC Batch ID: 67931 **Report #:** 37836
37868

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	ND	1.1		0.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1.0	0.8	80.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	20	21	105.0%		(70 - 130)
DUP	Bromodichloroacetic acid	1.6	1.8		12.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1.0	1.3	130.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

MS	Bromodichloroacetic acid	20	24	120.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2.0	1.5	75.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	20	26	130.0%		(70 - 130)
DUP	Dibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1.0	0.6	60.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	22	110.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	20	22	110.0%		(70 - 130)
DUP	Dichloroacetic acid	1.3	1.3		0.0%	(0 - 20)
LCS1	Dichloroacetic acid	1.0	0.8	80.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	20	20	100.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	20	21	105.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2.0	1.8	90.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	20	22	110.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	NR		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4.0	NR			(50 - 150)
LCS2	Tribromoacetic acid	20	NR			(80 - 120)
MBLK	Tribromoacetic acid	ND	ND			
MS	Tribromoacetic acid	20	NR			(70 - 130)
DUP	Trichloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Trichloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	20	20	100.0%		(70 - 130)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

QC Batch ID: 68016 **Report #:** 37836

Analysis: NH3 **Method:** ML/EPA 350.1

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Ammonia Nitrogen	1.00	1.06	106.0%		(80 - 120)
LCS2	Ammonia Nitrogen	1.00	1.06	106.0%		(80 - 120)
MBLK	Ammonia Nitrogen	ND	ND			
MS	Ammonia Nitrogen	1.00	1.01	101.0%		(80 - 120)
MSD	Ammonia Nitrogen	1.00	1.01	101.0%		(80 - 120)

QC Batch ID: 68137 **Report #:** 37868

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	6.1	5.7		7.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	1.0	0.7	70.0%		(70 - 130)
DUP	Bromodichloroacetic acid	7.1	6.6		7.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1.0	1.2	120.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	1.0	1.0	100.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	2.1	2.0		5.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2.0	1.2	60.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	2.0	0.9	45.0%		(70 - 130)
DUP	Dibromoacetic acid	1.6	1.5		6.0%	(0 - 20)
LCS1	Dibromoacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	1.0	1.2	120.0%		(70 - 130)
DUP	Dichloroacetic acid	32	31		3.0%	(0 - 20)
LCS1	Dichloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	1.0	1.0	100.0%		(70 - 130)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	1.0	1.8	180.0%		(70 - 130)
DUP	Monochloroacetic acid	5.5	6.0		9.0%	(0 - 20)
LCS1	Monochloroacetic acid	2.0	1.8	90.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	2.0	0.8	40.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	NR		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4.0	NR			(50 - 150)
LCS2	Tribromoacetic acid	20	NR			(80 - 120)
MBLK	Tribromoacetic acid	ND	ND			
MS	Tribromoacetic acid	4.0	NR			(70 - 130)
DUP	Trichloroacetic acid	12	12		0.0%	(0 - 20)
LCS1	Trichloroacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	1.0	1.0	100.0%		(70 - 130)

QC Batch ID: 68157 **Report #:** 37836

Analysis: BR **Method:** ML/EPA 300

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Bromide	0.020	0.017	85.0%		(50 - 150)
LCS2	Bromide	0.100	0.100	100.0%		(90 - 110)
MBLK	Bromide	ND	ND			(70 - 130)
MS	Bromide	0.1	0.101	101.0%		(70 - 130)
MSD	Bromide	0.1	0.101	101.0%		(70 - 130)

QC Batch ID: 68323 **Report #:** 38016

Analysis: BR **Method:** ML/EPA 300

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Bromide	0.02	0.018	90.0%		(50 - 150)
LCS2	Bromide	0.1	0.102	102.0%		(90 - 110)
MBLK	Bromide	ND	ND			(70 - 130)
MS	Bromide	0.1	0.105	105.0%		(70 - 130)
MSD	Bromide	0.1	0.106	106.0%		(70 - 130)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

QC Batch ID: 68367 **Report #:** 37990

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	3.9	3.8		3.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1.0	0.9	90.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	32	34	106.0%		(70 - 130)
DUP	Bromodichloroacetic acid	1.5	1.5		0.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1.0	1.3	130.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	32	36	112.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2.0	1.2	60.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	32	35	109.0%		(70 - 130)
DUP	Dibromoacetic acid	3.1	2.6		18.0%	(0 - 20)
LCS1	Dibromoacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	32	36	112.0%		(70 - 130)
DUP	Dichloroacetic acid	7.5	6.3		17.0%	(0 - 20)
LCS1	Dichloroacetic acid	1.0	0.8	80.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	32	37	116.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	32	36	112.0%		(70 - 130)
DUP	Monochloroacetic acid	2.3	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2.0	1.8	90.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

MS	Monochloroacetic acid	32	36	112.0%		(70 - 130)
DUP	Tribromoacetic acid	NR	NR		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4.0	NR			(50 - 150)
LCS2	Tribromoacetic acid	20	NR			(80 - 120)
MBLK	Tribromoacetic acid	ND	NR			
MS	Tribromoacetic acid	32	NR			(70 - 130)
DUP	Trichloroacetic acid	1.2	1.1		9.0%	(0 - 20)
LCS1	Trichloroacetic acid	1.0	1.0	100.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	32	33	103.0%		(70 - 130)

QC Batch ID: 68375 **Report #:** 38016
38082

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	3.5	3.8		8.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1	1.1	110.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	22	110.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	32	33	103.0%		(70 - 130)
DUP	Bromodichloroacetic acid	ND	NR		0.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1	NR	100.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	NR			(80 - 120)
MBLK	Bromodichloroacetic acid	ND	NR			
MS	Bromodichloroacetic acid	32	NR			(70 - 130)
DUP	Chlorodibromoacetic acid	ND	NR		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2	NR	85.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	NR			(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	NR			
MS	Chlorodibromoacetic acid	32	NR			(70 - 130)
DUP	Dibromoacetic acid	1	1		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1	1.2	120.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	23	115.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	32	35	109.0%		(70 - 130)
DUP	Dichloroacetic acid	12	12		0.0%	(0 - 20)
LCS1	Dichloroacetic acid	1	0.9	90.0%		(50 - 150)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

LCS2	Dichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	32	33	103.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1	1	100.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	22	110.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	32	36	112.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2	1.9	95.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	22	110.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	32	33	103.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	NR		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4	NR			(50 - 150)
LCS2	Tribromoacetic acid	20	NR			(80 - 120)
MBLK	Tribromoacetic acid	ND	NR			
MS	Tribromoacetic acid	32	NR			(70 - 130)
DUP	Trichloroacetic acid	9.9	10		1.0%	(0 - 20)
LCS1	Trichloroacetic acid	1	1.3	130.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	23	115.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	32	35	109.0%		(70 - 130)

QC Batch ID: 68401 **Report #:** 38016

Analysis: NH3 **Method:** ML/EPA 350.1

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Ammonia Nitrogen	1	1.14	114.0%		(80 - 120)
LCS2	Ammonia Nitrogen	1	1.18	118.0%		(80 - 120)
MBLK	Ammonia Nitrogen	ND	ND			
MS	Ammonia Nitrogen	1	1.12	112.0%		(80 - 120)
MSD	Ammonia Nitrogen	1	1.12	112.0%		(80 - 120)

QC Batch ID: 68488 **Report #:** 38157

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1	0.7	70.0%		(50 - 150)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

LCS2	Bromochloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	32	33	103.0%		(70 - 130)
DUP	Bromodichloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1	1.1	110.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	32	35	109.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2	1.6	80.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	22	110.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	32	34	106.0%		(70 - 130)
DUP	Dibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1	1	100.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	32	32	100.0%		(70 - 130)
DUP	Dichloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Dichloroacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	32	33	103.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1	1	100.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	32	33	103.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2	1.7	85.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	32	35	109.0%		(70 - 130)
DUP	Tribromoacetic acid	NR	NR		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4	2.7	68.0%		(50 - 150)
LCS2	Tribromoacetic acid	20	22	110.0%		(80 - 120)
MBLK	Tribromoacetic acid	ND	NR			

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

MS	Tribromoacetic acid	32	NR			(70 - 130)
DUP	Trichloroacetic acid	1.4	1.5		7.0%	(0 - 20)
LCS1	Trichloroacetic acid	1	1.3	130.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	32	33	103.0%		(70 - 130)

QC Batch ID: 68912 **Report #:** 38269

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	2.7	2.3		16.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1	0.7	70.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	1	0.5	50.0%		(70 - 130)
DUP	Bromodichloroacetic acid	1.5	1.6		6.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1	1.2	120.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	22	110.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	1	1	100.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	2.2	2		10.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2	1.9	95.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	24	120.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	2	0.1	5.0%		(70 - 130)
DUP	Dibromoacetic acid	1	0.9		11.0%	(0 - 20)
LCS1	Dibromoacetic acid	1	1.2	120.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	1	0.5	50.0%		(70 - 130)
DUP	Dichloroacetic acid	10	11		10.0%	(0 - 20)
LCS1	Dichloroacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	1	1	100.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	22	110.0%		(80 - 120)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 86
Study Title: ICR RSSCT #2/#3

MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	1	0.9	90.0%		(70 - 130)
DUP	Monochloroacetic acid	2.4	2		18.0%	(0 - 20)
LCS1	Monochloroacetic acid	2	1.3	65.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	22	110.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	2	2.7	135.0%		(70 - 130)
DUP	Tribromoacetic acid	NR	NR		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4	3.9	98.0%		(50 - 150)
LCS2	Tribromoacetic acid	20	23	115.0%		(80 - 120)
MBLK	Tribromoacetic acid	ND	NR			
MS	Tribromoacetic acid	4	NR			(70 - 130)
DUP	Trichloroacetic acid	3.9	4		3.0%	(0 - 20)
LCS1	Trichloroacetic acid	1	1.3	130.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	1	1.1	110.0%		(70 - 130)

End of MW QC report

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

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Comments

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Phone: 330-375-2690 Fax: 330-375-2418

Study#: 86
Study Title: ICR RSSCT #2/#3

Study comments

Chlorine and chlorine dioxide feeds were shutoff the afternoon of the day before sampling.

Two GAC types are being evaluated during Session #2, Bituminous (F-400, Calgon Carbon Corp.) and Lignite (Norit Americas, Inc.).

Temperature and pH were not recorded for sample ID 9710-85 and 9710-85 (Lignite, 20 min EBCT).

Results for TOX analysis for sample 9710-116 (86.Lig.10.E-14) not reported due to high RPD between replicate analysed performed on both bottles sampled for TOX (60% RPD).

Analysis comments

Analysis: Turbidity
Method: SM 2130 B

Reported turbidity data has been rounded following the requirements of SM 2130 B, reproduced in the table below (Standard Methods, 1995). Note that the reported digits are not necessarily significant.

Turbidity Range	Report to Nearest
0-1.0	0.05
1-10	0.1
10-40	1
40-100	5
100-400	10
400-1000	50
> 1000	100

QC comments

QCBatch: 0-60-0 **Description:** MW Labs Report # 37836

HAA QC batch MW67927 and MW67931. From MW Labs: "TBAA recovery outside range on low LFB."

QCBatch: 0-61-0 **Description:** MW Labs Report # 37868

HAA QC batch MW67931 and MW68137. From MW Labs: "TBAA recovery outside range on low LFB."

QCBatch: 0-62-0 **Description:** MW Labs Report # 37990

Comments

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HAA QC batch MW68367. From MW Labs: "TBAA recovery outside range on low LFB."

QCBatch: 0-66-0 **Description:** MW Labs Report # 38016

HAA QC batch MW68375. From MW Labs: "Optional compounds reported as NR due to QC failure on calibration standards."

QCBatch: 0-67-0 **Description:** MW Labs Report # 38082

HAA QC batch MW68375. From MW Labs: "Optional compounds reported as NR due to QC failure on calibration standards."

QCBatch: 0-68-0 **Description:** MW Labs Report # 38157

HAA QC batch MW68488. From MW Labs: "TBAA recovery outside range on LLFB."

QCBatch: 0-70-0 **Description:** MW Labs Report # 38269

HAA QC batch MW68912. From MW Labs: "TBAA recoveries outside range on LLFB."

End of comments

Summers & Hooper, Inc.

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Laboratory Report

Client:

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Study Title: ICR RSSCT #4

Study #: 104

Reviewed By: _____

Stuart M. Hooper

Date Reviewed: 7/13/99

Electronic copies of the results and quality control data are available upon request.

Summers & Hooper, Inc.
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Laboratory Test Results

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Study#: 104
Study Title: ICR RSSCT #4

Sample ID: Settled Water at Plant **S&H ID:** 9801-1 **Date Sampled:** 1/6/98 8:30:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1	TOC-ICR	TOC	3.08	mg/L	SM 5310 C	1	0.50	1/6/98		1/7/98	7-0-156
2	TOC-ICR	TOC (Dupl)	3.06	mg/L	SM 5310 C	1	0.50	1/6/98		1/7/98	7-0-156
			3.07	**mg/L**	**0.7 % RPD**						

Sample ID: Filtered Water at Plant **S&H ID:** 9801-2 **Date Sampled:** 1/6/98 8:45:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
3	TOC-ICR	TOC	2.66	mg/L	SM 5310 C	1	0.50	1/6/98		1/9/98	7-0-157
4	TOC-ICR	TOC (Dupl)	2.59	mg/L	SM 5310 C	1	0.50	1/6/98		1/9/98	7-0-157
			2.63	**mg/L**	**2.7 % RPD**						

Sample ID: Settled Water on Arrival **S&H ID:** 9801-11 **Date Sampled:** 1/7/98 2:40:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
5	TOC-ICR	TOC	2.95	mg/L	SM 5310 C	1	0.50	1/7/98		1/7/98	7-0-156
6	TOC-ICR	TOC (Dupl)	2.92	mg/L	SM 5310 C	1	0.50	1/7/98		1/7/98	7-0-156
			2.94	**mg/L**	**1.0 % RPD**						

Sample ID: Filtered Water on Arrival **S&H ID:** 9801-13 **Date Sampled:** 1/9/98 9:45:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
7	TOC-ICR	TOC	2.63	mg/L	SM 5310 C	1	0.50	1/9/98		1/9/98	7-0-157
8	TOC-ICR	TOC (Dupl)	2.68	mg/L	SM 5310 C	1	0.50	1/9/98		1/9/98	7-0-157
			2.66	**mg/L**	**1.9 % RPD**						

Sample ID: 104.INF.A-1 **S&H ID:** 9801-21 **Date Sampled:** 1/12/98 11:15:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
9	ALK	Alkalinity	46	mg/L	SM 2320 B	1	5	1/12/98		1/12/98	1-0-12
10	ALK	Alkalinity (Dupl)	48	mg/L	SM 2320 B	1	5	1/12/98		1/12/98	1-0-12
			47	**mg/L**	**4.3 % RPD**						
11	NH3	Ammonia Nitrogen	ND	mg/L	EPA 350.1	1	0.05	1/12/98		1/30/98	MW72340
12	BR	Bromide	ND	mg/L	EPA 300.0 A	1	0.020	1/12/98		2/5/98	MW72780
13	CaHard	Calcium Hardness	76	mg/L CaCO3	SM 3500-Ca D	1	10	1/12/98		1/12/98	33-0-12
14	CaHard	Calcium Hardness (Dupl)	77	mg/L CaCO3	SM 3500-Ca D	1	10	1/12/98		1/12/98	33-0-12
			77	**mg/L CaCO3**	**1.3 % RPD**						
15	TotHard	Total Hardness	106	mg/L CaCO3	SM 2340 C	1	5	1/12/98		1/12/98	3-0-12

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

16	TotHard	Total Hardness (Dupl)	103	mg/L CaCO3	SM 2340 C	1	5	1/12/98		1/12/98	3-0-12
			105	**mg/L CaCO3**	**2.9 % RPD**						

Sample ID: 104.INF.B-1 **S&H ID:** 9801-22 **Date Sampled:** 1/12/98 11:15:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
17	Cl2Dose	Chlorine Dose	3.95	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/16/98		1/16/98	n/a
18	Cl2Res	Chlorine Residual	1.80	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/16/98		1/18/98	n/a
19	HAA	Bromochloroacetic acid	4.9	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
20	HAA	Bromodichloroacetic acid	9.3	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
21	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
22	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
23	HAA	Dichloroacetic acid	20.0	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
24	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
25	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
26	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/18/98	1/21/98	1/23/98	MW72015
27	HAA	Trichloroacetic acid	29.0	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
28	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/18/98	n/a
29	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
30	pH	pH	7.1	Unit	SM 4500-H+ B	1	n/a	1/12/98		1/12/98	n/a
31	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/16/98		1/18/98	n/a
32	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	1/16/98		1/18/98	n/a
33	TOC-ICR	TOC	2.79	mg/L	SM 5310 C	1	0.50	1/12/98		1/12/98	7-0-158
34	TOC-ICR	TOC (Dupl)	2.82	mg/L	SM 5310 C	1	0.50	1/12/98		1/12/98	7-0-158
			2.80	**mg/L**	**1.1 % RPD**						
35	TOX-ICR	TOX	238	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
36	TOX-ICR	TOX (Dupl)	241	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
			240	**µg Cl-/L**	**1.2 % RPD**						
37	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.2	%	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
38	THM-ICR	Bromodichloromethane	10.2	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
39	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
40	THM-ICR	Chloroform	39.4	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
41	THM-ICR	Dibromochloromethane	1.6	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
42	TURB	Turbidity	0.10	ntu	SM 2130 B	1	0.05	1/12/98		1/12/98	9-0-7
43	UV-ICR	UV	0.055	1/cm	SM 5910 B	1	0.009	1/12/98		1/12/98	8-0-112
44	UV-ICR	UV (Dupl)	0.055	1/cm	SM 5910 B	1	0.009	1/12/98		1/12/98	8-0-112
			0.055	**1/cm**	**0.0 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

Sample ID: 104-20.EFF-1 **S&H ID:** 9801-23 **Date Sampled:** 1/12/98 2:53:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
45	Cl2Dose	Chlorine Dose	1.85	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/16/98		1/16/98	n/a
46	Cl2Res	Chlorine Residual	1.45	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/16/98		1/18/98	n/a
47	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
48	HAA	Bromodichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
49	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
50	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
51	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
52	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
53	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
54	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/18/98	1/21/98	1/23/98	MW72015
55	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
56	pH	Cl2 pH - Final	7.5	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/18/98	n/a
57	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
58	pH	pH	8.6	Unit	SM 4500-H+ B	1	n/a	1/12/98		1/12/98	n/a
59	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/16/98		1/18/98	n/a
60	TEMP	Temperature	21.3	ºC	SM 2550 B	1	n/a	1/12/98		1/12/98	n/a
61	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	1/16/98		1/18/98	n/a
62	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	1/12/98		1/12/98	7-0-158
63	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	1/12/98		1/12/98	7-0-158
			ND	**mg/L**							
64	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
65	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
			ND	**µg Cl-/L**							
66	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.8	%	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
67	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
68	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
69	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
70	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
71	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	1/12/98		1/12/98	8-0-112
72	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	1/12/98		1/12/98	8-0-112
			ND	**1/cm**							

Sample ID: 104-10.EFF-1 **S&H ID:** 9801-24 **Date Sampled:** 1/12/98 3:14:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
73	Cl2Dose	Chlorine Dose	1.80	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/16/98		1/16/98	n/a
74	Cl2Res	Chlorine Residual	1.42	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/16/98		1/18/98	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

75	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
76	HAA	Bromodichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
77	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
78	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
79	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
80	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
81	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
82	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/18/98	1/21/98	1/23/98	MW72015
83	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
84	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/18/98	n/a
85	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
86	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	1/12/98		1/12/98	n/a
87	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/16/98		1/18/98	n/a
88	TEMP	Temperature	21.1	ºC	SM 2550 B	1	n/a	1/12/98		1/12/98	n/a
89	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	1/16/98		1/18/98	n/a
90	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	1/12/98		1/12/98	7-0-158
91	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	1/12/98		1/12/98	7-0-158
			ND	**mg/L**							
92	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
93	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
			ND	**µg Cl-/L**							
94	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.2	%	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
95	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
96	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
97	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
98	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
99	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	1/12/98		1/12/98	8-0-112
100	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	1/12/98		1/12/98	8-0-112
			ND	**1/cm**							

Sample ID: 104.10.Eff-5 **S&H ID:** 9801-32 **Date Sampled:** 1/14/98 9:18:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
101	Cl2Dose	Chlorine Dose	1.95	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/16/98		1/16/98	n/a
102	Cl2Res	Chlorine Residual	1.63	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/16/98		1/18/98	n/a
103	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
104	HAA	Bromodichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
105	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
106	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
107	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

108	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
109	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
110	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/18/98	1/21/98	1/23/98	MW72015
111	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
112	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/18/98	n/a
113	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
114	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	1/14/98		1/14/98	n/a
115	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/16/98		1/18/98	n/a
116	TEMP	Temperature	20.3	ºC	SM 2550 B	1	n/a	1/14/98		1/14/98	n/a
117	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	1/16/98		1/18/98	n/a
118	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	1/14/98		1/14/98	7-0-160
119	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	1/14/98		1/14/98	7-0-160
			ND	**mg/L**							
120	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/21/98	12-0-86
121	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/21/98	12-0-86
			ND	**µg Cl-/L**							
122	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.8	%	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
123	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
124	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
125	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
126	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
127	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	1/14/98		1/15/98	8-0-114
128	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	1/14/98		1/15/98	8-0-114
			ND	**1/cm**							

Sample ID: 104.Inf.B-2 **S&H ID:** 9801-33 **Date Sampled:** 1/14/98 10:20:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
129	pH	pH	7.1	Unit	SM 4500-H+ B	1	n/a	1/14/98		1/14/98	n/a
130	TEMP	Temperature	17.4	ºC	SM 2550 B	1	n/a	1/14/98		1/14/98	n/a
131	TOC-ICR	TOC	2.61	mg/L	SM 5310 C	1	0.50	1/14/98		1/14/98	7-0-160
132	TOC-ICR	TOC (Dupl)	2.67	mg/L	SM 5310 C	1	0.50	1/14/98		1/14/98	7-0-160
			2.64	**mg/L**	**2.3 % RPD**						

Sample ID: 104.10.Eff-7 **S&H ID:** 9801-36 **Date Sampled:** 1/15/98 1:33:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
133	Cl2Dose	Chlorine Dose	2.19	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/16/98		1/16/98	n/a
134	Cl2Res	Chlorine Residual	1.63	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/16/98		1/18/98	n/a
135	HAA	Bromochloroacetic acid	1.7	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

136	HAA	Bromodichloroacetic acid	2.0	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
137	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
138	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
139	HAA	Dichloroacetic acid	3.1	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
140	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
141	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
142	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/18/98	1/21/98	1/23/98	MW72015
143	HAA	Trichloroacetic acid	1.3	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
144	pH	Cl2 pH - Final	7.5	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/18/98	n/a
145	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
146	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	1/15/98		1/15/98	n/a
147	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/16/98		1/18/98	n/a
148	TEMP	Temperature	20.7	ºC	SM 2550 B	1	n/a	1/15/98		1/15/98	n/a
149	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	1/16/98		1/18/98	n/a
150	TOC-ICR	TOC	0.75	mg/L	SM 5310 C	1	0.50	1/15/98		1/15/98	7-0-161
151	TOC-ICR	TOC (Dupl)	0.76	mg/L	SM 5310 C	1	0.50	1/15/98		1/15/98	7-0-161
			0.76	**mg/L**	**1.3 % RPD**						
152	TOX-ICR	TOX	30	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
153	TOX-ICR	TOX (Dupl)	28	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
			29	**µg Cl-/L**	**6.9 % RPD**						
154	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.8	%	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
155	THM-ICR	Bromodichloromethane	3.0	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
156	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
157	THM-ICR	Chloroform	2.4	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
158	THM-ICR	Dibromochloromethane	2.4	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
159	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	1/15/98		1/15/98	8-0-114
160	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	1/15/98		1/15/98	8-0-114
			ND	**1/cm**							

Sample ID: 104.10.Eff-8 **S&H ID:** 9801-37 **Date Sampled:** 1/15/98 7:58:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
161	Cl2Dose	Chlorine Dose	2.06	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/19/98		1/19/98	n/a
162	Cl2Res	Chlorine Residual	1.42	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/19/98		1/21/98	n/a
163	HAA	Bromochloroacetic acid	2.1	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/28/98	MW72493
164	HAA	Bromodichloroacetic acid	2.8	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/28/98	MW72493
165	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/28/98	MW72493
166	HAA	Dibromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/28/98	MW72493
167	HAA	Dichloroacetic acid	3.7	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/28/98	MW72493
168	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/28/98	MW72493

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

169	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/28/98	MW72493
170	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/21/98	1/26/98	1/28/98	MW72493
171	HAA	Trichloroacetic acid	1.9	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/28/98	MW72493
172	pH	Cl2 pH - Final	7.5	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/21/98	n/a
173	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
174	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	1/15/98		1/15/98	n/a
175	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/19/98		1/21/98	n/a
176	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	1/15/98		1/15/98	n/a
177	TIME	Cl2 Incubation Time	47.6	hrs	n/a	1	n/a	1/19/98		1/21/98	n/a
178	TOC-ICR	TOC	0.88	mg/L	SM 5310 C	1	0.50	1/15/98		1/15/98	7-0-161
179	TOC-ICR	TOC (Dupl)	0.89	mg/L	SM 5310 C	1	0.50	1/15/98		1/15/98	7-0-161
			0.89	**mg/L**	**1.1 % RPD**						
180	TOX-ICR	TOX	34	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/21/98	12-0-86
181	TOX-ICR	TOX (Dupl)	34	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/21/98	12-0-86
			34	**µg Cl-/L**	**0.0 % RPD**						
182	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.2	%	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
183	THM-ICR	Bromodichloromethane	3.6	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
184	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
185	THM-ICR	Chloroform	2.9	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
186	THM-ICR	Dibromochloromethane	2.7	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
187	UV-ICR	UV	0.009	1/cm	SM 5910 B	1	0.009	1/15/98		1/15/98	8-0-114
188	UV-ICR	UV (Dupl)	0.009	1/cm	SM 5910 B	1	0.009	1/15/98		1/15/98	8-0-114
			0.009	**1/cm**	**0.0 % RPD**						

Sample ID: 104.10.Eff-6 **S&H ID:** 9801-39 **Date Sampled:** 1/14/98 10:05:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
189	Cl2Dose	Chlorine Dose	2.11	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/16/98		1/16/98	n/a
190	Cl2Res	Chlorine Residual	1.55	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/16/98		1/18/98	n/a
191	HAA	Bromochloroacetic acid	1.2	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
192	HAA	Bromodichloroacetic acid	1.3	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
193	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
194	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
195	HAA	Dichloroacetic acid	2.0	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
196	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
197	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
198	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/18/98	1/21/98	1/23/98	MW72015
199	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
200	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/18/98	n/a
201	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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202	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	1/14/98		1/14/98	n/a
203	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/16/98		1/18/98	n/a
204	TEMP	Temperature	20.8	ºC	SM 2550 B	1	n/a	1/14/98		1/14/98	n/a
205	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	1/16/98		1/18/98	n/a
206	TOC-ICR	TOC	0.67	mg/L	SM 5310 C	1	0.50	1/14/98		1/15/98	7-0-161
207	TOC-ICR	TOC (Dupl)	0.65	mg/L	SM 5310 C	1	0.50	1/14/98		1/15/98	7-0-161
			0.66	**mg/L**	**3.0 % RPD**						
208	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
209	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
			ND	**µg Cl-/L**							
210	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.2	%	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
211	THM-ICR	Bromodichloromethane	2.1	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
212	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
213	THM-ICR	Chloroform	1.5	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
214	THM-ICR	Dibromochloromethane	1.8	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
215	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	1/14/98		1/15/98	8-0-114
216	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	1/14/98		1/15/98	8-0-114
			ND	**1/cm**							

Sample ID: 104.10.Eff-6d **S&H ID:** 9801-40 **Date Sampled:** 1/14/98 10:05:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
217	Cl2Dose	Chlorine Dose	2.09	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/16/98		1/16/98	n/a
218	Cl2Res	Chlorine Residual	1.55	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/16/98		1/18/98	n/a
219	HAA	Bromochloroacetic acid	1.2	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
220	HAA	Bromodichloroacetic acid	1.3	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
221	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
222	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
223	HAA	Dichloroacetic acid	2.0	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
224	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
225	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
226	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/18/98	1/21/98	1/23/98	MW72015
227	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
228	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/18/98	n/a
229	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
230	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/16/98		1/18/98	n/a
231	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	1/16/98		1/18/98	n/a
232	TOC-ICR	TOC	0.64	mg/L	SM 5310 C	1	0.50	1/14/98		1/15/98	7-0-161
233	TOC-ICR	TOC (Dupl)	0.64	mg/L	SM 5310 C	1	0.50	1/14/98		1/15/98	7-0-161
			0.64	**mg/L**	**0.0 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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234	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
235	TOX-ICR	TOX (Dupl)	25	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
			ND	**µg Cl-/L**							
236	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.0	%	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
237	THM-ICR	Bromodichloromethane	2.0	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
238	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
239	THM-ICR	Chloroform	1.6	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
240	THM-ICR	Dibromochloromethane	1.7	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
241	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	1/14/98		1/15/98	8-0-114
242	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	1/14/98		1/15/98	8-0-114
			ND	**1/cm**							

Sample ID: 104.10.Eff-10 **S&H ID:** 9801-44 **Date Sampled:** 1/15/98 2:42:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
243	Cl2Dose	Chlorine Dose	2.47	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/16/98		1/16/98	n/a
244	Cl2Res	Chlorine Residual	1.62	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/16/98		1/18/98	n/a
245	HAA	Bromochloroacetic acid	3.0	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
246	HAA	Bromodichloroacetic acid	3.9	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
247	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
248	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
249	HAA	Dichloroacetic acid	5.9	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
250	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
251	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
252	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/18/98	1/21/98	1/23/98	MW72015
253	HAA	Trichloroacetic acid	3.3	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
254	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/18/98	n/a
255	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
256	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	1/15/98		1/15/98	n/a
257	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/16/98		1/18/98	n/a
258	TEMP	Temperature	21.4	ºC	SM 2550 B	1	n/a	1/15/98		1/15/98	n/a
259	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	1/16/98		1/18/98	n/a
260	TOC-ICR	TOC	1.08	mg/L	SM 5310 C	1	0.50	1/15/98		1/15/98	7-0-161
261	TOC-ICR	TOC (Dupl)	1.07	mg/L	SM 5310 C	1	0.50	1/15/98		1/15/98	7-0-161
			1.08	**mg/L**	**0.9 % RPD**						
262	TOX-ICR	TOX	58	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
263	TOX-ICR	TOX (Dupl)	54	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/19/98	12-0-85
			56	**µg Cl-/L**	**7.1 % RPD**						
264	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.0	%	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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265	THM-ICR	Bromodichloromethane	5.3	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
266	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
267	THM-ICR	Chloroform	5.3	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
268	THM-ICR	Dibromochloromethane	3.1	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
269	UV-ICR	UV	0.012	1/cm	SM 5910 B	1	0.009	1/15/98		1/15/98	8-0-114
270	UV-ICR	UV (Dupl)	0.012	1/cm	SM 5910 B	1	0.009	1/15/98		1/15/98	8-0-114
			0.012	**1/cm**	**0.0 % RPD**						

Sample ID: 104.10.Eff-11 **S&H ID:** 9801-45 **Date Sampled:** 1/15/98 9:11:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
271	Cl2Dose	Chlorine Dose	2.57	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/16/98		1/16/98	n/a
272	Cl2Res	Chlorine Residual	1.64	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/16/98		1/18/98	n/a
273	HAA	Bromochloroacetic acid	3.3	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
274	HAA	Bromodichloroacetic acid	4.6	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
275	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
276	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
277	HAA	Dichloroacetic acid	6.5	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
278	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
279	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
280	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/18/98	1/21/98	1/23/98	MW72015
281	HAA	Trichloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
282	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/18/98	n/a
283	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
284	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	1/15/98		1/15/98	n/a
285	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/16/98		1/18/98	n/a
286	TEMP	Temperature	21.3	ºC	SM 2550 B	1	n/a	1/15/98		1/15/98	n/a
287	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	1/16/98		1/18/98	n/a
288	TOC-ICR	TOC	1.21	mg/L	SM 5310 C	1	0.50	1/15/98		1/16/98	7-0-162
289	TOC-ICR	TOC (Dupl)	1.19	mg/L	SM 5310 C	1	0.50	1/15/98		1/16/98	7-0-162
			1.20	**mg/L**	**1.7 % RPD**						
290	TOX-ICR	TOX	62	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/21/98	12-0-86
291	TOX-ICR	TOX (Dupl)	59	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/21/98	12-0-86
			61	**µg Cl-/L**	**4.9 % RPD**						
292	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.8	%	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
293	THM-ICR	Bromodichloromethane	6.0	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
294	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
295	THM-ICR	Chloroform	6.6	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
296	THM-ICR	Dibromochloromethane	3.1	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
297	UV-ICR	UV	0.013	1/cm	SM 5910 B	1	0.009	1/15/98		1/16/98	8-0-115

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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298	UV-ICR	UV (Dupl)	0.014	1/cm	SM 5910 B	1	0.009	1/15/98		1/16/98	8-0-115
			0.014	**1/cm**	**7.1 % RPD**						

Sample ID: 104.10.Eff-11d **S&H ID:** 9801-46 **Date Sampled:** 1/15/98 9:11:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
299	Cl2Dose	Chlorine Dose	2.55	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/16/98		1/16/98	n/a
300	Cl2Res	Chlorine Residual	1.64	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/16/98		1/18/98	n/a
301	HAA	Bromochloroacetic acid	3.4	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
302	HAA	Bromodichloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
303	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
304	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
305	HAA	Dichloroacetic acid	6.3	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
306	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
307	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
308	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/18/98	1/21/98	1/23/98	MW72015
309	HAA	Trichloroacetic acid	4.3	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
310	pH	Cl2 pH - Final	7.5	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/18/98	n/a
311	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
312	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	1/15/98		1/15/98	n/a
313	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/16/98		1/18/98	n/a
314	TEMP	Temperature	21.5	ºC	SM 2550 B	1	n/a	1/15/98		1/15/98	n/a
315	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	1/16/98		1/18/98	n/a
316	TOC-ICR	TOC	1.19	mg/L	SM 5310 C	1	0.50	1/15/98		1/16/98	7-0-162
317	TOC-ICR	TOC (Dupl)	1.18	mg/L	SM 5310 C	1	0.50	1/15/98		1/16/98	7-0-162
			1.19	**mg/L**	**0.8 % RPD**						
318	TOX-ICR	TOX	60	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/21/98	12-0-86
319	TOX-ICR	TOX (Dupl)	59	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/21/98	12-0-86
			60	**µg Cl-/L**	**1.7 % RPD**						
320	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.2	%	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
321	THM-ICR	Bromodichloromethane	5.6	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
322	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
323	THM-ICR	Chloroform	6.3	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
324	THM-ICR	Dibromochloromethane	3.0	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
325	UV-ICR	UV	0.013	1/cm	SM 5910 B	1	0.009	1/15/98		1/16/98	8-0-115
326	UV-ICR	UV (Dupl)	0.014	1/cm	SM 5910 B	1	0.009	1/15/98		1/16/98	8-0-115
			0.014	**1/cm**	**7.1 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

Sample ID: 104.10.Eff-12 **S&H ID:** 9801-47 **Date Sampled:** 1/16/98 3:36:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
327	Cl2Dose	Chlorine Dose	2.70	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/16/98		1/16/98	n/a
328	Cl2Res	Chlorine Residual	1.77	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/16/98		1/18/98	n/a
329	HAA	Bromochloroacetic acid	3.6	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
330	HAA	Bromodichloroacetic acid	5.1	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
331	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
332	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
333	HAA	Dichloroacetic acid	7.1	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
334	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
335	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/18/98	1/21/98	1/23/98	MW72015
336	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/18/98	1/21/98	1/23/98	MW72015
337	HAA	Trichloroacetic acid	5.6	µg/L	SM 6251 B	1	1.0	1/18/98	1/21/98	1/23/98	MW72015
338	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/18/98	n/a
339	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
340	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
341	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/16/98		1/18/98	n/a
342	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	1/16/98		1/16/98	n/a
343	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	1/16/98		1/18/98	n/a
344	TOC-ICR	TOC	1.36	mg/L	SM 5310 C	1	0.50	1/16/98		1/16/98	7-0-162
345	TOC-ICR	TOC (Dupl)	1.35	mg/L	SM 5310 C	1	0.50	1/16/98		1/16/98	7-0-162
			1.36	**mg/L**	**0.7 % RPD**						
346	TOX-ICR	TOX	72	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/21/98	12-0-86
347	TOX-ICR	TOX (Dupl)	75	µg Cl-/L	SM 5320 B	1	25	1/18/98		1/21/98	12-0-86
			74	**µg Cl-/L**	**4.1 % RPD**						
348	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.8	%	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
349	THM-ICR	Bromodichloromethane	6.5	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
350	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
351	THM-ICR	Chloroform	8.2	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
352	THM-ICR	Dibromochloromethane	3.0	µg/L	EPA 551.1	1	1.0	1/18/98	1/22/98	1/22/98	0-76-0
353	UV-ICR	UV	0.016	1/cm	SM 5910 B	1	0.009	1/16/98		1/16/98	8-0-115
354	UV-ICR	UV (Dupl)	0.015	1/cm	SM 5910 B	1	0.009	1/16/98		1/16/98	8-0-115
			0.016	**1/cm**	**6.3 % RPD**						

Sample ID: 104.10.Eff-14 **S&H ID:** 9801-56 **Date Sampled:** 1/16/98 10:44:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
355	Cl2Dose	Chlorine Dose	2.49	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/19/98		1/19/98	n/a
356	Cl2Res	Chlorine Residual	1.46	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/19/98		1/21/98	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

357	HAA	Bromochloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
358	HAA	Bromodichloroacetic acid	6.0	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
359	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
360	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
361	HAA	Dichloroacetic acid	7.9	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
362	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
363	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
364	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/21/98	1/26/98	1/29/98	MW72493
365	HAA	Trichloroacetic acid	8.0	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
366	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/21/98	n/a
367	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
368	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	1/16/98		1/16/98	n/a
369	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/19/98		1/21/98	n/a
370	TEMP	Temperature	21.5	ºC	SM 2550 B	1	n/a	1/16/98		1/16/98	n/a
371	TIME	Cl2 Incubation Time	47.7	hrs	n/a	1	n/a	1/19/98		1/21/98	n/a
372	TOC-ICR	TOC	1.49	mg/L	SM 5310 C	1	0.50	1/16/98		1/17/98	7-0-163
373	TOC-ICR	TOC (Dupl)	1.49	mg/L	SM 5310 C	1	0.50	1/16/98		1/17/98	7-0-163
			1.49	**mg/L**	**0.0 % RPD**						
374	TOX-ICR	TOX	93	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/21/98	12-0-86
375	TOX-ICR	TOX (Dupl)	94	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/21/98	12-0-86
			94	**µg Cl-/L**	**1.1 % RPD**						
376	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.4	%	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
377	THM-ICR	Bromodichloromethane	7.5	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
378	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
379	THM-ICR	Chloroform	11.3	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
380	THM-ICR	Dibromochloromethane	3.0	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
381	UV-ICR	UV	0.020	1/cm	SM 5910 B	1	0.009	1/16/98		1/18/98	8-0-116
382	UV-ICR	UV (Dupl)	0.021	1/cm	SM 5910 B	1	0.009	1/16/98		1/18/98	8-0-116
			0.021	**1/cm**	**4.8 % RPD**						

Sample ID: 104.10.Eff-16 **S&H ID:** 9801-58 **Date Sampled:** 1/17/98 8:25:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
383	Cl2Dose	Chlorine Dose	2.57	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/19/98		1/19/98	n/a
384	Cl2Res	Chlorine Residual	1.42	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/19/98		1/21/98	n/a
385	HAA	Bromochloroacetic acid	3.7	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
386	HAA	Bromodichloroacetic acid	6.6	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
387	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
388	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
389	HAA	Dichloroacetic acid	8.8	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

390	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
391	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
392	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/21/98	1/26/98	1/29/98	MW72493
393	HAA	Trichloroacetic acid	9.2	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
394	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/21/98	n/a
395	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
396	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	1/17/98		1/17/98	n/a
397	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/19/98		1/21/98	n/a
398	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	1/17/98		1/17/98	n/a
399	TIME	Cl2 Incubation Time	47.7	hrs	n/a	1	n/a	1/19/98		1/21/98	n/a
400	TOC-ICR	TOC	1.60	mg/L	SM 5310 C	1	0.50	1/17/98		1/17/98	7-0-163
401	TOC-ICR	TOC (Dupl)	1.59	mg/L	SM 5310 C	1	0.50	1/17/98		1/17/98	7-0-163
			1.60	**mg/L**	**0.6 % RPD**						
402	TOX-ICR	TOX	108	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
403	TOX-ICR	TOX (Dupl)	113	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
			111	**µg Cl-/L**	**4.5 % RPD**						
404	THM-ICR	1,2,3-Trichloropropane (Surrogate)	93.6	%	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
405	THM-ICR	Bromodichloromethane	7.8	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
406	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
407	THM-ICR	Chloroform	12.7	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
408	THM-ICR	Dibromochloromethane	2.9	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
409	UV-ICR	UV	0.023	1/cm	SM 5910 B	1	0.009	1/17/98		1/18/98	8-0-116
410	UV-ICR	UV (Dupl)	0.023	1/cm	SM 5910 B	1	0.009	1/17/98		1/18/98	8-0-116
			0.023	**1/cm**	**0.0 % RPD**						

Sample ID: 104.20.Eff-10 **S&H ID:** 9801-66 **Date Sampled:** 1/17/98 9:48:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
411	Cl2Dose	Chlorine Dose	1.72	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/20/98		1/20/98	n/a
412	Cl2Res	Chlorine Residual	1.28	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/20/98		1/22/98	n/a
413	HAA	Bromochloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
414	HAA	Bromodichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
415	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
416	HAA	Dichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
417	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
418	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/22/98	1/27/98	1/28/98	MW72421
419	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
420	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/20/98		1/22/98	n/a
421	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/20/98		1/20/98	n/a
422	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	1/17/98		1/17/98	n/a

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

423	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	1/20/98		1/22/98	n/a
424	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	1/17/98		1/17/98	n/a
425	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	1/20/98		1/22/98	n/a
426	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	1/17/98		1/18/98	7-0-164
427	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	1/17/98		1/18/98	7-0-164
			ND	**mg/L**							
428	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	1/22/98		1/26/98	12-0-88
429	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	1/22/98		1/26/98	12-0-88
			ND	**µg Cl-/L**							
430	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.4	%	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
431	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
432	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
433	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
434	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
435	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	1/17/98		1/18/98	8-0-116
436	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	1/17/98		1/18/98	8-0-116
			ND	**1/cm**							

Sample ID: 104.10.Eff-18 **S&H ID:** 9801-68 **Date Sampled:** 1/18/98 9:28:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
437	Cl2Dose	Chlorine Dose	2.71	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/19/98		1/19/98	n/a
438	Cl2Res	Chlorine Residual	1.40	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/19/98		1/21/98	n/a
439	HAA	Bromochloroacetic acid	3.9	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
440	HAA	Bromodichloroacetic acid	6.7	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
441	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
442	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
443	HAA	Dichloroacetic acid	11.0	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
444	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
445	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
446	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/21/98	1/26/98	1/29/98	MW72493
447	HAA	Trichloroacetic acid	12.0	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
448	pH	Cl2 pH - Final	7.5	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/21/98	n/a
449	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
450	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	1/18/98		1/18/98	n/a
451	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/19/98		1/21/98	n/a
452	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	1/18/98		1/18/98	n/a
453	TIME	Cl2 Incubation Time	47.8	hrs	n/a	1	n/a	1/19/98		1/21/98	n/a
454	TOC-ICR	TOC	1.81	mg/L	SM 5310 C	1	0.50	1/18/98		1/18/98	7-0-164
455	TOC-ICR	TOC (Dupl)	1.81	mg/L	SM 5310 C	1	0.50	1/18/98		1/18/98	7-0-164

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

			1.81	**mg/L**	**0.0 % RPD**						
456	TOX-ICR	TOX	137	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
457	TOX-ICR	TOX (Dupl)	134	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
			136	**µg Cl-/L**	**2.2 % RPD**						
458	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.8	%	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
459	THM-ICR	Bromodichloromethane	9.1	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
460	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
461	THM-ICR	Chloroform	17.0	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
462	THM-ICR	Dibromochloromethane	2.8	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
463	UV-ICR	UV	0.028	1/cm	SM 5910 B	1	0.009	1/18/98		1/18/98	8-0-116
464	UV-ICR	UV (Dupl)	0.028	1/cm	SM 5910 B	1	0.009	1/18/98		1/18/98	8-0-116
			0.028	**1/cm**	**0.0 % RPD**						

Sample ID: 104.10.Eff-18d **S&H ID:** 9801-69 **Date Sampled:** 1/18/98 9:28:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
465	Cl2Dose	Chlorine Dose	2.71	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/19/98		1/19/98	n/a
466	Cl2Res	Chlorine Residual	1.43	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/19/98		1/21/98	n/a
467	HAA	Bromochloroacetic acid	4.0	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
468	HAA	Bromodichloroacetic acid	6.6	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
469	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
470	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
471	HAA	Dichloroacetic acid	10.0	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
472	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
473	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
474	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/21/98	1/26/98	1/29/98	MW72493
475	HAA	Trichloroacetic acid	11.0	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
476	pH	Cl2 pH - Final	7.5	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/21/98	n/a
477	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
478	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	1/18/98		1/18/98	n/a
479	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/19/98		1/21/98	n/a
480	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	1/18/98		1/18/98	n/a
481	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	1/19/98		1/21/98	n/a
482	TOC-ICR	TOC	1.80	mg/L	SM 5310 C	1	0.50	1/18/98		1/18/98	7-0-164
483	TOC-ICR	TOC (Dupl)	1.75	mg/L	SM 5310 C	1	0.50	1/18/98		1/18/98	7-0-164
			1.77	**mg/L**	**2.8 % RPD**						
484	TOX-ICR	TOX	139	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
485	TOX-ICR	TOX (Dupl)	145	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
			142	**µg Cl-/L**	**4.2 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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486	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.6	%	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
487	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	97.2	%	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
			96.4	**%**	**1.7 % RPD**						
488	THM-ICR	Bromodichloromethane	9.1	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
489	THM-ICR	Bromodichloromethane (Lab Dupl)	9.5	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
			9.3	**µg/L**	**4.3 % RPD**						
490	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
491	THM-ICR	Bromoform (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
			ND	**µg/L**							
492	THM-ICR	Chloroform	17.0	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
493	THM-ICR	Chloroform (Lab Dupl)	17.4	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
			17.2	**µg/L**	**2.3 % RPD**						
494	THM-ICR	Dibromochloromethane	2.8	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
495	THM-ICR	Dibromochloromethane (Lab Dupl)	3.0	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
			2.9	**µg/L**	**6.9 % RPD**						
496	UV-ICR	UV	0.028	1/cm	SM 5910 B	1	0.009	1/18/98		1/18/98	8-0-116
497	UV-ICR	UV (Dupl)	0.028	1/cm	SM 5910 B	1	0.009	1/18/98		1/18/98	8-0-116
			0.028	**1/cm**	**0.0 % RPD**						

Sample ID: 104.20.Eff-12 **S&H ID:** 9801-71 **Date Sampled:** 1/18/98 11:02:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
498	Cl2Dose	Chlorine Dose	1.82	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/19/98		1/19/98	n/a
499	Cl2Res	Chlorine Residual	1.36	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/19/98		1/21/98	n/a
500	HAA	Bromochloroacetic acid	1.1	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
501	HAA	Bromodichloroacetic acid	1.4	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
502	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
503	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
504	HAA	Dichloroacetic acid	3.3	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
505	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
506	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
507	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/21/98	1/26/98	1/29/98	MW72493
508	HAA	Trichloroacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
509	pH	Cl2 pH - Final	7.5	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/21/98	n/a
510	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
511	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	1/18/98		1/18/98	n/a
512	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/19/98		1/21/98	n/a
513	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	1/18/98		1/18/98	n/a
514	TIME	Cl2 Incubation Time	47.8	hrs	n/a	1	n/a	1/19/98		1/21/98	n/a
515	TOC-ICR	TOC	0.54	mg/L	SM 5310 C	1	0.50	1/18/98		1/18/98	7-0-164

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

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516	TOC-ICR	TOC (Dupl)	0.53	mg/L	SM 5310 C	1	0.50	1/18/98		1/18/98	7-0-164
			0.54	**mg/L**	**1.9 % RPD**						
517	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
518	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
			ND	**µg Cl-/L**							
519	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.8	%	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
520	THM-ICR	Bromodichloromethane	1.3	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
521	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
522	THM-ICR	Chloroform	1.1	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
523	THM-ICR	Dibromochloromethane	1.3	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
524	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	1/18/98		1/18/98	8-0-116
525	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	1/18/98		1/18/98	8-0-116
			ND	**1/cm**							

Sample ID: 104.10.Eff-20 **S&H ID:** 9801-74 **Date Sampled:** 1/18/98 10:26:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
526	Cl2Dose	Chlorine Dose	2.81	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/19/98		1/19/98	n/a
527	Cl2Res	Chlorine Residual	1.53	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/19/98		1/21/98	n/a
528	HAA	Bromochloroacetic acid	4.1	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
529	HAA	Bromodichloroacetic acid	6.6	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
530	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
531	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
532	HAA	Dichloroacetic acid	10.0	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
533	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
534	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
535	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/21/98	1/26/98	1/29/98	MW72493
536	HAA	Trichloroacetic acid	12.0	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
537	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/21/98	n/a
538	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
539	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	1/18/98		1/18/98	n/a
540	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/19/98		1/21/98	n/a
541	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	1/18/98		1/18/98	n/a
542	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	1/19/98		1/21/98	n/a
543	TOC-ICR	TOC	1.89	mg/L	SM 5310 C	1	0.50	1/18/98		1/19/98	7-0-165
544	TOC-ICR	TOC (Dupl)	1.98	mg/L	SM 5310 C	1	0.50	1/18/98		1/19/98	7-0-165
			1.94	**mg/L**	**4.6 % RPD**						
545	TOX-ICR	TOX	141	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
546	TOX-ICR	TOX (Dupl)	153	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
			147	**µg Cl-/L**	**8.2 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
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547	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.6	%	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
548	THM-ICR	Bromodichloromethane	9.4	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
549	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
550	THM-ICR	Chloroform	18.6	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
551	THM-ICR	Dibromochloromethane	2.6	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
552	UV-ICR	UV	0.029	1/cm	SM 5910 B	1	0.009	1/18/98		1/19/98	8-0-117
553	UV-ICR	UV (Dupl)	0.030	1/cm	SM 5910 B	1	0.009	1/18/98		1/19/98	8-0-117
			0.029	**1/cm**	**3.4 % RPD**						

Sample ID: 104.20.Eff-13 **S&H ID:** 9801-75 **Date Sampled:** 1/19/98 8:16:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
554	Cl2Dose	Chlorine Dose	2.08	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/19/98		1/19/98	n/a
555	Cl2Res	Chlorine Residual	1.44	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/19/98		1/21/98	n/a
556	HAA	Bromochloroacetic acid	2.0	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
557	HAA	Bromodichloroacetic acid	2.7	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
558	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
559	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
560	HAA	Dichloroacetic acid	3.9	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
561	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
562	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
563	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/21/98	1/26/98	1/29/98	MW72493
564	HAA	Trichloroacetic acid	1.6	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
565	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/21/98	n/a
566	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
567	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
568	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/19/98		1/21/98	n/a
569	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	1/19/98		1/19/98	n/a
570	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	1/19/98		1/21/98	n/a
571	TOC-ICR	TOC	0.89	mg/L	SM 5310 C	1	0.50	1/19/98		1/19/98	7-0-165
572	TOC-ICR	TOC (Dupl)	0.90	mg/L	SM 5310 C	1	0.50	1/19/98		1/19/98	7-0-165
			0.90	**mg/L**	**1.1 % RPD**						
573	TOX-ICR	TOX	40	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
574	TOX-ICR	TOX (Dupl)	36	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
			38	**µg Cl-/L**	**10.5 % RPD**						
575	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.4	%	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
576	THM-ICR	Bromodichloromethane	2.9	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
577	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
578	THM-ICR	Chloroform	2.1	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

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579	THM-ICR	Dibromochloromethane	2.3	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
580	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	1/19/98		1/19/98	8-0-117
581	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	1/19/98		1/19/98	8-0-117
			ND	**1/cm**							

Sample ID: 104.20.Eff-13d **S&H ID:** 9801-76 **Date Sampled:** 1/19/98 8:16:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
582	Cl2Dose	Chlorine Dose	2.08	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/19/98		1/19/98	n/a
583	Cl2Res	Chlorine Residual	1.45	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/19/98		1/21/98	n/a
584	HAA	Bromochloroacetic acid	2.3	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
585	HAA	Bromodichloroacetic acid	2.7	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
586	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
587	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
588	HAA	Dichloroacetic acid	3.8	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
589	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
590	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/21/98	1/26/98	1/29/98	MW72493
591	HAA	Tribromoacetic acid	ND	µg/L	SM 6251 B	1	4.0	1/21/98	1/26/98	1/29/98	MW72493
592	HAA	Trichloroacetic acid	1.6	µg/L	SM 6251 B	1	1.0	1/21/98	1/26/98	1/29/98	MW72493
593	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/21/98	n/a
594	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
595	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
596	TEMP	Cl2 Temperature	12.9	ºC	SM 2550 B	1	n/a	1/19/98		1/21/98	n/a
597	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	1/19/98		1/19/98	n/a
598	TIME	Cl2 Incubation Time	47.9	hrs	n/a	1	n/a	1/19/98		1/21/98	n/a
599	TOC-ICR	TOC	0.91	mg/L	SM 5310 C	1	0.50	1/19/98		1/19/98	7-0-165
600	TOC-ICR	TOC (Dupl)	0.89	mg/L	SM 5310 C	1	0.50	1/19/98		1/19/98	7-0-165
			0.90	**mg/L**	**2.2 % RPD**						
601	TOX-ICR	TOX	34	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
602	TOX-ICR	TOX (Dupl)	32	µg Cl-/L	SM 5320 B	1	25	1/21/98		1/23/98	12-0-87
			33	**µg Cl-/L**	**6.1 % RPD**						
603	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.8	%	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
604	THM-ICR	Bromodichloromethane	3.0	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
605	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
606	THM-ICR	Chloroform	2.3	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
607	THM-ICR	Dibromochloromethane	2.4	µg/L	EPA 551.1	1	1.0	1/21/98	1/22/98	1/22/98	0-76-0
608	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	1/19/98		1/19/98	8-0-117
609	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	1/19/98		1/19/98	8-0-117
			ND	**1/cm**							

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

Sample ID: 104.20.EFF-15 **S&H ID:** 9801-84 **Date Sampled:** 1/19/98 9:45:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
610	Cl2Dose	Chlorine Dose	2.17	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/20/98		1/20/98	n/a
611	Cl2Res	Chlorine Residual	1.43	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/20/98		1/22/98	n/a
612	HAA	Bromochloroacetic acid	2.5	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
613	HAA	Bromodichloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
614	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
615	HAA	Dichloroacetic acid	3.9	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
616	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
617	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/22/98	1/27/98	1/28/98	MW72421
618	HAA	Trichloroacetic acid	2.3	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
619	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/20/98		1/22/98	n/a
620	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/20/98		1/20/98	n/a
621	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	1/19/98		1/19/98	n/a
622	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	1/20/98		1/22/98	n/a
623	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	1/19/98		1/19/98	n/a
624	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	1/20/98		1/22/98	n/a
625	TOC-ICR	TOC	1.05	mg/L	SM 5310 C	1	0.50	1/19/98		1/20/98	7-0-166
626	TOC-ICR	TOC (Dupl)	1.01	mg/L	SM 5310 C	1	0.50	1/19/98		1/20/98	7-0-166
			1.03	**mg/L**	**3.9 % RPD**						
627	TOX-ICR	TOX	48	µg Cl-/L	SM 5320 B	1	25	1/22/98		1/26/98	12-0-88
628	TOX-ICR	TOX (Dupl)	46	µg Cl-/L	SM 5320 B	1	25	1/22/98		1/26/98	12-0-88
			47	**µg Cl-/L**	**4.3 % RPD**						
629	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.2	%	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
630	THM-ICR	Bromodichloromethane	4.6	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
631	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
632	THM-ICR	Chloroform	4.0	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
633	THM-ICR	Dibromochloromethane	3.0	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
634	UV-ICR	UV	0.010	1/cm	SM 5910 B	1	0.009	1/19/98		1/20/98	8-0-118
635	UV-ICR	UV (Dupl)	0.010	1/cm	SM 5910 B	1	0.009	1/19/98		1/20/98	8-0-118
			0.010	**1/cm**	**0.0 % RPD**						

Sample ID: 104.Inf.A-2 **S&H ID:** 9801-86 **Date Sampled:** 1/20/98 7:55:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
636	ALK	Alkalinity	45	mg/L	SM 2320 B	1	5	1/20/98		1/20/98	1-0-12
637	ALK	Alkalinity (Dupl)	46	mg/L	SM 2320 B	1	5	1/20/98		1/20/98	1-0-12
			46	**mg/L**	**2.2 % RPD**						
638	NH3	Ammonia Nitrogen	ND	mg/L	EPA 350.1	1	0.05	1/20/98		2/4/98	MW72553
639	BR	Bromide	ND	mg/L	EPA 300.0 A	1	0.020	1/20/98		2/3/98	MW72528

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

640	CaHard	Calcium Hardness	79	mg/L CaCO3	SM 3500-Ca D	1	10	1/20/98		1/20/98	33-0-12
641	CaHard	Calcium Hardness (Dupl)	80	mg/L CaCO3	SM 3500-Ca D	1	10	1/20/98		1/20/98	33-0-12
			80	**mg/L CaCO3**	**1.3 % RPD**						
642	TotHard	Total Hardness	106	mg/L CaCO3	SM 2340 C	1	5	1/20/98		1/20/98	3-0-12
643	TotHard	Total Hardness (Dupl)	106	mg/L CaCO3	SM 2340 C	1	5	1/20/98		1/20/98	3-0-12
			106	**mg/L CaCO3**	**0.0 % RPD**						

Sample ID: 104.Inf.B-3 **S&H ID:** 9801-87 **Date Sampled:** 1/20/98 8:00:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
644	Cl2Dose	Chlorine Dose	3.45	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/20/98		1/20/98	n/a
645	Cl2Res	Chlorine Residual	1.42	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/20/98		1/22/98	n/a
646	HAA	Bromochloroacetic acid	4.0	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
647	HAA	Bromodichloroacetic acid	9.8	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
648	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
649	HAA	Dichloroacetic acid	19.0	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
650	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
651	HAA	Monochloroacetic acid	2.4	µg/L	SM 6251 B	1	2.0	1/22/98	1/27/98	1/28/98	MW72421
652	HAA	Trichloroacetic acid	27.0	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
653	pH	Cl2 pH - Final	7.3	Unit	SM 4500-H+ B	1	n/a	1/20/98		1/22/98	n/a
654	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/20/98		1/20/98	n/a
655	pH	pH	7.1	Unit	SM 4500-H+ B	1	n/a	1/20/98		1/20/98	n/a
656	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	1/20/98		1/22/98	n/a
657	TEMP	Temperature	17.4	ºC	SM 2550 B	1	n/a	1/20/98		1/20/98	n/a
658	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	1/20/98		1/22/98	n/a
659	TOC-ICR	TOC	2.60	mg/L	SM 5310 C	1	0.50	1/20/98		1/20/98	7-0-166
660	TOC-ICR	TOC (Dupl)	2.52	mg/L	SM 5310 C	1	0.50	1/20/98		1/20/98	7-0-166
			2.56	**mg/L**	**3.1 % RPD**						
661	TOX-ICR	TOX	246	µg Cl-/L	SM 5320 B	1	25	1/22/98		1/26/98	12-0-88
662	TOX-ICR	TOX (Dupl)	235	µg Cl-/L	SM 5320 B	1	25	1/22/98		1/26/98	12-0-88
			241	**µg Cl-/L**	**4.6 % RPD**						
663	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.0	%	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
664	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	98.8	%	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
			99.4	**%**	**1.2 % RPD**						
665	THM-ICR	Bromodichloromethane	10.6	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
666	THM-ICR	Bromodichloromethane (Lab Dupl)	10.5	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
			10.6	**µg/L**	**0.9 % RPD**						
667	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
668	THM-ICR	Bromoform (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
			ND	**µg/L**							

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

669	THM-ICR	Chloroform	39.3	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
670	THM-ICR	Chloroform (Lab Dupl)	39.2	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
			39.3	**µg/L**	**0.3 % RPD**						
671	THM-ICR	Dibromochloromethane	1.5	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
672	THM-ICR	Dibromochloromethane (Lab Dupl)	1.5	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
			1.5	**µg/L**	**0.0 % RPD**						
673	TURB	Turbidity	0.05	ntu	SM 2130 B	1	0.05	1/20/98		1/20/98	9-0-7
674	UV-ICR	UV	0.054	1/cm	SM 5910 B	1	0.009	1/20/98		1/20/98	8-0-118
675	UV-ICR	UV (Dupl)	0.055	1/cm	SM 5910 B	1	0.009	1/20/98		1/20/98	8-0-118
			0.055	**1/cm**	**1.8 % RPD**						

Sample ID: 104.20.Eff-17 **S&H ID:** 9801-96 **Date Sampled:** 1/20/98 10:46:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
676	Cl2Dose	Chlorine Dose	2.25	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/20/98		1/20/98	n/a
677	Cl2Res	Chlorine Residual	1.45	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/20/98		1/22/98	n/a
678	HAA	Bromochloroacetic acid	3.0	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
679	HAA	Bromodichloroacetic acid	4.9	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
680	HAA	Dibromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
681	HAA	Dichloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
682	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
683	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/22/98	1/27/98	1/28/98	MW72421
684	HAA	Trichloroacetic acid	3.4	µg/L	SM 6251 B	1	1.0	1/22/98	1/27/98	1/28/98	MW72421
685	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/20/98		1/22/98	n/a
686	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/20/98		1/20/98	n/a
687	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	1/20/98		1/20/98	n/a
688	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	1/20/98		1/22/98	n/a
689	TEMP	Temperature	22.1	ºC	SM 2550 B	1	n/a	1/20/98		1/20/98	n/a
690	TIME	Cl2 Incubation Time	48.3	hrs	n/a	1	n/a	1/20/98		1/22/98	n/a
691	TOC-ICR	TOC	1.15	mg/L	SM 5310 C	1	0.50	1/20/98		1/20/98	7-0-166
692	TOC-ICR	TOC (Dupl)	1.14	mg/L	SM 5310 C	1	0.50	1/20/98		1/20/98	7-0-166
			1.15	**mg/L**	**0.9 % RPD**						
693	TOX-ICR	TOX	66	µg Cl-/L	SM 5320 B	1	25	1/22/98		1/26/98	12-0-88
694	TOX-ICR	TOX (Dupl)	60	µg Cl-/L	SM 5320 B	1	25	1/22/98		1/26/98	12-0-88
			63	**µg Cl-/L**	**9.5 % RPD**						
695	THM-ICR	1,2,3-Trichloropropane (Surrogate)	89.6	%	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
696	THM-ICR	Bromodichloromethane	5.3	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
697	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
698	THM-ICR	Chloroform	5.4	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0
699	THM-ICR	Dibromochloromethane	3.2	µg/L	EPA 551.1	1	1.0	1/22/98	1/27/98	1/27/98	0-77-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

700	UV-ICR	UV	0.012	1/cm	SM 5910 B	1	0.009	1/20/98		1/20/98	8-0-118
701	UV-ICR	UV (Dupl)	0.012	1/cm	SM 5910 B	1	0.009	1/20/98		1/20/98	8-0-118
			0.012	**1/cm**	**0.0 % RPD**						

Sample ID: 104.10.Eff-21 **S&H ID:** 9801-97 **Date Sampled:** 1/20/98 10:25:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
702	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	1/20/98		1/20/98	n/a
703	TEMP	Temperature	21.9	ºC	SM 2550 B	1	n/a	1/20/98		1/20/98	n/a
704	TOC-ICR	TOC	2.06	mg/L	SM 5310 C	1	0.50	1/20/98		1/20/98	7-0-166
705	TOC-ICR	TOC (Dupl)	2.03	mg/L	SM 5310 C	1	0.50	1/20/98		1/20/98	7-0-166
			2.04	**mg/L**	**1.5 % RPD**						

Sample ID: 104.20.Eff-21 **S&H ID:** 9801-107 **Date Sampled:** 1/21/98 12:37:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
706	Cl2Dose	Chlorine Dose	2.28	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/22/98		1/22/98	n/a
707	Cl2Res	Chlorine Residual	1.40	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/22/98		1/24/98	n/a
708	HAA	Bromochloroacetic acid	2.8	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
709	HAA	Bromodichloroacetic acid	4.6	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
710	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/24/98	1/30/98	2/3/98	MW72557
711	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
712	HAA	Dichloroacetic acid	4.3	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
713	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
714	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/24/98	1/30/98	2/3/98	MW72557
715	HAA	Trichloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
716	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/22/98		1/24/98	n/a
717	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/22/98		1/22/98	n/a
718	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	1/21/98		1/21/98	n/a
719	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	1/22/98		1/24/98	n/a
720	TEMP	Temperature	21.9	ºC	SM 2550 B	1	n/a	1/21/98		1/21/98	n/a
721	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	1/22/98		1/24/98	n/a
722	TOC-ICR	TOC	1.28	mg/L	SM 5310 C	1	0.50	1/21/98		1/21/98	7-0-167
723	TOC-ICR	TOC (Dupl)	1.25	mg/L	SM 5310 C	1	0.50	1/21/98		1/21/98	7-0-167
			1.27	**mg/L**	**2.4 % RPD**						
724	TOX-ICR	TOX	69	µg Cl-/L	SM 5320 B	1	25	1/24/98		1/26/98	12-0-88
725	TOX-ICR	TOX (Dupl)	71	µg Cl-/L	SM 5320 B	1	25	1/24/98		1/26/98	12-0-88
			70	**µg Cl-/L**	**2.9 % RPD**						
726	THM-ICR	1,2,3-Trichloropropane (Surrogate)	87.6	%	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
727	THM-ICR	Bromodichloromethane	6.5	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
728	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

729	THM-ICR	Chloroform	7.7	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
730	THM-ICR	Dibromochloromethane	3.2	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
731	UV-ICR	UV	0.015	1/cm	SM 5910 B	1	0.009	1/21/98		1/21/98	8-0-119
732	UV-ICR	UV (Dupl)	0.015	1/cm	SM 5910 B	1	0.009	1/21/98		1/21/98	8-0-119
			0.015	**1/cm**	**0.0 % RPD**						

Sample ID: 104.20.Eff-21d **S&H ID:** 9801-108 **Date Sampled:** 1/21/98 12:37:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
733	Cl2Dose	Chlorine Dose	2.28	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/22/98		1/22/98	n/a
734	Cl2Res	Chlorine Residual	1.34	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/22/98		1/24/98	n/a
735	HAA	Bromochloroacetic acid	2.9	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
736	HAA	Bromodichloroacetic acid	4.5	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
737	HAA	Chlorodibromoacetic acid	3.0	µg/L	SM 6251 B	1	2.0	1/24/98	1/30/98	2/3/98	MW72557
738	HAA	Dibromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
739	HAA	Dichloroacetic acid	4.4	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
740	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
741	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/24/98	1/30/98	2/3/98	MW72557
742	HAA	Trichloroacetic acid	5.1	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
743	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/22/98		1/24/98	n/a
744	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/22/98		1/22/98	n/a
745	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	1/21/98		1/21/98	n/a
746	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	1/22/98		1/24/98	n/a
747	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	1/21/98		1/21/98	n/a
748	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	1/22/98		1/24/98	n/a
749	TOC-ICR	TOC	1.29	mg/L	SM 5310 C	1	0.50	1/21/98		1/21/98	7-0-167
750	TOC-ICR	TOC (Dupl)	1.27	mg/L	SM 5310 C	1	0.50	1/21/98		1/21/98	7-0-167
			1.28	**mg/L**	**1.6 % RPD**						
751	TOX-ICR	TOX	77	µg Cl-/L	SM 5320 B	1	25	1/24/98		1/26/98	12-0-88
752	TOX-ICR	TOX (Dupl)	78	µg Cl-/L	SM 5320 B	1	25	1/24/98		1/26/98	12-0-88
			78	**µg Cl-/L**	**1.3 % RPD**						
753	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.8	%	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
754	THM-ICR	Bromodichloromethane	6.6	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
755	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
756	THM-ICR	Chloroform	7.8	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
757	THM-ICR	Dibromochloromethane	3.3	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
758	UV-ICR	UV	0.015	1/cm	SM 5910 B	1	0.009	1/21/98		1/21/98	8-0-119
759	UV-ICR	UV (Dupl)	0.015	1/cm	SM 5910 B	1	0.009	1/21/98		1/21/98	8-0-119
			0.015	**1/cm**	**0.0 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

Sample ID: 104.INF.B-4 **S&H ID:** 9801-112 **Date Sampled:** 1/22/98 1:30:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
760	TOC-ICR	TOC	2.61	mg/L	SM 5310 C	1	0.50	1/22/98		1/22/98	7-0-168
761	TOC-ICR	TOC (Dupl)	2.63	mg/L	SM 5310 C	1	0.50	1/22/98		1/22/98	7-0-168
			2.62	**mg/L**	**0.8 % RPD**						

Sample ID: 104.20.Eff-24 **S&H ID:** 9801-113 **Date Sampled:** 1/22/98 2:53:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
762	Cl2Dose	Chlorine Dose	2.38	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/22/98		1/22/98	n/a
763	Cl2Res	Chlorine Residual	1.37	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/22/98		1/24/98	n/a
764	HAA	Bromochloroacetic acid	3.1	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
765	HAA	Bromodichloroacetic acid	5.7	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
766	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/24/98	1/30/98	2/3/98	MW72557
767	HAA	Dibromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
768	HAA	Dichloroacetic acid	5.3	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
769	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
770	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/24/98	1/30/98	2/3/98	MW72557
771	HAA	Trichloroacetic acid	6.0	µg/L	SM 6251 B	1	1.0	1/24/98	1/30/98	2/3/98	MW72557
772	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/22/98		1/24/98	n/a
773	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/22/98		1/22/98	n/a
774	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	1/22/98		1/22/98	n/a
775	TEMP	Cl2 Temperature	13.0	ºC	SM 2550 B	1	n/a	1/22/98		1/24/98	n/a
776	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	1/22/98		1/22/98	n/a
777	TIME	Cl2 Incubation Time	48.2	hrs	n/a	1	n/a	1/22/98		1/24/98	n/a
778	TOC-ICR	TOC	1.42	mg/L	SM 5310 C	1	0.50	1/22/98		1/22/98	7-0-168
779	TOC-ICR	TOC (Dupl)	1.45	mg/L	SM 5310 C	1	0.50	1/22/98		1/22/98	7-0-168
			1.44	**mg/L**	**2.1 % RPD**						
780	TOX-ICR	TOX	89	µg Cl-/L	SM 5320 B	1	25	1/24/98		1/26/98	12-0-88
781	TOX-ICR	TOX (Dupl)	87	µg Cl-/L	SM 5320 B	1	25	1/24/98		1/26/98	12-0-88
			88	**µg Cl-/L**	**2.3 % RPD**						
782	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.0	%	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
783	THM-ICR	Bromodichloromethane	7.2	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
784	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
785	THM-ICR	Chloroform	9.8	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
786	THM-ICR	Dibromochloromethane	3.1	µg/L	EPA 551.1	1	1.0	1/24/98	1/27/98	1/27/98	0-77-0
787	UV-ICR	UV	0.018	1/cm	SM 5910 B	1	0.009	1/22/98		1/23/98	8-0-120
788	UV-ICR	UV (Dupl)	0.018	1/cm	SM 5910 B	1	0.009	1/22/98		1/23/98	8-0-120
			0.018	**1/cm**	**0.0 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

Sample ID: 104.20.Eff-27 **S&H ID:** 9801-127 **Date Sampled:** 1/23/98 8:08:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
789	Cl2Dose	Chlorine Dose	2.50	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/25/98		1/25/98	n/a
790	Cl2Res	Chlorine Residual	1.42	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/25/98		1/27/98	n/a
791	HAA	Bromochloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
792	HAA	Bromodichloroacetic acid	6.6	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
793	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/27/98	2/4/98	2/8/98	MW72778
794	HAA	Dibromoacetic acid	1.0	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
795	HAA	Dichloroacetic acid	7.3	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
796	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
797	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/27/98	2/4/98	2/8/98	MW72778
798	HAA	Trichloroacetic acid	8.5	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
799	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/25/98		1/27/98	n/a
800	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/25/98		1/25/98	n/a
801	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	1/23/98		1/23/98	n/a
802	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	1/25/98		1/27/98	n/a
803	TEMP	Temperature	22.1	ºC	SM 2550 B	1	n/a	1/23/98		1/23/98	n/a
804	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	1/25/98		1/27/98	n/a
805	TOC-ICR	TOC	1.62	mg/L	SM 5310 C	1	0.50	1/23/98		1/24/98	7-0-170
806	TOC-ICR	TOC (Dupl)	1.58	mg/L	SM 5310 C	1	0.50	1/23/98		1/24/98	7-0-170
			1.60	**mg/L**	**2.5 % RPD**						
807	TOX-ICR	TOX	103	µg Cl-/L	SM 5320 B	1	25	1/27/98		2/3/98	12-0-89
808	TOX-ICR	TOX (Dupl)	105	µg Cl-/L	SM 5320 B	1	25	1/27/98		2/3/98	12-0-89
			104	**µg Cl-/L**	**1.9 % RPD**						
809	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.4	%	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
810	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	106.8	%	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
			104.6	**%**	**4.2 % RPD**						
811	THM-ICR	Bromodichloromethane	8.4	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
812	THM-ICR	Bromodichloromethane (Lab Dupl)	7.7	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
			8.1	**µg/L**	**8.6 % RPD**						
813	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
814	THM-ICR	Bromoform (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
			ND	**µg/L**							
815	THM-ICR	Chloroform	13.5	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
816	THM-ICR	Chloroform (Lab Dupl)	12.3	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
			12.9	**µg/L**	**9.3 % RPD**						
817	THM-ICR	Dibromochloromethane	3.2	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
818	THM-ICR	Dibromochloromethane (Lab Dupl)	3.0	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

			3.1	**µg/L**	**6.5 % RPD**						
819	UV-ICR	UV	0.021	1/cm	SM 5910 B	1	0.009	1/23/98		1/25/98	8-0-121
820	UV-ICR	UV (Dupl)	0.022	1/cm	SM 5910 B	1	0.009	1/23/98		1/25/98	8-0-121
			0.021	**1/cm**	**4.8 % RPD**						

Sample ID: 104.20.Eff-30 **S&H ID:** 9801-130 **Date Sampled:** 1/24/98 3:43:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
821	Cl2Dose	Chlorine Dose	2.59	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/25/98		1/25/98	n/a
822	Cl2Res	Chlorine Residual	1.40	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/25/98		1/27/98	n/a
823	HAA	Bromochloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
824	HAA	Bromodichloroacetic acid	7.3	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
825	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/27/98	2/4/98	2/8/98	MW72778
826	HAA	Dibromoacetic acid	1.1	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
827	HAA	Dichloroacetic acid	8.0	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
828	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
829	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	1/27/98	2/4/98	2/8/98	MW72778
830	HAA	Trichloroacetic acid	9.6	µg/L	SM 6251 B	1	1.0	1/27/98	2/4/98	2/8/98	MW72778
831	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/25/98		1/27/98	n/a
832	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/25/98		1/25/98	n/a
833	pH	pH	7.8	Unit	SM 4500-H+ B	1	n/a	1/24/98		1/24/98	n/a
834	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	1/25/98		1/27/98	n/a
835	TEMP	Temperature	22.2	ºC	SM 2550 B	1	n/a	1/24/98		1/24/98	n/a
836	TIME	Cl2 Incubation Time	48.0	hrs	n/a	1	n/a	1/25/98		1/27/98	n/a
837	TOC-ICR	TOC	1.73	mg/L	SM 5310 C	1	0.50	1/24/98		1/25/98	7-0-171
838	TOC-ICR	TOC (Dupl)	1.72	mg/L	SM 5310 C	1	0.50	1/24/98		1/25/98	7-0-171
			1.73	**mg/L**	**0.6 % RPD**						
839	TOX-ICR	TOX	101	µg Cl-/L	SM 5320 B	1	25	1/27/98		2/3/98	12-0-89
840	TOX-ICR	TOX (Dupl)	105	µg Cl-/L	SM 5320 B	1	25	1/27/98		2/3/98	12-0-89
			103	**µg Cl-/L**	**3.9 % RPD**						
841	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.6	%	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
842	THM-ICR	Bromodichloromethane	8.0	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
843	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
844	THM-ICR	Chloroform	13.4	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
845	THM-ICR	Dibromochloromethane	2.9	µg/L	EPA 551.1	1	1.0	1/27/98	2/2/98	2/2/98	0-78-0
846	UV-ICR	UV	0.023	1/cm	SM 5910 B	1	0.009	1/24/98		1/25/98	8-0-121
847	UV-ICR	UV (Dupl)	0.023	1/cm	SM 5910 B	1	0.009	1/24/98		1/25/98	8-0-121
			0.023	**1/cm**	**0.0 % RPD**						

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

Sample ID: 104.20.Eff-38 **S&H ID:** 9801-155 **Date Sampled:** 1/27/98 8:59:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
848	Cl2Dose	Chlorine Dose	2.59	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/31/98		1/31/98	n/a
849	Cl2Res	Chlorine Residual	1.48	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/31/98		2/2/98	n/a
850	HAA	Bromochloroacetic acid	3.8	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
851	HAA	Bromodichloroacetic acid	7.8	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
852	HAA	Chlorodibromoacetic acid	2.0	µg/L	SM 6251 B	1	2.0	2/2/98	2/5/98	2/12/98	MW73235
853	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
854	HAA	Dichloroacetic acid	9.8	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
855	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
856	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	2/2/98	2/5/98	2/12/98	MW73235
857	HAA	Trichloroacetic acid	14.0	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
858	pH	Cl2 pH - Final	7.5	Unit	SM 4500-H+ B	1	n/a	1/31/98		2/2/98	n/a
859	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/31/98		1/31/98	n/a
860	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	1/27/98		1/27/98	n/a
861	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	1/31/98		2/2/98	n/a
862	TEMP	Temperature	22.2	ºC	SM 2550 B	1	n/a	1/27/98		1/27/98	n/a
863	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	1/31/98		2/2/98	n/a
864	TOC-ICR	TOC	1.82	mg/L	SM 5310 C	1	0.50	1/27/98		1/27/98	7-0-173
865	TOC-ICR	TOC (Dupl)	1.80	mg/L	SM 5310 C	1	0.50	1/27/98		1/27/98	7-0-173
			1.81	**mg/L**	**1.1 % RPD**						
866	TOX-ICR	TOX	122	µg Cl-/L	SM 5320 B	1	25	2/2/98		2/3/98	12-0-89
867	TOX-ICR	TOX (Dupl)	124	µg Cl-/L	SM 5320 B	1	25	2/2/98		2/3/98	12-0-89
			123	**µg Cl-/L**	**1.6 % RPD**						
868	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.2	%	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
869	THM-ICR	Bromodichloromethane	8.4	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
870	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
871	THM-ICR	Chloroform	16.1	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
872	THM-ICR	Dibromochloromethane	2.7	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
873	UV-ICR	UV	0.028	1/cm	SM 5910 B	1	0.009	1/27/98		1/28/98	8-0-122
874	UV-ICR	UV (Dupl)	0.028	1/cm	SM 5910 B	1	0.009	1/27/98		1/28/98	8-0-122
			0.028	**1/cm**	**0.0 % RPD**						

Sample ID: 104.20.Eff-38d **S&H ID:** 9801-156 **Date Sampled:** 1/27/98 8:59:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
875	Cl2Dose	Chlorine Dose	2.58	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/31/98		1/31/98	n/a
876	Cl2Res	Chlorine Residual	1.29	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/31/98		2/2/98	n/a
877	HAA	Bromochloroacetic acid	3.5	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

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Akron Public Utilities Bureau

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878	HAA	Bromodichloroacetic acid	7.4	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
879	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	2/2/98	2/5/98	2/12/98	MW73235
880	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
881	HAA	Dichloroacetic acid	9.7	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
882	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
883	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	2/2/98	2/5/98	2/12/98	MW73235
884	HAA	Trichloroacetic acid	13.0	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
885	pH	Cl2 pH - Final	7.5	Unit	SM 4500-H+ B	1	n/a	1/31/98		2/2/98	n/a
886	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/31/98		1/31/98	n/a
887	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	1/27/98		1/27/98	n/a
888	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	1/31/98		2/2/98	n/a
889	TEMP	Temperature	22.2	ºC	SM 2550 B	1	n/a	1/27/98		1/27/98	n/a
890	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	1/31/98		2/2/98	n/a
891	TOC-ICR	TOC	1.78	mg/L	SM 5310 C	1	0.50	1/27/98		1/27/98	7-0-173
892	TOC-ICR	TOC (Dupl)	1.78	mg/L	SM 5310 C	1	0.50	1/27/98		1/27/98	7-0-173
			1.78	**mg/L**	**0.0 % RPD**						
893	TOX-ICR	TOX	133	µg Cl-/L	SM 5320 B	1	25	2/2/98		2/3/98	12-0-89
894	TOX-ICR	TOX (Dupl)	138	µg Cl-/L	SM 5320 B	1	25	2/2/98		2/3/98	12-0-89
			136	**µg Cl-/L**	**3.7 % RPD**						
895	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.4	%	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
896	THM-ICR	Bromodichloromethane	8.9	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
897	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
898	THM-ICR	Chloroform	16.9	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
899	THM-ICR	Dibromochloromethane	2.7	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
900	UV-ICR	UV	0.028	1/cm	SM 5910 B	1	0.009	1/27/98		1/28/98	8-0-122
901	UV-ICR	UV (Dupl)	0.028	1/cm	SM 5910 B	1	0.009	1/27/98		1/28/98	8-0-122
			0.028	**1/cm**	**0.0 % RPD**						

Sample ID: 104.Inf.B-5 **S&H ID:** 9801-157 **Date Sampled:** 1/27/98 8:55:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
902	TOC-ICR	TOC	2.69	mg/L	SM 5310 C	1	0.50	1/27/98		1/27/98	7-0-173
903	TOC-ICR	TOC (Dupl)	2.69	mg/L	SM 5310 C	1	0.50	1/27/98		1/27/98	7-0-173
			2.69	**mg/L**	**0.0 % RPD**						

Sample ID: 104.INF.B-6 **S&H ID:** 9801-169 **Date Sampled:** 1/29/98 2:10:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
904	Cl2Dose	Chlorine Dose	3.41	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/31/98		1/31/98	n/a
905	Cl2Res	Chlorine Residual	1.41	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/31/98		2/2/98	n/a
906	HAA	Bromochloroacetic acid	4.2	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
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907	HAA	Bromodichloroacetic acid	8.5	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
908	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	2/2/98	2/5/98	2/12/98	MW73235
909	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
910	HAA	Dichloroacetic acid	17.0	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
911	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
912	HAA	Monochloroacetic acid	2.2	µg/L	SM 6251 B	1	2.0	2/2/98	2/5/98	2/12/98	MW73235
913	HAA	Trichloroacetic acid	27.0	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
914	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/31/98		2/2/98	n/a
915	pH	Cl2 pH - Initial	7.3	Unit	SM 4500-H+ B	1	n/a	1/31/98		1/31/98	n/a
916	pH	pH	7.1	Unit	SM 4500-H+ B	1	n/a	1/29/98		1/29/98	n/a
917	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	1/31/98		2/2/98	n/a
918	TEMP	Temperature	18.6	ºC	SM 2550 B	1	n/a	1/29/98		1/29/98	n/a
919	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	1/31/98		2/2/98	n/a
920	TOC-ICR	TOC	2.57	mg/L	SM 5310 C	1	0.50	1/29/98		1/30/98	7-0-176
921	TOC-ICR	TOC (Dupl)	2.56	mg/L	SM 5310 C	1	0.50	1/29/98		1/30/98	7-0-176
			2.56	**mg/L**	**0.4 % RPD**						
922	TOX-ICR	TOX	244	µg Cl-/L	SM 5320 B	1	25	2/2/98		2/3/98	12-0-89
923	TOX-ICR	TOX (Dupl)	228	µg Cl-/L	SM 5320 B	1	25	2/2/98		2/3/98	12-0-89
			236	**µg Cl-/L**	**6.8 % RPD**						
924	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.0	%	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
925	THM-ICR	Bromodichloromethane	10.5	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
926	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
927	THM-ICR	Chloroform	36.7	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
928	THM-ICR	Dibromochloromethane	1.6	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
929	TURB	Turbidity	0.15	ntu	SM 2130 B	1	0.05	1/29/98		1/29/98	9-0-7
930	UV-ICR	UV	0.053	1/cm	SM 5910 B	1	0.009	1/29/98		1/30/98	8-0-123
931	UV-ICR	UV (Dupl)	0.053	1/cm	SM 5910 B	1	0.009	1/29/98		1/30/98	8-0-123
			0.053	**1/cm**	**0.0 % RPD**						

Sample ID: 104.20.Eff-40 **S&H ID:** 9801-173 **Date Sampled:** 1/29/98 4:52:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
932	Cl2Dose	Chlorine Dose	2.63	mg/L as Cl2	SM 4500-Cl B	1	n/a	1/31/98		1/31/98	n/a
933	Cl2Res	Chlorine Residual	1.23	mg/L as Cl2	SM 4500-Cl F	1	0.10	1/31/98		2/2/98	n/a
934	HAA	Bromochloroacetic acid	3.7	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
935	HAA	Bromodichloroacetic acid	7.5	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
936	HAA	Chlorodibromoacetic acid	ND	µg/L	SM 6251 B	1	2.0	2/2/98	2/5/98	2/12/98	MW73235
937	HAA	Dibromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
938	HAA	Dichloroacetic acid	11.0	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
939	HAA	Monobromoacetic acid	ND	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235

ND (non-detect): Result is below mininum reporting level (MRL). NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Bill Marchand
Akron Public Utilities Bureau

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940	HAA	Monochloroacetic acid	ND	µg/L	SM 6251 B	1	2.0	2/2/98	2/5/98	2/12/98	MW73235
941	HAA	Trichloroacetic acid	15.0	µg/L	SM 6251 B	1	1.0	2/2/98	2/5/98	2/12/98	MW73235
942	pH	Cl2 pH - Final	7.4	Unit	SM 4500-H+ B	1	n/a	1/31/98		2/2/98	n/a
943	pH	Cl2 pH - Initial	7.4	Unit	SM 4500-H+ B	1	n/a	1/31/98		1/31/98	n/a
944	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	1/29/98		1/29/98	n/a
945	TEMP	Cl2 Temperature	13.1	ºC	SM 2550 B	1	n/a	1/31/98		2/2/98	n/a
946	TEMP	Temperature	22.2	ºC	SM 2550 B	1	n/a	1/29/98		1/29/98	n/a
947	TIME	Cl2 Incubation Time	48.1	hrs	n/a	1	n/a	1/31/98		2/2/98	n/a
948	TOC-ICR	TOC	1.89	mg/L	SM 5310 C	1	0.50	1/29/98		1/30/98	7-0-176
949	TOC-ICR	TOC (Dupl)	1.92	mg/L	SM 5310 C	1	0.50	1/29/98		1/30/98	7-0-176
			1.90	**mg/L**	**1.6 % RPD**						
950	TOX-ICR	TOX	146	µg Cl-/L	SM 5320 B	1	25	2/2/98		2/3/98	12-0-89
951	TOX-ICR	TOX (Dupl)	135	µg Cl-/L	SM 5320 B	1	25	2/2/98		2/3/98	12-0-89
			141	**µg Cl-/L**	**7.8 % RPD**						
952	THM-ICR	1,2,3-Trichloropropane (Surrogate)	110.8	%	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
953	THM-ICR	Bromodichloromethane	9.4	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
954	THM-ICR	Bromoform	ND	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
955	THM-ICR	Chloroform	19.6	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
956	THM-ICR	Dibromochloromethane	2.7	µg/L	EPA 551.1	1	1.0	2/2/98	2/2/98	2/2/98	0-78-0
957	UV-ICR	UV	0.030	1/cm	SM 5910 B	1	0.009	1/29/98		1/30/98	8-0-123
958	UV-ICR	UV (Dupl)	0.030	1/cm	SM 5910 B	1	0.009	1/29/98		1/30/98	8-0-123
			0.030	**1/cm**	**0.0 % RPD**						

End of laboratory test results

ND (non-detect): Result is below mininum reporting level (MRL).

NR (not reportable): Result did not meet QC criteria.

Summers & Hooper, Inc.
6 Knollcrest Drive
Cincinnati, OH 45237
Phone: (513) 679-2200
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Quality Control Report

Mr. Bill Marchand
Civil Engineer
Akron Public Utilities Bureau
146 South High Street
P.O. Box 3665
Akron, OH 44309-3665

Phone: 330-375-2690 Fax: 330-375-2418

Study#: 104
Study Title: ICR RSSCT #4

Analysis: ALK (Alkalinity) **Method:** SM 2320 B

QC Batch ID: 1-0-12

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	100	97	mg/L	97%		01/12/98	9801-21	5		
Matrix Spike (Dupl)	Matrix Spike	100	97	mg/L	97%		01/12/98	9801-21	5		
		100	**97**	**mg/L**	**97%**	**0.0 %**					
Method Blank	Method Blank		ND*	mg/L			01/12/98	9801-16	5		
Standard	Standard	100	98	mg/L	98%		01/12/98	9801-15	5		
Standard (Dupl)	Standard	100	98	mg/L	98%		01/12/98	9801-15	5		
		100	**98**	**mg/L**	**98%**	**0.0 %**					
Matrix Spike	Matrix Spike	100	95	mg/L	95%		01/20/98	9801-86	5		
Matrix Spike (Dupl)	Matrix Spike	100	95	mg/L	95%		01/20/98	9801-86	5		
		100	**95**	**mg/L**	**95%**	**0.0 %**					
Method Blank	Method Blank		ND*	mg/L			01/20/98	9801-91	5		
Standard	Standard	100	100	mg/L	100%		01/20/98	9801-90	5		
Standard (Dupl)	Standard	100	99	mg/L	99%		01/20/98	9801-90	5		
		100	**99**	**mg/L**	**99%**	**1.0 %**					

Analysis: TotHard (Total Hardness) **Method:** SM 2340 C

QC Batch ID: 3-0-12

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	110	112	mg/L CaCO3	102%		01/12/98	9801-21	5		
Matrix Spike (Dupl)	Matrix Spike	110	114	mg/L CaCO3	104%		01/12/98	9801-21	5		
		110	**112**	**mg/L CaCO3**	**102%**	**1.8 %**					
Method Blank	Method Blank		ND*	mg/L CaCO3			01/12/98	9801-18	5		
Standard	Standard	100	99	mg/L CaCO3	99%		01/12/98	9801-17	5	90-110%	
Standard (Dupl)	Standard	100	102	mg/L CaCO3	102%		01/12/98	9801-17	5	90-110%	
		100	**101**	**mg/L CaCO3**	**101%**	**3.0 %**				90-110%	10%
Matrix Spike	Matrix Spike	109	108	mg/L CaCO3	99%		01/20/98	9801-86	5		
Matrix Spike (Dupl)	Matrix Spike	109	110	mg/L CaCO3	101%		01/20/98	9801-86	5		
		109	**109**	**mg/L CaCO3**	**100%**	**1.8 %**					
Method Blank	Method Blank		ND*	mg/L CaCO3			01/20/98	9801-93	5		
Standard	Standard	100	100	mg/L CaCO3	100%		01/20/98	9801-92	5	90-110%	
Standard (Dupl)	Standard	100	100	mg/L CaCO3	100%		01/20/98	9801-92	5	90-110%	
		100	**100**	**mg/L CaCO3**	**100%**	**0.0 %**				90-110%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Quality Control Report

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-156

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.03	mg/L	101%		9801-1	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.87	mg/L	97%		9801-1	0.5		
		4.00	**3.95**	**mg/L**	**99%**	**4.1 %**				
Method Blank	Method Blank		ND*	mg/L			9801-10	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-10	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.43	mg/L	86%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.43	mg/L	86%		9801-5	0.5	50-150%	
		0.50	**0.43**	**mg/L**	**86%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.88	mg/L	97%		9801-6	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.90	mg/L	97%		9801-6	0.5	90-110%	
		4.00	**3.89**	**mg/L**	**97%**	**0.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-157

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.81	mg/L	95%		9801-2	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.84	mg/L	96%		9801-2	0.5		
		4.00	**3.83**	**mg/L**	**96%**	**0.8 %**				
Method Blank	Method Blank		ND*	mg/L			9801-12	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-12	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.49	mg/L	98%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.49	mg/L	98%		9801-5	0.5	50-150%	
		0.50	**0.49**	**mg/L**	**98%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.93	mg/L	98%		9801-6	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.98	mg/L	100%		9801-6	0.5	90-110%	
		4.00	**3.96**	**mg/L**	**99%**	**1.3 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-158

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.98	mg/L	100%		9801-22	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.87	mg/L	97%		9801-22	0.5		
		4.00	**3.93**	**mg/L**	**98%**	**3.1 %**				
Method Blank	Method Blank		ND*	mg/L			9801-14	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-14	0.5		
			ND*	**mg/L**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Akron Public Utilities Bureau

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Standard	Standard	0.50	0.48	mg/L	96%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.50	mg/L	100%		9801-5	0.5	50-150%	
		0.50	**0.49**	**mg/L**	**98%**	**4.1 %**			50-150%	20%
Standard	Standard	4.00	4.10	mg/L	102%		9801-6	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.04	mg/L	101%		9801-6	0.5	90-110%	
		4.00	**4.07**	**mg/L**	**102%**	**1.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-160

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.88	mg/L	97%		9801-33	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.87	mg/L	97%		9801-33	0.5		
		4.00	**3.87**	**mg/L**	**97%**	**0.3 %**				
Method Blank	Method Blank		ND*	mg/L			9801-34	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-34	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9801-5	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**3.8 %**			50-150%	20%
Standard	Standard	4.00	3.94	mg/L	98%		9801-6	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.94	mg/L	98%		9801-6	0.5	90-110%	
		4.00	**3.94**	**mg/L**	**98%**	**0.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-161

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.97	mg/L	99%		9801-39	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.98	mg/L	100%		9801-39	0.5		
		4.00	**3.98**	**mg/L**	**100%**	**0.5 %**				
Method Blank	Method Blank		ND*	mg/L			9801-42	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-42	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9801-5	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.95	mg/L	99%		9801-6	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.98	mg/L	100%		9801-6	0.5	90-110%	
		4.00	**3.96**	**mg/L**	**99%**	**0.8 %**			90-110%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Summers & Hooper, Inc.
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Quality Control Report

Mr. Bill Marchand
Akron Public Utilities Bureau

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Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-162

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	3.90	mg/L	97%		9801-51	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.01	mg/L	100%		9801-51	0.5		
		4.00	**3.95**	**mg/L**	**99%**	**2.8 %**				
Method Blank	Method Blank		ND*	mg/L			9801-53	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-53	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9801-5	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**3.8 %**			50-150%	20%
Standard	Standard	4.00	3.95	mg/L	99%		9801-6	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.99	mg/L	100%		9801-6	0.5	90-110%	
		4.00	**3.97**	**mg/L**	**99%**	**1.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-163

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.01	mg/L	100%		9801-56	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.03	mg/L	101%		9801-56	0.5		
		4.00	**4.02**	**mg/L**	**100%**	**0.7 %**				
Method Blank	Method Blank		ND*	mg/L			9801-55	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-55	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.49	mg/L	98%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.49	mg/L	98%		9801-5	0.5	50-150%	
		0.50	**0.49**	**mg/L**	**98%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.06	mg/L	101%		9801-6	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.99	mg/L	100%		9801-6	0.5	90-110%	
		4.00	**4.03**	**mg/L**	**101%**	**1.7 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-164

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	3.98	mg/L	100%		9801-68	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.07	mg/L	102%		9801-68	0.5		
		4.00	**4.02**	**mg/L**	**100%**	**2.2 %**				
Method Blank	Method Blank		ND*	mg/L			9801-70	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-70	0.5		
			ND*	**mg/L**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	0.50	0.49	mg/L	98%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.50	mg/L	100%		9801-5	0.5	50-150%	
		0.50	**0.50**	**mg/L**	**100%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	4.03	mg/L	101%		9801-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.01	mg/L	100%		9801-62	0.5	90-110%	
		4.00	**4.02**	**mg/L**	**100%**	**0.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-165

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.10	mg/L	102%		9801-74	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.11	mg/L	103%		9801-74	0.5		
		4.00	**4.11**	**mg/L**	**103%**	**0.0 %**				
Method Blank	Method Blank		ND*	mg/L			9801-77	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-77	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9801-5	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.06	mg/L	101%		9801-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.01	mg/L	100%		9801-62	0.5	90-110%	
		4.00	**4.03**	**mg/L**	**101%**	**1.2 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-166

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.01	mg/L	100%		9801-85	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.11	mg/L	103%		9801-85	0.5		
		4.00	**4.06**	**mg/L**	**101%**	**2.7 %**				
Method Blank	Method Blank		ND*	mg/L			9801-88	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-88	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.51	mg/L	102%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.57	mg/L	114%		9801-5	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**11.1 %**			50-150%	20%
Standard	Standard	4.00	4.01	mg/L	100%		9801-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.96	mg/L	99%		9801-62	0.5	90-110%	
		4.00	**3.98**	**mg/L**	**100%**	**1.3 %**			90-110%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-167

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.01	mg/L	100%		9801-99	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.11	mg/L	103%		9801-99	0.5		
		4.00	**4.06**	**mg/L**	**101%**	**2.7 %**				
Method Blank	Method Blank		ND*	mg/L			9801-102	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-102	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.55	mg/L	110%		9801-5	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**3.7 %**			50-150%	20%
Standard	Standard	4.00	4.07	mg/L	102%		9801-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.99	mg/L	100%		9801-62	0.5	90-110%	
		4.00	**4.03**	**mg/L**	**101%**	**2.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-168

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.88	mg/L	97%		9801-111	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.95	mg/L	99%		9801-111	0.5		
		4.00	**3.91**	**mg/L**	**98%**	**1.5 %**				
Method Blank	Method Blank		ND*	mg/L			9801-114	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-114	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.48	mg/L	96%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.48	mg/L	96%		9801-5	0.5	50-150%	
		0.50	**0.48**	**mg/L**	**96%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.89	mg/L	97%		9801-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.92	mg/L	98%		9801-62	0.5	90-110%	
		4.00	**3.90**	**mg/L**	**97%**	**0.8 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-170

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.03	mg/L	101%		9801-128	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.04	mg/L	101%		9801-128	0.5		
		4.00	**4.03**	**mg/L**	**101%**	**0.2 %**				
Method Blank	Method Blank		ND*	mg/L			9801-126	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-126	0.5		
			ND*	**mg/L**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	0.50	0.52	mg/L	104%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9801-5	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.01	mg/L	100%		9801-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.03	mg/L	101%		9801-62	0.5	90-110%	
		4.00	**4.02**	**mg/L**	**100%**	**0.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-171

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.91	mg/L	98%		9801-133	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.83	mg/L	96%		9801-133	0.5		
		4.00	**3.87**	**mg/L**	**97%**	**2.1 %**				
Method Blank	Method Blank		ND*	mg/L			9801-131	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-131	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9801-5	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.91	mg/L	98%		9801-62	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.96	mg/L	99%		9801-62	0.5	90-110%	
		4.00	**3.94**	**mg/L**	**98%**	**1.3 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-173

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.03	mg/L	101%		9801-153	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.98	mg/L	100%		9801-153	0.5		
		4.00	**4.01**	**mg/L**	**100%**	**1.2 %**				
Method Blank	Method Blank		ND*	mg/L			9801-151	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-151	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9801-5	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.00	mg/L	100%		9801-152	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.09	mg/L	102%		9801-152	0.5	90-110%	
		4.00	**4.04**	**mg/L**	**101%**	**2.2 %**			90-110%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-176

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	3.98	mg/L	100%		9801-177	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.09	mg/L	102%		9801-177	0.5		
		4.00	**4.03**	**mg/L**	**101%**	**2.7 %**				
Method Blank	Method Blank		ND*	mg/L			9801-187	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9801-187	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.51	mg/L	102%		9801-5	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.50	mg/L	100%		9801-5	0.5	50-150%	
		0.50	**0.51**	**mg/L**	**102%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	4.00	mg/L	100%		9801-152	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.96	mg/L	99%		9801-152	0.5	90-110%	
		4.00	**3.98**	**mg/L**	**100%**	**1.0 %**			90-110%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-112

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9801-25	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-25	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9801-25	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-25	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.009	1/cm	100%		9801-8	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9801-8	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.087	1/cm	99%		9801-9	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9801-9	0.009	85-115%	
		0.088	**0.087**	**1/cm**	**99%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-114

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9801-43	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-43	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9801-43	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-43	0.009		
			ND*	**1/cm**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	0.009	0.009	1/cm	100%		9801-8	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9801-8	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.091	1/cm	103%		9801-9	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.091	1/cm	103%		9801-9	0.009	85-115%	
		0.088	**0.091**	**1/cm**	**103%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-115

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Method Blank	Method Blank		ND*	1/cm			9801-54	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-54	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9801-54	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-54	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9801-8	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9801-8	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.087	1/cm	99%		9801-9	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9801-9	0.009	85-115%	
		0.088	**0.087**	**1/cm**	**99%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-116

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Method Blank	Method Blank		ND*	1/cm			9801-72	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-72	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9801-72	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-72	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9801-8	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9801-8	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.087	1/cm	99%		9801-9	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9801-9	0.009	85-115%	
		0.088	**0.088**	**1/cm**	**100%**	**1.1 %**			85-115%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-117

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9801-82	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-82	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9801-82	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-82	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9801-8	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9801-8	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**12.5 %**			75-125%	20%
Standard	Standard	0.088	0.088	1/cm	100%		9801-9	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9801-9	0.009	85-115%	
		0.088	**0.088**	**1/cm**	**100%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-118

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9801-89	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-89	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9801-89	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-89	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.009	1/cm	100%		9801-8	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9801-8	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.088	1/cm	100%		9801-9	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9801-9	0.009	85-115%	
		0.088	**0.088**	**1/cm**	**100%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-119

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9801-109	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-109	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9801-109	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-109	0.009		
			ND*	**1/cm**						

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	0.009	0.009	1/cm	100%		9801-8	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9801-8	0.009	75-125%	
		0.009	**0.009**	**1/cm**	**100%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.088	1/cm	100%		9801-9	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9801-9	0.009	85-115%	
		0.088	**0.088**	**1/cm**	**100%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-120

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9801-125	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-125	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9801-125	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-125	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9801-8	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9801-8	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.088	1/cm	100%		9801-9	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9801-9	0.009	85-115%	
		0.088	**0.088**	**1/cm**	**100%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-121

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9801-134	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-134	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9801-134	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-134	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9801-119	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9801-119	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.085	1/cm	97%		9801-120	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.085	1/cm	97%		9801-120	0.009	85-115%	
		0.088	**0.085**	**1/cm**	**97%**	**0.0 %**			85-115%	10%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-122

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9801-167	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-167	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9801-167	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-167	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9801-119	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9801-119	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.087	1/cm	99%		9801-120	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9801-120	0.009	85-115%	
		0.088	**0.087**	**1/cm**	**99%**	**1.1 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-123

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9801-188	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-188	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9801-188	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9801-188	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9801-119	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9801-119	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.086	1/cm	98%		9801-120	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.086	1/cm	98%		9801-120	0.009	85-115%	
		0.088	**0.086**	**1/cm**	**98%**	**0.0 %**			85-115%	10%

Analysis: TURB (Turbidity) **Method:** SM 2130 B

QC Batch ID: 9-0-7

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Standard	Standard	4.51	4.54	ntu	101%		01/12/98	9902-79	0.05		
Standard	Standard	4.51	4.53	ntu	100%		01/20/98	9902-79	0.05		
Standard	Standard	4.51	4.56	ntu	101%		01/29/98	9902-79	0.05		
Standard	Standard	4.51	4.55	ntu	101%		02/05/98	9902-79	0.05		
Standard	Standard	4.51	4.56	ntu	101%		02/13/98	9902-79	0.05		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard	Standard	4.51	4.54	ntu	101%	02/20/98	9902-79	0.05
Standard	Standard	4.51	4.54	ntu	101%	02/27/98	9902-79	0.05
Standard	Standard	4.51	4.56	ntu	101%	03/06/98	9902-79	0.05

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-85

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Standard - TCP Aqueous	Standard	25	28	µg Cl-/L	112%		9801-80	25	75-125%	
Standard - TCP Aqueous	Standard	200	208	µg Cl-/L	104%		9801-81	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9801-79	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-86

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Matrix Spike	Matrix Spike	200	186	µg Cl-/L	93%		9801-47	25		
Matrix Spike (Dupl)	Matrix Spike	200	182	µg Cl-/L	91%		9801-47	25		
		200	**184**	**µg Cl-/L**	**92%**	**2.2 %**				
Standard - TCP Aqueous	Standard	25	24	µg Cl-/L	96%		9801-105	25	75-125%	
Standard - TCP Aqueous	Standard	200	196	µg Cl-/L	98%		9801-106	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9801-104	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-87

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Standard - TCP Aqueous	Standard	25	27	µg Cl-/L	108%		9801-142	25	75-125%	
Standard - TCP Aqueous	Standard	200	209	µg Cl-/L	104%		9801-143	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9801-141	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-88

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Standard - TCP Aqueous	Standard	25	24	µg Cl-/L	96%		9801-146	25	75-125%	
Standard - TCP Aqueous	Standard	200	201	µg Cl-/L	100%		9801-147	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9801-145	25		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-89

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	203	µg Cl-/L	101%		9801-173	25		
Matrix Spike (Dupl)	Matrix Spike	200	208	µg Cl-/L	104%		9801-173	25		
		200	**205**	**µg Cl-/L**	**102%**	**2.4 %**				
Standard - TCP Aqueous	Standard	25	29	µg Cl-/L	116%		9802-36	25	75-125%	
Standard - TCP Aqueous	Standard	200	199	µg Cl-/L	100%		9802-37	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9802-35	25		

Analysis: CaHard (Calcium Hardness) **Method:** SM 3500-Ca D

QC Batch ID: 33-0-12

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	112	117	mg/L CaCO3	104%		01/12/98	9801-21	10		
Matrix Spike (Dupl)	Matrix Spike	112	112	mg/L CaCO3	100%		01/12/98	9801-21	10		
		112	**115**	**mg/L CaCO3**	**103%**	**4.3 %**					
Method Blank	Method Blank		ND*	mg/L CaCO3			01/12/98	9801-20	10		
Standard	Standard	100	99	mg/L CaCO3	99%		01/12/98	9801-19	10	90-110%	
Standard (Dupl)	Standard	100	100	mg/L CaCO3	100%		01/12/98	9801-19	10	90-110%	
		100	**100**	**mg/L CaCO3**	**100%**	**1.0 %**				90-110%	10%
Matrix Spike	Matrix Spike	112	111	mg/L CaCO3	99%		01/20/98	9801-86	10		
Matrix Spike (Dupl)	Matrix Spike	112	112	mg/L CaCO3	100%		01/20/98	9801-86	10		
		112	**111**	**mg/L CaCO3**	**99%**	**0.9 %**					
Method Blank	Method Blank		ND*	mg/L CaCO3			01/20/98	9801-95	10		
Standard	Standard	100	100	mg/L CaCO3	100%		01/20/98	9801-94	10	90-110%	
Standard (Dupl)	Standard	100	102	mg/L CaCO3	102%		01/20/98	9801-94	10	90-110%	
		100	**101**	**mg/L CaCO3**	**101%**	**2.0 %**				90-110%	10%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-76-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Bromodichloromethane	Duplicate	9.1	9.5	µg/L		4.3%	9801-69	1		
Bromodichloromethane	Matrix Spike	40.0	39.9	µg/L	100%		9801-45	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9801-115	1		
Bromodichloromethane	Secondary Source Std	20.0	20.5	µg/L	102%		9801-116	1	70-130%	
Bromodichloromethane	Standard	20.0	19.3	µg/L	97%		9801-117	1	80-120%	
Bromodichloromethane	Standard	20.0	18.9	µg/L	94%		9801-117	1	80-120%	
Bromodichloromethane	Standard	40.0	41.8	µg/L	104%		9801-118	1	80-120%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Bromoform	Duplicate	ND	ND	µg/L		NA	9801-69	1	
Bromoform	Matrix Spike	40.0	41.1	µg/L	103%		9801-45	1	
Bromoform	Method Blank		ND*	µg/L			9801-115	1	
Bromoform	Secondary Source Std	20.0	19.3	µg/L	97%		9801-116	1	70-130%
Bromoform	Standard	20.0	18.3	µg/L	92%		9801-117	1	80-120%
Bromoform	Standard	20.0	17.4	µg/L	87%		9801-117	1	80-120%
Bromoform	Standard	40.0	41.3	µg/L	103%		9801-118	1	80-120%
Chloroform	Duplicate	17.0	17.4	µg/L		2.3%	9801-69	1	
Chloroform	Matrix Spike	40.0	40.9	µg/L	102%		9801-45	1	
Chloroform	Method Blank		ND*	µg/L			9801-115	1	
Chloroform	Secondary Source Std	20.0	21.3	µg/L	106%		9801-116	1	70-130%
Chloroform	Standard	20.0	18.6	µg/L	93%		9801-117	1	80-120%
Chloroform	Standard	20.0	18.5	µg/L	93%		9801-117	1	80-120%
Chloroform	Standard	40.0	41.1	µg/L	103%		9801-118	1	80-120%
Dibromochloromethane	Duplicate	2.8	3.0	µg/L		6.9%	9801-69	1	
Dibromochloromethane	Matrix Spike	40.0	40.6	µg/L	102%		9801-45	1	
Dibromochloromethane	Method Blank		ND*	µg/L			9801-115	1	
Dibromochloromethane	Secondary Source Std	20.0	19.9	µg/L	99%		9801-116	1	70-130%
Dibromochloromethane	Standard	20.0	18.8	µg/L	94%		9801-117	1	80-120%
Dibromochloromethane	Standard	20.0	18.6	µg/L	93%		9801-117	1	80-120%
Dibromochloromethane	Standard	40.0	41.3	µg/L	103%		9801-118	1	80-120%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-77-0

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Bromodichloromethane	Duplicate	10.6	10.5	µg/L		0.9%	9801-87	1		
Bromodichloromethane	Matrix Spike	40.0	41.8	µg/L	104%		9801-107	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9801-160	1		
Bromodichloromethane	Standard	20.0	20.0	µg/L	100%		9801-161	1	80-120%	
Bromodichloromethane	Standard	40.0	42.2	µg/L	106%		9801-118	1	80-120%	
Bromoform	Duplicate	ND	ND	µg/L		NA	9801-87	1		
Bromoform	Matrix Spike	40.0	40.0	µg/L	100%		9801-107	1		
Bromoform	Method Blank		ND*	µg/L			9801-160	1		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Quality Control Report

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Bromoform	Standard	20.0	18.0	µg/L	90%		9801-161	1	80-120%
Bromoform	Standard	40.0	41.4	µg/L	103%		9801-118	1	80-120%
Chloroform	Duplicate	39.3	39.2	µg/L		0.3%	9801-87	1	
Chloroform	Matrix Spike	40.0	44.8	µg/L	112%		9801-107	1	
Chloroform	Method Blank		ND*	µg/L			9801-160	1	
Chloroform	Standard	20.0	20.6	µg/L	103%		9801-161	1	80-120%
Chloroform	Standard	40.0	42.4	µg/L	106%		9801-118	1	80-120%
Dibromochloromethane	Duplicate	1.5	1.5	µg/L		0.0%	9801-87	1	
Dibromochloromethane	Matrix Spike	40.0	39.3	µg/L	98%		9801-107	1	
Dibromochloromethane	Method Blank		ND*	µg/L			9801-160	1	
Dibromochloromethane	Standard	20.0	18.9	µg/L	94%		9801-161	1	80-120%
Dibromochloromethane	Standard	40.0	42.1	µg/L	105%		9801-118	1	80-120%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-78-0

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Bromodichloromethane	Duplicate	8.4	7.7	µg/L		8.7%	9801-127	1		
Bromodichloromethane	Matrix Spike	20.0	20.7	µg/L	103%		9801-130	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9802-22	1		
Bromodichloromethane	Standard	20.0	17.8	µg/L	89%		9802-23	1	80-120%	
Bromodichloromethane	Standard	40.0	41.3	µg/L	103%		9801-118	1	80-120%	
Bromoform	Duplicate	ND	ND	µg/L		NA	9801-127	1		
Bromoform	Matrix Spike	20.0	21.6	µg/L	108%		9801-130	1		
Bromoform	Method Blank		ND*	µg/L			9802-22	1		
Bromoform	Standard	20.0	16.7	µg/L	83%		9802-23	1	80-120%	
Bromoform	Standard	40.0	40.3	µg/L	101%		9801-118	1	80-120%	
Chloroform	Duplicate	13.5	12.3	µg/L		9.3%	9801-127	1		
Chloroform	Matrix Spike	20.0	22.3	µg/L	112%		9801-130	1		
Chloroform	Method Blank		ND*	µg/L			9802-22	1		
Chloroform	Standard	20.0	18.5	µg/L	93%		9802-23	1	80-120%	
Chloroform	Standard	40.0	40.4	µg/L	101%		9801-118	1	80-120%	
Dibromochloromethane	Duplicate	3.2	3.0	µg/L		6.5%	9801-127	1		
Dibromochloromethane	Matrix Spike	20.0	19.7	µg/L	98%		9801-130	1		
Dibromochloromethane	Method Blank		ND*	µg/L			9802-22	1		
Dibromochloromethane	Standard	20.0	17.2	µg/L	86%		9802-23	1	80-120%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Quality Control Report

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Dibromochloromethane	Standard	40.0	41.7	µg/L	104%	9801-118	1	80-120%

End of quality control report

Summers & Hooper, Inc.
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QC Results from Montgomery Watson Laboratories

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Study#: 104
Study Title: ICR RSSCT #4

QC Batch ID: 72015 **Report #:** 40016

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	6.4	6		6.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1	1	100.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	1	1.1	110.0%		(70 - 130)
DUP	Bromodichloroacetic acid	ND	1		0.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1	0.8	80.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	1	1.1	110.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2	2	100.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	22	110.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	2	2.5	125.0%		(70 - 130)
DUP	Dibromoacetic acid	6.1	6		2.0%	(0 - 20)
LCS1	Dibromoacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	1	1	100.0%		(70 - 130)
DUP	Dichloroacetic acid	5.2	4.9		6.0%	(0 - 20)
LCS1	Dichloroacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	1	1	100.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	1	1	100.0%		(70 - 130)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

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DUP	Monochloroacetic acid	2.1	2.9		32.0%	(0 - 20)
LCS1	Monochloroacetic acid	2	1.8	90.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	2	1.6	80.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4	2.8	70.0%		(50 - 150)
LCS2	Tribromoacetic acid	20	22	110.0%		(80 - 120)
MBLK	Tribromoacetic acid	ND	ND			
MS	Tribromoacetic acid	4	3.5	88.0%		(70 - 130)
DUP	Trichloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Trichloroacetic acid	1	1	100.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	1	1.1	110.0%		(70 - 130)

QC Batch ID: 72340 **Report #:** 40016

Analysis: NH3 **Method:** ML/EPA 350.1

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Ammonia Nitrogen	1	1.02	102.0%		(80 - 120)
LCS2	Ammonia Nitrogen	1	1.02	102.0%		(80 - 120)
MBLK	Ammonia Nitrogen	ND	ND			
MS	Ammonia Nitrogen	1	1.03	103.0%		(80 - 120)
MSD	Ammonia Nitrogen	1	1.08	108.0%		(80 - 120)

QC Batch ID: 72421 **Report #:** 40154

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	5.4	5.5		2.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1	1	100.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	32	34	106.0%		(70 - 130)
DUP	Bromodichloroacetic acid	8.7	8.5		2.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1	1	100.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	22	110.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	32	38	119.0%		(70 - 130)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

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Study Title: ICR RSSCT #4

DUP	Chlorodibromoacetic acid	NR	NR		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2	NR			(50 - 150)
LCS2	Chlorodibromoacetic acid	20	NR			(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	NR			
MS	Chlorodibromoacetic acid	32	NR			(70 - 130)
DUP	Dibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1	1	100.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	32	34	106.0%		(70 - 130)
DUP	Dichloroacetic acid	27	27		0.0%	(0 - 20)
LCS1	Dichloroacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	32	35	109.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1	1	100.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	32	35	109.0%		(70 - 130)
DUP	Monochloroacetic acid	2.2	2.1		5.0%	(0 - 20)
LCS1	Monochloroacetic acid	2	2	100.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	22	110.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	32	35	109.0%		(70 - 130)
DUP	Tribromoacetic acid	NR	NR		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4	NR			(50 - 150)
LCS2	Tribromoacetic acid	20	NR			(80 - 120)
MBLK	Tribromoacetic acid	ND	NR			
MS	Tribromoacetic acid	32	NR			(70 - 130)
DUP	Trichloroacetic acid	35	34		3.0%	(0 - 20)
LCS1	Trichloroacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	32	34	106.0%		(70 - 130)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

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Study#: 104
Study Title: ICR RSSCT #4

QC Batch ID: 72493 **Report #:** 40154

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	1	ND		0.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1	1	100.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	20	21	105.0%		(70 - 130)
DUP	Bromodichloroacetic acid	1.6	1.6		0.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1	1.3	130.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	20	21	105.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2	1.9	95.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	20	21	105.0%		(70 - 130)
DUP	Dibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1	1.2	120.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	20	21	105.0%		(70 - 130)
DUP	Dichloroacetic acid	17	18		6.0%	(0 - 20)
LCS1	Dichloroacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	20	21	105.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1	1	100.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	20	21	105.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2	1.8	90.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

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MS	Monochloroacetic acid	20	21	105.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4	2.3	58.0%		(50 - 150)
LCS2	Tribromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Tribromoacetic acid	ND	ND			
MS	Tribromoacetic acid	20	20	100.0%		(70 - 130)
DUP	Trichloroacetic acid	17	18		6.0%	(0 - 20)
LCS1	Trichloroacetic acid	1	1.2	120.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	20	20	100.0%		(70 - 130)

QC Batch ID: 72528 **Report #:** 40154

Analysis: BR **Method:** ML/EPA 300

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Bromide	0.02	0.022	110.0%		(50 - 150)
LCS2	Bromide	0.1	0.098	98.0%		(90 - 110)
MBLK	Bromide	ND	ND			(70 - 130)
MS	Bromide	0.1	0.093	93.0%		(70 - 130)
MSD	Bromide	0.1	0.093	93.0%		(70 - 130)

QC Batch ID: 72553 **Report #:** 40154

Analysis: NH3 **Method:** ML/EPA 350.1

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Ammonia Nitrogen	1	1.02	102.0%		(80 - 120)
LCS2	Ammonia Nitrogen	1	1.02	102.0%		(80 - 120)
MBLK	Ammonia Nitrogen	ND	ND			
MS	Ammonia Nitrogen	1	1.02	102.0%		(80 - 120)
MSD	Ammonia Nitrogen	1	1.02	102.0%		(80 - 120)

QC Batch ID: 72557 **Report #:** 40206

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	6	5.9		2.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	20	20	100.0%		(70 - 130)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

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DUP	Bromodichloroacetic acid	4.7	4.6		2.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1	1.3	130.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	19	95.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	20	20	100.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	3.4	3.3		3.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2	1.8	90.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	18	90.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	20	20	100.0%		(70 - 130)
DUP	Dibromoacetic acid	4.4	4.3		2.0%	(0 - 20)
LCS1	Dibromoacetic acid	1	1.1	110.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	19	95.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	20	20	100.0%		(70 - 130)
DUP	Dichloroacetic acid	7.9	7.6		4.0%	(0 - 20)
LCS1	Dichloroacetic acid	1	1	100.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	20	20	100.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1	1.1	110.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	20	21	105.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2	2.1	105.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	20	19	95.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	NR		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4	NR			(50 - 150)
LCS2	Tribromoacetic acid	20	NR			(80 - 120)
MBLK	Tribromoacetic acid	ND	NR			
MS	Tribromoacetic acid	20	NR			(70 - 130)
DUP	Trichloroacetic acid	2.5	2.6		4.0%	(0 - 20)
LCS1	Trichloroacetic acid	1	1	100.0%		(50 - 150)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

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LCS2	Trichloroacetic acid	20	19	95.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	20	20	100.0%		(70 - 130)

QC Batch ID: 72778 **Report #:** 40341

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	1	1		0.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1	1.1	110.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	20	21	105.0%		(70 - 130)
DUP	Bromodichloroacetic acid	1.7	1.7		0.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1	1.3	130.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	23	115.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	20	25	125.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Chlorodibromoacetic acid	2	1.7	85.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	23	115.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	20	27	135.0%		(70 - 130)
DUP	Dibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1	1.1	110.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	20	22	110.0%		(70 - 130)
DUP	Dichloroacetic acid	6.6	6.8		3.0%	(0 - 20)
LCS1	Dichloroacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	20	100.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	20	21	105.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1	1.1	110.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	19	95.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	20	20	100.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

LCS1	Monochloroacetic acid	2	2.1	105.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	18	90.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	20	20	100.0%		(70 - 130)
DUP	Tribromoacetic acid	NR	NR		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4	NR			(50 - 150)
LCS2	Tribromoacetic acid	20	NR			(80 - 120)
MBLK	Tribromoacetic acid	ND	NR			
MS	Tribromoacetic acid	20	NR			(70 - 130)
DUP	Trichloroacetic acid	5.3	5.4		2.0%	(0 - 20)
LCS1	Trichloroacetic acid	1	1.1	110.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	20	20	100.0%		(70 - 130)

QC Batch ID: 72780 **Report #:** 40016

Analysis: BR **Method:** ML/EPA 300

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Bromide	0.02	0.021	105.0%		(50 - 150)
LCS2	Bromide	0.1	0.099	99.0%		(90 - 110)
MBLK	Bromide	ND	ND			(70 - 130)
MS	Bromide	0.1	0.1	100.0%		(70 - 130)
MSD	Bromide	0.1	0.1	100.0%		(70 - 130)

QC Batch ID: 73235 **Report #:** 40341

Analysis: @HALOAC **Method:** ML/S6251B

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
DUP	Bromochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Bromochloroacetic acid	1	0.7	70.0%		(50 - 150)
LCS2	Bromochloroacetic acid	20	22	110.0%		(80 - 120)
MBLK	Bromochloroacetic acid	ND	ND			
MS	Bromochloroacetic acid	20	22	110.0%		(70 - 130)
DUP	Bromodichloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Bromodichloroacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Bromodichloroacetic acid	20	23	115.0%		(80 - 120)
MBLK	Bromodichloroacetic acid	ND	ND			
MS	Bromodichloroacetic acid	20	22	110.0%		(70 - 130)
DUP	Chlorodibromoacetic acid	ND	ND		0.0%	(0 - 20)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

LCS1	Chlorodibromoacetic acid	2	1.6	80.0%		(50 - 150)
LCS2	Chlorodibromoacetic acid	20	24	120.0%		(80 - 120)
MBLK	Chlorodibromoacetic acid	ND	ND			
MS	Chlorodibromoacetic acid	20	22	110.0%		(70 - 130)
DUP	Dibromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Dibromoacetic acid	1	0.9	90.0%		(50 - 150)
LCS2	Dibromoacetic acid	20	23	115.0%		(80 - 120)
MBLK	Dibromoacetic acid	ND	ND			
MS	Dibromoacetic acid	20	22	110.0%		(70 - 130)
DUP	Dichloroacetic acid	1.7	1.8		6.0%	(0 - 20)
LCS1	Dichloroacetic acid	1	0.8	80.0%		(50 - 150)
LCS2	Dichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Dichloroacetic acid	ND	ND			
MS	Dichloroacetic acid	20	21	105.0%		(70 - 130)
DUP	Monobromoacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monobromoacetic acid	1	1	100.0%		(50 - 150)
LCS2	Monobromoacetic acid	20	21	105.0%		(80 - 120)
MBLK	Monobromoacetic acid	ND	ND			
MS	Monobromoacetic acid	20	21	105.0%		(70 - 130)
DUP	Monochloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Monochloroacetic acid	2	1.6	80.0%		(50 - 150)
LCS2	Monochloroacetic acid	20	22	110.0%		(80 - 120)
MBLK	Monochloroacetic acid	ND	ND			
MS	Monochloroacetic acid	20	23	115.0%		(70 - 130)
DUP	Tribromoacetic acid	ND	NR		0.0%	(0 - 20)
LCS1	Tribromoacetic acid	4	NR			(50 - 150)
LCS2	Tribromoacetic acid	20	NR			(80 - 120)
MBLK	Tribromoacetic acid	ND	NR			
MS	Tribromoacetic acid	20	NR			(70 - 130)
DUP	Trichloroacetic acid	ND	ND		0.0%	(0 - 20)
LCS1	Trichloroacetic acid	1	0.8	80.0%		(50 - 150)
LCS2	Trichloroacetic acid	20	21	105.0%		(80 - 120)
MBLK	Trichloroacetic acid	ND	ND			
MS	Trichloroacetic acid	20	21	105.0%		(70 - 130)

End of MW QC report

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

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Comments

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Study#: 104
Study Title: ICR RSSCT #4

Study comments

The temperature was not recorded on the first influent sample. A second influent was taken later and the temperature was measured on it.

The 10 minute column broke through faster than expected. A 3-L sample at the third sampling point had to be split in order to obtain duplicate samples at either the third or fourth sampling point. The pH and temperature of the duplicate sample could not be taken, since the 3-L sample had been stored in the cold room prior to splitting.

Analysis comments

Analysis: Turbidity
Method: SM 2130 B

Reported turbidity data has been rounded following the requirements of SM 2130 B, reproduced in the table below (Standard Methods, 1995). Note that the reported digits are not necessarily significant.

Turbidity Range	Report to Nearest
0-1.0	0.05
1-10	0.1
10-40	1
40-100	5
100-400	10
400-1000	50
> 1000	100

QC comments

QCBatch: 0-86-0 **Description:** MW Labs Report # 40154

HAA TBAA and CDBAA results not reported for samples 9801-66, 9801-84, 9801-87, and 9801-96. From MW Labs: "Recovery outside range on Low and High LFB."

QCBatch: 0-87-0 **Description:** MW Labs Report # 40206

HAA TBAA results not reported for samples 9801-107, 9801-108, and 9801-113. From MW Labs: "Recovery outside range on Low LFB."

QCBatch: 0-93-0 **Description:** MW Labs Report # 40341

HAA TBAA results not reported for samples 9801-127, 9801-130, 9801-173, 9801-155, 9801-156, and 9801-169. From MW Labs: "Recovery outside range on Low LFB."

Comments

Mr. Bill Marchand
Akron Public Utilities Bureau

Study#: 104
Study Title: ICR RSSCT #4

End of comments