ICR Treatment Study
Summary Report

Sweetwater Authority

Robert A. Perdue Water Treatment Plant

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ICR Treatment Study Summary Report

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

Conducted during the period of 4/30/98 through 10/22/98

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Attachment: 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
EC	enhanced coagulation
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
NA_P	not applicable
NA_V	not available
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	specific ultraviolet absorbance, based on TOC
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 Robert A. Perdue Water Treatment Plant, operated by Sweetwater Authority. 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. A bituminous coal-based GAC manufactured by Calgon Carbon Corporation, F-400, was investigated. DBP formation by disinfection with free chlorine was simulated utilizing site-specific chlorination conditions designed to match distribution system conditions. 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.

The source water used by the Robert A. Perdue Water Treatment Plant is the Sweetwater Reservoir. Three sessions were conducted to evaluate the impact of seasonal variability in source water quality on DBP precursor control by GAC. During each session, two empty-bed contact times (EBCTs) were evaluated (10 and 20 minutes).

Based on compliance with Stage 1 or the placeholders for Stage 2 DBP maximum contaminant levels (MCLs), the formation of total trihalomethane (THM4) was the controlling parameter for determining GAC reactivation frequency. During all runs, the Stage 1 or placeholder for Stage 2 MCL for THM4 (with a 20 percent safety factor) was exceeded prior to that for the sum of five haloacetic acids (HAA5). To meet the Stage 1 MCL for THM4, GAC run times ranged from 10 to 19 days for 10 minute EBCT contactors and 29 to 44 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 prior to disinfection. Based on this configuration, GAC run times to meet Stage 1 MCLs ranged from 22 to 37 days using 10 minute EBCT contactors. For 20 minute EBCT contactors, run times ranged from 59 to 87 days. Run times to meet the placeholder for Stage 2 THM4 MCL ranged from 13 to 24 days for 10 minute EBCT contactors and 35 to 53 days for 20 minute EBCT contactors. All run times given reflect meeting the Stage 1 and placeholder for Stage 2 THM4 MCL with a 20 percent safety factor, 64 and 32 µg/L, respectively. Run times given in this report for compliance with Stage 1 and the placeholder for Stage 2 HAA5 MCL also incorporated a 20 percent safety factor, 48 and 24 µg/L, respectively.

The data produced by each RSSCT run was used to model the performance of multiple contactors operated in parallel staggered mode. 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. An integration of the logistic function yields a curve that simulates a blended effluent scenario. All breakthrough curves generated during this study were modeled using this approach to obtain an estimate of GAC run times assuming multiple contactor operation in parallel staggered mode.

The total costs for GAC treatment were estimated using an EPA model, which included capital and operation and maintenance (O&M) costs, based on GAC reactivation frequencies. For 10 minute EBCT contactors, the estimate for total costs for GAC treatment ranged from 50 to 83 cents/1,000 gal (163 to 271 $/acre-ft). For 20 minute EBCT contactors, total costs ranged from 61 to 83 cents/1,000 gal (198 to 271 $/acre-ft). The costs were high due to the relatively short reactivation frequencies. The costs for 20 minute EBCT contactors were higher due to the higher capital costs associated with the larger contactors.

In addition to the three RSSCT sessions designed to evaluate seasonal variability, the impact of enhanced coagulation (as described in the Stage 1 Disinfection Byproducts Rule) pretreatment on GAC performance was investigated. This study was conducted in parallel with the third seasonal variability session, and followed ICR protocol. The design and operation of the enhanced coagulation pretreatment RSSCTs allowed for a direct comparison between DBP precursor removal by GAC after conventional treatment and that after enhanced coagulation pretreatment. The plant ferric chloride dose during the third session was 16 mg/L; based on jar testing results, the enhanced coagulation dose was determined to be 25 mg/L sulfuric acid and 30 mg/L ferric chloride. These doses resulted in 28 percent total organic carbon (TOC) removal after coagulation (25 percent TOC removal is required based on plant source water and alkalinity). As compared to the conventionally treated water, the TOC concentration after enhanced coagulation was 18 percent lower, while the pH decreased from 7.7 to 6.8. Due to the lower influent TOC concentration and influent pH, GAC performance for DBP precursor removal was expected to improve, leading to longer run times. GAC run times to the placeholder for the Stage 2 THM4 MCL increased by 88 and 109 percent for 10 minute EBCT and 20 minute EBCT contactors, respectively. Under this operating scenario, the total costs for GAC treatment were 38 cents/1,000 gal (124 $/acre-ft) using 10 minute EBCT contactors, and 48 cents/1,000 gal (158 $/acre-ft) using 20 minute EBCT contactors. These costs represent an average 22 percent decrease over the costs for GAC adsorption after conventional treatment. The cost estimates do not include the costs due to additional chemical doses and sludge removal during coagulation.

A relative measure of GAC performance is the number of bed volumes to 50 percent 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 were compared to the BV_{50} of an average water, based on over 20 source waters for which the correlation was developed and at GAC influent pH values between 7 and 8, correlated to the influent TOC concentration, which is available in the literature. For the conventionally treated waters and 10 minute EBCT contactors, GAC performance based on BV_{50} values was similar to that for an average water. At a 20 minute EBCT, BV_{50} values averaged 33 percent higher. After enhanced coagulation, GAC performance by this measure improved

significantly: BV_{50} values were 61 and 103 higher than average for the 10 minute and 20 minute EBCT contactor, respectively. The lower influent pH values likely contributed to the improvement in GAC performance by this measure.

The bromide concentration measured during this study ranged from 200 to 335 µg/L, which is relatively high. These high bromide levels can yield higher concentrations of brominated DBP species, because of the high bromide to TOC ratio. In addition, 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 in the bromide to TOC ratio, DBPs formed in the GAC effluent may undergo shifts in speciation to higher concentrations of the more brominated DBP species. In some cases, such as for bromoform, the effluent formed concentrations were measured higher than the formed influent levels. 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 as part of the Stage 2 Disinfection Byproducts Rule.

By plotting effluent concentrations of parameters such as TOC, UV_{254}, and SDS-DBPs, divided by their respective influent concentrations, a normalized breakthrough evaluation can be performed. This evaluation yields insight into the relative breakthrough patterns of TOC, 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 in a few cases normalized SDS-THM4 breakthrough exceeded that for TOC. However, TOC served as a conservative indicator of normalized SDS-HAA and SDS total organic halide (TOX) breakthrough. UV_{254} typically served as either a conservative or direct indicator of SDS-TOX breakthrough.

5 *Background Information*

5 Background Information

5.1 Treatment Plant Description

The Sweetwater Authority operates the Robert A. Perdue Water Treatment Plant, a conventional treatment (ferric chloride coagulation) plant that provides water for a population of 174,350 in the South Bay area of San Diego County, California, primarily the communities of Chula Vista, National City, and Bonita. The state approved plant capacity is 30 MGD and the source water is the Sweetwater River, which feeds both the Loveland Reservoir and the Sweetwater Reservoir.

Figure 1 shows a simple schematic of the Robert A. Perdue Water Treatment Plant. Treatment consists of coagulation with ferric chloride and cationic polymer, followed by two-stage tapered flocculation, sedimentation, and rapid sand filtration. Chlorine is added at the intake tower. Free chlorine residual is converted to chloramines during rapid mix by the addition of ammonia. Typical ferric chloride dose is 15 to 20 mg/L, while the organic polymer dose is typically 1.5 to 2.0 mg/L.

5.1.1 Treatment Plant Design Information

Table 1 summarizes the Robert A. Perdue Water Treatment 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

Major challenges faced at the Robert A. Perdue Water Treatment Plant include the source water quality. The source water is characterized by high TOC and bromide levels. Disinfection leads to the formation of DBP levels that are high relative to Stage 1 DBP MCLs. Another challenge will be meeting the TOC removal requirement base on Stage 1 of the Disinfection Byproducts Rule.

5.2 Tabular Summary of Source and Finished Water Quality

Tables 2, 3, and 4 summarize average source, filtered, and finished water quality, respectively, at the Robert A. Perdue Water Treatment Plant, based on monthly and quarterly ICR data sampled between July 1997 and December 1998. This data constitutes preliminary ICR monitoring results and has not yet undergone EPA review. Both filtered and finished water quality data are presented because after filtration the water is blended with water purchased from the San Diego County Water Authority (SDCWA), and therefore the finished water quality is comprised of plant treated water and SDCWA purchased finished water.

The source water is characterized by moderately high TOC levels, averaging 6.3 mg/L, and very high bromide levels, averaging 363 µg/L. The high bromide concentration would be expected to favor the formation of brominated DBPs after chlorination. The specific UV absorbance

(TSUVA, defined as UV_{254}/TOC) averaged 2.5 L/mg-m. This was reduced to an average of 1.9 L/mg-m after conventional treatment and filtration. 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. The average TOC concentration after filtration was 5.6 mg/L, a removal of 11 percent.

Distribution system (DS) THM4 levels varied widely, ranging from 31 to 125 µg/L. DS-THM4 levels averaged 81 µg/L, exceeding both the Stage 1 MCL of 80 µg/L or 64 µg/L with a 20 percent safety factor, and the placeholder for Stage 2 MCL of 40 µg/L or 32 µg/L with a 20 percent safety factor. DS-HAA5 averaged 36 µg/L, lower than the Stage 1 MCL of 60 µg/L or 48 µg/L with a 20 percent safety factor, but exceeding the placeholder for Stage 2 MCL of 30 µg/L or 24 µg/L with a 20 percent safety factor. DS-HAA5 concentrations also showed a wide seasonal variability.

Unit Process	Process Description
Disinfectant Addition	Chemical Code: Chlorine Measurement Formula: Cl_2 Dose rate (mg/L): 8.00
Disinfection Contact Basin	Surface Area (ft^2): 50 Liquid Volume (gal): 56,300 Baffling Type: Plug flow
Chemical Addition	Chemical Code: Potassium permanganate Measurement Formula: $KMnO_4$ Dose rate (mg/L): 0.50 Chemical Code: Ferric chloride Measurement Formula: $FeCl_3$ Dose rate (mg/L): 8.00
Disinfection Addition	Chemical Code: Ammonia Measurement Formula: NH_3 Dose rate (mg/L): 1.00
Flash Mix	Type of Mixer: Mechanical Baffling Type: Average Liquid Volume (gal): 15 Short Circuiting Factor: NA_V Mean Velocity Gradient (sec^{-1}): 750 Chemical Addition: Organic polymer - coagulant aid Measurement Formula: 20% DADMAC Coagulant Dose (mg/L): 5.30
Flocculation	Type of Mixer: Mechanical Liquid Volume (gal): 412,000 Short Circuiting Factor: NA_V Baffling Type: Average Stage Sequence Number: 1 Stage Mean Velocity Gradient (sec^{-1}): 30 Stage Liquid Volume (gal): 206,000 Stage Sequence Number: 2 Stage Mean Velocity Gradient (sec^{-1}): 15 Stage Liquid Volume (gal): 206,000
Sedimentation	Surface Area (ft^2): 12,150 Liquid Volume (gal): 1,254,200 Baffling Type: Average Short Circuiting Factor: 0.7
PAC Addition	Chemical Code: Powdered activated carbon Measurement Formula: PAC Dose rate (mg/L): 1.00
Filtration	Surface Area (ft^2): 4,680 Liquid Volume (gal): 306,327 Total Media Depth (in): 30 Media Type: Dual Minimum Water Depth to Top of Media (ft): 8.0 Depth from Top of Media to Top of Backwash Trough (ft): 3.5
Additional Water Source	Water Source Type: Purchased finished water
Disinfectant Addition	Chemical Type: Chlorine Measurement Formula: Cl_2 Dose Rate (mg/L): 0.50
Clearwell	Surface Area (ft^2): 80,264 Liquid Volume (gal): 10,000,000 Minimum Liquid Volume (gal): 4,000,000 Baffling Type: Unbaffled Short Circuiting Factor: 0.07 Covered Indicator Code: Yes

Table 1 Summary of treatment plant design data

Water quality parameter	Mean	Standard deviation	Minimum	Maximum	Count
Temperature (°C)	22	4	15	28	18
pH	7.9	0.2	7.4	8.1	18
Alkalinity (mg/L as $CaCO_3$)	149	12	127	165	18
Total hardness (mg/L as $CaCO_3$)	248	30	199	305	18
Calcium hardness (mg/L as $CaCO_3$)	135	16	106	159	18
TOC (mg/L)	6.3	1.0	4.4	8.0	18
UV_{254} (1/cm)	0.156	0.025	0.125	0.210	18
TSUVA (L/mg-m)	2.5	0.5	1.8	3.3	18
Bromide (µg/L)	363	79	251	523	18

Table 2 Summary of source water quality at the Robert A. Perdue Water Treatment Plant

Water quality parameter	Mean	Standard deviation	Minimum	Maximum	Count
Temperature (°C)	21	4	14	26	14
pH	7.7	0.3	7.2	8.4	14
Turbidity (ntu)	0.11	0.03	0.06	0.16	13
TOC (mg/L)	5.6	0.9	4.6	8.0	14
UV_{254} (1/cm)	0.106	0.014	0.075	0.136	14
TSUVA (L/mg-m)	1.9	0.3	1.3	2.6	14

Table 3 Summary of filtered water quality at the Robert A. Perdue Water Treatment Plant

Water quality parameter	Mean	Standard deviation	Minimum	Maximum	Count
Temperature (°C)	21	5	14	27	18
pH	7.9	0.2	7.6	8.2	18
Turbidity (ntu)	0.10	0.04	0.06	0.20	17
TOC (mg/L)	4.8	1.7	1.8	8.4	18
UV_{254} (1/cm)	0.092	0.029	0.036	0.136	18
TSUVA (L/mg-m)	2.0	0.30	1.4	2.7	18
DS-THM4 (µg/L)	81	31	38	125	24
DS-HAA5 (µg/L)	36	17	17	75	24
DS-HAA6 (µg/L)	48	22	22	96	24

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

Table 4 Summary of finished and distribution system water quality at the Robert A. Perdue Water Treatment Plant

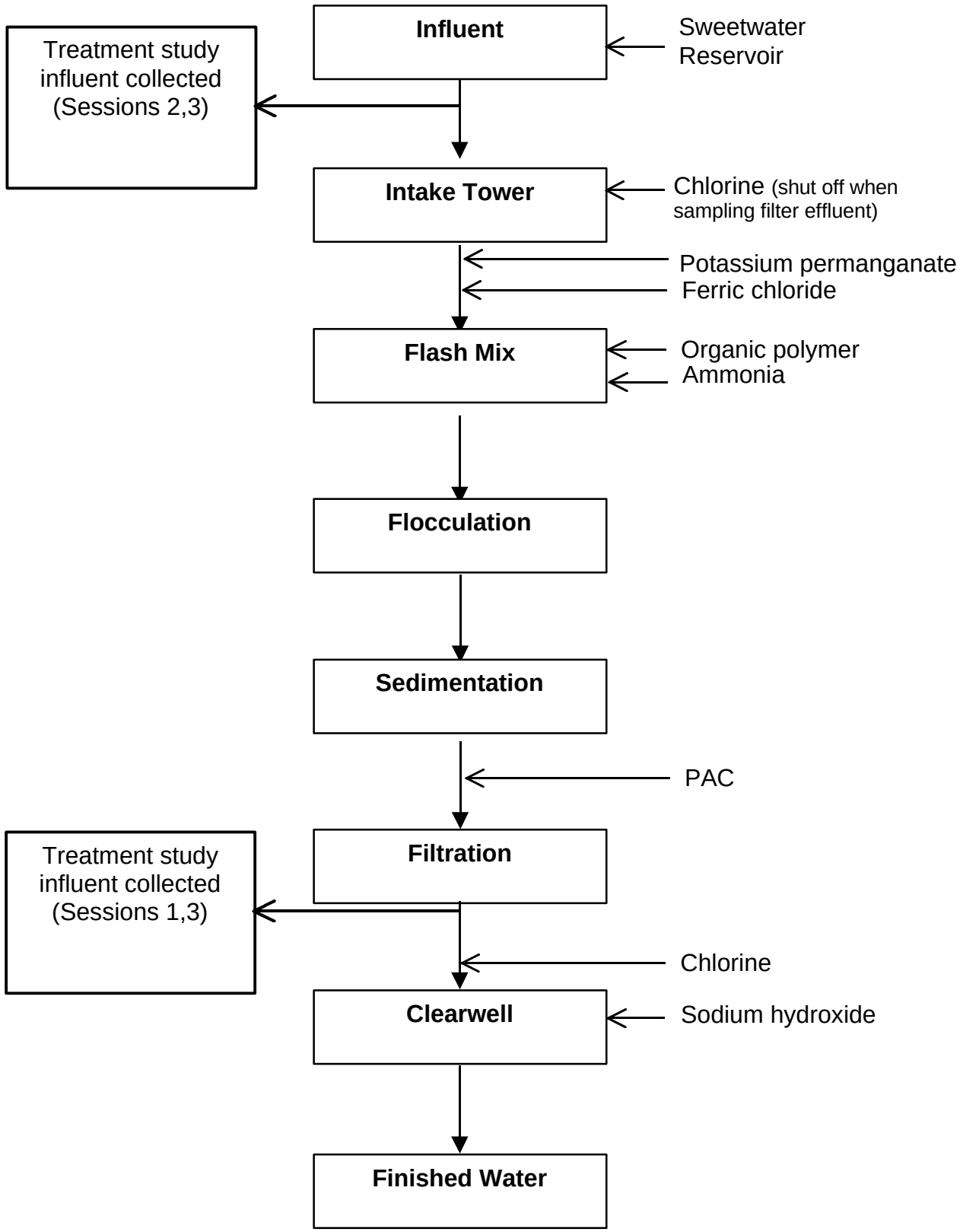


Figure 1 Treatment plant schematic

6 *Materials and Methods*

6 Materials and Methods

6.1 Treatment Study Influent Sampling Procedures

Three samples were taken throughout the year to capture seasonal variability. The sample dates are presented in Table 5. The three samples represent the spring, summer, and fall seasons. During the spring session, water was sampled after full-scale rapid sand filtration. During the summer session raw plant source water was sampled prior to the addition of any chemicals. Bench-scale treatment of this batch water sample to simulate full-scale treatment was performed at S&H's laboratory. During the fall session, both source and treated water samples were taken in separate batches on the same day. The treated sample, taken after full-scale filtration, represented conventional treatment. The raw water sample was treated at S&H's laboratory to simulate full-scale enhanced coagulation.

Under normal plant operation, chlorine is added prior to rapid mix. For water samples taken from the filter effluent, this feed was turned off and sampling started when the filter effluent chlorine residual was not detectable. Measurements for free chlorine continued throughout the sample collection to ensure that no free chlorine was present in the samples taken. During the summer session, the plant was not able to turn off the rapid mix chlorine feed. Therefore, the plant raw source water was sampled and batch coagulated at S&H's laboratory.

The water samples were collected 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 TOC samples taken to ensure that no detectable leaching of organic compounds from the inside surface of the drums was occurring (measured as TOC).

During the day prior to each sampling event, the plant raw and filtered water (treatment study influent sampling point) was sampled and analyzed for TOC to determine the representativeness of the sample. The analysis was performed the following day by S&H. Once the representativeness of the water sample was verified by comparison to historic data, sampling into the 55-gallon drums proceeded. The water quality verification TOC data obtained are summarized in Table 6. Plant operation and treatment parameters (e.g., chemical doses) were confirmed as within acceptable normal variation prior to drum sampling.

For all three sessions, the water sampled for the treatment study was shipped within one day of sampling by a refrigerated carrier. The travel time was 5 to 6 days, and the drums were maintained at 4 °C throughout the entire trip. 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 7. Little to no detectable change in TOC concentration occurred during shipment.

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 Figures 2 and 3. Figure 2 describes the pretreatment processes in place prior to GAC during the April session and the October conventional treatment session. Figure 3 describes the pretreatment processes in place prior to GAC for the August session and the October enhanced coagulation session. For the April and October conventional treatment sessions, plant filtered water was sampled to be used as influent to the RSSCTs. Bench-scale filtration through a 1.0-µm glass fiber cartridge filter was still performed as a required pretreatment step prior to RSSCT testing.

Raw source water to the Robert A. Perdue Water Treatment Plant was sampled for the August session and the October enhanced coagulation pretreatment session. Based on jar test results, and with the goal of matching plant TOC removal, bench-scale coagulation was performed at S&H on the August session raw water sample. For the October enhanced coagulation session, bench-scale coagulation was performed to achieve TOC removal required by the Stage 1 Disinfection Byproducts Rule (DBPR).

During the operation of the RSSCTs, the pH was maintained within 0.1 pH units of the target pH by the addition of dilute solutions of sulfuric acid and sodium hydroxide to the batch influent water.

6.2.1 Design data for each pretreatment process

Table 8 summarizes the design data for pretreatment prior to GAC adsorption for the April session and the October conventional treatment session. The same data is summarized in Table 9 for the August session and the October enhanced coagulation session, for which raw water was sampled and batch treated at S&H. The batch treatment system was designed to simulate full-scale plant mixing conditions. The Robert A. Perdue Water Treatment Plant is designed for flash mixing, rapid mixing, two-stage flocculation, and sedimentation. The plant mixing energies are reported in Table 10. The flash mix consists of a 800 gpm turbine pump that counter flows water into a 42-inch pipe. The water then flows into an agitation channel for 1 minute of rapid mix. This is followed by two-stage flocculation with vertical shaft flocculators.

The mixing energies and times for bench-scale batch treatment of the water during the August session and the October enhanced coagulation session were scaled from the full-scale design. The batch treatment was performed in 55-gallon drums equipped with baffles. The ferric chloride dose was based on jar test results. During the August batch treatment, the goal was to match plant TOC removal. During the October enhanced coagulation session, the batch treatment goal was to match the required percent TOC removal based on source water TOC and alkalinity, according to the DBPR. The mixing energies and contact times used are summarized in Table 11.

An effort was made to scale the plant mixing geometry to the bench-scale batch coagulation experiment. The goal of the experiment was to match full-scale TOC removal; the full-scale ferric chloride dose would not necessarily result in the target bench-scale TOC removal after bench-scale treatment. Therefore, a jar test was conducted to correlate TOC removal with ferric

chloride dose (the polymer dose was held constant at the plant dose). The jar test conditions are summarized in Table 12. Settled water was sampled for TOC, turbidity, and pH. The raw water was characterized by TOC, turbidity, pH and alkalinity. The jar tests were conducted at room temperature, and the measured water temperature at the start of jar testing was 19°C. The order of chemical addition was ferric chloride first, followed by polymer.

Batch treatment was performed on 210 L samples of water contained in 55-gallon drums. Baffles were inserted as shown in Figure 4. A 3-in., three-blade stainless steel propeller was used for rapid mixing, while a large paddle was used for flocculation. The dimensions of the paddle are shown in Figure 4.

6.2.1.1 August Session Pretreatment

Preliminary jar testing was performed on the raw water sample to confirm TOC removal using the plant ferric chloride dose. Figure 5 shows the TOC removal obtained by jar testing on two dates. The plant raw water TOC on the day of sampling was 7.5 mg/L, but that measured for the August 7, 1998 jar test was 6.7 mg/L (Table 13). Therefore, the batch of water used for jar testing was not representative of the raw water sampled in the drums. An abbreviated jar test was performed on a sample of water taken from directly from the drums on August 12, 1998. The results obtained are presented in Figure 5. Table 14 summarizes the data obtained for the second jar test. The raw water TOC was measured at 7.5 mg/L, and a ferric chloride dose of 16 mg/L, which was the plant dose on the day of sampling, yielded a settled water TOC concentration of 6.6 mg/L, closely matching the measured plant settled water TOC concentration of 6.7 mg/L. The plant polymer dose of 1.9 mg/L was used for all jar testing.

Batch treatment was performed on one drum and the results evaluated before proceeding on to the remaining three drums. A ferric chloride dose of 16 mg/L and a polymer dose of 1.9 mg/L were used. The mixing conditions are described above and are summarized in Table 11. The measured settled water TOC concentration after sedimentation was 7.0 mg/L. This value was 5 percent higher than the target settled water TOC concentration based on full-scale conditions. Therefore, a slightly higher ferric chloride dose of 20 mg/L was used in an attempt to yield a batch settled water TOC concentration closer to the target of 6.7 mg/L. The settled and filtered water TOC concentrations for the remaining drums are summarized in Table 15. The settled water varied between the three batches, but after cartridge filtration, the TOC results were very similar. The average filtered TOC concentration was 5.5 mg/L, which was lower, but within 20 percent of the target. The water in the three drums was blended and then used as influent to the RSSCTs.

6.2.1.2 October Enhanced Coagulation Session Pretreatment

The TOC removal goal for enhanced coagulation was to meet TOC removal requirement set by the DBPR, based on source water TOC concentration and alkalinity. The TOC removal matrix is shown in Table 16. Based on the source water TOC concentration (6.2 mg/L) and alkalinity (157 mg/L as $CaCO_3$), a 25 percent TOC removal would be required by the DBPR. The percent removal requirement corresponded to a settled water TOC concentration of 4.7 mg/L. Therefore, this was the target removal for enhanced coagulation. Jar testing was performed to determine the

optimal sulfuric acid and ferric chloride dose to achieve 25 percent TOC removal. The results of jar tests showed that the TOC removal requirement was met by a sulfuric acid dose of 25 mg/L, a ferric chloride dose of 30 mg/L, and a polymer dose of 1.8 mg/L.

Batch treatment was performed on three drums, under the same geometry and mixing conditions used for the August pretreatment. The average raw water TOC concentration for the three drums was 6.4 mg/L, while the average settled TOC concentration after batch treatment was 4.6 mg/L, a 28 percent TOC removal. Thus, the batch bench-scale coagulation matched the target TOC removal based on jar tests exactly. After settling, the water was filtered through a 1.0-µm glass fiber cartridge filter. During this process, water from the three drums was blended.

6.3 Advanced Treatment Process Information

6.3.1 Schematics and Descriptions of the Process Equipment Used

Figures 6 and 7 show schematics of the RSSCT system. 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. The wetted parts of the pump were Teflon and glass. The pumps were rated for 1 percent speed control and 75 psi continuous duty. 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. The effluent flow rate was monitored constantly. The calibration of the effluent flow rate control system was checked by a manual measurement at least twice daily and adjusted as necessary to maintain it within 3 percent of the design flow rate.

The system configuration for the 10 minute EBCT contactors is shown in Figure 6. For these RSSCTs, the entire GAC bed was packed in a single column. The 20 minute EBCT contactor was packed into two columns in series, as shown in Figure 7. This allowed for backwashing by mixing the top portion of the GAC bed, if necessary due to high system pressures, without disturbing the remainder of the bed. However, no backwashing was necessary during this treatment study. Typically, 90 percent of the GAC bed was packed in the second column. Both columns were of equal inner diameters.

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 11.0 mm inner diameter columns required a stainless steel support system as shown in Figure 8 (a). When 12.6 mm inner diameter columns were used, the support system shown in Figure 8 (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 17. 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. Due to the relatively high influent TOC concentration, columns with inner diameters of 12.6 mm were used. Reynolds numbers used ranged from 0.55 to 0.60. Scaling factors ranged from 5.3 to 9.4.

During the third session (October), a second pair of RSSCTs simulating full-scale equivalent EBCTs of 10 and 20 minutes were operated, with influent water that was pretreated under enhanced coagulation conditions. Other than the EBCT, the design for these two RSSCTs was identical. Columns with inner diameters of 11.0 mm were used, and the minimum Reynolds number was 0.60.

6.3.3 Procedures Specific to the Treatment Study

6.3.3.1 GAC Preparation Procedures

A representative batch of Filtrasorb 400 (F-400), a bituminous-coal based GAC, was obtained from the manufacturer, Calgon Carbon Corporation. The GAC is a 12x40 mesh size (average particle diameter, d_p = 1.06 mm). Using a riffle splitter, a small (30-50 g) representative sample of the GAC was obtained. Using a jar mill, the GAC was ground to a 100x200 or 60x100 mesh size, which yielded GAC with average particle diameter, d_p, of 0.113 or 0.200 mm. Care was taken to frequently remove and sieve the GAC in the jar mill. The GAC was ground until the entire sample passed through the upper mesh size sieve. Usually, a recovery of 25 to 30 percent was obtained, as defined by the amount of GAC retained between the two mesh size sieves and 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 between 100 and 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 to 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 allowed to sit for 12 to 24 hours, followed by placement in a vacuum for at least 1 hour to displace the air within the pores.

6.3.3.2 RSSCT Column Setup

The GAC support for the 12.6-mm inner diameter columns consisted of a stainless steel screen (60 or 100 mesh size), Teflon beads, glass wool, a 200 mesh size stainless steel screen, and a 100 mesh size stainless steel screen. The column support is detailed in Figure 8. The support for 11.0-mm inner diameter columns consisted of a 200 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

Prior to RSSCT testing, all water samples were filtered through a 1.0-µm nominal pore size glass fiber cartridge filter, regardless of pretreatment or whether the sample was taken after full-scale bench-scale treatment. 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.

6.4 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, 10 and 20 minutes. Three sessions were conducted to perform this evaluation. In addition, the impact of enhanced coagulation pretreatment on GAC performance was evaluated in a parallel study during the third session. The experimental design is summarized in Table 18.

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

All column 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 19 summarizes the run termination criteria used, percent breakthrough reached at the twelfth sample, and the corresponding full-scale equivalent run time.

A tabular summary of the all data analyzed during the treatment study is given in Appendix A. 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 20. During all sessions, a 24-hour holding time was targeted. The samples were buffered at pH 8.0 using a borate/phosphate buffer combination, and the target free chlorine residual was 0.75 mg/L as Cl_2.

The pH represents the typical pH for the Sweetwater distribution system. The incubation temperature varied seasonally, from 20 to 26°C, based on average distribution system temperatures. All samples were incubated in the dark in a constant temperature water bath. The same target SDS conditions were applied to both GAC influent and effluent samples chlorinated. For GAC influent water, the average and standard deviation obtained for each parameter are summarized in Table 21 for all sessions. The same data are summarized in Tables 22 and 23 for the GAC effluent samples.

6.7 Analytical Methods

A list of all analytical methods used during the study is shown in Table 24. A summary listing the laboratories involved for analytical support and the period over which analyses were conducted by each laboratory is shown in Table 25. Contact information for the laboratories involved is summarized in Table 26.

Session	Sampling Date
1	April 30, 1998
2	August 6, 1998
3*	October 22, 1998

*The enhanced coagulation pretreatment RSSCTs were conducted with water collected during the third session.

Table 5 Sampling dates for quarterly GAC bench-scale treatment study sessions

Sample date	TOC concentration (mg/L)		
	Raw	Settled	Filtered
April	6.5	5.9	5.9
August	NA	6.6	NA
October	6.2	5.6	5.6

NA: not analyzed; during the August session, only raw water was sampled for treatment study

Table 6 Summary of sample representativeness data

Sample date	Sampled water TOC concentration (mg/L)		Percent change (%)
	On day of sampling	Upon arrival at S&H	
April (filtered)	6.0	5.8	-3.3
August (raw)	7.5	7.5	0.0
October (raw)	6.2	6.2	0.0
October (filtered)	5.6	5.6	0.0

Table 7 Summary of TOC sampling before and after water shipment

Unit Process	Process Description
Chemical Addition (Full-Scale)	Chemical Code: Potassium permanganate Measurement Formula: $KMnO_4$ Dose rate (mg/L): 0.50 Chemical Code: Ferric chloride Measurement Formula: $FeCl_3$ Dose rate (mg/L): 8.00
Disinfection Addition	Chemical Code: Ammonia Measurement Formula: NH_3 Dose rate (mg/L): 1.00
Flash Mix (Full-Scale)	Type of Mixer: Mechanical Baffling Type: Average Liquid Volume (gal): 15 Short Circuiting Factor: NA_V Mean Velocity Gradient (sec^{-1}): 750 Chemical Addition: Organic polymer - coagulant aid Measurement Formula: 20% DADMAC Coagulant Dose (mg/L): 5.30
Flocculation (Full-Scale)	Type of Mixer: Mechanical Liquid Volume (gal): 412,000 Short Circuiting Factor: NA_V Baffling Type: Average Stage Sequence Number: 1 Stage Mean Velocity Gradient (sec^{-1}): 30 Stage Liquid Volume (gal): 206,000 Stage Sequence Number: 2 Stage Mean Velocity Gradient (sec^{-1}): 15 Stage Liquid Volume (gal): 206,000
Sedimentation (Full-Scale)	Surface Area (ft^2): 12,150 Liquid Volume (gal): 1,254,200 Baffling Type: Average Short Circuiting Factor: 0.7
PAC Addition (Full-Scale)	Chemical Code: Powdered activated carbon Measurement Formula: PAC Dose rate (mg/L): 1.00
Filtration (Full-Scale)	Surface Area (ft^2): 4,680 Liquid Volume (gal): 306,327 Total Media Depth (in): 30 Media Type: Dual Minimum Water Depth to Top of Media (ft): 8.0 Depth from Top of Media to Top of Backwash Trough (ft): 3.5
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): 150 - 200

Table 8 Summary of design data for each pretreatment process prior to GAC (April and October sessions)

Unit Process	Process Description
Batch Flash Mix (Bench-Scale)	Type of Mixer: Mechanical Baffling Type: Average Liquid Volume (gal): 55 Short Circuiting Factor: NA_V Mean Velocity Gradient (sec^{-1}): 200 (4 sec) Coagulant Addition: Ferric chloride Polymer Addition: Cationic Conventional Treatment Coagulant Dose (mg/L): 16 Conventional Treatment Polymer Dose (mg/L): 1.9 Enhanced Coagulation Acid Addition: Sulfuric acid Enhanced Coagulation Acid Dose (mg/L): 25 Enhanced Coagulation Coagulant Dose (mg/L): 30 Enhanced Coagulation Polymer Dose (mg/L): 1.8
Batch Rapid Mix (Bench-Scale)	Type of Mixer: Mechanical Baffling Type: Average Liquid Volume (gal): 55 Short Circuiting Factor: NA_V Mean Velocity Gradient (sec^{-1}): 100 Coagulant Addition: Alum [$Al_2(SO_4)_3$] Coagulant Dose (mg/L): 65
Batch Flocculation (Bench-Scale)	Type of Mixer: Mechanical Liquid Volume (gal): 55 Short Circuiting Factor: N_{AV} Baffling Type: Average Stage Sequence Number: 1 Stage Mean Velocity Gradient (sec^{-1}): 30 Stage Liquid Volume (gal): 55 Stage Sequence Number: 2 Stage Mean Velocity Gradient (sec^{-1}): 15 Stage Liquid Volume (gal): 55
Batch Sedimentation (Bench-Scale)	Surface Area (ft^2): 16 Liquid Volume (gal): 55 Baffling Type: Average Short Circuiting Factor: NA_V Plate Settler Surface Area (ft^2): NA_P Plate Settler Brand Name: NA_P Tube Settler Surface Area (ft^2): NA_P Tube Settler Brand Name: NA_P
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): 150 - 200

NA_P: not applicable
NA_V: not available

Table 9 Summary of design data for each pretreatment process prior to GAC (August and October session)

Process	Mixing energy, G (sec^{-1})	Contact time (minutes)
Flash mix	750	1 second
Rapid mix	100	1
First stage flocculation	30	10
Second stage flocculation	15	10
Sedimentation	0	60

Table 10 Full-scale plant mixing energies and flow through contact times

Process	Mixing energy, G (sec^{-1})	Contact time (minutes)
Flash mix	225	4 seconds
Rapid mix	100	1
First stage flocculation	30	10
Second stage flocculation	15	10
Sedimentation	0	60

Table 11 Bench-scale mixing energies and batch contact times

Process	Mixing energy, G (sec^{-1})	Paddle speed (rpm)	Contact time (minutes)
Flash mix	600	300	1 second
Rapid mix	100	80	1
First stage flocculation	30	38	10
Second stage flocculation	10	22	10
Sedimentation	0	0	60

Table 12 Jar test conditions

Ferric chloride dose (mg/L)	Polymer dose (mg/L)	Settled water quality		
		TOC (mg/L)	pH	Turbidity (ntu)
0	0	6.7	8.6	2.7
5	1.9	5.9	8.2	0.70
10	1.9	5.8	8.0	0.75
16	1.9	5.6	7.8	0.70
20	1.9	5.5	7.6	0.55
25	1.9	5.3	7.6	0.60
30	1.9	5.8	7.4	0.90

Table 13 Jar test results for August 7, 1998

Ferric chloride dose (mg/L)	Polymer dose (mg/L)	Settled water quality		
		TOC (mg/L)	pH	Turbidity (ntu)
0	0	7.5	8.5	NA
10	1.9	7.0	7.8	NA
16	1.9	6.6	7.5	NA
20	1.9	6.6	7.5	NA

NA: not analyzed

Table 14 Jar test results for August 12, 1998

Drum	TOC concentration (mg/L)		Turbidity (ntu)	
	Settled	Filtered	Settled	Filtered
2	5.5	5.4	1.4	0.45
3	6.5	5.4	6.1	0.10
4	5.5	5.6	1.0	0.20

Table 15 Bench-scale batch coagulation results

Source water TOC concentration (mg/L)	Source water alkalinity (mg/L as $CaCO_3$)		
	0 to 60	>60 to 120	>120
>2.0 to 4.0	35.0%	25.0%	15.0%
>4.0 to 8.0	45.0%	35.0%	25.0%
>8.0	50.0%	40.0%	30.0%

Table 16 Required TOC removal by enhanced coagulation

Design parameter	Design value during session			
	1 April	2 August	3 October	4 October-EC
GAC manufacturer	Calgon Carbon Co.	Calgon Carbon Co.	Calgon Carbon Co.	Calgon Carbon Co.
GAC brand name	F-400	F-400	F-400	F-400
GAC type	Bituminous	Bituminous	Bituminous	Bituminous
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, $Re_{SC, min}$ (-)	0.55	0.60	0.60	0.60
Full-scale operating temperature (°C)	20	26	24	24
Kinematic viscosity, ν_{LC} (m^2/s)	1.00E-06	8.73E-07	9.14E-07	9.14E-07
Bed porosity, ε_{LC} (-)	0.45	0.45	0.45	0.45
Measured dry bed density, ρ_{SC} (g/cm^3)	0.522	0.481	0.467	0.467
RSSCT design parameters				
RSSCT mesh size	100x200	60x100	100x200	100x200
Particle diameter, d_{SC} (mm)	0.113	0.200	0.113	0.113
Scaling factor, SF	9.44	5.31	9.44	9.44
Hydraulic loading rate, v_{SC} (m/hr)	7.95	4.24	7.89	7.89
Column diameter, D_{SC} (mm)	12.6	12.6	12.6	11.0
Flow rate, Q_{SC} (mL/min)	16.5	8.8	16.4	12.5
Estimated run length				
RSSCT Influent TOC concentration (mg/L)	6.0	5.8	5.6	4.6
Bed volumes to 50% TOC breakthrough, BV_{50}	2113	2208	2338	3001
Estimated total run time, BV_T	7395	7728	8184	10505
RSSCT 1				
Full-scale empty-bed contact time, $EBCT_{LC}$ (min)	10	10	10	10
Estimated full-scale run time, t_{LC}^T (days)	51	54	57	73
Estimated RSSCT run time, t_{SC}^T (days)	5.4	10.1	6.0	7.7
Volume water required, V_{SC} (L)	129	128	142	139
Mass GAC required, m_{SC} (g)	9.13	7.98	8.11	6.18
RSSCT empty-bed contact time, $EBCT_{SC}$ (min)	1.06	1.88	1.06	1.06
Bed length, l_{SC} (cm)	14.0	13.3	13.9	13.9
RSSCT 2				
Full-scale empty-bed contact time, $EBCT_{LC}$ (min)	20	20	20	20
Estimated full-scale run time, t_{LC}^T (days)	103	107	114	146
Estimated RSSCT run time, t_{SC}^T (days)	10.9	20.2	12.0	15.4
Volume water required, V_{SC} (L)	259	257	284	278
Mass GAC required, m_{SC} (g)	18.26	15.96	16.22	12.36
RSSCT empty-bed contact time, $EBCT_{SC}$ (min)	2.12	3.76	2.12	2.12
Bed length, l_{SC} (cm)	28.1	26.6	27.9	27.9

Table 17 Summary of RSSCT design parameters

Season	Pretreatment	GAC type	EBCT (min)
Spring	Coagulation (ferric chloride and polymer)	Bituminous	10, 20
Summer	Coagulation (ferric chloride and polymer)	Bituminous	10, 20
Fall	Coagulation (ferric chloride and polymer)	Bituminous	10, 20
Fall	Enhanced coagulation (ferric chloride and polymer)	Bituminous	10, 20

Table 18 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
April	1	33	73	1	90	75
August	1	51	73	1	106	74
October	1	58	73	1	121	72
October-EC	1	84	76	1	159	70

* 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 19 Summary of RSSCT run termination criteria, run time, and percent TOC breakthrough reached

Parameter	Session 1 April		Session 2 August		Session 3 October		Session 4 October-EC	
	Value	Tolerance	Value	Tolerance	Value	Tolerance	Value	Tolerance
Incubation time (hours)	24.0	1.0	24.0	1.0	24.0	1.0	24.0	1.0
Incubation temperature (°C)	20.0	2.0	26.0	2.0	24.0	2.0	24.0	2.0
Incubation pH	8.00	0.20	8.00	0.20	8.00	0.20	8.00	0.20
Free chlorine residual (mg/L)	0.75	0.25	0.75	0.25	0.75	0.25	0.75	0.25

Table 20 Simulated distribution system (SDS) chlorination target conditions

Parameter	Session 1 April		Session 2 August		Session 3 October		Session 4 October-EC	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Incubation time (hours)	24.1	0.3	24.1	0.1	24.1	0.0	24.1	0.4
Incubation temperature (°C)	18.6	0.7	25.4	0.5	23.5	0.1	23.5	0.1
Incubation pH	7.93	0.02	7.92	0.02	7.96	0.01	7.95	0.03
Free chlorine residual (mg/L)	0.68	0.12	0.66	0.09	0.82	0.19	0.99	0.13

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

Table 21 Summary of experimental SDS chlorination conditions for GAC influent water

Parameter	Session 1 April		Session 2 August		Session 3 October		Session 4 October-EC	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Incubation time (hours)	23.8	0.2	23.8	0.2	23.8	0.2	24.1	0.3
Incubation temperature (°C)	18.3	0.1	25.2	0.2	23.6	0.1	23.5	0.1
Incubation pH	7.99	0.04	8.05	0.04	7.96	0.02	7.98	0.04
Free chlorine residual (mg/L)	0.80	0.07	0.70	0.06	0.77	0.08	0.84	0.17

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

Table 22 Summary of experimental SDS chlorination conditions for 10 minute EBCT contactor

Parameter	Session 1 April		Session 2 August		Session 3 October		Session 4 October-EC	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Incubation time (hours)	24.1	0.2	23.8	0.3	23.9	0.2	24.0	0.2
Incubation temperature (°C)	18.5	0.6	25.3	0.5	23.5	0.1	23.5	0.0
Incubation pH	8.00	0.05	8.05	0.04	7.96	0.02	7.98	0.06
Free chlorine residual (mg/L)	0.78	0.08	0.77	0.08	0.78	0.09	0.82	0.06

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

Table 23 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-Nitrogen	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	EPA 200.7	5 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
HAA (DCAA, TCAA, MBAA, DBAA, BCAA, BDCAA)	All	EPA 552.2	1.0 µg/L (each analyte)
HAA (MCAA, CDBAA)	All	EPA 552.2	2.0 µg/L (each analyte)
HAA (TBAA)	All	EPA 552.2	4.0 µg/L
pH	All	4500-H^+ B	NA
Temperature	All	SM 2550 B	NA
Total hardness	All	SM 2340 B	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^-
THM (CHCl3, 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*

Table 24 Summary of analytical methods and MRLs

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

Table 25 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 26 Laboratory contact information

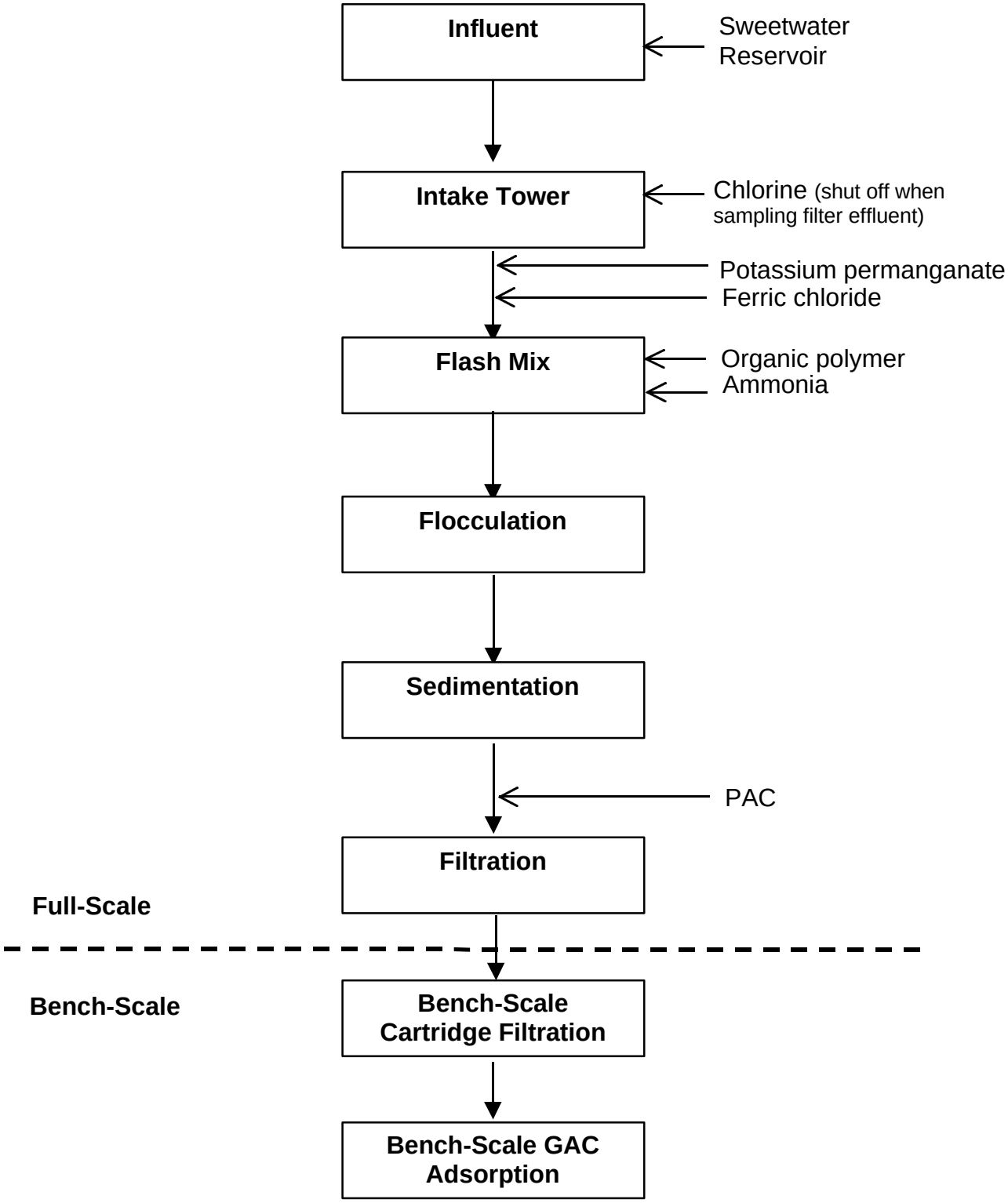


Figure 2 Schematic of pretreatment processes prior to GAC for the April session and the October conventional treatment session

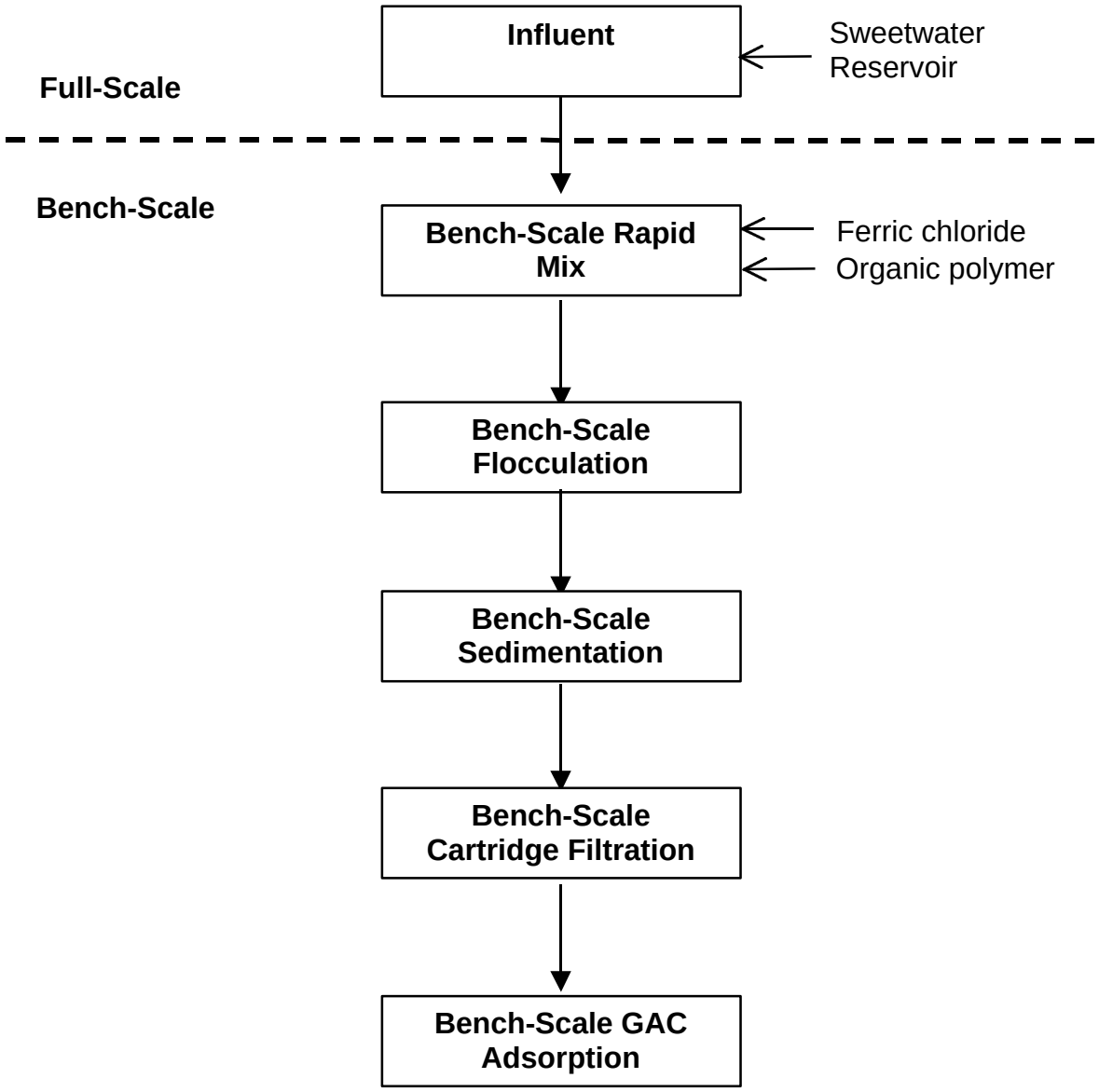


Figure 3 Schematic of pretreatment processes prior to GAC for the August session and the October enhanced coagulation pretreatment session

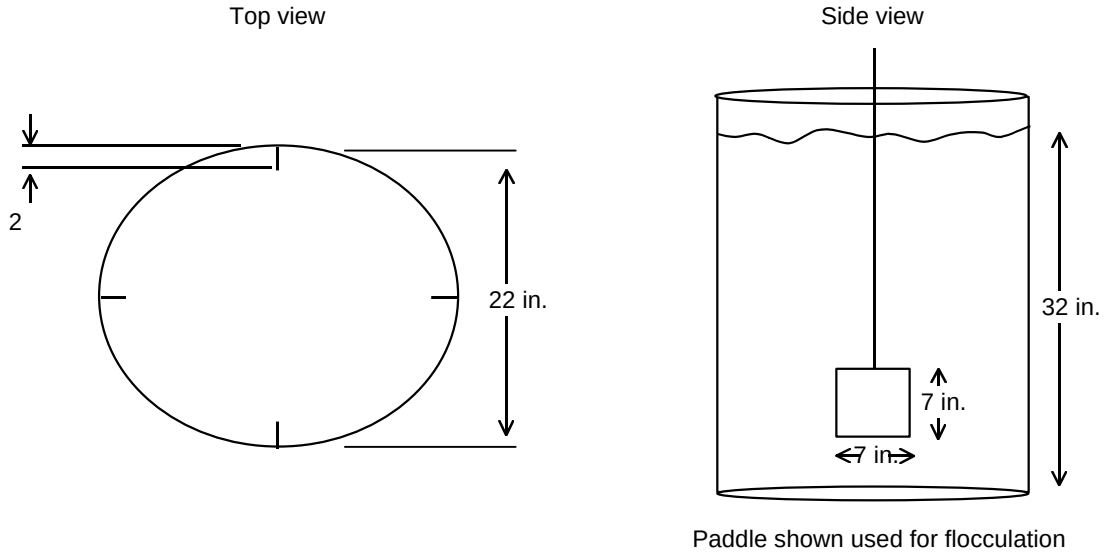


Figure 4 Schematic of batch coagulation system

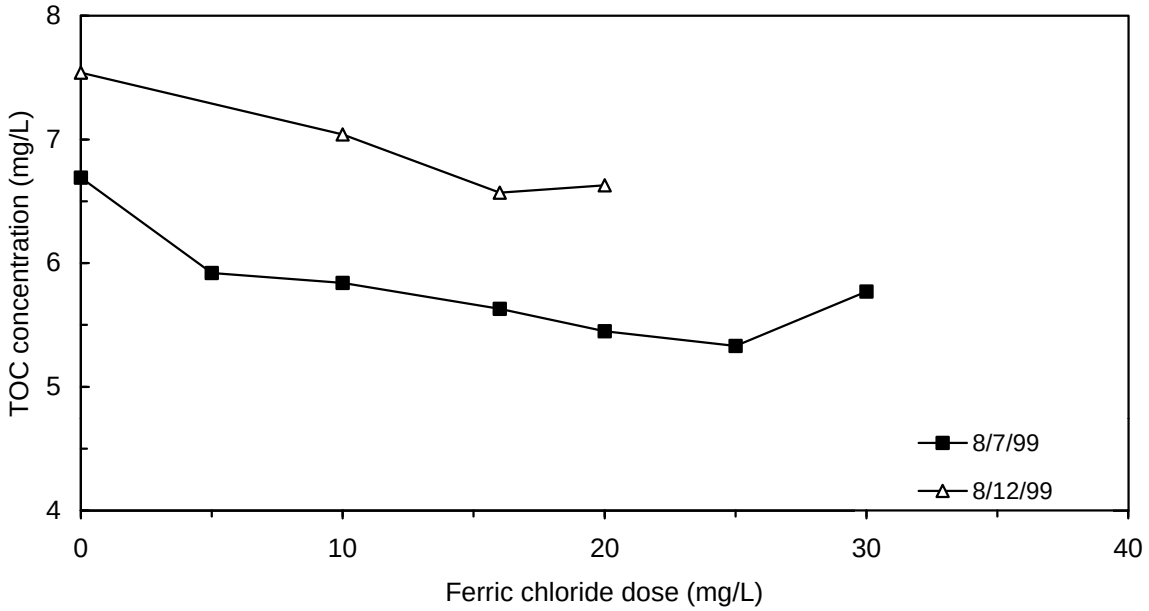
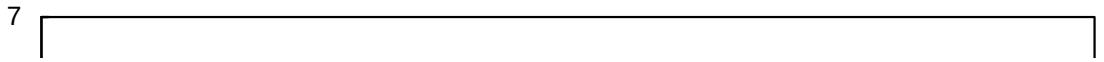


Figure 5 Jar test results for water sampled during the August session



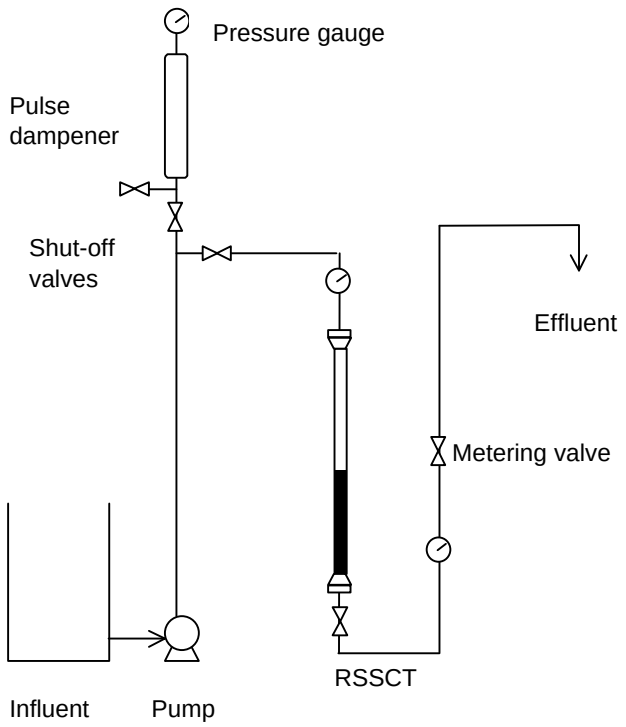


Figure 6 RSSCT system schematic for 10 minute EBCT full-scale equivalent contactors

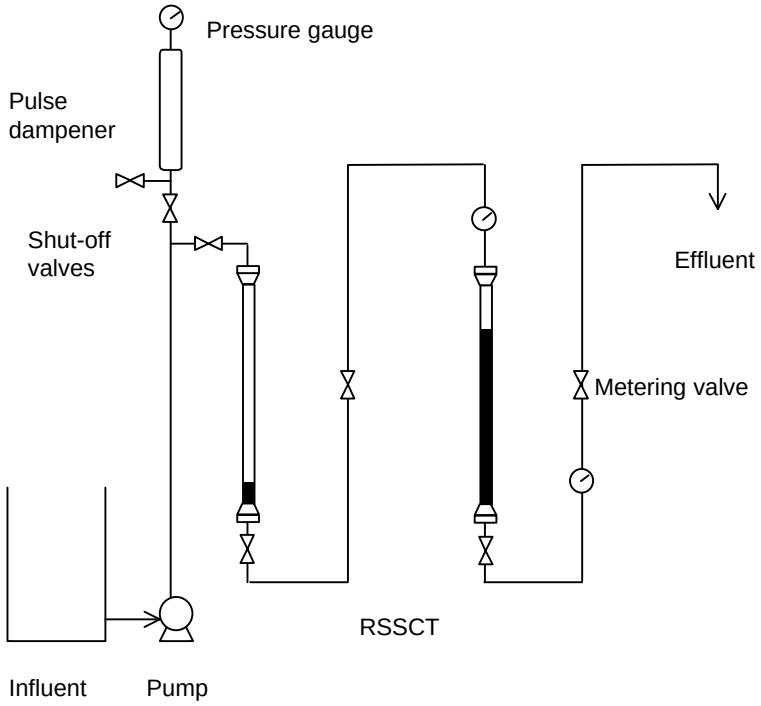
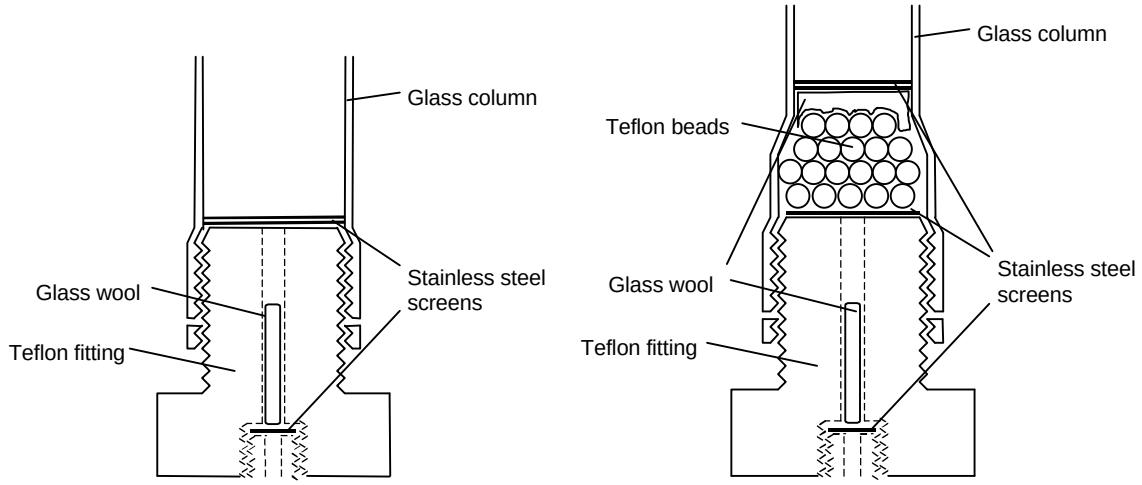


Figure 7 RSSCT system schematic for 20 minute EBCT full-scale equivalent contactor



(a) Standard 11 mm inner diameter column (b) 12.6 mm inner diameter column

Figure 8 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. Chapter 9 summarizes the impact of enhanced coagulation on precursor control by GAC. 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

The batch pretreatment during the August session yielded an average treated water TOC concentration of 5.5 mg/L, 18 percent lower than the target TOC concentration of 6.7 mg/L, based on plant settled water. The plant TOC removal was 11 percent, while the bench-scale treatment TOC removal was 27 percent. GAC performance at the treated influent TOC concentration was expected to be better than that for the target TOC concentration. Although the bench-scale treated water did not match plant operation as closely as planned, the percent TOC removal did match the percent removal that will be required for enhanced coagulation.

7.3 Water Quality Data

The average pretreated influent to GAC water quality for each quarterly sample is summarized in Table 27. Water sampled in April, August, and October was conventionally treated by coagulation with ferric chloride and polymer prior to GAC adsorption. During October, a second set of RSSCTs were operated using enhanced coagulated water as influent. For the conventionally pretreated waters, TOC concentration and UV_{254} showed some variability over the three sampling events. TOC concentration ranged from 5.3 to 5.8 mg/L, and the mean TOC concentration for all three sampling events was 5.5 ± 0.3 mg/L (relative standard deviation [RSD] = 4.7%). The mean UV_{254} for the three conventionally treated waters was 0.118 ± 0.009 cm^{-1} (RSD = 7.7%). The specific UV absorbance (TSUVA), defined as UV_{254}/TOC, averaged 2.1 L/mg-m (RSD = 7.7%). The influent pH ranged from 7.4 to 8.0. Alkalinity averaged 129 mg/L as $CaCO_3$ (RSD = 6.5%); calcium hardness averaged 125 mg/L as $CaCO_3$ (RSD = 5.5%); total hardness averaged 229 mg/L as $CaCO_3$ (RSD = 4.9%). Ammonia levels ranged from below minimum reporting level (BMRL) to 0.350 mg/L. Bromide concentrations were very high,

ranging from 200 to 300 µg/L. Due to the high bromide levels measured, DBP speciation was expected to be shifted towards the formation of the more brominated compounds.

High levels of SDS-DBP formation were measured after conventional treatment. SDS-THM4 concentrations averaged 213 µg/L (RSD = 12%); SDS-HAA5, SDS-HAA6, and SDS-HAA9 levels averaged 61, 83, and 120 µg/L, respectively. Some variability between sessions was evidenced by the relatively high RSDs of 23, 17, and 22 percent for SDS-HAA5, SDS-HAA6, and SDS-HAA9, respectively. Measured variability in TOC concentration, bromide concentration, and SDS incubation temperature contributed to the variability in formed HAA levels. SDS-TOX levels showed less variability, averaging 498 µg/L as Cl^-, but with a RSD of 8.1 percent. SDS chlorine demand (CLD) averaged 4.3 mg/L (RSD = 12%).

Water Quality Parameter	Session 1 April		Session 2 August		Session 3 October		Session 4 October-EC	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Temperature (°C)	16.6	0.9	19.3	2.0	18.5	2.8	18.1	2.0
pH	7.98	0.04	7.43	0.07	7.68	0.15	6.80	0.07
Turbidity (ntu)	0.13	0.06	0.15	0.05	0.15	0.00	0.13	0.03
Alkalinity (mg/L as $CaCO_3$)	122	7	126	9	138	4	91	14
Calcium hardness (mg/L as $CaCO_3$)	120	0	133	4	122	2	123	2
Total hardness (mg/L as $CaCO_3$)	223	0	242	6	222	1	223	0
Ammonia (mg/L)	0.350	0.240	BMRL	NA	0.095	0.007	0.095	0.021
Bromide (mg/L)	0.200	0.000	0.275	0.021	0.300	0.000	0.335	0.007
TOC (mg/L)	5.78	0.11	5.26	0.13	5.58	0.09	4.57	0.13
UV_{254} (1/cm)	0.127	0.001	0.119	0.001	0.109	0.000	0.090	0.001
TSUVA (L/mg-m)	2.2	--	2.3	--	1.9	--	2.0	--
SDS-THM4 (µg/L)	198	5	241	16	200	6	173	13
SDS-HAA5 (µg/L)	75	10	47	10	62	6	35	2
SDS-HAA6 (µg/L)	96	12	68	12	85	7	53	3
SDS-HAA9 (µg/L)	144	18	91	16	124	8	72	7
SDS-TOX (µg Cl^-/L)	543	9	465	24	486	11	380	11
SDS-chlorine demand (mg/L)	3.7	0.1	4.6	0.1	4.6	0.0	4.0	0.1

BMRL: below minimum reporting level
NA: not applicable

Table 27 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 (April, August, and October), both 10 minute and 20 minute full-scale equivalent EBCTs were evaluated using RSSCTs. Table 5 lists the sampling date for each session.

Figure 9 shows the RSSCT effluent TOC breakthrough profiles for the 10 minute EBCT contactors during each session. Breakthrough curves for the October enhanced coagulation GAC RSSCT run are also included in Figure 9 along with the subsequent seasonal curves, for purposes of comparison. The average influent TOC concentration during each conventional treatment session varied from 5.3 to 5.8 mg/L. A range of effluent TOC concentration breakthrough behavior was observed, with run times to an effluent TOC concentration of 2.0 mg/L ranging from 11 to 23 days for the 10 minute EBCT contactors. Run times to 70 percent TOC breakthrough ranged from 30 to 54 days. The RSSCT with highest influent TOC concentration and influent pH yielded the earliest breakthrough of TOC. However, the best-performing conventionally treated water sample for TOC breakthrough was the October session, with an influent TOC concentration of 5.6 mg/L and an influent pH of 7.7, both higher than those measured during the August session (influent TOC concentration of 5.3 mg/L and influent pH of 7.4), which did not perform as well. Improved GAC performance is normally expected at lower influent TOC concentration and lower influent pH. Effluent UV_{254} breakthrough profiles, shown in Figure 10, displayed breakthrough behavior that improved as influent UV_{254} decreased: the breakthrough curves shifted to the right with decreasing influent UV_{254}.

The GAC effluent breakthrough profiles for SDS-DBPs are plotted in Figures 11 through 15. Influent SDS-THM4 levels were highest during the August session, which used the highest SDS incubation temperature. For the April and August sessions, the effluent SDS-THM4 breakthrough profiles, shown in Figure 11, were very similar during the first 20 days of run time. After the 20 days, the April session outperformed the August session. Although the August influent SDS-THM4 was 22 percent higher than that for the April session, adsorption of THM4 precursors during the August session may have been aided by the lower influent pH of 7.4. Higher levels of THM4 precursor removal were achieved during the October session, although the influent SDS-THM4 concentration was similar to that measured during the April session.

Figures 12 through 14 show the breakthrough curves for 10 minute EBCT contactors for SDS-HAA5, SDS-HAA6, and SDS-HAA9. The relative breakthrough patterns for each session were similar among all three SDS-HAA profiles. Influent HAA levels were highest during the April session, and breakthrough of SDS-HAA during this session preceded that during the August and October sessions. The breakthrough profiles for the August and October sessions were very similar, although the influent SDS-HAA concentrations measured varied by 25 to 36 percent. The SDS incubation temperatures were 26 and 24°C for the August and October sessions, respectively. After about 20 to 25 days, the August session (lower influent SDS-HAA levels) outperformed the October session for control of HAA precursors.

For the 10 minute EBCT contactors, SDS-TOX breakthrough followed similar trends observed for TOC (Figure 15). The April sample, with the highest influent SDS-TOX, yielded the earliest breakthrough of effluent SDS-TOX. The April session breakthrough curve was followed by the

August session and then by the October session profile. However, the October session influent SDS-TOX was higher than that for the August session.

The GAC effluent SDS-CLD, Figure 16, displayed a high immediate breakthrough, which ranged from 0.4 to 0.9 mg/L as Cl_2. The immediate breakthrough was likely caused by inorganic chlorine demand, such as ammonia. During the April and October sessions, ammonia was measured at 0.350 and 0.095 mg/L, respectively. These sessions yielded a higher immediate breakthrough of SDS-CLD than did the August session, where influent ammonia levels were BMRL. Effluent SDS-CLD increased over time, as organic chlorine demand increased due to TOC breakthrough. In general, effluent SDS-CLD was highest during the April session, during which influent TOC and ammonia were highest. However, influent SDS-CLD was lowest during the April session, possibly due to the lower SDS incubation temperature.

Based on compliance with Stage 1 or the placeholders for Stage 2 DBP MCLs, the formation of THM4 was the controlling parameters for determining GAC reactivation frequencies. During all runs, the Stage 1 or placeholder for Stage 2 MCL for THM4 was exceeded prior to that for HAA5. To meet the Stage 1 MCL for THM4 (64 µg/L with a 20 percent safety factor), GAC run times ranged from 10 to 19 days for 10 minute EBCT contactors.

The RSSCT effluent TOC breakthrough profiles for the 20 minute EBCT contactors are shown in Figure 17. A range in effluent TOC concentration breakthrough behavior was observed: run times to an effluent TOC concentration of 1.0 mg/L ranged from 32 to 51 days, while run times to 70 percent TOC breakthrough ranged from 82 to 117 days. These run times are longer than those observed for the 10 minute EBCT contactor results due to the longer EBCT. The relative order of breakthrough was identical to that observed for the 10 minute EBCT contactors: the October run outperformed both the August and April runs. While the April run was associated with the highest influent TOC and pH levels, the August run yielded the lowest influent TOC and pH levels. The UV_{254} breakthrough behavior, Figure 18, was similar to that for TOC, but like that for the 10 minute EBCT contactor, better performance was always associated with lower influent UV_{254}. The GAC effluent breakthrough profiles for SDS-DBP formation are plotted in Figures 19 through 23. In general, 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. An exception to this parallel between the two EBCTs was the similarity in the later stages of SDS-HAA breakthrough for the 20 minute EBCT contactors between the August and October runs. For a 10 minute EBCT, the August session outperformed the October session during the latter half of the runs. For the 20 minute EBCT contactors, however, both curves yielded almost identical results throughout the entire run. Figure 24 shows the measured GAC effluent SDS chlorine demand, which displayed behavior similar to that found with the 10 minute EBCT contactor.

Based on compliance with Stage 1 or the placeholders for Stage 2 DBP MCLs, the formation of THM4 was again the controlling parameters for determining GAC reactivation frequencies. During all runs, the Stage 1 or placeholder for Stage 2 MCL for THM4 was exceeded prior to that for HAA5. To meet the Stage 1 MCL for THM4 (64 µg/L with a 20 percent safety factor), GAC run times ranged from 29 to 44 days for 20 minute EBCT contactors.

In summary, limited seasonal variability in influent TOC concentration was observed: the influent TOC concentration ranged from 5.3 to 5.8 mg/L (mean = 5.5 ± 0.3 mg/L). Seasonal variability in settled water pH varied between 7.4 and 8.0, but did not have a large impact on GAC performance. Influent SDS-DBP was not necessarily a good indicator for relative DBP precursor control, as GAC performance did not always improve with decreasing influent concentration. The effluent pH and temperature for each EBCT during each session were also monitored, and the results, summarized in Tables 27 and 28, were very consistent with a RSD not exceeding 5 percent.

Table 30 summarizes run times to various GAC effluent criteria for the 10 minute EBCT contactors. The mean, standard deviation, and RSD of the run times for the three conventional pretreatment sessions 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 31. The THM and HAA run time criteria chosen are based on Stage 1 and the placeholder 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}. Furthermore, the run times to 70 percent TOC breakthrough are listed in Tables 30 and 31. The calculated RSD provides a measure of the degree of seasonal variability evident in GAC performance. For example, the run time to a GAC effluent TOC concentration of 2.0 mg/L for 10 minute EBCT contactors ranged from 11 to 23 days, with a RSD of 33 percent. Run times to meet the Stage 1 THM4 MCL, ranged from 10 to 19 days, also with a RSD of 33 percent.

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 25 and 26 summarize run times to effluent TOC and UV_{254} criteria, and Figures 27 and 28 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 29 through 32 for 20 minute EBCT contactors.

Based on the calculated run times for all sessions 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 session and EBCT, these data are summarized in Tables 31 through 38. For example, Table 32 shows that when the Stage 1 MCL for THM4 (with a 20 percent safety factor) was exceeded, the TOC concentration was 1.6 mg/L, the SDS-HAA5 concentration was 12 µg/L, and the SDS-TOX concentration was 93 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 specie. GAC does not remove bromide and this results in higher 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, formed effluent concentration are measured higher than formed influent levels.

For both the 10 and 20 minute EBCT contactors and all sessions, Figures 33, 34, 35 and 36 show the breakthrough behavior of the formed THMs: chloroform ($CHCl_3$), bromodichloromethane (BDCM), dibromochloromethane (DBCM), and bromoform ($CHBr_3$), respectively. Due to the

high bromide to TOC ratio, the formation of chloroform in the GAC effluent was lower than any of the brominated species, for most of the run. Both SDS-BDCM and SDS-$CHBr_3$ effluent levels exceeded that formed in the influent. For all runs, effluent SDS-$CHBr_3$ concentrations peaked prior to the end of the run. Similar behavior for SDS-BDCM was found for most runs. 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 seasons and for both EBCTs are shown in Figures 37 through 45. 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). All species except for MCAA and MBAA were formed at significant concentrations in the GAC effluent. 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 the brominated species in many cases reached levels that were 90 to 100 percent of GAC influent concentrations. For SDS-DBAA, effluent concentrations reached 100 to 125 percent of influent levels, while for SDS-TBAA the formed concentrations in the influent were below the 4 µg/L MRL, but at some point during all eight runs the effluent formed concentrations exceeded the MRL. Again, the relatively poor control of the brominated HAA species in the GAC effluent can be attributed to the increase in bromide to TOC ratio in the GAC effluent. The three species not included in the summation of SDS-HAA6 (DCBAA, CDBAA, and TBAA) accounted for a significant fraction (30 to 40 percent) of SDS-HAA9.

Effluent sample number	Effluent pH				Effluent temperature (°C)			
	April	August	October	October-EC	April	August	October	October-EC
1	8.5	8.3	8.4	7.6	23	23	22	22
2	8.3	8.0	8.1	7.6	21	22	21	20
3	8.2	8.1	8.1	7.5	22	23	21	21
4	8.2	8.1	8.1	7.5	23	22	21	21
5	8.2	8.1	8.1	7.5	24	22	22	22
6	8.2	7.9	8.1	7.6	23	23	21	22
7	8.3	8.1	8.1	7.5	23	22	21	21
8	8.2	8.0	8.0	7.5	21	23	22	22
9	8.2	8.0	8.0	7.6	22	22	22	21
10	8.2	8.1	8.0	7.5	24	24	21	21
11	8.2	8.1	8.1	7.4	22	24	21	20
12	8.2	8.1	8.1	7.5	21	21	22	20
13	8.2	8.0	8.0	7.4	24	22	21	20
Mean	8.2	8.1	8.1	7.5	22	23	21	21
Standard deviation	±0.1	±0.1	±0.1	±0.1	±1.0	±0.8	±0.4	±0.6
Relative percent error	1	1	1	1	5	4	2	3

Table 28 GAC effluent pH and temperature data for 10 minute EBCT contactors

Effluent sample number	Effluent pH				Effluent temperature (°C)			
	April	August	October	October-EC	April	August	October	October-EC
1	8.4	8.9	8.9	7.9	23	24	22	22
2	8.1	8.1	8.0	7.6	21	23	21	20
3	8.1	8.1	8.0	7.6	23	23	21	20
4	8.5	8.1	8.0	7.5	21	23	21	21
5	8.5	8.1	8.0	7.4	21	22	21	21
6	7.4	8.1	8.1	7.4	21	23	21	20
7	8.2	7.9	8.0	7.4	21	22	23	20
8	8.2	8.0	8.0	7.5	21	21	23	22
9	8.3	8.1	8.0	7.4	23	22	21	20
10	8.3	8.1	8.2	7.5	20	22	20	21
11	7.9	7.9	8.2	7.3	21	21	21	21
12	8.5	8.1	8.2	7.3	21	23	21	21
13	8.5	7.9	8.1	7.4	21	21	21	22
Mean	8.2	8.1	8.1	7.5	21	22	21	21
Standard deviation	±0.3	±0.2	±0.3	±0.2	±1.0	±0.8	±0.7	±0.7
Relative percent error	4	3	3	2	5	4	3	3

Table 29 GAC effluent pH and temperature data for 20 minute EBCT contactors

Parameter	Units	Value	Run time (days)				Sessions 1 - 3		
			Session				Mean	Standard deviation	Relative standard deviation (%)
			1 April	2 August	3 October	4 October-EC			
TOC	(mg/L)	2.0	11	17	23	39	17	±6	33%
		1.0	8	12	16	29	12	±4	33%
		c/c_0 = 50%†	21	34	30	44	28	±7	23%
		c/c_0 = 70%††	30	42	54	72	42	±12	29%
UV-254	(1/cm)	0.040	13	22	32	62	23	±10	43%
		0.020	9	14	20	39	14	±5	37%
		c/c_0 = 50%†	21	34	47	71	34	±13	38%
SDS-THM4	(µg/L)	80	12	14	21	41	15	±5	32%
		64	10	13	19	35	14	±5	33%
		32	8	10	15	27	11	±3	31%
SDS-HAA5	(µg/L)	48	*	*	*	*			
		24	15	39	27	*	27	±12	43%
SDS-HAA6	(µg/L)	48	32	*	46	*	39	±10	25%
		24	12	21	21	49	18	±5	27%
SDS-HAA9	(µg/L)	48	13	37	25	*	25	±12	48%
		24	9	17	18	35	15	±5	32%
SDS-TOX	(µg Cl^-/L)	120	11	17	23	41	17	±6	34%
		70	9	13	18	33	13	±5	34%
Study length	(days)	--	33	51	58	84	47	±13	27%

†GAC effluent concentration equal to 50 percent of the average influent concentration.
††GAC effluent concentration equal to 70 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time, calculated values are left blank.

Table 30 Run times to selected GAC effluent criteria (10 minute EBCT)

Parameter	Units	Value	Run time (days)				Sessions 1 - 3		
			Session				Mean	Standard deviation	Relative standard deviation (%)
			1 April	2 August	3 October	4 October-EC			
TOC	(mg/L)	2.0	32	43	51	95	42	±10	23%
		1.0	21	30	35	69	29	±7	24%
		c/c_0 = 50%†	44	56	80	111	60	±18	30%
		c/c_0 = 70%††	82	94	117	159	98	±18	18%
UV-254	(1/cm)	0.040	39	59	82	151	60	±22	36%
		0.020	25	37	45	94	36	±10	28%
		c/c_0 = 50%†	60	91	107	162	86	±24	28%
SDS-THM4	(µg/L)	80	33	39	48	94	40	±8	19%
		64	29	35	44	90	36	±8	21%
		32	21	28	32	67	27	±6	22%
SDS-HAA5	(µg/L)	48	*	*	*	*			
		24	45	88	66	*	66	±21	32%
SDS-HAA6	(µg/L)	48	64	*	*	*	64		
		24	37	54	51	118	47	±9	20%
SDS-HAA9	(µg/L)	48	41	65	60	155	55	±12	23%
		24	27	41	41	93	36	±8	23%
SDS-TOX	(µg Cl^-/L)	120	33	45	52	103	43	±10	23%
		70	25	34	41	80	33	±8	24%
Study length	(days)	--	90	106	137	159	111	±24	21%

†GAC effluent concentration equal to 50 percent of the average influent concentration.
††GAC effluent concentration equal to 70 percent of the average influent concentration.
*Effluent concentration criteria not exceeded during GAC run time, calculated values are left blank.

Table 31 Run times to selected GAC effluent criteria (20 minute EBCT)

Parameter	Units	Mean 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)	5.8	2.0	11	1,620	2.0	0.032	77	14	20	34	120
			1.0	8	1,140	1.0	0.012	32	6	8	8	43
			2.9†	16	2,330	2.9	0.051	104	25	36	64	207
UV_{254}	(1/cm)	0.127	0.040	13	1,890	2.4	0.040	89	18	27	46	152
			0.020	9	1,320	1.4	0.020	50	10	14	22	72
			0.063†	21	3,040	3.4	0.063	116	29	41	68	249
SDS-THM4	(µg/L)	198	80	12	1,680	2.1	0.034	80	15	21	36	130
			64	10	1,450	1.6	0.025	64	12	17	28	93
			32	8	1,140	1.0	0.012	32	6	8	8	42
SDS-HAA5	(µg/L)	75	48	*	*							
			24	15	2,220	2.8	0.048	101	24	34	60	195
SDS-HAA6	(µg/L)	96	48	32	4,660	4.2	0.079	127	36	48	75	319
			24	12	1,790	2.3	0.037	85	17	24	41	142
SDS-HAA9	(µg/L)	144	48	13	1,920	2.5	0.041	90	19	28	48	156
			24	9	1,340	1.4	0.021	52	10	14	24	76
SDS-TOX	(µg Cl^-/L)	543	120	11	1,620	2.0	0.032	77	14	20	34	120
			70	9	1,310	1.3	0.019	49	10	13	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 32 Run times to selected GAC effluent criteria (10 minute EBCT) during session 1, April

Parameter	Units	Mean 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)	5.8	2.0	32	2,290	2.0	0.030	73	11	16	29	115
			1.0	21	1,530	1.0	0.013	34	6	8	8	44
			2.9†	44	3,170	2.9	0.048	102	23	33	54	195
UV_{254}	(1/cm)	0.127	0.040	39	2,810	2.6	0.040	91	18	26	45	161
			0.020	25	1,830	1.4	0.020	50	8	12	16	75
			0.063†	60	4,350	3.4	0.063	123	34	46	69	250
SDS-THM4	(µg/L)	198	80	33	2,400	2.2	0.033	80	13	19	33	127
			64	29	2,090	1.8	0.026	64	11	15	27	97
			32	21	1,490	0.9	0.011	32	6	8	8	39
SDS-HAA5	(µg/L)	75	48	*	*							
			24	45	3,220	2.9	0.050	103	24	34	56	200
SDS-HAA6	(µg/L)	96	48	64	4,630	3.5	0.066	126	36	48	72	262
			24	37	2,630	2.4	0.038	90	16	24	43	149
SDS-HAA9	(µg/L)	144	48	41	2,960	2.7	0.043	93	20	28	48	173
			24	27	1,930	1.6	0.023	57	10	14	24	84
SDS-TOX	(µg Cl^-/L)	543	120	33	2,340	2.1	0.031	75	12	17	30	120
			70	25	1,770	1.3	0.018	46	8	11	12	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 33 Run times to selected GAC effluent criteria (20 minute EBCT) during session 1, April

Parameter	Units	Mean 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)	5.3	2.0	17	2,500	2.0	0.029	114	13	18	24	123
			1.0	12	1,700	1.0	0.012	50	6	8	11	47
			2.6†	22	3,180	2.6	0.040	137	17	25	36	174
UV_{254}	(1/cm)	0.119	0.040	22	3,200	2.6	0.040	137	17	25	36	175
			0.020	14	2,060	1.5	0.020	93	10	14	19	85
			0.059†	34	4,910	3.5	0.059	158	22	33	45	250
SDS-THM4	(µg/L)	241	80	14	1,970	1.4	0.018	80	9	13	17	77
			64	13	1,840	1.2	0.015	64	8	10	14	62
			32	10	1,490	0.7	0.007	32	4	5	5	32
SDS-HAA5	(µg/L)	47	48	*	*							
			24	39	5,580	3.6	0.063	160	24	36	49	258
SDS-HAA6	(µg/L)	68	48	*	*							
			24	21	2,980	2.5	0.037	140	17	24	36	162
SDS-HAA9	(µg/L)	91	48	37	5,390	3.6	0.062	160	23	35	48	255
			24	17	2,460	2.0	0.028	113	13	18	24	120
SDS-TOX	(µg Cl^-/L)	465	120	17	2,470	2.0	0.028	113	13	18	24	120
			70	13	1,900	1.3	0.016	72	8	12	16	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 34 Run times to selected GAC effluent criteria (10 minute EBCT) during session 2, August

Parameter	Units	Mean 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)	5.3	2.0	43	3,080	2.0	0.026	91	12	18	27	110
			1.0	30	2,160	1.0	0.010	43	6	8	9	41
			2.6†	56	4,030	2.6	0.037	125	18	26	40	160
UV_{254}	(1/cm)	0.119	0.040	59	4,240	2.8	0.040	131	19	28	44	176
			0.020	37	2,650	1.7	0.020	70	10	14	19	82
			0.059†	91	6,540	3.6	0.059	172	25	37	57	259
SDS-THM4	(µg/L)	241	80	39	2,840	1.8	0.023	80	11	16	22	94
			64	35	2,530	1.6	0.018	64	9	13	17	74
			32	28	2,020	0.8	0.008	32	5	6	6	33
SDS-HAA5	(µg/L)	47	48	*	*							
			24	88	6,310	3.6	0.058	168	24	36	56	251
SDS-HAA6	(µg/L)	68	48	*	*							
			24	54	3,860	2.5	0.035	120	17	24	37	148
SDS-HAA9	(µg/L)	91	48	65	4,670	3.1	0.047	146	21	31	48	201
			24	41	2,960	1.9	0.024	85	12	17	24	102
SDS-TOX	(µg Cl^-/L)	465	120	45	3,220	2.1	0.028	98	13	19	30	120
			70	34	2,470	1.5	0.017	61	9	12	16	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 35 Run times to selected GAC effluent criteria (20 minute EBCT) during session 2, August

Parameter	Units	Mean 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)	5.6	2.0	23	3,250	2.0	0.025	88	19	27	41	118
			1.0	16	2,250	1.0	0.011	39	9	12	16	46
			2.8†	30	4,290	2.8	0.036	114	26	39	60	179
UV_{254}	(1/cm)	0.109	0.040	32	4,680	3.0	0.040	124	28	41	65	195
			0.020	20	2,880	1.7	0.020	72	15	21	32	90
			0.054†	47	6,750	3.6	0.054	147	34	49	76	257
SDS-THM4	(µg/L)	200	80	21	3,010	1.8	0.022	80	17	23	36	99
			64	19	2,760	1.6	0.018	64	13	18	29	81
			32	15	2,100	0.9	0.008	32	8	10	11	37
SDS-HAA5	(µg/L)	62	48	*	*							
			24	27	3,890	2.5	0.032	103	24	35	54	160
SDS-HAA6	(µg/L)	85	48	46	6,650	3.6	0.054	146	34	48	75	255
			24	21	3,050	1.8	0.022	83	17	24	37	102
SDS-HAA9	(µg/L)	124	48	25	3,600	2.3	0.029	94	22	32	48	143
			24	18	2,550	1.3	0.015	53	11	15	24	66
SDS-TOX	(µg Cl^-/L)	486	120	23	3,280	2.0	0.025	88	19	27	42	120
			70	18	2,610	1.4	0.016	56	12	16	25	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 36 Run times to selected GAC effluent criteria (10 minute EBCT) during session 3, October

Parameter	Units	Mean 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)	5.6	2.0	51	3,680	2.0	0.025	87	17	24	36	115
			1.0	35	2,520	1.0	0.010	37	8	11	14	42
			2.8†	80	5,740	2.8	0.038	118	26	36	52	189
UV_{254}	(1/cm)	0.109	0.040	82	5,930	2.9	0.040	122	26	36	52	195
			0.020	45	3,260	1.7	0.020	68	14	19	29	90
			0.054†	107	7,710	3.6	0.054	142	29	42	61	247
SDS-THM4	(µg/L)	200	80	48	3,490	1.9	0.023	80	15	21	32	102
			64	44	3,170	1.6	0.019	64	14	18	28	85
			32	32	2,310	0.8	0.007	32	6	7	7	29
SDS-HAA5	(µg/L)	62	48	*	*							
			24	66	4,730	2.5	0.034	103	24	35	53	167
SDS-HAA6	(µg/L)	85	48	*	*							
			24	51	3,700	2.0	0.025	88	17	24	36	116
SDS-HAA9	(µg/L)	124	48	60	4,290	2.3	0.030	99	21	32	48	149
			24	41	2,940	1.4	0.016	54	12	16	24	71
SDS-TOX	(µg Cl^-/L)	486	120	52	3,760	2.0	0.026	89	17	25	38	120
			70	41	2,930	1.4	0.016	53	12	16	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 37 Run times to selected GAC effluent criteria (20 minute EBCT) during session 3, October

Parameter	Units	Mean 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)	4.6	2.0	39	5,660	2.0	0.021	77	14	19	29	112
			1.0	29	4,120	1.0	0.009	39	8	10	10	44
			2.3†	44	6,350	2.3	0.025	86	14	20	30	132
UV_{254}	(1/cm)	0.090	0.040	62	8,910	2.9	0.040	123	20	30	45	193
			0.020	39	5,570	2.0	0.020	76	13	18	29	109
			0.045†	71	10,260	3.2	0.045	129	21	31	46	209
SDS-THM4	(µg/L)	173	80	41	5,870	2.1	0.022	80	14	19	30	119
			64	35	5,060	1.6	0.016	64	12	16	24	87
			32	27	3,950	0.8	0.007	32	6	8	8	36
SDS-HAA5	(µg/L)	35	48	*	*							
			24	*	*							
SDS-HAA6	(µg/L)	53	48	*	*							
			24	49	7,100	2.5	0.030	95	17	24	36	151
SDS-HAA9	(µg/L)	72	48	*	*							
			24	35	5,010	1.6	0.016	63	11	15	24	84
SDS-TOX	(µg Cl^-/L)	380	120	41	5,910	2.1	0.022	80	14	20	30	120
			70	33	4,690	1.4	0.013	55	10	14	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 38 Run times to selected GAC effluent criteria (10 minute EBCT) during session 4, October-EC

Parameter	Units	Mean 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)	4.6	2.0	95	6,860	2.0	0.021	84	14	19	28	110
			1.0	69	4,940	1.0	0.009	33	7	9	10	45
			2.3†	111	8,020	2.3	0.025	102	15	21	31	131
UV_{254}	(1/cm)	0.090	0.040	151	10,860	3.0	0.040	131	20	29	44	188
			0.020	94	6,770	1.9	0.020	79	13	18	26	105
			0.045†	162	11,670	3.3	0.045	#	#	#	#	#
SDS-THM4	(µg/L)	173	80	94	6,780	2.0	0.020	80	13	18	26	106
			64	90	6,460	1.8	0.017	64	11	15	19	89
			32	67	4,850	1.0	0.008	32	6	8	9	42
SDS-HAA5	(µg/L)	35	48	*	*							
			24	*	*							
SDS-HAA6	(µg/L)	53	48	*	*							
			24	118	8,490	2.5	0.028	109	17	24	35	141
SDS-HAA9	(µg/L)	72	48	155	11,160	3.1	0.042	138	21	31	48	195
			24	93	6,700	1.9	0.019	75	13	17	24	101
SDS-TOX	(µg Cl^-/L)	380	120	103	7,390	2.1	0.023	93	15	20	30	120
			70	80	5,780	1.4	0.013	48	8	11	14	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 39 Run times to selected GAC effluent criteria (20 minute EBCT) during session 4, October-EC

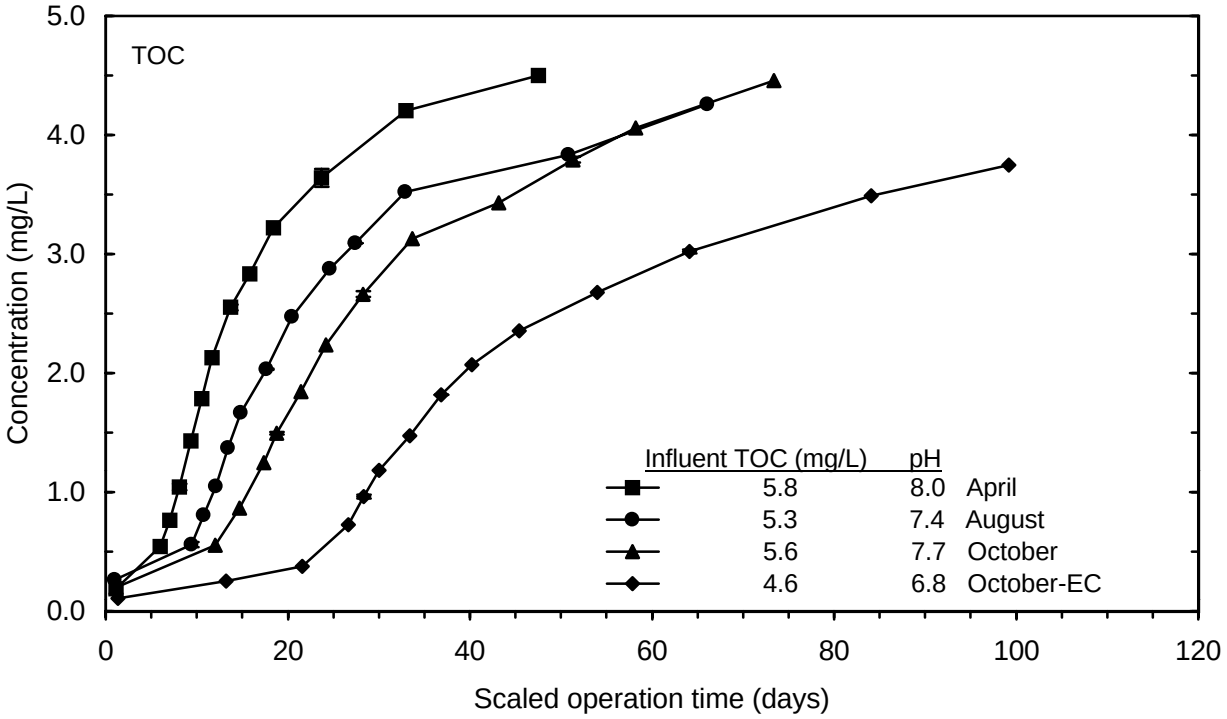


Figure 9 TOC breakthrough for 10 minute EBCT contactors for each session

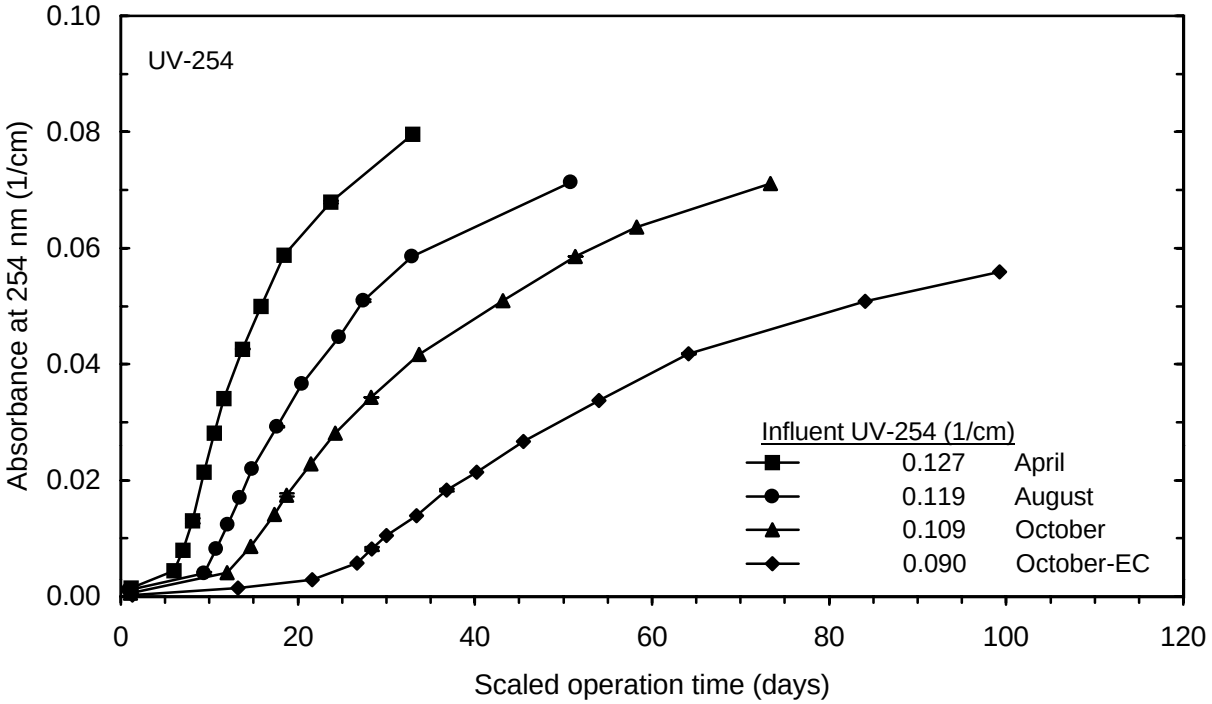


Figure 10 UV-254 breakthrough for 10 minute EBCT contactors for each session

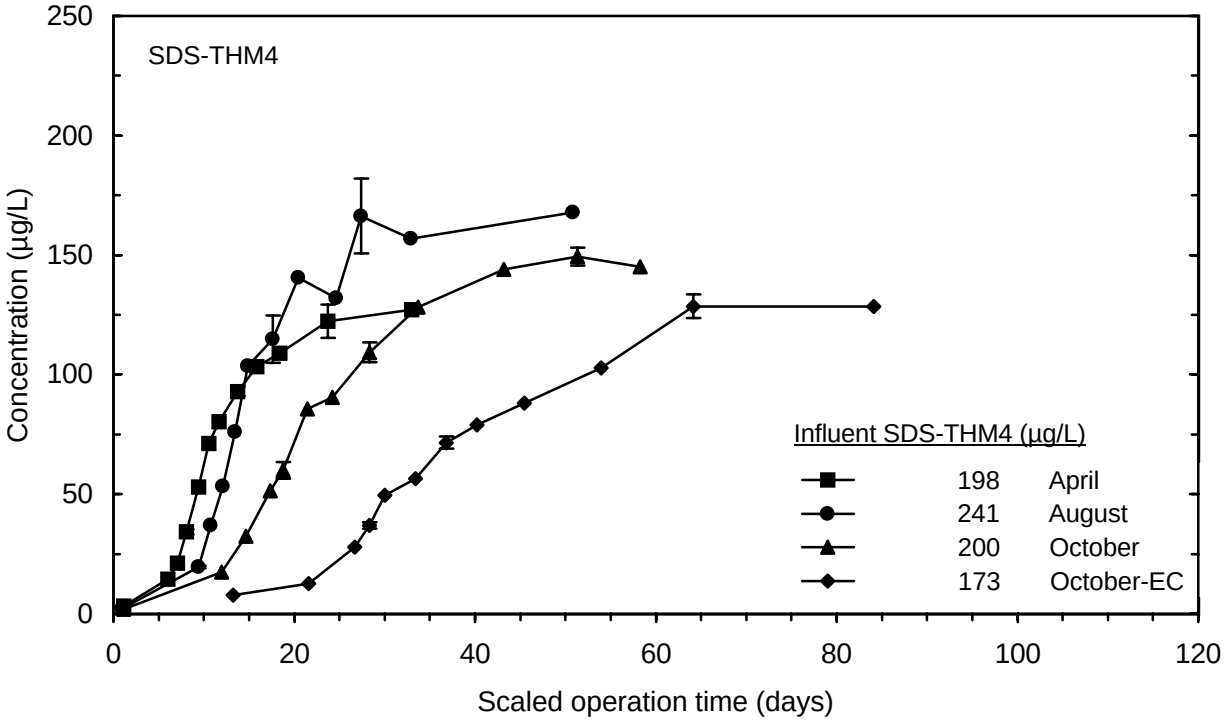


Figure 11 SDS-THM4 breakthrough for 10 minute EBCT contactors for each session

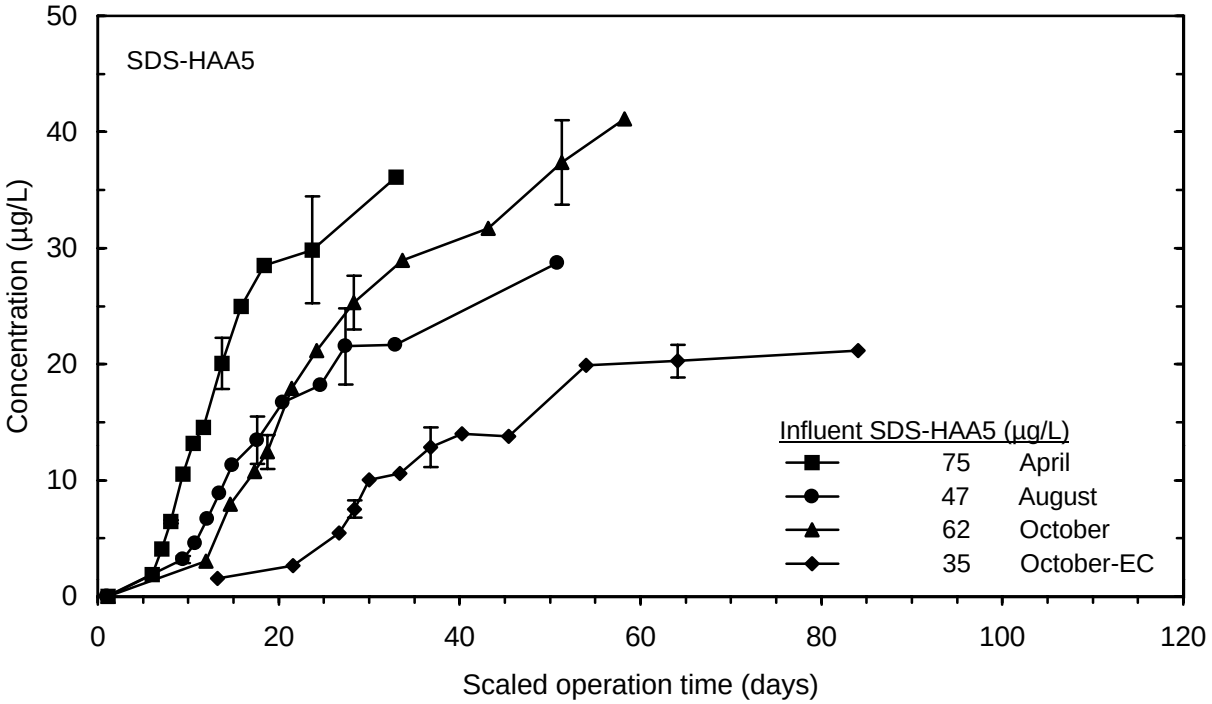


Figure 12 SDS-HAA5 breakthrough for 10 minute EBCT contactors for each session

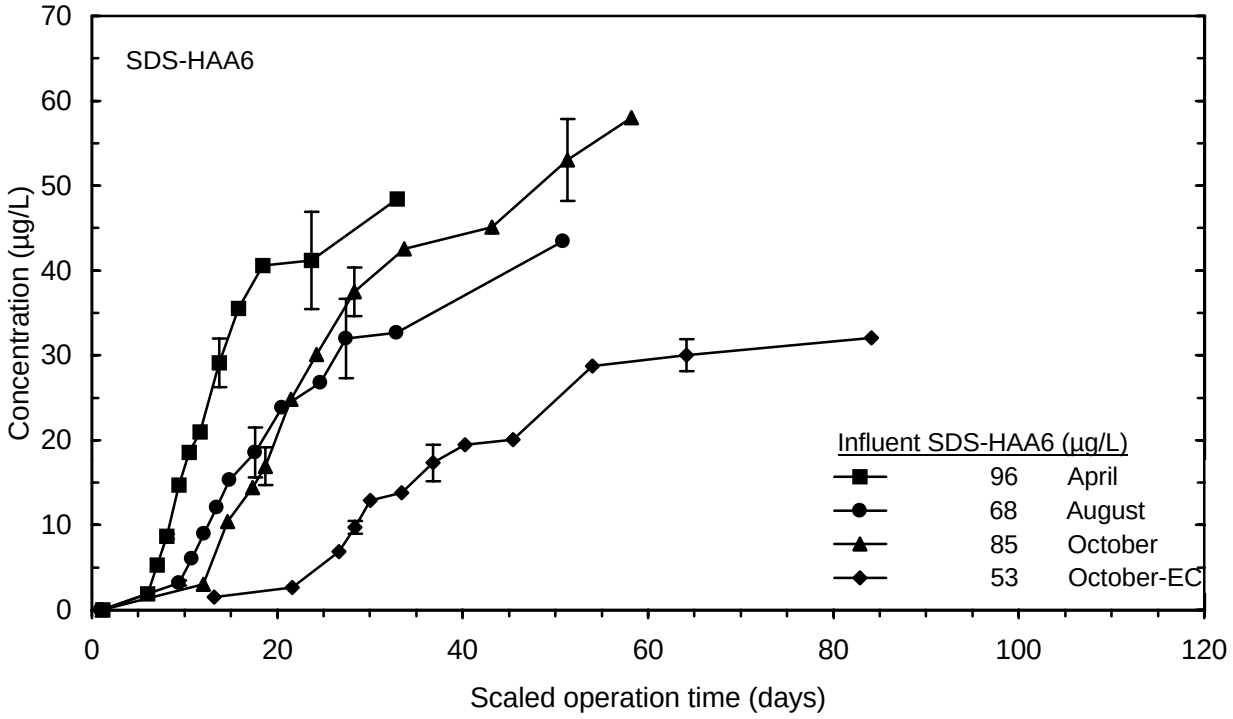


Figure 13 SDS-HAA6 breakthrough for 10 minute EBCT contactors for each session

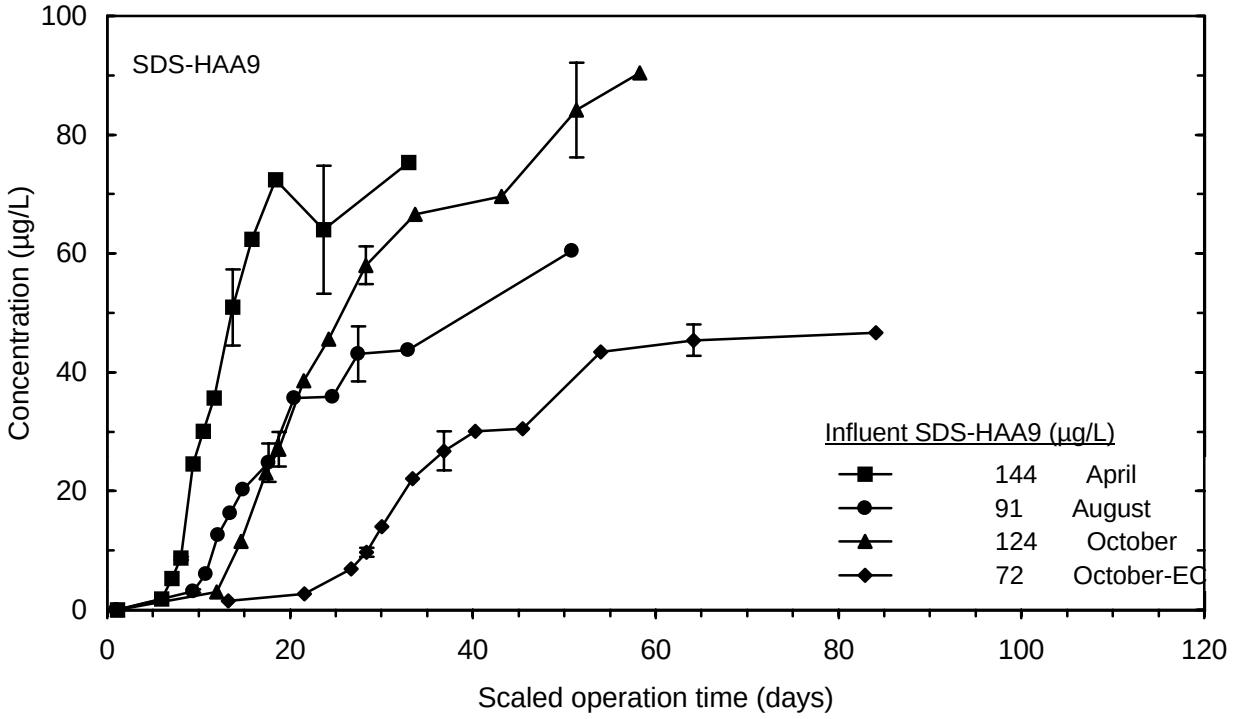


Figure 14 SDS-HAA9 breakthrough for 10 minute EBCT contactors for each session

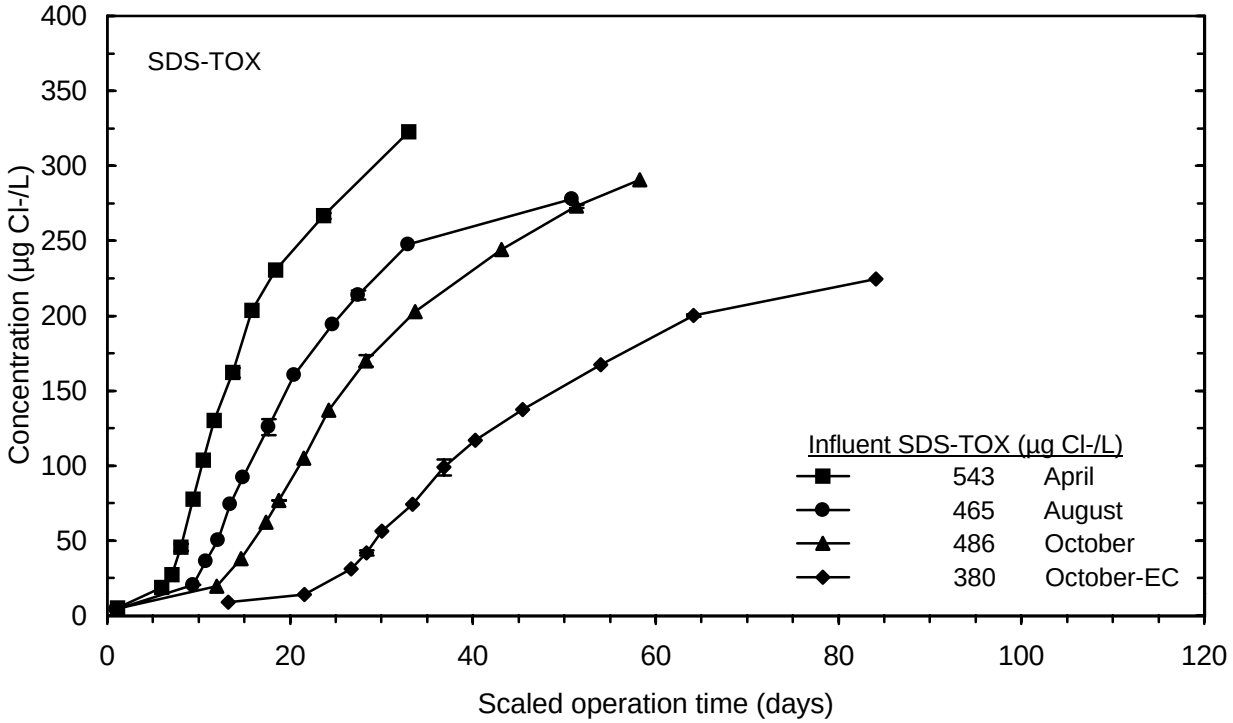


Figure 15 SDS-TOX breakthrough for 10 minute EBCT contactors for each session

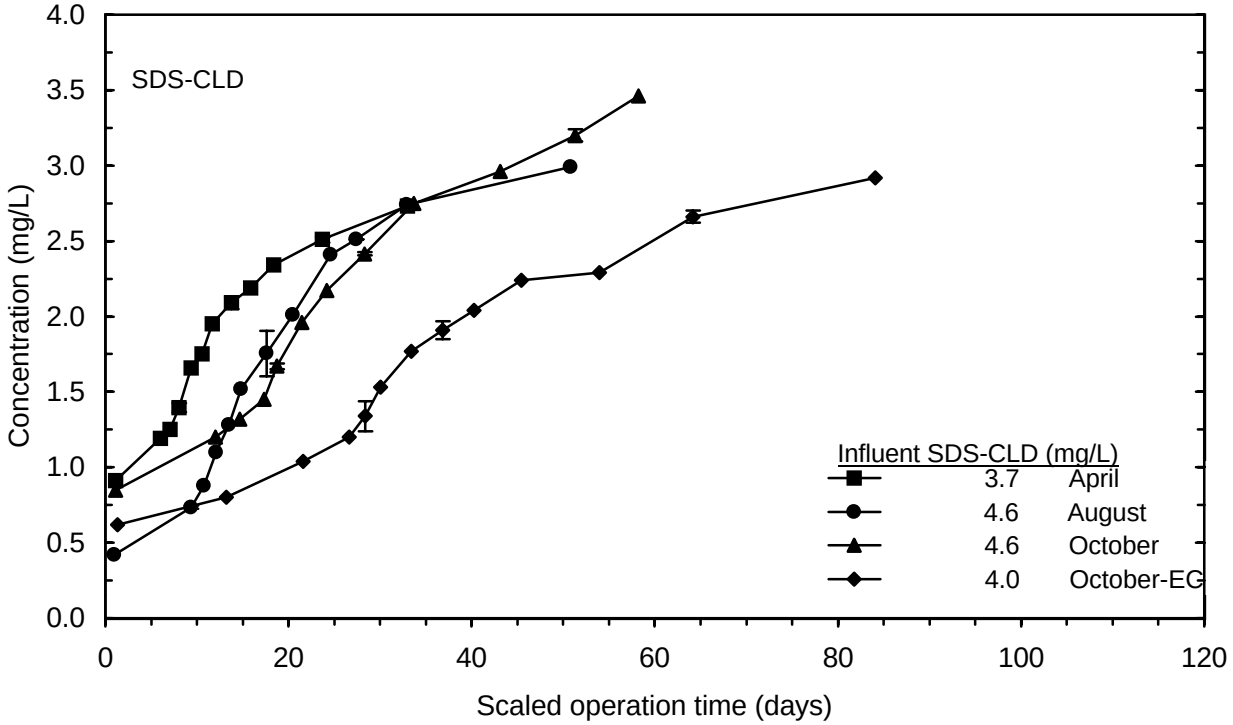


Figure 16 SDS-CLD breakthrough for 10 minute EBCT contactors for each session

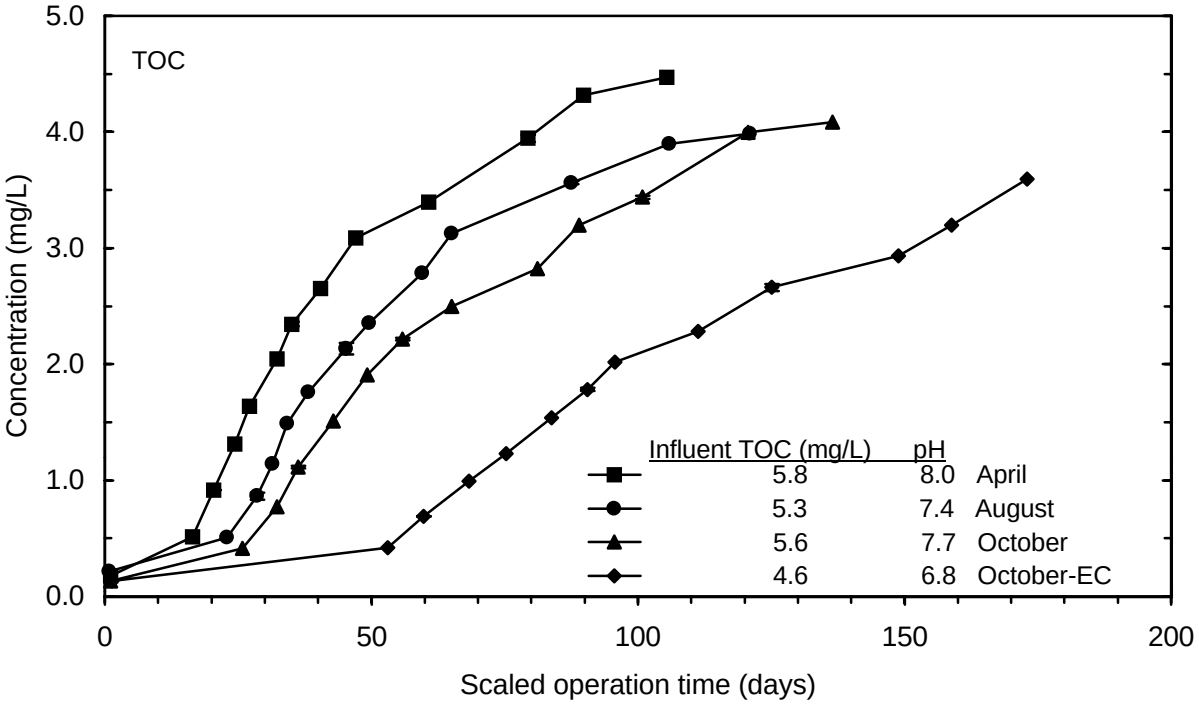


Figure 17 TOC breakthrough for 20 minute EBCT contactors for each session

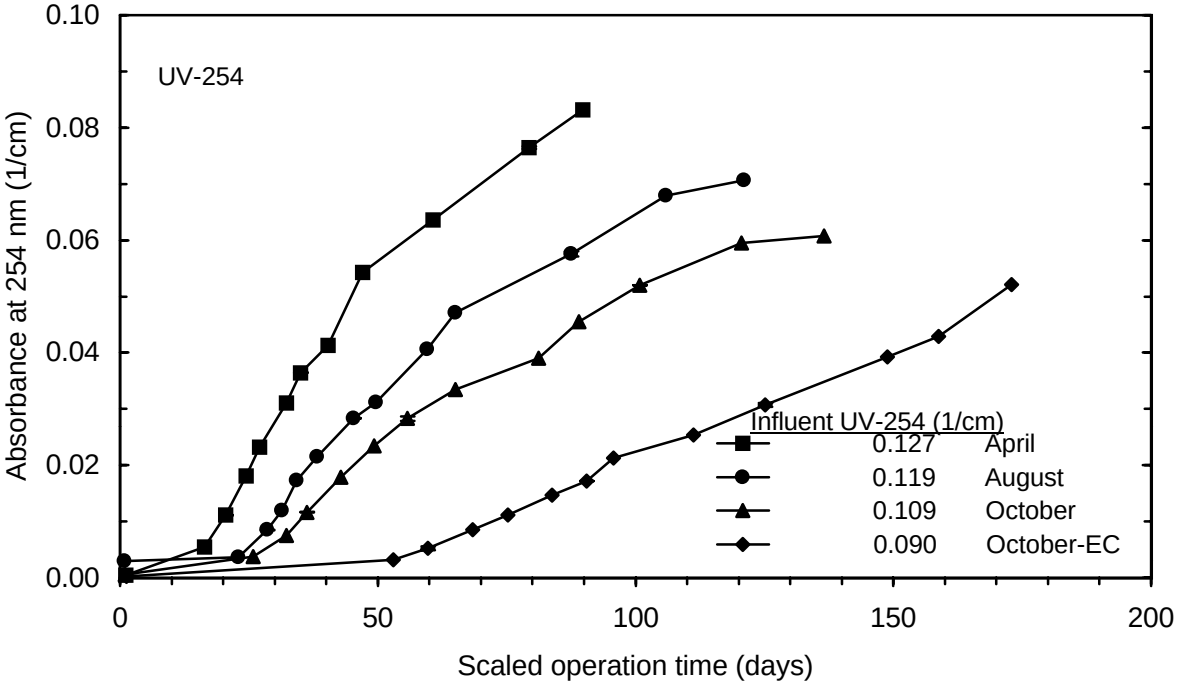


Figure 18 UV-254 breakthrough for 20 minute EBCT contactors for each session

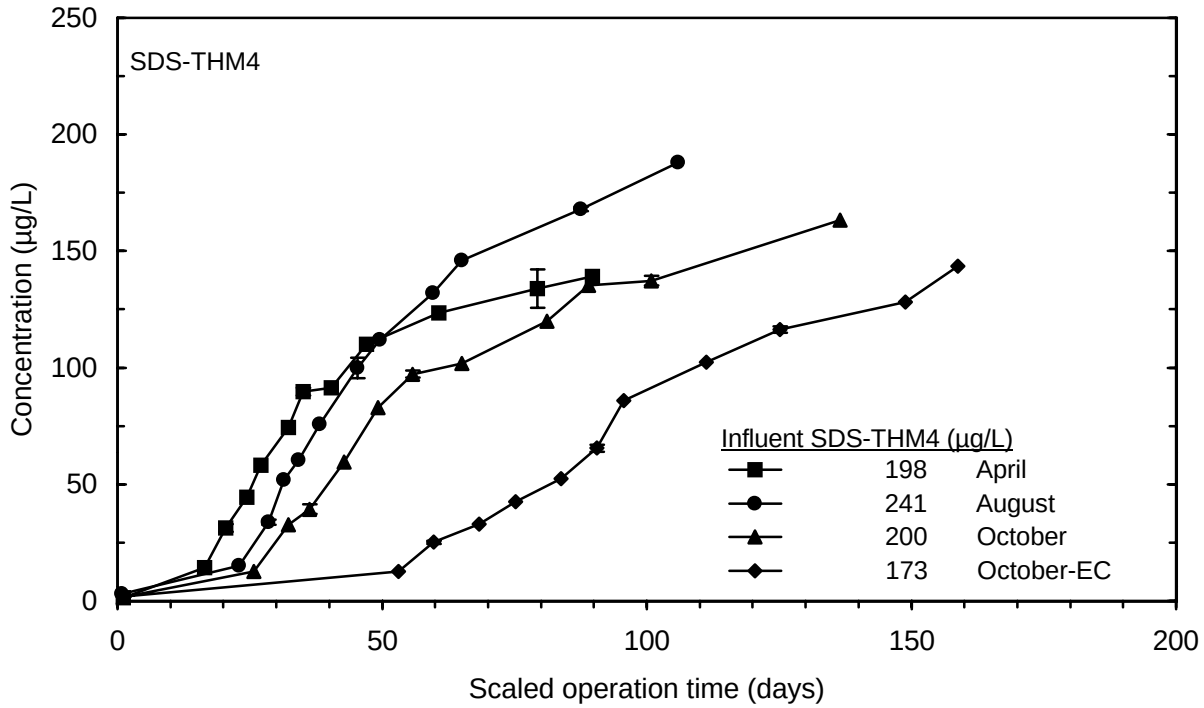


Figure 19 SDS-THM4 breakthrough for 20 minute EBCT contactors for each session

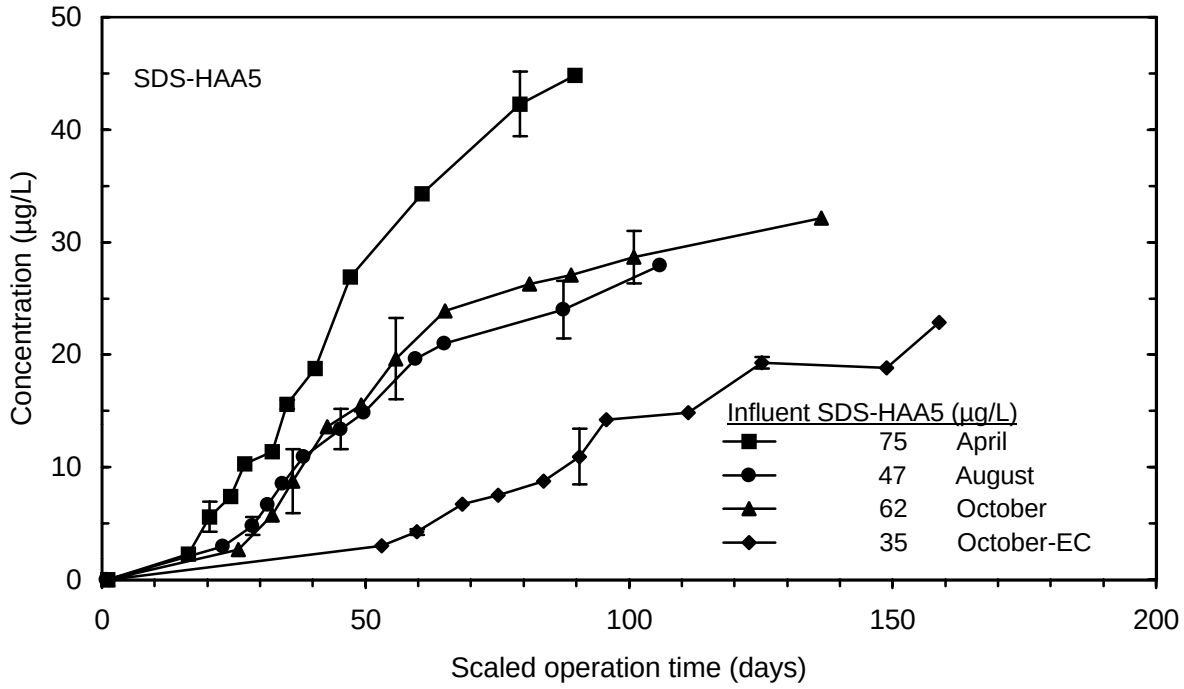


Figure 20 SDS-HAA5 breakthrough for 20 minute EBCT contactors for each session

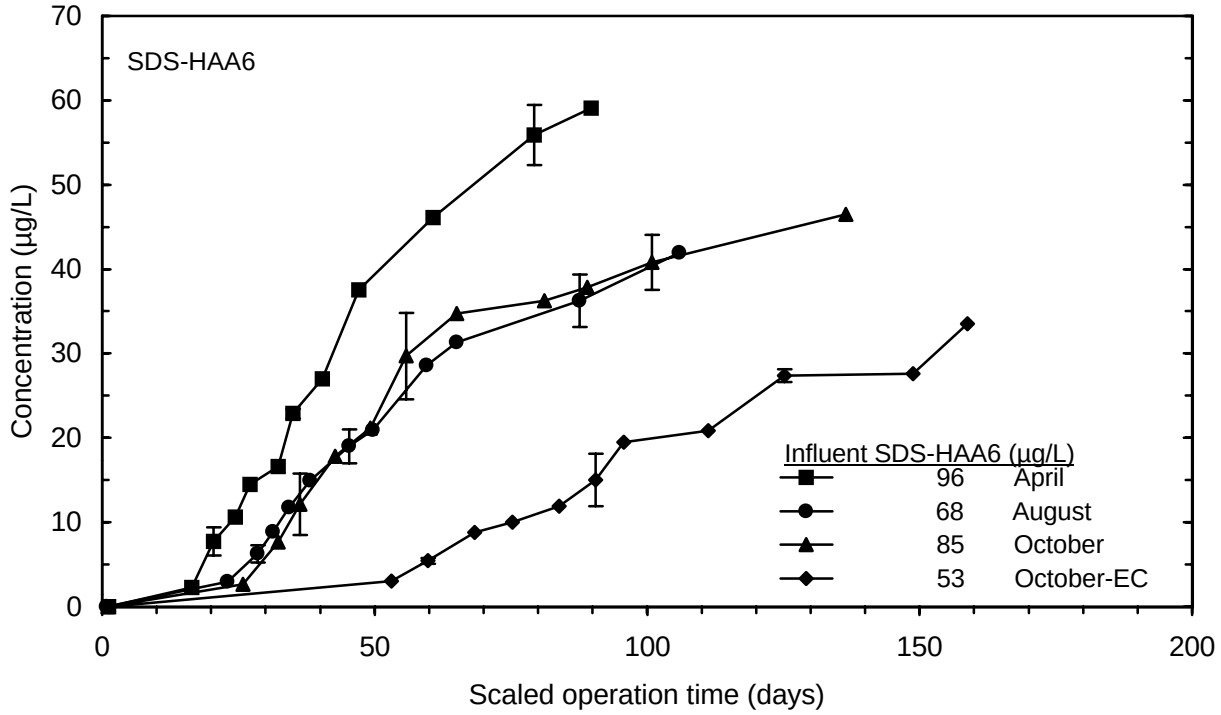


Figure 21 SDS-HAA6 breakthrough for 20 minute EBCT contactors for each session

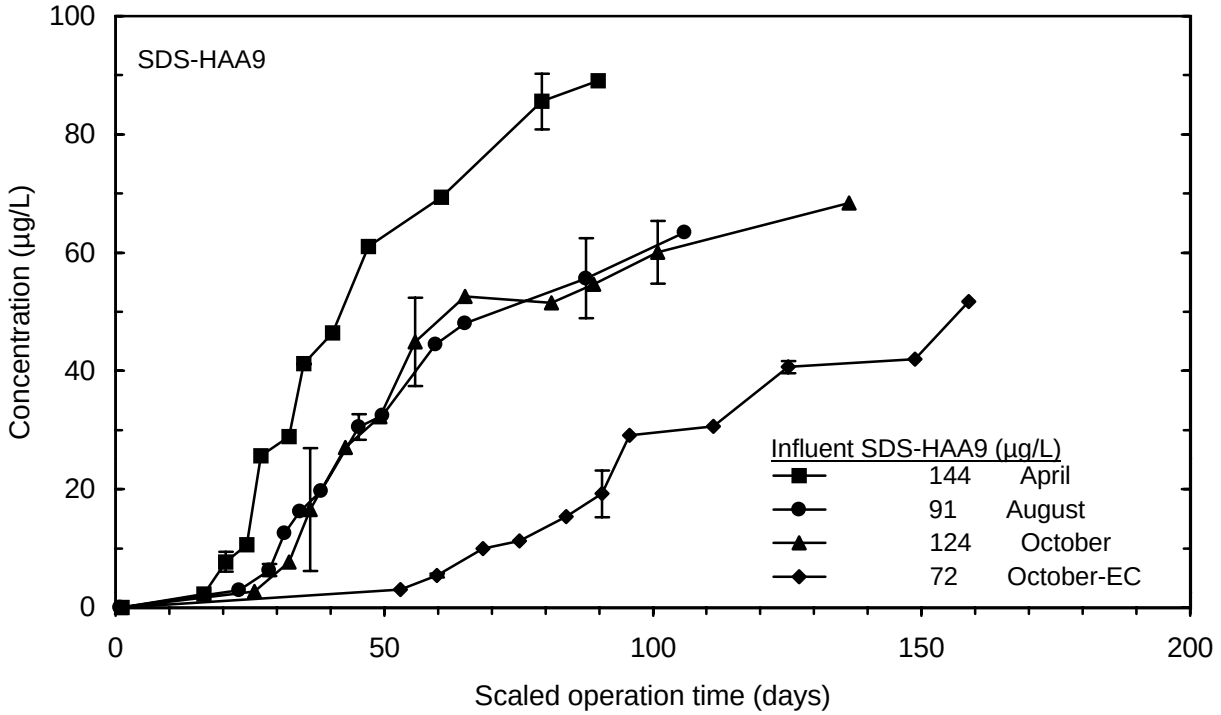


Figure 22 SDS-HAA9 breakthrough for 20 minute EBCT contactors for each session

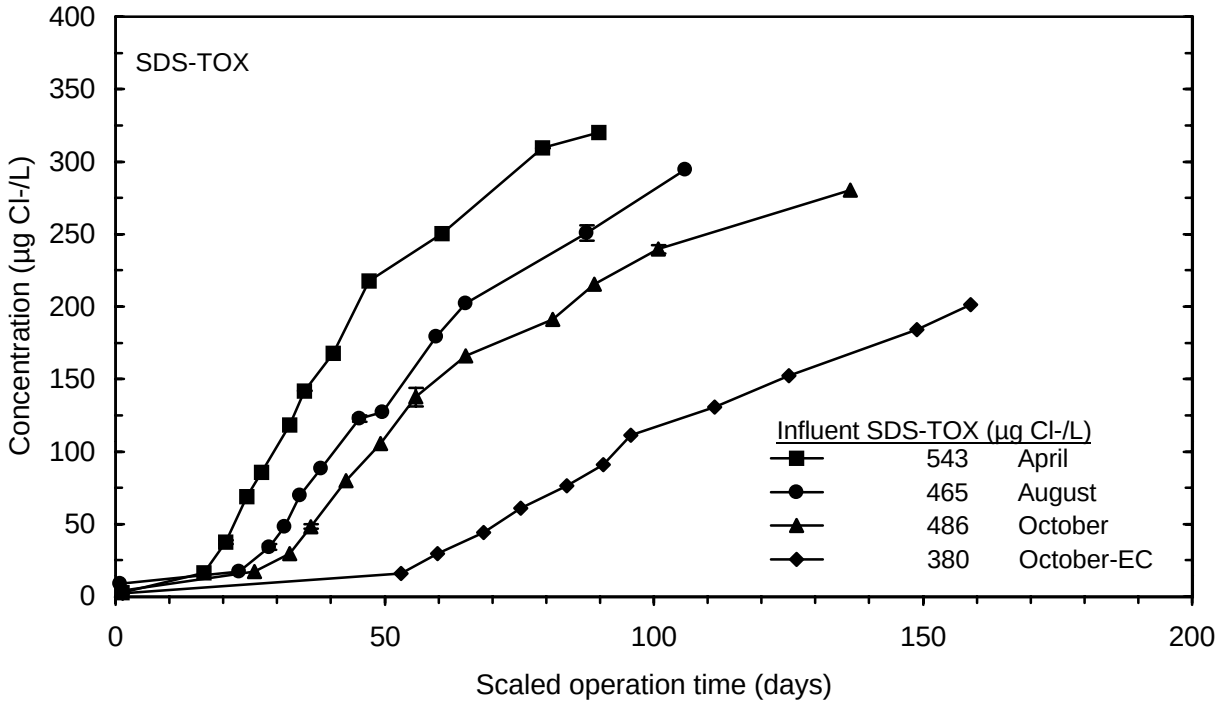


Figure 23 SDS-TOX breakthrough for 20 minute EBCT contactors for each session

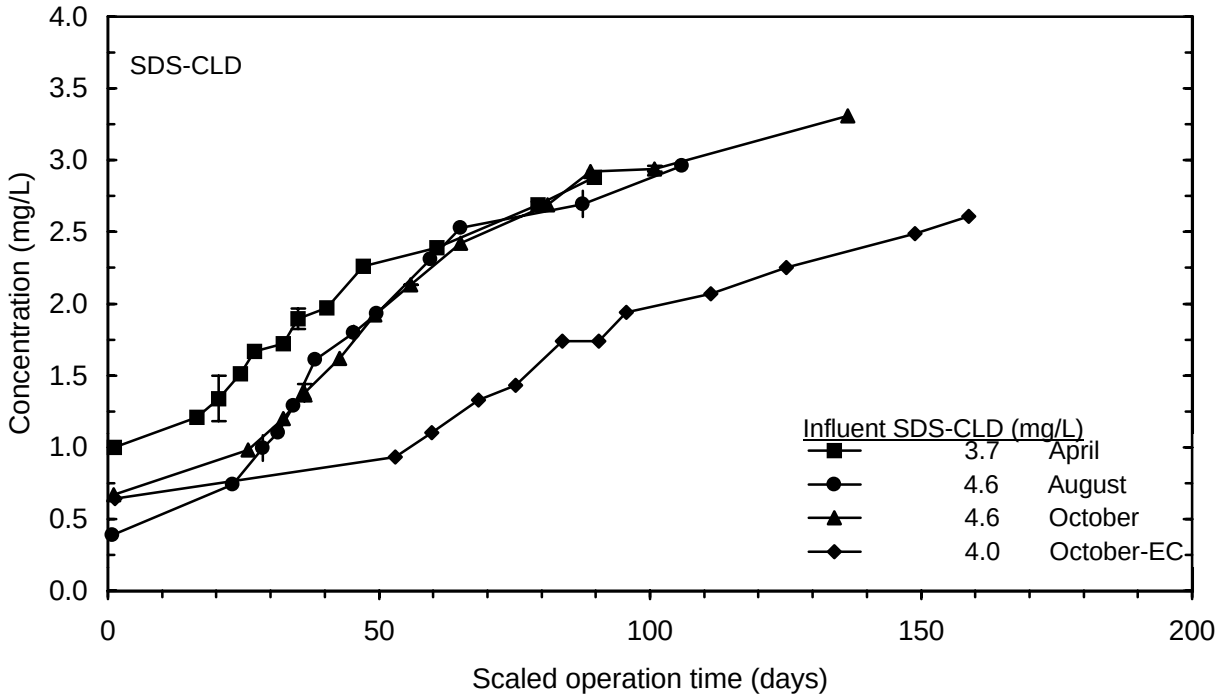


Figure 24 SDS-CLD breakthrough for 20 minute EBCT contactors for each session

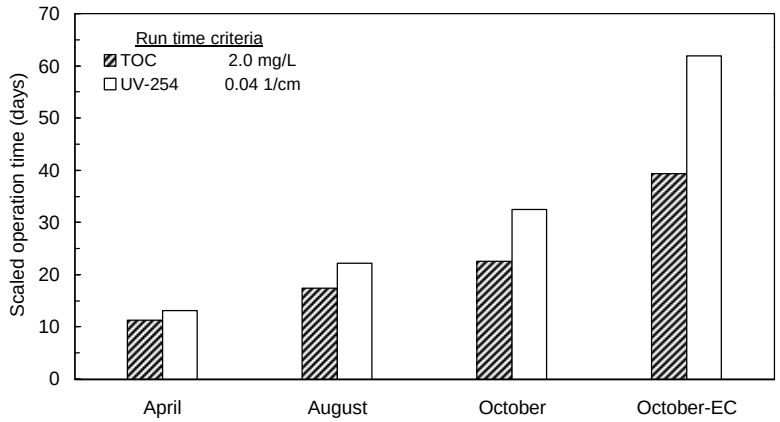


Figure 25 GAC run times based on single contactor breakthrough curves for TOC and UV-254 effluent criteria (high) for each session (10 minute EBCT)

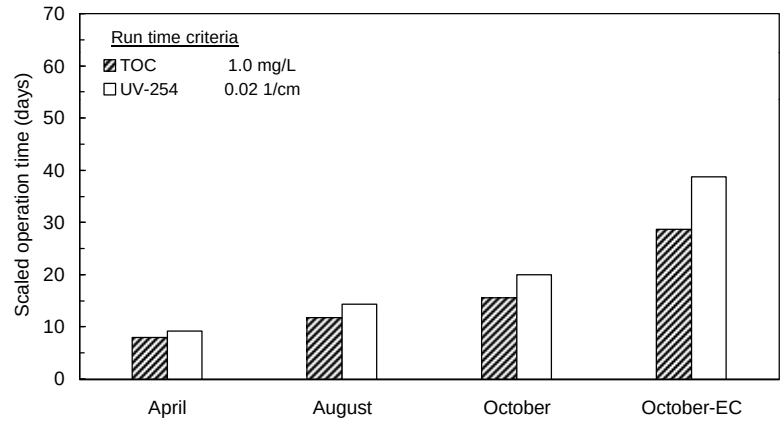


Figure 26 GAC run times based on single contactor breakthrough curves for TOC and UV-254 effluent criteria (low) for each session (10 minute EBCT)

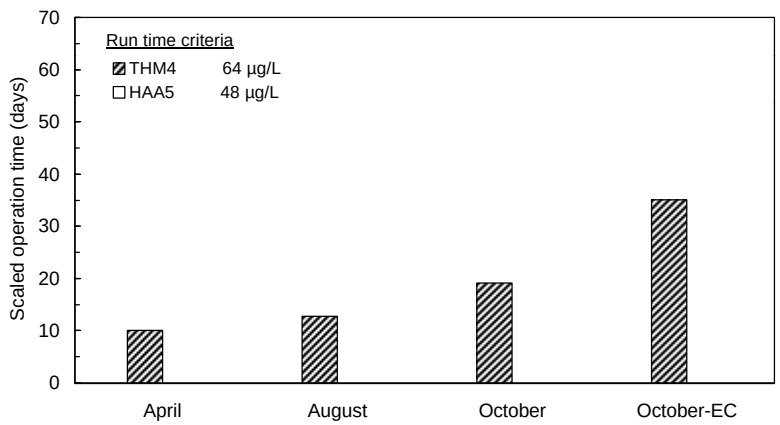


Figure 27 GAC run times based on single contactor breakthrough curves for Stage 1 THM4 and HAA5 effluent criteria for each session (10 minute EBCT)

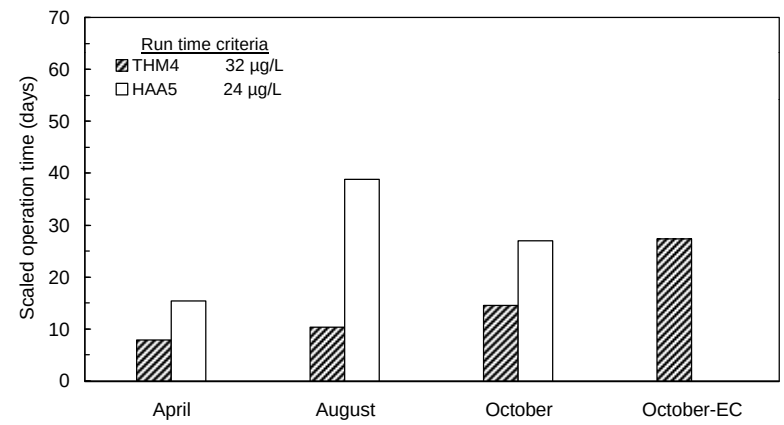


Figure 28 GAC run times based on single contactor breakthrough curves for Stage 2 THM4 and HAA5 effluent criteria for each session (10 minute EBCT)

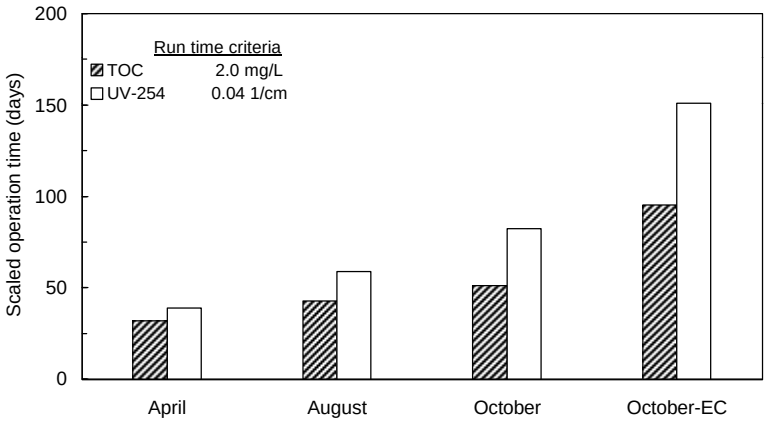


Figure 29 GAC run times based on single breakthrough curves for TOC and UV-254 effluent criteria for each session (20 minute EBCT)

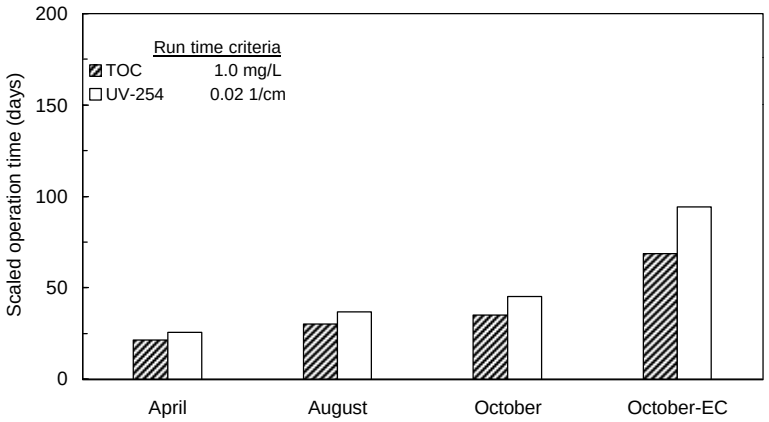


Figure 30 GAC run times based on single breakthrough curves for TOC and UV-254 effluent criteria for each session (20 minute EBCT)

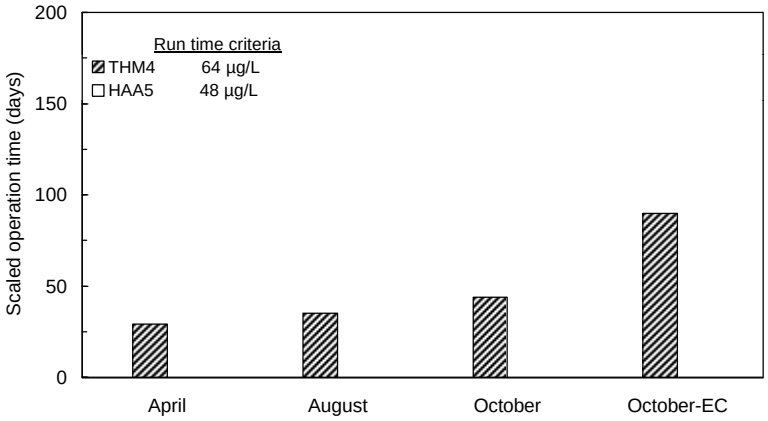


Figure 31 GAC run times based on single breakthrough curves for Stage 1 THM4 and HAA5 effluent criteria for each session (20 minute EBCT)

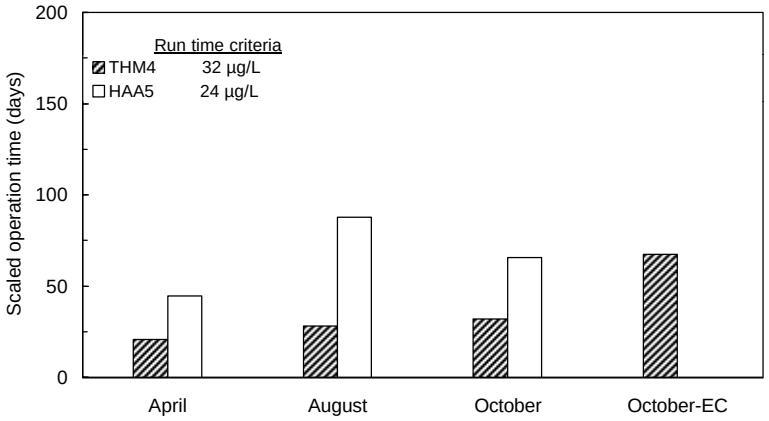


Figure 32 GAC run times based on single breakthrough curves for Stage 2 THM4 and HAA5 effluent criteria for each session (20 minute EBCT)

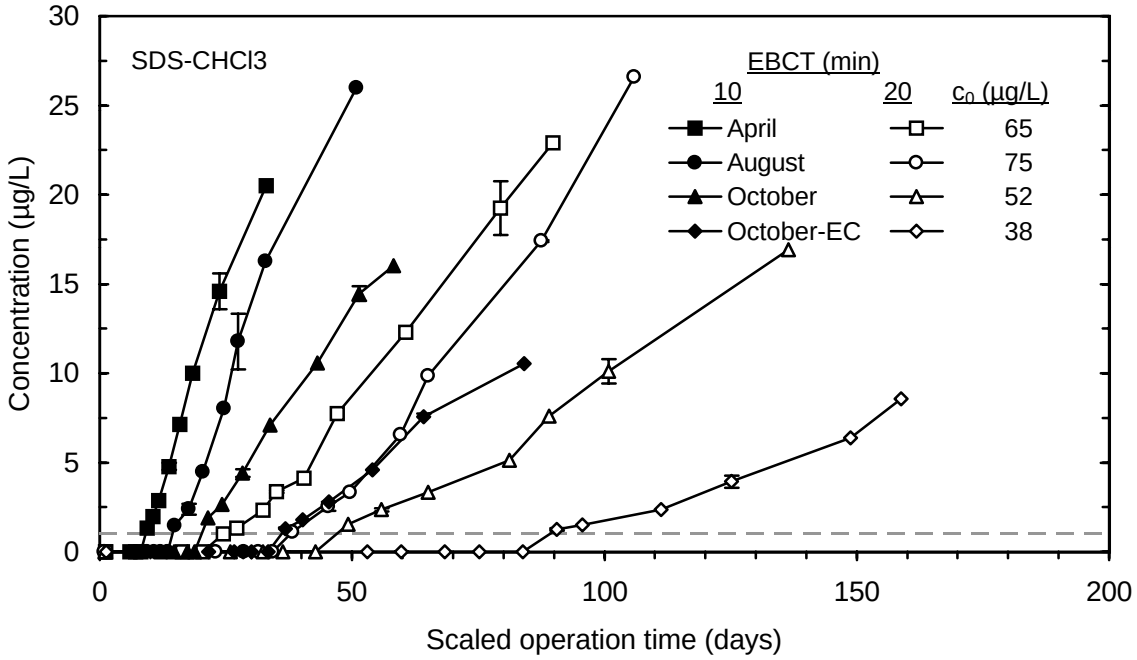


Figure 33 SDS-CHCl3 breakthrough for 10 and 20 minute EBCT contactors for each session

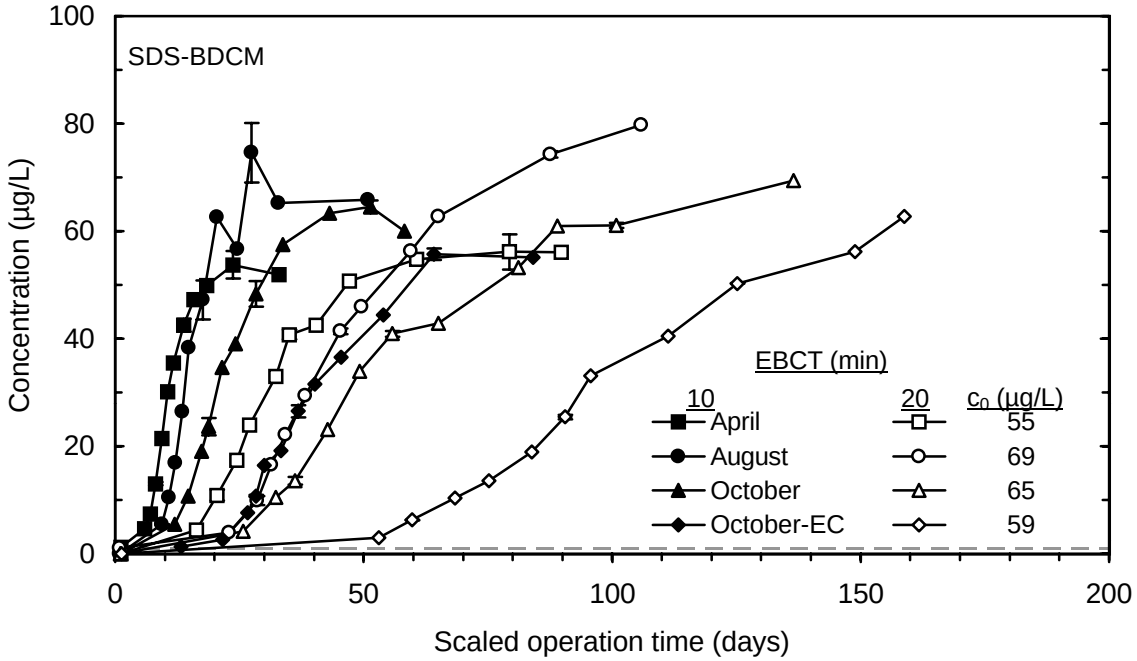


Figure 34 SDS-BDCM breakthrough for 10 and 20 minute EBCT contactors for each session

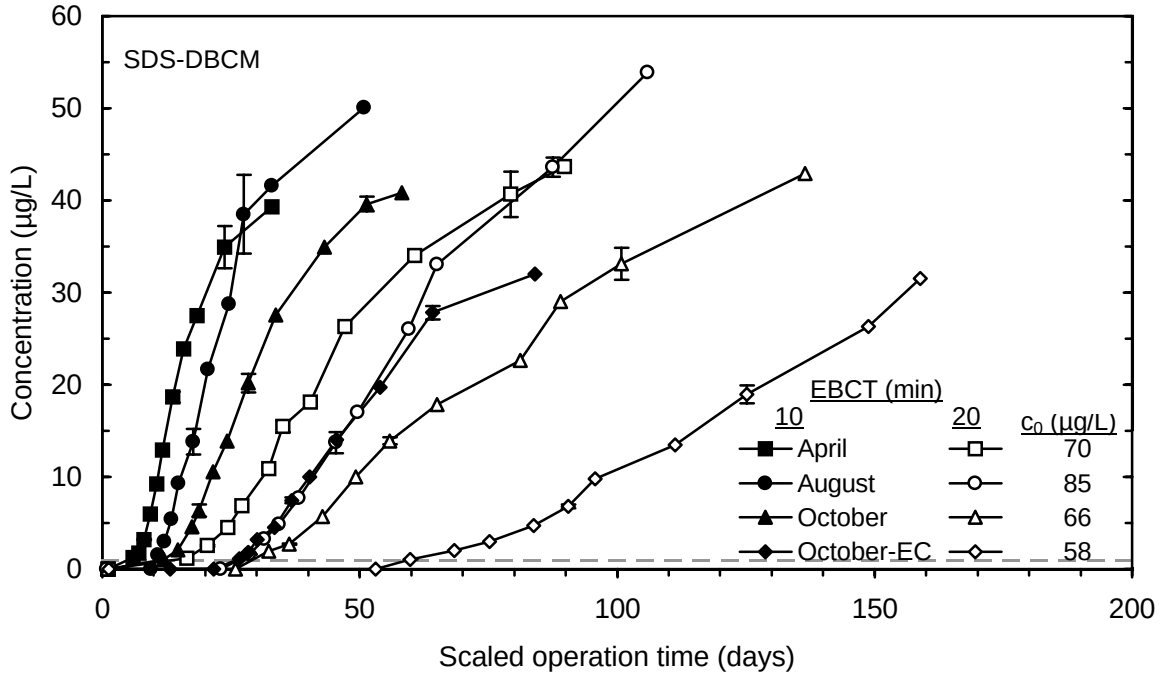


Figure 35 SDS-DBCM breakthrough for 10 and 20 minute EBCT contactors for each session

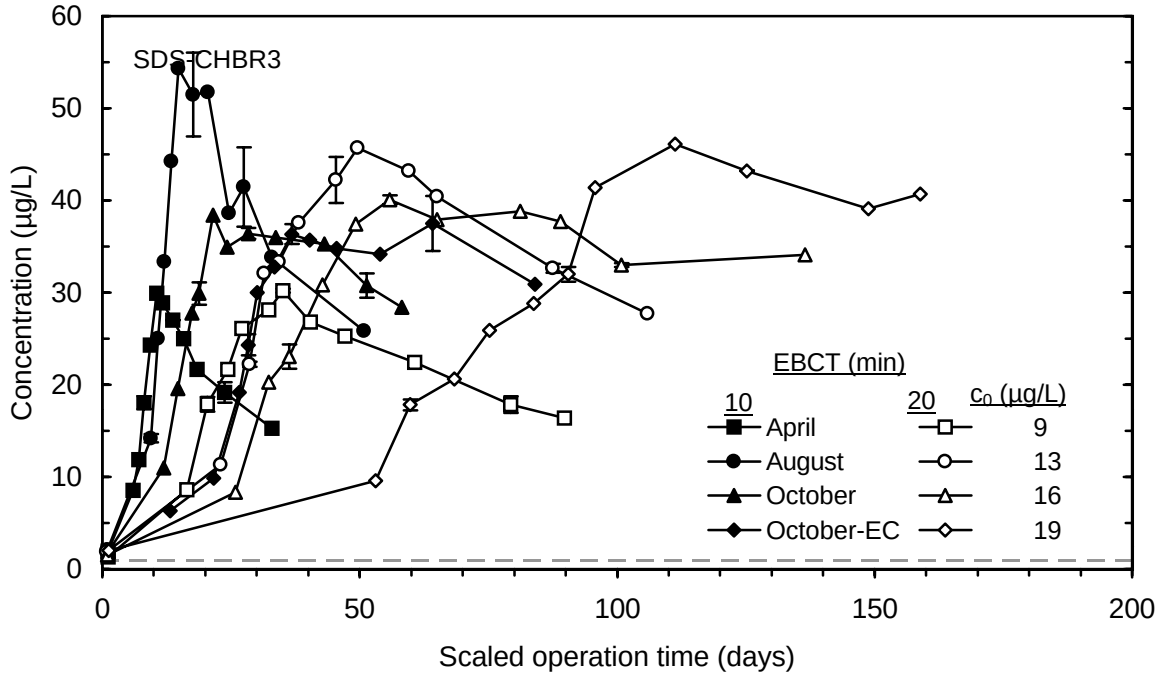


Figure 36 SDS-CHBR3 breakthrough for 10 and 20 minute EBCT contactors for each session

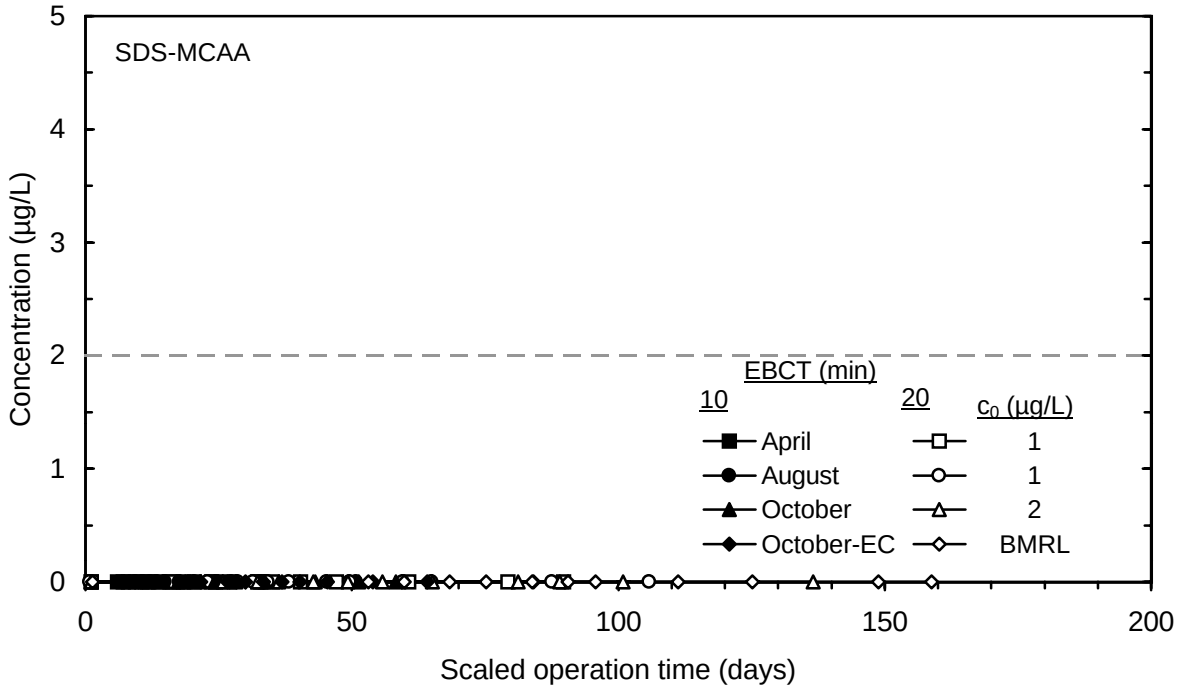


Figure 37 SDS-MCAA breakthrough for 10 and 20 minute EBCT contactors for each session

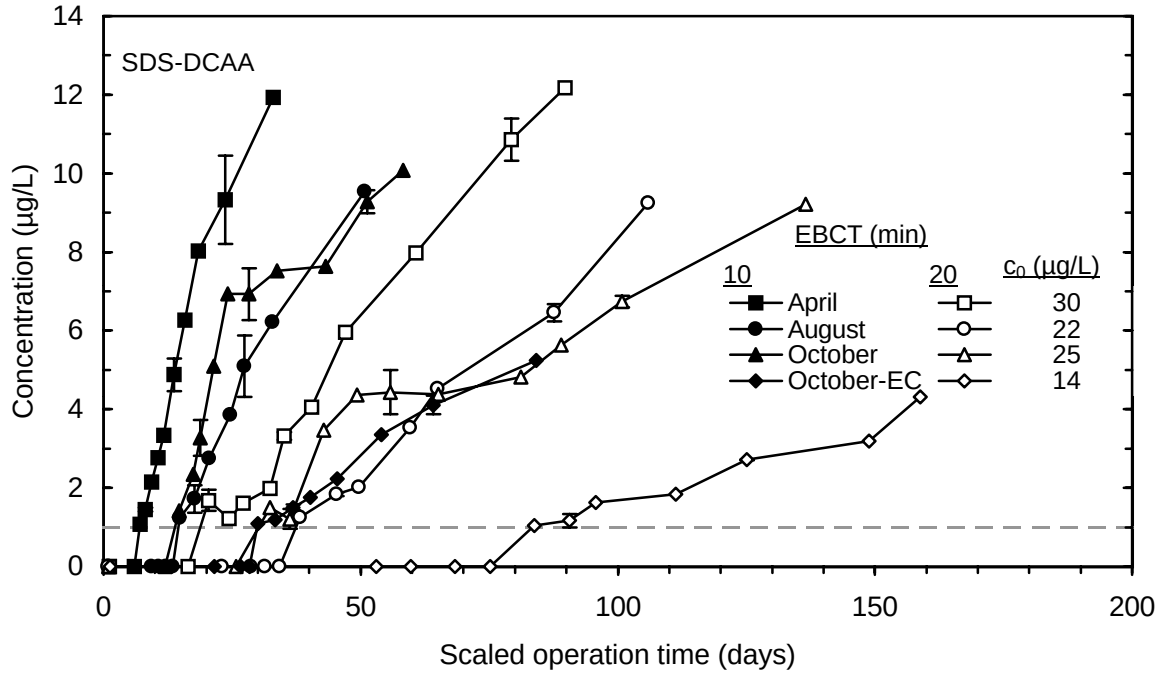


Figure 38 SDS-DCAA breakthrough for 10 and 20 minute EBCT contactors for each session

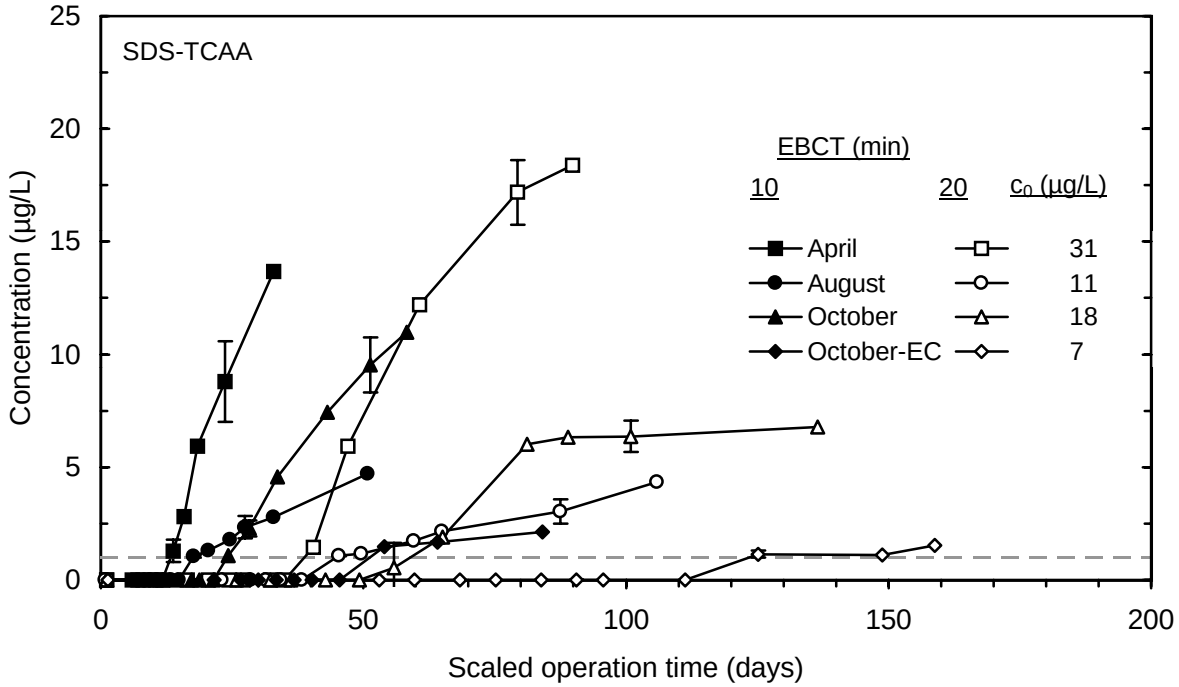


Figure 39 SDS-TCAA breakthrough for 10 and 20 minute EBCT contactors for each session

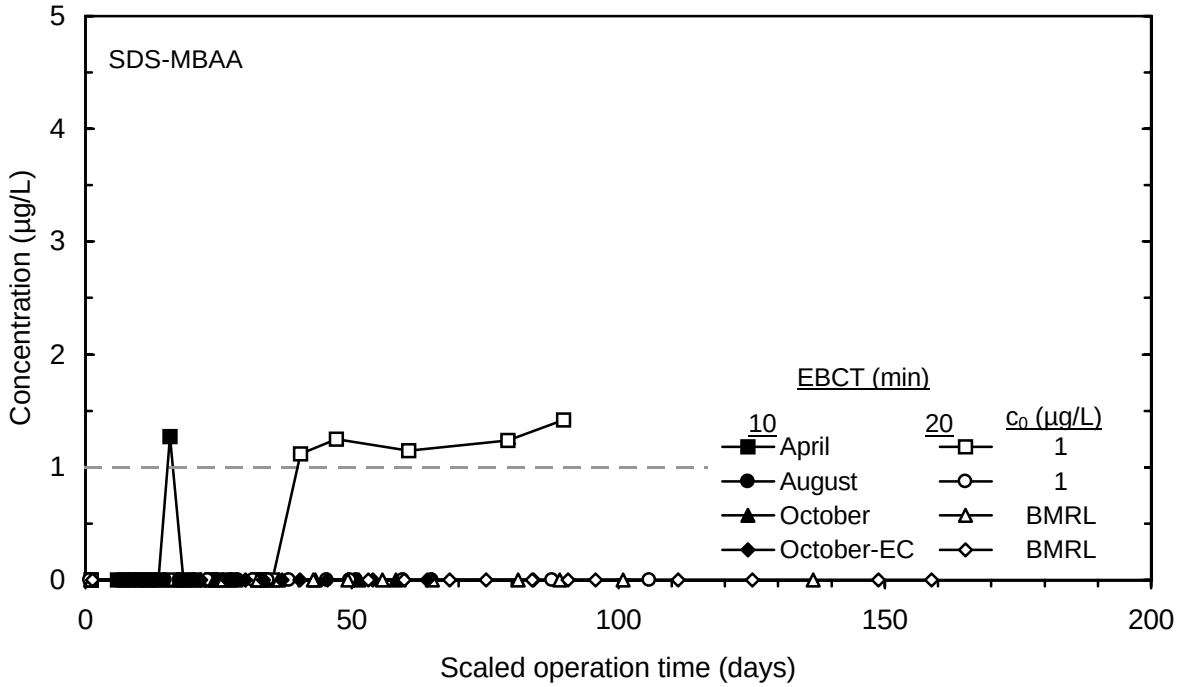


Figure 40 SDS-MBAA breakthrough for 10 and 20 minute EBCT contactors for each session

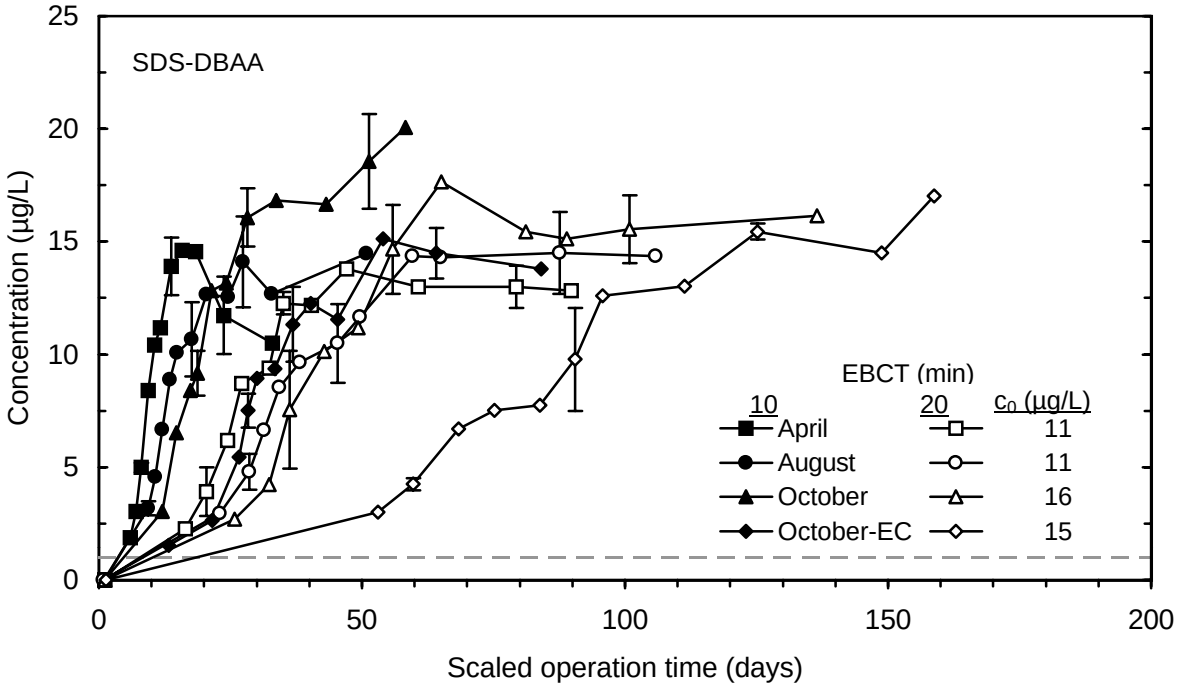


Figure 41 SDS-DBAA breakthrough for 10 and 20 minute EBCT contactors for each session

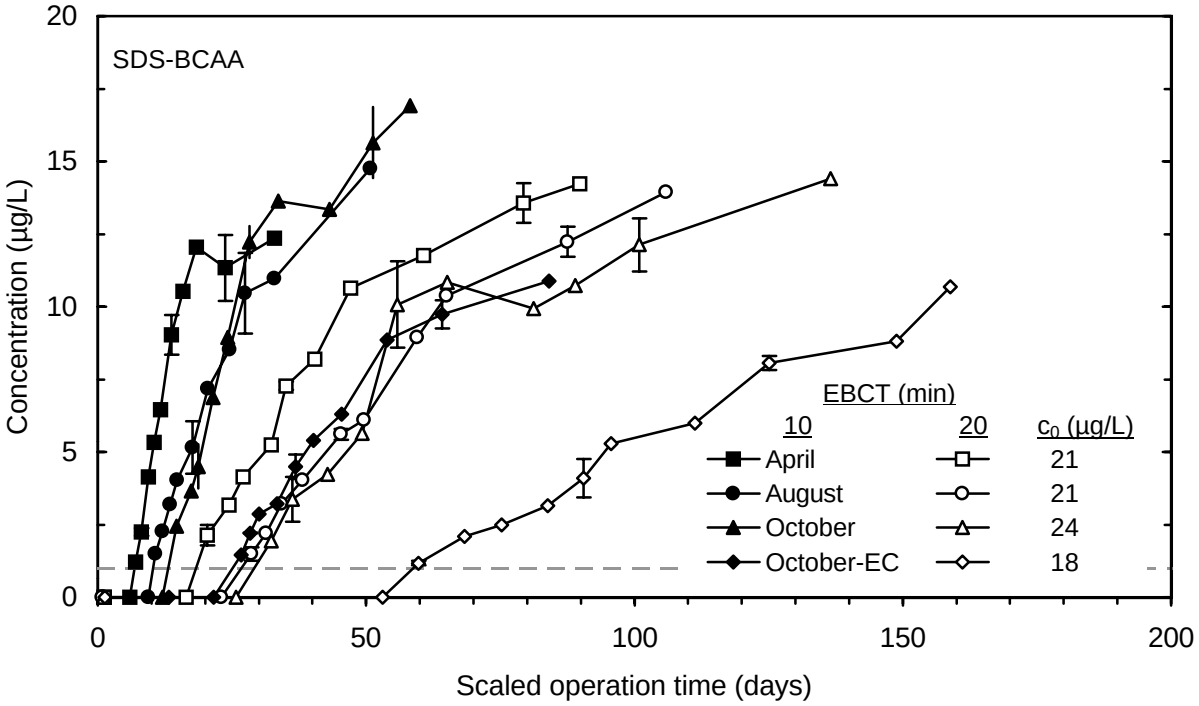


Figure 42 SDS-BCAA breakthrough for 10 and 20 minute EBCT contactors for each session

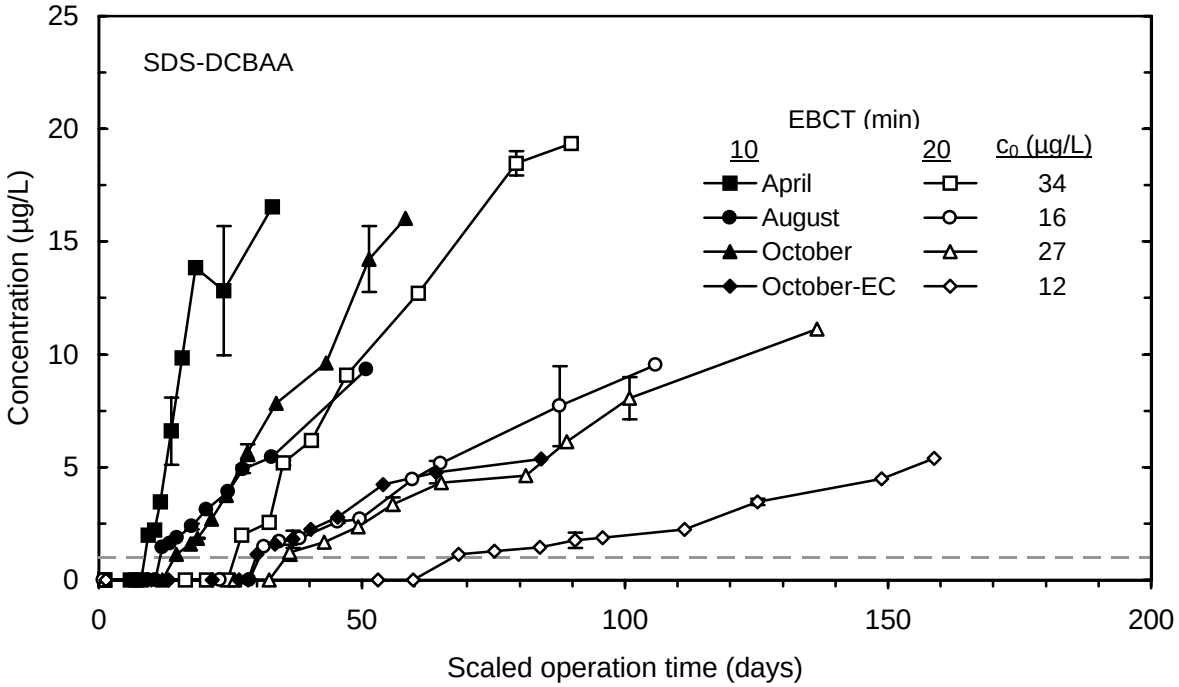


Figure 43 SDS-DCBAA breakthrough for 10 and 20 minute EBCT contactors for each session

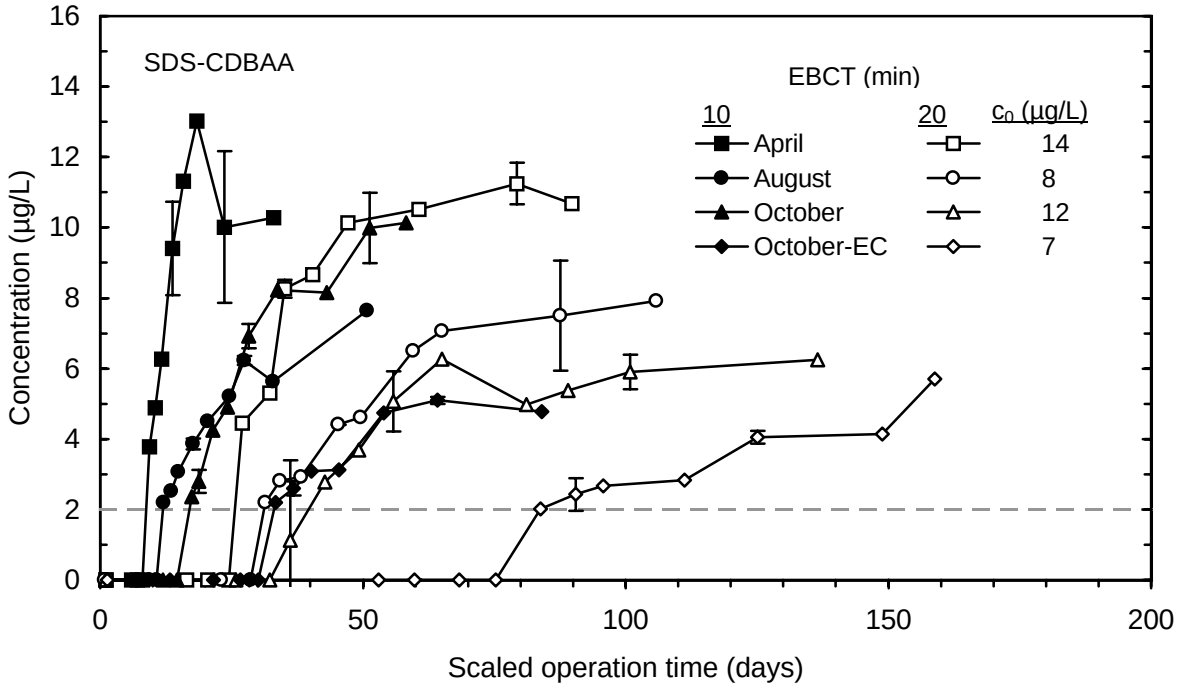


Figure 44 SDS-CDBAA breakthrough for 10 and 20 minute EBCT contactors for each session

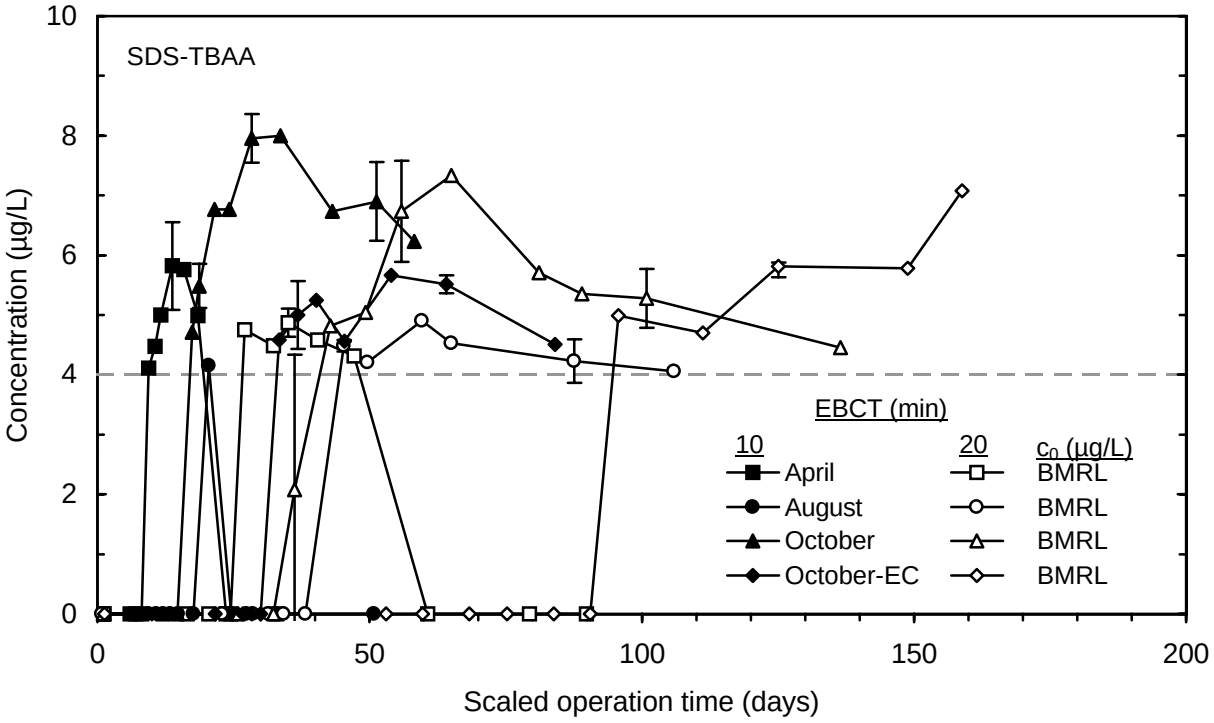


Figure 45 SDS-TBAA breakthrough for 10 and 20 minute EBCT contactors for each session

9 *Impact of Enhanced Coagulation*

9 Impact of Enhanced Coagulation

The impact of enhanced coagulation on DBP precursor removal by GAC was examined during the October session. Along with a sample of plant conventionally treated water, a sample of plant source water was taken. Based on plant source water TOC concentration and alkalinity, as described in section 6.2.1.2, the raw water was batch coagulated at S&H with a sulfuric acid and ferric chloride dose that yielded 28 percent TOC removal. The average concentration of TOC in the GAC influent was 4.6 mg/L, 18 percent lower than that for the conventionally pretreated water, 5.6 mg/L. The GAC influent pH for the enhanced coagulation pretreatment was 6.8, almost a full pH unit lower than that for the conventionally pretreated water, 7.7. It was expected that due to the lower TOC concentration and lower influent pH, GAC performance for DBP precursor removal would be improved by enhanced coagulation pretreatment.

The sulfuric acid and ferric chloride doses used for enhanced coagulation were 25 and 30 mg/L respectively. For conventional pretreatment, no sulfuric acid was added, and a ferric chloride dose of 16 mg/L was used. For both pretreatment types, the polymer dose was 1.8 mg/L. The conventionally treated water was sampled after full-scale coagulation, flocculation, sedimentation, and filtration.

Each pretreatment type served as influent water to two RSSCTs simulating full-scale EBCTs of 10 and 20 minutes. Therefore, all required ICR analyses were performed on both runs.

Figure 46 compares the 10 minute EBCT contactor effluent TOC breakthrough profiles for each pretreatment. The enhanced coagulation pretreatment run greatly outperformed the conventional pretreatment run, as evidenced by a shift to the right in the TOC breakthrough curve. The run time to an effluent TOC concentration of 2.0 mg/L was 23 days for conventional pretreatment. With enhanced coagulation pretreatment, the run time was 39 days, a 70 percent increase. Similar improvements in performance were observed for UV_{254} (Figure 47) and in the GAC breakthrough profiles for SDS-DBPs, plotted in Figures 48 through 52. For example, the run time to Stage 1 THM4 MCL (with a 20 percent safety factor) was increased by 84 percent, while the influent formed concentrations only differed by 15 percent. GAC effluent chlorine demand was also reduced after enhanced coagulation pretreatment, as shown in Figure 53.

The impact of enhanced coagulation on TOC breakthrough for a 20 minute EBCT contactor is shown in Figure 54. As was observed for the 10 minute EBCT contactors, GAC performance improved after enhanced coagulation pretreatment. The run time to an effluent TOC concentration of 2.0 mg/L increased by 86 percent, from 51 to 95 days, between conventional and enhanced coagulation pretreatment. Again, this improvement in GAC performance was paralleled by the results shown for UV_{254} (Figure 55) and SDS-DBPs, shown in Figures 56 through 62. The run time to Stage 1 THM4 MCL increased by 105 percent after enhanced coagulation pretreatment. The decrease in effluent SDS-CLD paralleled that observed for the 10 minute EBCT contactors (Figure 61).

Some of improvement in GAC performance after enhanced coagulation can be attributed to the lower influent concentrations of natural organic matter (NOM) surrogates or DBP precursors. After enhanced coagulation, the measured influent to GAC TOC concentration decreased by 18

percent. The drop in UV_{254} was similar, at 17 percent. Influent to GAC SDS-THM4 and SDS-HAA5 levels decreased by 14 and 44 percent, respectively, showing that enhanced coagulation preferentially removed precursors to HAA formation over precursors to THM formation. With GAC treatment, the lower influent concentrations would be expected to lead to improved GAC performance, as measured by longer run times to an effluent criterion. Furthermore, the pH measured after enhanced coagulation, 6.8, was almost a full pH unit lower than that measured after conventional treatment (7.7). These pH levels were maintained in the influent to GAC for each pretreatment type. At lower pH levels, NOM is less soluble and therefore more adsorbable, so GAC performance for the removal of DBP precursors is enhanced. Both the lower influent concentration and lower pH contributed to the improvement in GAC performance observed.

Figures 62 through 74 show the impact of pretreatment on the breakthrough of SDS-DBP species. Enhanced coagulation improved GAC performance for the control of precursors to individual THM and HAA species. For most species, measured levels after enhanced coagulation were lower than those measured after conventional treatment. An exception occurred with the formation of $CHBr_3$, which was slightly higher after enhanced coagulation, possibly due to the higher bromide to TOC ratio in this water. Overall, enhanced coagulation had less of an impact on controlling the formation THM species prior to GAC adsorption than it did on the formation of HAA species. Enhanced coagulation had the largest impact on controlling the formation of SDS-DCAA, SDS-TCAA, and SDS-DCBAA, decreasing formed concentrations of these compounds in the GAC influent by 44 to 61 percent over that in the GAC influent after conventional treatment. The formation of SDS-DBAA was least affected.

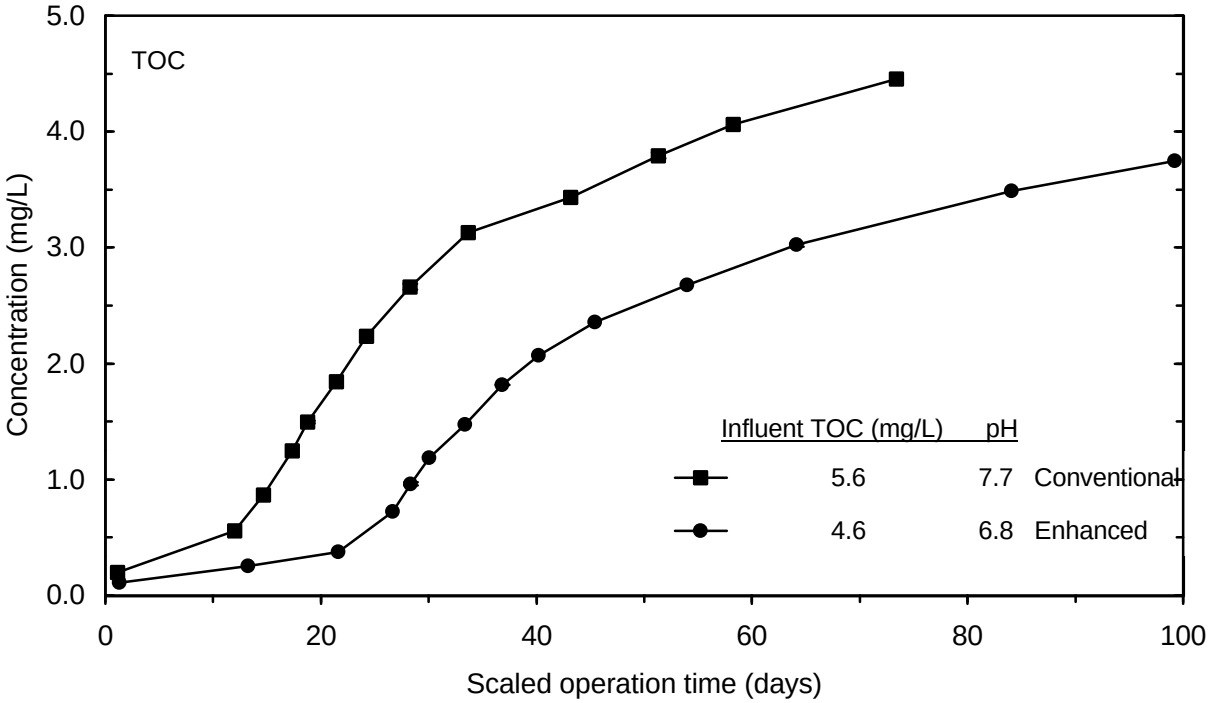


Figure 46 Impact of pretreatment on TOC breakthrough for 10 minute EBCT contactors

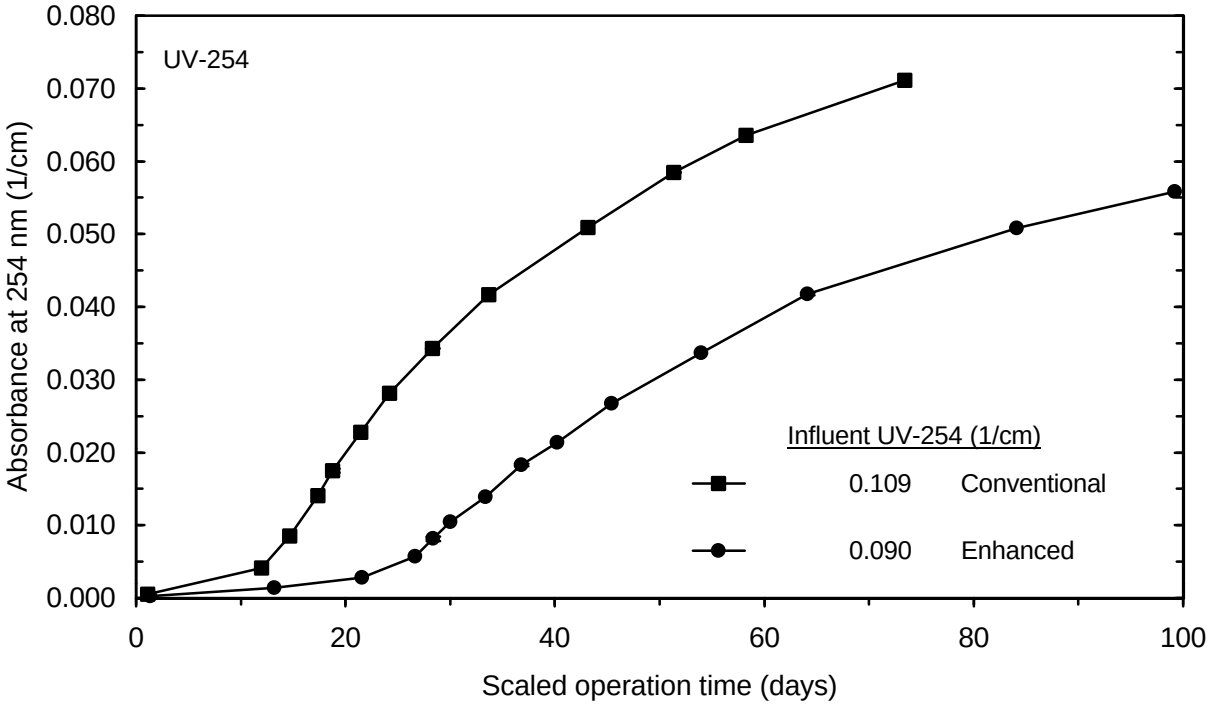


Figure 47 Impact of pretreatment on UV-254 breakthrough for 10 minute EBCT contactors

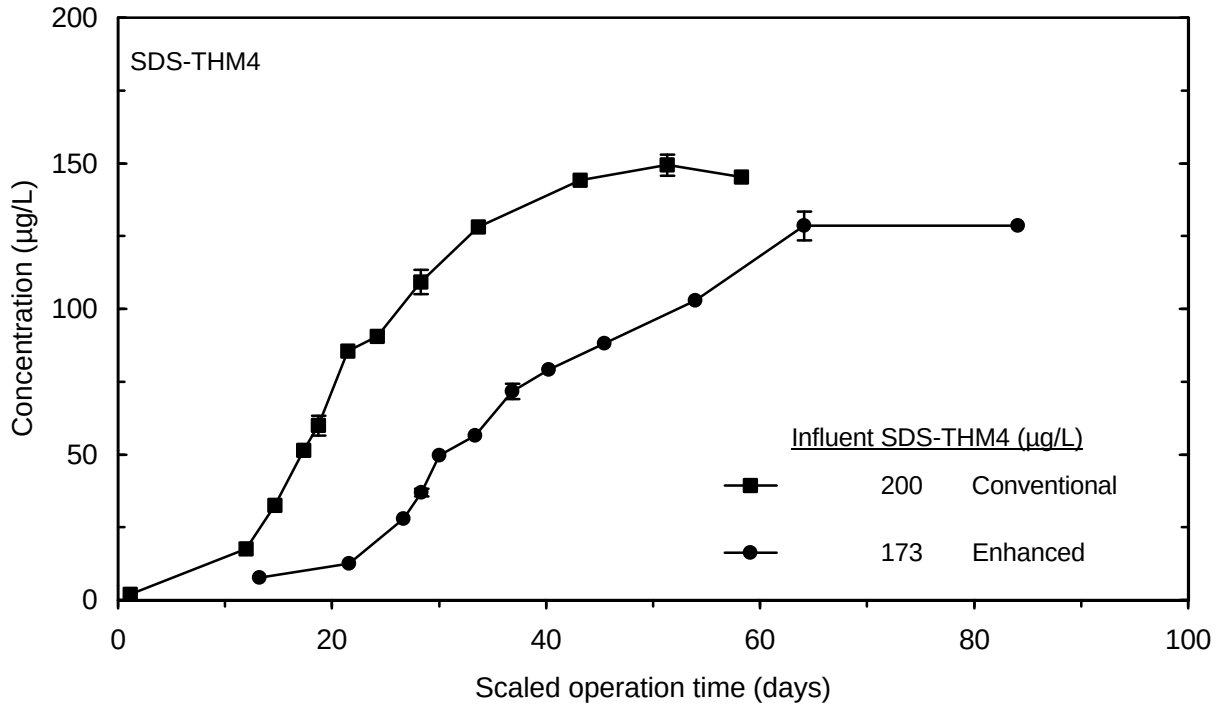


Figure 48 Impact of pretreatment on SDS-THM4 breakthrough for 10 minute EBCT contactors

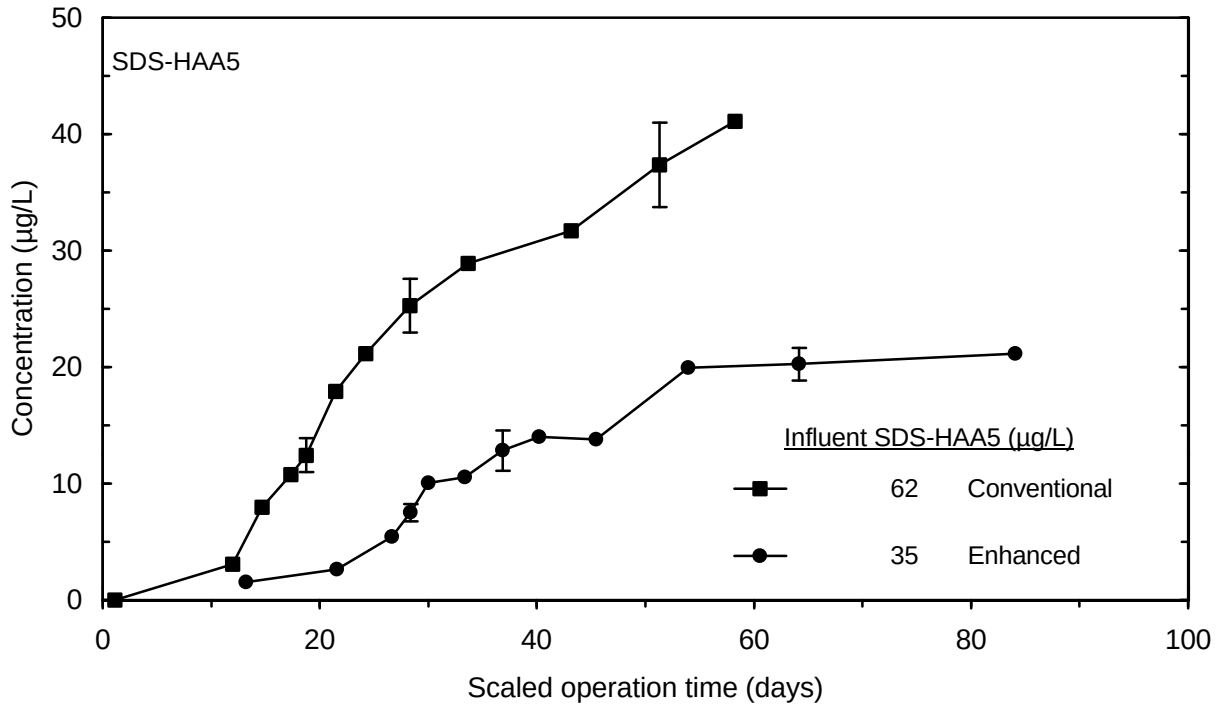


Figure 49 Impact of pretreatment on SDS-HAA5 breakthrough for 10 minute EBCT contactors

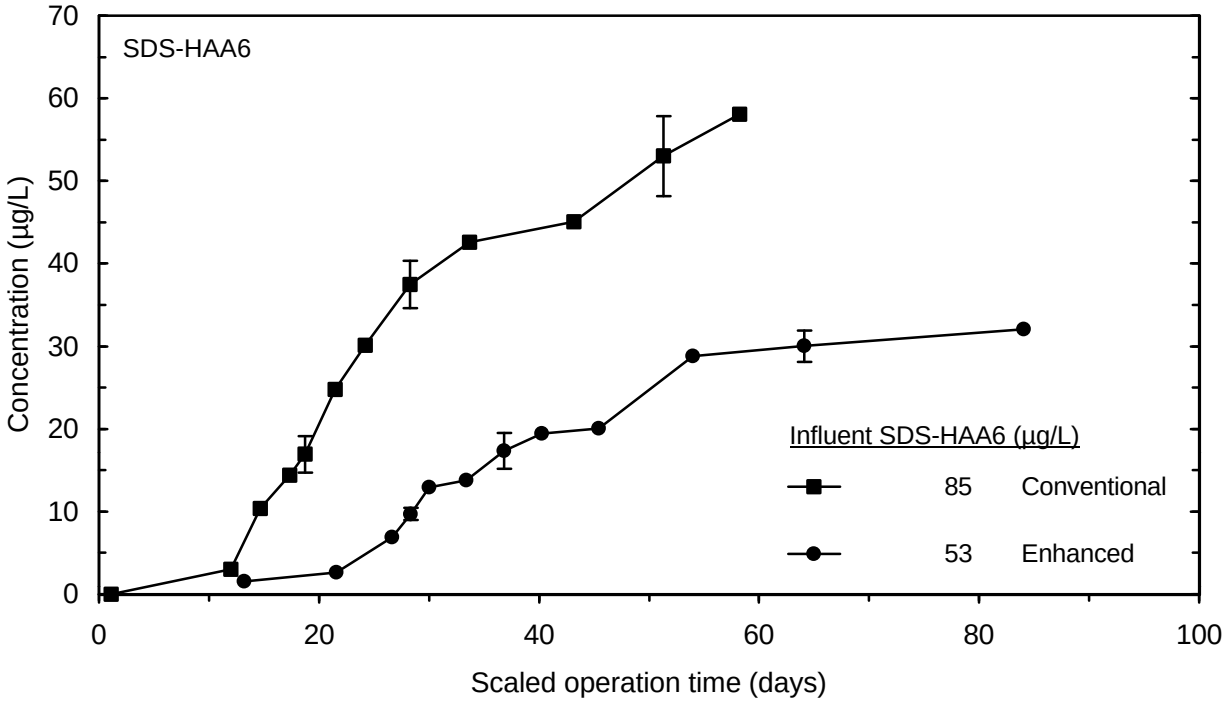


Figure 50 Impact of pretreatment on SDS-HAA6 breakthrough for 10 minute EBCT contactors

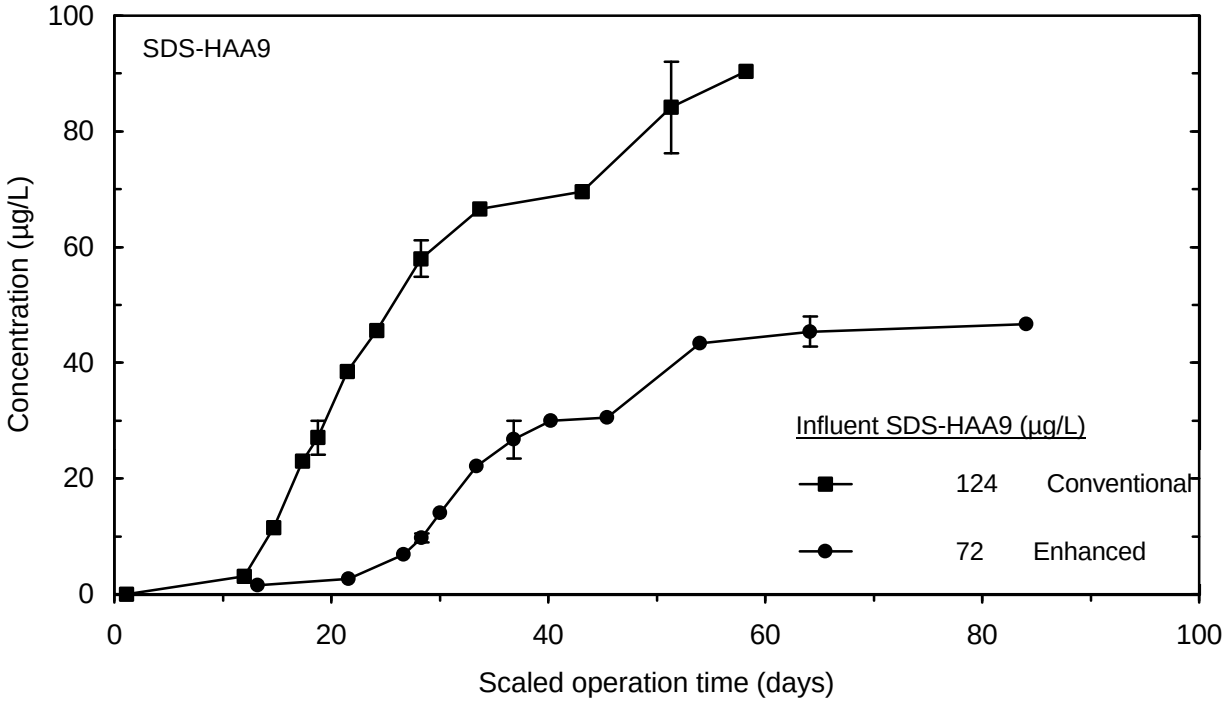


Figure 51 Impact of pretreatment on SDS-HAA9 breakthrough for 10 minute EBCT contactors

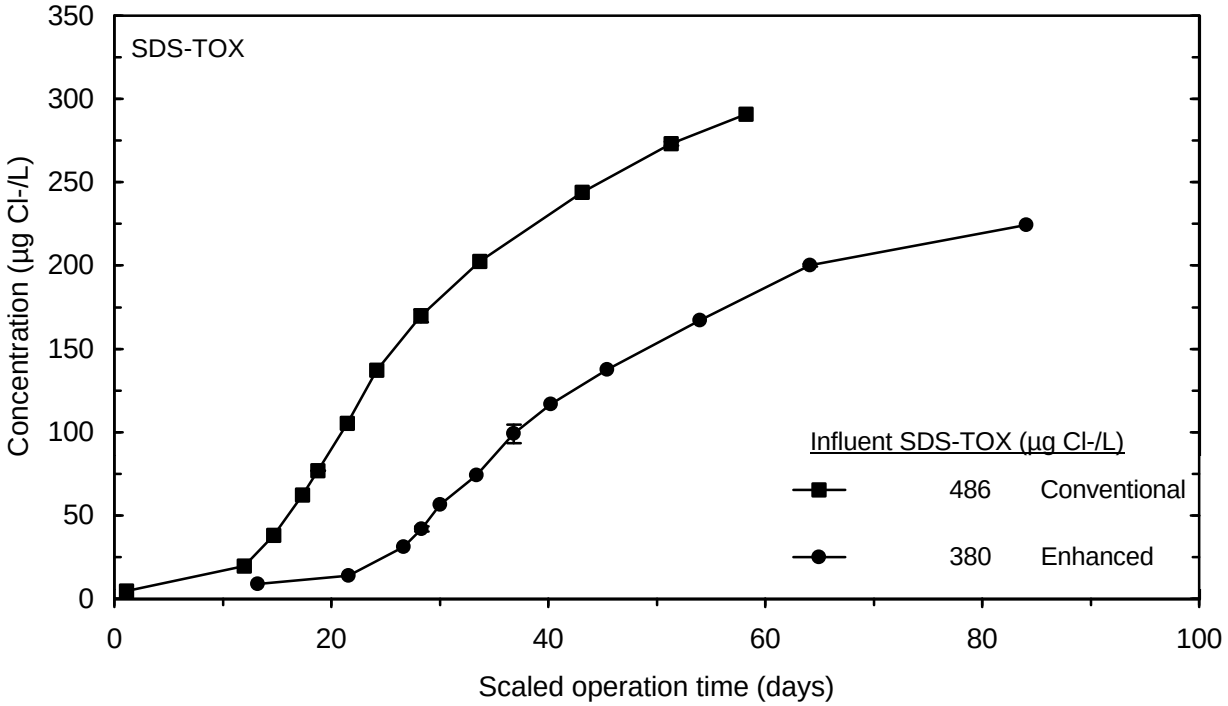


Figure 52 Impact of pretreatment on SDS-TOX breakthrough for 10 minute EBCT contactors

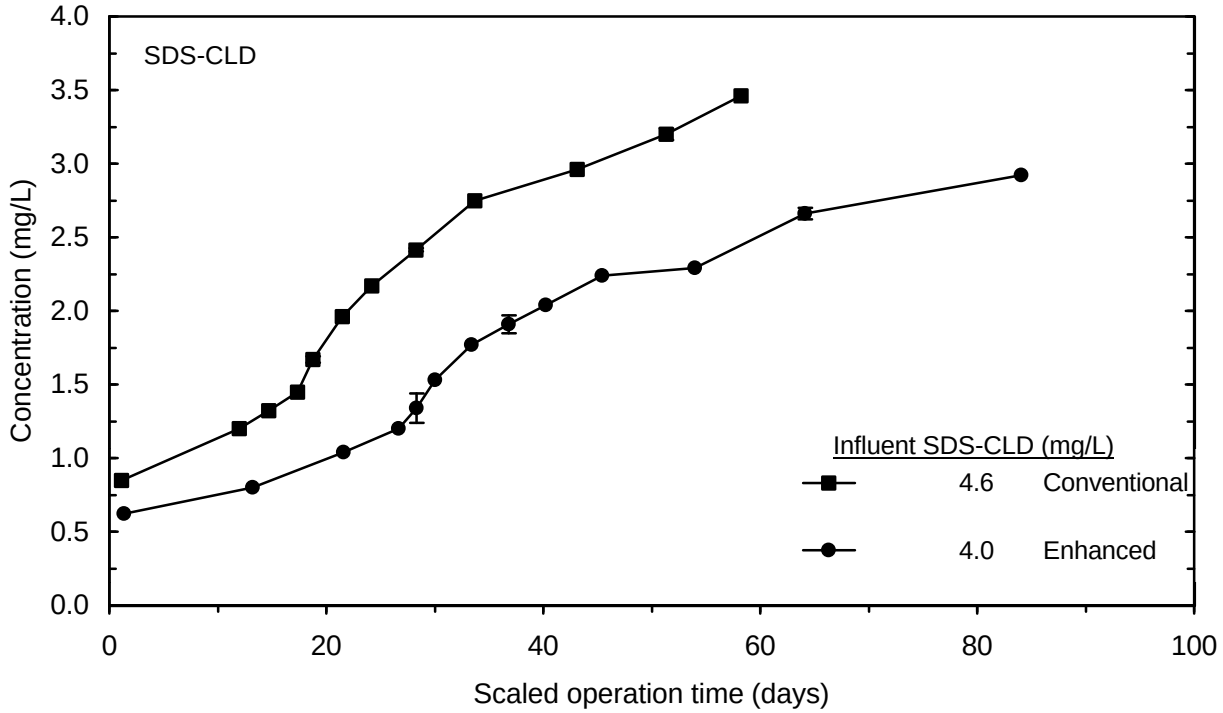


Figure 53 Impact of pretreatment on SDS-CLD breakthrough for 10 minute EBCT contactors

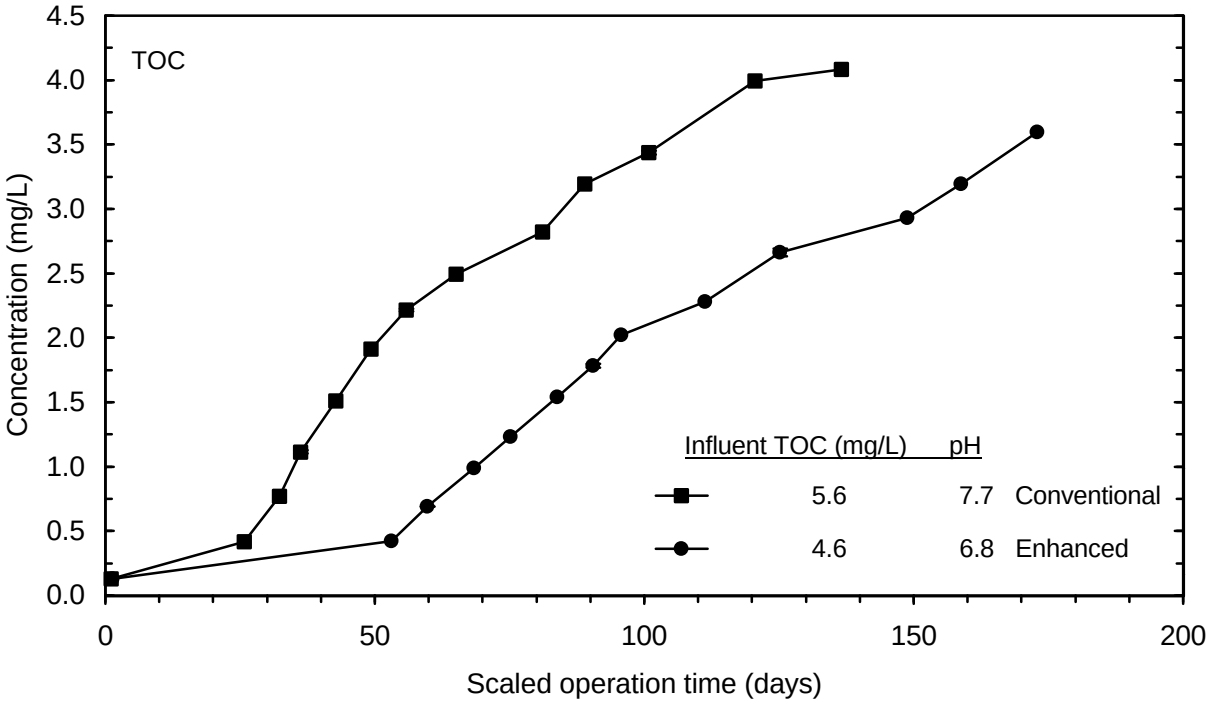


Figure 54 Impact of pretreatment on TOC breakthrough for 20 minute EBCT contactors

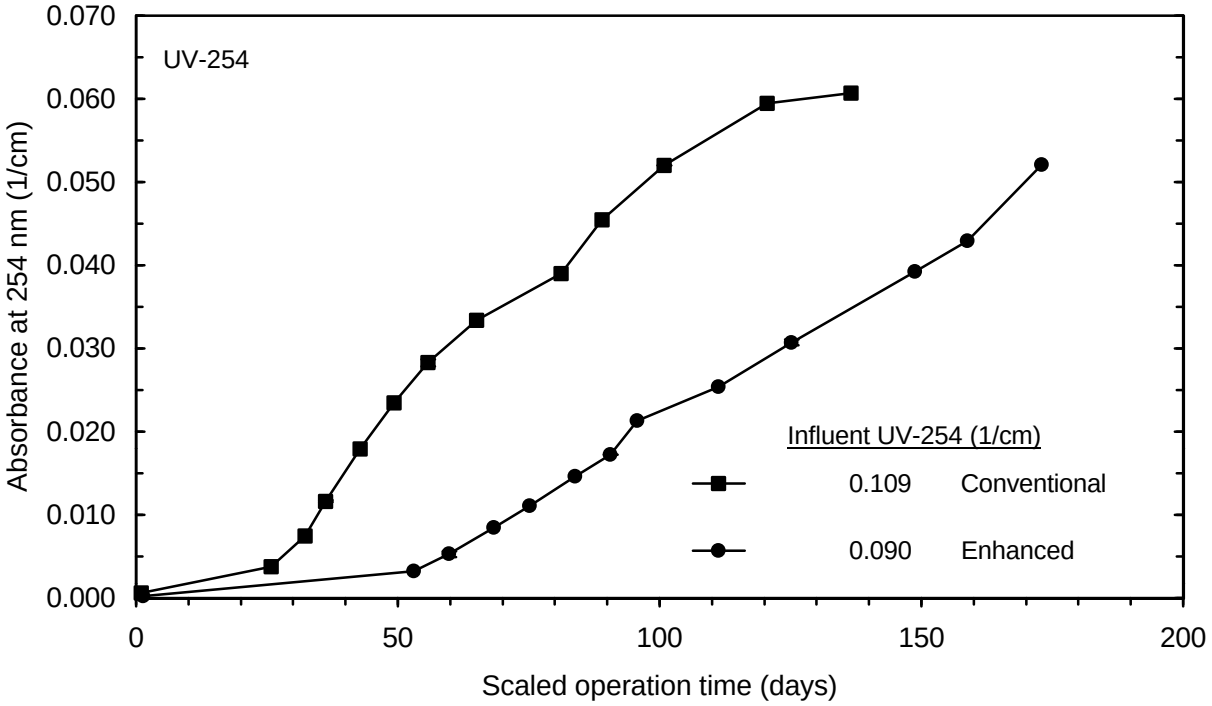


Figure 55 Impact of pretreatment on UV-254 breakthrough for 20 minute EBCT contactors

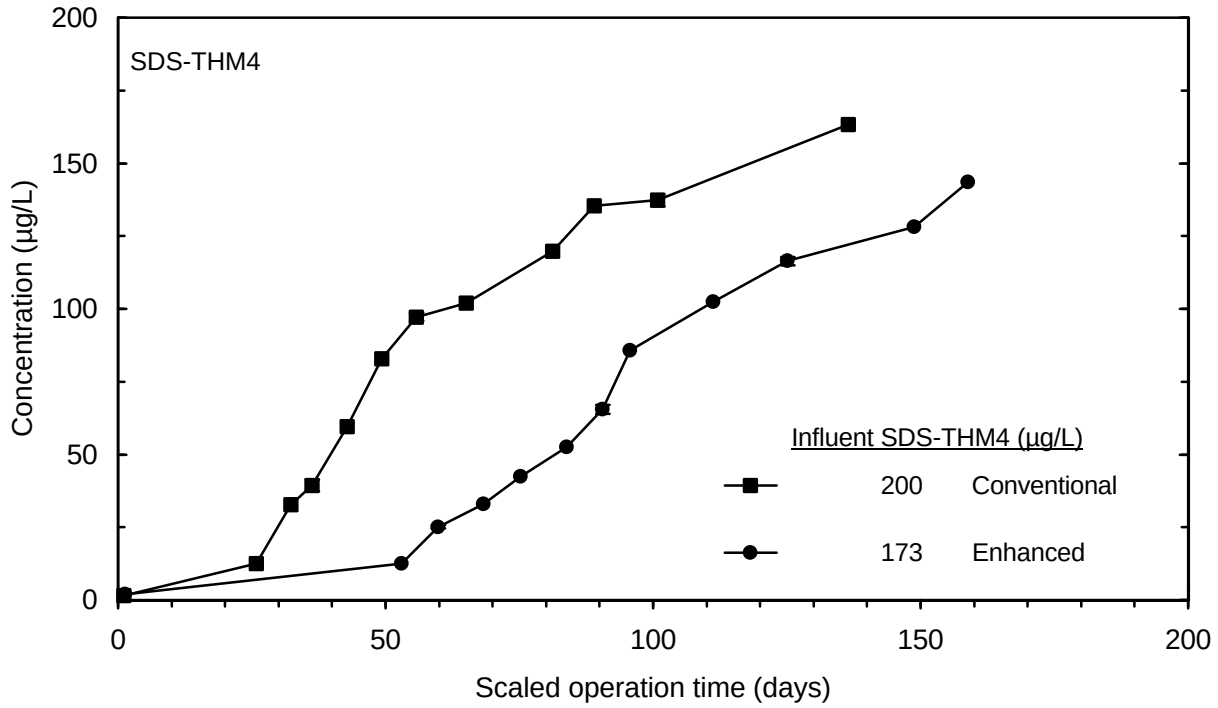


Figure 56 Impact of pretreatment on SDS-THM4 breakthrough for 20 minute EBCT contactors

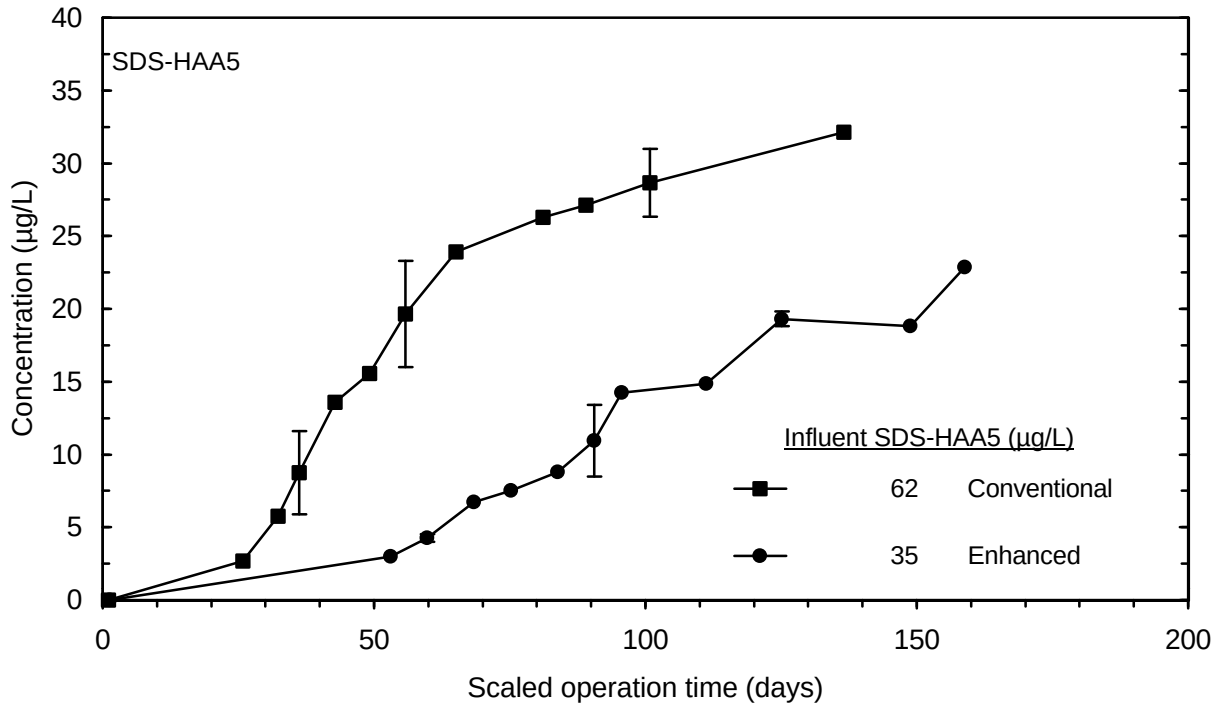


Figure 57 Impact of pretreatment on SDS-HAA5 breakthrough for 20 minute EBCT contactors

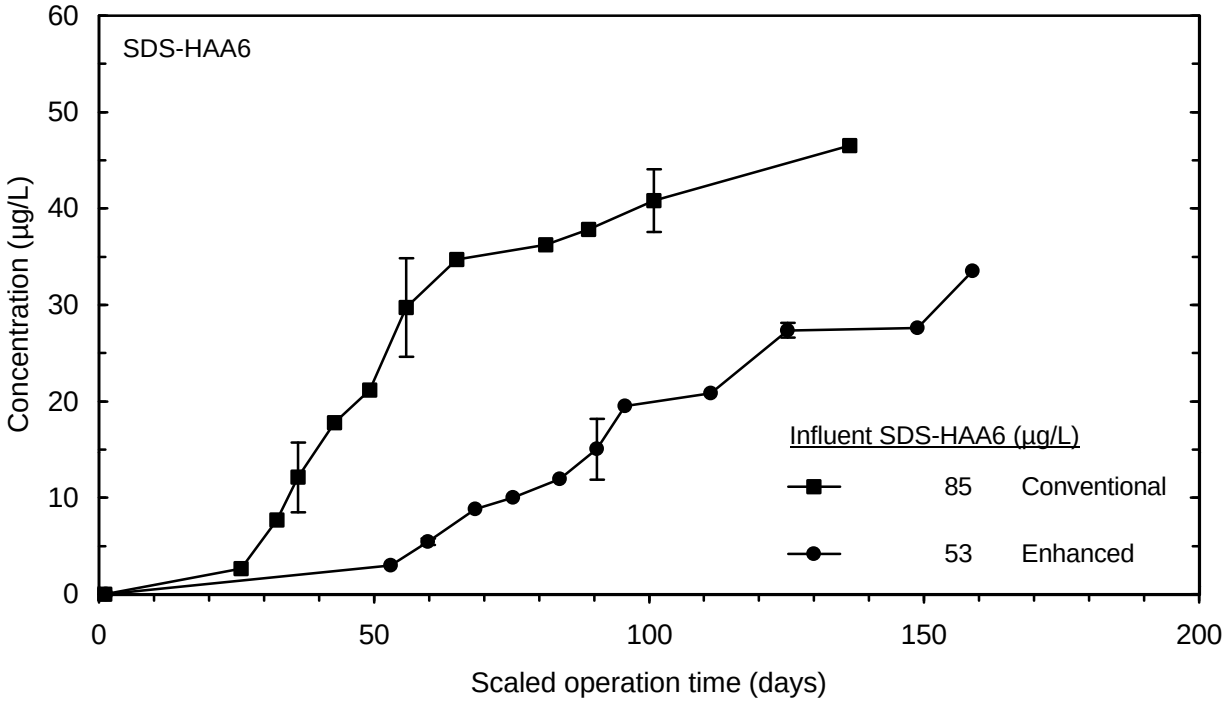


Figure 58 Impact of pretreatment on SDS-HAA6 breakthrough for 20 minute EBCT contactors

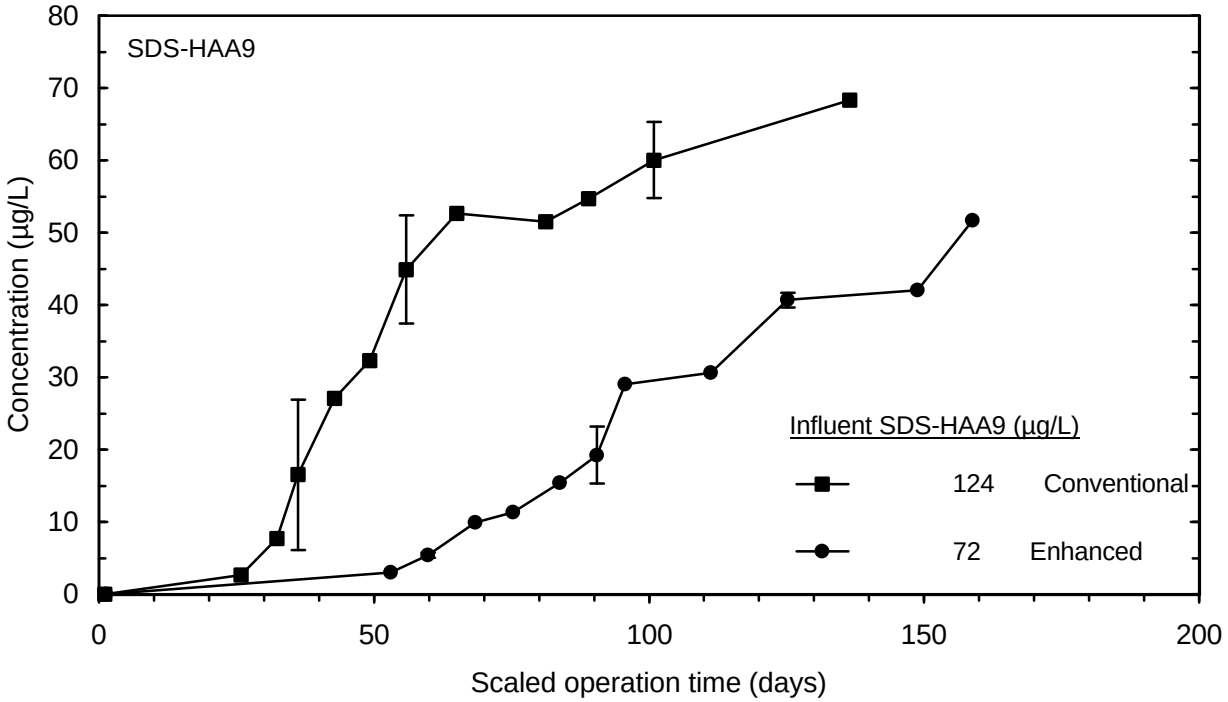


Figure 59 Impact of pretreatment on SDS-HAA9 breakthrough for 20 minute EBCT contactors

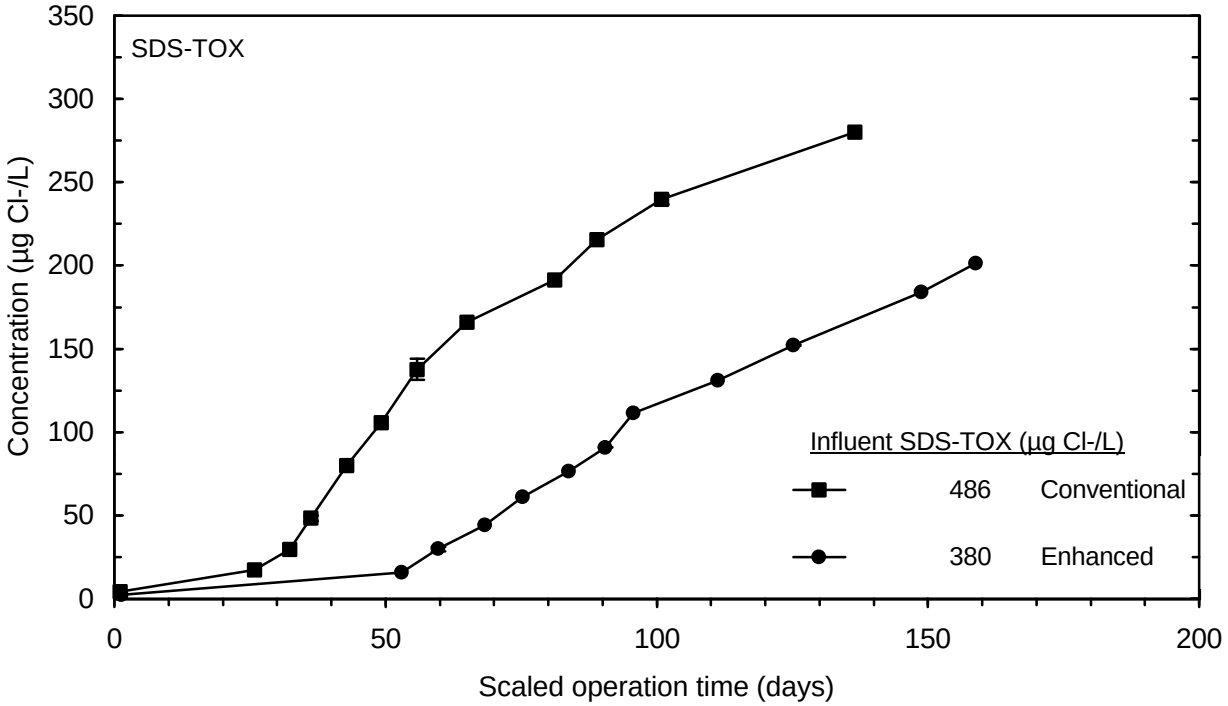


Figure 60 Impact of pretreatment on SDS-TOX breakthrough for 20 minute EBCT contactors

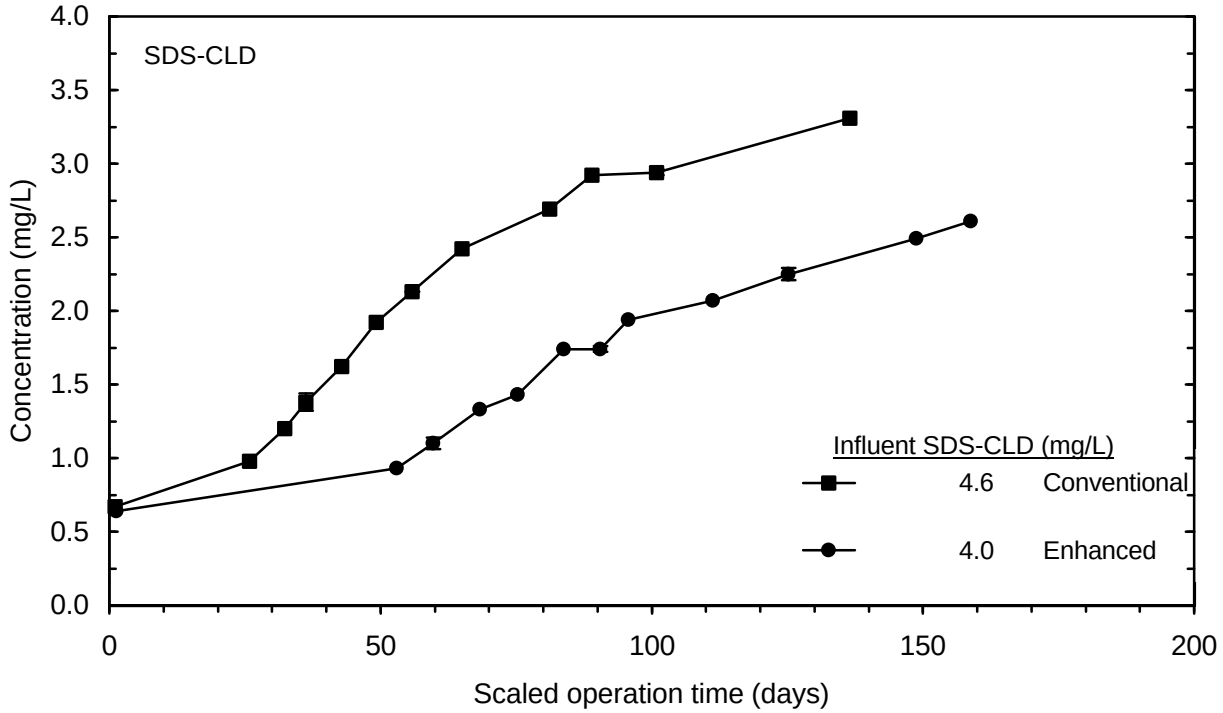


Figure 61 Impact of pretreatment on SDS-CLD breakthrough for 20 minute EBCT contactors

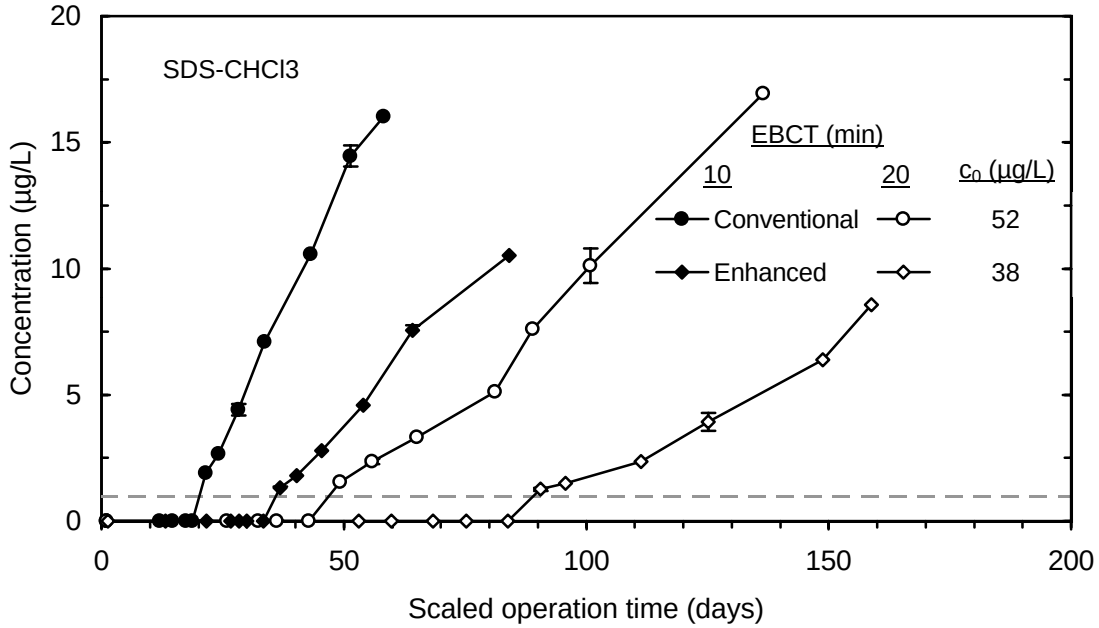


Figure 62 Impact of pretreatment on SDS-CHCl3 breakthrough for 10 and 20 minute EBCT contactors

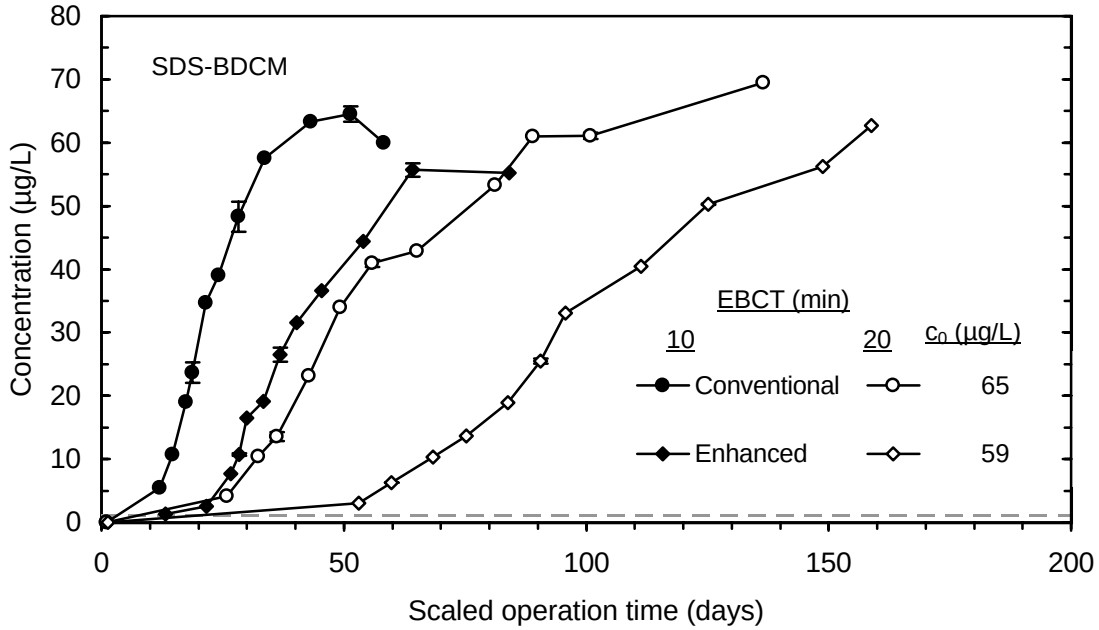


Figure 63 Impact of pretreatment on SDS-BDCM breakthrough for 10 and 20 minute EBCT contactors

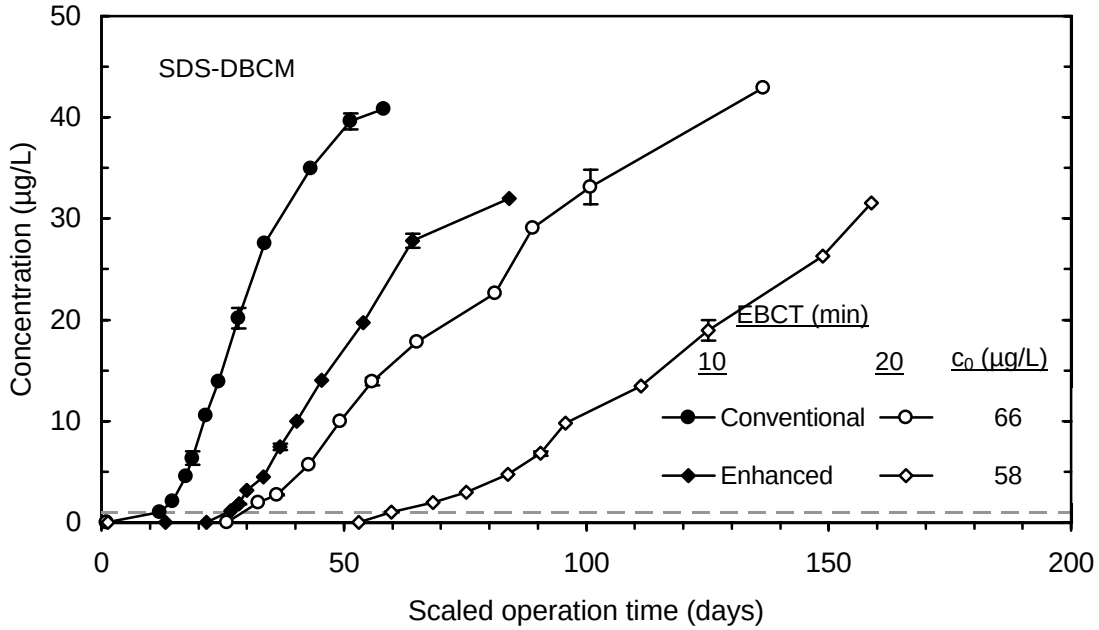


Figure 64 Impact of pretreatment on SDS-DBCM breakthrough for 10 and 20 minute EBCT contactors

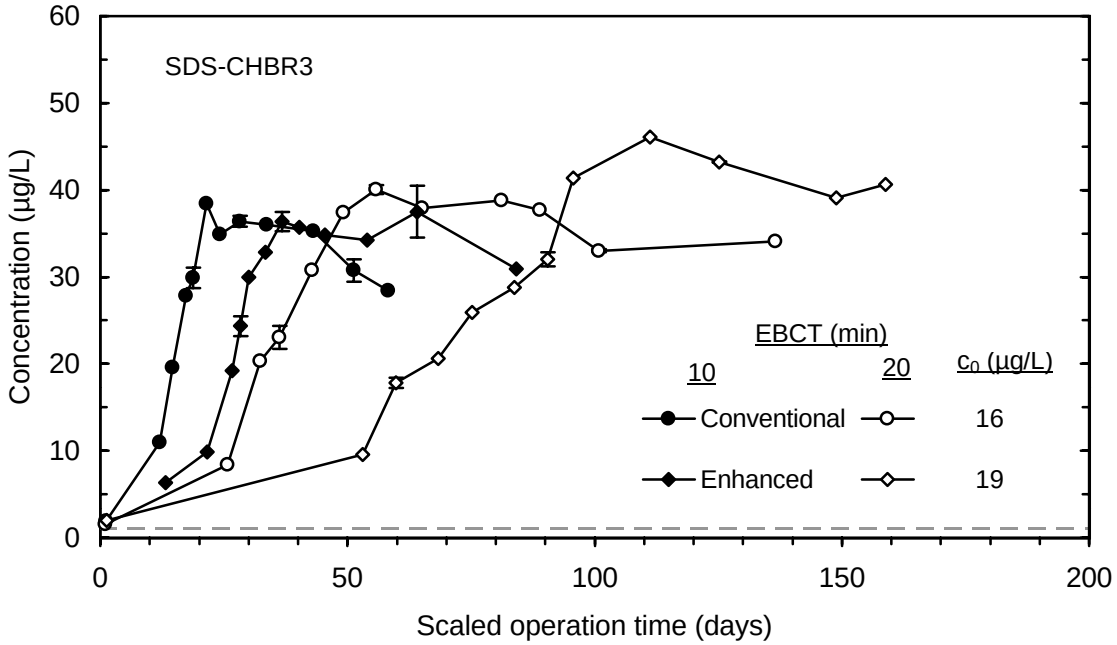


Figure 65 Impact of pretreatment on SDS-CHBR3 breakthrough for 10 and 20 minute EBCT contactors

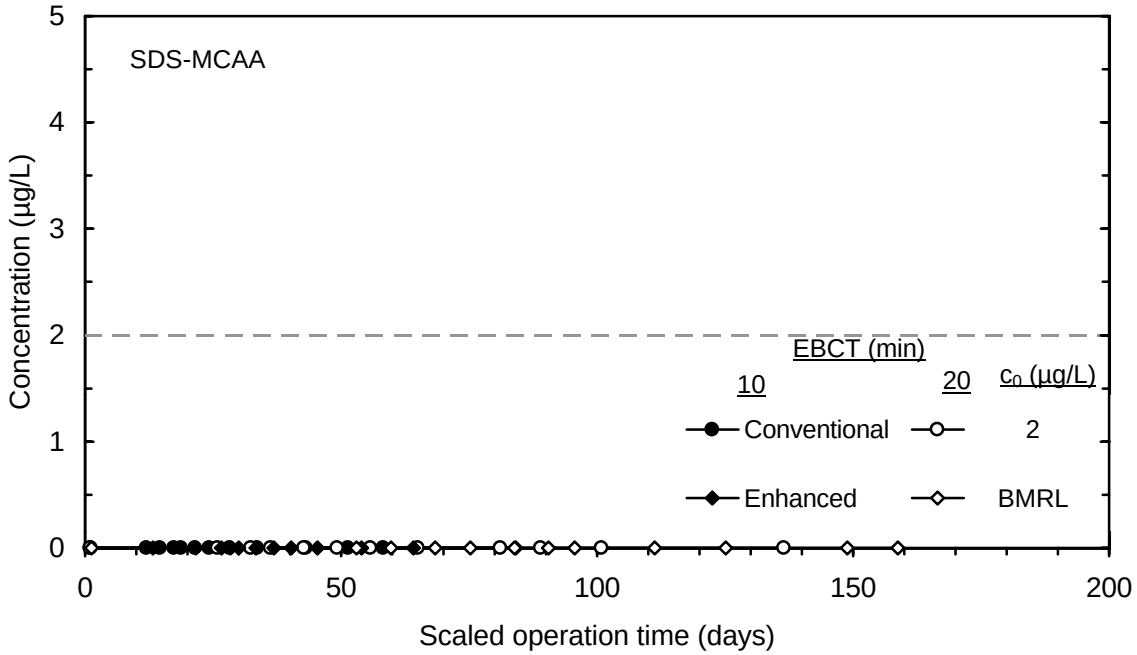


Figure 66 Impact of pretreatment on SDS-MCAA breakthrough for 10 and 20 minute EBCT contactors

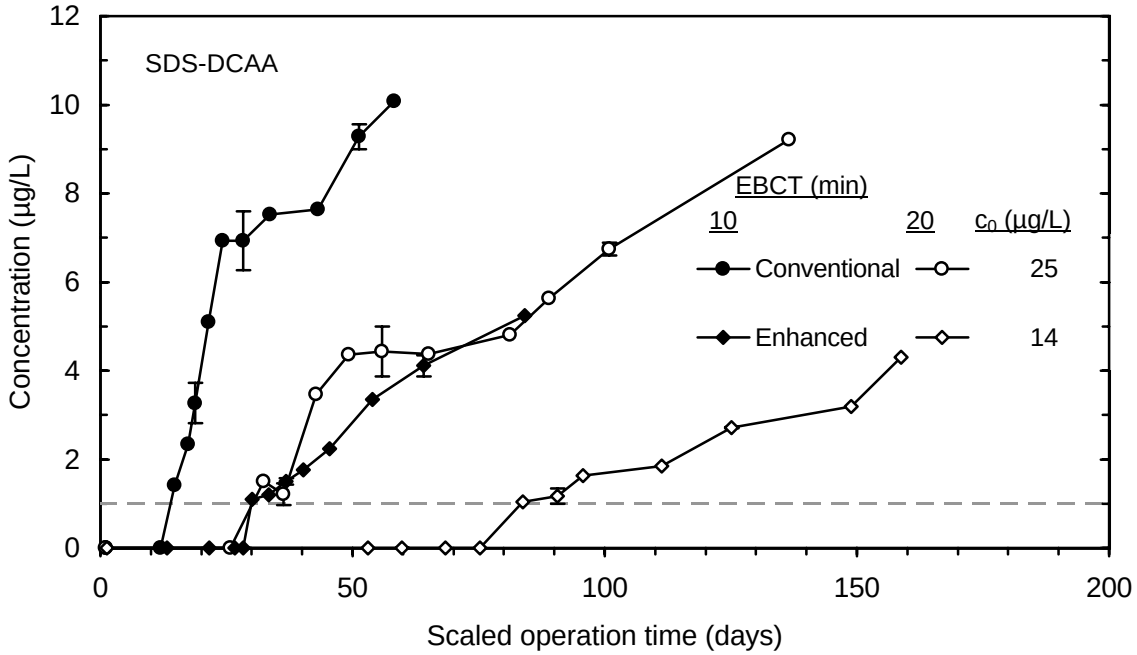


Figure 67 Impact of pretreatment on SDS-DCAA breakthrough for 10 and 20 minute EBCT contactors

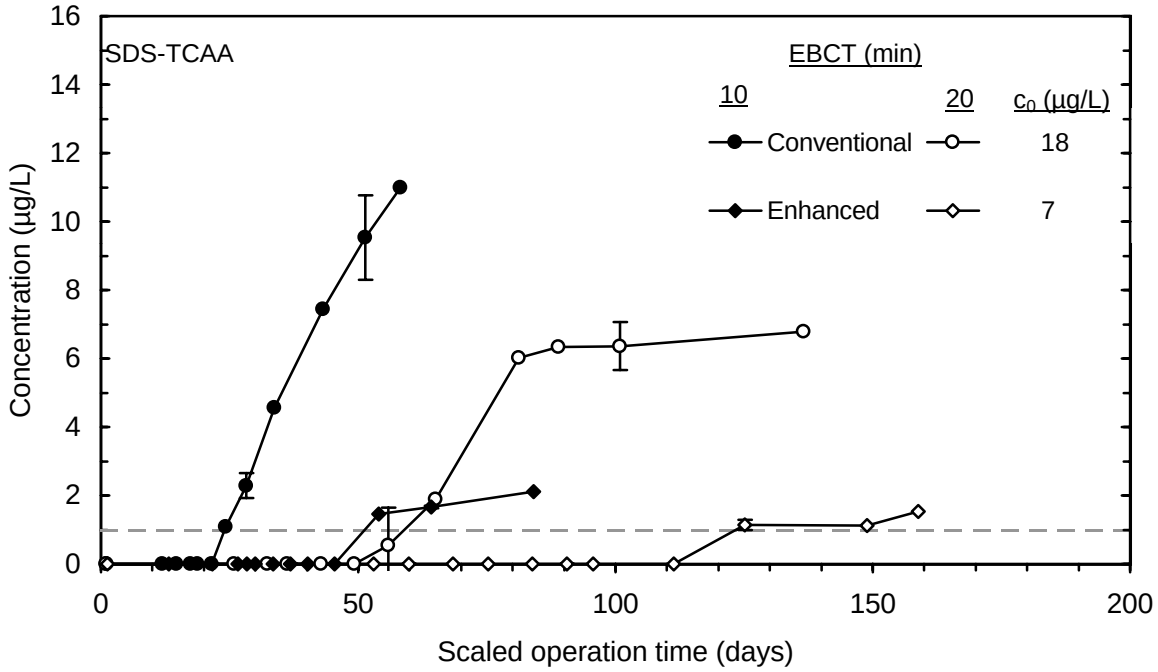


Figure 68 Impact of pretreatment on SDS-TCAA breakthrough for 10 and 20 minute EBCT contactors

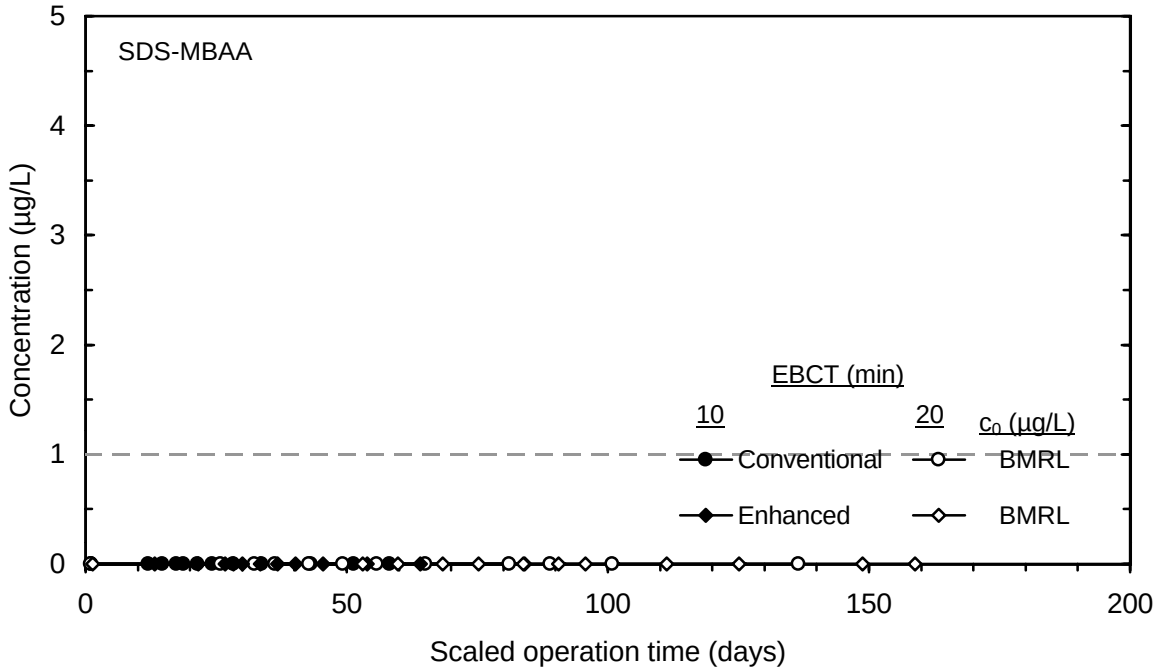


Figure 69 Impact of pretreatment on SDS-MBAA breakthrough for 10 and 20 minute EBCT contactors

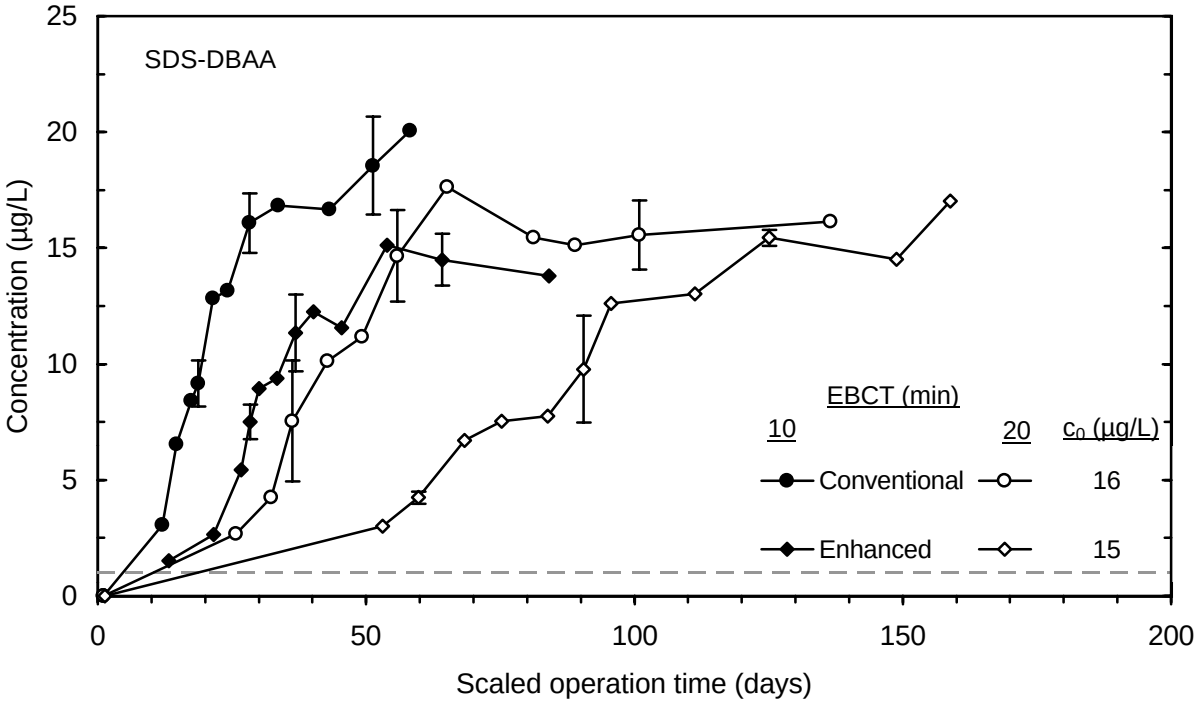


Figure 70 Impact of pretreatment on SDS-DBAA breakthrough for 10 and 20 minute EBCT contactors

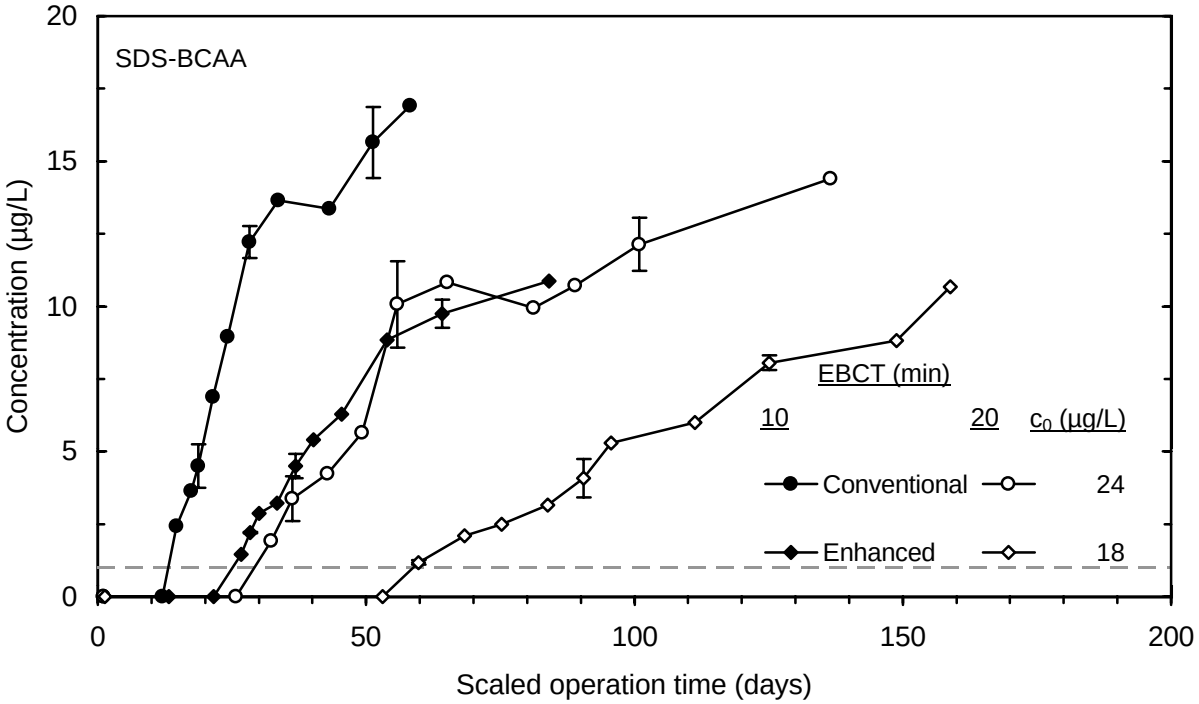


Figure 71 Impact of pretreatment on SDS-BCAA breakthrough for 10 and 20 minute EBCT contactors

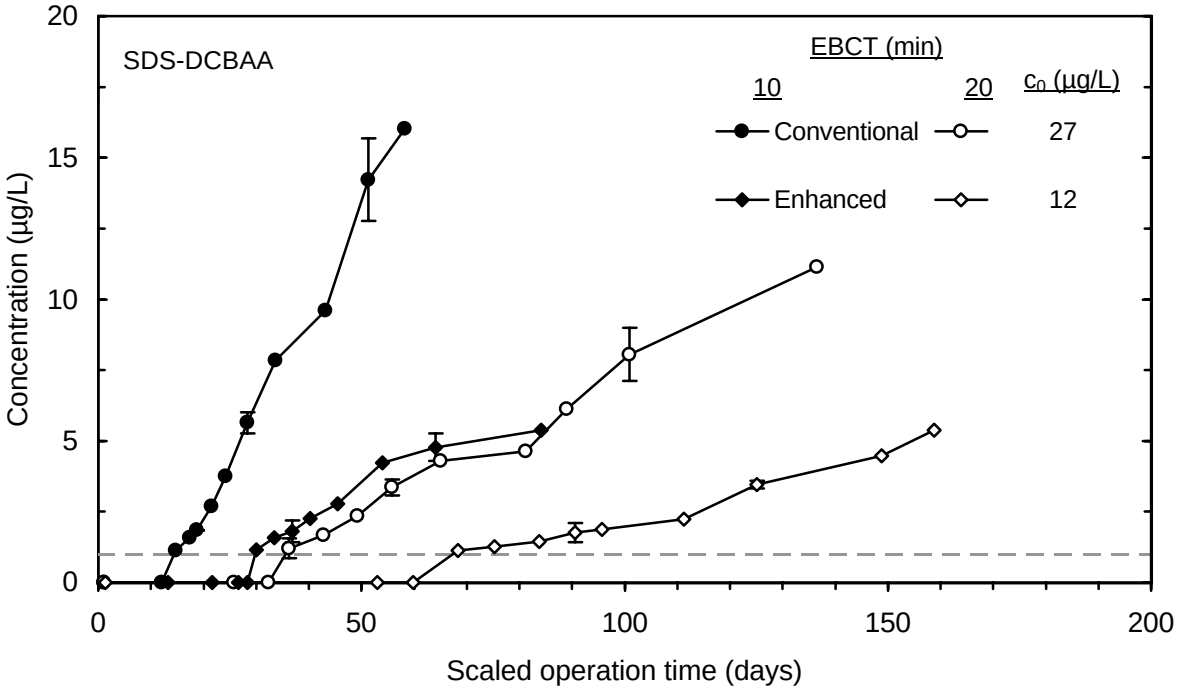


Figure 72 Impact of pretreatment on SDS-DCBAA breakthrough for 10 and 20 minute EBCT contactors

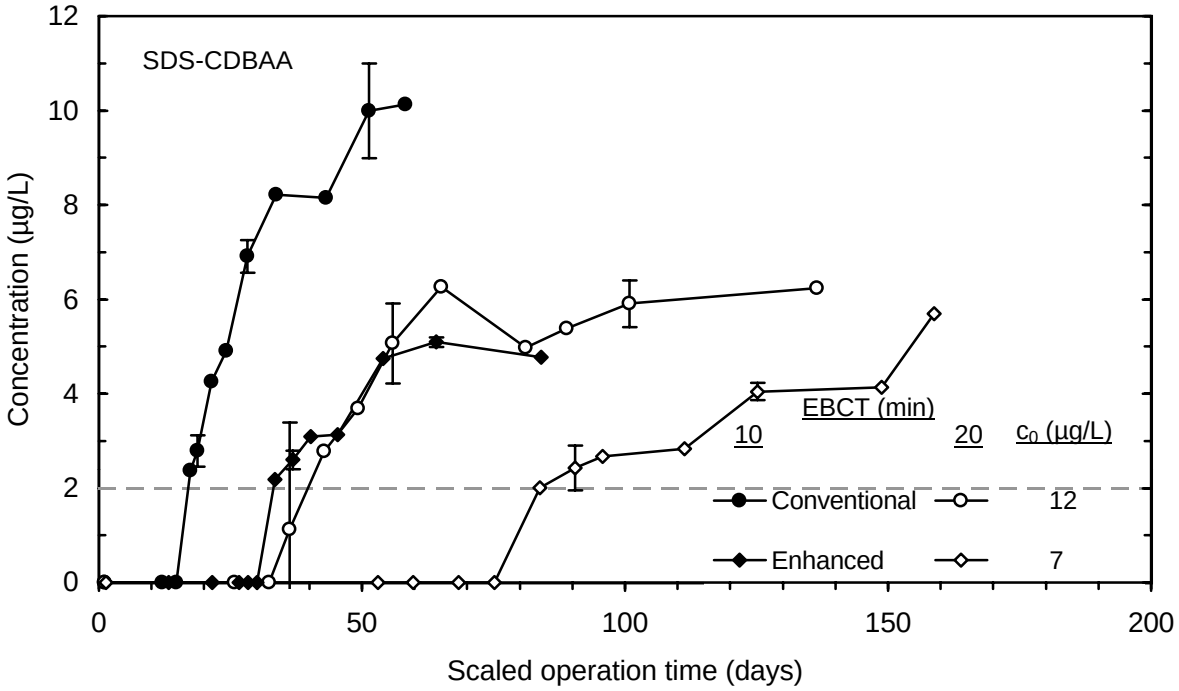


Figure 73 Impact of pretreatment on SDS-CDBAA breakthrough for 10 and 20 minute EBCT contactors

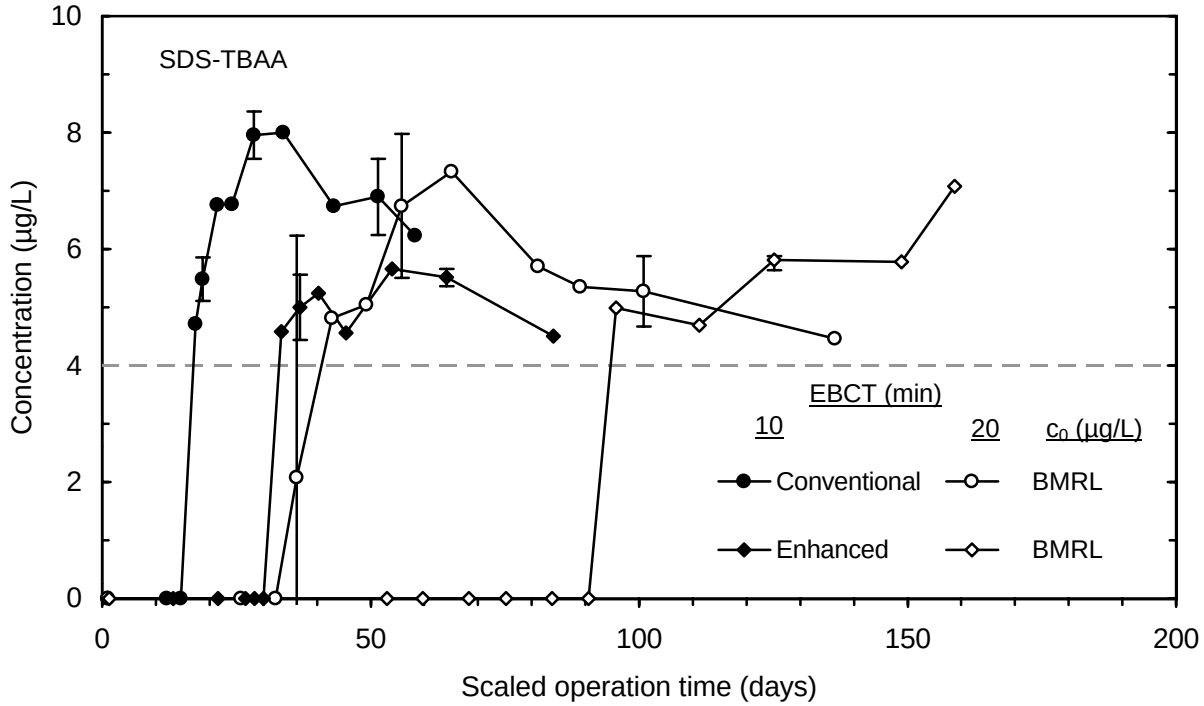


Figure 74 Impact of pretreatment on SDS-TBAA breakthrough for 10 and 20 minute EBCT contactors

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

10 Impact of Empty-Bed Contact Time (EBCT)

During all RSSCT 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 April session, Figures 75 through 82 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 August and October sessions in Figures 83 through 106. 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 example, throughput to Stage 1 THM4 MCL was 44, 38, and 15 percent longer during the April, August, and October sessions, respectively, for the 20 minute EBCT contactor over the 10 minute EBCT contactor. In some cases, such as TOC, SDS-THM4, and SDS-HAA5 for the April session, the two curves converged towards the end of the run. Similar results were obtained for the October session that evaluated enhanced coagulation pretreatment. Throughput to Stage 1 THM4 MCL increased by 28 percent between the 10 and 20 minute EBCT runs.

For all parameters analyzed, the throughput in bed volumes for both EBCTs to various run time criteria are summarized in Tables 39 through 42. These tables also include throughput based on blended effluent of multiple contactors, as explained in Section 11 below.

The throughput comparison data are summarized in graphical format in Figures 107 through 110 for the April 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 August, October, and October (enhanced coagulation) sessions in Figures 111 through 122. Also shown in the figures is the throughput based on blended effluent of multiple contactors, which is explained in Section 11.

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)	5.8	2.0	1,620	3,390	2,290	4,670	41	38
			1.0	1,140	1,900	1,530	2,560	34	35
			2.9†	2,330	5,780	3,170	7,530	36	30
UV-254	(1/cm)	0.127	0.040	1,890	4,030	2,810	5,620	49	39
			0.020	1,320	2,340	1,830	3,270	39	40
			0.063†	3,040	6,840	4,350	9,740	43	42
SDS-THM4	(µg/L)	198	80	1,680	4,430	2,400	5,600	43	26
			64	1,450	3,150	2,090	4,260	44	35
			32	1,140	1,880	1,490	2,530	31	35
SDS-HAA5	(µg/L)	75	48	*	*	*	*		
			24	2,220	5,380	3,220	6,800	45	26
SDS-HAA6	(µg/L)	96	48	4,660	8,700	4,630	10,630	-1	22
			24	1,790	3,700	2,630	5,020	47	36
SDS-HAA9	(µg/L)	144	48	1,920	4,360	2,960	6,360	54	46
			24	1,340	2,470	1,930	3,630	44	47
SDS-TOX	(µg Cl^-/L)	543	120	1,620	3,140	2,340	4,410	44	40
			70	1,310	2,230	1,770	3,100	35	39

†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 40 Summary of throughput to selected GAC effluent criteria during session 1, April

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)	5.3	2.0	2,500	5,250	3,080	6,500	23	24
			1.0	1,700	2,870	2,160	3,610	27	26
			2.6†	3,180	7,820	4,030	9,060	27	16
UV-254	(1/cm)	0.119	0.040	3,200	7,080	4,240	9,080	33	28
			0.020	2,060	3,830	2,650	4,980	29	30
			0.059†	4,910	10,850	6,540	14,540	33	34
SDS-THM4	(µg/L)	241	80	1,970	4,090	2,840	5,670	44	39
			64	1,840	3,360	2,530	4,740	38	41
			32	1,490	2,310	2,020	3,060	36	32
SDS-HAA5	(µg/L)	47	48	*	*	*	*		
			24	5,580	11,030	6,310	13,140	13	19
SDS-HAA6	(µg/L)	68	48	*	*	*	*		
			24	2,980	6,910	3,860	8,090	30	17
SDS-HAA9	(µg/L)	91	48	5,390	10,860	4,670	11,470	-13	6
			24	2,460	4,890	2,960	5,590	20	14
SDS-TOX	(µg Cl^-/L)	465	120	2,470	4,910	3,220	6,370	30	30
			70	1,900	3,370	2,470	4,450	30	32

†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 41 Summary of throughput to selected GAC effluent criteria during session 2, August

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)	5.6	2.0	3,250	6,710	3,680	8,070	13	20
			1.0	2,250	3,740	2,520	4,330	12	16
			2.8†	4,290	10,280	5,740	12,140	34	18
UV-254	(1/cm)	0.109	0.040	4,680	10,520	5,930	11,860	27	13
			0.020	2,880	5,420	3,260	6,330	13	17
			0.054†	6,750	15,210	7,710	17,450	14	15
SDS-THM4	(µg/L)	200	80	3,010	6,730	3,490	7,860	16	17
			64	2,760	5,360	3,170	6,250	15	17
			32	2,100	3,400	2,310	3,810	10	12
SDS-HAA5	(µg/L)	62	48	*	*	*	*		
			24	3,890	8,970	4,730	11,860	22	32
SDS-HAA6	(µg/L)	85	48	6,650	14,880	*	21,340		43
			24	3,050	6,090	3,700	8,140	21	34
SDS-HAA9	(µg/L)	124	48	3,600	8,110	4,290	11,320	19	40
			24	2,550	4,500	2,940	5,580	15	24
SDS-TOX	(µg Cl^-/L)	486	120	3,280	6,410	3,760	7,680	15	20
			70	2,610	4,460	2,930	5,180	12	16

†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 42 Summary of throughput to selected GAC effluent criteria during session 3, October

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)	4.6	2.0	5,660	12,780	6,860	14,850	21	16
			1.0	4,120	7,100	4,940	8,600	20	21
			2.3†	6,350	14,560	8,020	17,420	26	20
UV-254	(1/cm)	0.090	0.040	8,910	19,900	10,860	22,180	22	11
			0.020	5,570	10,500	6,770	12,270	22	17
			0.045†	10,260	23,480	11,670	26,050	14	11
SDS-THM4	(µg/L)	173	80	5,870	12,790	6,780	14,520	16	14
			64	5,060	10,470	6,460	11,860	28	13
			32	3,950	6,420	4,850	8,000	23	25
SDS-HAA5	(µg/L)	35	48	*	*	*	*		
			24	*	*	*	*		
SDS-HAA6	(µg/L)	53	48	*	*	*	*		
			24	7,100	15,650	8,490	18,390	20	18
SDS-HAA9	(µg/L)	72	48	*	*	11,160	*		
			24	5,010	10,950	6,700	13,030	34	19
SDS-TOX	(µg Cl^-/L)	380	120	5,910	9,330	7,390	14,750	25	58
			70	4,690	5,690	5,780	10,280	23	81

†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 43 Summary of throughput to selected GAC effluent criteria during session 4, October-EC

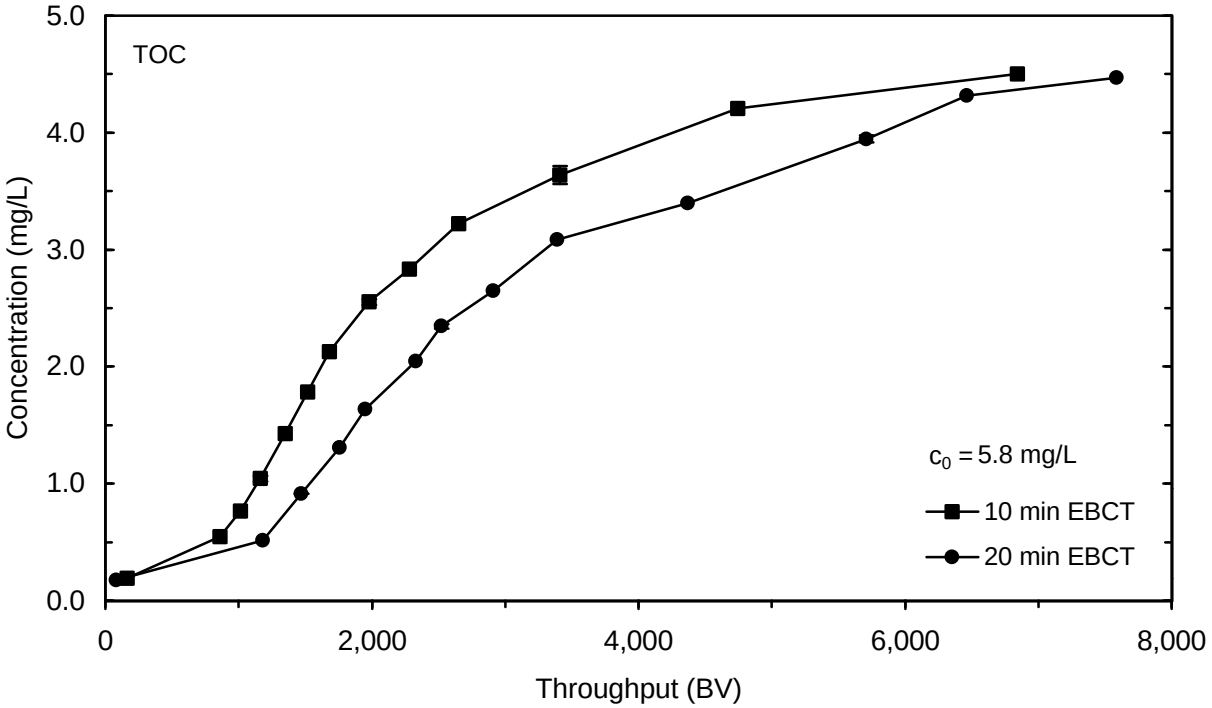


Figure 75 TOC breakthrough for 10 and 20 minute EBCT contactors during session 1 (April), plotted as throughput in bed volumes treated

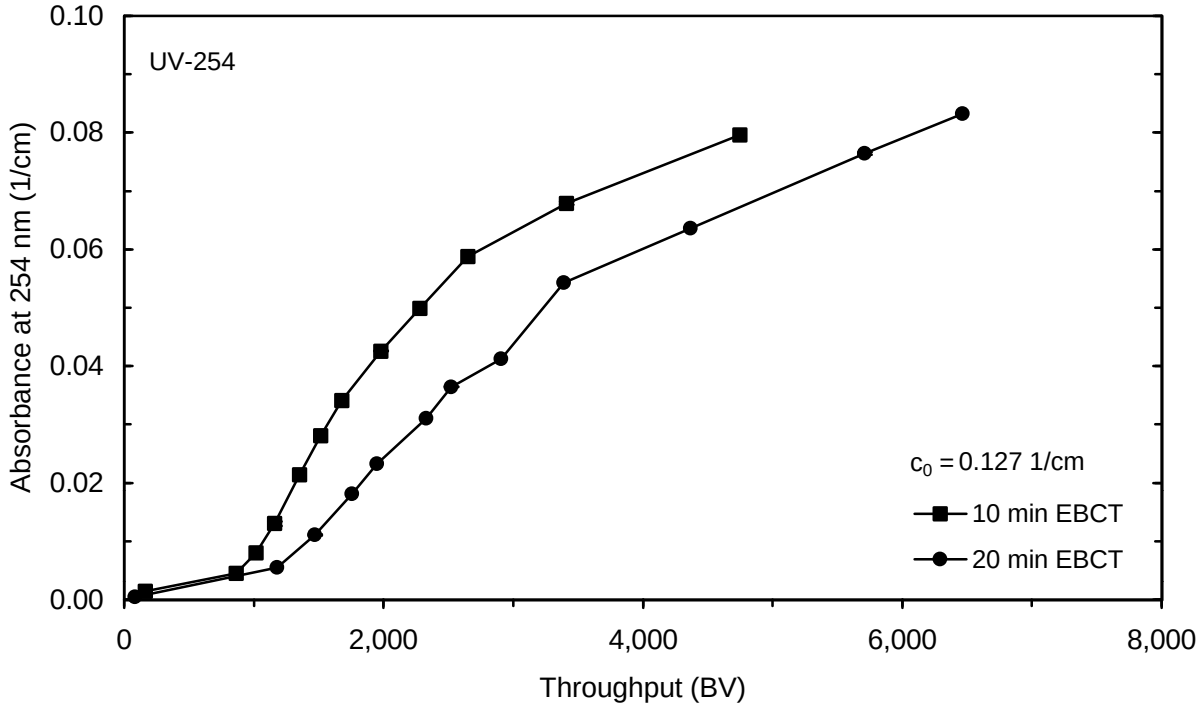


Figure 76 UV-254 breakthrough for 10 and 20 minute EBCT contactors during session 1 (April), plotted as throughput in bed volumes treated

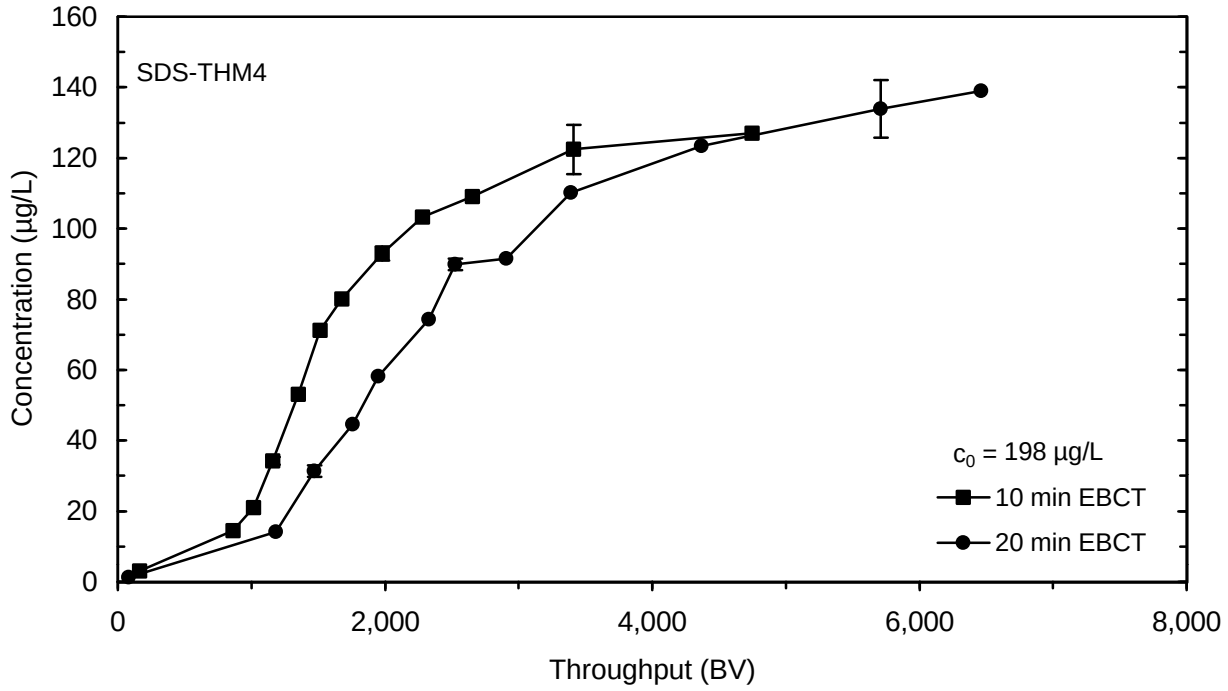


Figure 77 SDS-THM4 breakthrough for 10 and 20 minute EBCT contactors during session 1 (April), plotted as throughput in bed volumes treated

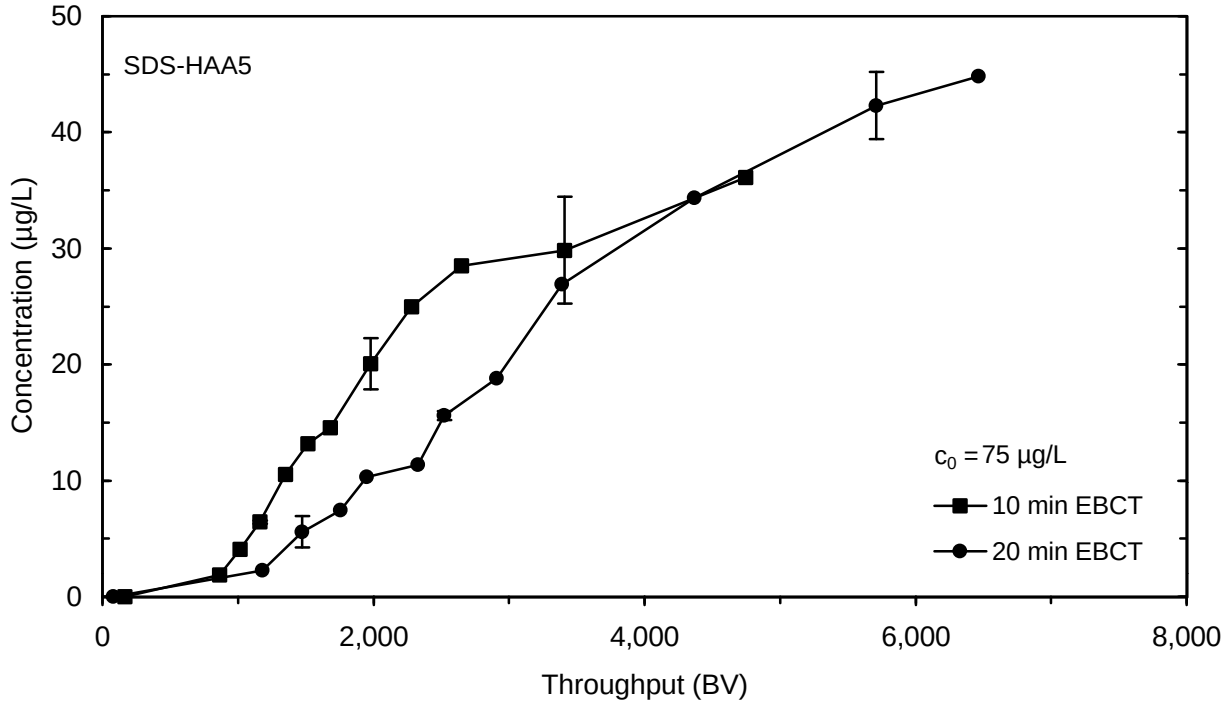


Figure 78 SDS-HAA5 breakthrough for 10 and 20 minute EBCT contactors during session 1 (April), plotted as throughput in bed volumes treated

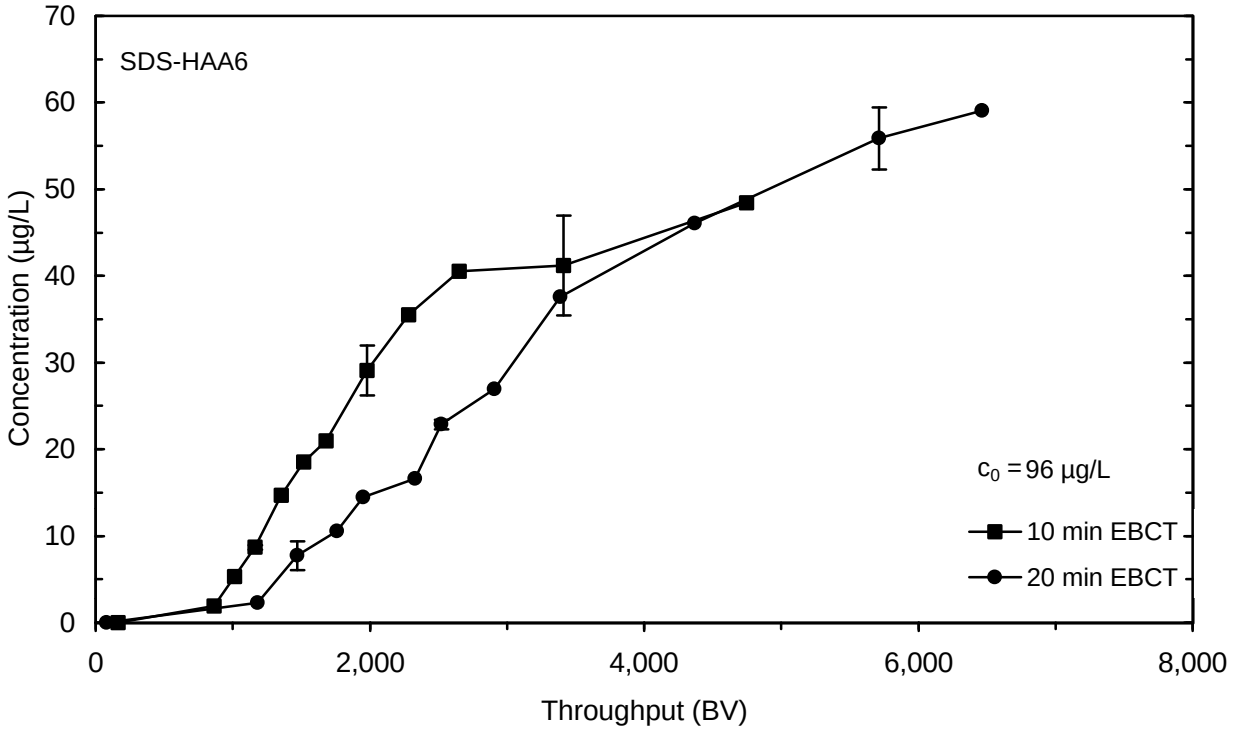


Figure 79 SDS-HAA6 breakthrough for 10 and 20 minute EBCT contactors during session 1 (April), plotted as throughput in bed volumes treated

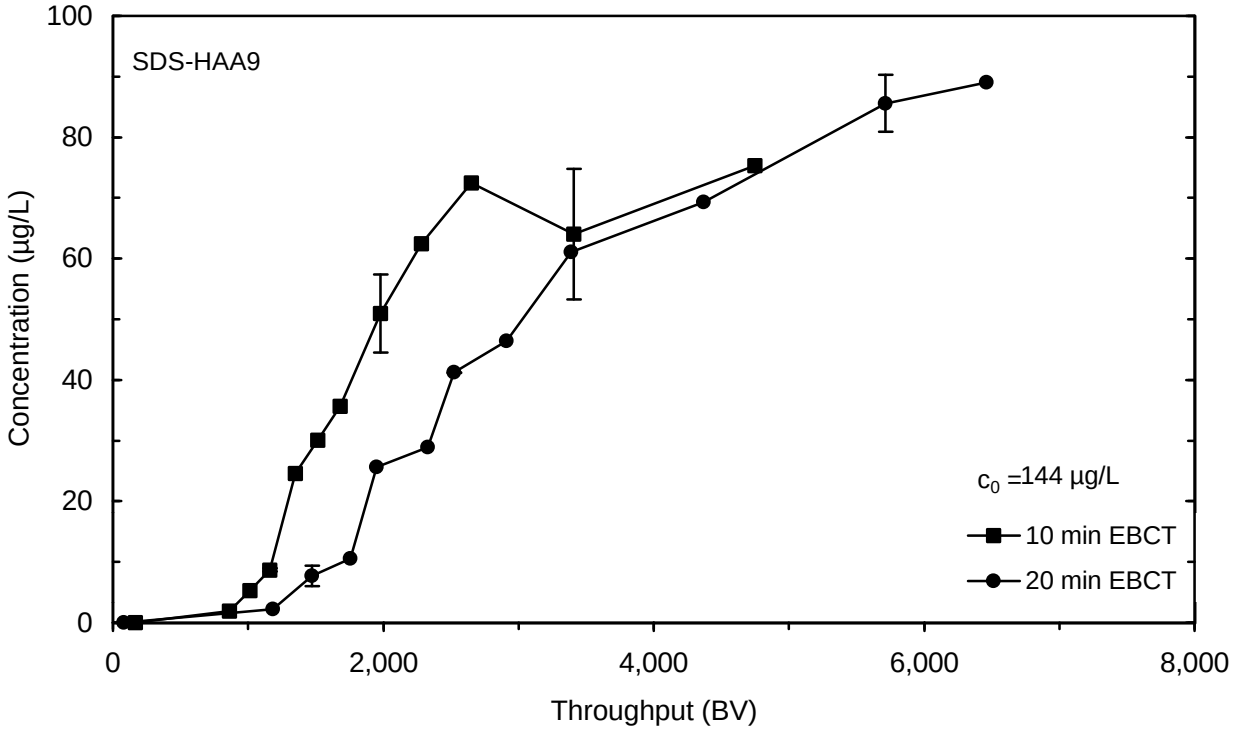


Figure 80 SDS-HAA9 breakthrough for 10 and 20 minute EBCT contactors during session 1 (April), plotted as throughput in bed volumes treated

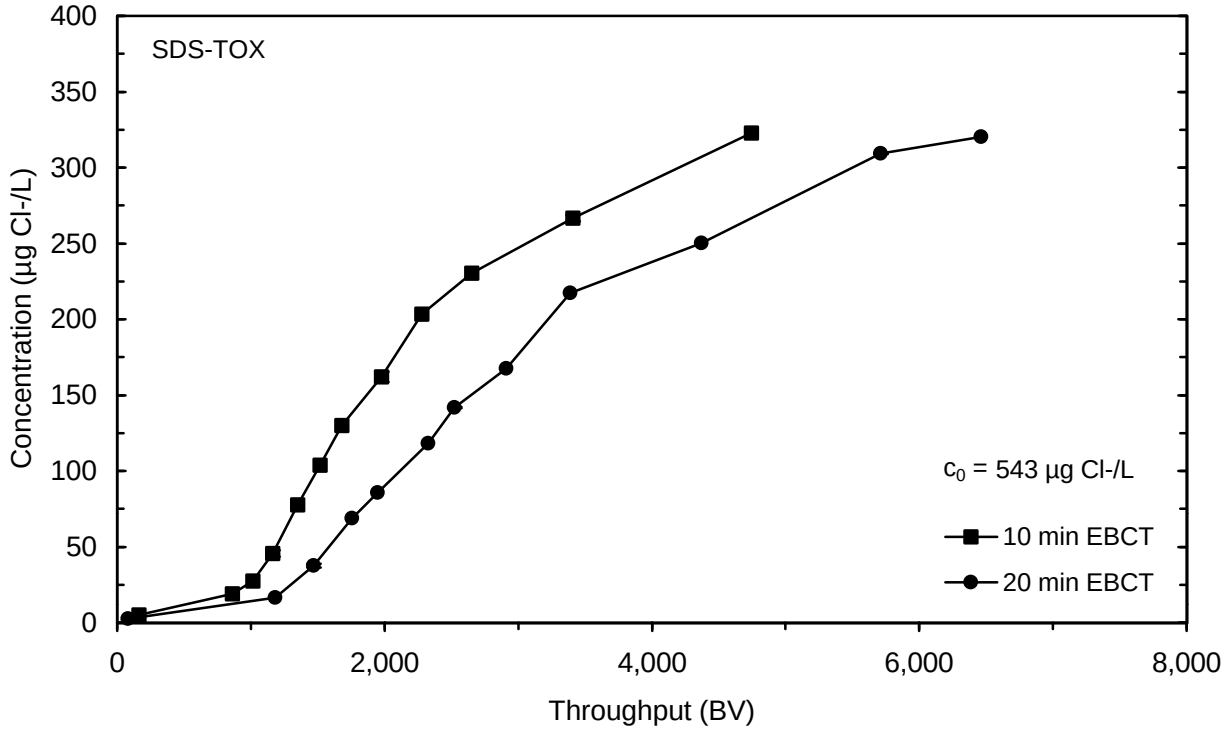


Figure 81 SDS-TOX breakthrough for 10 and 20 minute EBCT contactors during session 1 (April), plotted as throughput in bed volumes treated

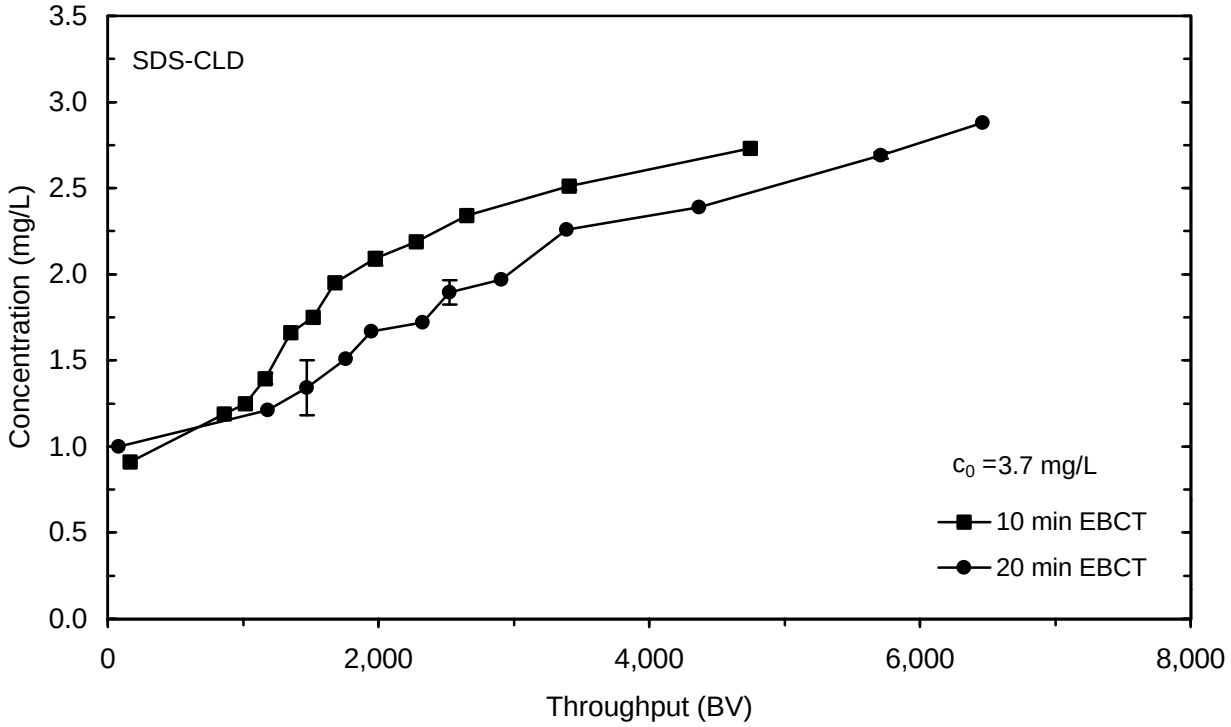


Figure 82 SDS-CLD breakthrough for 10 and 20 minute EBCT contactors during session 1 (April), plotted as throughput in bed volumes treated

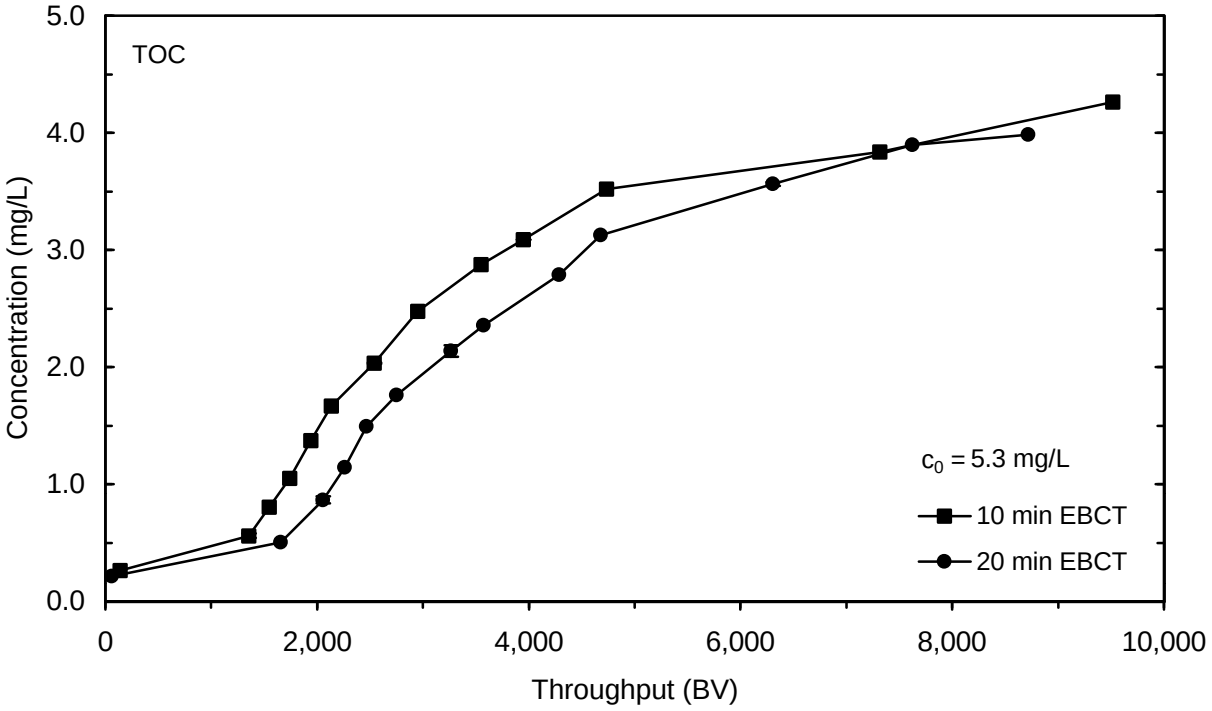


Figure 83 TOC breakthrough for 10 and 20 minute EBCT contactors during session 2 (August), plotted as throughput in bed volumes treated

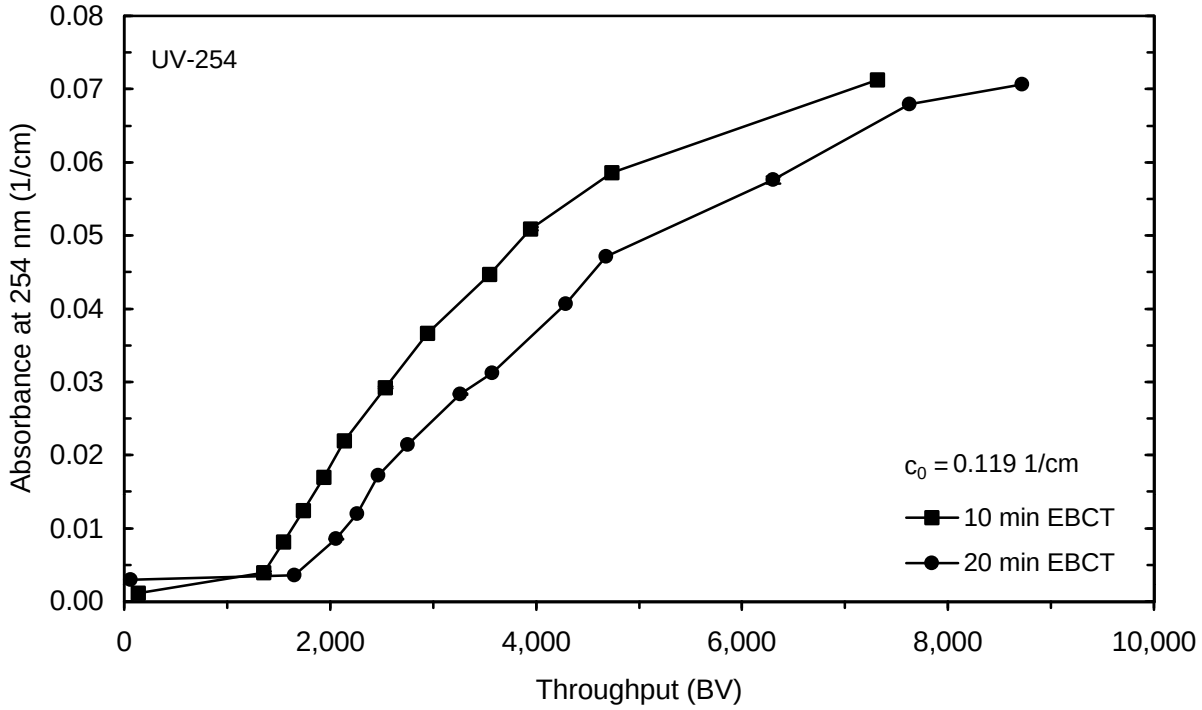


Figure 84 UV-254 breakthrough for 10 and 20 minute EBCT contactors during session 2 (August), plotted as throughput in bed volumes treated

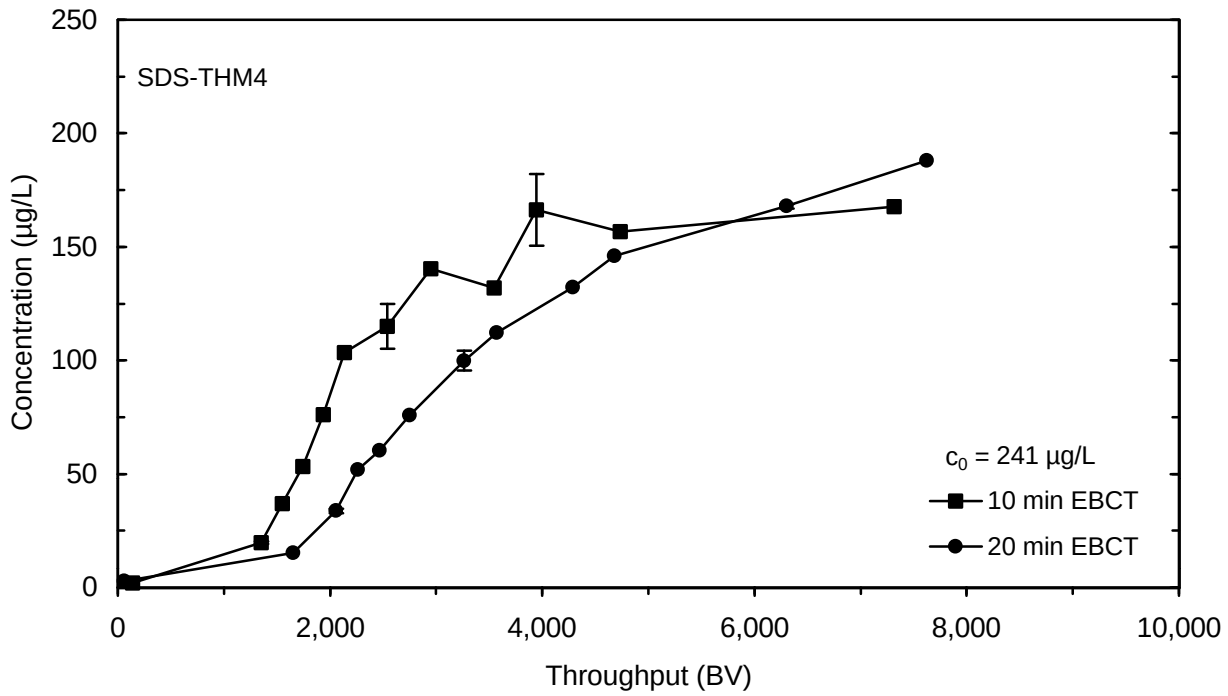


Figure 85 SDS-THM4 breakthrough for 10 and 20 minute EBCT contactors during session 2 (August), plotted as throughput in bed volumes treated

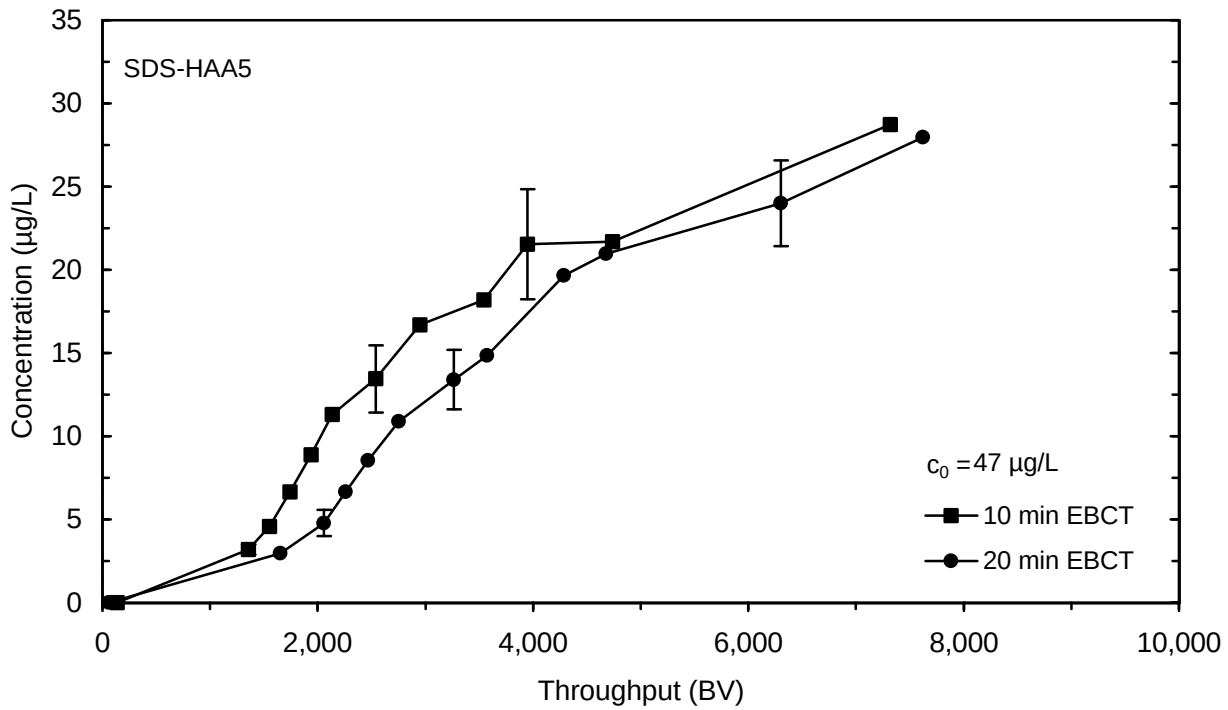


Figure 86 SDS-HAA5 breakthrough for 10 and 20 minute EBCT contactors during session 2 (August), plotted as throughput in bed volumes treated

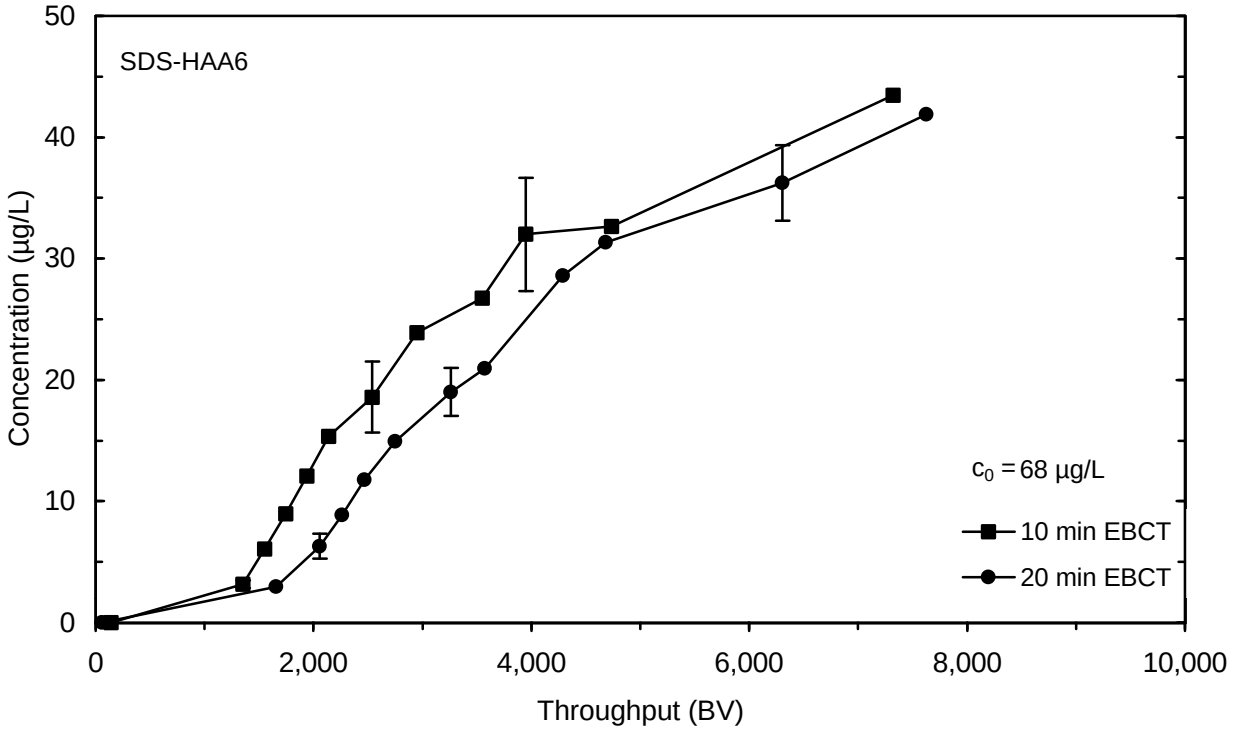


Figure 87 SDS-HAA6 breakthrough for 10 and 20 minute EBCT contactors during session 2 (August), plotted as throughput in bed volumes treated

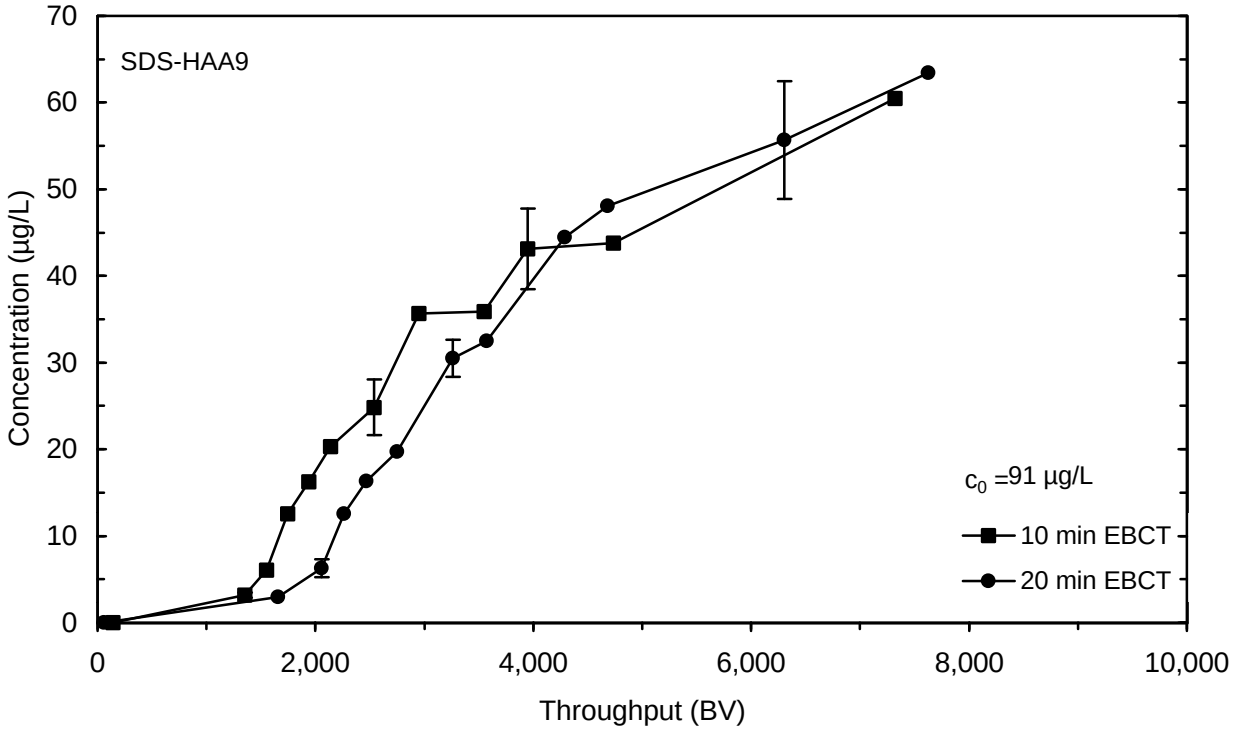


Figure 88 SDS-HAA9 breakthrough for 10 and 20 minute EBCT contactors during session 2 (August), plotted as throughput in bed volumes treated

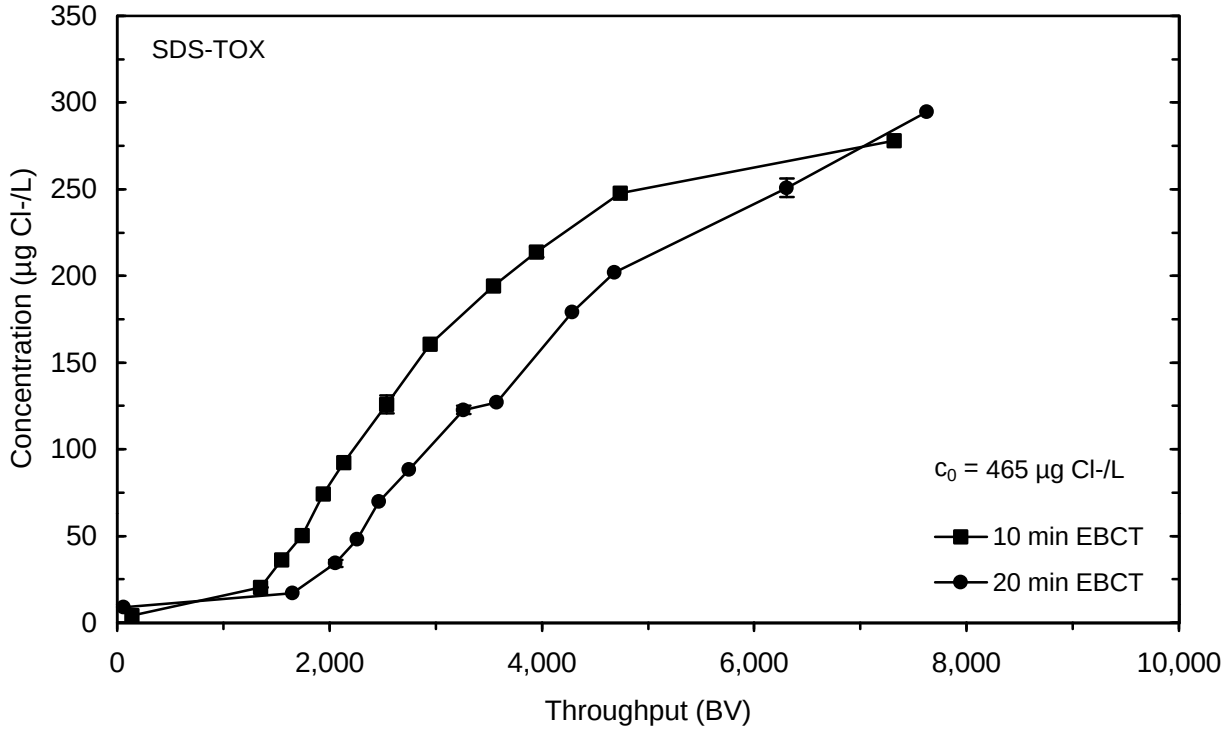


Figure 89 SDS-TOX breakthrough for 10 and 20 minute EBCT contactors during session 2 (August), plotted as throughput in bed volumes treated

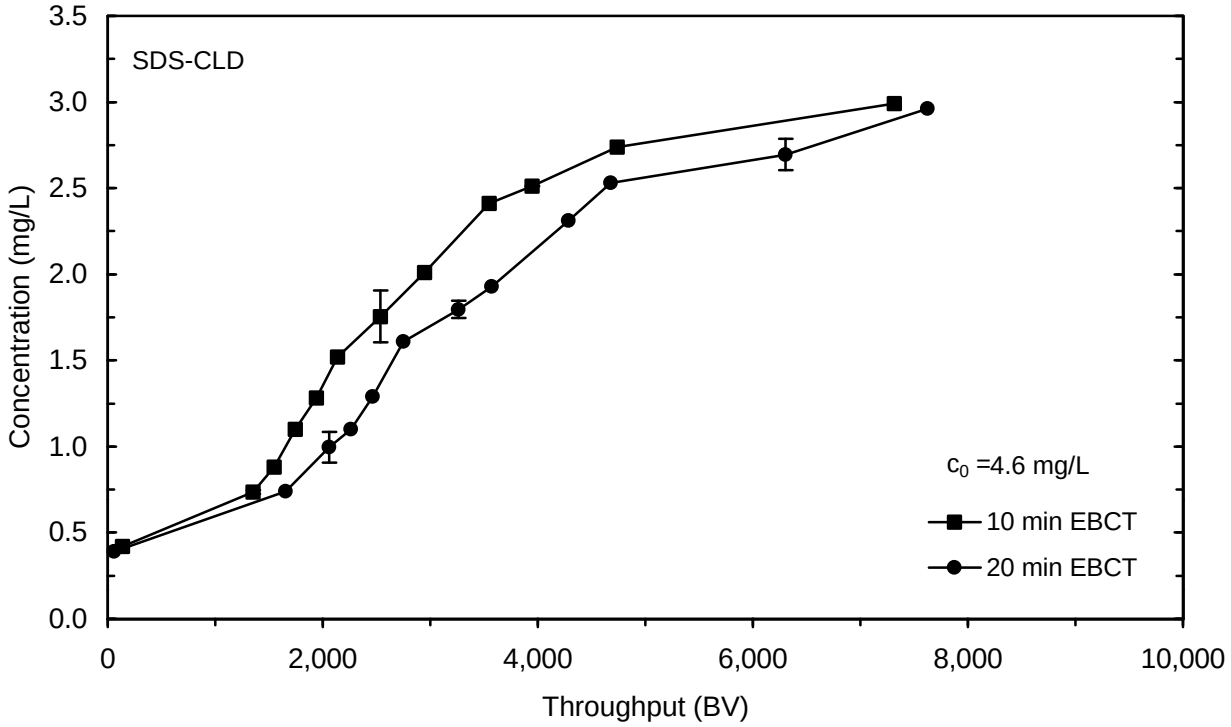


Figure 90 SDS-CLD breakthrough for 10 and 20 minute EBCT contactors during session 2 (August), plotted as throughput in bed volumes treated

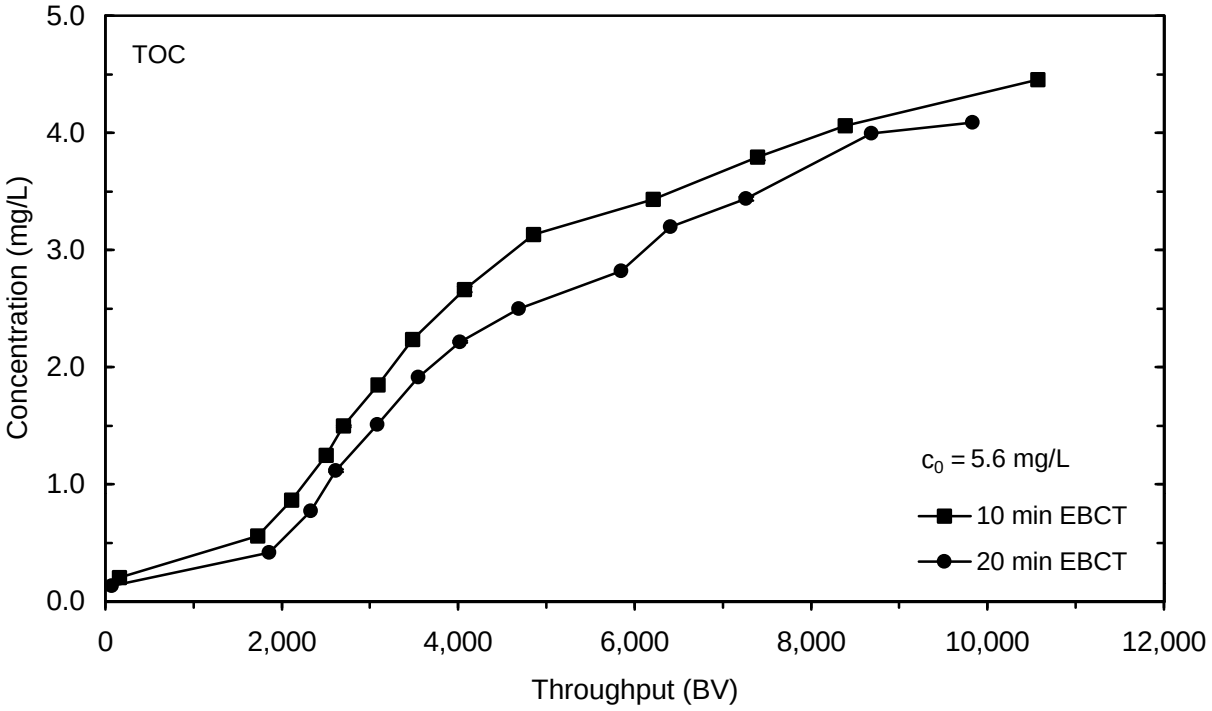


Figure 91 TOC breakthrough for 10 and 20 minute EBCT contactors during session 3 (October), plotted as throughput in bed volumes treated

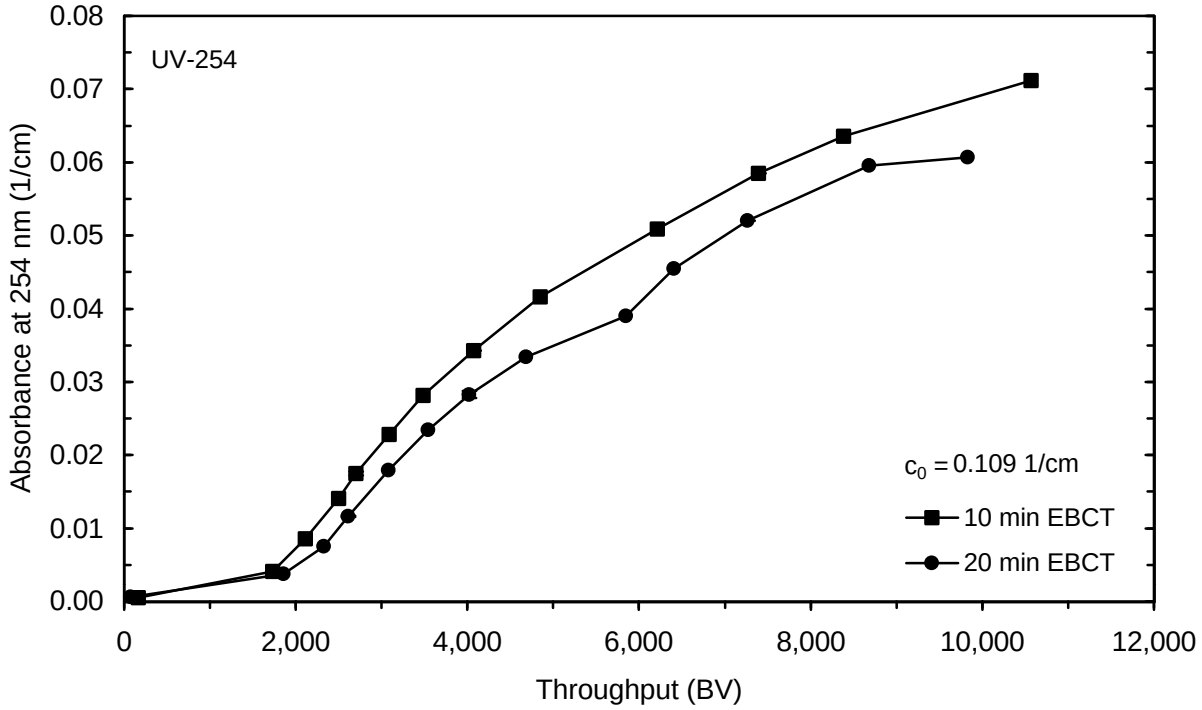


Figure 92 UV-254 breakthrough for 10 and 20 minute EBCT contactors during session 3 (October), plotted as throughput in bed volumes treated

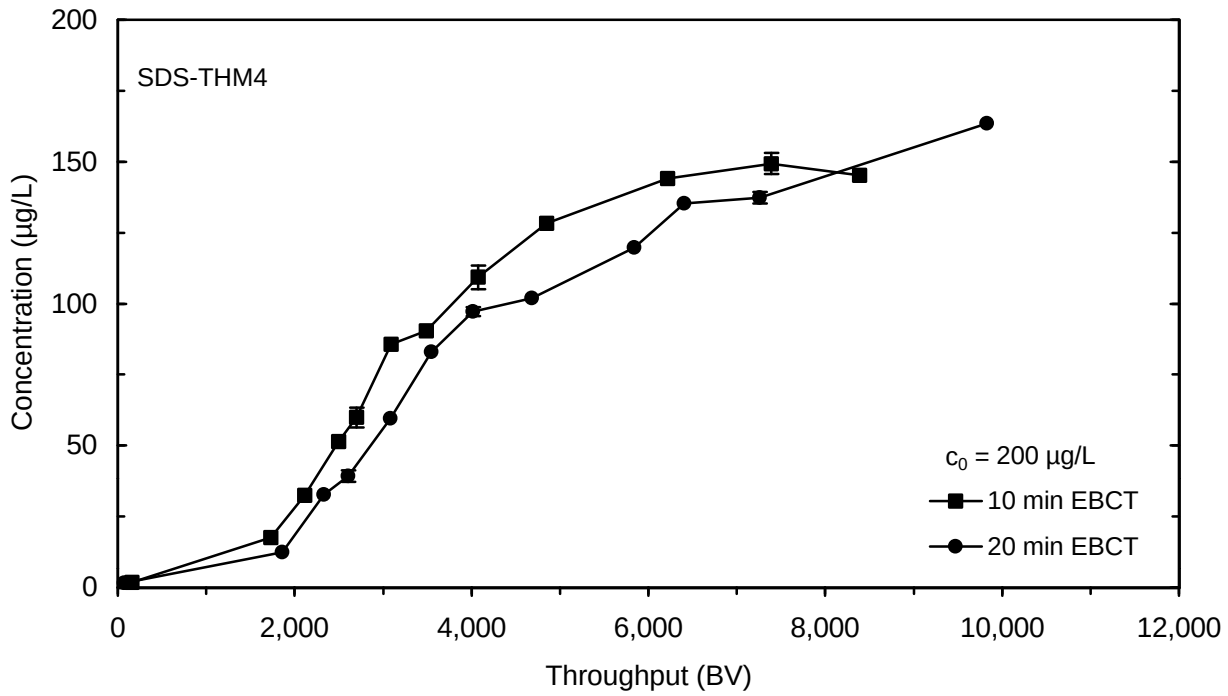


Figure 93 SDS-THM4 breakthrough for 10 and 20 minute EBCT contactors during session 3 (October), plotted as throughput in bed volumes treated

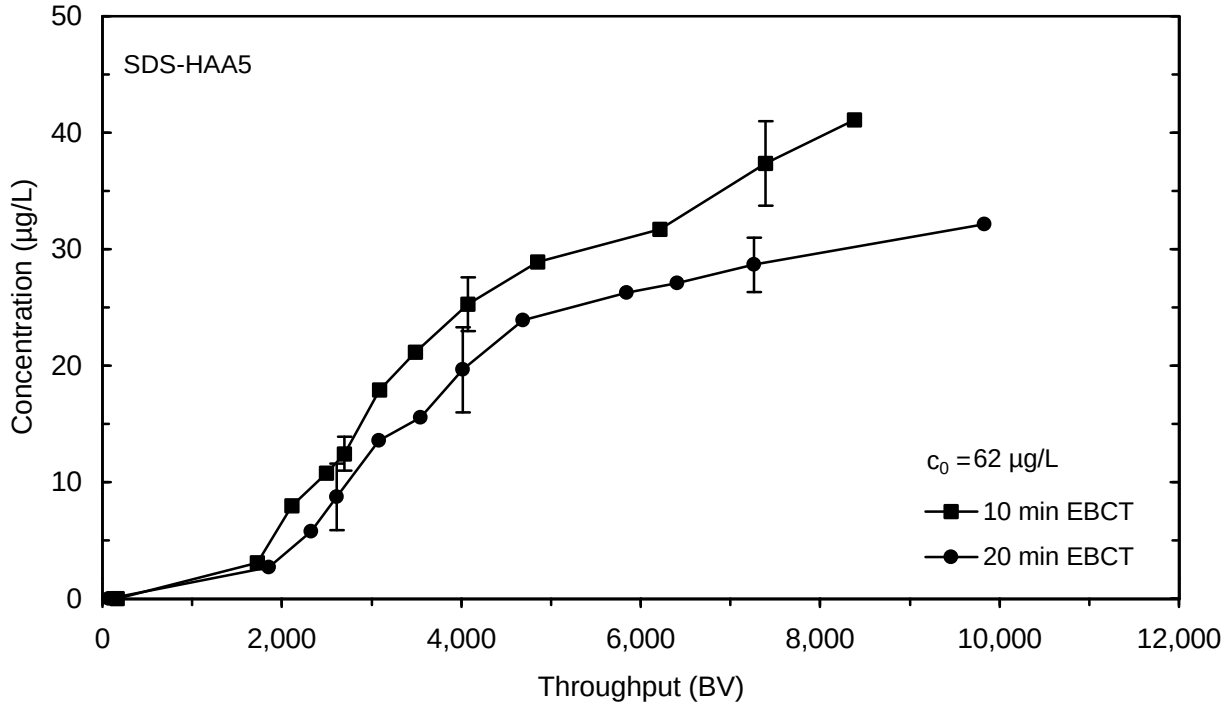


Figure 94 SDS-HAA5 breakthrough for 10 and 20 minute EBCT contactors during session 3 (October), plotted as throughput in bed volumes treated

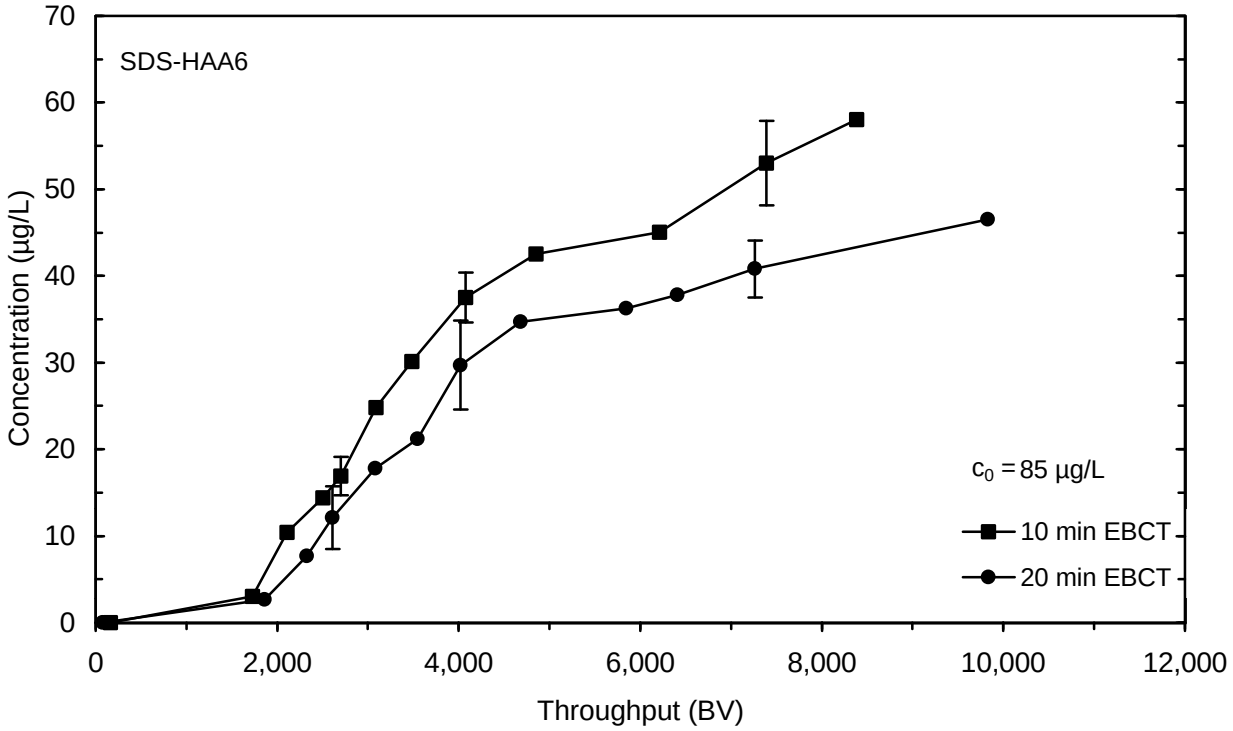


Figure 95 SDS-HAA6 breakthrough for 10 and 20 minute EBCT contactors during session 3 (October), plotted as throughput in bed volumes treated

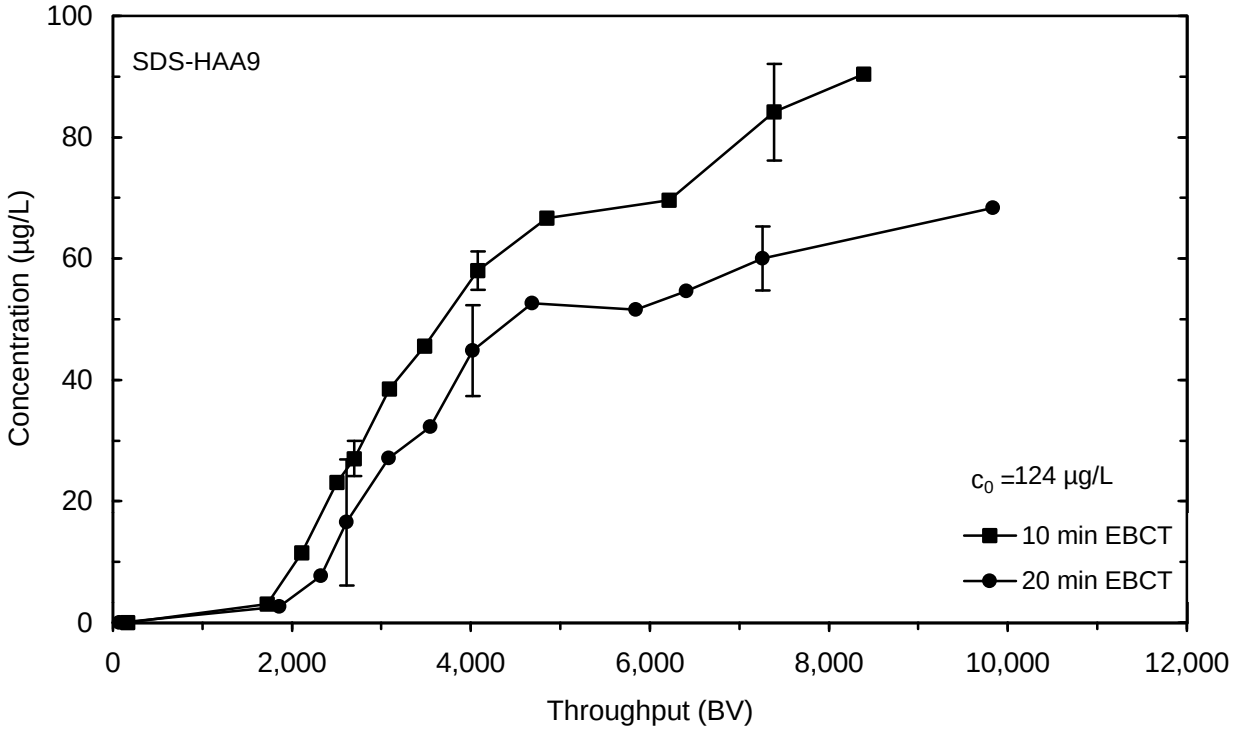


Figure 96 SDS-HAA9 breakthrough for 10 and 20 minute EBCT contactors during session 3 (October), plotted as throughput in bed volumes treated

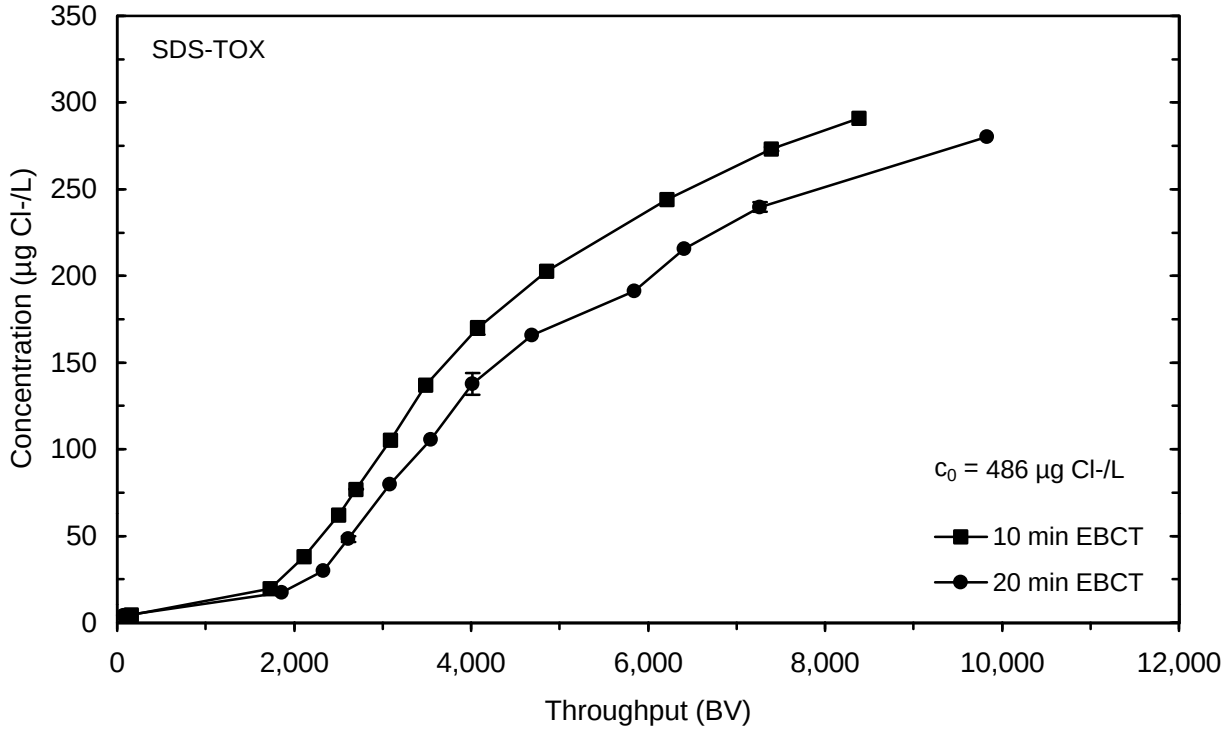


Figure 97 SDS-TOX breakthrough for 10 and 20 minute EBCT contactors during session 3 (October), plotted as throughput in bed volumes treated

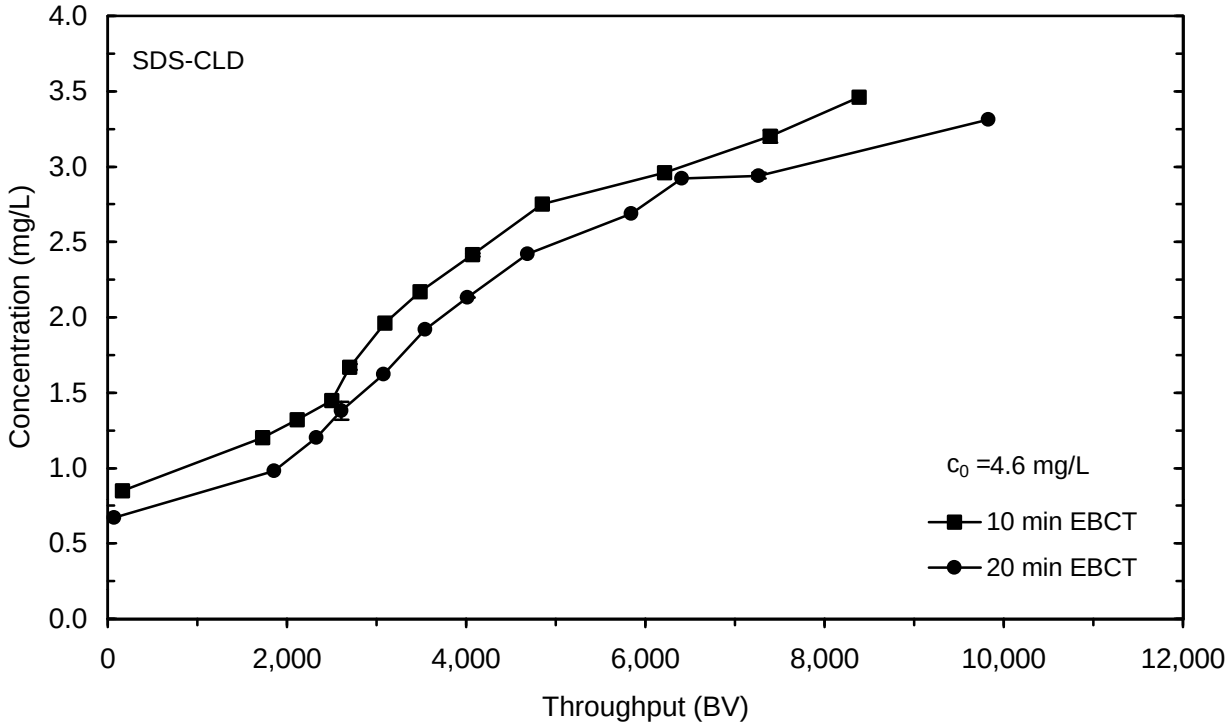


Figure 98 SDS-CLD breakthrough for 10 and 20 minute EBCT contactors during session 3 (October), plotted as throughput in bed volumes treated

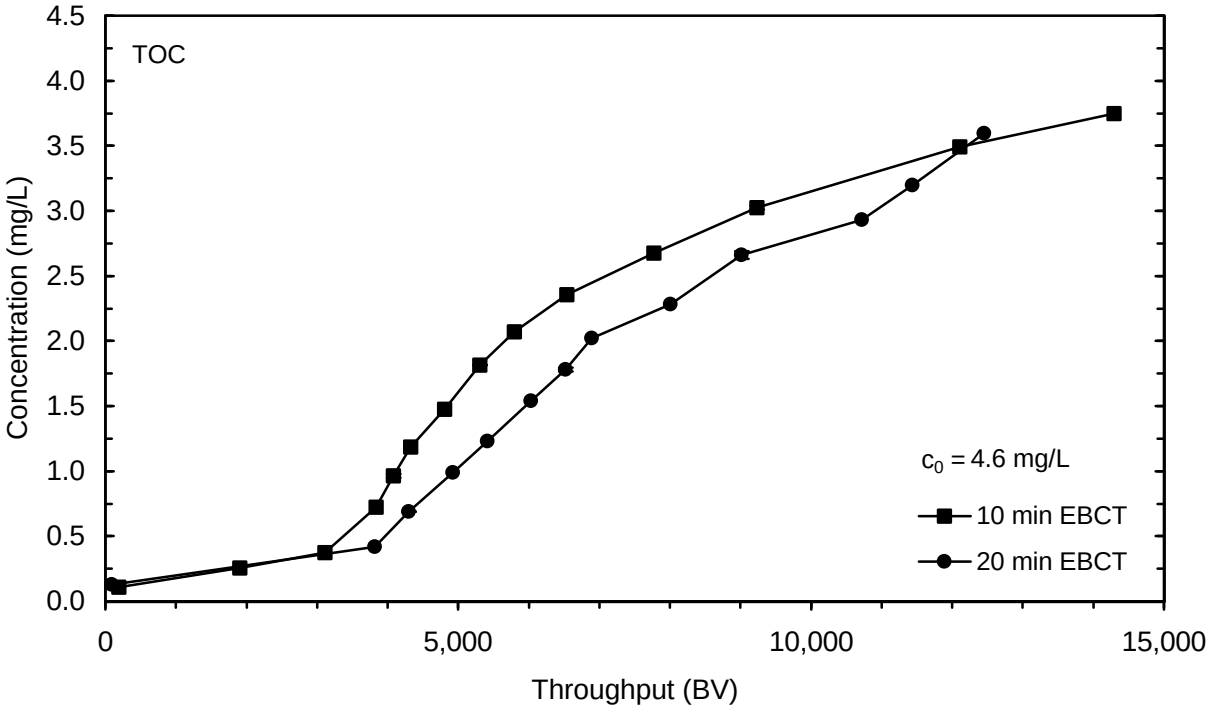


Figure 99 TOC breakthrough for 10 and 20 minute EBCT contactors during session 4 (October-EC), plotted as throughput in bed volumes treated

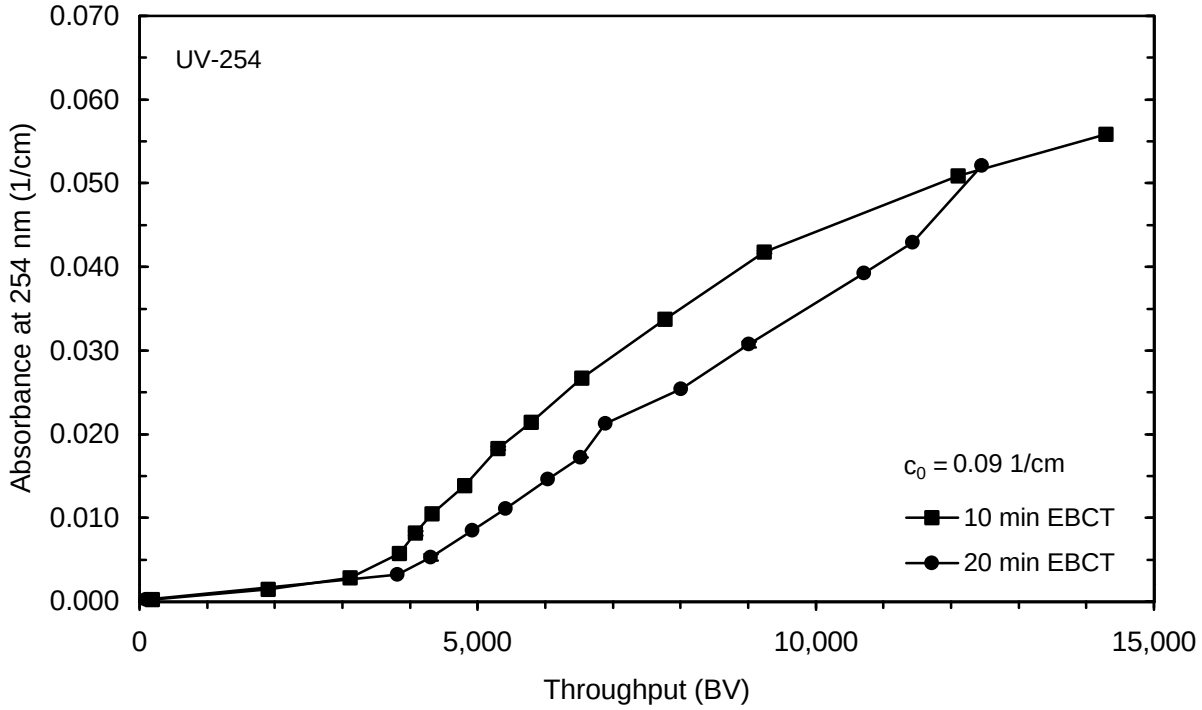


Figure 100 UV-254 breakthrough for 10 and 20 minute EBCT contactors during session 4 (October-EC), plotted as throughput in bed volumes treated

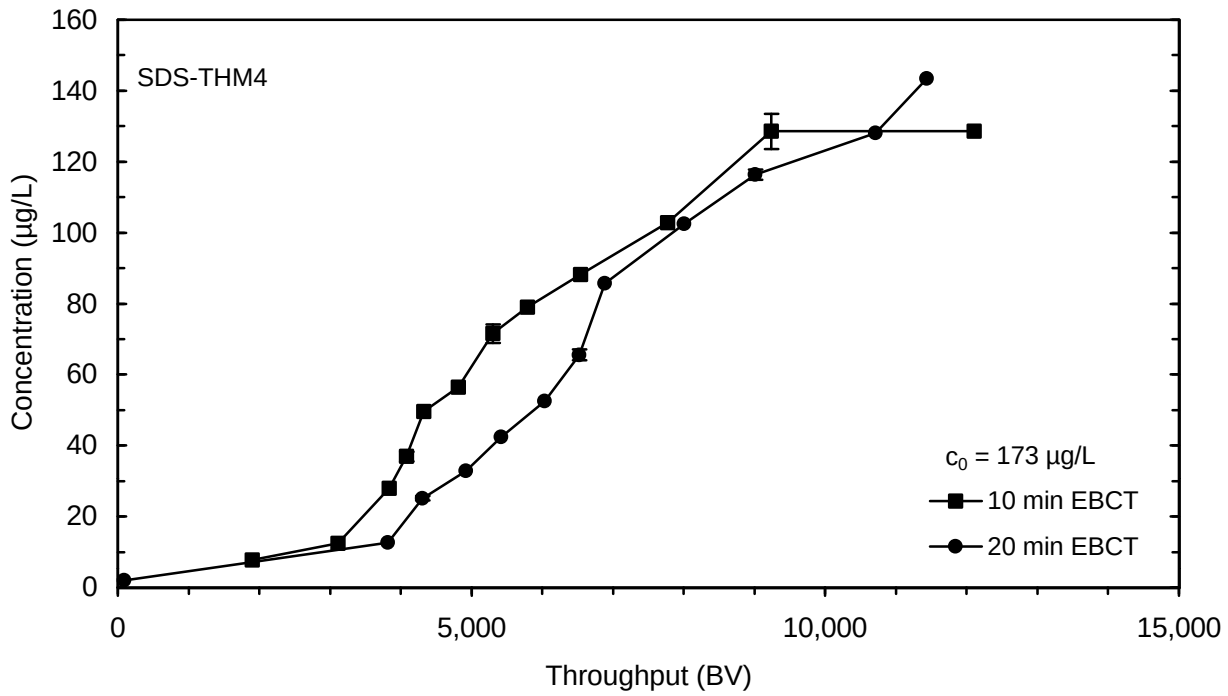


Figure 101 SDS-THM4 breakthrough for 10 and 20 minute EBCT contactors during session 4 (October-EC), plotted as throughput in bed volumes treated

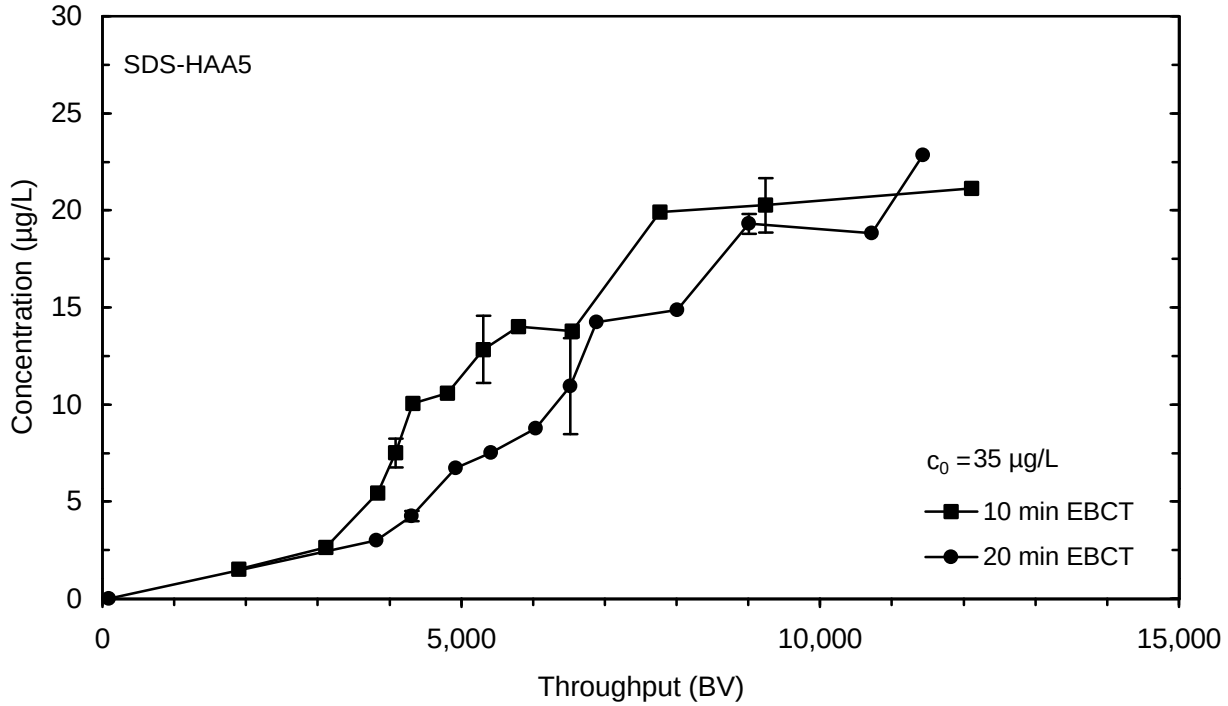


Figure 102 SDS-HAA5 breakthrough for 10 and 20 minute EBCT contactors during session 4 (October-EC), plotted as throughput in bed volumes treated

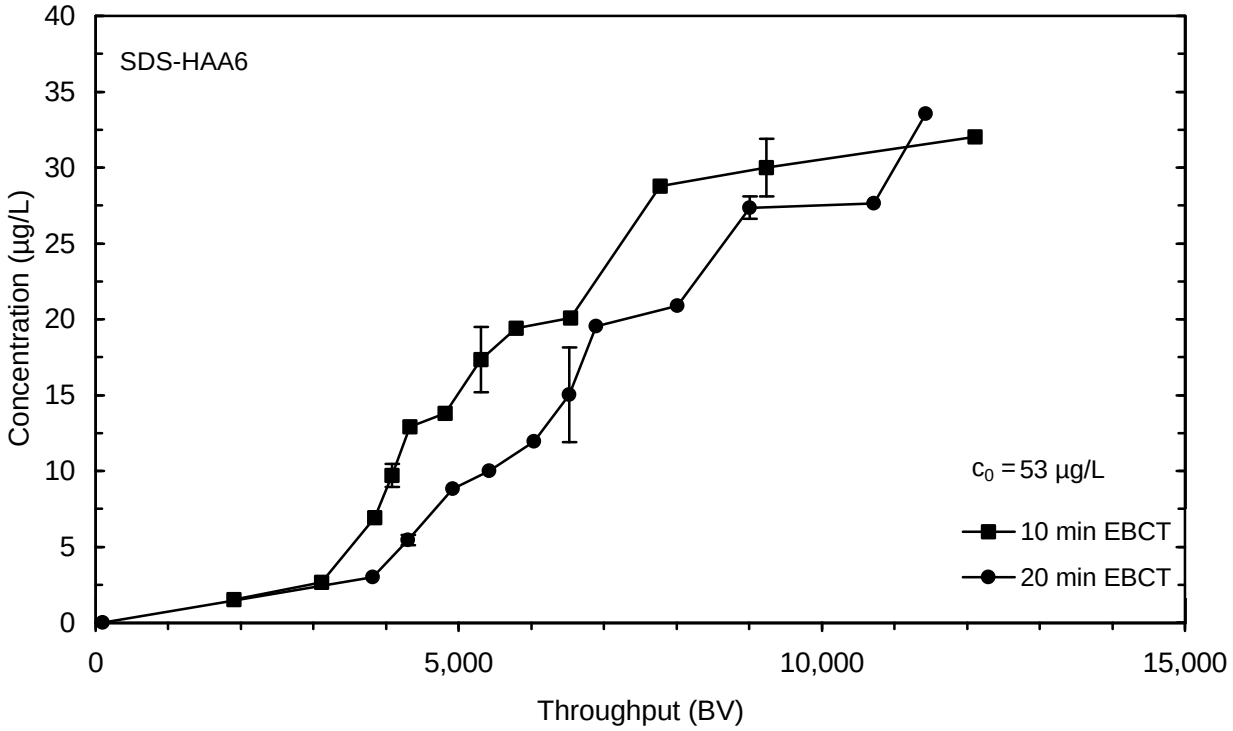


Figure 103 SDS-HAA6 breakthrough for 10 and 20 minute EBCT contactors during session 4 (October-EC), plotted as throughput in bed volumes treated

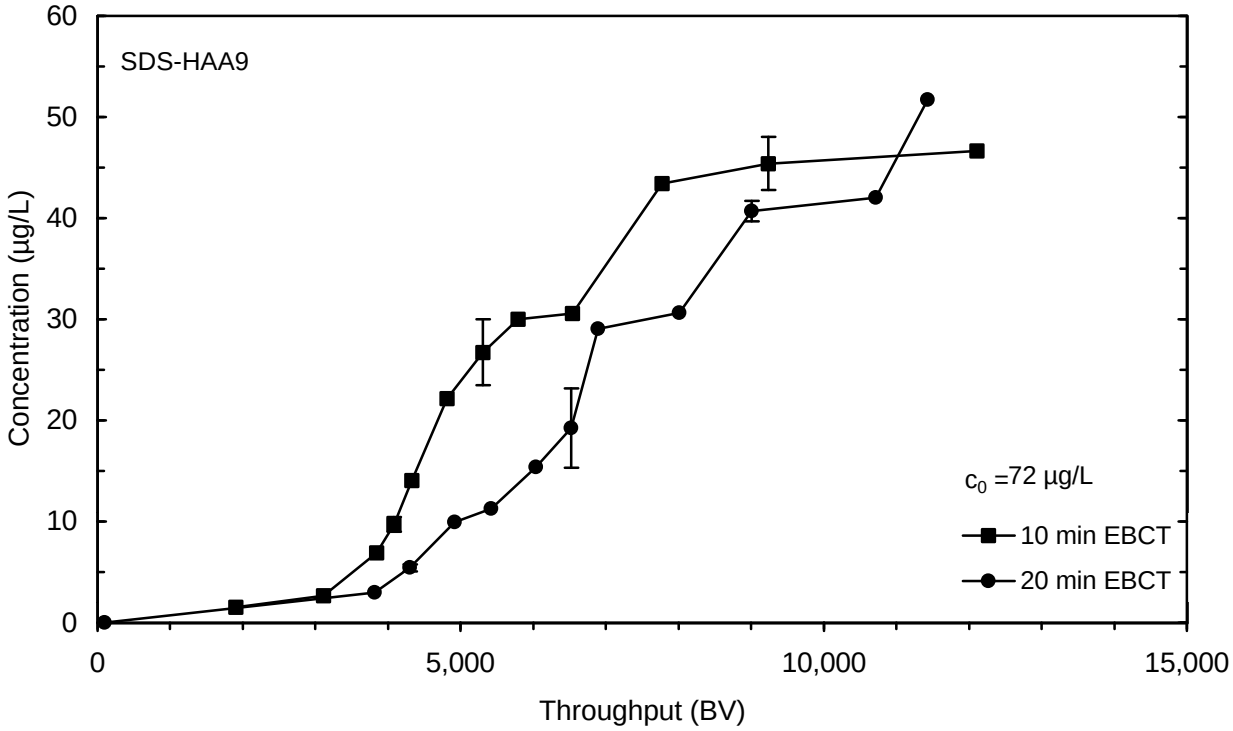


Figure 104 SDS-HAA9 breakthrough for 10 and 20 minute EBCT contactors during session 4 (October-EC), plotted as throughput in bed volumes treated

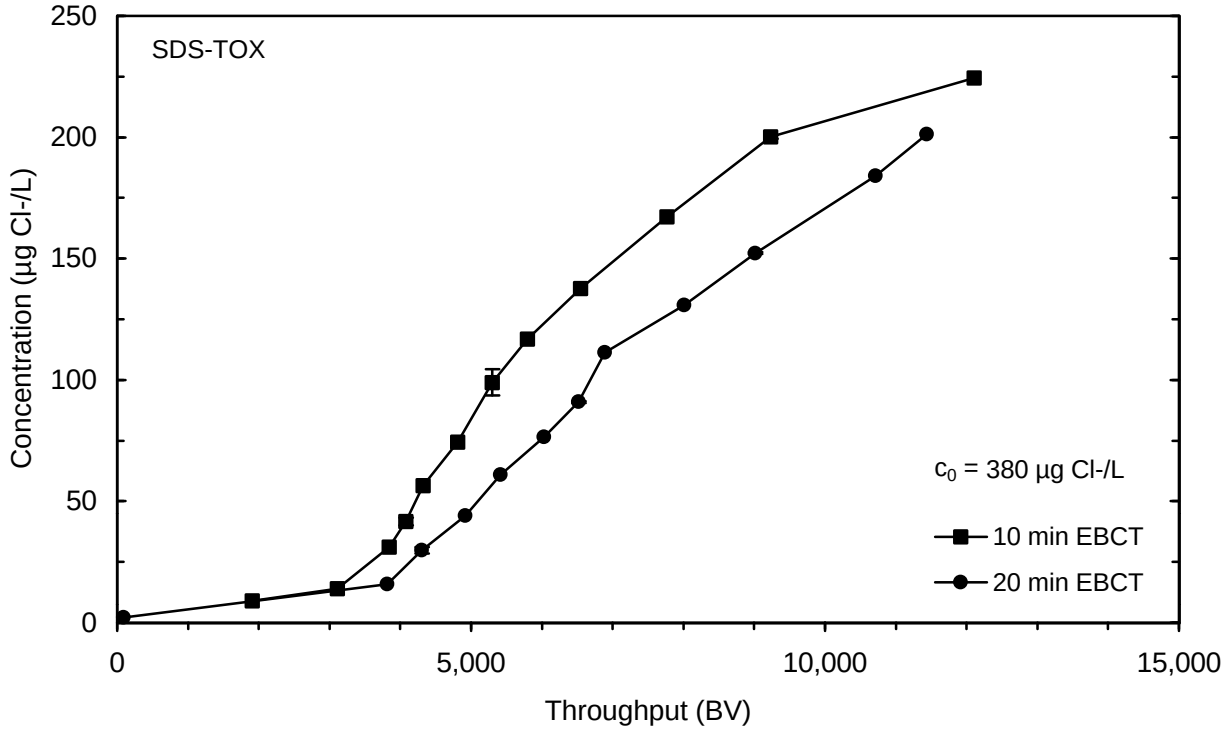


Figure 105 SDS-TOX breakthrough for 10 and 20 minute EBCT contactors during session 4 (October-EC), plotted as throughput in bed volumes treated

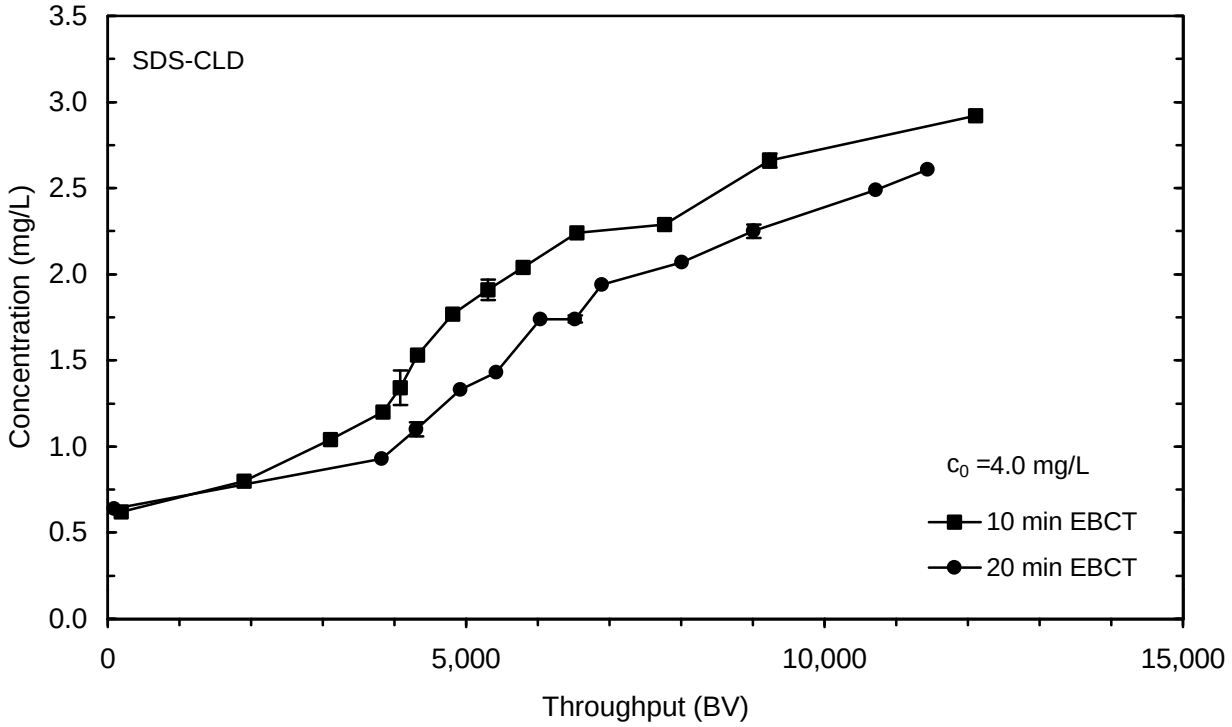


Figure 106 SDS-CLD breakthrough for 10 and 20 minute EBCT contactors during session 4 (October-EC), plotted as throughput in bed volumes treated

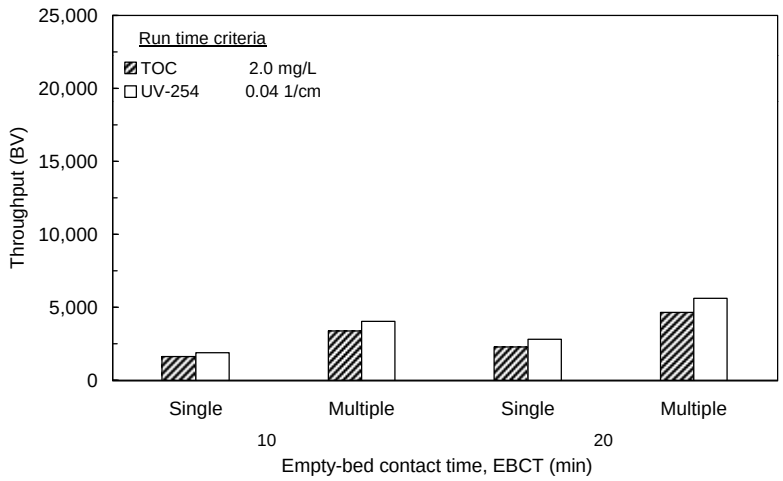


Figure 107 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 1 (April)

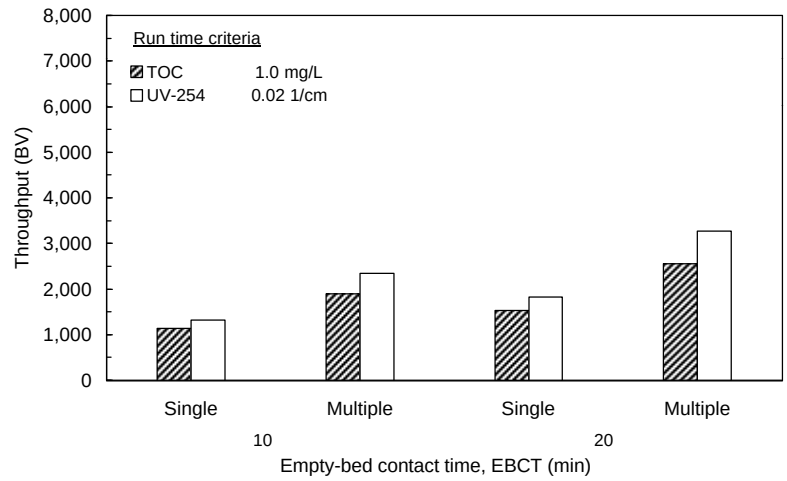


Figure 108 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 1 (April)

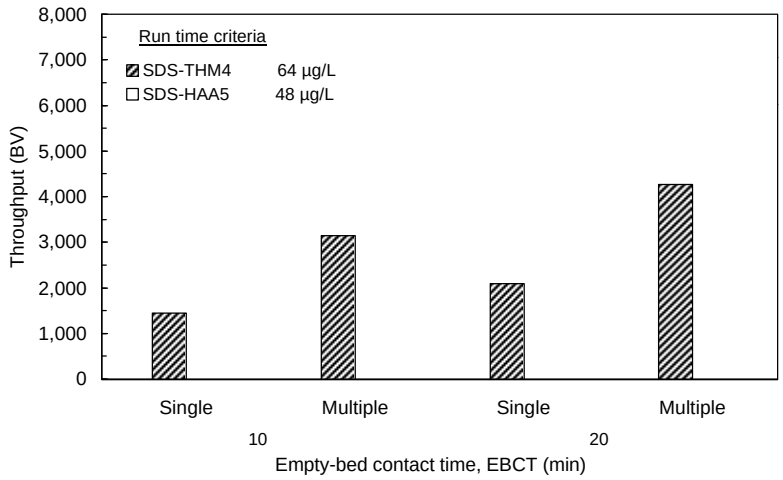


Figure 109 Throughput based on single contactors and effluent blending for Stage 1 SDS-THM4 and SDS-HAA5 effluent criteria during session 1 (April)

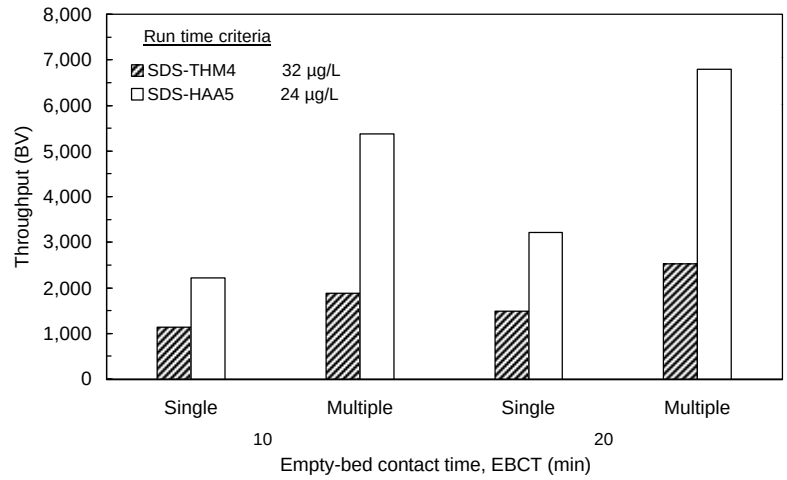


Figure 110 Throughput based on single contactors and effluent blending for Stage 2 SDS-THM4 and SDS-HAA5 effluent criteria during session 1 (April)

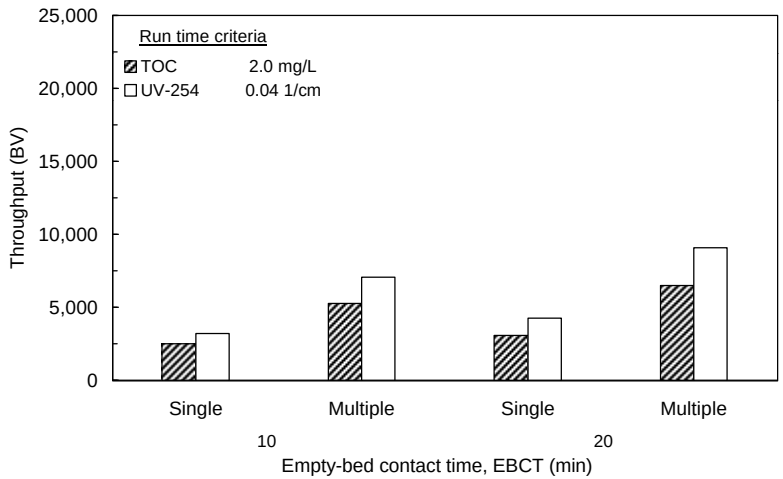


Figure 111 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 2 (August)

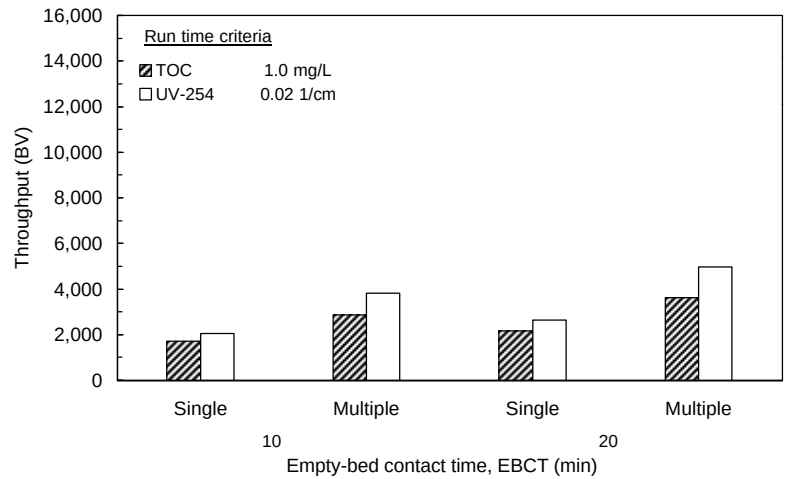


Figure 112 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 2 (August)

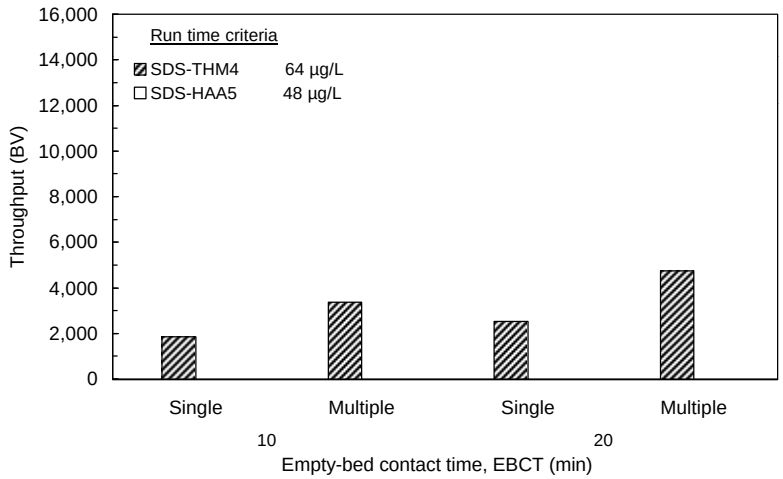


Figure 113 Throughput based on single contactors and effluent blending for Stage 1 SDS-THM4 and SDS-HAA5 effluent criteria during session 2 (August)

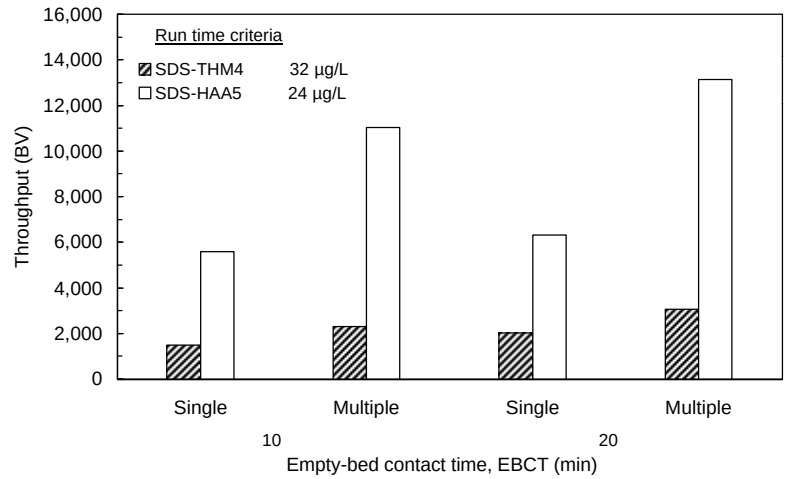


Figure 114 Throughput based on single contactors and effluent blending for Stage 2 SDS-THM4 and SDS-HAA5 effluent criteria during session 2 (August)

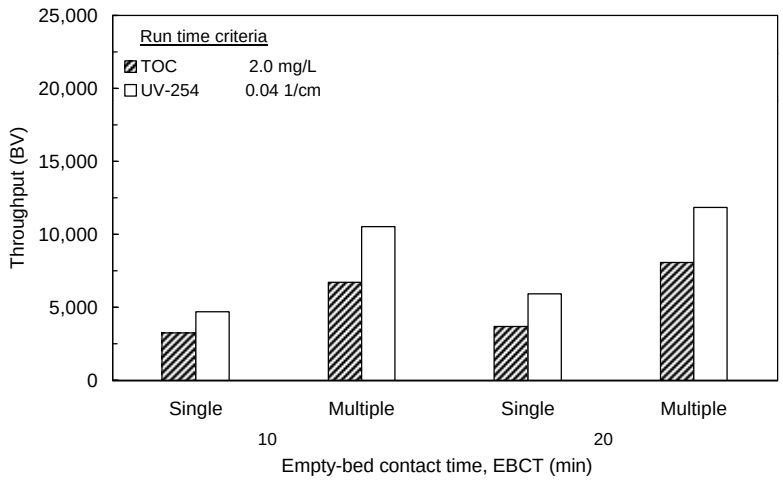


Figure 115 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 3 (October)

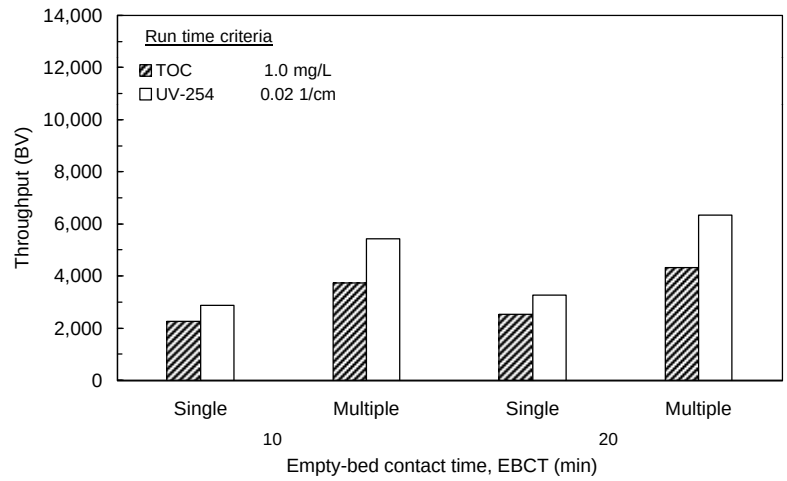


Figure 116 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 3 (October)

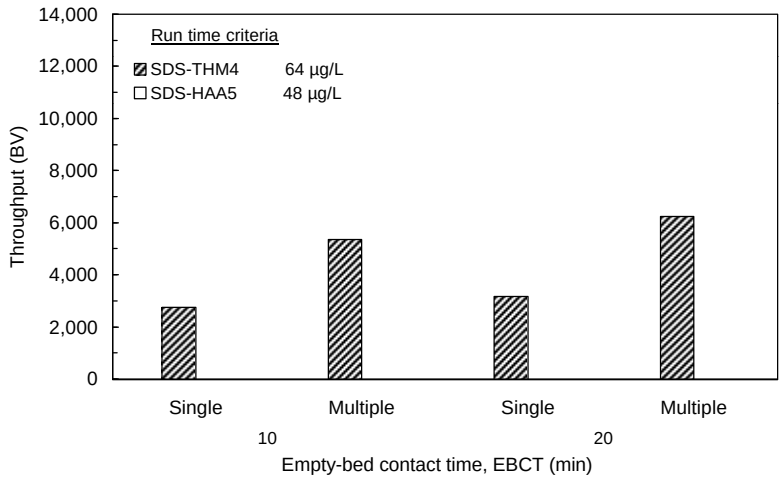


Figure 117 Throughput based on single contactors and effluent blending for Stage 1 SDS-THM4 and SDS-HAA5 effluent criteria during session 3 (October)

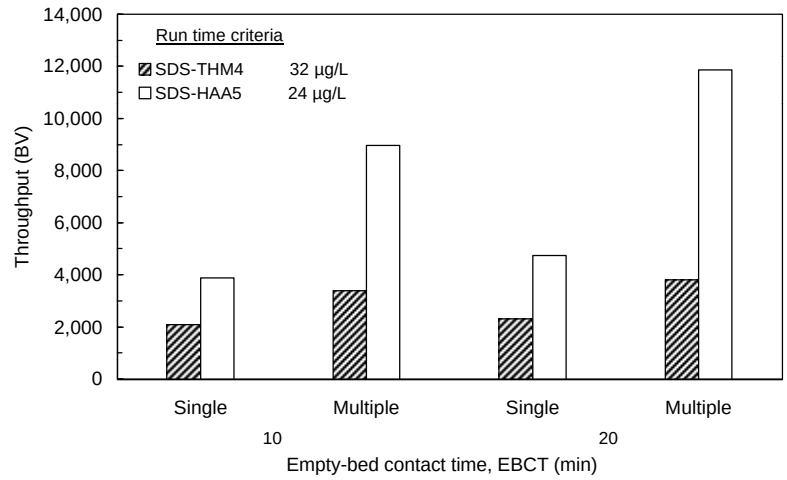


Figure 118 Throughput based on single contactors and effluent blending for Stage 2 SDS-THM4 and SDS-HAA5 effluent criteria during session 3 (October)

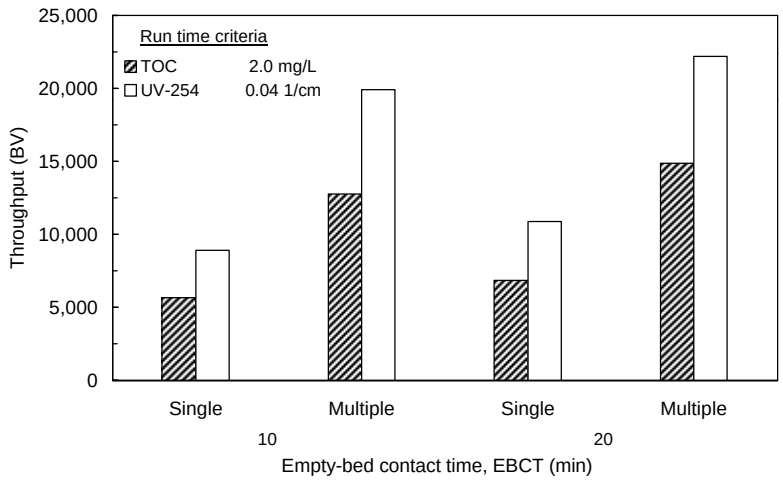


Figure 119 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 4 (October-EC)

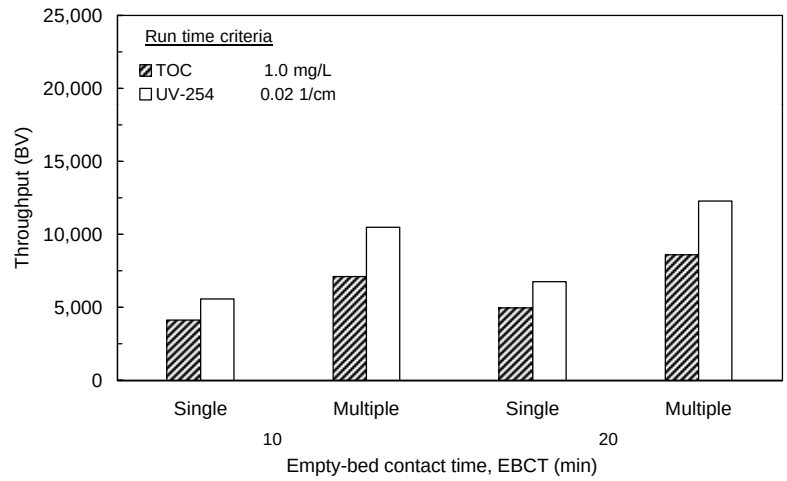


Figure 120 Throughput based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 4 (October-EC)

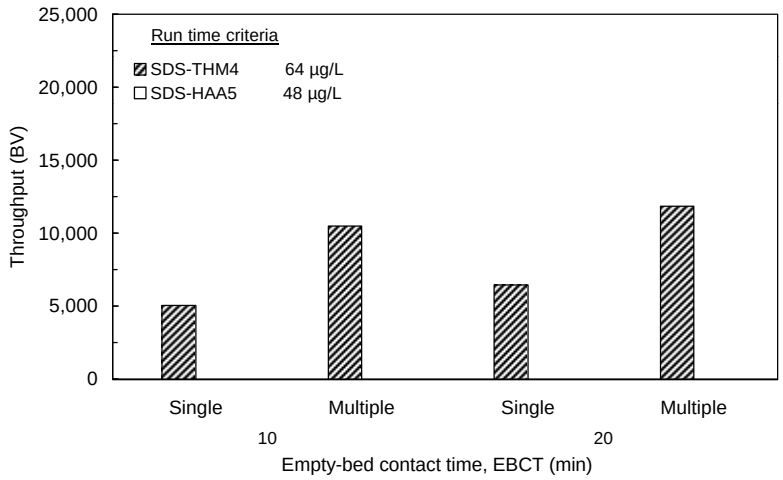


Figure 121 Throughput based on single contactors and effluent blending for Stage 1 SDS-THM4 and SDS-HAA5 effluent criteria during session 4 (October-EC)

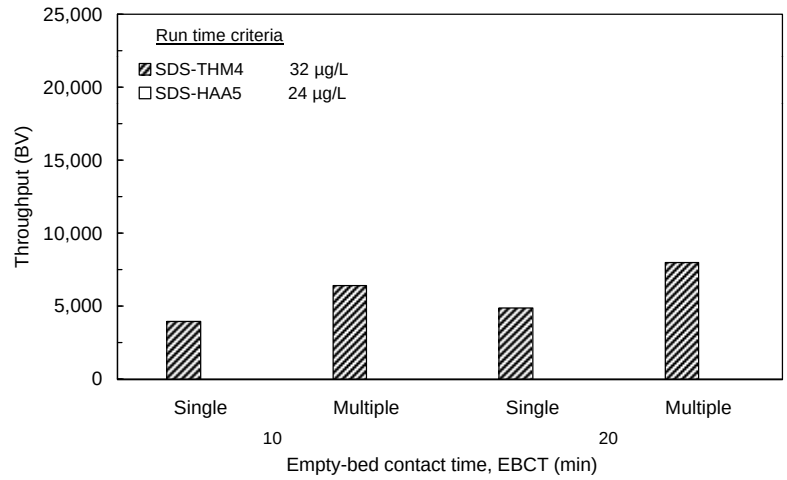


Figure 122 Throughput based on single contactors and effluent blending for Stage 2 SDS-THM4 and SDS-HAA5 effluent criteria during session 4 (October-EC)

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 44. As can be seen by the high r^2 for curve fits (mean: 0.98, 25th percentile: 0.98, 75th percentile: 0.99), the model well fit the data. 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 April session, Figures 123 through 130 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 10 minute EBCT contactor TOC breakthrough curve plotted in Figure 123 reaches an effluent concentration of 2.0 mg/L after 11 days. The multiple contactor blended effluent breakthrough curve does not reach an effluent TOC concentration of 2.0 mg/L until after 24 days of single contactor operation time (a 118 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 the SDS-DBPs. For example, the run time to Stage 1 THM4 MCL (64 µg/L) based on a 20 minute EBCT contactor (as shown in Figure 125) is 29 days. After accounting for effluent blending, this run time is estimated to be 59 days, a 103 percent increase.

The single contactor and blended effluent (multiple contactors) comparisons are presented for the August, October, and October (enhanced coagulation) sessions for all parameters in Figures 131 through 154.

Table 45 summarizes the run time for a 10 minute EBCT contactor, assuming a blended effluent, for the April session. For each parameter and criterion, the value of other parameters is given when the run time criterion is met. Table 45 also includes, when applicable, run time calculations based on effluent blending of extrapolated breakthrough curves (described below). Tables 45 through 47 summarize the same information for the August, October, and October (enhanced coagulation) sessions. Tables 48 through 51 summarize the same information for the 20 minute EBCT contactor for all sessions.

For single and multiple contactor configurations, Tables 52 through 55 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 sessions was 153 and 154 percent for single and multiple contactor configurations, respectively. The similarity in percentages indicates that the percent increase in run time gained by the additional contact time for a single contactor is equivalent to that for a multiple contactor simulation.

By accounting for multiple contactor configurations, the estimated contactor run time increased by an average of 102 percent for both EBCTs and 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 102 percent longer than that of a single GAC contactor.

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 56 through 59 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, the CUR for 20 minute EBCT contactors was 20 percent lower than the CUR for 10 minute EBCT contactors, based on single or multiple contactor breakthrough data.

For a 10 minute EBCT contactor, the CUR based on effluent blending was on average 49 percent lower than the CUR based on single contactor data, for all sessions. The same difference was 50 percent for 20 minute EBCT contactors.

A seasonal comparison of multiple contactor simulation run times is summarized in Table 61, for a 10 minute EBCT, and in Table 62, for a 20 minute EBCT. The mean, standard deviation, and RSD of run times over the three conventional pretreatment sessions are listed in each table, providing a measure of the degree of seasonal variability evident in GAC performance. For example, the run time to a GAC effluent TOC concentration of 2.0 mg/L for 10 minute EBCT contactors ranged from 24 to 47 days, with a RSD of 32 percent. Run times to meet the Stage 1 THM4 MCL (64 µg/L), ranged from 22 to 37 days, with a RSD of 31 percent.

Bar graph summaries of run times to effluent criteria for single and multiple contactor configurations and for 10 and 20 minute EBCTs for the April session are shown in Figures 155 through 158. The same data are shown for the August, October, and October (enhanced coagulation) sessions in Figures 159 through 170.

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 sessions in Figures 171 through 186.

In a few cases, 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	$1.5t_{max}$	$C(t_{max}) + 0.5[C_{inf} - C(t_{max})]$	(5)
B	$2.0t_{max}$	$C(t_{max}) + 0.6[C_{inf} - C(t_{max})]$	(6)
C	$2.5t_{max}$	$C(t_{max}) + 0.7[C_{inf} - C(t_{max})]$	(7)

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 data contained in the figures and tables presented earlier in this section include the estimates derived by the extrapolation procedure, when applicable. No breakthrough curves were extrapolated beyond 250 percent of the maximum run time. The extrapolated breakthrough curves for all runs are summarized as Figures B - 1 through B - 56 in Appendix B. Table B - 1 summarizes the best fit parameter values and r^2 values for all curve fits.

Parameter	Coefficient	10 minute EBCT				20 minute EBCT			
		April	August	October	October-EC	April	August	October	October-EC
TOC	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	4.23	3.99	4.11	3.53	4.23	3.89	4.01	3.48
	B	18.0	17.3	18.7	36.6	16.1	20.6	15.5	37.0
	D	0.231	0.157	0.122	0.094	0.081	0.069	0.049	0.039
	r^2	0.985	0.987	0.985	0.985	0.983	0.990	0.979	0.985
UV_{254}	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	0.075	0.069	0.067	0.054	0.080	0.069	0.061	0.066
	B	38.7	32.1	22.4	54.9	27.8	31.6	22.9	20.0
	D	0.280	0.169	0.106	0.085	0.085	0.065	0.049	0.023
	r^2	0.985	0.987	0.984	0.991	0.988	0.988	0.984	0.989
SDS-THM4	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	119.7	156.9	145.8	127.9	133.0	178.9	148.4	141.0
	B	63.4	118.5	43.1	55.5	30.0	33.8	27.8	113.4
	D	0.408	0.344	0.179	0.111	0.111	0.080	0.066	0.052
	r^2	0.988	0.974	0.993	0.982	0.988	0.987	0.973	0.992
SDS-HAA5	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	33.4	26.7	37.8	21.0	44.8	26.6	29.5	22.1
	B	51.7	19.7	29.8	45.6	38.7	31.3	49.3	62.8
	D	0.318	0.161	0.143	0.112	0.084	0.075	0.082	0.046
	r^2	0.985	0.969	0.977	0.969	0.994	0.988	0.987	0.977
SDS-HAA6	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	44.9	41.0	52.8	31.7	58.1	40.1	41.4	32.6
	B	73.9	23.3	46.8	57.3	39.0	39.2	72.1	76.2
	D	0.360	0.160	0.166	0.111	0.088	0.077	0.090	0.046
	r^2	0.988	0.972	0.978	0.978	0.992	0.989	0.979	0.979
SDS-HAA9	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	70.8	55.8	82.3	45.7	85.0	60.1	59.4	49.5
	B	247.6	25.8	56.1	180.1	57.7	65.1	155.7	159.8
	D	0.482	0.166	0.172	0.144	0.106	0.088	0.109	0.052
	r^2	0.984	0.956	0.974	0.977	0.980	0.988	0.972	0.975
SDS-TOX	A_o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A_f	302	269	279	217	312	288	266	205
	B	43.5	39.5	41.8	86.6	35.2	39.8	32.0	76.3
	D	0.282	0.194	0.146	0.111	0.092	0.071	0.059	0.045
	r^2	0.985	0.991	0.991	0.990	0.989	0.988	0.981	0.992
SDS-CLD	A_o	0.76	0.17	0.67	0.40	0.54	0.19	0.36	0.52
	A_f	2.61	2.93	3.32	2.86	2.93	2.89	3.24	2.63
	B	16.1	15.4	16.4	14.7	5.1	16.7	11.2	26.5
	D	0.274	0.169	0.122	0.082	0.051	0.070	0.050	0.040
	r^2	0.985	0.994	0.990	0.984	0.988	0.992	0.993	0.989

Table 44 Summary of logistic function curve fit parameters and r2 values

Parameter	Units	Mean 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)	5.8	2.0	24	3,390	2.0	0.034	68	16	22	36	132
			1.0	13	1,900	1.0	0.014	33	6	9	13	52
			2.9†	40	5,780	2.9	0.053	99	24	33	57	208
UV_{254}	(1/cm)	0.127	0.040	28	4,030	2.3	0.040	76	19	26	42	157
			0.020	16	2,340	1.3	0.020	46	9	13	22	76
			0.063†	47#	6,840	3.3	0.063	111	30	41	68	255
SDS-THM4	(µg/L)	198	80	31	4,430	2.5	0.043	80	20	27	44	170
			64	22	3,150	1.9	0.031	64	15	20	34	121
			32	13	1,880	1.0	0.014	32	6	9	13	51
SDS-HAA5	(µg/L)	75	48	*	*							
			24	37#	5,380	2.9	0.053	100	24	34	58	210
SDS-HAA6	(µg/L)	96	48	60#	8,700	3.7	0.072	121	36	48	76	293
			24	26	3,700	2.2	0.037	72	17	24	39	145
SDS-HAA9	(µg/L)	144	48	30#	4,360	2.5	0.044	88	19	27	48	170
			24	17	2,470	1.4	0.022	49	10	15	24	83
SDS-TOX	(µg Cl^-/L)	543	120	22	3,140	1.8	0.031	64	15	20	34	120
			70	15	2,230	1.2	0.018	43	9	12	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 45 Run times to selected GAC effluent criteria based on effluent blending (10 minute EBCT) during session 1, April

Parameter	Units	Mean 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)	5.3	2.0	36	5,250	2.0	0.031	97	13	19	26	129
			1.0	20	2,870	1.0	0.013	50	6	9	11	53
			2.6†	54	7,820	2.6	0.044	127	18	26	36	184
UV_{254}	(1/cm)	0.119	0.040	49	7,080	2.5	0.040	112	17	24	33	164
			0.020	27	3,830	1.4	0.020	75	9	13	18	86
			0.059†	75#	10,850	3.2	0.059	148	24	35	48	242
SDS-THM4	(µg/L)	241	80	28	4,090	1.6	0.022	80	10	14	19	95
			64	23	3,360	1.2	0.016	64	8	11	15	70
			32	16	2,310	0.8	0.009	32	5	6	8	37
SDS-HAA5	(µg/L)	47	48	*	*							
			24	77#	11,030	3.3	0.060	149	24	36	48	244
SDS-HAA6	(µg/L)	68	48	*	*							
			24	48	6,910	2.5	0.039	111	16	24	33	162
SDS-HAA9	(µg/L)	91	48	75#	10,860	3.2	0.059	148	24	35	48	242
			24	34	4,890	1.9	0.028	92	12	18	24	119
SDS-TOX	(µg Cl^-/L)	465	120	34	4,910	1.9	0.028	93	12	18	24	120
			70	23	3,370	1.2	0.016	64	8	11	15	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 46 Run times to selected GAC effluent criteria based on effluent blending (10 minute EBCT) during session 2, August

Parameter	Units	Mean 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)	5.6	2.0	47	6,710	2.0	0.026	80	19	26	41	126
			1.0	26	3,740	1.0	0.012	38	9	11	17	51
			2.8†	71#	10,280	2.8	0.040	110	27	38	59	191
UV_{254}	(1/cm)	0.109	0.040	73	10,520	2.7	0.040	111	27	39	60	192
			0.020	38	5,420	1.6	0.020	65	15	21	32	96
			0.054†	106#	15,210	3.4	0.054	128	34	48	73	255
SDS-THM4	(µg/L)	200	80	47	6,730	2.0	0.027	80	19	27	41	127
			64	37	5,360	1.6	0.020	64	14	20	31	94
			32	24	3,400	0.9	0.011	32	7	10	14	43
SDS-HAA5	(µg/L)	62	48	*	*							
			24	62#	8,970	2.5	0.035	102	24	34	54	167
SDS-HAA6	(µg/L)	85	48	103#	14,880	3.4	0.054	128	34	48	73	251
			24	42	6,090	1.8	0.023	73	17	24	37	113
SDS-HAA9	(µg/L)	124	48	56	8,110	2.3	0.032	91	22	31	48	152
			24	31	4,500	1.3	0.015	51	11	16	24	71
SDS-TOX	(µg Cl^-/L)	486	120	45	6,410	1.9	0.025	77	18	25	39	120
			70	31	4,460	1.3	0.015	50	11	16	24	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 47 Run times to selected GAC effluent criteria based on effluent blending (10 minute EBCT) during session 3, October

Parameter	Units	Mean 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)	4.6	2.0	89	12,780	2.0	0.026	78	14	20	29	122
			1.0	49	7,100	1.0	0.010	38	7	9	13	52
			2.3†	101#	14,560	2.3	0.029	88	16	23	33	146
UV_{254}	(1/cm)	0.090	0.040	138#	19,900	2.7	0.040	105	19	28	40	187
			0.020	73	10,500	1.7	0.020	64	11	16	23	98
			0.045†	163#	23,480	2.9	0.045	111	20	30	43	206
SDS-THM4	(µg/L)	173	80	89#	12,790	2.1	0.025	80	14	20	30	127
			64	73	10,470	1.7	0.020	64	11	16	23	98
			32	45	6,420	0.8	0.008	32	6	8	11	42
SDS-HAA5	(µg/L)	35	48	*	*							
			24	*	*							
SDS-HAA6	(µg/L)	53	48	*	*							
			24	109#	15,650	2.4	0.032	92	16	24	35	156
SDS-HAA9	(µg/L)	72	48	*	*							
			24	76	10,950	1.8	0.021	67	12	16	24	103
SDS-TOX	(µg Cl^-/L)	380	120	85#	12,220	2.0	0.023	77	13	19	29	120
			70	57	8,280	1.3	0.013	49	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 (including extrapolation procedure). Value of listed parameter is left blank.
#Run time estimated from breakthrough curve extrapolation procedure.

Table 48 Run times to selected GAC effluent criteria based on effluent blending (10 minute EBCT) during session 4, October-EC

Parameter	Units	Mean 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)	5.8	2.0	65	4,670	2.0	0.033	70	16	22	35	129
			1.0	36	2,560	1.0	0.014	33	6	8	12	51
			2.9†	105#	7,530	2.9	0.052	102	27	36	57	205
UV_{254}	(1/cm)	0.127	0.040	78	5,620	2.3	0.040	80	20	27	43	157
			0.020	45	3,270	1.3	0.020	47	9	12	20	76
			0.063†	135#	9,740	3.3	0.063	115	34	45	70	254
SDS-THM4	(µg/L)	198	80	78	5,600	2.3	0.040	80	20	27	43	157
			64	59	4,260	1.8	0.029	64	14	19	31	115
			32	35	2,530	1.0	0.014	32	6	8	12	50
SDS-HAA5	(µg/L)	75	48	*	*							
			24	95#	6,800	2.7	0.047	96	24	33	51	186
SDS-HAA6	(µg/L)	96	48	148#	10,630	3.5	0.067	119	36	48	74	269
			24	70	5,020	2.1	0.036	74	17	24	38	141
SDS-HAA9	(µg/L)	144	48	88	6,360	2.6	0.044	86	23	31	48	175
			24	50	3,630	1.5	0.023	54	10	15	24	91
SDS-TOX	(µg Cl^-/L)	543	120	61	4,410	1.9	0.031	66	14	20	33	120
			70	43	3,100	1.3	0.018	43	8	11	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 49 Run times to selected GAC effluent criteria based on effluent blending (20 minute EBCT) during session 1, April

Parameter	Units	Mean 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)	5.3	2.0	90	6,500	2.0	0.029	92	13	19	29	123
			1.0	50	3,610	1.0	0.012	42	6	8	11	49
			2.6†	126#	9,060	2.6	0.040	124	18	27	41	178
UV_{254}	(1/cm)	0.119	0.040	126#	9,080	2.6	0.040	124	18	27	41	178
			0.020	69	4,980	1.5	0.020	68	10	14	20	84
			0.059†	202#	14,540	3.3	0.059	155	25	37	54	254
SDS-THM4	(µg/L)	241	80	79	5,670	1.8	0.024	80	11	16	24	103
			64	66	4,740	1.4	0.019	64	9	13	19	78
			32	42	3,060	0.8	0.009	32	5	6	8	37
SDS-HAA5	(µg/L)	47	48	*	*							
			24	182#	13,140	3.2	0.056	150	24	35	51	240
SDS-HAA6	(µg/L)	68	48	*	*							
			24	112#	8,090	2.4	0.035	114	16	24	37	158
SDS-HAA9	(µg/L)	91	48	159#	11,470	3.0	0.050	141	22	32	48	219
			24	78	5,590	1.7	0.024	79	11	16	24	101
SDS-TOX	(µg Cl^-/L)	465	120	88	6,370	2.0	0.028	90	13	19	28	120
			70	62	4,450	1.3	0.017	58	8	11	17	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 50 Run times to selected GAC effluent criteria based on effluent blending (20 minute EBCT) during session 2, August

Parameter	Units	Mean 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)	5.6	2.0	112	8,070	2.0	0.027	82	17	24	35	126
			1.0	60	4,330	1.0	0.012	39	8	11	15	52
			2.8†	169#	12,140	2.8	0.041	112	24	35	51	193
UV_{254}	(1/cm)	0.109	0.040	165#	11,860	2.7	0.040	110	24	34	50	189
			0.020	88	6,330	1.6	0.020	65	14	19	28	95
			0.054†	242#	17,450	3.4	0.054	130	31	44	64	250
SDS-THM4	(µg/L)	200	80	109	7,860	2.0	0.026	80	17	23	34	123
			64	87	6,250	1.5	0.020	64	13	19	28	93
			32	53	3,810	0.9	0.010	32	6	8	11	43
SDS-HAA5	(µg/L)	62	48	*	*							
			24	165#	11,860	2.7	0.040	110	24	34	50	189
SDS-HAA6	(µg/L)	85	48	296#	21,340	3.7	0.061	138	34	48	70	276
			24	113	8,140	2.0	0.027	82	17	24	35	128
SDS-HAA9	(µg/L)	124	48	157#	11,320	2.7	0.038	107	23	33	48	181
			24	77	5,580	1.4	0.017	56	12	16	24	79
SDS-TOX	(µg Cl^-/L)	486	120	107	7,680	1.9	0.025	78	16	23	34	120
			70	72	5,180	1.2	0.015	50	11	15	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 51 Run times to selected GAC effluent criteria based on effluent blending (20 minute EBCT) during session 3, October

Parameter	Units	Mean 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)	4.6	2.0	206#	14,850	2.0	0.025	82	14	20	28	121
			1.0	120	8,600	1.0	0.012	37	6	9	11	51
			2.3†	242#	17,420	2.3	0.031	93	16	23	33	145
UV_{254}	(1/cm)	0.090	0.040	308#	22,180	2.7	0.040	106	19	27	39	179
			0.020	170	12,270	1.6	0.020	70	11	16	23	98
			0.045†	362#	26,050	2.9	0.045	114	20	30	43	199
SDS-THM4	(µg/L)	173	80	202#	14,520	2.0	0.025	80	13	19	27	118
			64	165#	11,860	1.6	0.018	64	10	15	21	89
			32	111	8,000	0.9	0.011	32	6	7	10	44
SDS-HAA5	(µg/L)	35	48	*	*							
			24	*	*							
SDS-HAA6	(µg/L)	53	48	*	*							
			24	255#	18,390	2.4	0.033	96	17	24	35	153
SDS-HAA9	(µg/L)	72	48	*	*							
			24	181#	13,030	1.8	0.021	72	12	17	24	102
SDS-TOX	(µg Cl^-/L)	380	120	205#	14,750	2.0	0.025	81	14	19	28	120
			70	143	10,280	1.3	0.016	51	8	12	16	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 52 Run times to selected GAC effluent criteria based on effluent blending (20 minute EBCT) during session 4, October-EC

Parameter	Units	Mean influent concentration	Breakthrough criterion	Run time (days) at given EBCT (min)				Increase in run time (%)			
				10		20		10 to 20 minute EBCT		Single to multiple contactors EBCT (min)	
				Contactor configuration				Contactor configuration			
				Single	Multiple	Single	Multiple	Single	Multiple	10	20
TOC	(mg/L)	5.8	2.0	11	24	32	65	183	175	110	104
			1.0	8	13	21	36	169	170	67	67
			2.9†	16	40	44	105	172	160	148	137
UV-254	(1/cm)	0.127	0.040	13	28	39	78	198	179	113	100
			0.020	9	16	25	45	177	180	77	79
			0.063†	21	47	60	135	186	185	125	124
SDS-THM4	(µg/L)	198	80	12	31	33	78	186	153	164	133
			64	10	22	29	59	188	170	117	104
			32	8	13	21	35	162	170	65	70
SDS-HAA5	(µg/L)	75	48	*	*	*	*				
			24	15	37	45	95	190	153	142	111
SDS-HAA6	(µg/L)	96	48	32	60	64	148	99	144	87	130
			24	12	26	37	70	194	172	107	91
SDS-HAA9	(µg/L)	144	48	13	30	41	88	208	192	127	115
			24	9	17	27	50	187	194	83	88
SDS-TOX	(µg Cl^-/L)	543	120	11	22	33	61	190	180	94	88
			70	9	15	25	43	171	178	71	75

†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 Summary of GAC run times to selected GAC effluent criteria during session 1, April

Parameter	Units	Mean influent concentration	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)	5.3	2.0	17	36	43	90	146	148	110	111
			1.0	12	20	30	50	153	152	68	67
			2.6†	22	54	56	126	153	132	146	125
UV-254	(1/cm)	0.119	0.040	22	49	59	126	165	156	121	114
			0.020	14	27	37	69	158	160	86	88
			0.059†	34	75	91	202	166	168	121	122
SDS-THM4	(µg/L)	241	80	14	28	39	79	189	177	108	100
			64	13	23	35	66	176	182	83	87
			32	10	16	28	42	171	165	55	51
SDS-HAA5	(µg/L)	47	48	*	*	*	*				
			24	39	77	88	182	126	138	97	108
SDS-HAA6	(µg/L)	68	48	*	*	*	*				
			24	21	48	54	112	159	134	132	110
SDS-HAA9	(µg/L)	91	48	37	75	65	159	73	111	101	146
			24	17	34	41	78	140	129	98	89
SDS-TOX	(µg Cl^-/L)	465	120	17	34	45	88	161	159	99	98
			70	13	23	34	62	160	164	77	80

†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 Summary of GAC run times to selected GAC effluent criteria during session 2, August

Parameter	Units	Mean influent concentration	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)	5.6	2.0	23	47	51	112	127	141	106	119
			1.0	16	26	35	60	124	131	66	72
			2.8†	30	71	80	169	168	136	140	112
UV-254	(1/cm)	0.109	0.040	32	73	82	165	154	126	125	100
			0.020	20	38	45	88	126	134	88	94
			0.054†	47	106	107	242	128	130	125	126
SDS-THM4	(µg/L)	200	80	21	47	48	109	132	133	124	125
			64	19	37	44	87	130	133	94	97
			32	15	24	32	53	120	124	62	65
SDS-HAA5	(µg/L)	62	48	*	*	*	*				
			24	27	62	66	165	143	164	131	151
SDS-HAA6	(µg/L)	85	48	46	103	*	296		187	124	
			24	21	42	51	113	143	167	100	120
SDS-HAA9	(µg/L)	124	48	25	56	60	157	138	179	125	164
			24	18	31	41	77	131	148	77	90
SDS-TOX	(µg Cl^-/L)	486	120	23	45	52	107	129	139	96	104
			70	18	31	41	72	125	132	71	76

†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 55 Summary of GAC run times to selected GAC effluent criteria during session 3, October

Parameter	Units	Mean influent concentration	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)	4.6	2.0	39	89	95	206	142	133	126	117
			1.0	29	49	69	120	140	143	72	74
			2.3†	44	101	111	242	152	139	129	117
UV-254	(1/cm)	0.090	0.040	62	138	151	308	144	123	123	104
			0.020	39	73	94	170	143	134	88	81
			0.045†	71	163	162	362	127	122	129	123
SDS-THM4	(µg/L)	173	80	41	89	94	202	131	127	118	114
			64	35	73	90	165	156	127	107	84
			32	27	45	67	111	146	149	63	65
SDS-HAA5	(µg/L)	35	48	*	*	*	*				
			24	*	*	*	*				
SDS-HAA6	(µg/L)	53	48	*	*	*	*				
			24	49	109	118	255	139	135	121	117
SDS-HAA9	(µg/L)	72	48	*	*	155	*				
			24	35	76	93	181	167	138	119	95
SDS-TOX	(µg Cl^-/L)	380	120	41	85	103	205	150	141	107	100
			70	33	57	80	143	146	148	76	78

†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 56 Summary of GAC run times to selected GAC effluent criteria during session 4, October-EC

Parameter	Units	Mean influent concentration	Breakthrough criterion	Carbon usage rate, CUR (lbs/MG) at given EBCT (min)				Decrease in CUR (%)			
				10		20		10 to 20 minute EBCT		Single to multiple contactors EBCT (min)	
				Contactor configuration				Contactor configuration			
				Single	Multiple	Single	Multiple	Single	Multiple	10	20
TOC	(mg/L)	5.8	2.0	2,560	1,220	1,810	890	29	27	52	51
			1.0	3,640	2,180	2,700	1,620	26	26	40	40
			2.9†	1,780	720	1,310	550	26	24	60	58
UV-254	(1/cm)	0.127	0.040	2,200	1,030	1,480	740	33	28	53	50
			0.020	3,140	1,770	2,270	1,270	28	28	44	44
			0.063†	1,360	610	950	430	30	30	55	55
SDS-THM4	(µg/L)	198	80	2,470	940	1,730	740	30	21	62	57
			64	2,860	1,310	1,990	970	30	26	54	51
			32	3,650	2,210	2,790	1,640	24	26	39	41
SDS-HAA5	(µg/L)	75	48	*	*	*	*				
			24	1,870	770	1,290	610	31	21	59	53
SDS-HAA6	(µg/L)	96	48	890	480	890	390	0	19	46	56
			24	2,320	1,120	1,580	820	32	27	52	48
SDS-HAA9	(µg/L)	144	48	2,160	950	1,400	650	35	32	56	54
			24	3,080	1,680	2,150	1,140	30	32	45	47
SDS-TOX	(µg Cl^-/L)	543	120	2,560	1,320	1,770	940	31	29	48	47
			70	3,170	1,860	2,340	1,340	26	28	41	43

†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 57 Summary of carbon usage rates to selected GAC effluent criteria during session 1, April

Parameter	Units	Mean influent concentration	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)	5.3	2.0	1,660	790	1,350	640	19	19	52	53
			1.0	2,430	1,450	1,920	1,150	21	21	40	40
			2.6†	1,300	530	1,030	460	21	13	59	55
UV-254	(1/cm)	0.119	0.040	1,300	590	980	460	25	22	55	53
			0.020	2,010	1,080	1,560	830	22	23	46	47
			0.059†	840	380	630	290	25	24	55	54
SDS-THM4	(µg/L)	241	80	2,110	1,010	1,460	730	31	28	52	50
			64	2,260	1,230	1,640	870	27	29	46	47
			32	2,780	1,790	2,050	1,350	26	25	36	34
SDS-HAA5	(µg/L)	47	48	*	*	*	*				
			24	740	380	660	320	11	16	49	52
SDS-HAA6	(µg/L)	68	48	*	*	*	*				
			24	1,390	600	1,070	510	23	15	57	52
SDS-HAA9	(µg/L)	91	48	770	380	890	360	-16	5	51	60
			24	1,680	850	1,400	740	17	13	49	47
SDS-TOX	(µg Cl^-/L)	465	120	1,680	840	1,290	650	23	23	50	50
			70	2,180	1,230	1,680	930	23	24	44	45

†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 58 Summary of carbon usage rates to selected GAC effluent criteria during session 2, August

Parameter	Units	Mean influent concentration	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)	5.6	2.0	1,280	620	1,120	510	13	18	52	54
			1.0	1,840	1,110	1,650	960	10	14	40	42
			2.8†	970	400	720	340	26	15	59	53
UV-254	(1/cm)	0.109	0.040	890	390	700	350	21	10	56	50
			0.020	1,440	760	1,270	650	12	14	47	49
			0.054†	610	270	540	240	11	11	56	56
SDS-THM4	(µg/L)	200	80	1,380	620	1,190	530	14	15	55	55
			64	1,500	770	1,310	660	13	14	49	50
			32	1,970	1,220	1,790	1,090	9	11	38	39
SDS-HAA5	(µg/L)	62	48	*	*	*	*				
			24	1,070	460	880	350	18	24	57	60
SDS-HAA6	(µg/L)	85	48	620	280	*	190		32	55	
			24	1,360	680	1,120	510	18	25	50	54
SDS-HAA9	(µg/L)	124	48	1,150	510	970	370	16	27	56	62
			24	1,630	920	1,410	740	13	20	44	48
SDS-TOX	(µg Cl^-/L)	486	120	1,270	650	1,100	540	13	17	49	51
			70	1,590	930	1,410	800	11	14	42	43

†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 59 Summary of carbon usage rates to selected GAC effluent criteria during session 3, October

Parameter	Units	Mean influent concentration	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)	4.6	2.0	730	320	600	280	18	13	56	53
			1.0	1,010	580	840	480	17	17	43	43
			2.3†	650	280	520	240	20	14	57	54
UV-254	(1/cm)	0.090	0.040	460	210	380	190	17	10	54	50
			0.020	740	390	610	340	18	13	47	44
			0.045†	400	180	360	160	10	11	55	56
SDS-THM4	(µg/L)	173	80	710	320	610	290	14	9	55	52
			64	820	400	640	350	22	13	51	45
			32	1,050	650	850	520	19	20	38	39
SDS-HAA5	(µg/L)	35	48	*	*	*	*				
			24	*	*	*	*				
SDS-HAA6	(µg/L)	53	48	*	*	*	*				
			24	580	260	490	230	16	12	55	53
SDS-HAA9	(µg/L)	72	48	*	*	370	*				
			24	830	380	620	320	25	16	54	48
SDS-TOX	(µg Cl^-/L)	380	120	700	340	560	280	20	18	51	50
			70	880	500	720	400	18	20	43	44

†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 60 Summary of carbon usage rates to selected GAC effluent criteria during session 4, October-EC

Parameter	Units	Value	Run time (days)				Sessions 1 - 3		
			Session				Mean	Standard deviation	Relative standard deviation (%)
			1 April	2 August	3 October	4 October-EC			
TOC	(mg/L)	2.0	24	36	47	89	36	±12	32%
		1.0	13	20	26	49	20	±6	33%
		c/c_0 = 50%†	40	54	71#	101#	55	±16	28%
UV-254	(1/cm)	0.040	28	49	73	138#	50	±23	45%
		0.020	16	27	38	73	27	±11	40%
		c/c_0 = 50%†	47#	75#	106#	163#	76	±29	38%
SDS-THM4	(µg/L)	80	31	28	47	89#	35	±10	28%
		64	22	23	37	73	27	±8	31%
		32	13	16	24	45	18	±5	31%
SDS-HAA5	(µg/L)	48	*	*	*	*			
		24	37#	77#	62#	*	59	±20	34%
SDS-HAA6	(µg/L)	48	60#	*	103#	*	82	±30	37%
		24	26	48	42	109#	39	±12	30%
SDS-HAA9	(µg/L)	48	30#	75#	56	*	54	±23	42%
		24	17	34	31	76	27	±9	33%
SDS-TOX	(µg Cl^-/L)	120	22	34	45	85#	33	±11	34%
		70	15	23	31	57	23	±8	33%
Extrapolated run time (days)		--	82	127	146	210	118	±32	27%

†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 61 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	Relative standard deviation (%)
			1 April	2 August	3 October	4 October-EC			
TOC	(mg/L)	2.0	65	90	112	206#	89	±24	27%
		1.0	36	50	60	120	49	±12	25%
		c/c_0 = 50%†	105#	126#	169#	242#	133	±33	25%
UV-254	(1/cm)	0.040	78	126#	165#	308#	123	±43	35%
		0.020	45	69	88	170	67	±21	32%
		c/c_0 = 50%†	135#	202#	242#	362#	193	±54	28%
SDS-THM4	(µg/L)	80	78	79	109	202#	89	±18	20%
		64	59	66	87	165#	71	±14	20%
		32	35	42	53	111	44	±9	21%
SDS-HAA5	(µg/L)	48	*	*	*	*			
		24	95#	182#	165#	*	147	±47	32%
SDS-HAA6	(µg/L)	48	148#	*	296#	*	222	±105	47%
		24	70	112#	113	255#	98	±25	25%
SDS-HAA9	(µg/L)	48	88	159#	157#	*	135	±40	30%
		24	50	78	77	181#	69	±16	23%
SDS-TOX	(µg Cl^-/L)	120	61	88	107	205#	85	±23	27%
		70	43	62	72	143	59	±15	25%
Extrapolated run time (days)		--	224	265	341	397	277	±59	21%

†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 62 Run times to selected GAC effluent criteria based on effluent blending (20 minute EBCT)

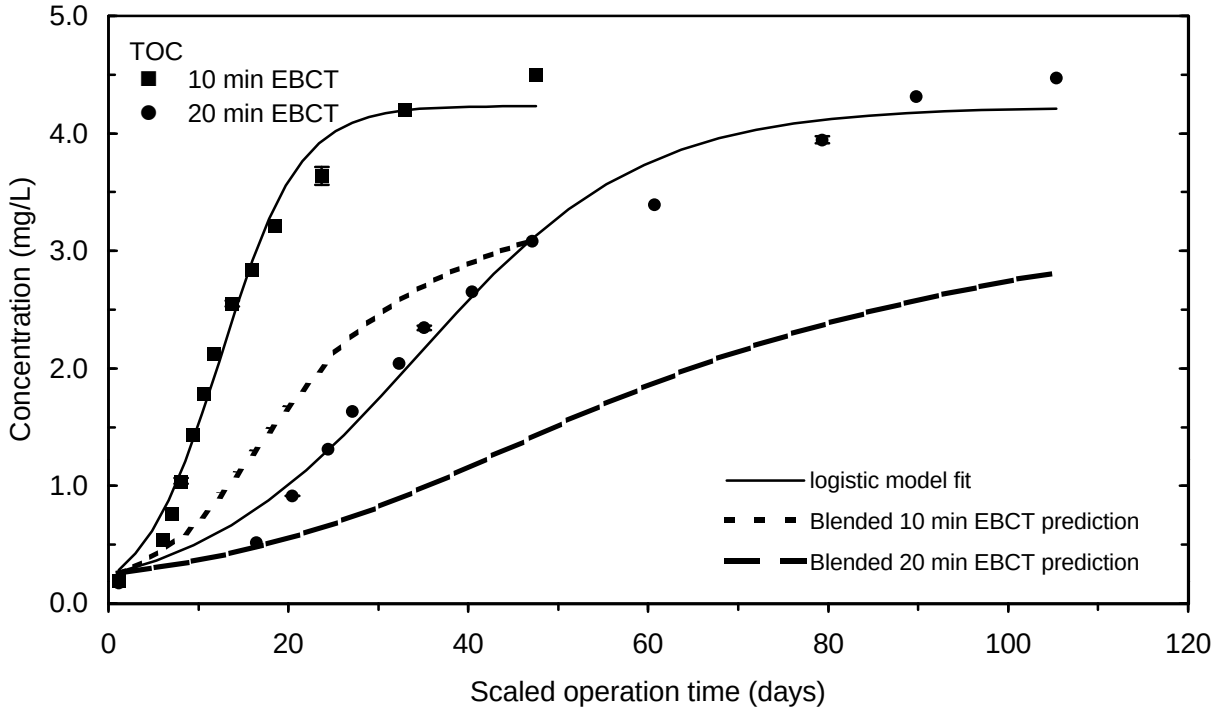


Figure 123 TOC breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (April)

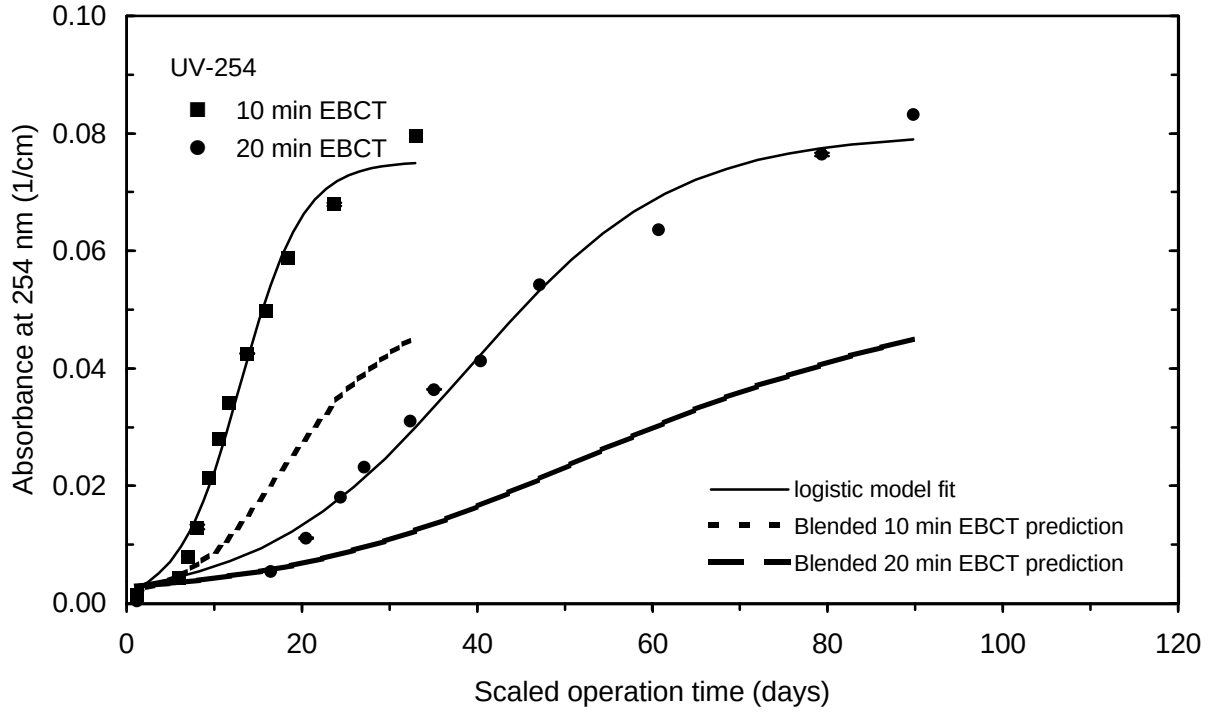


Figure 124 UV-254 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (April)

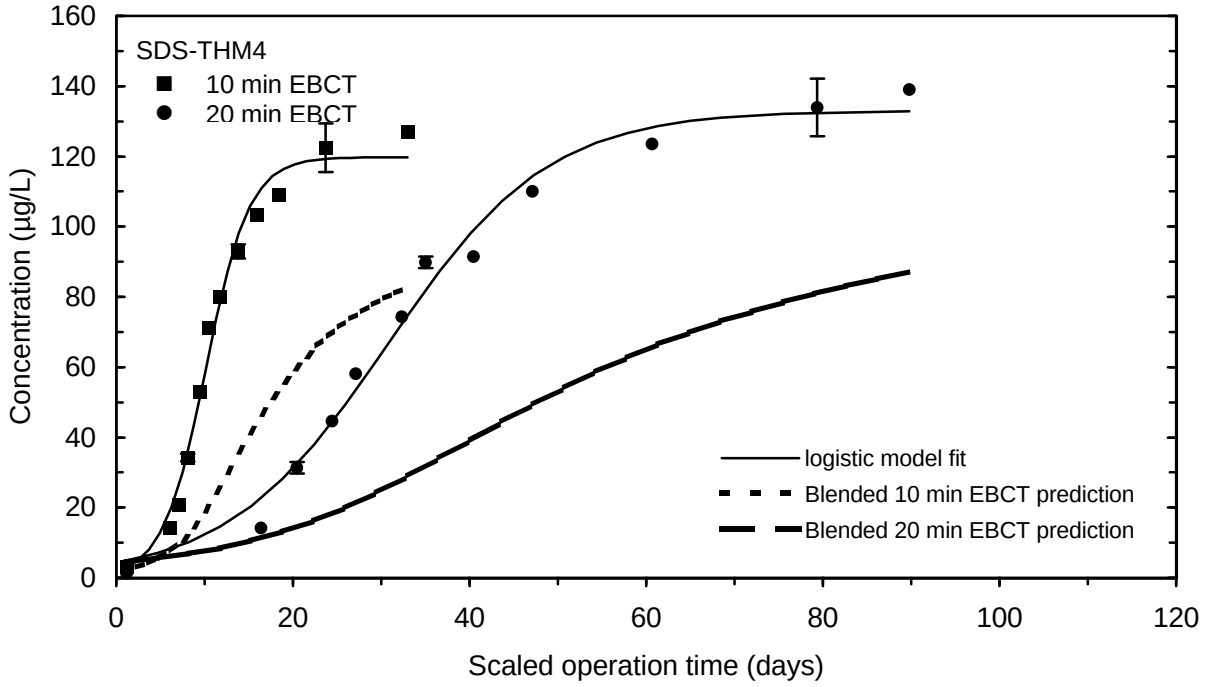


Figure 125 SDS-THM4 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (April)

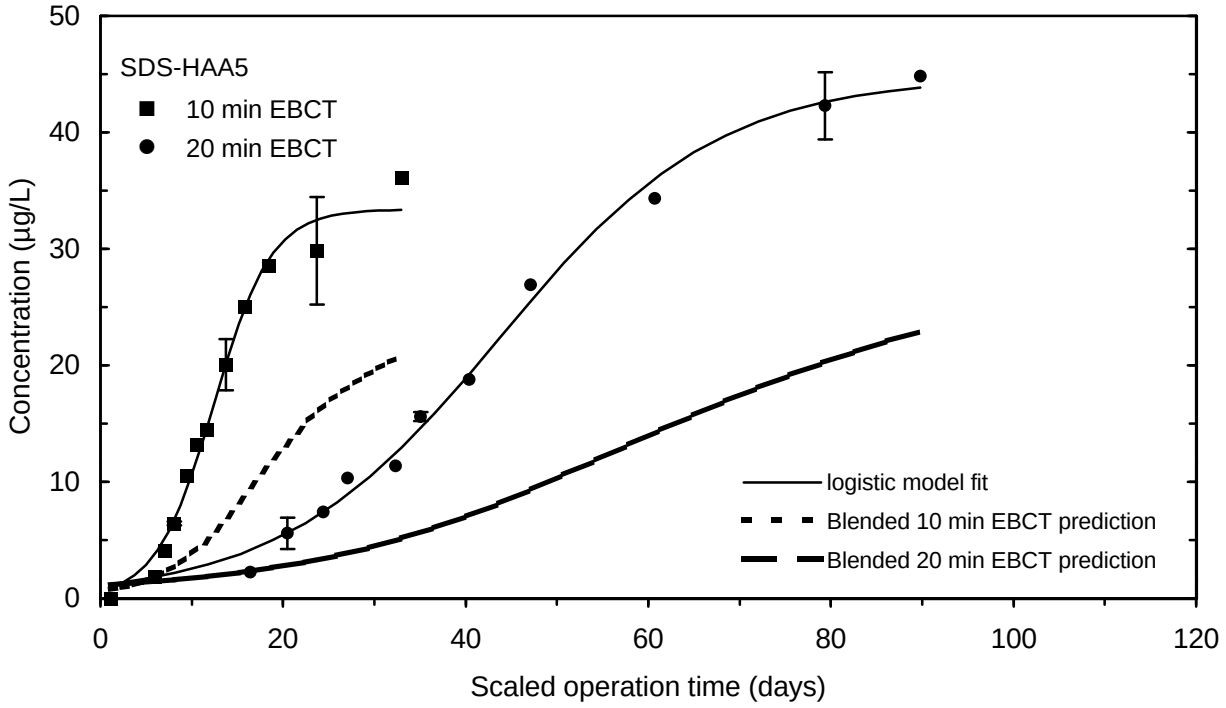


Figure 126 SDS-HAA5 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (April)

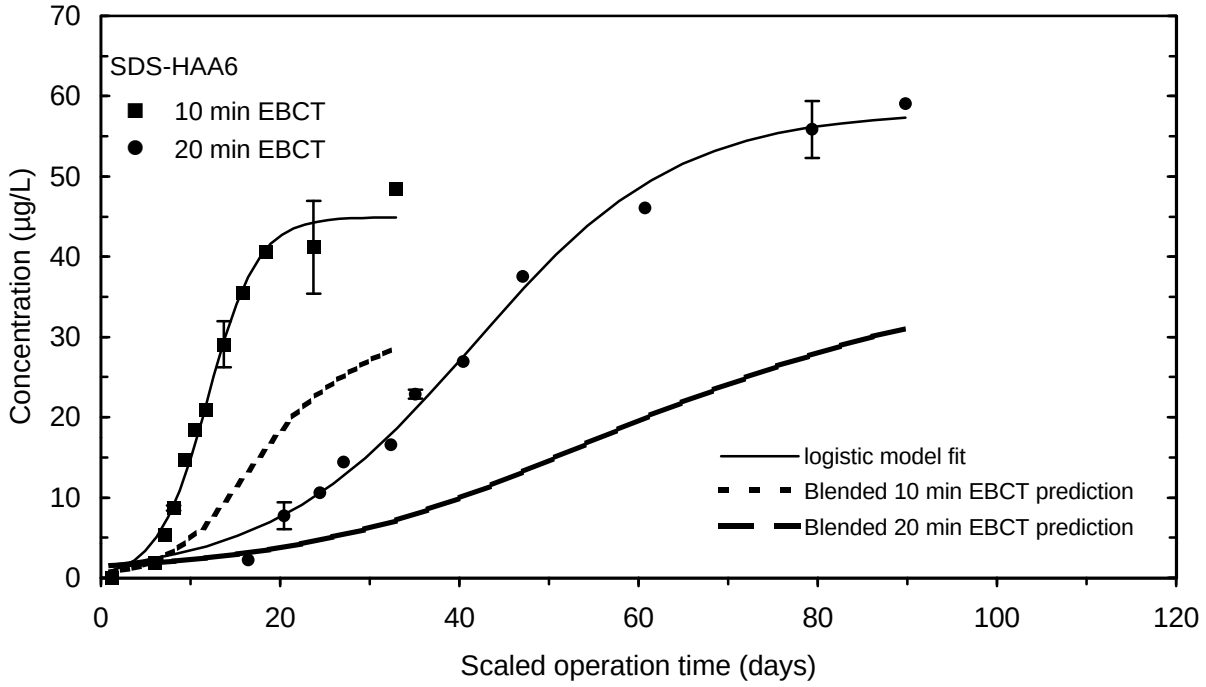


Figure 127 SDS-HAA6 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (April)

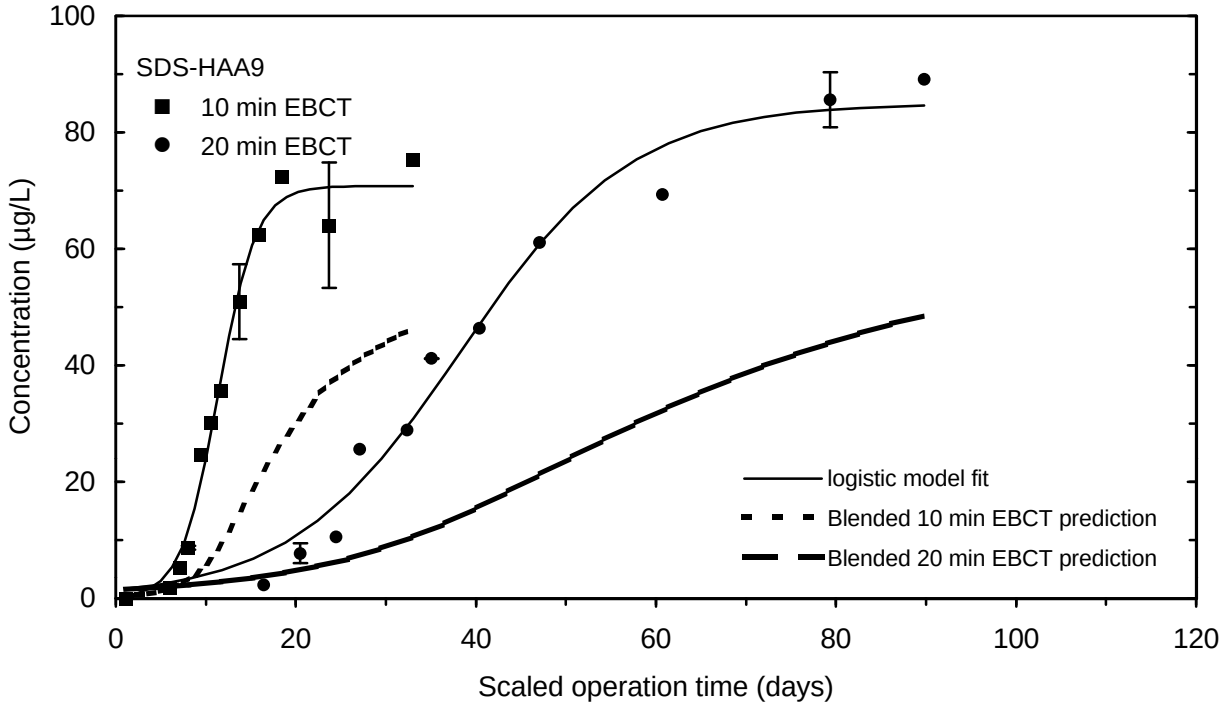


Figure 128 SDS-HAA9 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (April)

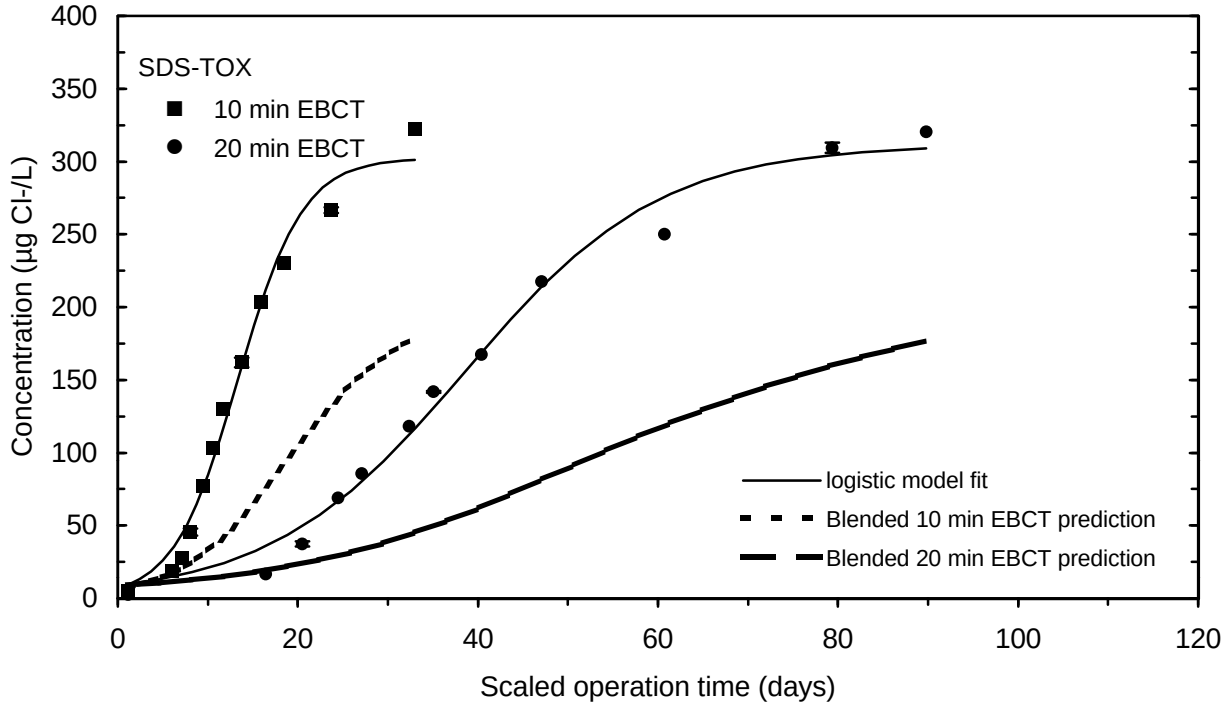


Figure 129 SDS-TOX breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (April)

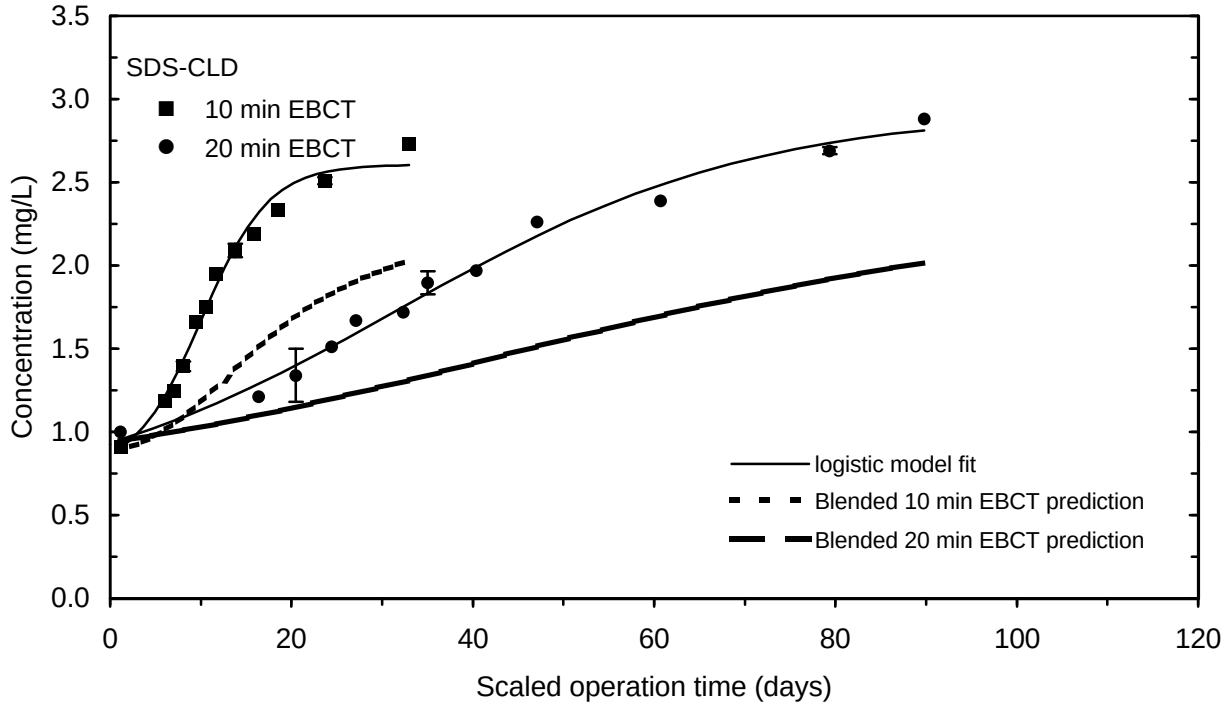


Figure 130 SDS-CLD breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 1 (April)

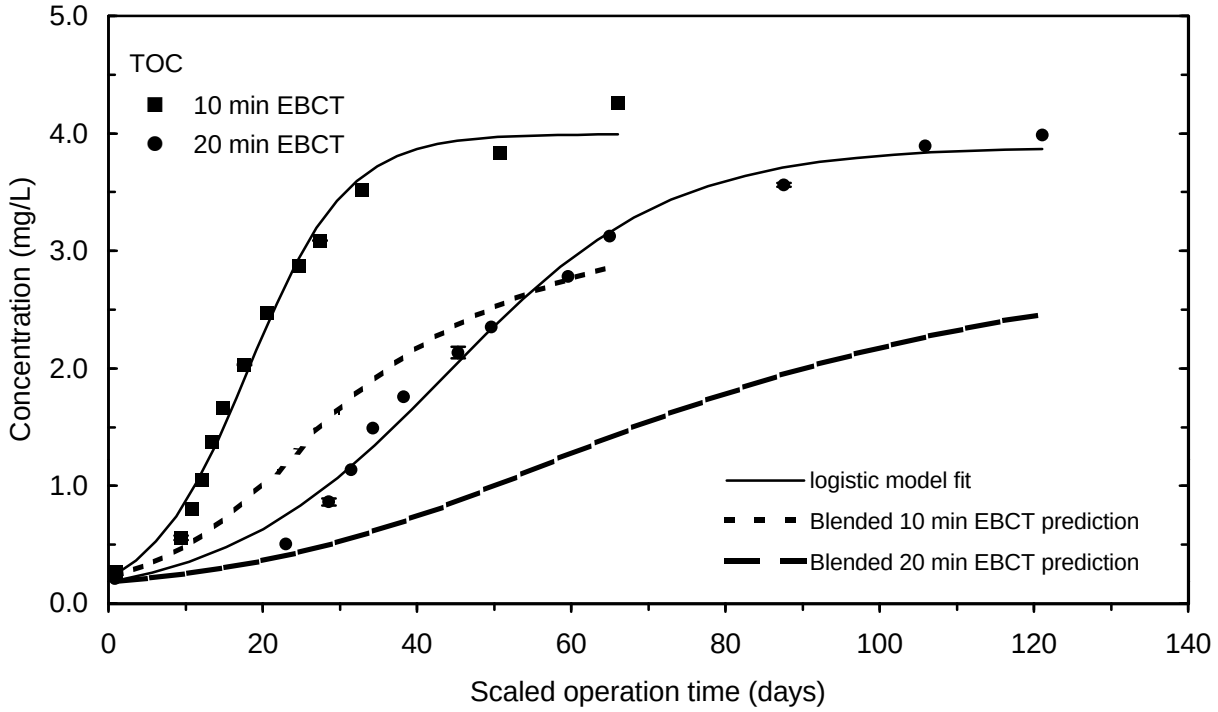


Figure 131 TOC breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (August)

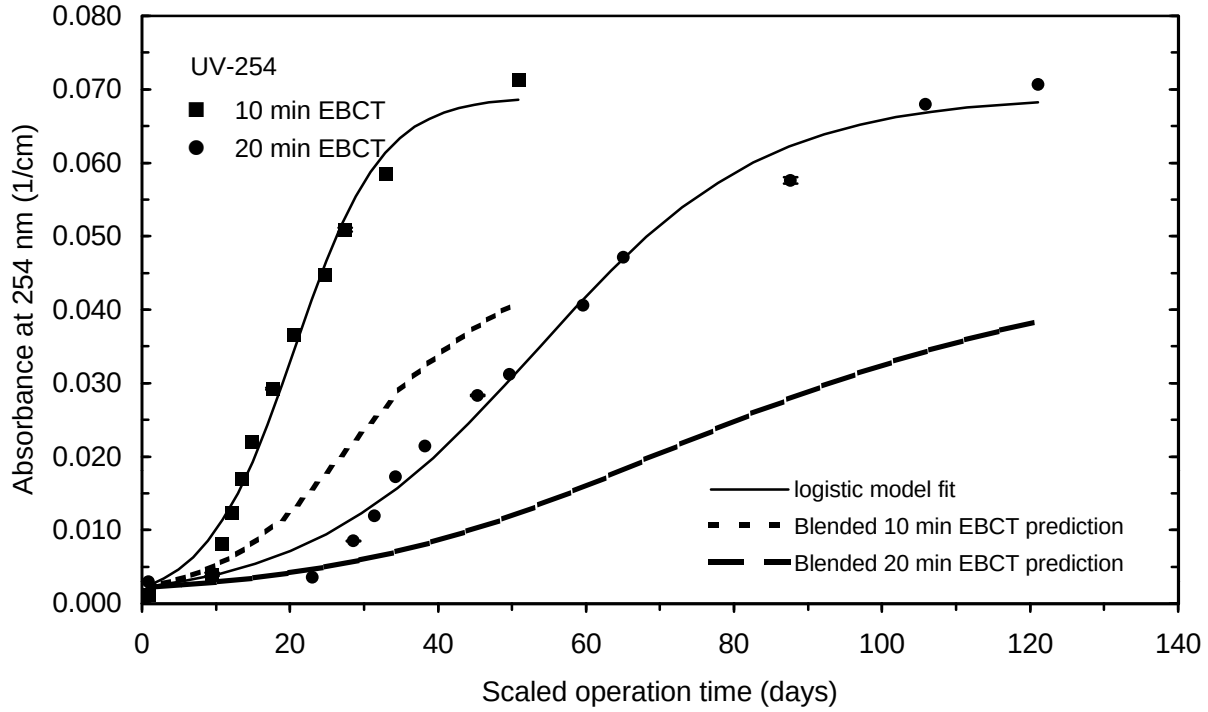


Figure 132 UV-254 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (August)

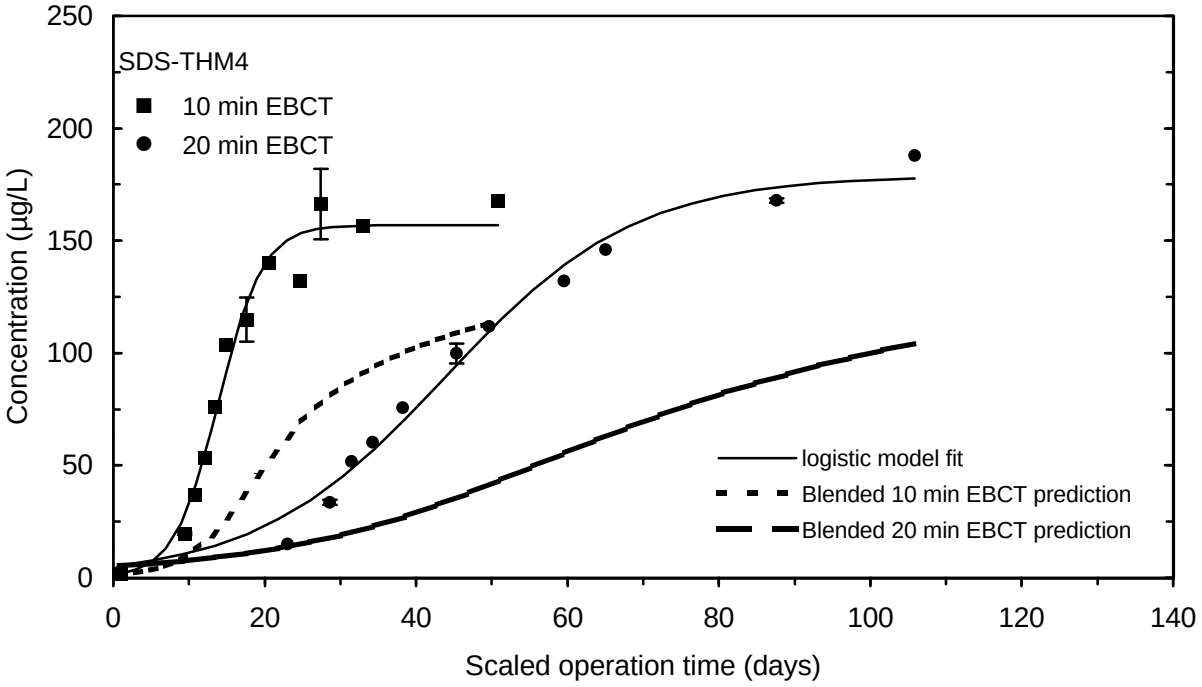


Figure 133 SDS-THM4 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (August)

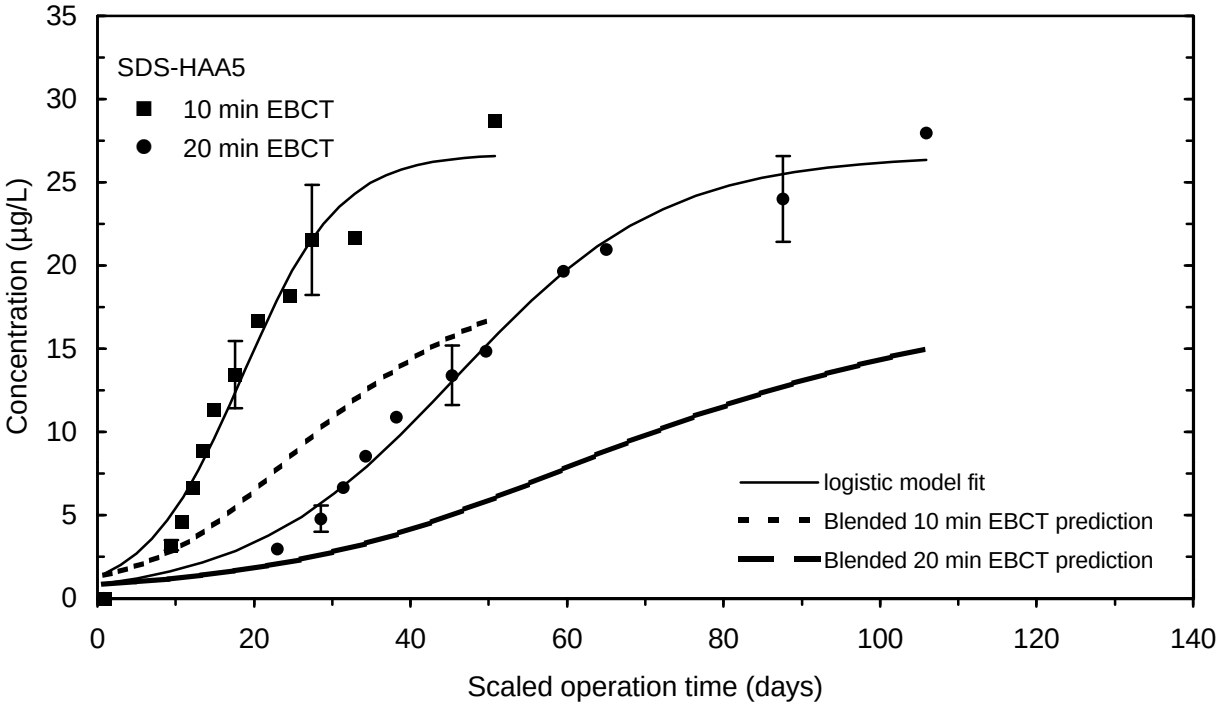


Figure 134 SDS-HAA5 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (August)

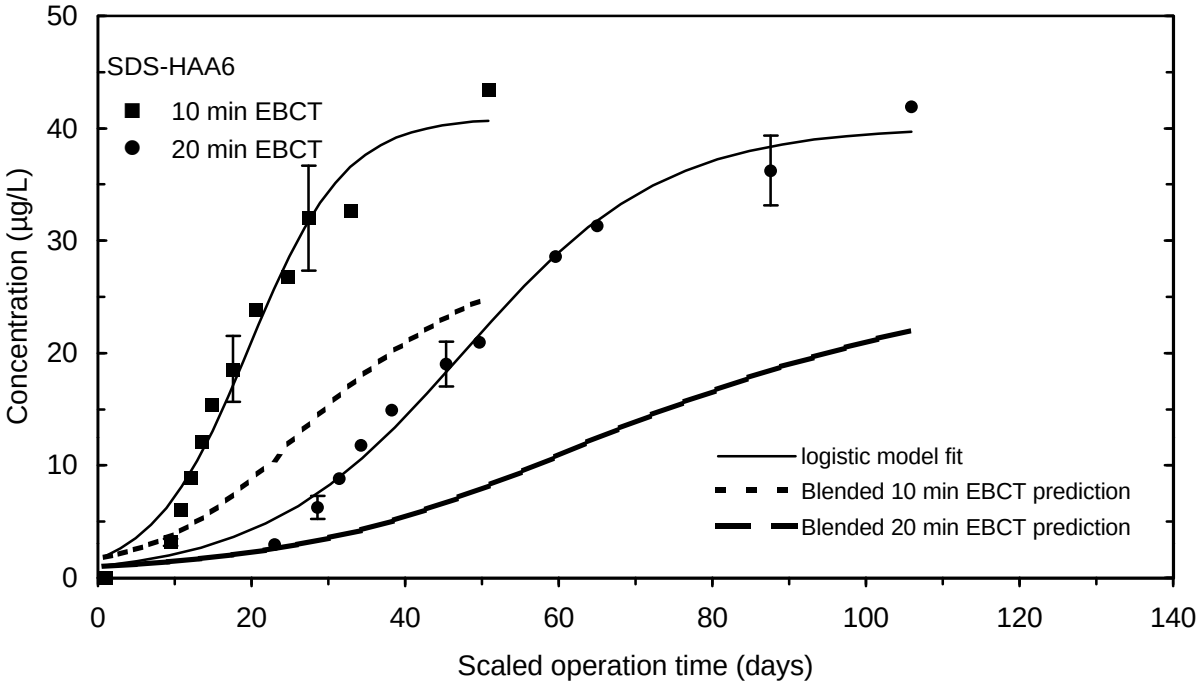


Figure 135 SDS-HAA6 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (August)

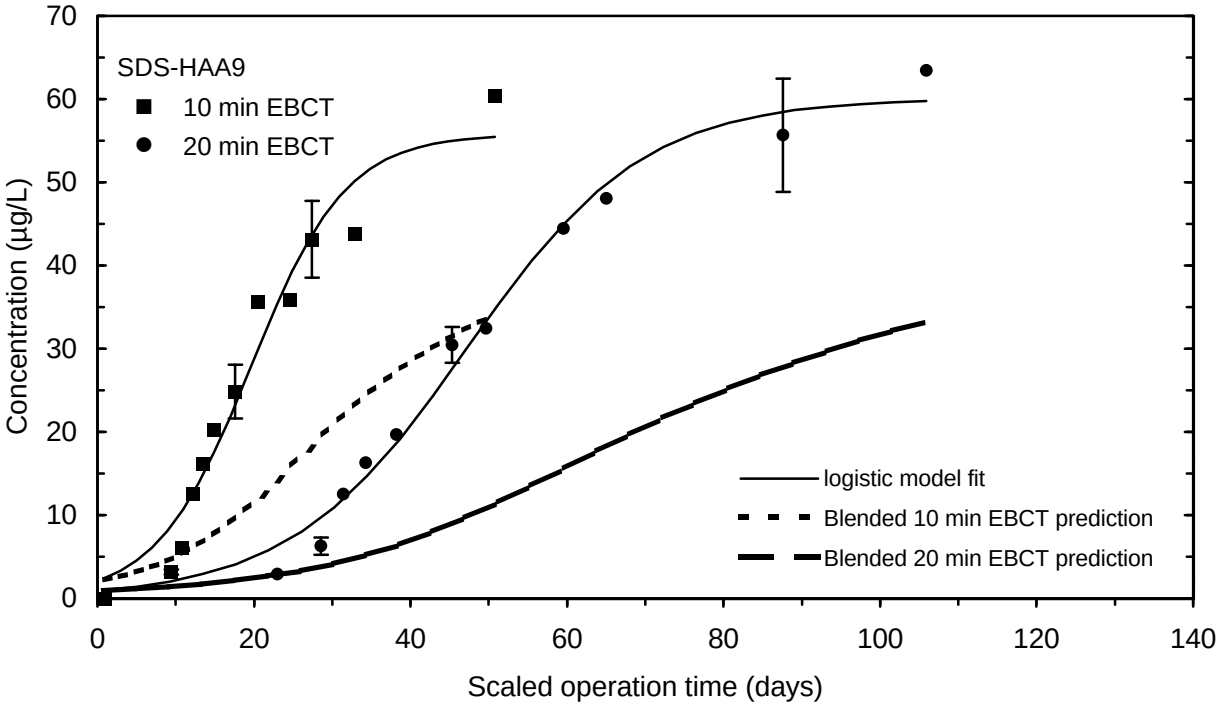


Figure 136 SDS-HAA9 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (August)

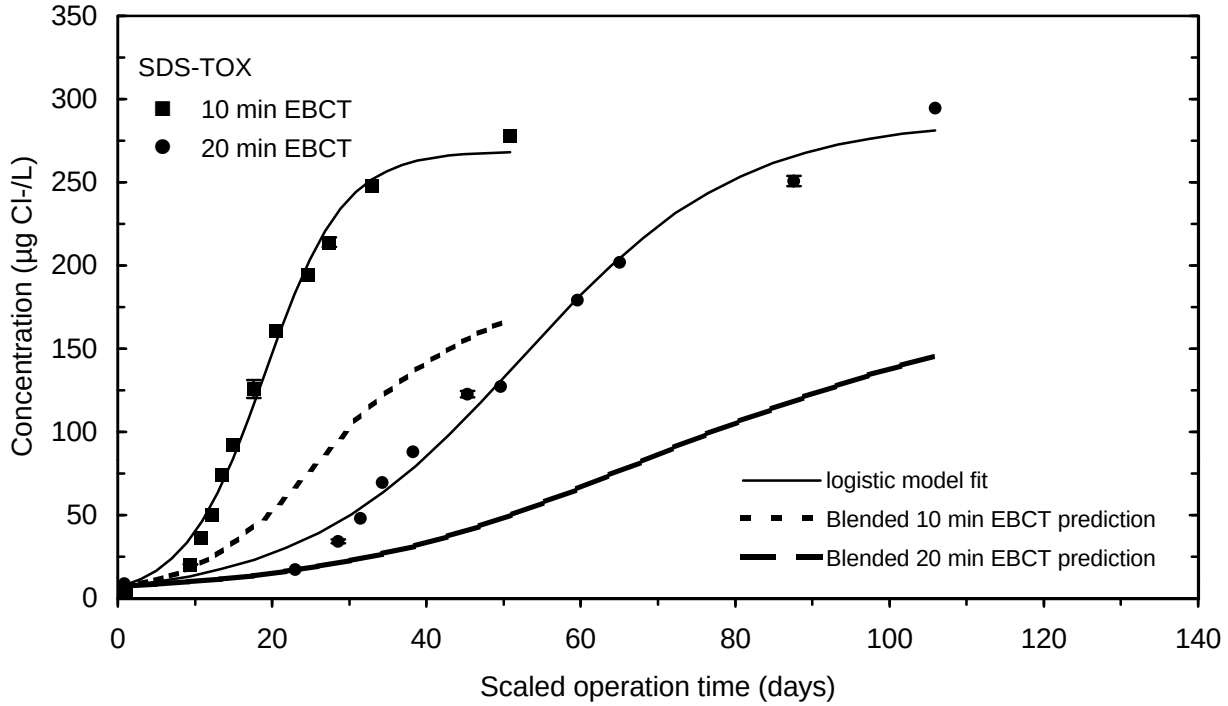


Figure 137 SDS-TOX breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (August)

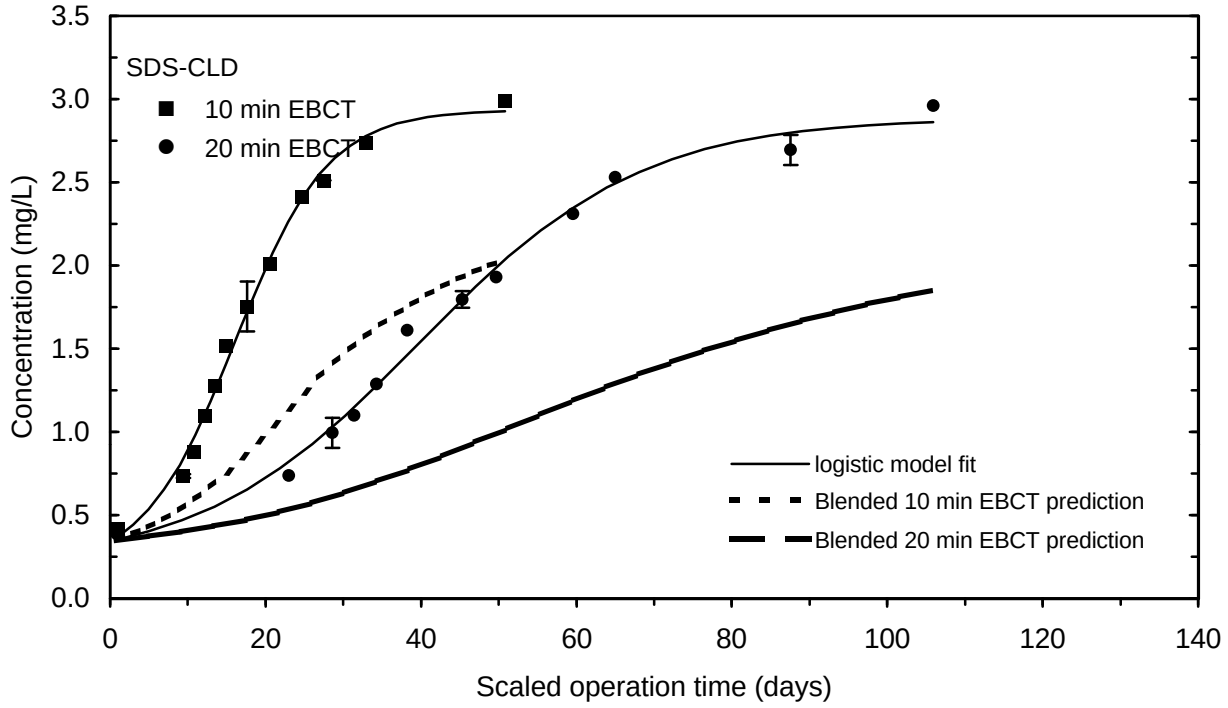


Figure 138 SDS-CLD breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 2 (August)

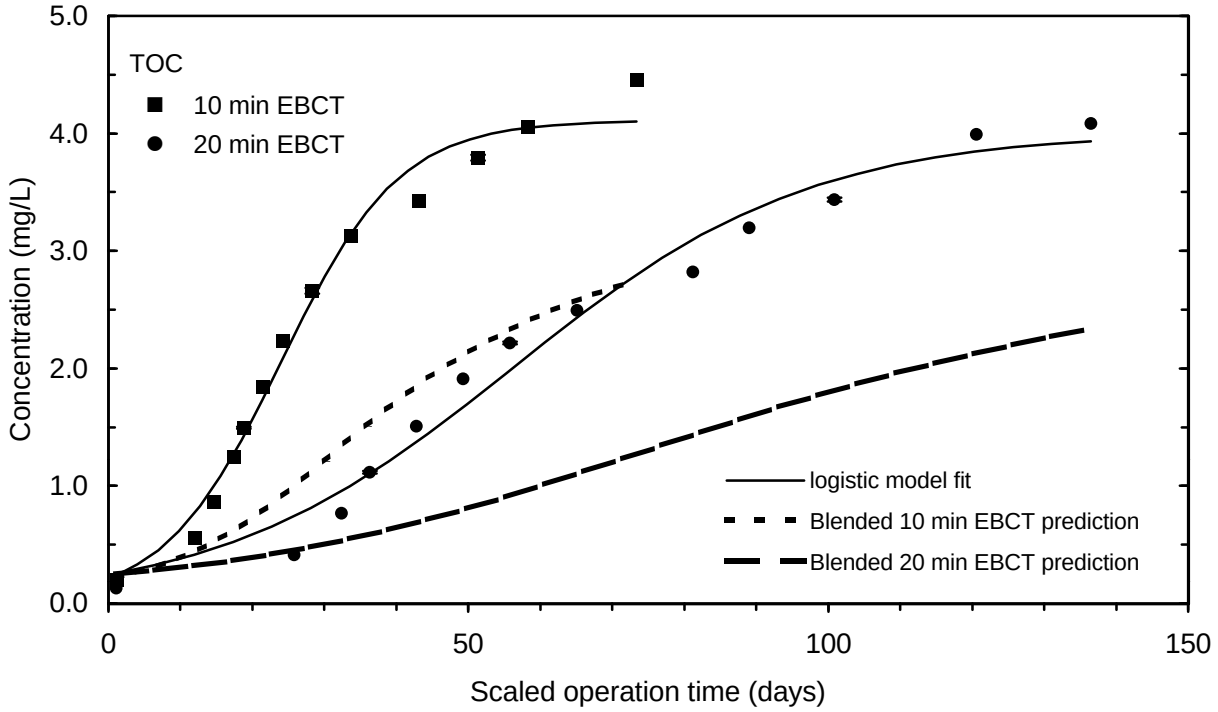


Figure 139 TOC breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (October)

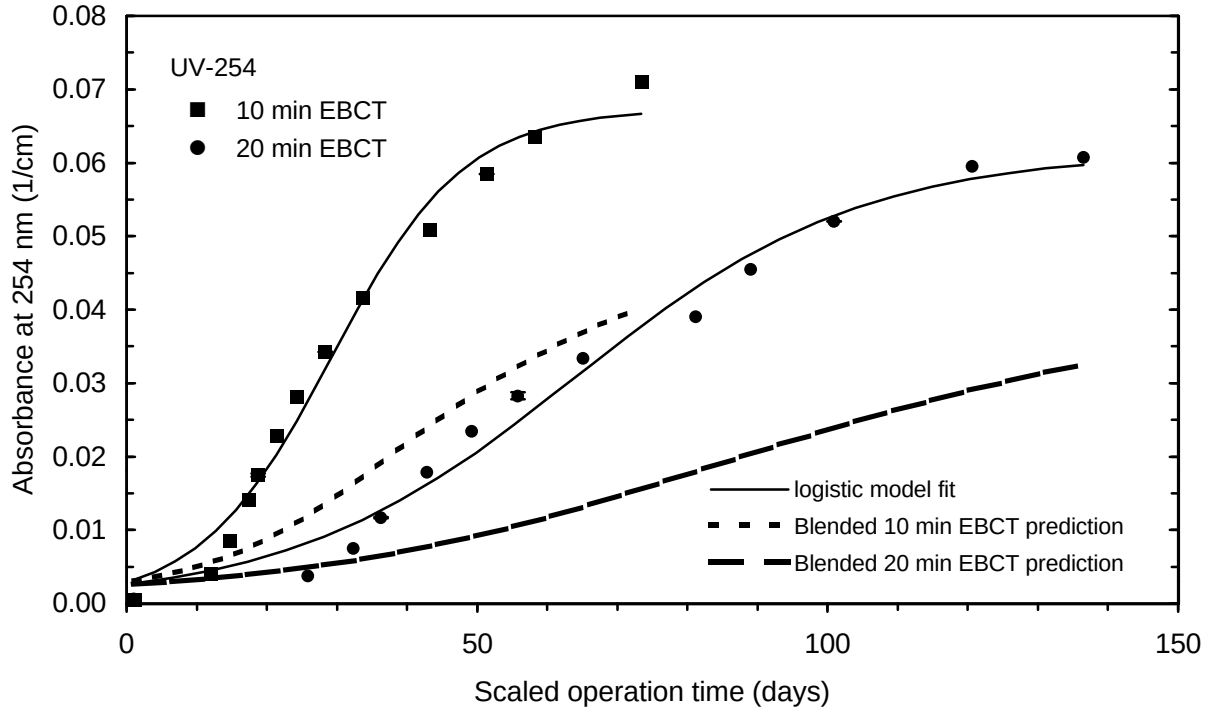


Figure 140 UV-254 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (October)

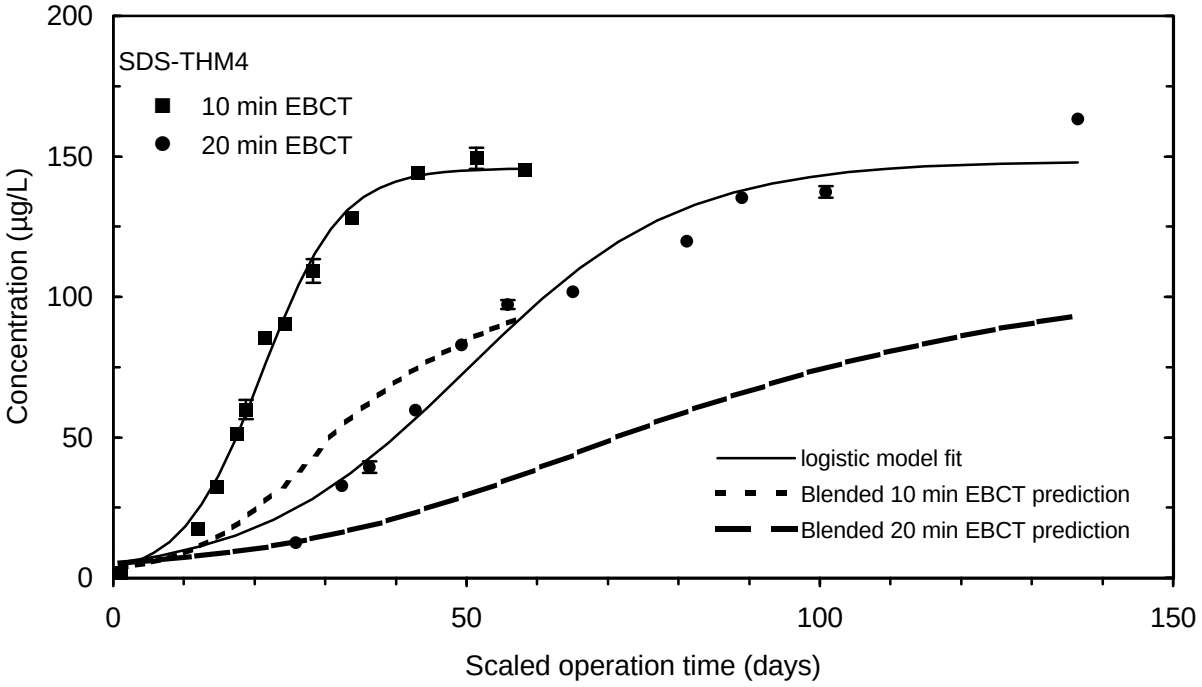


Figure 141 SDS-THM4 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (October)

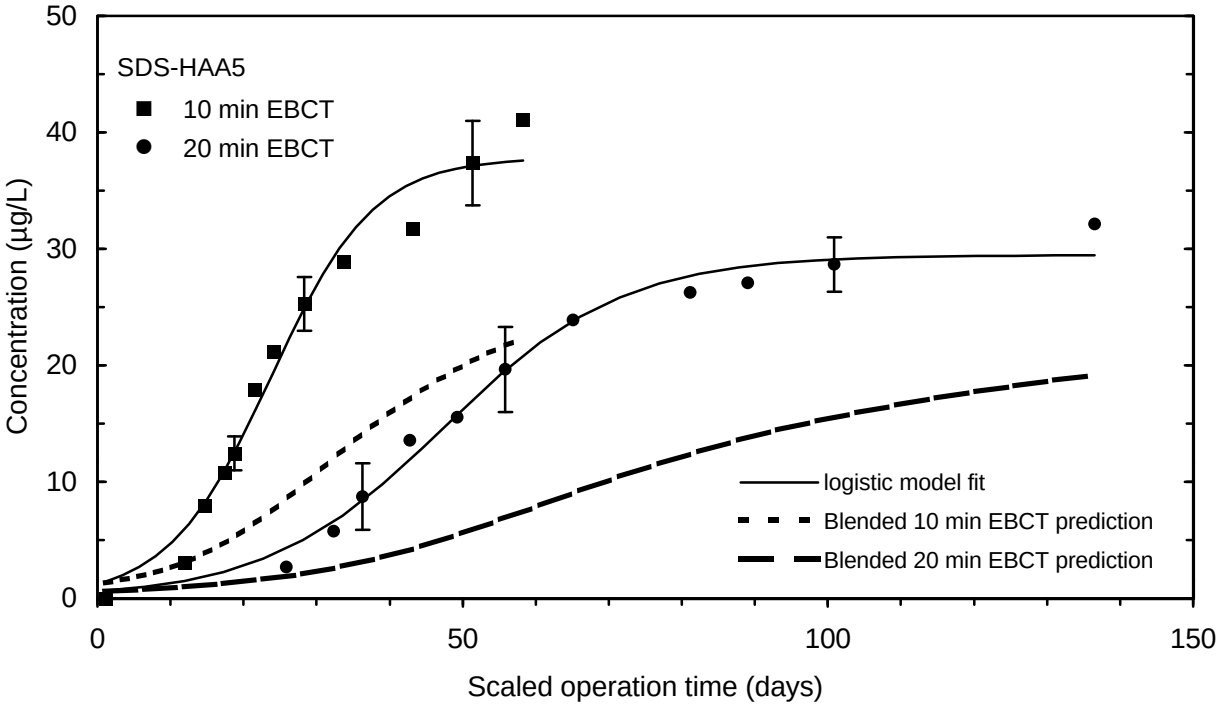


Figure 142 SDS-HAA5 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (October)

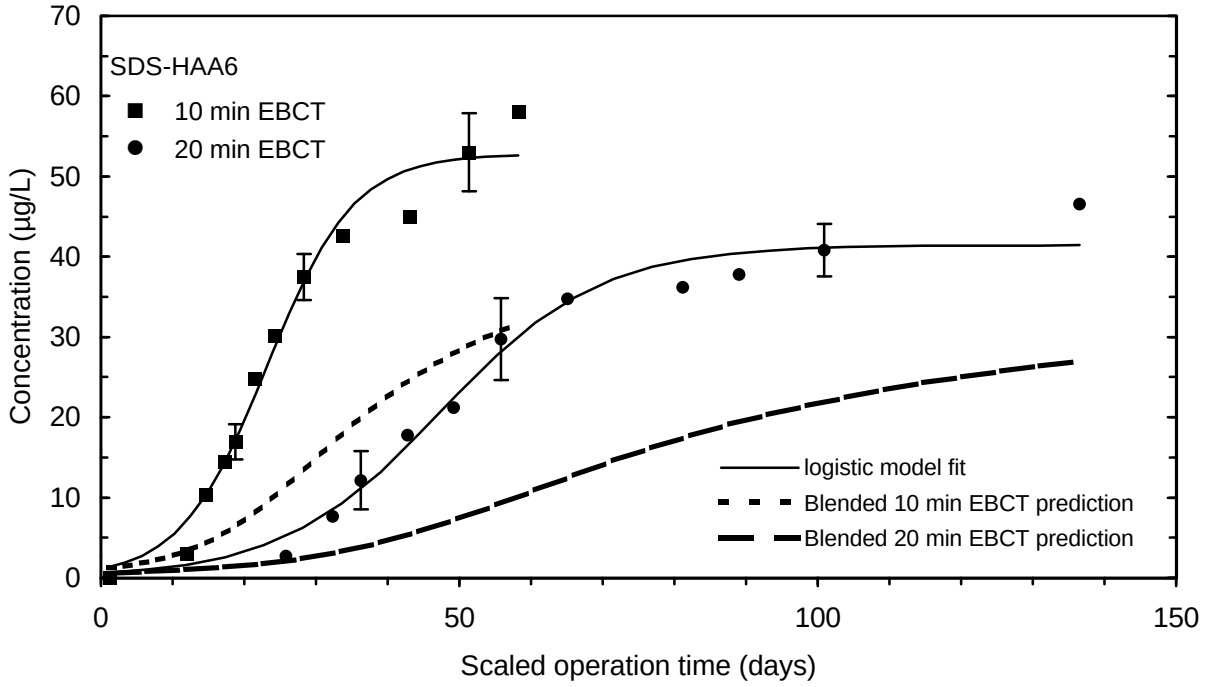


Figure 143 SDS-HAA6 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (October)

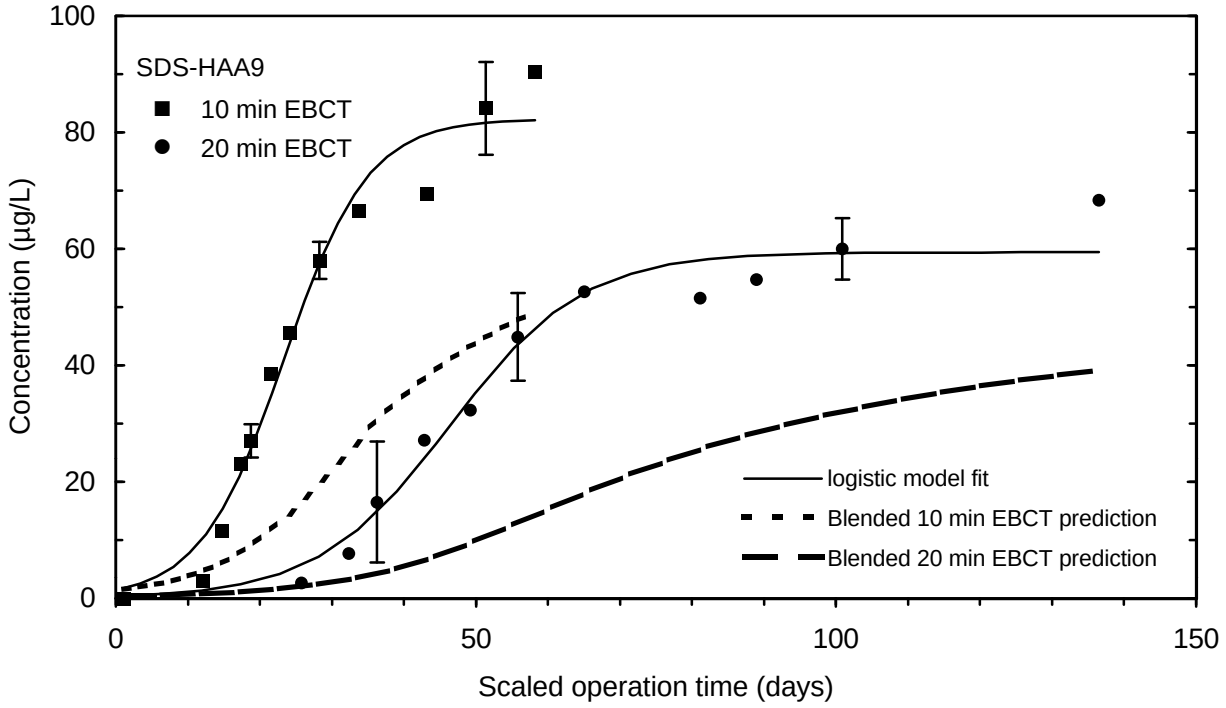


Figure 144 SDS-HAA9 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (October)

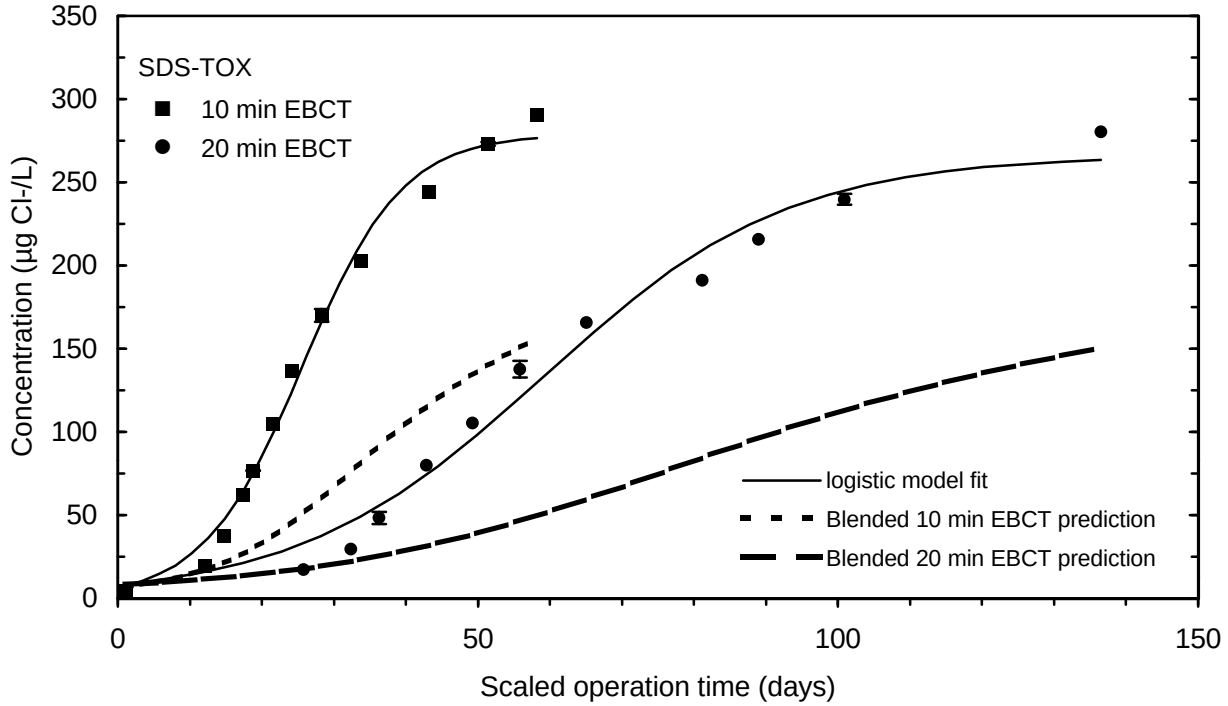


Figure 145 SDS-TOX breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (October)

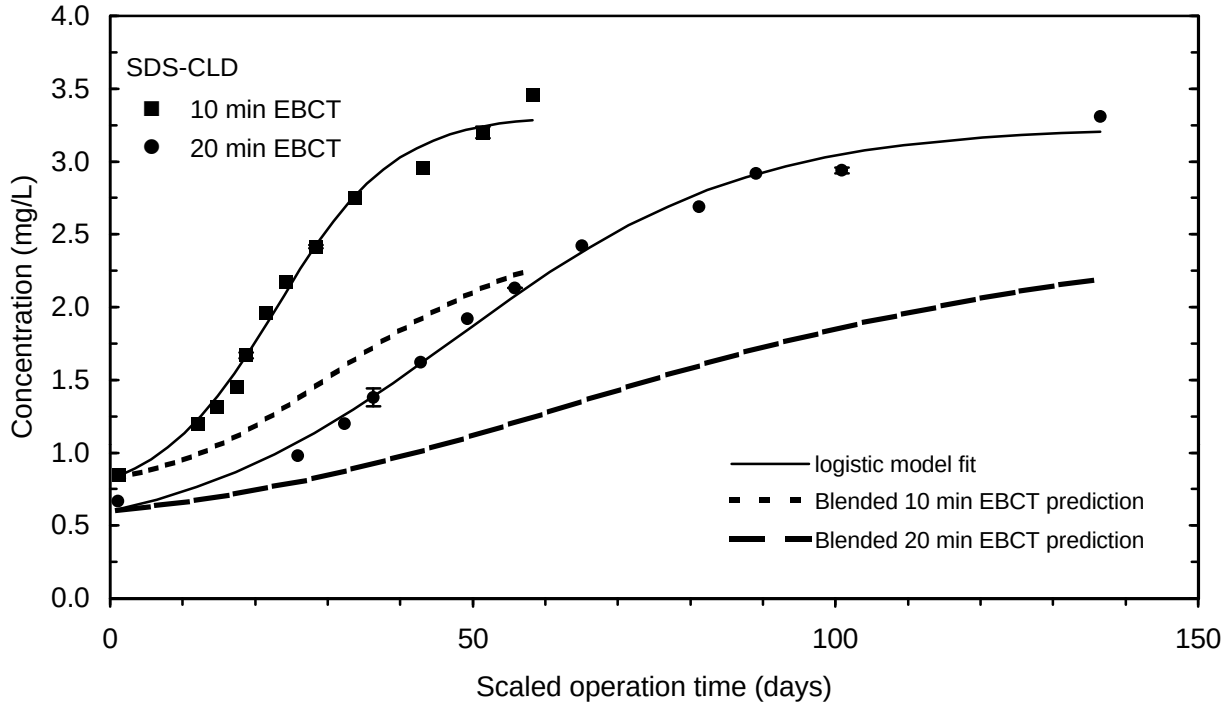


Figure 146 SDS-CLD breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 3 (October)

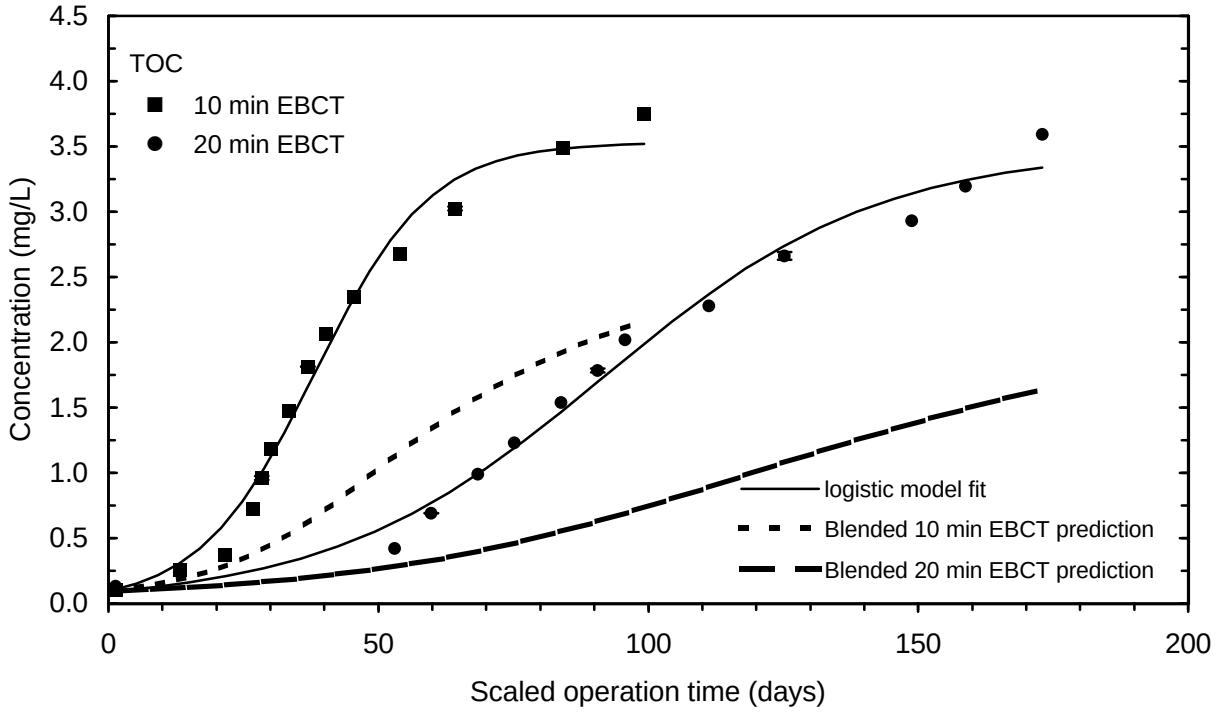


Figure 147 TOC breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (October-EC)

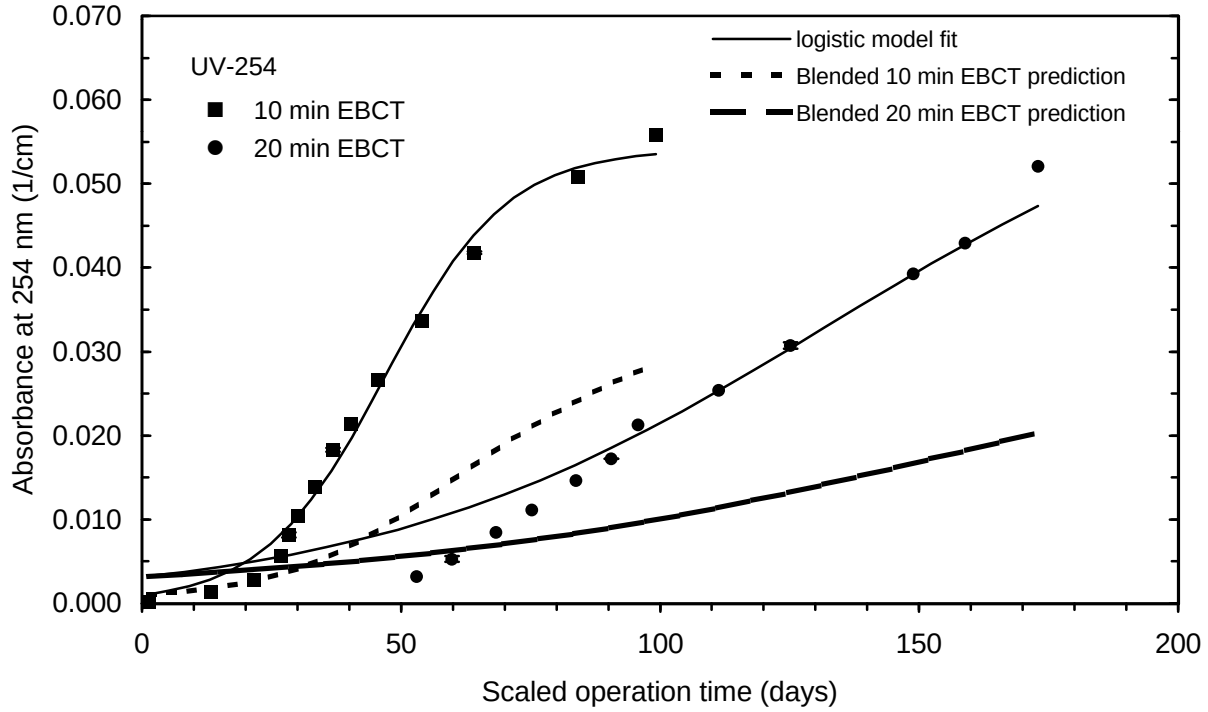


Figure 148 UV-254 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (October-EC)

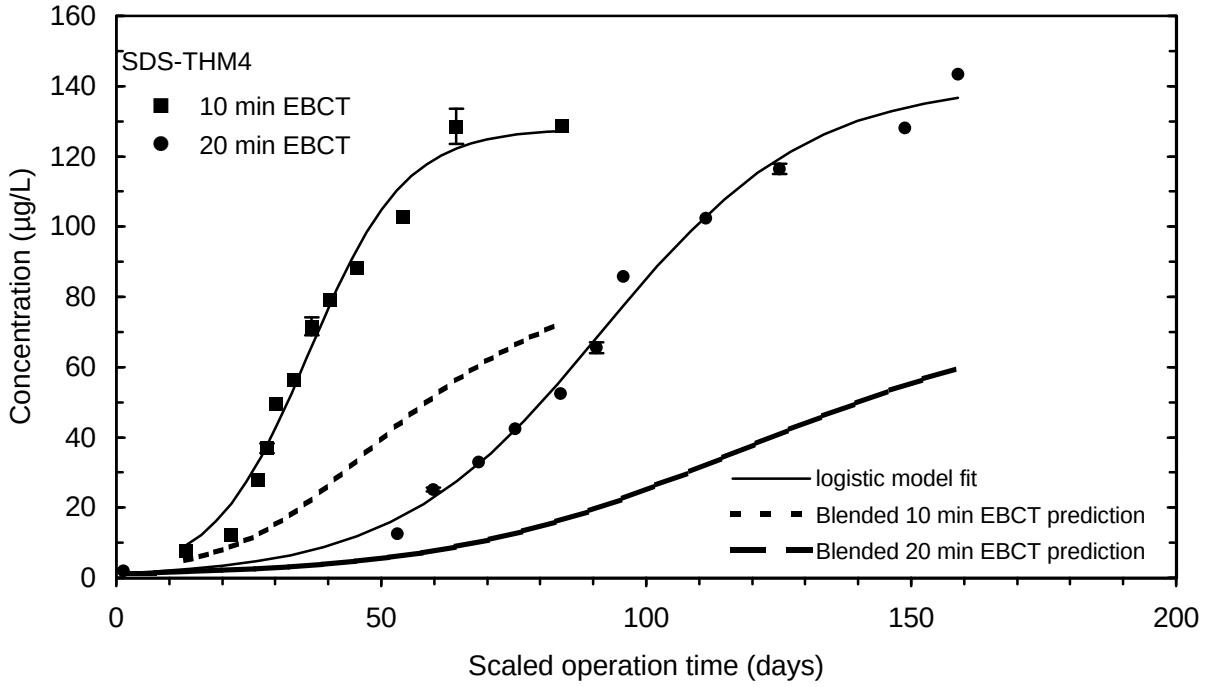


Figure 149 SDS-THM4 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (October-EC)

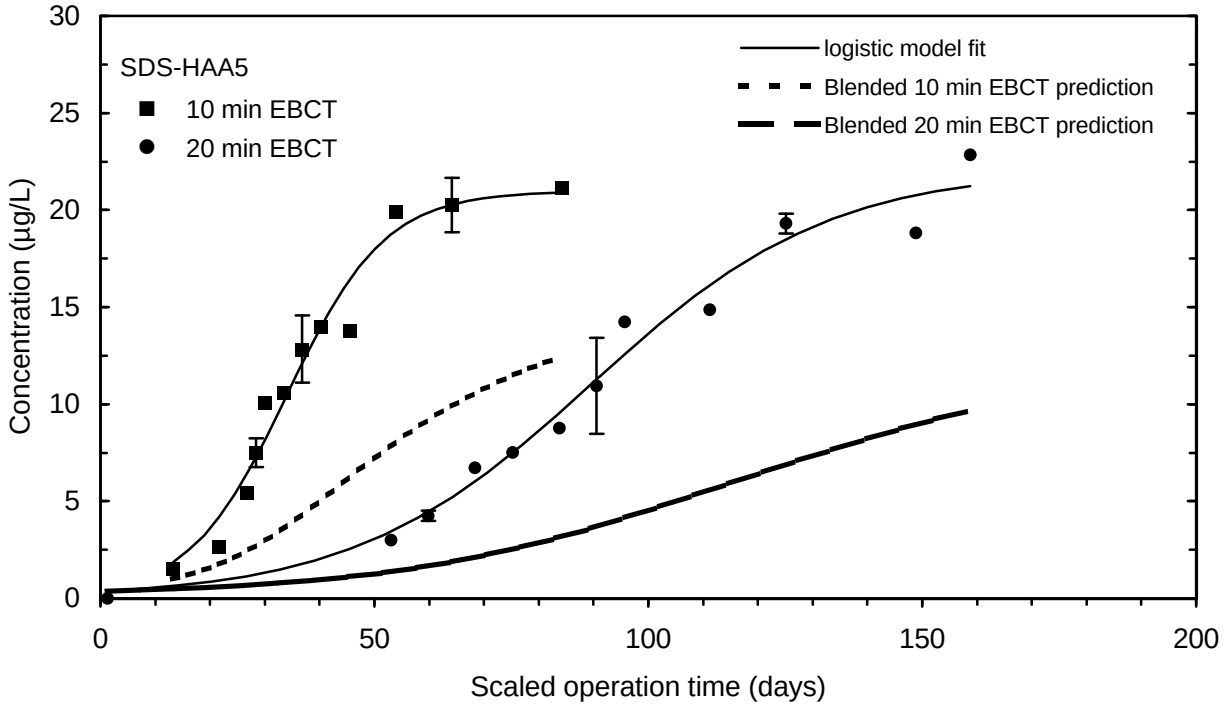


Figure 150 SDS-HAA5 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (October-EC)

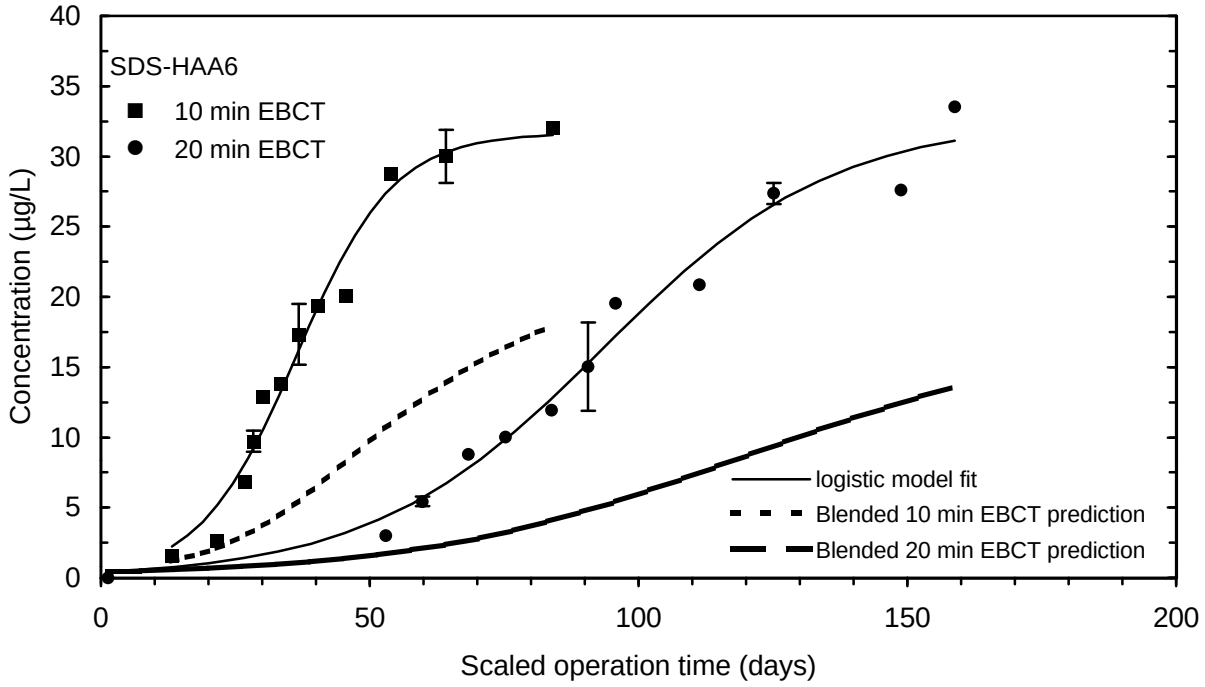


Figure 151 SDS-HAA6 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (October-EC)

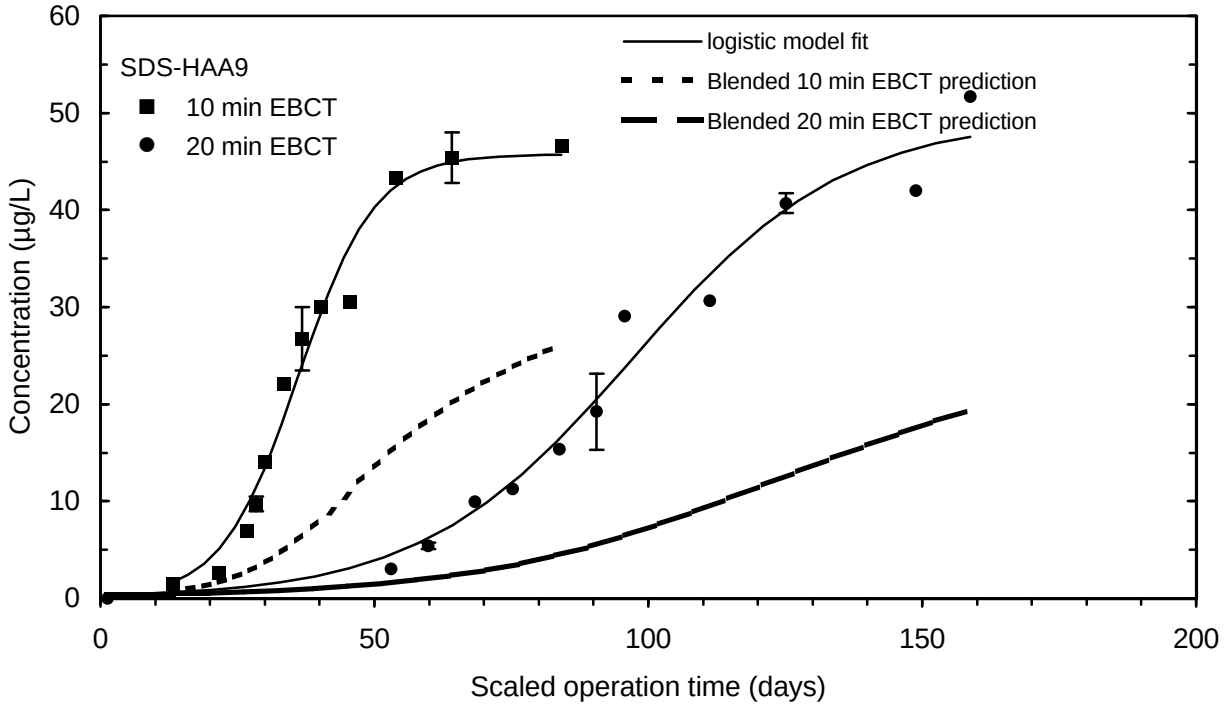


Figure 152 SDS-HAA9 breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (October-EC)

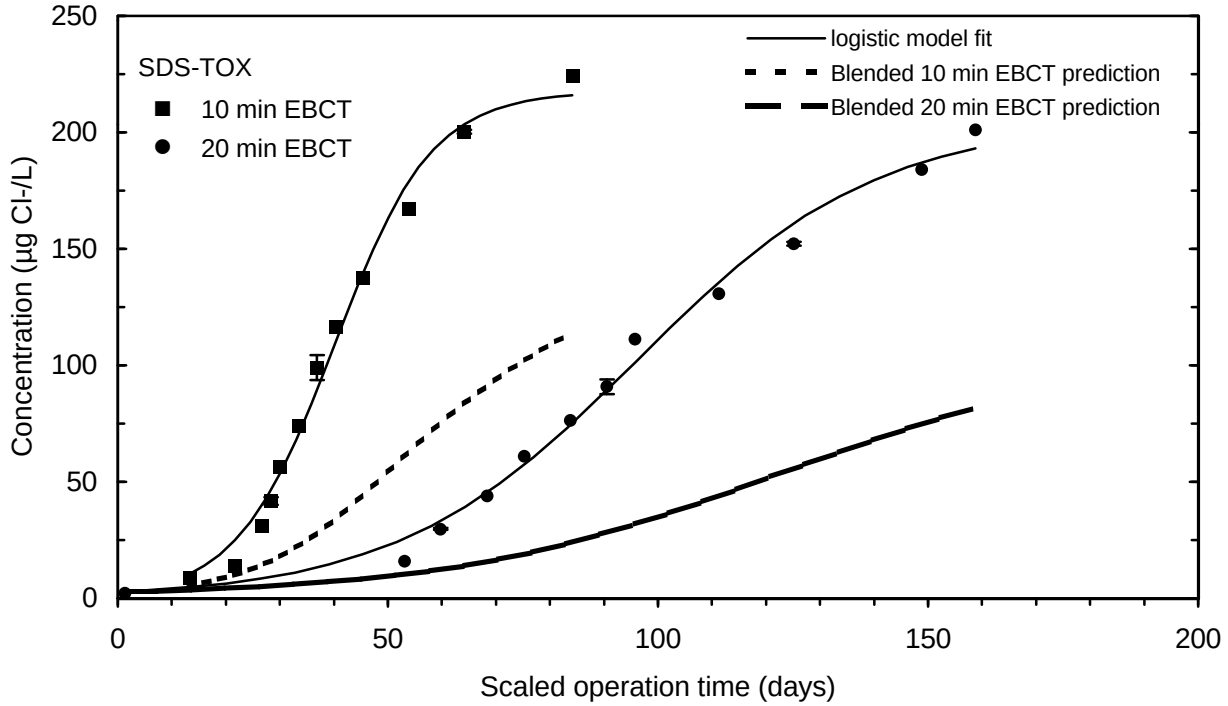


Figure 153 SDS-TOX breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (October-EC)

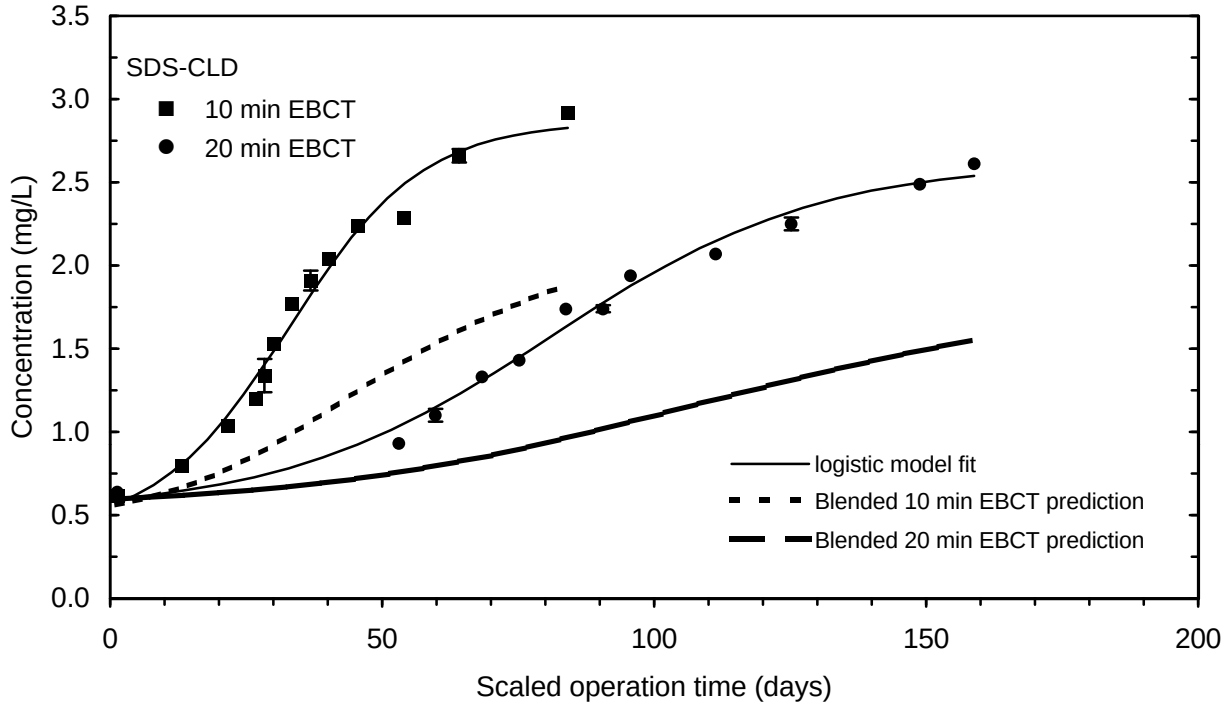


Figure 154 SDS-CLD breakthrough and effluent blending for 10 and 20 minute EBCT contactors during session 4 (October-EC)

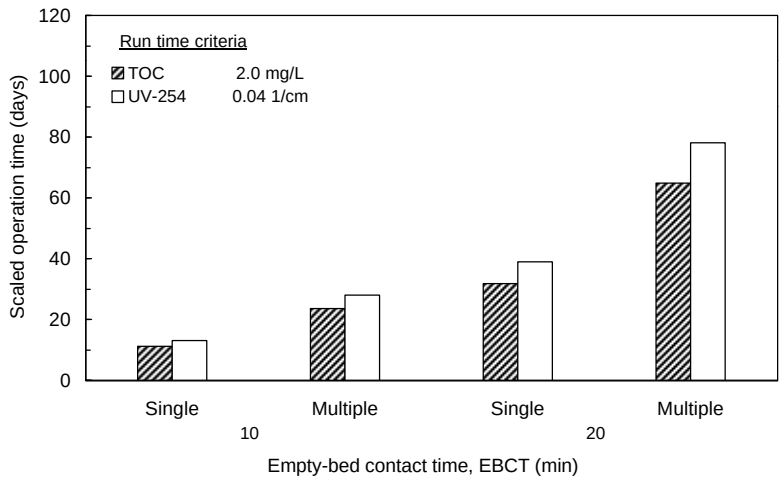


Figure 155 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 1 (April)

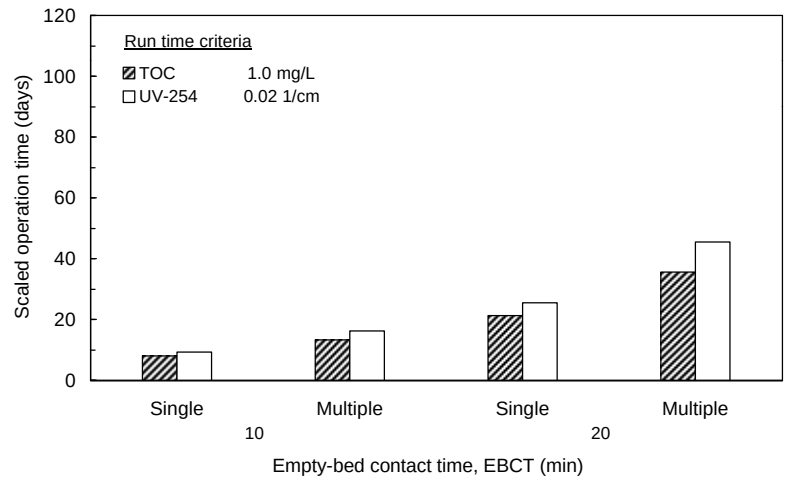


Figure 156 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 1 (April)

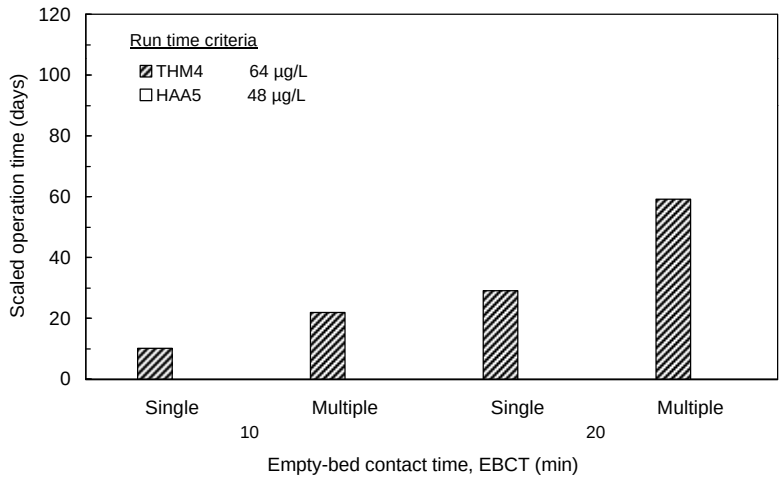


Figure 157 GAC run times based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 1 (April)

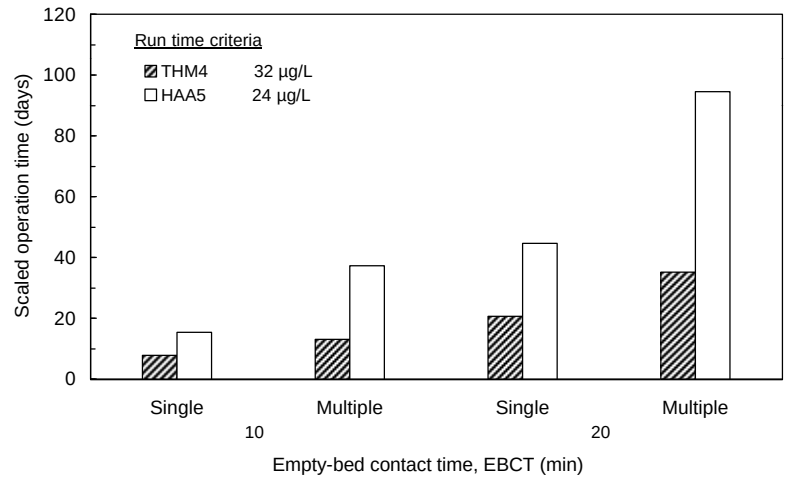


Figure 158 GAC run times based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 1 (April)

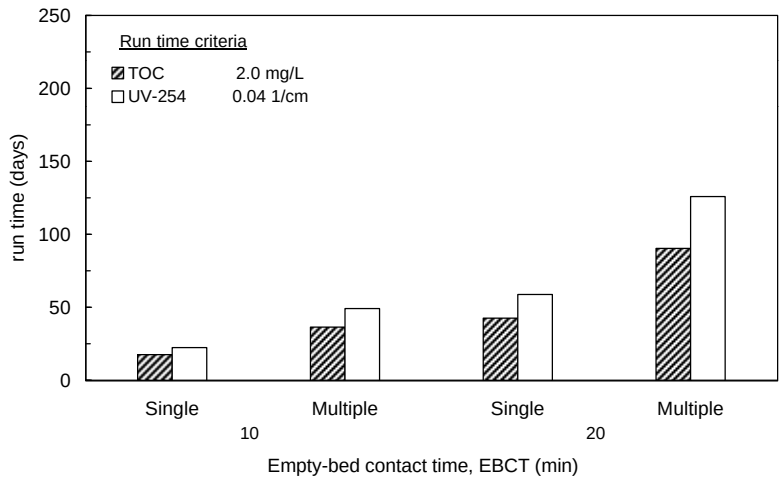


Figure 159 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 2 (August)

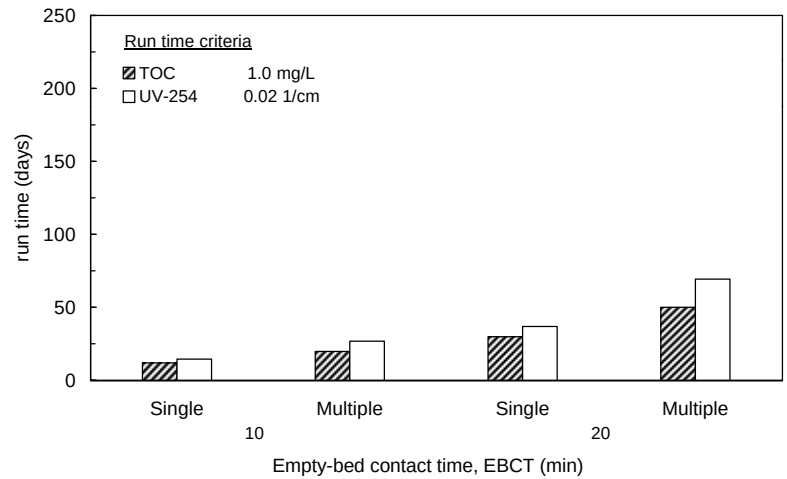


Figure 160 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 2 (August)

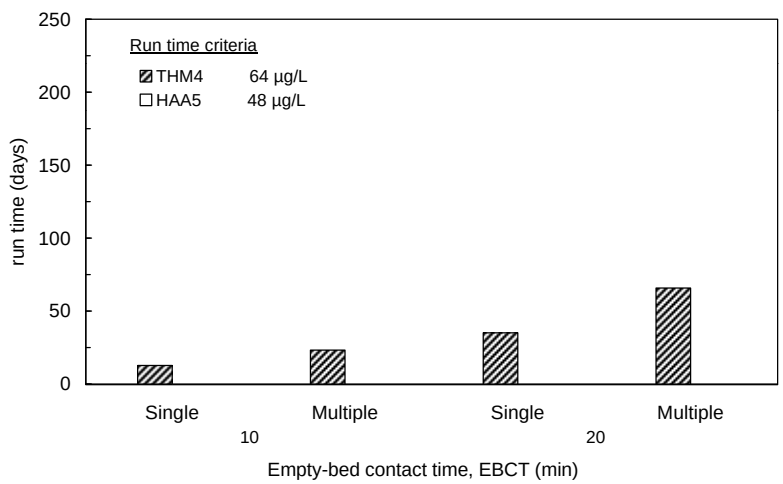


Figure 161 GAC run times based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 2 (August)

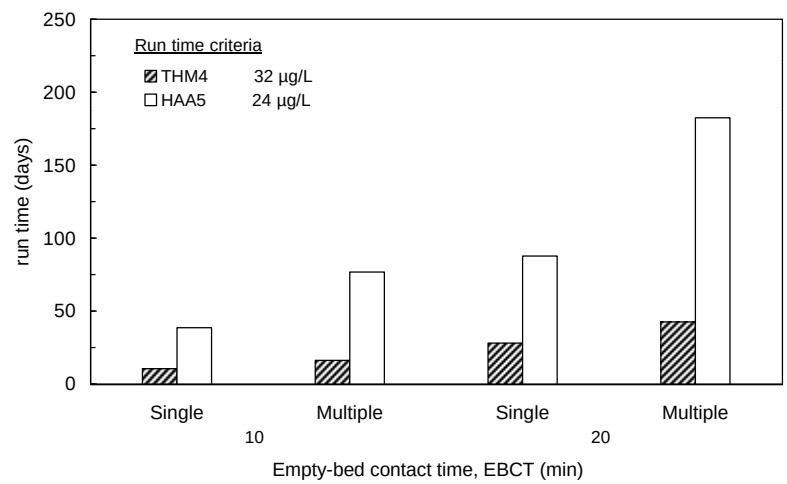


Figure 162 GAC run times based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 2 (August)

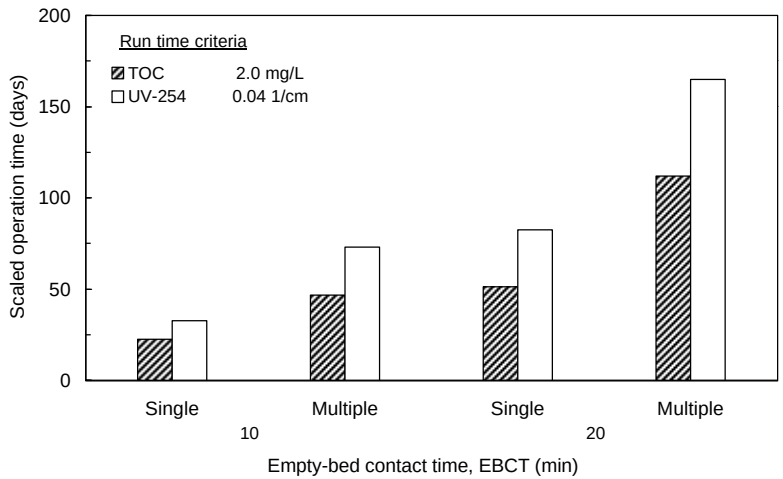


Figure 163 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 3 (October)

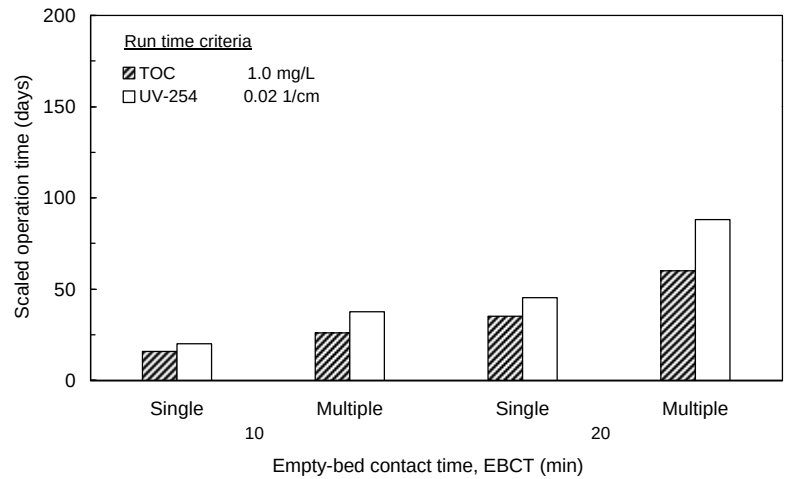


Figure 164 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 3 (October)

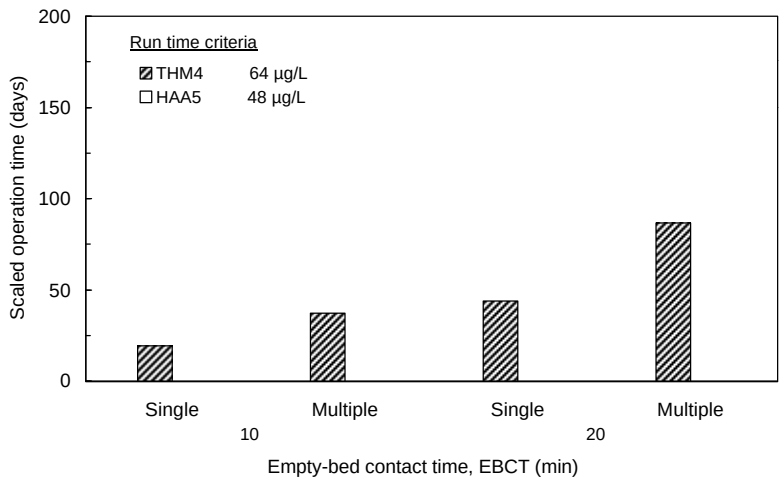


Figure 165 GAC run times based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 3 (October)

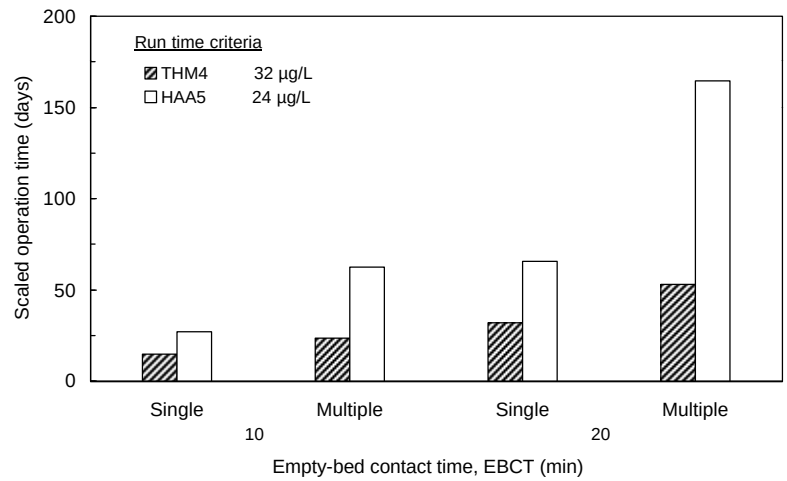


Figure 166 GAC run times based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 3 (October)

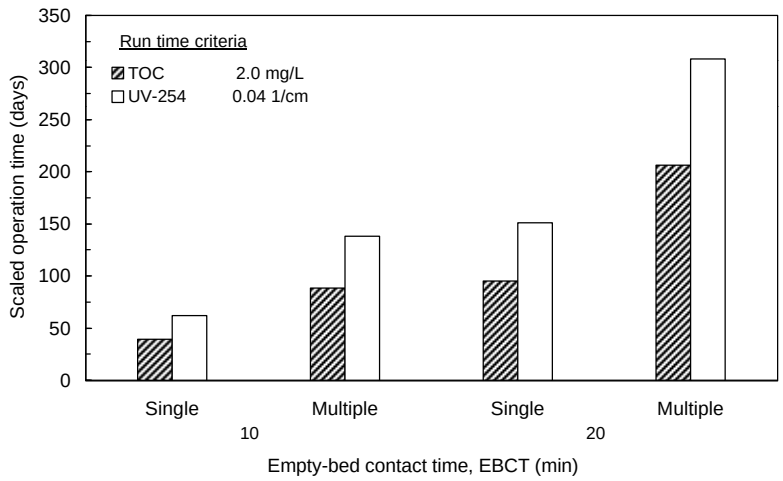


Figure 167 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 4 (October-EC)

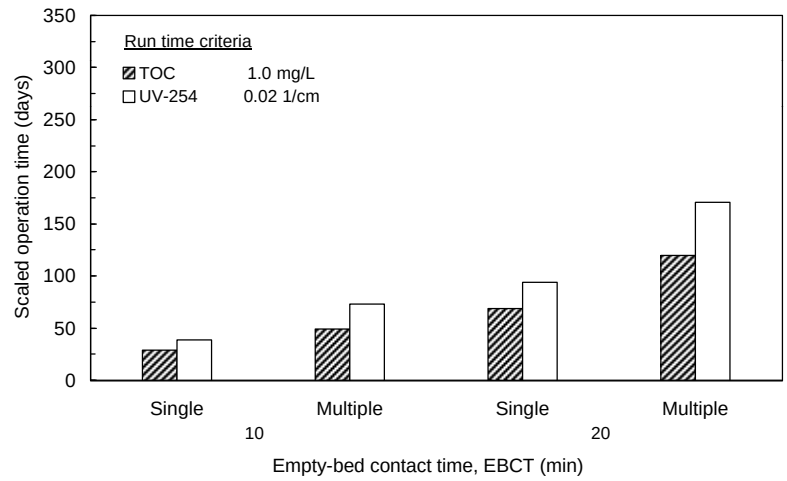


Figure 168 GAC run times based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 4 (October-EC)

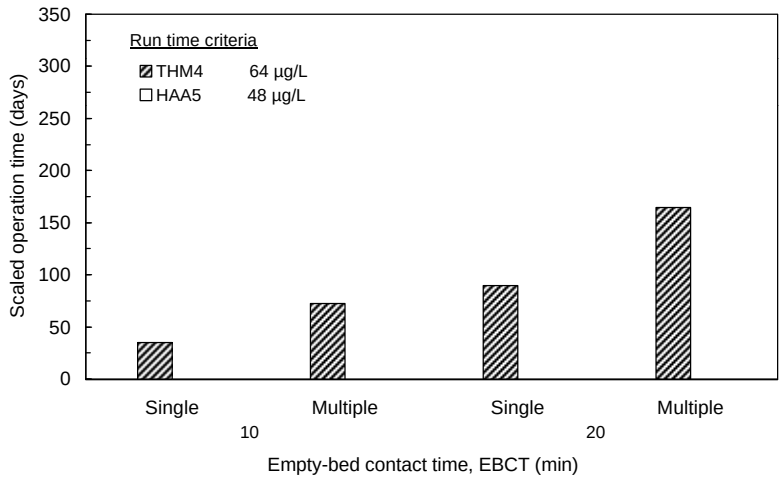


Figure 169 GAC run times based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 4 (October-EC)

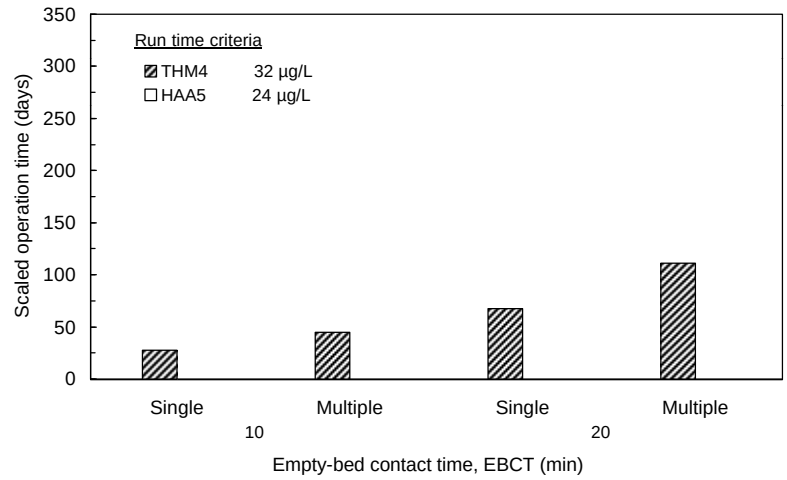


Figure 170 GAC run times based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 4 (October-EC)

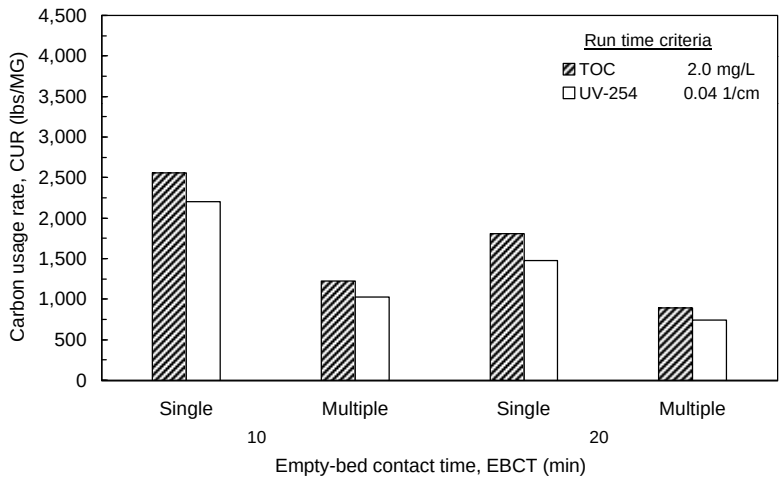


Figure 171 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 1 (April)

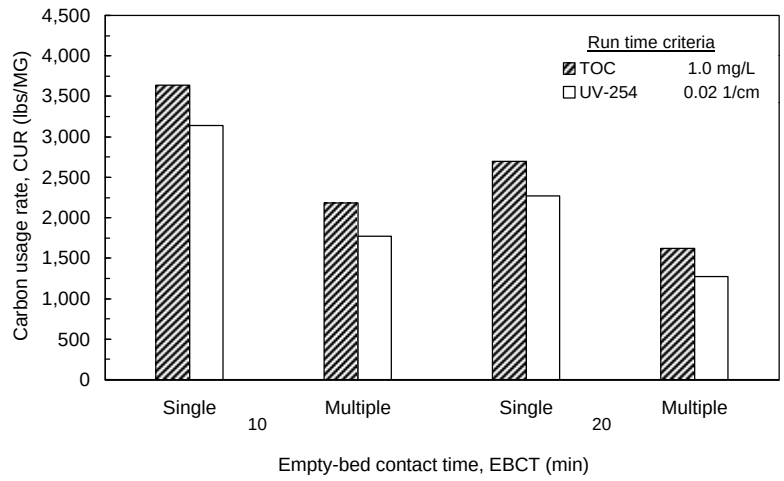


Figure 172 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 1 (April)

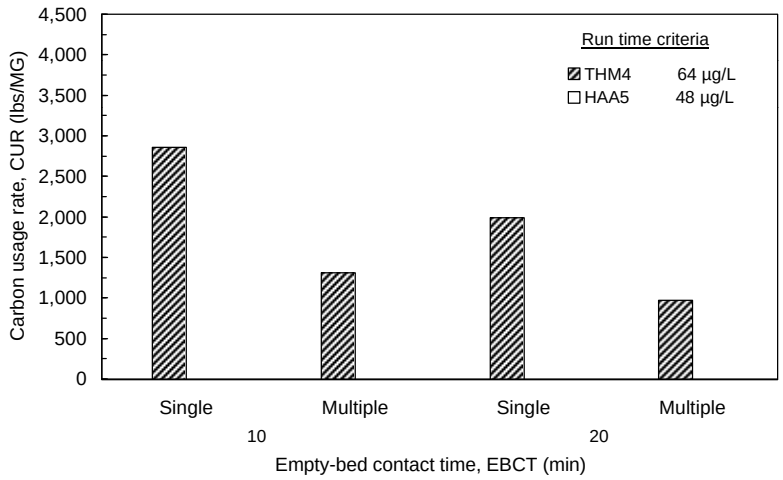


Figure 173 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 1 (April)

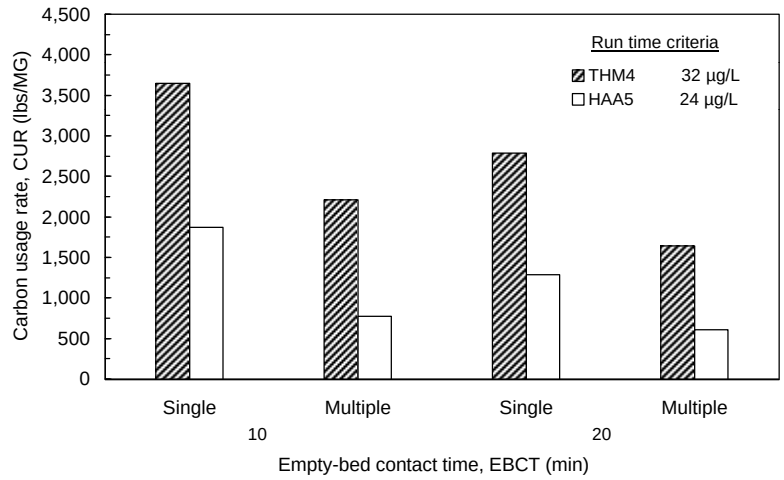


Figure 174 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 1 (April)

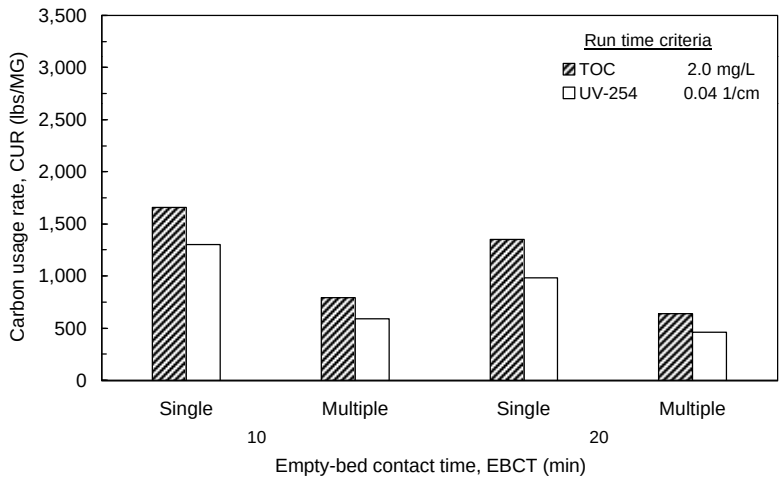


Figure 175 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 2 (August)

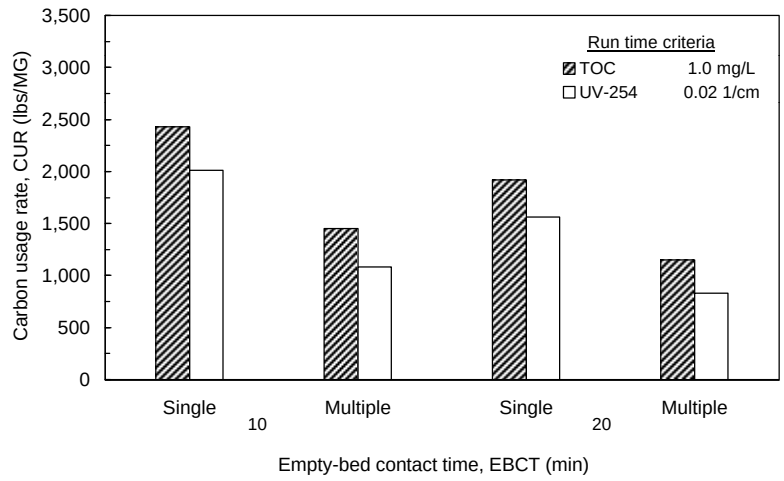


Figure 176 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 2 (August)

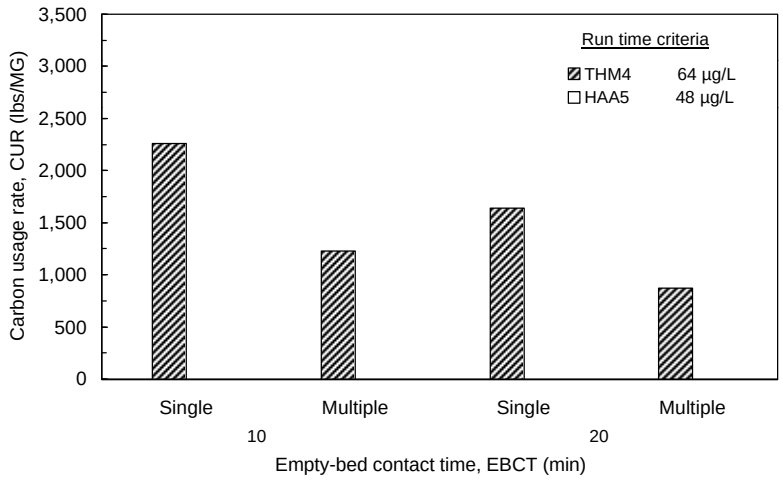


Figure 177 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 2 (August)

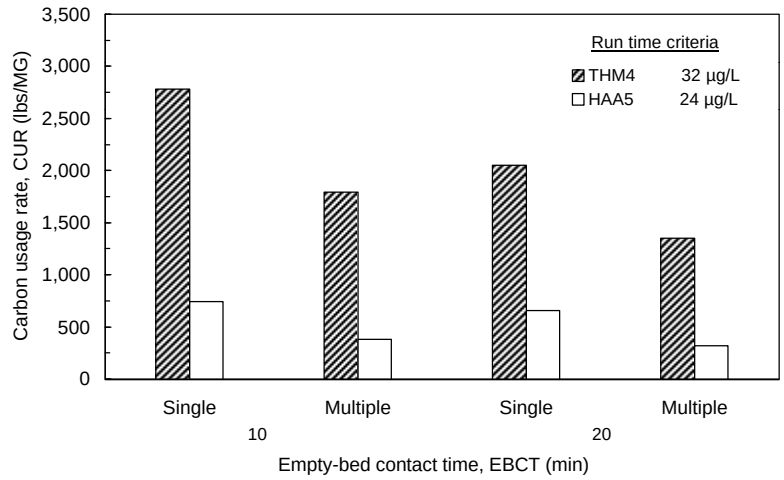


Figure 178 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 2 (August)

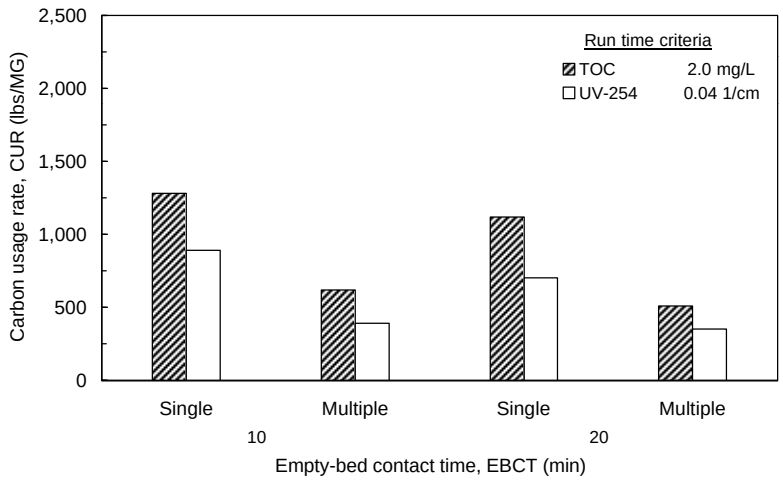


Figure 179 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 3 (October)

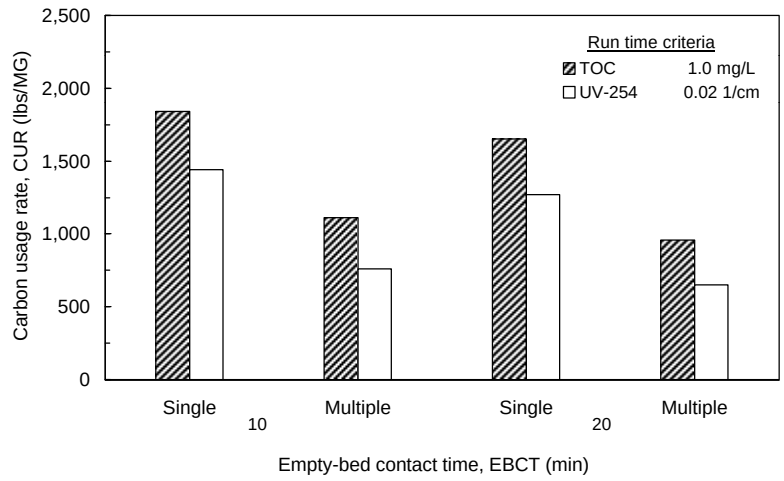


Figure 180 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 3 (October)

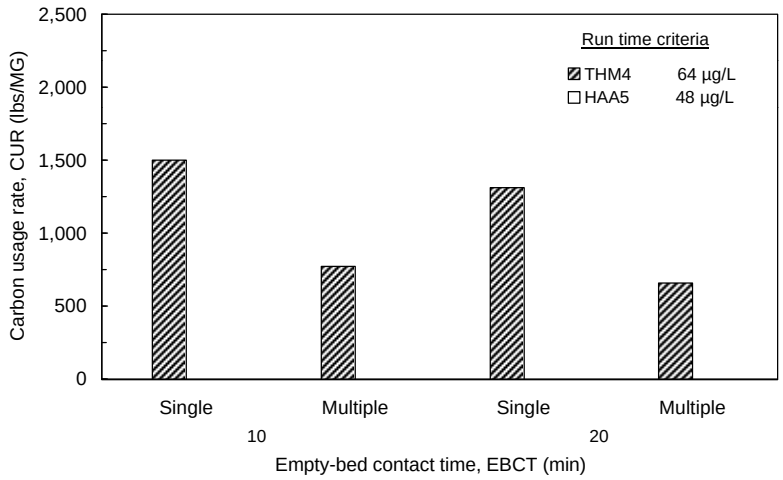


Figure 181 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 3 (October)

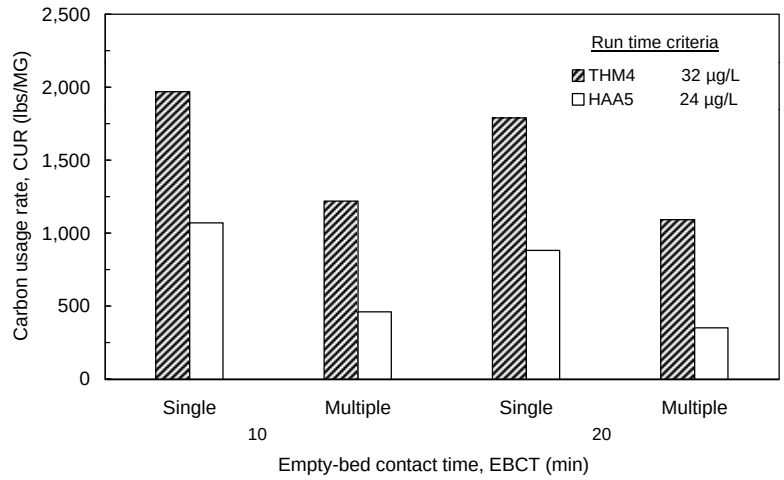


Figure 182 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 3 (October)

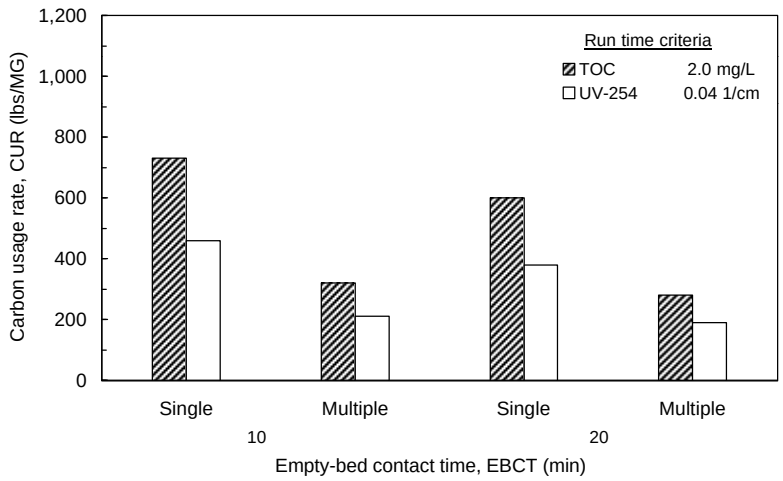


Figure 183 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (high) during session 4 (October-EC)

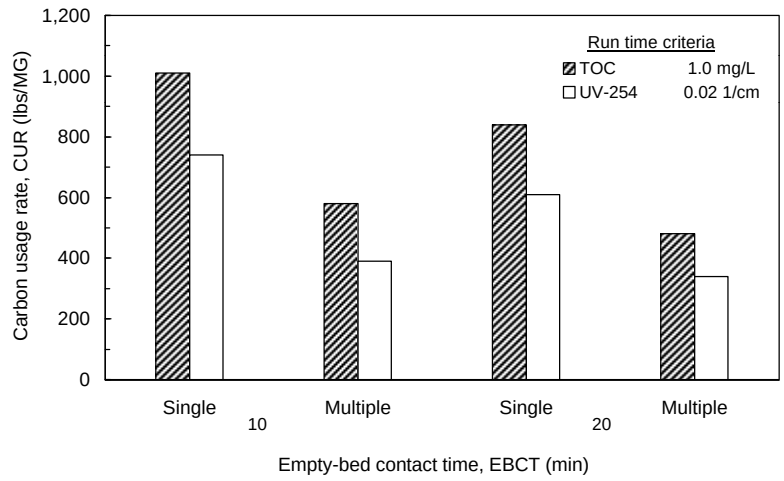


Figure 184 Carbon usage rates based on single contactor breakthrough and effluent blending for TOC and UV-254 effluent criteria (low) during session 4 (October-EC)

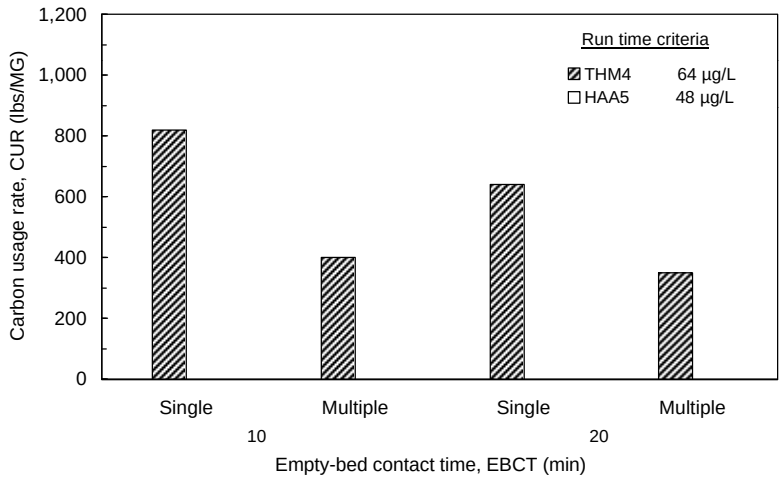


Figure 185 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 1 THM4 and HAA5 effluent criteria during session 4 (October-EC)

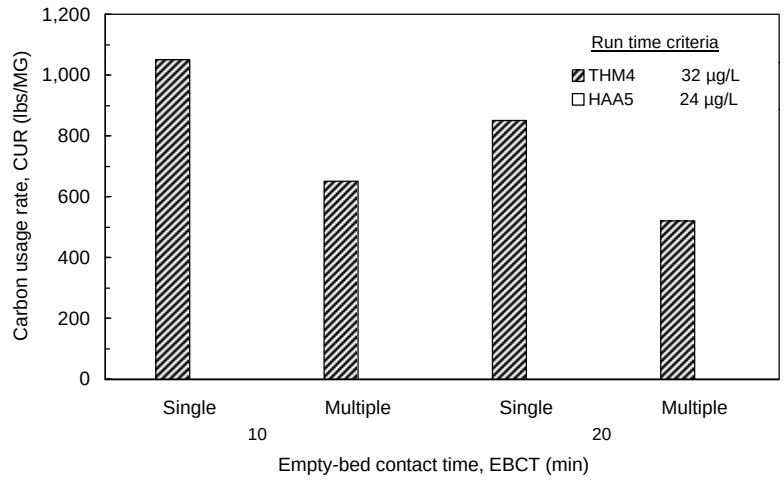


Figure 186 Carbon usage rates based on single contactor breakthrough and effluent blending for Stage 2 THM4 and HAA5 effluent criteria during session 4 (October-EC)

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, such as TOC and UV254, are reliable indicators of DBP precursor breakthrough. An analysis of the extent to which the surrogates can be classified as conservative indicators of specific DBP precursor breakthrough is also useful.

The normalized breakthrough patterns for all parameters (DBP surrogates and SDS-DBPs) for the 10 minute contactor run during the April session are shown in Figure 187. Relatively high initial levels of chlorine demand are present, due mostly to the presence of inorganic chlorine demand. The normalized breakthrough of TOC occurs first, and is matched by the normalized breakthrough of SDS-THM4. At times, normalized SDS-THM4 levels slightly exceed those for TOC. Although not conservative, TOC is a good indicator for SDS-THM4 breakthrough in this case. Breakthrough of normalized UV_{254} occurs later, and serves as a good conservative indicator for the breakthrough of SDS-TOX, SDS-HAA5, and SDS-HAA6. The normalized breakthrough of SDS-HAA9 at times exceeds that of UV_{254}, but it falls below normalized TOC breakthrough. In general, similar patterns were observed for the April session 20 minute EBCT contactor (Figure 188). For the 20 minute EBCT contactor, however, normalized SDS-HAA9 breakthrough matched that for UV_{254} very closely.

During the August session, normalized SDS-THM4 again exceeded that for TOC, especially for the 10 minute EBCT contactor, as shown in Figures 189 and 190. Unlike what was observed during the April session, normalized UV_{254} served as a conservative indicator for SDS-TOX and SDS-HAA breakthrough for both EBCTs. Similar patterns were observed during the October conventional pretreatment run (Figures 191 and 192). The difference in normalized breakthrough between TOC and SDS-THM4 was larger, at about 10 percent, for most of both EBCT runs. For the October enhanced coagulation run (Figures 193 and 194), the difference between normalized TOC and SDS-THM4 breakthrough was reduced, although TOC was not consistently a conservative indicator of SDS-THM4 breakthrough. For both October runs, UV_{254} served as a conservative indicator of all normalized SDS-DBP breakthrough, and was most closely matched by normalized SDS-TOX breakthrough.

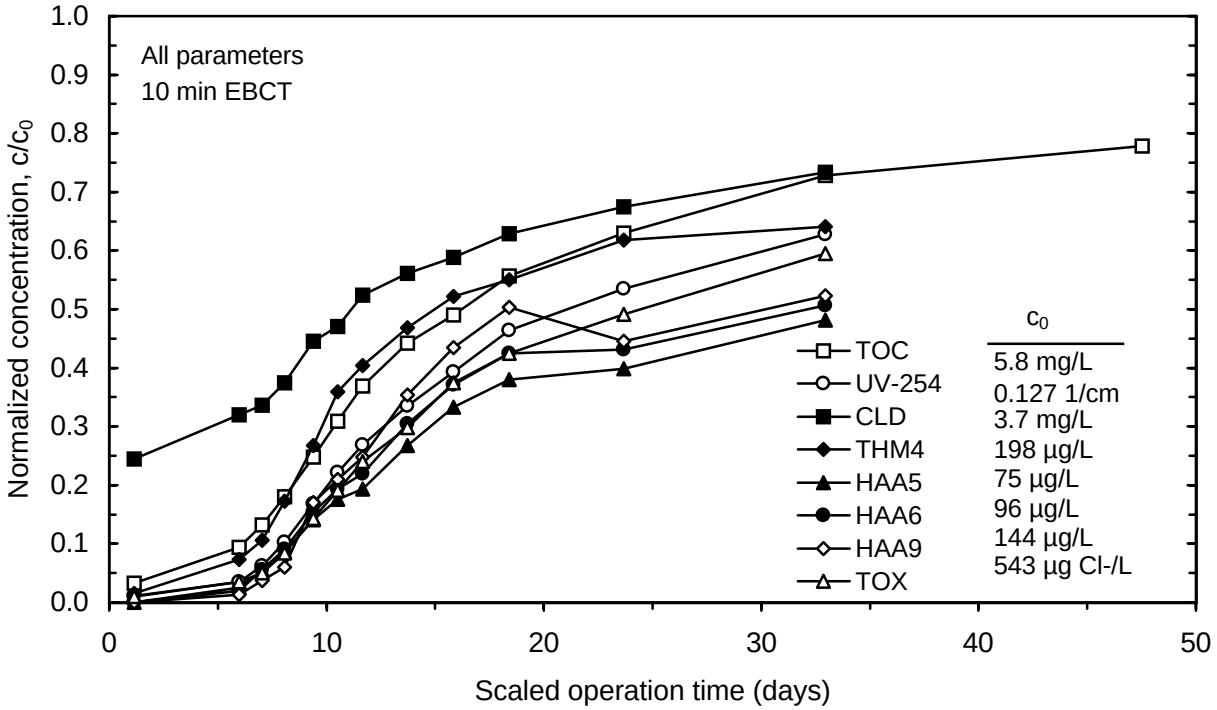


Figure 187 Normalized breakthrough patterns (10 minute EBCT) during session 1, April

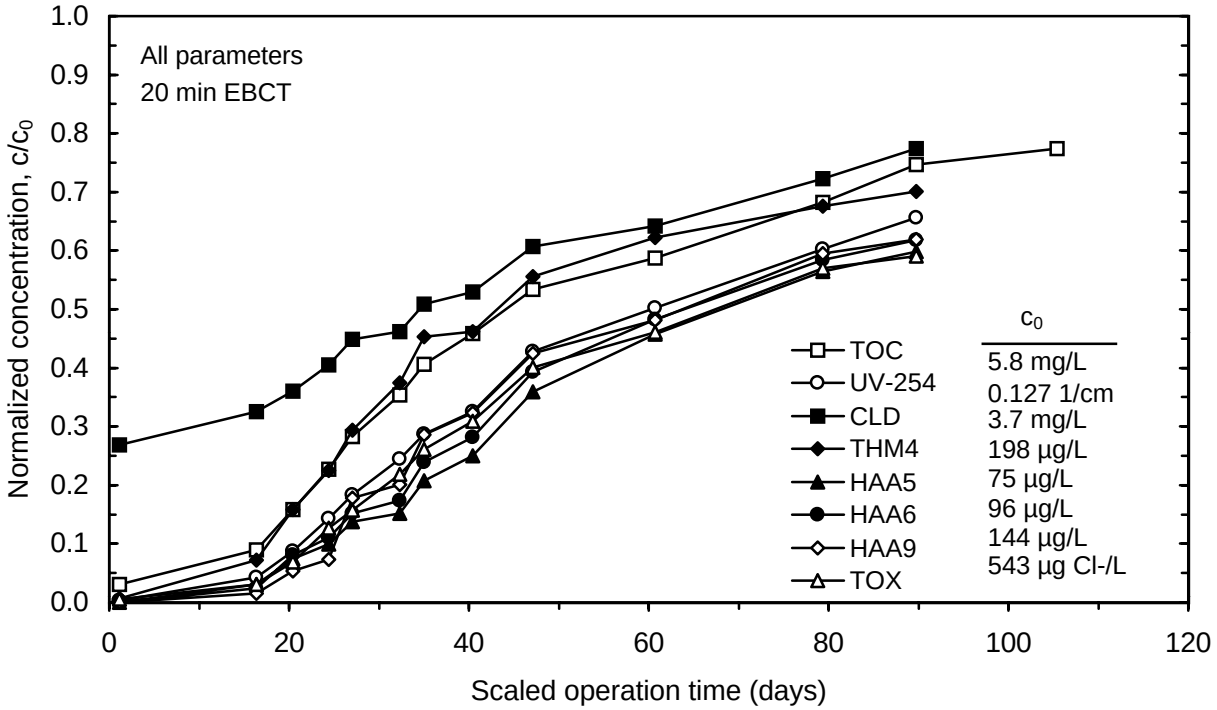


Figure 188 Normalized breakthrough patterns (20 minute EBCT) during session 1, April

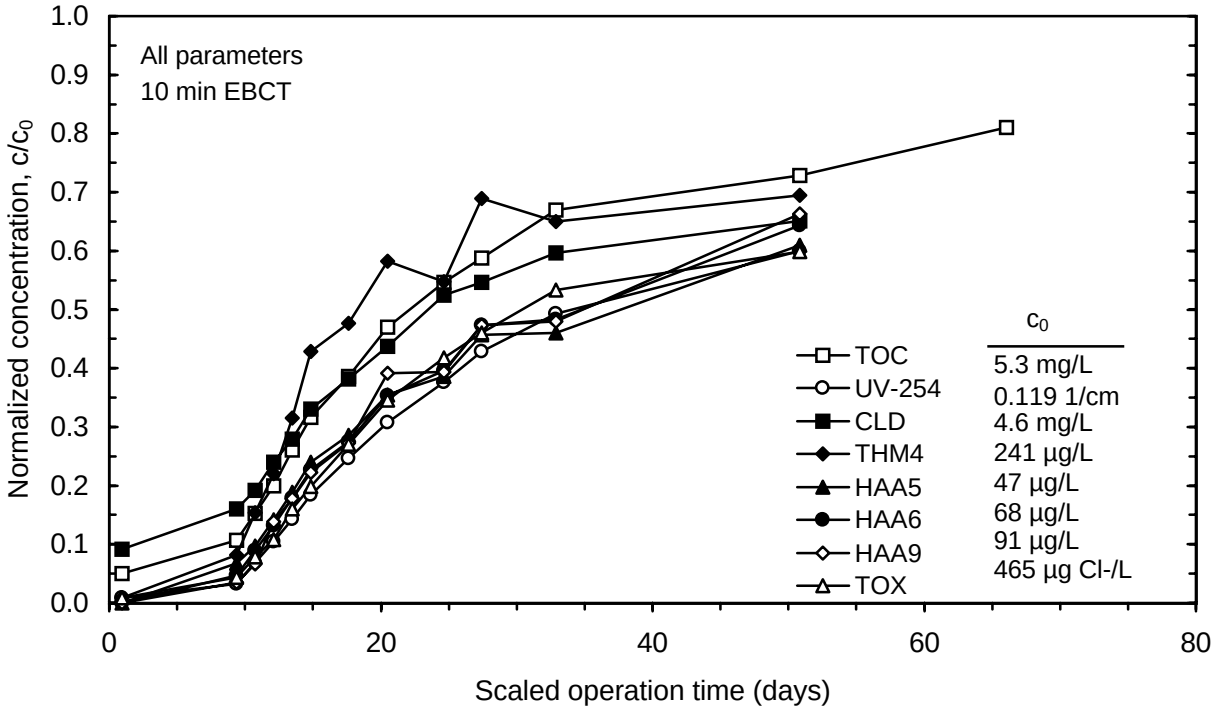


Figure 189 Normalized breakthrough patterns (10 minute EBCT) during session 2, August

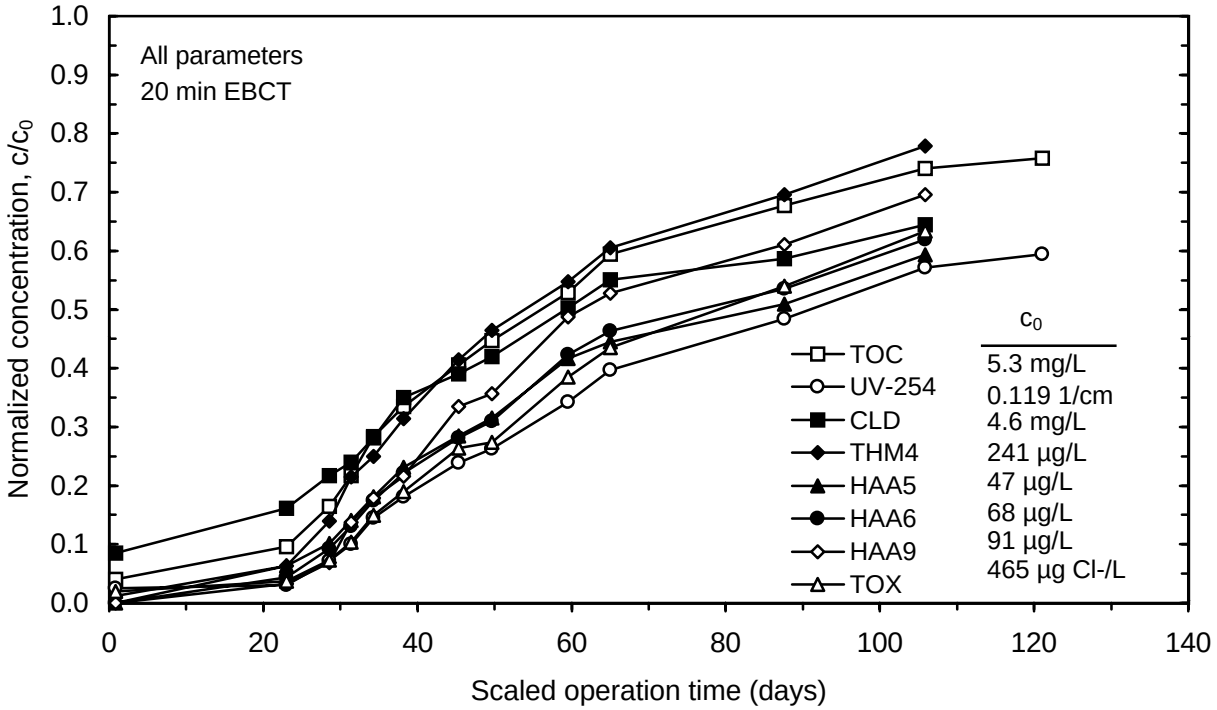


Figure 190 Normalized breakthrough patterns (20 minute EBCT) during session 2, August

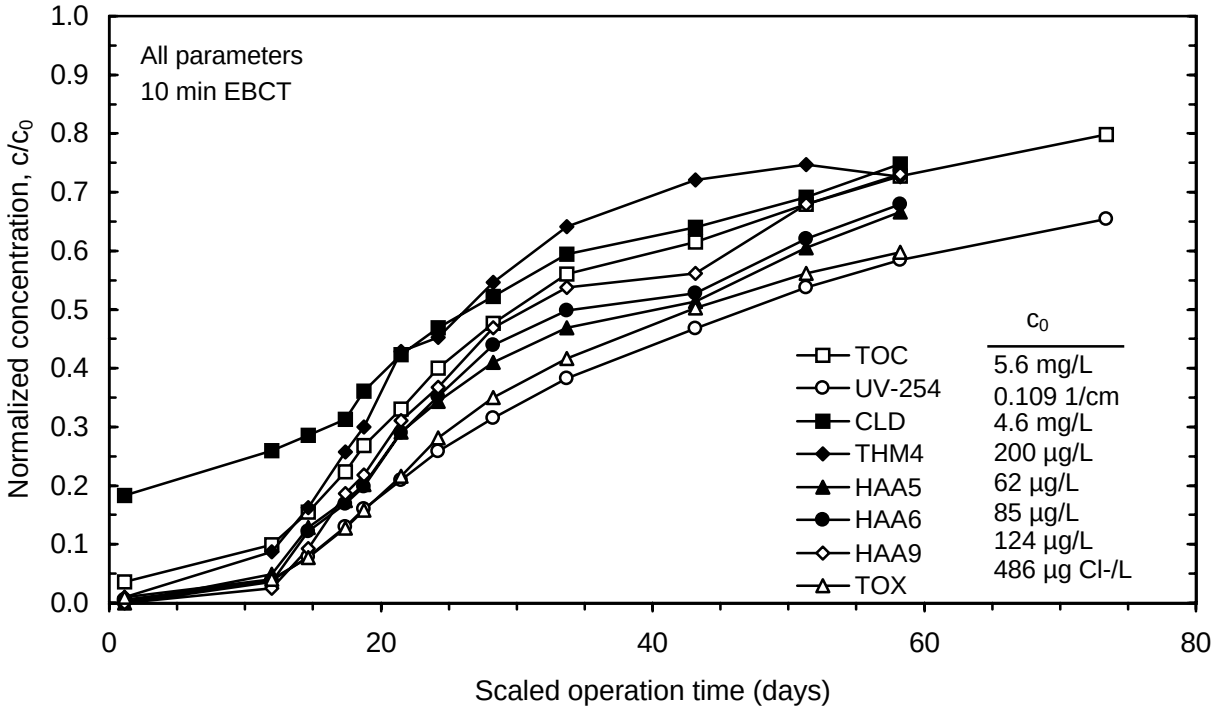


Figure 191 Normalized breakthrough patterns (10 minute EBCT) during session 3, October

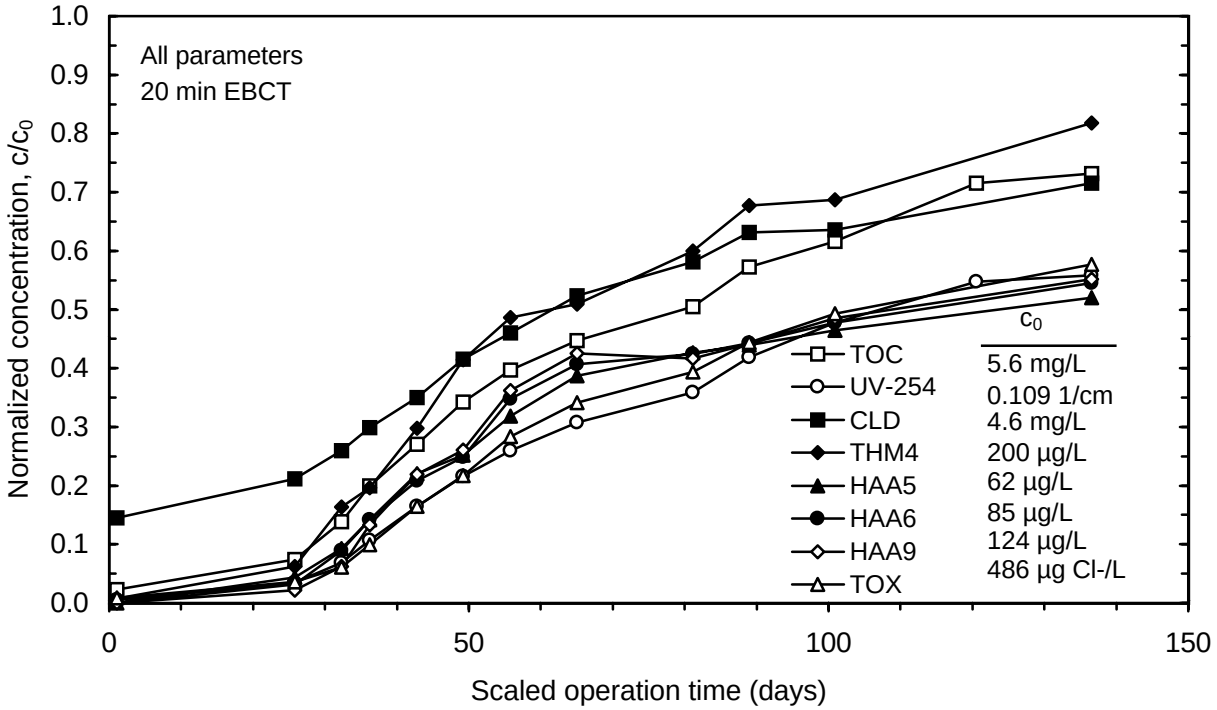


Figure 192 Normalized breakthrough patterns (20 minute EBCT) during session 3, October

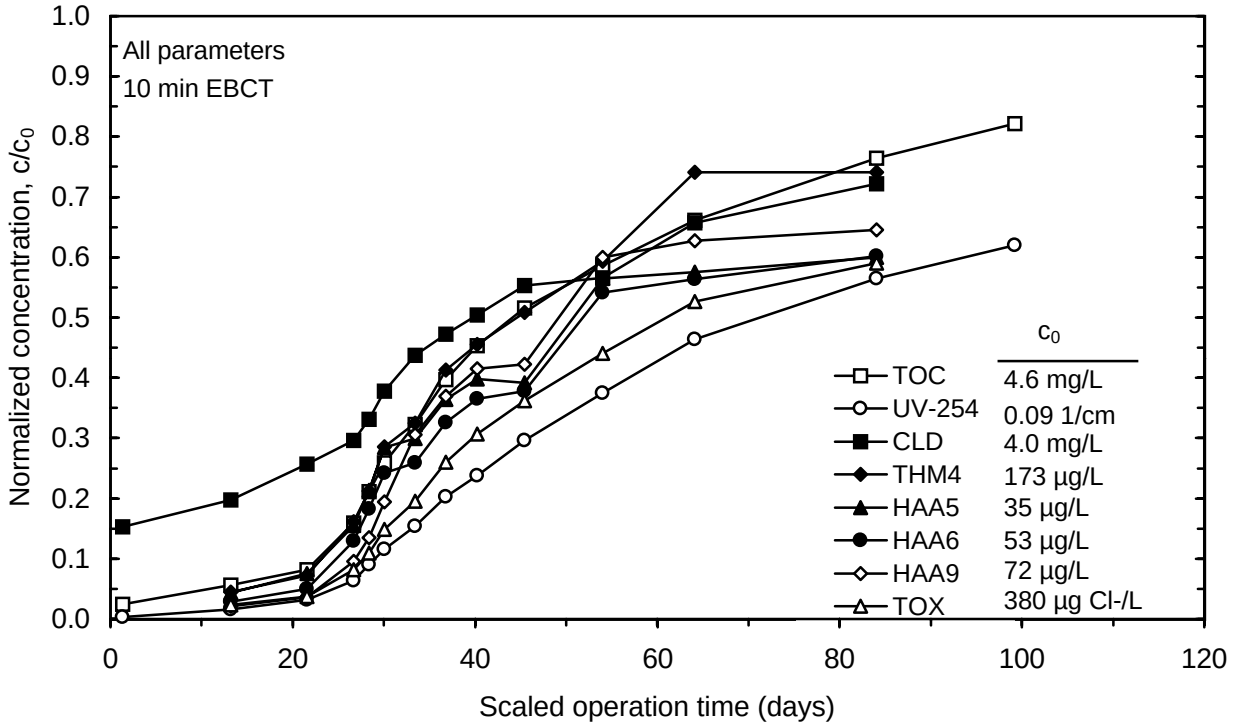


Figure 193 Normalized breakthrough patterns (10 minute EBCT) during session 4, October-EC

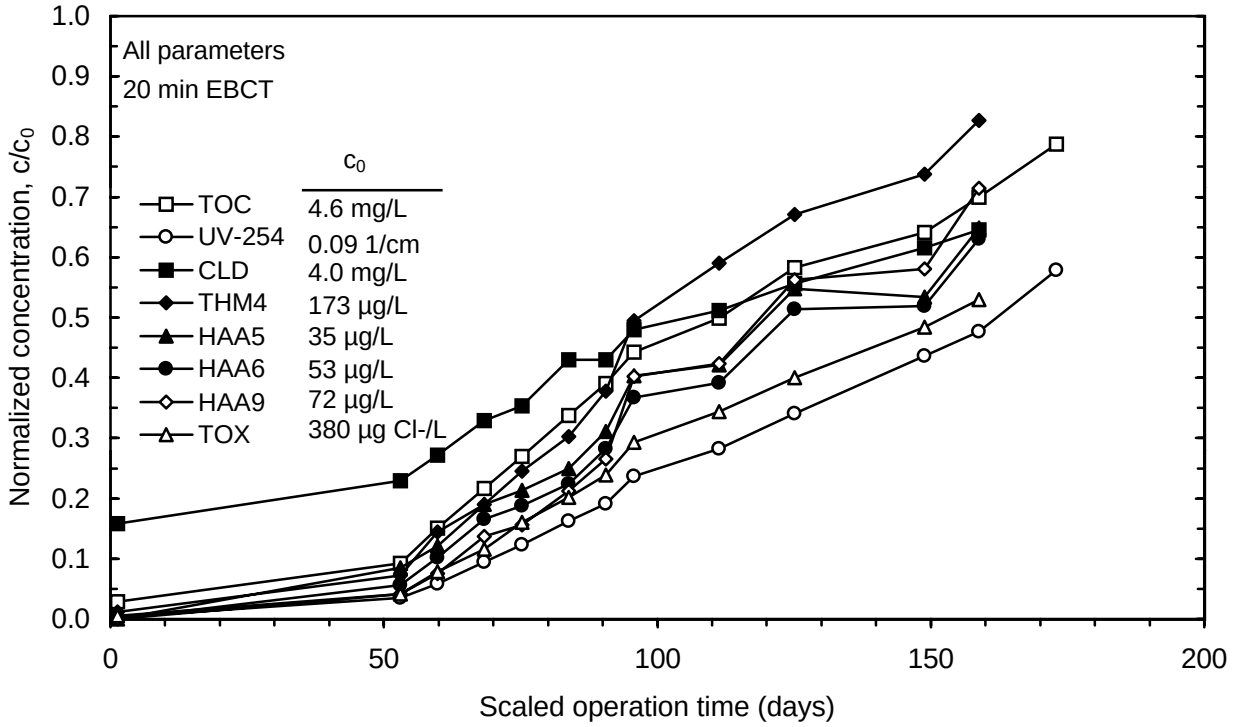


Figure 194 Normalized breakthrough patterns (20 minute EBCT) during session 4, October-EC

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 (fraction breakthrough) basis. These plots are summarized in Figures 195 through 198. Both EBCTs evaluated and all sessions are presented on the same plots. In general, TOC and UV_{254} served as good predictors of GAC effluent DBP formation regardless of season, EBCT, or pretreatment. The graphs summarized in Figure 195 show that the correlation between TOC and SDS-THM4 during the August session yielded slightly higher levels of formed THM4 per mg TOC. There was no apparent impact of EBCT on the correlation between TOC and SDS-DBPs. There was no discernable impact of pretreatment on the levels of SDS-THM4 formed per mg TOC. However, a slight decrease in SDS-HAA formation per mg TOC was evident after enhanced coagulation pretreatment during the October run. The control of SDS-HAA precursors relative to TOC likely improved after enhanced coagulation pretreatment. Similar results were observed for the correlations between UV_{254} and SDS-DBPs, shown in Figure 196. Although SDS-THM4 formation correlated to UV_{254} was not higher during the August session, the April session yielded a lower SDS-THM4 yield based on UV_{254}. Correlations based on GAC effluent SDS-TOX against SDS-THM4 and SDS-HAA are shown in Figure 197.

In the paired normalized concentration data plots shown in Figures 198 and 199, 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 fraction breakthrough of the surrogate parameter (TOC or UV_{254}) directly predicts the fraction breakthrough of the formed DBP (data falls on the line), serves as a conservative indicator of the formed DBP breakthrough (data falls below the line), or underpredicts the breakthrough of the formed DBP (data falls above the line). For SDS-THM4, TOC served as a direct predictor until 30 percent SDS-THM4 breakthrough was reached, after which TOC slightly underpredicted SDS-THM4 breakthrough. TOC was a conservative indicator for the formation SDS-HAA and SDS-TOX. In general, UV_{254} under predicted the percent DBP breakthrough of SDS-THM4 and SDS-HAA (Figure 199). UV_{254} served as a good direct predictor of SDS-TOX breakthrough. Correlated to normalized UV_{254}, formed DBPs during the April session seemed to show slightly lower normalized levels. There was not a detectable impact of pretreatment on the correlation between normalized SDS-DBPs and TOC or UV_{254}. Correlations based on GAC effluent normalized SDS-TOX against normalized SDS-THM4 and SDS-HAA are shown in Figure 200.

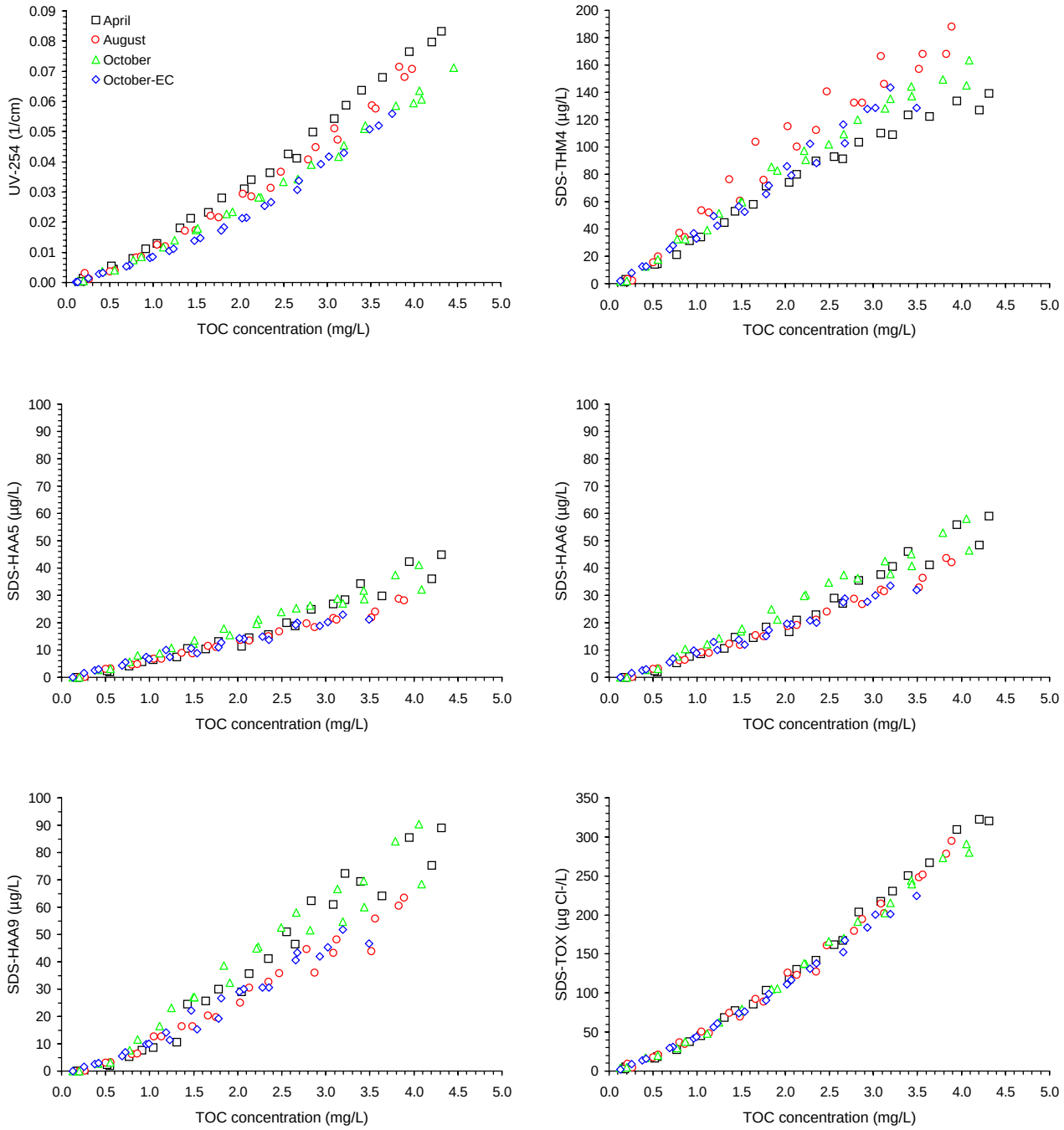


Figure 195 Correlation based on GAC effluent TOC concentration for both 10 and 20 minute EBCT contactors and all sessions

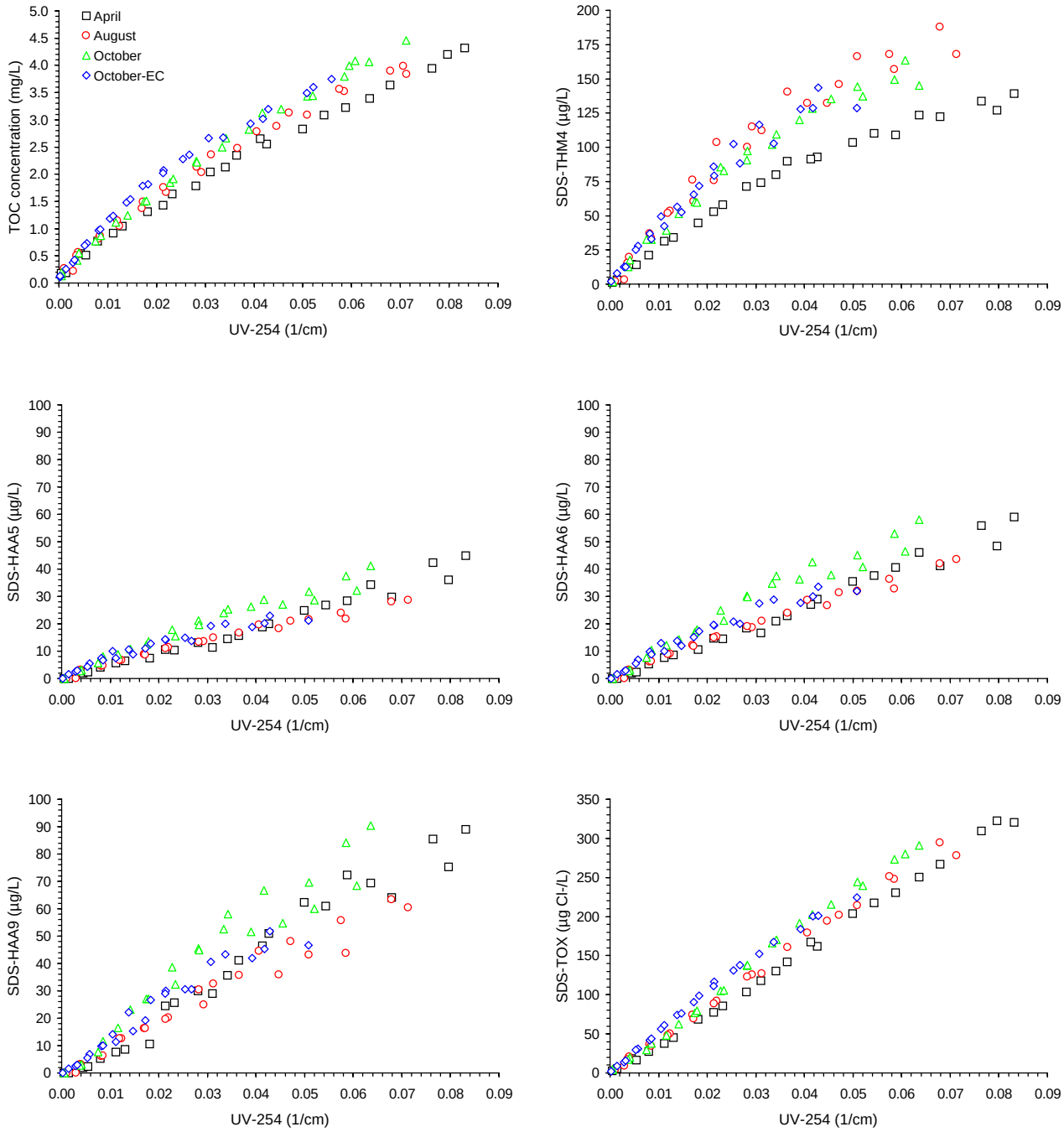


Figure 196 Correlation based on GAC effluent UV-254 for both 10 and 20 minute EBCT contactors and all sessions

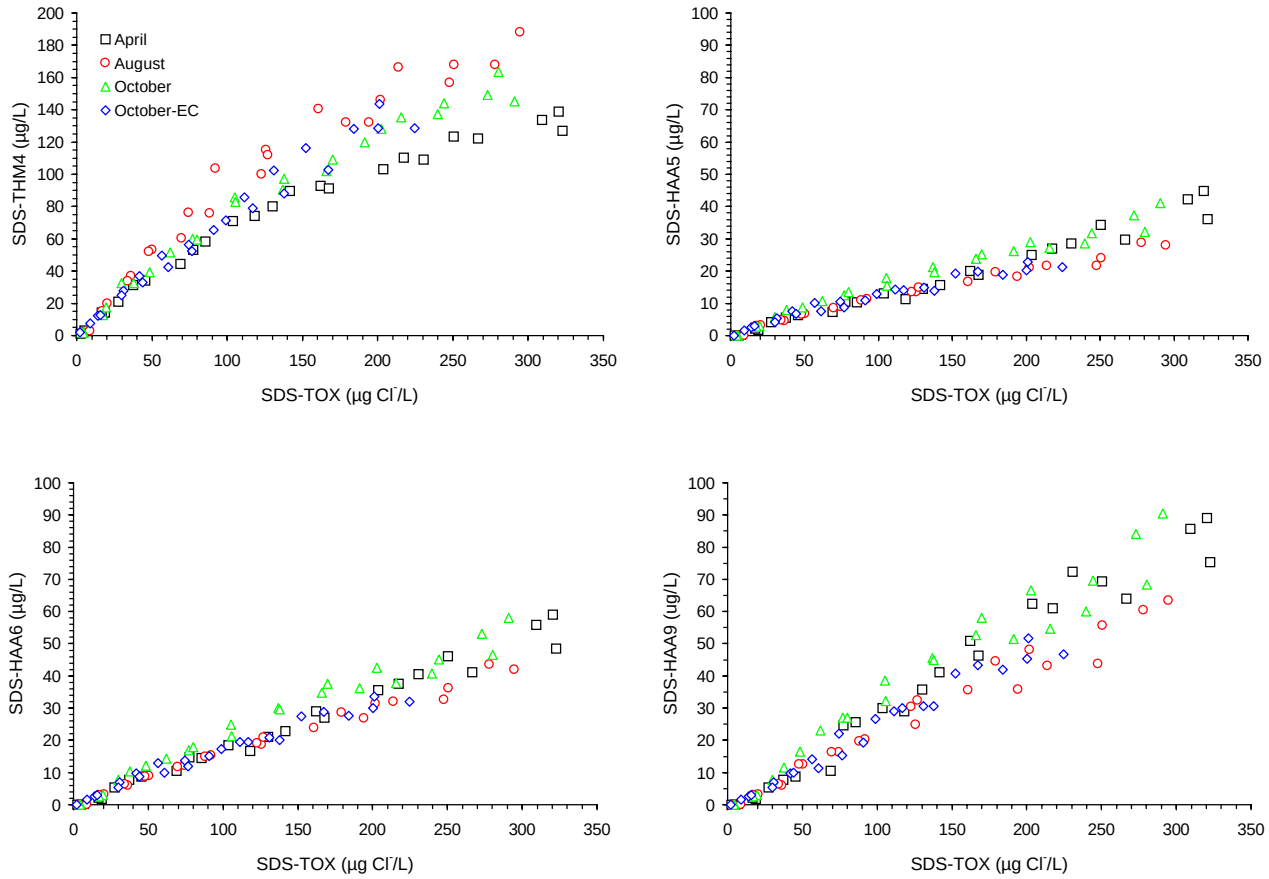


Figure 197 Correlation based on GAC effluent SDS-TOX for both 10 and 20 minute EBCT contactors and all sessions

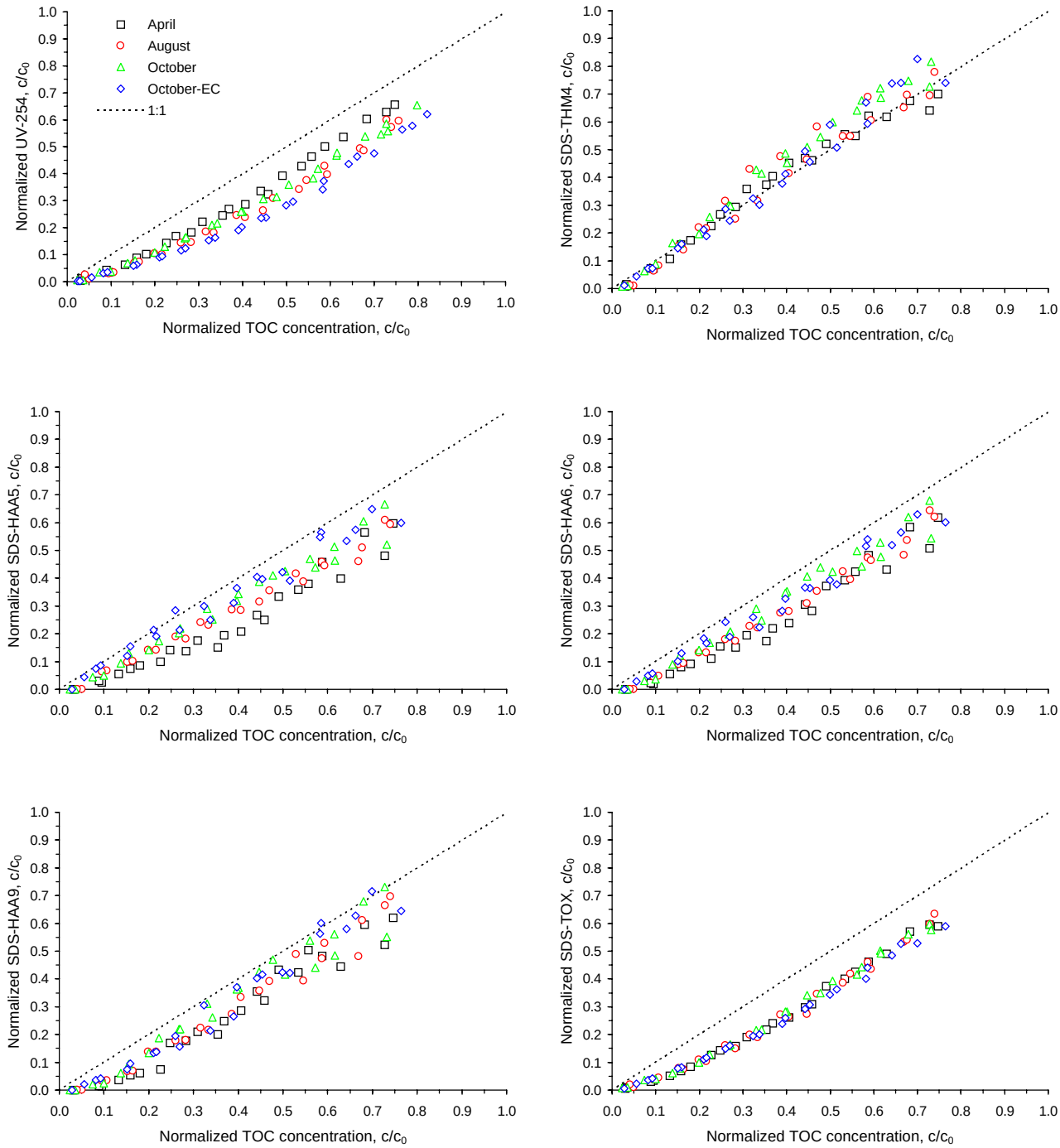


Figure 198 Correlation based on normalized GAC effluent TOC concentration for both 10 and 20 minute EBCT contactors and all sessions

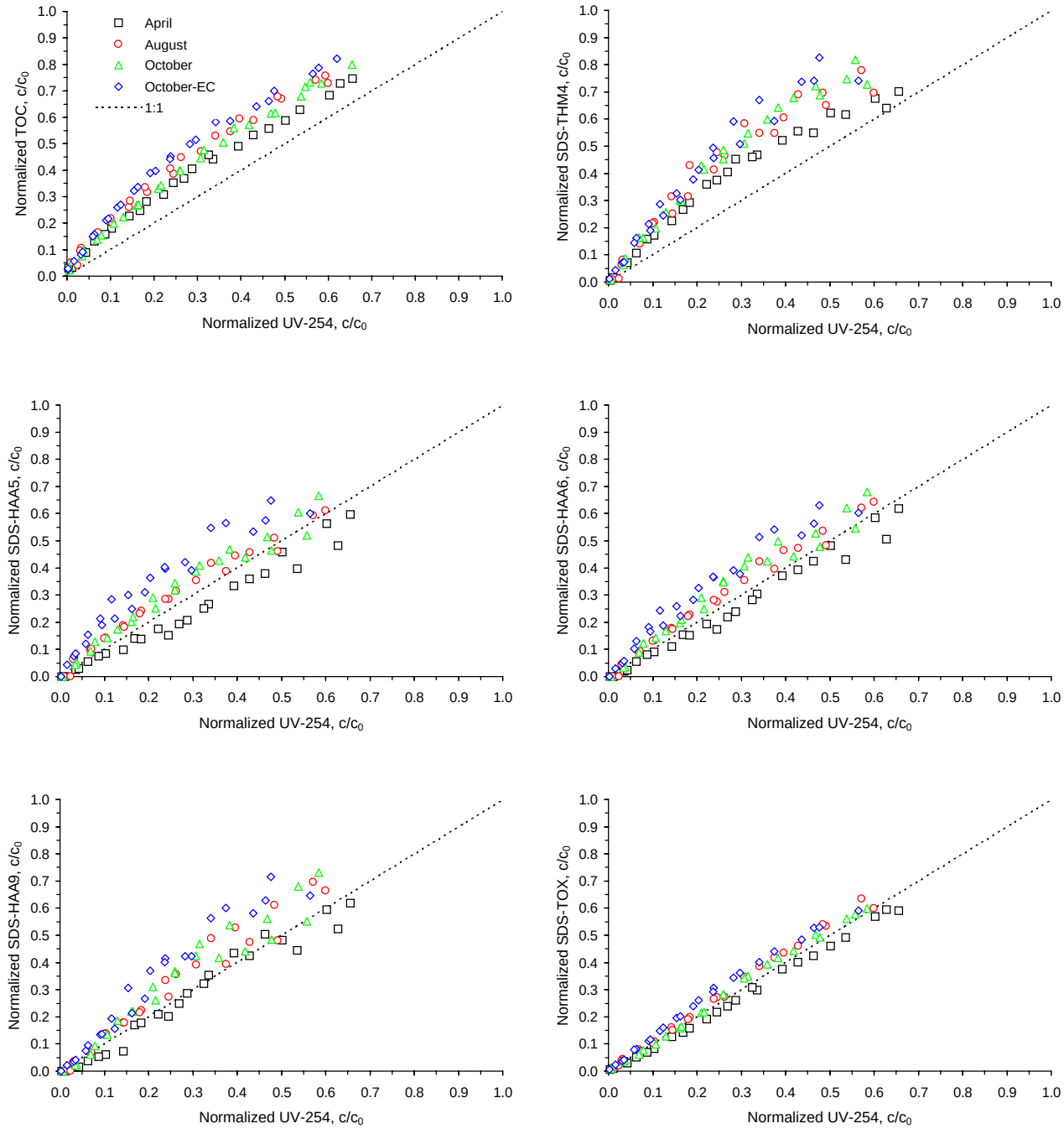


Figure 199 Correlation based on normalized GAC effluent UV-254 for both 10 and 20 minute EBCT contactors and all sessions

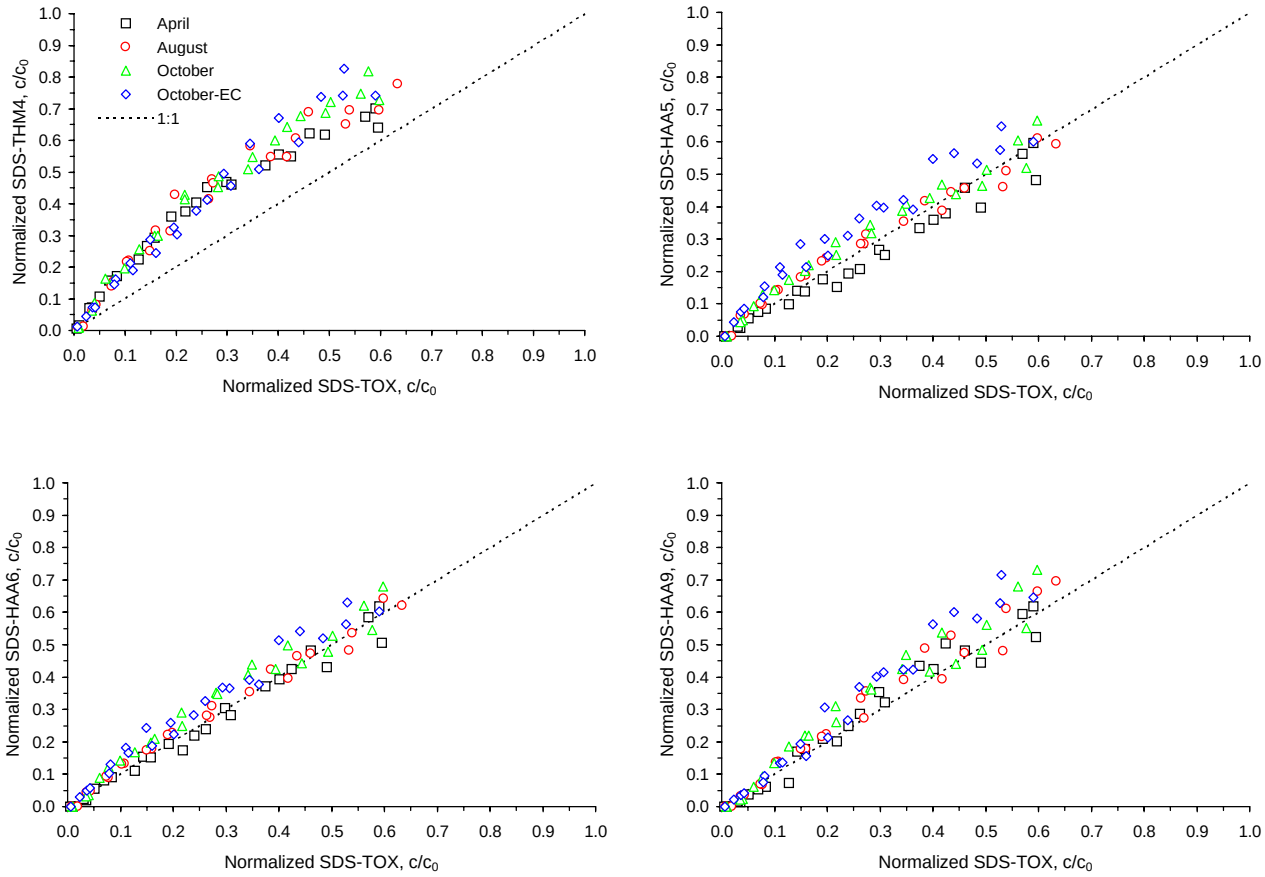


Figure 200 Correlation based on normalized GAC effluent SDS-TOX for both 10 and 20 minute EBCT contactors and all sessions

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 Robert A. Perdue Water Treatment Plant water source pretreatment can be evaluated. The correlation is given by the following equation:

$$BV_{50} = \frac{18{,}000}{TOC_0} \tag{9}$$

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 201. The performance of an average water (based on over 20 source waters for which the correlation was developed) is given by the dashed line, which represents Equation 9. Figure 201 shows that in general, GAC performance was close to that predicted by Equation 9.

For the three seasonal sessions evaluating GAC performance after conventional pretreatment, the BV_{50} value ranged from 2,330 to 4,290 bed volumes (mean 3,270 bed volumes) for 10 minute EBCT contactors. Based on the influent TOC concentrations of each of the three sessions, Equation 9 predicts an average BV_{50} of 3,250 bed volumes. Therefore, average GAC run times averaged about as would be expected for the 10 minute EBCT contactor.

For the 20 minute EBCT contactor runs the BV_{50} ranged from 3,170 to 5,740 bed volumes (mean 4,320 bed volumes) during the three seasonal sessions. The average was about 33 percent longer than expected, based on the correlation results. Thus, GAC performance improved for a 20 over a 10 minute EBCT contactor.

After enhanced coagulation pretreatment, the BV_{50} increased by 48 and 40 percent for the 10 and 20 minute EBCT contactors, respectively, as compared to BV_{50} values measured after conventional pretreatment. This increase can be attributed in large part to the 18 percent decrease in influent to GAC TOC concentration and 12 percent decrease in pH after enhanced coagulation. However, by using Equation 9, the BV_{50} values for the two pretreatment runs can be compared in a way that accounts for the difference in TOC concentration. For the 10 minute EBCT contactors, the BV_{50} measured after conventional treatment during the October run was 4,290 bed volumes, 33 percent higher than that expected based on the influent to GAC TOC concentration. After enhanced coagulation, the measured BV_{50} was 6,350 bed volumes, 61 percent higher than expected. The measured BV_{50} values for the 20 minute EBCT contactors were 78 and 103 percent higher than expected for conventional and enhanced coagulation pretreatment, respectively. Therefore, even after accounting for the differences in influent TOC concentration, the enhanced coagulation pretreatment GAC runs outperformed the conventional pretreatment runs by this measure. The lower pH measured after enhanced coagulation and maintained in the influent to GAC likely contributed to the improvement in GAC performance.

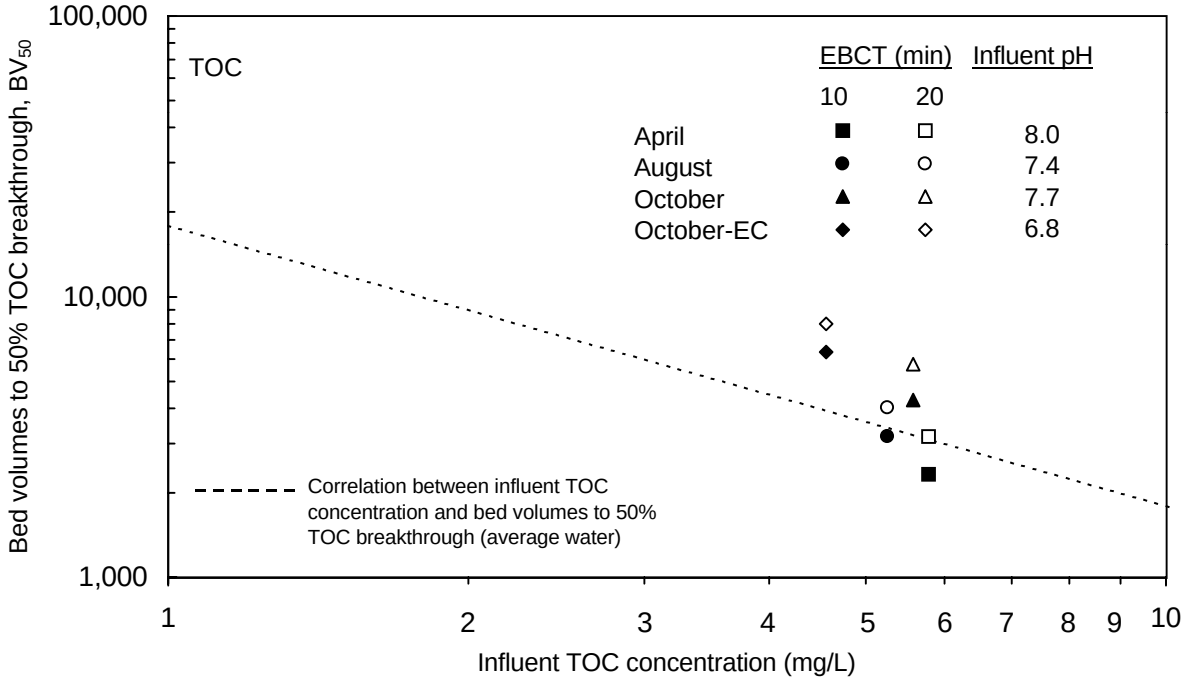


Figure 201 Comparison between GAC performance during treatment study testing and average water GAC performance

15 *Cost Information and Analysis*

15 Cost Information and Analysis

A comparative 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 steel pressure contactors and were determined in cents/1,000 gal and $/acre-ft for both capital and operations and maintenance (O&M) costs. Based on the maximum plant capacity of 28 MGD, 11 steel pressure contactors were required (20-ft diameter). Although plant production varies throughout the year, an average of 15.5 MGD was used for modeling purposes. The economic input data to the model are summarized in Table 63.

On-site GAC reactivation was assumed. An average reactivation cost was determined based on reactivation by fluidized bed, infrared, and multihearth technologies. Total costs reflect an average of reactivation costs by the three technologies: individual costs for each reactivation technology are not reported.

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 estimated capital costs are based on the economic input values, EBCT, type of contactor, and spent carbon reactivation demand. A cost of 90 cents/lb GAC was assumed. The O&M costs are determined based on the service life of each contactor, assuming operation of multiple contactors in parallel, staggered mode. Relative to the placeholders for Stage 2 DBP MCLs, THM4 formation was much higher than HAA5 formation, and thus run time calculations are based on blended effluent SDS-THM4 levels. The service life input into the model was the run time to the placeholder for Stage 2 THM4 MCL, 32 µg/L (with a 20 percent safety factor). Table 64 summarizes the estimated run times to comply with the placeholder for Stage 2 THM4 MCLs.

Table 65 summarizes the GAC cost analysis results. Capital, O&M, and total costs are included for all runs. The costs are given in cents/1,000 gallons water treated. The impact of seasonal variability on GAC performance after conventional pretreatment can be seen in the difference in costs between the April, August, and October sessions for equivalent EBCTs. For example, the total costs for GAC treatment with 10 minute EBCT contactors based on the April session results was 83 cents/1,000 gal (271 $/acre-ft). The August costs were 74 cents/1,000 gal (240 $/acre-ft), while the October costs decreased to 50 cents/1,000 gal (163 $/acre-ft).

The results for the April session showed that the total costs for GAC treatment at the two EBCTs were equivalent, at 83 cents/1,000 gal (271 $/acre-ft). Although the capital costs associated with a 20 minute EBCT contactor are higher, the extended run time to placeholder Stage 2 THM4 MCLs increased, reducing O&M costs. During the remaining sessions, the total costs for GAC treatment were lower for a 10 minute EBCT contactor than for a 20 minute EBCT contactor, as the increased capital costs associated with the larger contactor were greater in magnitude than the O&M savings due to longer times between GAC reactivation.

A bar graph comparison of capital, O&M, and total costs for the three seasonal variability runs is shown in Figure 202 for 12 steel pressure contactors in parallel. The error bars shown represent the standard deviation calculated from the costs of each of the three sessions evaluating seasonal variability. This model assumed and included the costs for on-site GAC reactivation; off-site reactivation may be more cost-effective depending on the location and charges associated with a regional reactivation facility.

Figure 203 shows the impact of enhanced coagulation pretreatment on the total costs for GAC treatment. These costs do not include the cost of additional chemical addition or sludge removal during coagulation. The data are also summarized in Table 65. After enhanced coagulation pretreatment, the total costs for GAC treatment decreased by 24 percent, from 50 to 38 cents/1,000 gal (163 to 124 $/acre-ft), for a 10 minute EBCT contactor. For a 20 minute EBCT contactor, the decrease in GAC treatment costs was similar, 20 percent.

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	5,986 (March 1999)
Producers Price Index (PPI base year 1967=100) and date	370 (January 1999)
Labor rate + fringe ($/manhour)	15
Labor overhead factor (% of labor)	10
Electric rate ($/kWh)	0.08
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 63 Economic input data to cost model

Session	EBCT (min)	Run time (days) for contactor configuration	
		Single	Multiple (more than 10)
April	10	8	13
	20	21	35
August	10	10	16
	20	28	42
October	10	15	24
	20	32	53
October (Enh coag)	10	27	45
	20	32	111

Table 64 Summary of GAC run times to meet the placeholders for Stage 2 MCLs

Session	EBCT (min)	Costs					
		Capital		O&M		Total	
		cents/ 1,000 gal	$/acre-ft	cents/ 1,000 gal	$/acre-ft	cents/ 1,000 gal	$/acre-ft
April	10	40	131	43	140	83	271
	20	49	160	34	111	83	271
August	10	37	122	36	118	74	240
	20	47	154	29	96	77	250
October	10	24	78	26	85	50	163
	20	36	118	25	80	61	198
October (Enh coag)	10	21	70	16	54	38	124
	20	34	110	15	48	48	158

Table 65 Summary of GAC adsorption costs for compliance with the placeholders for Stage 2 MCLs

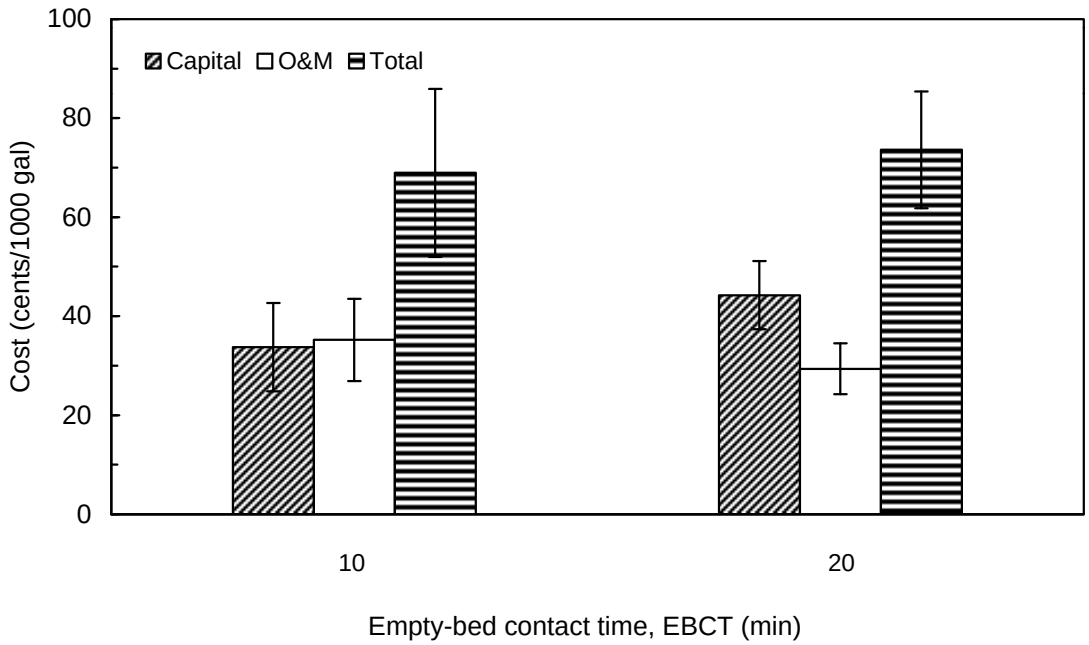


Figure 202 Average costs for GAC adsorption after conventional coagulation pretreatment with steel pressure contactors and on-site reactivation

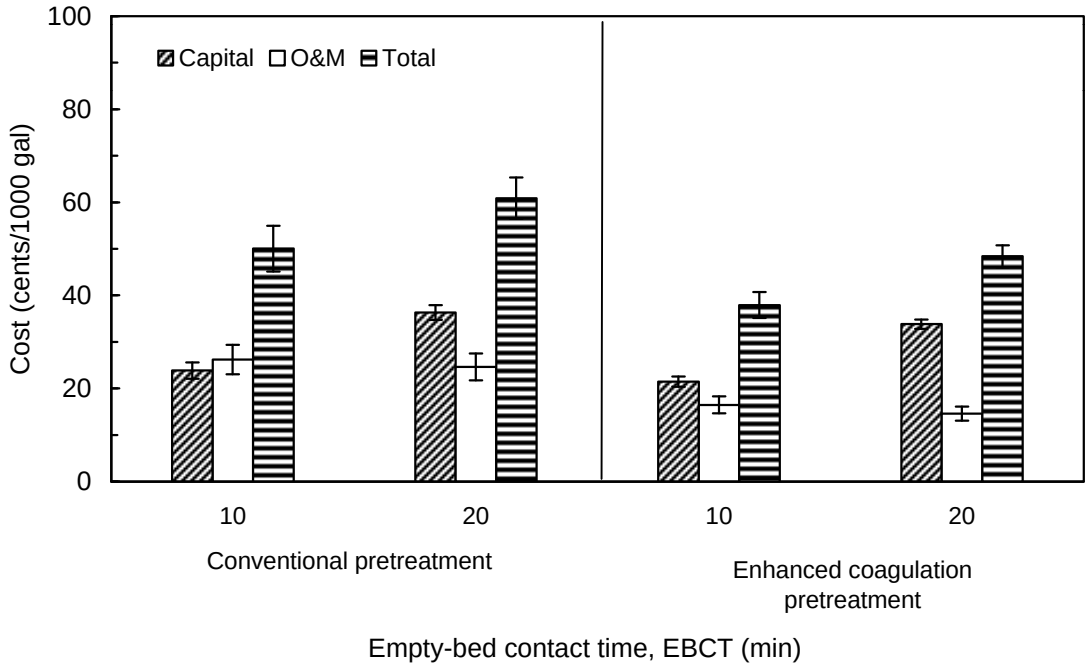


Figure 203 Impact of enhanced coagulation on costs for GAC adsorption with steel pressure contactors and on-site reactivation during the October session

16 *Summary of Significant Results*

16 Summary of Significant Results

Based on compliance with Stage 1 or the placeholders for Stage 2 DBP MCLs, the formation of THM4 was the controlling parameters for determining GAC reactivation frequencies. During all runs, the Stage 1 or placeholder for Stage 2 MCL for THM4 was exceeded prior to that for HAA5. To meet the Stage 1 MCL for THM4 (64 µg/L with a 20 percent safety factor), GAC run times ranged from 10 to 19 days for 10 minute EBCT contactors and 29 to 44 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, GAC run times to meet Stage 1 MCLs ranged from 22 to 37 days using 10 minute EBCT contactors. For 20 minute EBCT contactors, run times ranged from 59 to 87 days. Run times to meet the placeholder for Stage 2 THM4 MCL (32 µg/L with a 20 percent safety factor) ranged from 13 to 24 days for 10 minute EBCT contactors and 35 to 53 days for 20 minute EBCT contactors.

The total costs for GAC treatment were estimated using an EPA model, which included capital and O&M costs, based on GAC reactivation frequencies. For 10 minute EBCT contactors operated in parallel staggered mode, the estimate for total costs for GAC treatment ranged from 50 to 83 cents/1,000 gal (163 to 271 $/acre-ft). For 20 minute EBCT contactors operated in parallel staggered mode, total costs ranged from 61 to 83 cents/1,000 gal (198 to 271 $/acre-ft). The costs were high due to the relatively short reactivation frequencies. The costs for 20 minute EBCT contactors were higher due to the higher capital costs associated with the larger contactors.

In addition to the three RSSCT sessions designed to evaluate seasonal variability, the impact of enhanced coagulation pretreatment on GAC performance was investigated. This study was conducted in parallel with the third seasonal variability session, and followed ICR protocol. The design and operation of the enhanced coagulation pretreatment RSSCTs allowed for a direct comparison between DBP precursor removal by GAC after conventional and enhanced coagulation. The plant ferric chloride dose during the third session was 16 mg/L; based on jar testing results, the enhanced coagulation dose was determined as 25 mg/L sulfuric acid and 30 mg/L ferric chloride. Conventional and enhanced coagulation yielded 11 and 28 percent TOC removal, respectively, and the pH decreased from 7.7 to 6.8. Due to the lower influent TOC concentration and influent pH, GAC performance for DBP precursor removal was expected to improve, leading to longer run times. GAC run times to the placeholders for Stage 2 THM4 MCL increased by 88 and 109 percent for 10 minute EBCT and 20 minute EBCT contactors, respectively. The total costs for GAC treatment were 38 cents/1,000 gal (124 $/acre-ft) using 10 minute EBCT contactors, and 48 cents/1,000 (158 $/acre-ft) using for 20 minute EBCT contactors. These costs represent an average 22 percent decrease over the costs for GAC adsorption after conventional treatment. The cost estimates do not include the costs due to additional chemical doses and sludge removal during coagulation.

For the conventionally treated waters and 10 minute EBCT contactors, GAC performance based on BV_{50} values was similar to that for an average water. At a 20 minute EBCT, BV_{50} values averaged 33 percent higher than predicted. After enhanced coagulation, GAC performance by

this measure improved greatly: BV_{50} values were 61 and 103 higher than average for the 10 minute and 20 minute EBCT contactor, respectively. The lower influent pH values likely contributed to the improvement in GAC performance by this measure.

The bromide concentrations measured during this study ranged from 200 to 335 µg/L, which is relatively high. These high bromide levels can yield higher concentrations of brominated DBP species, because of the high bromide to TOC ratio. In addition, 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 bromoform, the formed concentrations in the effluent were measured higher than that formed in the influent. 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.

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, UV_{254}, and 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 in a few cases normalized SDS-THM4 breakthrough exceeded that for TOC. However, TOC served as a conservative indicator of normalized SDS-HAA and SDS-TOX breakthrough. UV_{254} typically served as either a conservative or direct indicator 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 66.

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 (EPA Method 552.2)

An initial calibration curve is extracted and analyzed for each set of samples to be analyzed for haloacetic acids. The concentrations of each of the levels of aqueous calibration standards are given in Table 67.

Level 1 represents concentrations near the MDL for each analyte. The concentrations of the remaining levels define the working range of the detector. Levels 5 and 6 are specified by the *DBP/ICR Analytical 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 seven 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 seven calibration extracts. The curve is defined as first order; correlation coefficients must be greater than 0.9900.

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 68.

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 DBP/ICR Analytical Methods Manual to be used as continuing calibration checks.

Each analysis run is started with a 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 (2.0-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	1.0	0.4	0.8	1.2
UV-254	24	1.2	0.2	0.5	1.2
pH	24	0.4	0.2	0.4	0.6
Temperature	24	0.2	0.0	0.0	0.4
SDS-TOX	24	2.2	0.4	1.9	3.9
SDS-THM4	24	3.8	2.3	3.4	5.2
SDS-HAA5	24	12.3	7.9	10.9	15.3
SDS-HAA6	24	11.4	7.3	9.8	14.9
SDS-HAA9	24	12.4	6.2	10.2	13.8
SDS-chlorine residual	24	6.4	2.4	4.8	7.7
THM Species					
SDS-$CHCl_3$	16	6.1	3.9	5.1	8.1
SDS-BDCM	24	3.5	1.3	2.1	5.2
SDS-DBCM	23	4.6	2.6	4.1	5.7
SDS-$CHBr_3$	24	3.7	1.5	3.6	5.2
HAA Species					
SDS-MCAA	0	NA	NA	NA	NA
SDS-DCAA	20	8.8	3.3	7.1	14.2
SDS-TCAA	13	28.3	8.4	13.3	20.4
SDS-MBAA	1	2.6	NA	NA	NA
SDS-DBAA	24	12.7	8.0	11.1	14.8
SDS-BCAA	23	9.4	4.8	7.6	15.2
SDS-TBAA	13	22.6	4.8	8.6	11.4
SDS-CDBAA	18	19.8	4.2	7.9	16.1
SDS-DCBAA	18	11.5	3.6	9.3	20.5

RPD: relative percent difference
NA: not applicable

Table 66 Summary of field duplicate precision for both EBCTs and all sessions

Level	Concentration (µg/L)
1	0.5
2	1.0
3	2.0
4	4.0
5	20.
6	40.
7	80.

Table 67 Haloacetic acid aqueous calibration standard concentrations (EPA Method 552.2)

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

Table 68 Trihalomethane aqueous calibration standard concentrations (EPA Method 551.1)

18 *References*

18 References

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Appendix A: Summary of Treatment Study Data

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #1

Client: Sweetwater Authority **Study#:** 114

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)
Effluent C	**EBCT:** 10 min	**Carbon Type:** Bituminous	**Influent pH:** 7.97	**Scaling Factor:** 9.44																	
1	9805-288	114.10.Eff-1	5/14/98 19:22	5/14/98 22:46		0.12	1	0.19	0.001	23.0	8.4	1.70	0.79	0.91	18.3	8.07	23.6				
2	9805-304	114.10.Eff-5	5/15/98 7:36	5/15/98 11:10		0.63	6	0.55	0.004	21.4	8.3	1.91	0.72	1.19	18.3	8.00	23.6				
3	9805-306	114.10.Eff-6	5/15/98 11:10	5/15/98 13:00		0.75	7	0.77	0.008	21.7	8.2	2.02	0.77	1.25	18.3	7.98	23.7				
4	9805-308	114.10.Eff-7	5/15/98 13:00	5/15/98 16:21		0.85	8	1.06	0.013	22.8	8.2	2.17	0.76	1.41	18.3	7.96	23.7				
4d	9805-309	114.10.Eff-7d	5/15/98 13:00	5/15/98 16:21		0.85	8	1.03	0.013	22.9	8.2	2.16	0.78	1.38	18.3	7.96	23.7				
5	9805-315	114.10.Eff-8	5/15/98 16:21	5/15/98 19:42		0.99	9	1.43	0.021	23.9	8.2	2.36	0.70	1.66	18.3	7.93	23.7				
6	9805-316	114.10.Eff-9	5/15/98 19:42	5/15/98 22:09		1.11	11	1.79	0.028	23.4	8.2	2.54	0.79	1.75	18.3	8.05	23.7				
7	9805-317	114.10.Eff-10	5/15/98 22:09	5/16/98 1:28		1.24	12	2.13	0.034	22.8	8.2	2.68	0.73	1.95	18.3	8.03	23.7				
8	9805-319	114.10.Eff-12	5/16/98 3:24	5/16/98 6:46		1.45	14	2.54	0.043	21.2	8.2	2.91	0.80	2.11	18.3	8.01	23.7				
8d	9805-333	114.10.Eff-12d	5/16/98 3:24	5/16/98 6:46		1.45	14	2.56	0.043	21.2	8.3	2.95	0.88	2.07	18.3	8.01	23.8				
9	9805-334	114.10.Eff-14	5/16/98 8:43	5/16/98 12:08		1.68	16	2.84	0.050	21.8	8.2	3.08	0.89	2.19	18.3	7.99	23.8				
10	9805-343	114.10.Eff-16	5/16/98 15:20	5/16/98 18:38		1.95	18	3.22	0.059	23.6	8.2	3.28	0.94	2.34	18.3	7.97	23.8				
11	9805-368	114.10.Eff-19	5/17/98 4:40	5/17/98 8:05		2.51	24	3.60	0.068	21.9	8.2	3.32	0.82	2.50	18.1	7.98	24.2				
11d	9805-369	114.10.Eff-19d	5/17/98 4:40	5/17/98 8:05		2.51	24	3.67	0.068	21.9	8.2	3.36	0.84	2.52	18.1	7.98	24.1				
12	9805-373	114.10.Eff-21	5/18/98 4:20	5/18/98 7:42	0.00	3.49	33	4.21	0.080	21.0	8.2	3.59	0.86	2.73	18.1	7.97	24.2				
13	9805-421	114.10.Eff-23	5/19/98 18:24	5/19/98 21:42	0.04	5.03	48	4.50		23.6	8.2										
Effluent C	**EBCT:** 20 min	**Carbon Type:** Bituminous	**Influent pH:** 7.97	**Scaling Factor:** 9.44																	
1	9805-293	114.20.Eff-1	5/14/98 19:22	5/14/98 22:44		0.12	1	0.17	0.000	22.7	8.4	1.70	0.70	1.00	18.3	8.13	23.8				
2	9805-338	114.20.Eff-8	5/16/98 9:50	5/16/98 13:55		1.74	16	0.52	0.005	21.4	8.1	1.89	0.68	1.21	18.3	8.03	23.8				
3	9805-353	114.20.Eff-11	5/16/98 20:27	5/16/98 23:49		2.17	20	0.92	0.011	22.6	8.1	2.10	0.84	1.26	18.3	8.02	23.8				
3d	9805-354	114.20.Eff-11d	5/16/98 20:27	5/16/98 23:49		2.17	20	0.92	0.011	22.6	8.0	2.10	0.68	1.42	18.3	8.01	23.8				
4	9805-358	114.20.Eff-14	5/17/98 6:33	5/17/98 9:58		2.59	24	1.31	0.018	20.5	8.5	2.27	0.76	1.51	18.1	7.96	24.2				
5	9805-364	114.20.Eff-16	5/17/98 13:20	5/17/98 16:41		2.87	27	1.63	0.023	21.3	8.5	2.42	0.75	1.67	18.1	8.00	24.2				
6	9805-371	114.20.Eff-18	5/18/98 2:39	5/18/98 6:04		3.42	32	2.04	0.031	20.5	7.4	2.61	0.89	1.72	18.1	7.98	24.2				
7	9805-390	114.20.Eff-20	5/18/98 9:31	5/18/98 12:58		3.71	35	2.34	0.036	21.0	8.1	2.74	0.88	1.86	18.1	7.97	24.3				
7d	9805-391	114.20.Eff-20d	5/18/98 9:31	5/18/98 12:58		3.71	35	2.36	0.036	21.1	8.2	2.75	0.82	1.93	18.1	7.94	24.4				
8	9805-402	114.20.Eff-23	5/19/98 0:10	5/19/98 3:37	0.04	4.28	40	2.65	0.041	20.5	8.2	2.88	0.91	1.97	18.1	8.00	24.4				
9	9805-419	114.20.Eff-26	5/19/98 17:15	5/19/98 20:33	0.04	4.99	47	3.09	0.054	23.4	8.3	3.09	0.83	2.26	18.1	8.03	24.4				
10	9805-432	114.20.Eff-31	5/21/98 3:46	5/21/98 7:08	0.04	6.43	61	3.40	0.064	20.3	8.2	3.19	0.80	2.39	19.4	7.95	24.0				
11	9805-454	114.20.Eff-34	5/23/98 3:09	5/23/98 6:33	0.04	8.40	79	3.96	0.077	20.9	7.9	3.44	0.74	2.70	19.4	7.97	23.9				
11d	9805-455	114.20.Eff-34d	5/23/98 3:09	5/23/98 6:33	0.04	8.40	79	3.93	0.076	21.0	7.9	3.43	0.75	2.68	19.4	7.98	24.0				
12	9805-467	114.20.Eff-35	5/24/98 5:46	5/24/98 9:03	0.04	9.51	90	4.31	0.083	21.2	8.5	3.60	0.72	2.88	19.4	7.98	24.0				

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: Sweetwater Authority **Study#:** 114

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L) CF	BDCM	DBCM	BF	TTHM	Haloacetic Acids (µg/L) MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9	NH3-N (mg/L)	Brom (µg/L)
Effluent C		**EBCT:** 10 min	**Carbon Type:** Bituminous			**Influent pH:** 7.97			**Scaling Factor:** 9.44														
1	9805-288	114.10.Eff-1	1	0.19	5	ND	1.2	ND	1.9	**3.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
2	9805-304	114.10.Eff-5	6	0.55	19	ND	4.7	1.3	8.5	**14.5**	ND	ND	ND	ND	2	ND	ND	ND	ND	**2**	**2**		
3	9805-306	114.10.Eff-6	7	0.77	28	ND	7.4	1.8	11.9	**21.0**	ND	1	ND	ND	3	1	ND	ND	ND	**5**	**5**		
4	9805-308	114.10.Eff-7	8	1.06	44	ND	13.1	3.2	18.4	**34.8**	ND	1	ND	ND	5	2	ND	ND	ND	**9**	**9**		
4d	9805-309	114.10.Eff-7d	8	1.03	47	ND	12.9	3.1	17.7	**33.7**	ND	1	ND	ND	5	2	ND	ND	ND	**9**	**9**		
5	9805-315	114.10.Eff-8	9	1.43	78	1.3	21.4	6.0	24.3	**53.0**	ND	2	ND	ND	8	4	2	4	4	**15**	**25**		
6	9805-316	114.10.Eff-9	11	1.79	104	2.0	30.1	9.2	29.9	**71.2**	ND	3	ND	ND	10	5	2	5	4	**19**	**30**		
7	9805-317	114.10.Eff-10	12	2.13	130	2.9	35.5	12.9	28.9	**80.2**	ND	3	ND	ND	11	6	3	6	5	**21**	**36**		
8	9805-319	114.10.Eff-12	14	2.54	164	4.7	41.9	18.4	27.0	**92.0**	ND	5	1	ND	13	9	6	9	5	**28**	**48**		
8d	9805-333	114.10.Eff-12d	14	2.56	160	4.9	43.1	18.9	27.0	**93.9**	ND	5	2	ND	15	9	7	10	6	**31**	**54**		
9	9805-334	114.10.Eff-14	16	2.84	204	7.1	47.3	23.9	25.0	**103.4**	ND	6	3	1	15	11	10	11	6	**36**	**62**		
10	9805-343	114.10.Eff-16	18	3.22	231	10.0	49.9	27.5	21.7	**109.1**	ND	8	6	ND	15	12	14	13	5	**41**	**72**		
11	9805-368	114.10.Eff-19	24	3.60	268	15.1	55.0	36.1	19.7	**125.9**	ND	9	8	ND	11	11	11	9	ND	**38**	**59**		
11d	9805-369	114.10.Eff-19d	24	3.67	266	14.1	52.4	33.8	18.6	**118.9**	ND	10	10	ND	13	12	14	11	ND	**44**	**69**		
12	9805-373	114.10.Eff-21	33	4.21	323	20.5	52.0	39.3	15.3	**127.0**	ND	12	14	ND	10	12	17	10	ND	**48**	**75**		
13	9805-421	114.10.Eff-23	48	4.50																			
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous			**Influent pH:** 7.97			**Scaling Factor:** 9.44														
1	9805-293	114.20.Eff-1	1	0.17	3	ND	ND	ND	1.3	**1.3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
2	9805-338	114.20.Eff-8	16	0.52	17	ND	4.4	1.2	8.6	**14.2**	ND	ND	ND	ND	2	ND	ND	ND	ND	**2**	**2**		
3	9805-353	114.20.Eff-11	20	0.92	38	ND	11.4	2.5	18.3	**32.1**	ND	2	ND	ND	3	2	ND	ND	ND	**7**	**7**		
3d	9805-354	114.20.Eff-11d	20	0.92	37	ND	10.4	2.6	17.5	**30.5**	ND	2	ND	ND	4	2	ND	ND	ND	**9**	**9**		
4	9805-358	114.20.Eff-14	24	1.31	69	1.0	17.3	4.5	21.7	**44.6**	ND	1	ND	ND	6	3	ND	ND	ND	**11**	**11**		
5	9805-364	114.20.Eff-16	27	1.63	86	1.3	23.9	6.8	26.1	**58.2**	ND	2	ND	ND	9	4	2	4	5	**14**	**26**		
6	9805-371	114.20.Eff-18	32	2.04	118	2.3	33.0	10.9	28.1	**74.3**	ND	2	ND	ND	9	5	3	5	4	**17**	**29**		
7	9805-390	114.20.Eff-20	35	2.34	142	3.4	40.3	15.2	30.1	**89.0**	ND	3	ND	ND	13	7	5	8	5	**23**	**41**		
7d	9805-391	114.20.Eff-20d	35	2.36	142	3.3	41.2	15.8	30.3	**90.6**	ND	3	ND	ND	12	7	5	8	5	**23**	**41**		
8	9805-402	114.20.Eff-23	40	2.65	168	4.1	42.4	18.1	26.8	**91.5**	ND	4	1	1	12	8	6	9	5	**27**	**46**		
9	9805-419	114.20.Eff-26	47	3.09	218	7.7	50.7	26.4	25.3	**110.1**	ND	6	6	1	14	11	9	10	4	**38**	**61**		
10	9805-432	114.20.Eff-31	61	3.40	250	12.3	54.7	34.1	22.4	**123.5**	ND	8	12	1	13	12	13	11	ND	**46**	**69**		
11	9805-454	114.20.Eff-34	79	3.96	309	20.0	57.8	41.9	18.3	**138.0**	ND	11	16	1	13	13	18	11	ND	**54**	**83**		
11d	9805-455	114.20.Eff-34d	79	3.93	322	18.5	54.5	39.4	17.4	**129.8**	ND	11	18	1	13	14	19	12	ND	**58**	**88**		
12	9805-467	114.20.Eff-35	90	4.31	329	22.9	56.1	43.6	16.4	**139.0**	ND	12	18	1	13	14	19	11	ND	**59**	**89**		

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #1

Client: Sweetwater Authority **Study#:** 114

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	9805-470	114.20.Eff-36	5/25/98 21:23	5/26/98 0:45	0.04	11.16	105	4.47		20.9	8.5										
Influent A		**EBCT:**	**Carbon Type:**			**Influent pH:** 7.97		**Scaling Factor:** 9.44													
1	9805-276	114.INF.A-1	5/14/98 20:20	5/14/98 20:20		0.09	1											127	223	120	
2	9805-367	114.INF.A-2	5/17/98 13:35	5/17/98 13:35		2.81	27											118	223	120	
Influent B		**EBCT:**	**Carbon Type:**			**Influent pH:** 7.97		**Scaling Factor:** 9.44													
1	9805-277	114.INF.B-1	5/14/98 20:15	5/14/98 20:15		0.09	1	5.86	0.127	16.5	8.0	4.63	0.82	3.81	18.3	7.95	23.8				0.10
2	9805-313	114.INF.B-2	5/15/98 17:50	5/15/98 17:50		0.99	9	5.93		16.5	8.0										
3	9805-336	114.INF.B-3	5/16/98 15:00	5/16/98 15:00		1.87	18	5.75		16.2	8.0										
4	9805-362	114.INF.B-4	5/17/98 13:30	5/17/98 13:30		2.81	26	5.62	0.127	17.2	8.0	4.24	0.63	3.61	18.1	7.91	24.4				0.20
5	9805-400	114.INF.B-5	5/19/98 9:50	5/19/98 9:50		4.65	44	5.75		15.3	7.9										
6	9805-468	114.INF.B-6	5/24/98 10:05	5/24/98 10:05		9.66	91	5.76	0.126	18.0	8.0	4.35	0.60	3.75	19.4	7.92	24.0				0.10
PreStudy		**EBCT:**	**Carbon Type:**			**Influent pH:**		**Scaling Factor:**													
1	9804-529	Settled	4/29/98 12:40	4/29/98 12:40				5.89													
2	9804-528	Raw	4/29/98 12:42	4/29/98 12:42				6.54													
3	9804-530	Filtered	4/29/98 12:44	4/29/98 12:44				5.88													
4	9805-12	Filtered	4/30/98 11:05	4/30/98 11:05				5.97													

***Target SDS Chlorination Conditions**

Free Cl2 Residual: 0.75 mg/L **pH:** 8.0 **Temperature:** 20.0 ºC **Holding time:** 24.0 hrs

Study Comments

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #1

Client: Sweetwater Authority **Study#:** 114

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L) CF	BDCM	DBCM	BF	TTHM	Haloacetic Acids (µg/L) MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9	NH3-N (mg/L)	Brom (µg/L)
13	9805-470	114.20.Eff-36	105	4.47																			
Influent A		**EBCT:**	**Carbon Type:**			**Influent pH:**	7.97		**Scaling Factor:**	9.44													
1	9805-276	114.INF.A-1	1																			0.18	200
2	9805-367	114.INF.A-2	27																			0.52	200
Influent B		**EBCT:**	**Carbon Type:**			**Influent pH:**	7.97		**Scaling Factor:**	9.44													
1	9805-277	114.INF.B-1	1	5.86	551	65.0	54.6	68.1	8.5	**196.2**	3	31	38	1	13	22	38	17	ND	**109**	**163**		
2	9805-313	114.INF.B-2	9	5.93																			
3	9805-336	114.INF.B-3	18	5.75																			
4	9805-362	114.INF.B-4	26	5.62	543	62.5	55.0	68.3	8.7	**194.6**	ND	32	28	1	11	21	33	14	ND	**93**	**140**		
5	9805-400	114.INF.B-5	44	5.75																			
6	9805-468	114.INF.B-6	91	5.76	510	66.4	56.0	72.9	8.6	**203.9**	ND	27	28	1	10	19	31	12	ND	**85**	**128**		
PreStudy		**EBCT:**	**Carbon Type:**			**Influent pH:**			**Scaling Factor:**														
1	9804-529	Settled		5.89																			
2	9804-528	Raw		6.54																			
3	9804-530	Filtered		5.88																			
4	9805-12	Filtered		5.97																			

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #2

Client: Sweetwater Authority **Study#:** 131

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)
Effluent C	**EBCT:** 10 min	**Carbon Type:** Bituminous	**Influent pH:** 7.4	**Scaling Factor:** 5.31																	
1	9808-299	131.10.Eff-1	8/17/98 15:41	8/17/98 21:51		0.18	1	0.27	0.001	23.4	8.3	1.15	0.73	0.42	25.2	7.94	24.1				
2	9808-303	131.10.Eff-5	8/19/98 5:42	8/19/98 12:04		1.77	9	0.55	0.004	22.4	8.0	1.39	0.66	0.73	25.1	8.01	23.7				
2d	9808-330	131.10.Eff-5d	8/19/98 5:42	8/19/98 12:04		1.77	9	0.57	0.004	22.4	8.1	1.39	0.65	0.74	25.1	8.06	23.7				
3	9808-304	131.10.Eff-6	8/19/98 12:04	8/19/98 18:04		2.03	11	0.81	0.008	22.7	8.1	1.55	0.67	0.88	25.1	8.08	23.7				
4	9808-305	131.10.Eff-7	8/19/98 18:04	8/20/98 0:10		2.28	12	1.05	0.012	22.4	8.1	1.73	0.63	1.10	25.1	8.06	23.8				
5	9808-306	131.10.Eff-8	8/20/98 0:10	8/20/98 6:21		2.54	13	1.37	0.017	22.4	8.1	1.95	0.67	1.28	25.1	8.06	23.8				
6	9808-307	131.10.Eff-9	8/20/98 6:21	8/20/98 12:37		2.79	15	1.67	0.022	22.6	7.9	2.16	0.64	1.52	25.1	8.04	23.8				
7	9808-309	131.10.Eff-11	8/20/98 18:51	8/21/98 1:17		3.32	18	2.04	0.029	22.3	8.0	2.41	0.73	1.68	25.1	8.03	23.8				
7d	9808-332	131.10.Eff-11d	8/20/98 18:51	8/21/98 1:17		3.32	18	2.03	0.029	22.3	8.1	2.41	0.58	1.83	25.1	8.09	23.9				
8	9808-311	131.10.Eff-13	8/21/98 7:49	8/21/98 14:07		3.86	20	2.48	0.037	22.5	8.0	2.72	0.71	2.01	25.1	8.06	23.9				
9	9808-314	131.10.Eff-16	8/22/98 2:32	8/22/98 8:55		4.64	25	2.88	0.045	22.1	8.0	3.10	0.69	2.41	25.8	8.04	23.9				
10	9808-316	131.10.Eff-18	8/22/98 15:13	8/22/98 21:24		5.16	27	3.09	0.051	23.8	8.1	3.26	0.75	2.51	25.1	8.09	23.3				
10d	9808-335	131.10.Eff-18d	8/22/98 15:13	8/22/98 21:24		5.16	27	3.09	0.051	23.8	8.1	3.26	0.75	2.51	25.1	8.07	23.4				
11	9808-319	131.10.Eff-21	8/23/98 16:02	8/23/98 22:08		6.19	33	3.52	0.059	24.0	8.0	3.55	0.81	2.74	25.8	8.07	24.0				
12	9808-324	131.10.Eff-26	8/27/98 0:54	8/27/98 7:19		9.57	51	3.84	0.071	21.1	8.0	3.77	0.78	2.99	25.0	8.04	23.8				
13	9808-325	131.10.Eff-27	8/29/98 21:57	8/30/98 4:11		12.44	66	4.26		21.5	8.0										
Effluent C	**EBCT:** 20 min	**Carbon Type:** Bituminous	**Influent pH:** 7.4	**Scaling Factor:** 5.31																	
1	9808-339	131.20.Eff-1	8/17/98 15:41	8/17/98 20:48		0.16	1	0.22	0.003	23.5	8.8	1.25	0.86	0.39	25.2	7.96	24.2				
2	9808-347	131.20.Eff-9	8/21/98 19:11	8/22/98 1:23		4.33	23	0.51	0.004	22.8	8.1	1.40	0.66	0.74	25.1	8.05	23.4				
3	9808-351	131.20.Eff-13	8/22/98 20:21	8/23/98 2:42		5.38	29	0.85	0.009	22.7	8.1	1.67	0.63	1.04	25.1	8.08	23.5				
3d	9808-372	131.20.Eff-13d	8/22/98 20:21	8/23/98 2:42		5.38	29	0.88	0.009	22.7	8.1	1.67	0.72	0.95	25.1	8.08	23.4				
4	9808-353	131.20.Eff-15	8/23/98 9:07	8/23/98 15:41		5.92	31	1.14	0.012	23.4	8.1	1.86	0.76	1.10	25.1	8.02	23.4				
5	9808-355	131.20.Eff-17	8/23/98 22:02	8/24/98 4:29		6.45	34	1.49	0.017	22.4	8.1	2.11	0.82	1.29	25.1	8.05	23.4				
6	9808-358	131.20.Eff-20	8/24/98 16:01	8/24/98 22:17		7.20	38	1.76	0.021	23.1	8.1	2.31	0.70	1.61	25.8	8.08	24.0				
7	9808-362	131.20.Eff-24	8/25/98 23:41	8/26/98 6:48		8.53	45	2.16	0.028	22.0	7.9	2.57	0.75	1.82	25.0	8.02	23.9				
7d	9808-377	131.20.Eff-24d	8/25/98 23:41	8/26/98 6:48		8.53	45	2.11	0.028	22.0	7.9	2.57	0.80	1.77	25.0	8.04	24.0				
8	9808-363	131.20.Eff-25	8/26/98 19:32	8/27/98 1:57		9.35	50	2.36	0.031	21.4	8.0	2.73	0.80	1.93	25.1	8.09	24.0				
9	9808-365	131.20.Eff-27	8/28/98 16:27	8/28/98 22:44		11.22	60	2.79	0.041	22.2	8.1	3.03	0.72	2.31	25.1	8.11	24.0				
10	9808-367	131.20.Eff-29	8/29/98 17:04	8/29/98 23:28		12.24	65	3.13	0.047	21.7	8.1	3.26	0.73	2.53	25.1	8.10	24.0				
11	9808-498	131.20.Eff-34	9/2/98 22:59	9/3/98 5:24		16.49	88	3.55	0.057	20.9	7.9	3.58	0.84	2.74	26.2	8.07	24.0				
11d	9808-507	131.20.Eff-34d	9/2/98 22:59	9/3/98 5:24		16.49	88	3.57	0.058	20.9	7.9	3.58	0.93	2.65	26.2	8.05	24.1				
12	9808-500	131.20.Eff-36	9/6/98 9:50	9/6/98 16:07		19.94	106	3.90	0.068	22.9	8.1	3.81	0.85	2.96	26.0	7.99	24.0				

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

Client: Sweetwater Authority **Study#:** 131

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L) CF	BDCM	DBCM	BF	TTHM	Haloacetic Acids (µg/L) MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9	NH3-N (mg/L)	Brom (µg/L)
Effluent C		**EBCT:** 10 min	**Carbon Type:** Bituminous			**Influent pH:** 7.4			**Scaling Factor:** 5.31														
1	9808-299	131.10.Eff-1	1	0.27	4	ND	ND	ND	2.1	**2.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
2	9808-303	131.10.Eff-5	9	0.55	20	ND	5.4	ND	14.0	**19.4**	ND	ND	ND	ND	3	ND	ND	ND	ND	**3**	**3**		
2d	9808-330	131.10.Eff-5d	9	0.57	20	ND	5.5	ND	14.4	**19.9**	ND	ND	ND	ND	3	ND	ND	ND	ND	**3**	**3**		
3	9808-304	131.10.Eff-6	11	0.81	36	ND	10.4	1.6	25.0	**37.0**	ND	ND	ND	ND	5	1	ND	ND	ND	**6**	**6**		
4	9808-305	131.10.Eff-7	12	1.05	50	ND	16.9	3.0	33.3	**53.1**	ND	ND	ND	ND	7	2	1	2	ND	**9**	**13**		
5	9808-306	131.10.Eff-8	13	1.37	74	ND	26.4	5.4	44.3	**76.1**	ND	ND	ND	ND	9	3	2	3	ND	**12**	**16**		
6	9808-307	131.10.Eff-9	15	1.67	92	1.5	38.4	9.3	54.3	**103.5**	ND	1	ND	ND	10	4	2	3	ND	**15**	**20**		
7	9808-309	131.10.Eff-11	18	2.04	128	2.5	49.0	14.5	53.7	**119.8**	ND	2	1	ND	11	6	2	4	ND	**20**	**26**		
7d	9808-332	131.10.Eff-11d	18	2.03	123	2.2	45.4	13.1	49.2	**110.0**	ND	2	1	ND	10	5	2	4	ND	**17**	**23**		
8	9808-311	131.10.Eff-13	20	2.48	161	4.5	62.6	21.6	51.8	**140.5**	ND	3	1	ND	13	7	3	4	4	**24**	**36**		
9	9808-314	131.10.Eff-16	25	2.88	194	8.0	56.6	28.7	38.6	**132.0**	ND	4	2	ND	13	9	4	5	ND	**27**	**36**		
10	9808-316	131.10.Eff-18	27	3.09	215	11.0	71.8	36.4	39.3	**158.5**	ND	5	2	ND	13	10	5	6	ND	**30**	**41**		
10d	9808-335	131.10.Eff-18d	27	3.09	212	12.6	77.4	40.7	43.6	**174.2**	ND	5	3	ND	15	11	5	6	ND	**34**	**45**		
11	9808-319	131.10.Eff-21	33	3.52	248	16.3	65.2	41.6	33.8	**156.8**	ND	6	3	ND	13	11	5	6	ND	**33**	**44**		
12	9808-324	131.10.Eff-26	51	3.84	278	26.0	65.9	50.1	25.8	**167.7**	ND	10	5	ND	14	15	9	8	ND	**43**	**60**		
13	9808-325	131.10.Eff-27	66	4.26																			
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous			**Influent pH:** 7.4			**Scaling Factor:** 5.31														
1	9808-339	131.20.Eff-1	1	0.22	9	ND	1.1	ND	1.9	**3.0**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
2	9808-347	131.20.Eff-9	23	0.51	17	ND	3.9	ND	11.3	**15.2**	ND	ND	ND	ND	3	ND	ND	ND	ND	**3**	**3**		
3	9808-351	131.20.Eff-13	29	0.85	35	ND	10.3	1.6	22.4	**34.3**	ND	ND	ND	ND	5	2	ND	ND	ND	**7**	**7**		
3d	9808-372	131.20.Eff-13d	29	0.88	33	ND	9.5	1.6	22.1	**33.1**	ND	ND	ND	ND	4	1	ND	ND	ND	**6**	**6**		
4	9808-353	131.20.Eff-15	31	1.14	48	ND	16.5	3.3	32.1	**51.9**	ND	ND	ND	ND	7	2	1	2	ND	**9**	**13**		
5	9808-355	131.20.Eff-17	34	1.49	70	ND	22.2	4.9	33.3	**60.4**	ND	ND	ND	ND	9	3	2	3	ND	**12**	**16**		
6	9808-358	131.20.Eff-20	38	1.76	88	1.1	29.4	7.7	37.6	**75.8**	ND	1	ND	ND	10	4	2	3	ND	**15**	**20**		
7	9808-362	131.20.Eff-24	45	2.16	124	2.7	41.6	14.3	43.5	**102.1**	ND	2	1	ND	10	6	3	4	4	**18**	**29**		
7d	9808-377	131.20.Eff-24d	45	2.11	122	2.4	41.1	13.2	41.0	**97.7**	ND	2	1	ND	11	6	3	4	5	**20**	**32**		
8	9808-363	131.20.Eff-25	50	2.36	127	3.3	46.0	17.0	45.7	**112.0**	ND	2	1	ND	12	6	3	5	4	**21**	**32**		
9	9808-365	131.20.Eff-27	60	2.79	179	6.6	56.3	26.1	43.2	**132.1**	ND	4	2	ND	14	9	4	6	5	**29**	**44**		
10	9808-367	131.20.Eff-29	65	3.13	202	9.8	62.8	33.0	40.4	**146.0**	ND	5	2	ND	14	10	5	7	5	**31**	**48**		
11	9808-498	131.20.Eff-34	88	3.55	248	17.4	74.6	43.1	32.4	**167.5**	ND	7	3	ND	15	12	9	8	4	**38**	**59**		
11d	9808-507	131.20.Eff-34d	88	3.57	254	17.4	74.0	44.1	32.9	**168.5**	ND	6	3	ND	14	12	7	7	4	**35**	**52**		
12	9808-500	131.20.Eff-36	106	3.90	295	26.6	79.7	53.9	27.7	**187.9**	ND	9	4	ND	14	14	10	8	4	**42**	**63**		

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

Client: Sweetwater Authority **Study#:** 131

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	9808-501	131.20.Eff-37	9/9/98	6:25	9/9/98	12:49		22.80	121	3.99	0.071	21.4	7.9										
Influent A		**EBCT:**	**Carbon Type:**				**Influent pH:**	7.4	**Scaling Factor:**	5.31													
1	9808-379	131.Inf.A-1	8/17/98	16:20	8/17/98	16:20		0.08	0											132	237	130	
2	9808-380	131.Inf.A-2	8/28/98	10:45	8/28/98	10:45		10.85	58											119	246	135	
Influent B		**EBCT:**	**Carbon Type:**				**Influent pH:**	7.4	**Scaling Factor:**	5.31													
1	9808-381	131.Inf.B-1	8/17/98	16:20	8/17/98	16:20		0.08	0	5.40	0.118	22.4	7.6	5.25	0.73	4.52	25.2	7.91	24.2				0.10
2	9808-382	131.Inf.B-2	8/19/98	9:12	8/19/98	9:12		1.78	9	5.40		18.4	7.4										
3	9808-383	131.Inf.B-3	8/23/98	12:35	8/23/98	12:35		5.92	31	5.18		19.7	7.4										
4	9808-384	131.Inf.B-4	8/28/98	10:40	8/28/98	10:40		10.84	58	5.10	0.119	16.3	7.4	5.25	0.69	4.56	25.1	7.94	24.0				0.20
5	9808-385	131.Inf.B-5	8/31/98	12:25	8/31/98	12:25		13.92	74	5.30		19.3	7.4										
6	9808-386	131.Inf.B-6	9/7/98	15:45	9/7/98	15:45		21.06	112	5.18	0.120	19.6	7.4	5.25	0.55	4.70	26.0	7.91	24.0				0.15
PreStudy		**EBCT:**	**Carbon Type:**				**Influent pH:**		**Scaling Factor:**														
1	9808-161	131.Settled	8/5/98	12:30	8/5/98	12:30				6.55													
2	9808-237	131.RAW	8/6/98	10:20	8/6/98	10:20				7.51													
3	9808-238	131.SET	8/6/98	10:30	8/6/98	10:30				6.59													
4	9808-239	131.FILT	8/6/98	10:35	8/6/98	10:35				6.29													

***Target SDS Chlorination Conditions**

Free Cl2 Residual: 0.75 mg/L **pH:** 8.0 **Temperature:** 26.0 ºC **Holding time:** 24.0 hrs

Study Comments

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT #2

Client: Sweetwater Authority **Study#:** 131

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L) CF	BDCM	DBCM	BF	TTHM	Haloacetic Acids (µg/L) MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9	NH3-N (mg/L)	Brom (µg/L)
13	9808-501	131.20.Eff-37	121	3.99																			
Influent A		**EBCT:**	**Carbon Type:**			**Influent pH:**	7.4		**Scaling Factor:**	5.31													
1	9808-379	131.Inf.A-1	0																			ND	260
2	9808-380	131.Inf.A-2	58																			ND	290
Influent B		**EBCT:**	**Carbon Type:**			**Influent pH:**	7.4		**Scaling Factor:**	5.31													
1	9808-381	131.Inf.B-1	0	5.40	445	82.5	69.1	92.4	12.8	**256.9**	4	24	15	3	13	23	19	10	ND	**82**	**110**		
2	9808-382	131.Inf.B-2	9	5.40																			
3	9808-383	131.Inf.B-3	31	5.18																			
4	9808-384	131.Inf.B-4	58	5.10	458	67.0	67.9	77.0	12.9	**224.9**	ND	21	10	ND	11	20	15	8	ND	**62**	**84**		
5	9808-385	131.Inf.B-5	74	5.30																			
6	9808-386	131.Inf.B-6	112	5.18	492	74.5	69.9	85.5	12.5	**242.4**	ND	21	9	ND	10	19	14	6	ND	**59**	**79**		
PreStudy		**EBCT:**	**Carbon Type:**			**Influent pH:**			**Scaling Factor:**														
1	9808-161	131.Settled		6.55																			
2	9808-237	131.RAW		7.51																			
3	9808-238	131.SET		6.59																			
4	9808-239	131.FILT		6.29																			

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT 3,4

Client: Sweetwater Authority **Study#:** 179

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)
Effluent C	**EBCT:** 10 min	**Carbon Type:** Bituminous	**Influent pH:** 6.75	**Scaling Factor:** 9.44																	
1	9811-156	179.Opt10.Eff-1	11/6/98 15:28	11/6/98 19:47		0.14	1	0.11	0.000	21.6	7.6	1.25	0.63	0.62	23.6	7.96	23.5				
2	9811-157	179.Opt10.Eff-2	11/7/98 21:45	11/8/98 1:58		1.40	13	0.26	0.001	20.3	7.6	1.51	0.71	0.80	23.6	7.96	24.0				
3	9811-161	179.Opt10.Eff-6	11/8/98 19:00	11/8/98 23:17		2.29	22	0.38	0.003	20.6	7.5	1.61	0.57	1.04	23.6	7.96	24.0				
4	9811-164	179.Opt10.Eff-9	11/9/98 7:52	11/9/98 12:10		2.82	27	0.72	0.006	20.6	7.4	1.89	0.69	1.20	23.6	7.92	24.0				
5	9811-165	179.Opt10.Eff-10	11/9/98 12:10	11/9/98 16:28		3.00	28	0.95	0.008	22.0	7.5	2.09	0.80	1.29	23.6	8.02	24.0				
5d	9811-188	179.Opt10.Eff-10d	11/9/98 12:10	11/9/98 16:28		3.00	28	0.97	0.008	21.7	7.5	2.09	0.70	1.39	23.6	7.95	24.0				
6	9811-166	179.Opt10.Eff-11	11/9/98 16:28	11/9/98 20:42		3.18	30	1.19	0.010	21.7	7.6	2.27	0.74	1.53	23.6	7.98	24.0				
7	9811-168	179.Opt10.Eff-13	11/10/98 0:59	11/10/98 5:20		3.54	33	1.48	0.014	20.5	7.5	2.52	0.75	1.77	23.5	8.02	24.4				
8	9811-170	179.Opt10.Eff-15	11/10/98 9:42	11/10/98 14:02		3.90	37	1.81	0.018	21.7	7.4	2.78	0.84	1.94	23.5	8.00	24.4				
8d	9811-190	179.Opt10.Eff-15d	11/10/98 9:42	11/10/98 14:02		3.90	37	1.81	0.018	21.7	7.5	2.78	0.90	1.88	23.5	8.07	24.4				
9	9811-172	179.Opt10.Eff-17	11/10/98 18:21	11/10/98 22:42		4.26	40	2.07	0.021	21.2	7.6	2.98	0.94	2.04	23.5	7.98	24.5				
10	9811-175	179.Opt10.Eff-20	11/11/98 7:35	11/11/98 11:57		4.81	45	2.36	0.027	20.7	7.4	3.20	0.96	2.24	23.5	7.97	24.4				
11	9811-178	179.Opt10.Eff-23	11/12/98 5:16	11/12/98 9:38		5.72	54	2.67	0.034	20.3	7.4	3.45	1.16	2.29	23.5	7.95	23.9				
12	9811-182	179.Opt10.Eff-27	11/13/98 7:08	11/13/98 11:28		6.79	64	3.03	0.042	20.0	7.5	3.74	1.10	2.64	23.5	7.97	23.9				
12d	9811-195	179.Opt10.Eff-27d	11/13/98 7:08	11/13/98 11:28		6.79	64	3.01	0.042	20.2	7.5	3.74	1.06	2.68	23.5	8.00	23.9				
13	9811-184	179.Opt10.Eff-29	11/15/98 9:52	11/15/98 14:09		8.91	84	3.49	0.051	20.4	7.4	3.73	0.81	2.92	23.5	7.92	23.8				
14	9811-185	179.Opt10.Eff-30	11/17/98 0:20	11/17/98 4:42		10.51	99	3.75	0.056	19.4	7.4										
Effluent C	**EBCT:** 10 min	**Carbon Type:** Bituminous	**Influent pH:** 7.6	**Scaling Factor:** 9.44																	
1	9811-40	179.10.Eff-1	11/3/98 16:47	11/3/98 20:04		0.12	1	0.20	0.001	21.9	8.4	1.55	0.70	0.85	23.5	7.98	24.1				
2	9811-46	179.10.Eff-7	11/4/98 20:21	11/4/98 23:47		1.27	12	0.55	0.004	21.3	8.1	1.85	0.65	1.20	23.5	7.96	24.1				
3	9811-48	179.10.Eff-9	11/5/98 3:10	11/5/98 6:33		1.55	15	0.86	0.009	21.3	8.1	2.05	0.73	1.32	23.6	7.96	23.6				
4	9811-50	179.10.Eff-11	11/5/98 10:00	11/5/98 13:27		1.84	17	1.25	0.014	21.2	8.1	2.32	0.87	1.45	23.6	7.93	23.7				
5	9811-51	179.10.Eff-12	11/5/98 13:27	11/5/98 17:00		1.99	19	1.50	0.017	21.7	8.0	2.49	0.81	1.68	23.6	7.94	23.7				
5d	9811-72	179.10.Eff-12d	11/5/98 13:27	11/5/98 17:00		1.99	19	1.49	0.018	21.7	8.1	2.49	0.83	1.66	23.6	7.95	23.7				
6	9811-53	179.10.Eff-14	11/5/98 20:24	11/5/98 23:54		2.27	21	1.85	0.023	21.0	8.1	2.73	0.77	1.96	23.6	7.96	23.7				
7	9811-55	179.10.Eff-16	11/6/98 3:23	11/6/98 6:52		2.56	24	2.24	0.028	21.1	8.1	2.99	0.82	2.17	23.6	7.94	23.7				
8	9811-58	179.10.Eff-19	11/6/98 13:46	11/6/98 17:13		3.00	28	2.65	0.034	21.7	8.0	3.29	0.87	2.42	23.6	7.94	23.7				
8d	9811-75	179.10.Eff-19d	11/6/98 13:46	11/6/98 17:13		3.00	28	2.67	0.034	21.7	8.0	3.29	0.88	2.41	23.6	7.95	23.7				
9	9811-59	179.10.Eff-20	11/7/98 3:31	11/7/98 6:56		3.57	34	3.13	0.042	21.5	8.0	3.61	0.86	2.75	23.6	7.94	23.7				
10	9811-64	179.10.Eff-25	11/8/98 3:34	11/8/98 7:01		4.57	43	3.43	0.051	21.4	8.0	3.68	0.72	2.96	23.6	8.01	23.9				
11	9811-66	179.10.Eff-27	11/9/98 0:19	11/9/98 3:48		5.44	51	3.78	0.058	21.5	8.0	3.92	0.74	3.18	23.6	7.95	23.9				
11d	9811-77	179.10.Eff-27d	11/9/98 0:19	11/9/98 3:48		5.44	51	3.80	0.058	21.4	8.1	3.92	0.70	3.22	23.6	7.94	23.9				

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 3,4

Client: Sweetwater Authority **Study#:** 179

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L) CF	BDCM	DBCM	BF	TTHM	Haloacetic Acids (µg/L) MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9	NH3-N (mg/L)	Brom (µg/L)
Effluent C		**EBCT:** 10 min	**Carbon Type:** Bituminous			**Influent pH:** 6.75			**Scaling Factor:** 9.44														
1	9811-156	179.Opt10.Eff-1	1	0.11																			
2	9811-157	179.Opt10.Eff-2	13	0.26	9	ND	1.3	ND	6.3	**7.7**	ND	ND	ND	ND	2	ND	ND	ND	ND	**2**	**2**		
3	9811-161	179.Opt10.Eff-6	22	0.38	14	ND	2.6	ND	9.9	**12.5**	ND	ND	ND	ND	3	ND	ND	ND	ND	**3**	**3**		
4	9811-164	179.Opt10.Eff-9	27	0.72	31	ND	7.6	1.1	19.2	**28.0**	ND	ND	ND	ND	5	1	ND	ND	ND	**7**	**7**		
5	9811-165	179.Opt10.Eff-10	28	0.95	43	ND	10.9	1.8	24.9	**37.6**	ND	ND	ND	ND	8	2	ND	ND	ND	**10**	**10**		
5d	9811-188	179.Opt10.Eff-10d	28	0.97	41	ND	10.7	1.8	23.8	**36.2**	ND	ND	ND	ND	7	2	ND	ND	ND	**9**	**9**		
6	9811-166	179.Opt10.Eff-11	30	1.19	57	ND	16.4	3.2	30.0	**49.6**	ND	1	ND	ND	9	3	1	ND	ND	**13**	**14**		
7	9811-168	179.Opt10.Eff-13	33	1.48	74	ND	19.1	4.5	32.8	**56.4**	ND	1	ND	ND	9	3	2	2	5	**14**	**22**		
8	9811-170	179.Opt10.Eff-15	37	1.81	96	1.3	25.9	7.3	35.8	**70.3**	ND	1	ND	ND	11	4	2	3	5	**16**	**25**		
8d	9811-190	179.Opt10.Eff-15d	37	1.81	102	1.3	27.0	7.6	36.9	**72.9**	ND	2	ND	ND	12	5	2	3	5	**18**	**28**		
9	9811-172	179.Opt10.Eff-17	40	2.07	117	1.8	31.6	10.0	35.7	**79.1**	ND	2	ND	ND	12	5	2	3	5	**19**	**30**		
10	9811-175	179.Opt10.Eff-20	45	2.36	138	2.8	36.6	14.0	34.8	**88.2**	ND	2	ND	ND	12	6	3	3	5	**20**	**31**		
11	9811-178	179.Opt10.Eff-23	54	2.67	167	4.6	44.3	19.7	34.2	**102.9**	ND	3	1	ND	15	9	4	5	6	**29**	**43**		
12	9811-182	179.Opt10.Eff-27	64	3.03	200	7.7	56.2	28.2	39.0	**131.0**	ND	4	2	ND	14	9	5	5	5	**29**	**44**		
12d	9811-195	179.Opt10.Eff-27d	64	3.01	201	7.4	55.2	27.5	36.0	**126.1**	ND	4	2	ND	15	10	5	5	6	**31**	**47**		
13	9811-184	179.Opt10.Eff-29	84	3.49	225	10.5	55.2	32.0	30.9	**128.6**	ND	5	2	ND	14	11	5	5	5	**32**	**47**		
14	9811-185	179.Opt10.Eff-30	99	3.75																			
Effluent C		**EBCT:** 10 min	**Carbon Type:** Bituminous			**Influent pH:** 7.6			**Scaling Factor:** 9.44														
1	9811-40	179.10.Eff-1	1	0.20	5	ND	ND	ND	1.9	**1.9**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
2	9811-46	179.10.Eff-7	12	0.55	20	ND	5.5	1.0	11.0	**17.5**	ND	ND	ND	ND	3	ND	ND	ND	ND	**3**	**3**		
3	9811-48	179.10.Eff-9	15	0.86	38	ND	10.8	2.1	19.6	**32.4**	ND	1	ND	ND	7	2	1	ND	ND	**10**	**12**		
4	9811-50	179.10.Eff-11	17	1.25	62	ND	19.0	4.6	27.8	**51.4**	ND	2	ND	ND	8	4	2	2	5	**14**	**23**		
5	9811-51	179.10.Eff-12	19	1.50	77	ND	22.9	6.0	29.3	**58.2**	ND	3	ND	ND	9	4	2	3	5	**16**	**26**		
5d	9811-72	179.10.Eff-12d	19	1.49	77	ND	24.5	6.7	30.5	**61.6**	ND	3	ND	ND	10	5	2	3	6	**18**	**28**		
6	9811-53	179.10.Eff-14	21	1.85	105	1.9	34.7	10.6	38.4	**85.6**	ND	5	ND	ND	13	7	3	4	7	**25**	**39**		
7	9811-55	179.10.Eff-16	24	2.24	137	2.7	39.0	13.9	34.9	**90.4**	ND	7	1	ND	13	9	4	5	7	**30**	**46**		
8	9811-58	179.10.Eff-19	28	2.65	168	4.3	47.1	19.7	36.1	**107.2**	ND	7	2	ND	17	12	6	7	8	**39**	**60**		
8d	9811-75	179.10.Eff-19d	28	2.67	172	4.5	49.5	20.7	36.7	**111.4**	ND	7	2	ND	15	12	5	7	8	**36**	**56**		
9	9811-59	179.10.Eff-20	34	3.13	203	7.1	57.5	27.6	36.0	**128.2**	ND	8	5	ND	17	14	8	8	8	**43**	**67**		
10	9811-64	179.10.Eff-25	43	3.43	244	10.6	63.3	34.9	35.3	**144.1**	ND	8	7	ND	17	13	10	8	7	**45**	**70**		
11	9811-66	179.10.Eff-27	51	3.78	273	14.2	63.9	39.2	30.1	**147.5**	ND	9	9	ND	18	15	13	9	7	**51**	**80**		
11d	9811-77	179.10.Eff-27d	51	3.80	274	14.7	65.1	40.0	31.4	**151.2**	ND	9	10	ND	20	16	15	10	7	**55**	**88**		

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 3,4

Client: Sweetwater Authority **Study#:** 179

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)
12	9811-68	179.10.Eff-29	11/9/98	17:53	11/9/98	21:23		6.17	58	4.06	0.064	22.4	8.1	4.11	0.65	3.46	23.4	7.95	24.0				
13	9811-69	179.10.Eff-30	11/11/98	8:26	11/11/98	11:53		7.77	73	4.46	0.071	21.2	8.0										
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous				**Influent pH:** 6.75		**Scaling Factor:** 9.44														
1	9811-196	179.Opt20.Eff-1	11/6/98	15:28	11/6/98	19:38		0.14	1	0.13	0.000	21.5	7.9	1.40	0.76	0.64	23.6	8.13	23.9				
2	9811-202	179.Opt20.Eff-7	11/12/98	2:53	11/12/98	7:17		5.62	53	0.42	0.003	20.0	7.5	1.68	0.75	0.93	23.5	7.98	23.9				
3	9811-205	179.Opt20.Eff-10	11/12/98	19:58	11/13/98	0:25		6.33	60	0.69	0.005	20.1	7.6	1.89	0.77	1.12	23.5	8.01	23.9				
3d	9811-228	179.Opt20.Eff-10d	11/12/98	19:58	11/13/98	0:25		6.33	60	0.69	0.005	20.1	7.6	1.89	0.81	1.08	23.5	8.01	23.9				
4	9811-210	179.Opt20.Eff-15	11/13/98	17:52	11/13/98	22:12		7.24	68	0.99	0.009	20.8	7.5	2.07	0.74	1.33	23.5	7.92	23.8				
5	9811-212	179.Opt20.Eff-17	11/14/98	11:19	11/14/98	15:40		7.97	75	1.23	0.011	20.7	7.4	2.23	0.80	1.43	23.5	7.93	23.8				
6	9811-216	179.Opt20.Eff-21	11/15/98	9:11	11/15/98	13:30		8.88	84	1.54	0.015	20.4	7.4	2.44	0.70	1.74	23.5	7.91	23.8				
7	9811-217	179.Opt20.Eff-22	11/16/98	2:17	11/16/98	6:38		9.59	91	1.77	0.017	20.0	7.4	2.60	0.87	1.73	23.5	7.92	23.8				
7d	9811-230	179.Opt20.Eff-22d	11/16/98	2:17	11/16/98	6:38		9.59	91	1.79	0.017	20.0	7.4	2.60	0.85	1.75	23.5	7.94	23.9				
8	9811-219	179.Opt20.Eff-24	11/16/98	15:22	11/16/98	19:39		10.14	96	2.02	0.021	21.6	7.5	2.77	0.83	1.94	23.5	7.97	24.1				
9	9811-223	179.Opt20.Eff-28	11/18/98	6:53	11/18/98	11:20		11.79	111	2.28	0.025	20.1	7.4	2.95	0.88	2.07	23.5	8.00	24.2				
10	9811-224	179.Opt20.Eff-29	11/19/98	18:11	11/19/98	22:37		13.26	125	2.67	0.031	21.0	7.5	3.15	0.88	2.27	23.5	7.94	24.0				
10d	9811-232	179.Opt20.Eff-29d	11/19/98	18:11	11/19/98	22:37		13.26	125	2.65	0.031	21.0	7.5	3.15	0.92	2.23	23.5	8.03	24.0				
11	9811-356	179.Opt20.Eff-34	11/22/98	6:31	11/22/98	10:42		15.76	149	2.93	0.039	20.6	7.3	3.30	0.81	2.49	23.5	7.92	24.4				
12	9811-357	179.Opt20.Eff-35	11/23/98	7:53	11/23/98	12:05		16.82	159	3.20	0.043	20.8	7.3	3.47	0.86	2.61	23.5	8.01	24.5				
13	9811-358	179.Opt20.Eff-36	11/24/98	20:53	11/24/98	22:58		18.32	173	3.59	0.052	22.4	7.4										
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous				**Influent pH:** 7.6		**Scaling Factor:** 9.44														
1	9811-80	179.20.Eff-1	11/3/98	16:49	11/3/98	19:58		0.11	1	0.13	0.001	21.8	8.9	1.65	0.98	0.67	23.5	7.99	24.1				
2	9811-83	179.20.Eff-4	11/6/98	7:43	11/6/98	11:02		2.73	26	0.42	0.004	21.2	8.0	1.74	0.76	0.98	23.6	7.93	23.7				
3	9811-85	179.20.Eff-6	11/7/98	0:17	11/7/98	3:36		3.42	32	0.77	0.007	21.1	8.0	1.98	0.78	1.20	23.6	7.93	23.8				
4	9811-87	179.20.Eff-8	11/7/98	10:12	11/7/98	13:33		3.84	36	1.11	0.012	21.4	8.0	2.23	0.82	1.41	23.6	7.95	23.8				
4d	9811-110	179.20.Eff-8d	11/7/98	10:12	11/7/98	13:33		3.84	36	1.12	0.012	21.4	8.0	2.23	0.88	1.35	23.6	7.94	23.8				
5	9811-89	179.20.Eff-10	11/8/98	2:54	11/8/98	6:13		4.53	43	1.51	0.018	21.0	8.0	2.43	0.81	1.62	23.6	7.95	23.9				
6	9811-92	179.20.Eff-13	11/8/98	19:16	11/8/98	22:34		5.22	49	1.91	0.023	21.2	8.1	2.69	0.77	1.92	23.6	7.96	23.9				
7	9811-94	179.20.Eff-15	11/9/98	11:51	11/9/98	15:20		5.91	56	2.21	0.028	22.6	8.0	2.89	0.76	2.13	23.6	7.98	23.9				
7d	9811-111	179.20.Eff-15d	11/9/98	11:51	11/9/98	15:20		5.91	56	2.22	0.029	22.5	8.0	2.89	0.76	2.13	23.6	7.99	23.9				
8	9811-98	179.20.Eff-19	11/10/98	11:28	11/10/98	14:50		6.89	65	2.50	0.033	23.1	8.0	3.08	0.66	2.42	23.4	7.95	24.0				
9	9811-102	179.20.Eff-23	11/12/98	4:25	11/12/98	7:48		8.60	81	2.82	0.039	21.3	8.0	3.31	0.62	2.69	23.5	7.95	24.2				
10	9811-104	179.20.Eff-25	11/13/98	0:18	11/13/98	3:41		9.43	89	3.20	0.045	20.2	8.2	3.55	0.63	2.92	23.5	7.99	24.2				

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT 3,4

Client: Sweetwater Authority **Study#:** 179

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L) CF	BDCM	DBCM	BF	TTHM	Haloacetic Acids (µg/L) MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9	NH3-N (mg/L)	Brom (µg/L)
12	9811-68	179.10.Eff-29	58	4.06	291	16.0	60.0	40.8	28.4	**145.2**	ND	10	11	ND	20	17	16	10	6	**58**	**90**		
13	9811-69	179.10.Eff-30	73	4.46																			
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous			**Influent pH:** 6.75			**Scaling Factor:** 9.44														
1	9811-196	179.Opt20.Eff-1	1	0.13	2	ND	ND	ND	2.0	**2.0**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
2	9811-202	179.Opt20.Eff-7	53	0.42	16	ND	3.0	ND	9.6	**12.6**	ND	ND	ND	ND	3	ND	ND	ND	ND	**3**	**3**		
3	9811-205	179.Opt20.Eff-10	60	0.69	31	ND	6.3	1.0	18.1	**25.4**	ND	ND	ND	ND	4	1	ND	ND	ND	**5**	**5**		
3d	9811-228	179.Opt20.Eff-10d	60	0.69	29	ND	6.2	1.1	17.5	**24.8**	ND	ND	ND	ND	4	1	ND	ND	ND	**6**	**6**		
4	9811-210	179.Opt20.Eff-15	68	0.99	44	ND	10.3	2.0	20.6	**32.9**	ND	ND	ND	ND	7	2	1	ND	ND	**9**	**10**		
5	9811-212	179.Opt20.Eff-17	75	1.23	61	ND	13.6	3.0	25.9	**42.5**	ND	ND	ND	ND	8	2	1	ND	ND	**10**	**11**		
6	9811-216	179.Opt20.Eff-21	84	1.54	77	ND	18.9	4.7	28.8	**52.4**	ND	1	ND	ND	8	3	1	2	ND	**12**	**15**		
7	9811-217	179.Opt20.Eff-22	91	1.77	91	1.3	25.7	6.9	32.4	**66.3**	ND	1	ND	ND	9	4	2	2	ND	**13**	**17**		
7d	9811-230	179.Opt20.Eff-22d	91	1.79	91	1.2	25.3	6.7	31.6	**64.8**	ND	1	ND	ND	11	4	2	3	ND	**17**	**21**		
8	9811-219	179.Opt20.Eff-24	96	2.02	111	1.5	33.1	9.8	41.4	**85.8**	ND	2	ND	ND	13	5	2	3	5	**20**	**29**		
9	9811-223	179.Opt20.Eff-28	111	2.28	131	2.4	40.5	13.5	46.1	**102.4**	ND	2	ND	ND	13	6	2	3	5	**21**	**31**		
10	9811-224	179.Opt20.Eff-29	125	2.67	152	4.1	50.3	19.5	43.3	**117.1**	ND	3	1	ND	16	8	4	4	6	**28**	**41**		
10d	9811-232	179.Opt20.Eff-29d	125	2.65	152	3.8	50.2	18.5	43.2	**115.6**	ND	3	1	ND	15	8	3	4	6	**27**	**40**		
11	9811-356	179.Opt20.Eff-34	149	2.93	184	6.4	56.2	26.3	39.1	**128.0**	ND	3	1	ND	15	9	4	4	6	**28**	**42**		
12	9811-357	179.Opt20.Eff-35	159	3.20	201	8.6	62.7	31.6	40.7	**143.5**	ND	4	2	ND	17	11	5	6	7	**34**	**52**		
13	9811-358	179.Opt20.Eff-36	173	3.59																			
Effluent C		**EBCT:** 20 min	**Carbon Type:** Bituminous			**Influent pH:** 7.6			**Scaling Factor:** 9.44														
1	9811-80	179.20.Eff-1	1	0.13	4	ND	ND	ND	1.5	**1.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**		
2	9811-83	179.20.Eff-4	26	0.42	17	ND	4.1	ND	8.4	**12.5**	ND	ND	ND	ND	3	ND	ND	ND	ND	**3**	**3**		
3	9811-85	179.20.Eff-6	32	0.77	30	ND	10.4	2.0	20.3	**32.7**	ND	2	ND	ND	4	2	ND	ND	ND	**8**	**8**		
4	9811-87	179.20.Eff-8	36	1.11	47	ND	13.9	2.8	23.7	**40.4**	ND	1	ND	ND	6	3	1	ND	ND	**10**	**11**		
4d	9811-110	179.20.Eff-8d	36	1.12	49	ND	13.2	2.7	22.4	**38.3**	ND	1	ND	ND	9	4	1	2	4	**14**	**22**		
5	9811-89	179.20.Eff-10	43	1.51	80	ND	23.1	5.7	30.8	**59.6**	ND	3	ND	ND	10	4	2	3	5	**18**	**27**		
6	9811-92	179.20.Eff-13	49	1.91	106	1.5	34.0	10.0	37.4	**82.9**	ND	4	ND	ND	11	6	2	4	5	**21**	**32**		
7	9811-94	179.20.Eff-15	56	2.21	134	2.4	41.2	14.1	40.3	**98.0**	ND	5	1	ND	16	11	4	5	7	**32**	**49**		
7d	9811-111	179.20.Eff-15d	56	2.22	141	2.3	40.7	13.7	39.8	**96.5**	ND	4	ND	ND	14	9	3	5	6	**27**	**41**		
8	9811-98	179.20.Eff-19	65	2.50	166	3.3	42.8	17.8	37.9	**101.9**	ND	4	2	ND	18	11	4	6	7	**35**	**53**		
9	9811-102	179.20.Eff-23	81	2.82	191	5.1	53.3	22.6	38.8	**119.8**	ND	5	6	ND	15	10	5	5	6	**36**	**52**		
10	9811-104	179.20.Eff-25	89	3.20	216	7.6	61.0	29.0	37.7	**135.3**	ND	6	6	ND	15	11	6	5	5	**38**	**55**		

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 3,4

Client: Sweetwater Authority **Study#:** 179

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)
11	9811-106	179.20.Eff-27	11/14/98	6:30	11/14/98	9:51		10.68	101	3.43	0.052	21.0	8.2	3.74	0.79	2.95	23.5	7.94	23.8				
11d	9811-113	179.20.Eff-27d	11/14/98	6:30	11/14/98	9:51		10.68	101	3.45	0.052	21.0	8.2	3.74	0.81	2.93	23.5	7.94	23.8				
12	9811-108	179.20.Eff-29	11/16/98	8:40	11/16/98	12:01		12.77	121	4.00	0.059	21.3	8.2										
13	9811-109	179.20.Eff-30	11/18/98	1:09	11/18/98	4:32		14.46	137	4.09	0.061	21.0	8.0	4.16	0.85	3.31	23.5	7.94	24.0				
Influent A		**EBCT:**	**Carbon Type:**			**Influent pH:**		6.75	**Scaling Factor:**	9.44													
1	9811-236	179.Opt.Inf.A-1	11/6/98	16:30	11/6/98	16:30		0.09	1											101	223	121	
2	9811-237	179.Opt.Inf.A-2	11/16/98	8:25	11/16/98	8:25		9.76	92											81	223	124	
Influent A		**EBCT:**	**Carbon Type:**			**Influent pH:**		7.6	**Scaling Factor:**	9.44													
1	9811-120	179.Inf.A-1	11/3/98	16:55	11/3/98	16:55		0.06	1											141	221	120	
2	9811-121	179.Inf.A-2	11/10/98	14:05	11/10/98	14:05		6.94	65											135	222	123	
Influent B		**EBCT:**	**Carbon Type:**			**Influent pH:**		6.75	**Scaling Factor:**	9.44													
1	9811-238	179.Opt.Inf.B-1	11/6/98	16:25	11/6/98	16:25		0.09	1	4.55	0.090	20.2	6.8	5.31	1.12	4.19	23.6	7.92	23.9				0.15
2	9811-239	179.Opt.Inf.B-2	11/10/98	13:45	11/10/98	13:45		3.98	38	4.48		17.8	6.8										
3	9811-240	179.Opt.Inf.B-3	11/13/98	9:35	11/13/98	9:35		6.81	64	4.45		16.0	6.9										
4	9811-241	179.Opt.Inf.B-4	11/16/98	8:20	11/16/98	8:20		9.75	92	4.46	0.089	15.5	6.8	4.85	0.87	3.98	23.5	7.93	23.8				0.10
5	9811-242	179.Opt.Inf.B-5	11/20/98	14:05	11/20/98	14:05		13.99	132	4.79		19.8	6.7										
6	9811-243	179.Opt.Inf.B-6	11/23/98	14:30	11/23/98	14:30		17.01	161	4.67	0.091	19.1	6.7	4.95	0.98	3.97	23.5	7.99	24.5				0.15
Influent B		**EBCT:**	**Carbon Type:**			**Influent pH:**		7.6	**Scaling Factor:**	9.44													
1	9811-122	179.Inf.B-1	11/3/98	16:55	11/3/98	16:55		0.06	1	5.67	0.109	23.8	7.6	5.65	1.04	4.61	23.5	7.95	24.1				0.15
2	9811-123	179.Inf.B-2	11/6/98	9:30	11/6/98	9:30		2.75	26	5.59		16.4	7.6										
3	9811-124	179.Inf.B-3	11/7/98	15:40	11/7/98	15:40		4.00	38	5.69		16.4	7.5										
4	9811-125	179.Inf.B-4	11/10/98	14:00	11/10/98	14:00		6.93	65	5.53	0.108	17.3	7.6	5.35	0.69	4.66	23.4	7.95	24.1				0.15
5	9811-126	179.Inf.B-5	11/16/98	12:45	11/16/98	12:45		12.88	122	5.56		18.2	8.0										
6	9811-127	179.Inf.B-6	11/17/98	16:25	11/17/98	16:25		14.03	132	5.44	0.109	18.6	7.7	5.35	0.74	4.61	23.5	7.96	24.1				0.15
PreStudy		**EBCT:**	**Carbon Type:**			**Influent pH:**			**Scaling Factor:**														
1	9811-33	Jar 1	11/3/98	0:00						5.06													0.80
2	9811-34	Jar 2	11/3/98	0:00						4.88													0.80
3	9811-35	Jar 3	11/3/98	0:00						4.65													1.00
4	9811-36	Jar 4	11/3/98	0:00						4.50													0.65

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT 3,4

Client: Sweetwater Authority **Study#:** 179

#	SamplesID	ClientSampleID	F-S L (days)	TOC (mg/L)	TOX (µg Cl-/L)	Trihalomethanes (µg/L) CF	BDCM	DBCM	BF	TTHM	Haloacetic Acids (µg/L) MCAA	DCAA	TCAA	MBAA	DBAA	BCAA	BDCAA	DBCAA	TBAA	HAA6	HAA9	NH3-N (mg/L)	Brom (µg/L)
11	9811-106	179.20.Eff-27	101	3.43	241	9.8	61.3	32.3	32.9	**136.3**	ND	7	7	ND	16	13	9	6	6	**42**	**63**		
11d	9811-113	179.20.Eff-27d	101	3.45	238	10.5	60.8	34.0	33.1	**138.4**	ND	7	6	ND	15	12	8	6	5	**39**	**57**		
12	9811-108	179.20.Eff-29	121	4.00																			
13	9811-109	179.20.Eff-30	137	4.09	280	16.9	69.4	42.9	34.1	**163.4**	ND	9	7	ND	16	14	11	6	4	**47**	**68**		
Influent A		**EBCT:**	**Carbon Type:**			**Influent pH:**	6.75		**Scaling Factor:**	9.44													
1	9811-236	179.Opt.Inf.A-1	1																			0.11	330
2	9811-237	179.Opt.Inf.A-2	92																			0.08	340
Influent A		**EBCT:**	**Carbon Type:**			**Influent pH:**	7.6		**Scaling Factor:**	9.44													
1	9811-120	179.Inf.A-1	1																			0.09	300
2	9811-121	179.Inf.A-2	65																			0.10	300
Influent B		**EBCT:**	**Carbon Type:**			**Influent pH:**	6.75		**Scaling Factor:**	9.44													
1	9811-238	179.Opt.Inf.B-1	1	4.55	388	39.0	62.1	57.7	17.9	**176.7**	ND	15	8	ND	16	19	14	9	ND	**57**	**80**		
2	9811-239	179.Opt.Inf.B-2	38	4.48																			
3	9811-240	179.Opt.Inf.B-3	64	4.45																			
4	9811-241	179.Opt.Inf.B-4	92	4.46	368	34.6	53.8	53.6	17.0	**159.1**	ND	13	6	ND	15	18	11	6	ND	**52**	**70**		
5	9811-242	179.Opt.Inf.B-5	132	4.79																			
6	9811-243	179.Opt.Inf.B-6	161	4.67	385	41.5	61.1	61.3	20.8	**184.7**	ND	13	6	ND	14	17	11	6	ND	**51**	**67**		
Influent B		**EBCT:**	**Carbon Type:**			**Influent pH:**	7.6		**Scaling Factor:**	9.44													
1	9811-122	179.Inf.B-1	1	5.67	495	54.1	65.4	65.9	14.7	**200.1**	5	29	17	ND	16	25	25	12	ND	**92**	**130**		
2	9811-123	179.Inf.B-2	26	5.59																			
3	9811-124	179.Inf.B-3	38	5.69																			
4	9811-125	179.Inf.B-4	65	5.53	489	52.2	59.7	65.8	16.5	**194.2**	ND	24	20	ND	17	24	29	13	ND	**85**	**128**		
5	9811-126	179.Inf.B-5	122	5.56																			
6	9811-127	179.Inf.B-6	132	5.44	474	50.9	70.7	66.8	16.9	**205.3**	ND	23	17	ND	16	22	26	10	ND	**78**	**114**		
PreStudy		**EBCT:**	**Carbon Type:**			**Influent pH:**			**Scaling Factor:**														
1	9811-33	Jar 1		5.06																			
2	9811-34	Jar 2		4.88																			
3	9811-35	Jar 3		4.65																			
4	9811-36	Jar 4		4.50																			

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT 3,4

Client: Sweetwater Authority **Study#:** 179

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)
5	9811-37	Jar 5	11/3/98	0:00						4.22													0.75
6	9811-38	Jar 6	11/3/98	0:00						3.96													0.70
7	9811-39	Raw	11/3/98	0:00						6.23										157			13.0
8	9810-442	Sweet. Raw. Drum	10/21/98	13:55	10/21/98	13:55				6.23													
9	9810-443	Sweet. Settled	10/21/98	14:00	10/21/98	14:00				5.62													
10	9810-444	Sweet. Filtered	10/21/98	15:00	10/21/98	15:00				5.56													
11	9811-27	Swe.Filtered.S&H	11/3/98	9:55	11/3/98	9:55				5.64													
12	9811-28	Swe.Filtered+1.0micfil	11/3/98	12:05	11/3/98	12:05				5.55													
13	9811-141	Settled.Enh.B2	11/5/98	0:00	11/5/98	0:00				4.58													1.30
14	9811-140	Settled.Enh.B1	11/5/98	0:00	11/5/98	0:00				4.64													1.30
15	9811-139	Raw.Enh.B3	11/5/98	0:00	11/5/98	0:00				6.47													8.10
16	9811-138	Raw.Enh.B2	11/5/98	0:00	11/5/98	0:00				6.29													9.10
17	9811-137	Raw.Enh.B1	11/5/98	0:00	11/5/98	0:00				6.45													8.60
18	9811-142	Settled.Enh.B3	11/5/98	0:00	11/5/98	0:00				4.51													0.90

***Target SDS Chlorination Conditions**

Free Cl2 Residual: 0.75 mg/L **pH:** 8.0 **Temperature:** 24.0 ºC **Holding time:** 24.0 hrs

Study Comments

The sample bottle containing the first effluent sample for the optimized 10 minute column broke prior to SDS chlorination. A demand study had been done, so the SDS residual was obtained. However, there were no DBP samples taken. The second effluent sample was chlorinated to obtain initial DBP samples.

Summers & Hooper, Inc.

RSSCT Sampling Summary Report

Study title: ICR RSSCT 3,4

Client: Sweetwater Authority **Study#:** 179

#	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)
5	9811-37	Jar 5		4.22																			
6	9811-38	Jar 6		3.96																			
7	9811-39	Raw		6.23																			
8	9810-442	Sweet. Raw. Drum		6.23																			
9	9810-443	Sweet. Settled		5.62																			
10	9810-444	Sweet. Filtered		5.56																			
11	9811-27	Swe.Filtered.S&H		5.64																			
12	9811-28	Swe.Filtered+1.0micfilter.		5.55																			
13	9811-141	Settled.Enh.B2		4.58																			
14	9811-140	Settled.Enh.B1		4.64																			
15	9811-139	Raw.Enh.B3		6.47																			
16	9811-138	Raw.Enh.B2		6.29																			
17	9811-137	Raw.Enh.B1		6.45																			
18	9811-142	Settled.Enh.B3		4.51																			

Appendix B: Breakthrough Curve Extrapolation Graphs

Appendix B: Breakthrough Curve Extrapolation Graphs

Parameter	Coefficient	10 minute EBCT				20 minute EBCT			
		April	August	October	October-EC	April	August	October	October-EC
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	3.97	3.33	2.75	2.98	4.04
	B	9.1	7.2	6.7	22.3	8.1	9.2	6.3	21.2
	D	0.090	0.057	0.058	0.073	0.030	0.028	0.023	0.029
	r^2	0.950	0.946	0.949	0.974	0.960	0.956	0.967	0.978
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	0.074	0.067	0.055	0.055	0.074
	B	13.5	10.5	10.0	21.4	12.6	12.6	10.7	36.0
	D	0.074	0.056	0.051	0.048	0.026	0.024	0.022	0.025
	r^2	0.936	0.937	0.945	0.949	0.954	0.946	0.939	0.983
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	149.2	54.5	49.5	103.1	156.2
	B	14.1	8.8	9.3	28.6	11.8	12.2	10.7	61.8
	D	0.096	0.069	0.057	0.082	0.033	0.033	0.025	0.042
	r^2	0.931	0.904	0.939	0.963	0.905	0.939	0.960	0.986
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	28.6	28.3	27.2	29.4	29.7
	B	7.1	9.5	9.5	13.4	14.9	9.8	11.0	23.0
	D	0.046	0.055	0.050	0.057	0.023	0.023	0.022	0.028
	r^2	0.820	0.892	0.871	0.889	0.947	0.806	0.914	0.953
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	43.2	31.5	31.6	34.2	44.6
	B	7.6	8.3	9.6	17.2	12.4	9.3	10.0	27.8
	D	0.059	0.057	0.059	0.060	0.025	0.025	0.024	0.028
	r^2	0.834	0.901	0.886	0.907	0.935	0.830	0.904	0.957
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	57.9	31.0	33.5	37.2	61.9
	B	12.4	5.8	7.4	41.3	9.4	5.4	8.6	54.6
	D	0.089	0.055	0.057	0.087	0.025	0.024	0.025	0.036
	r^2	0.896	0.877	0.873	0.930	0.866	0.799	0.914	0.961
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	309	169	184	224	311
	B	23.3	10.6	10.6	23.4	71.3	14.0	11.0	28.1
	D	0.096	0.052	0.051	0.059	0.046	0.024	0.022	0.026
	r^2	0.923	0.898	0.924	0.927	0.945	0.915	0.928	0.967

Table B - 1 Summary of logistic function curve fit parameters and r2 values for curve fits after breakthrough curve extrapolation

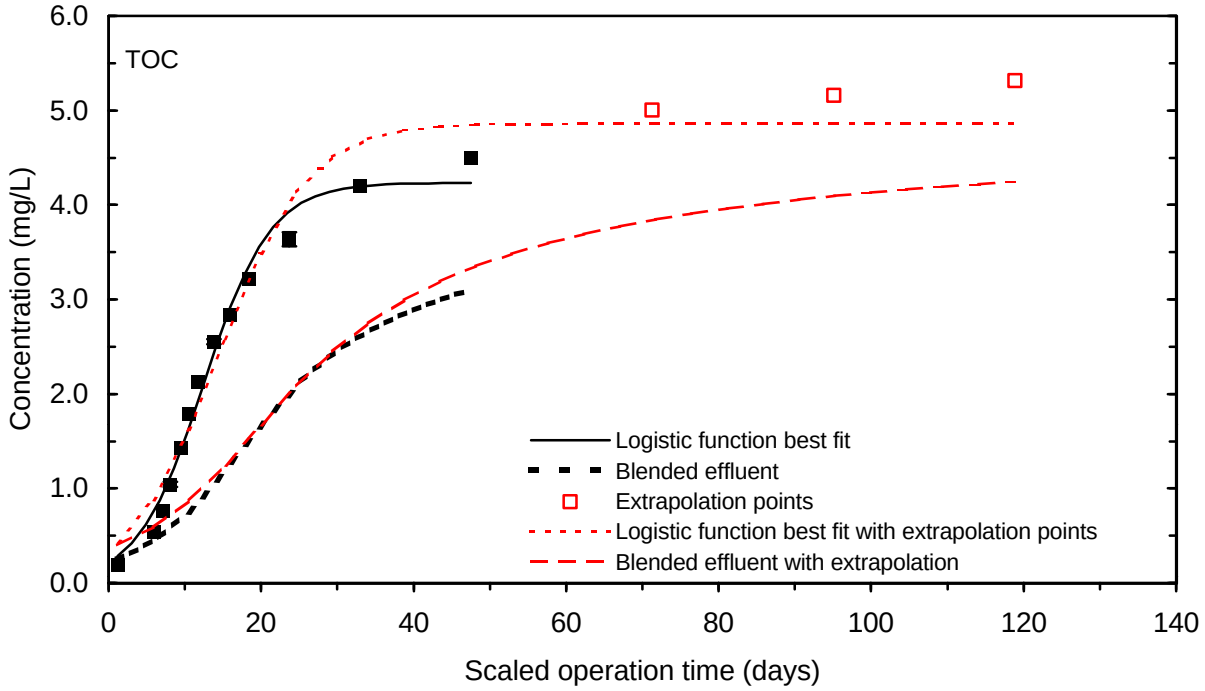

Figure B - 1 Single contactor and blended effluent extrapolated TOC breakthrough curve (10 minute EBCT) during session 1, April

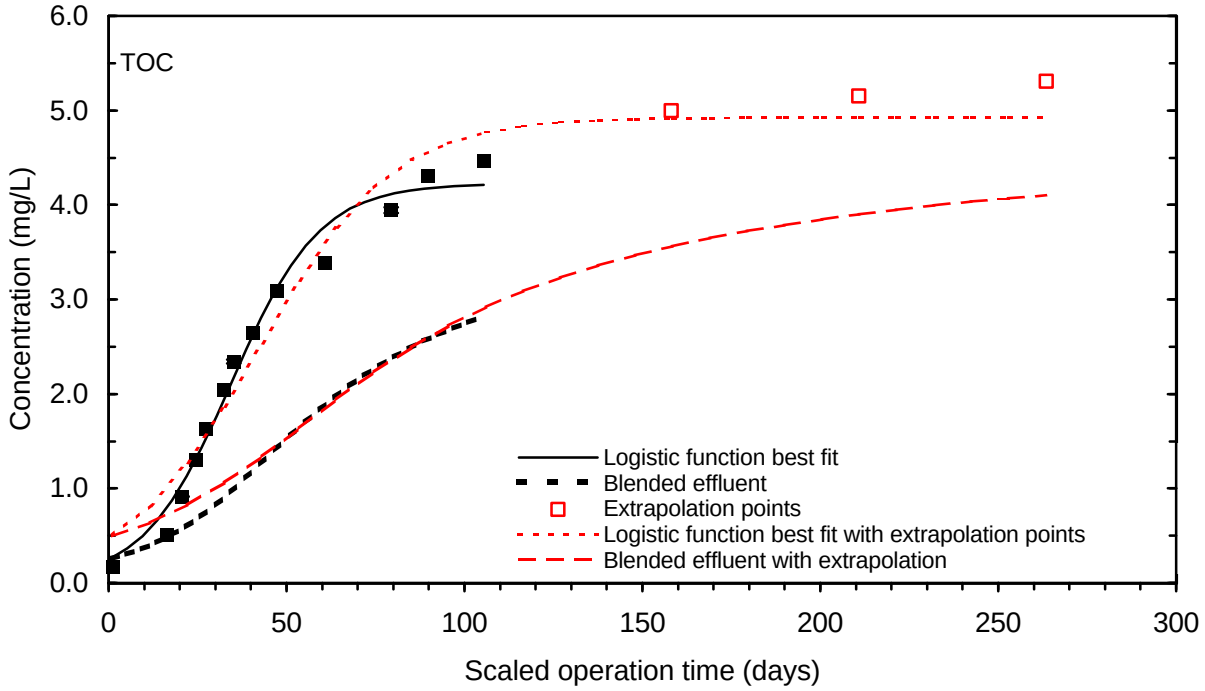

Figure B - 2 Single contactor and blended effluent extrapolated TOC breakthrough curve (20 minute EBCT) during session 1, April

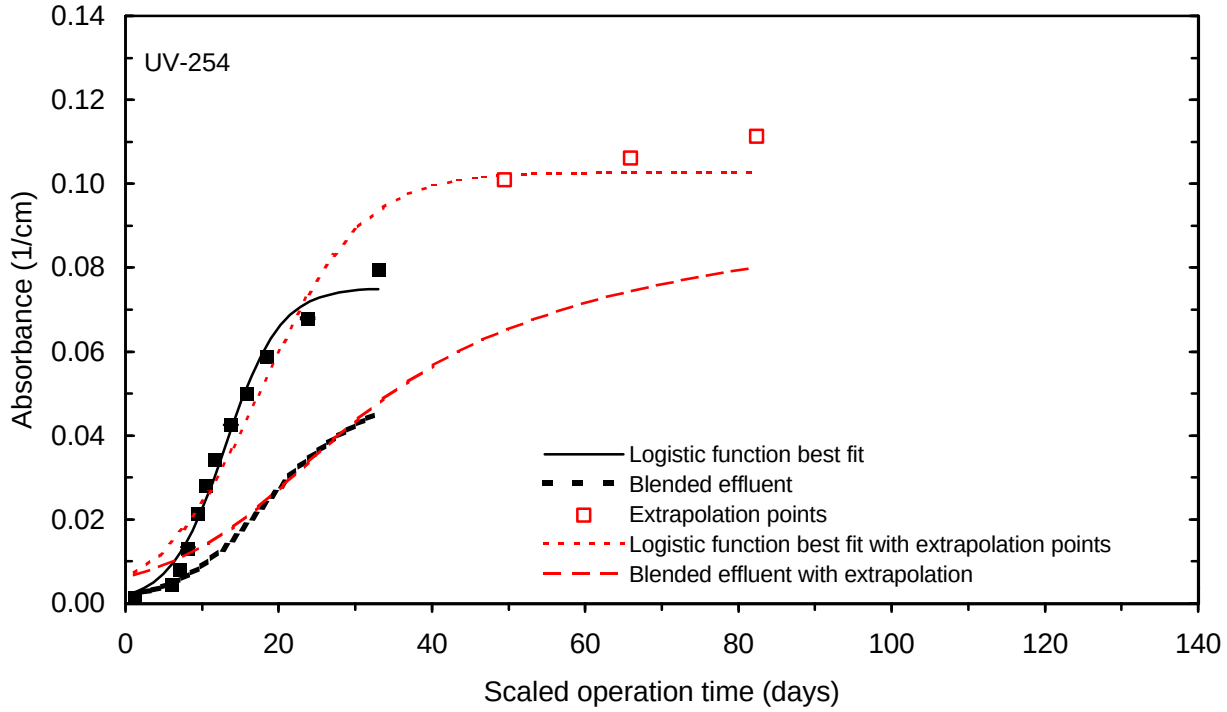

Figure B - 3 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (10 minute EBCT) during session 1, April

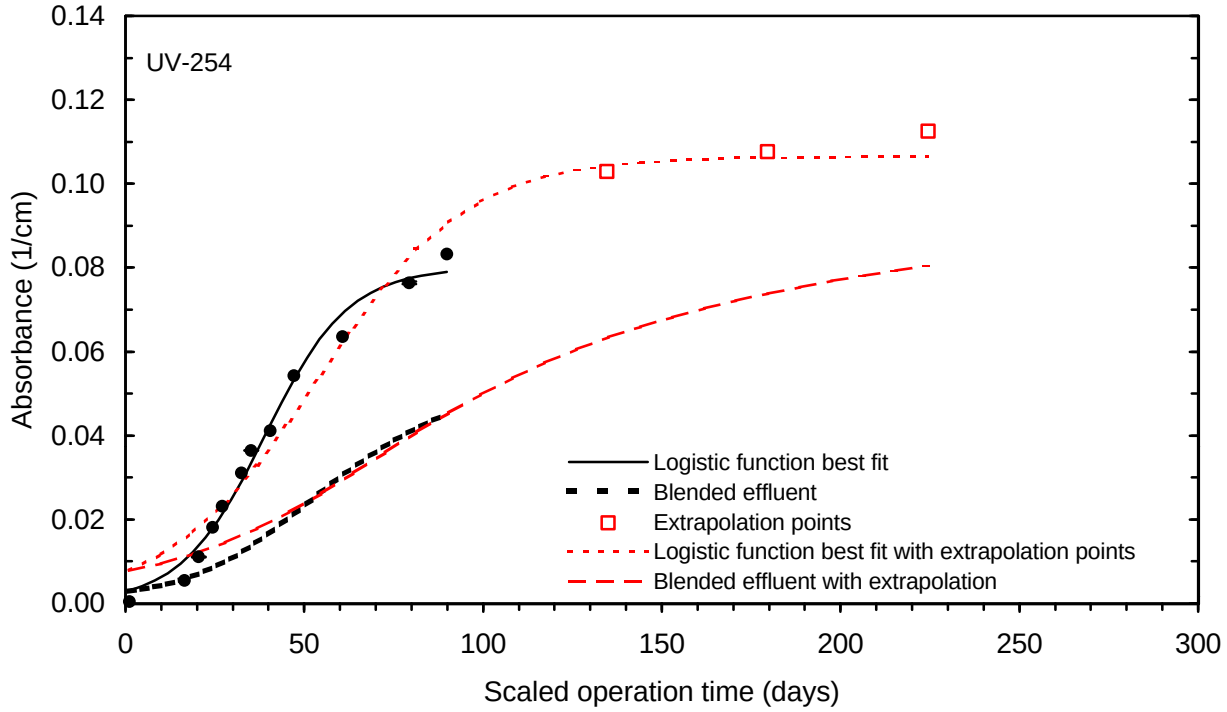

Figure B - 4 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (20 minute EBCT) during session 1, April

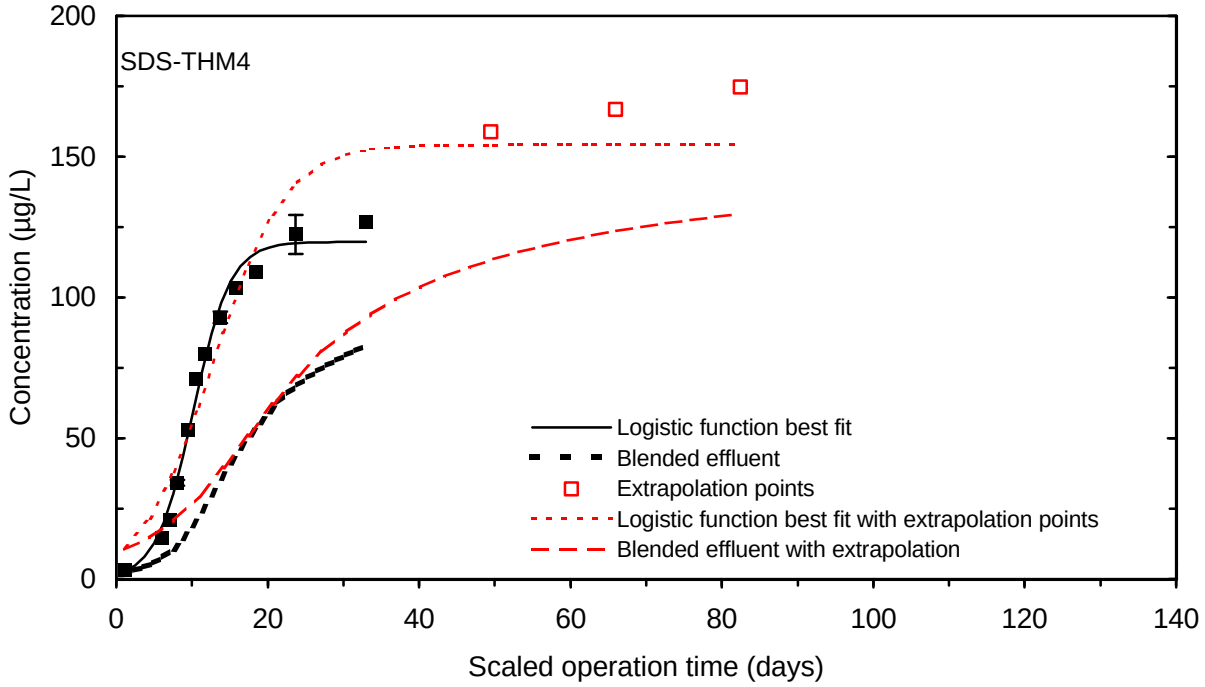

Figure B - 5 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (10 minute EBCT) during session 1, April

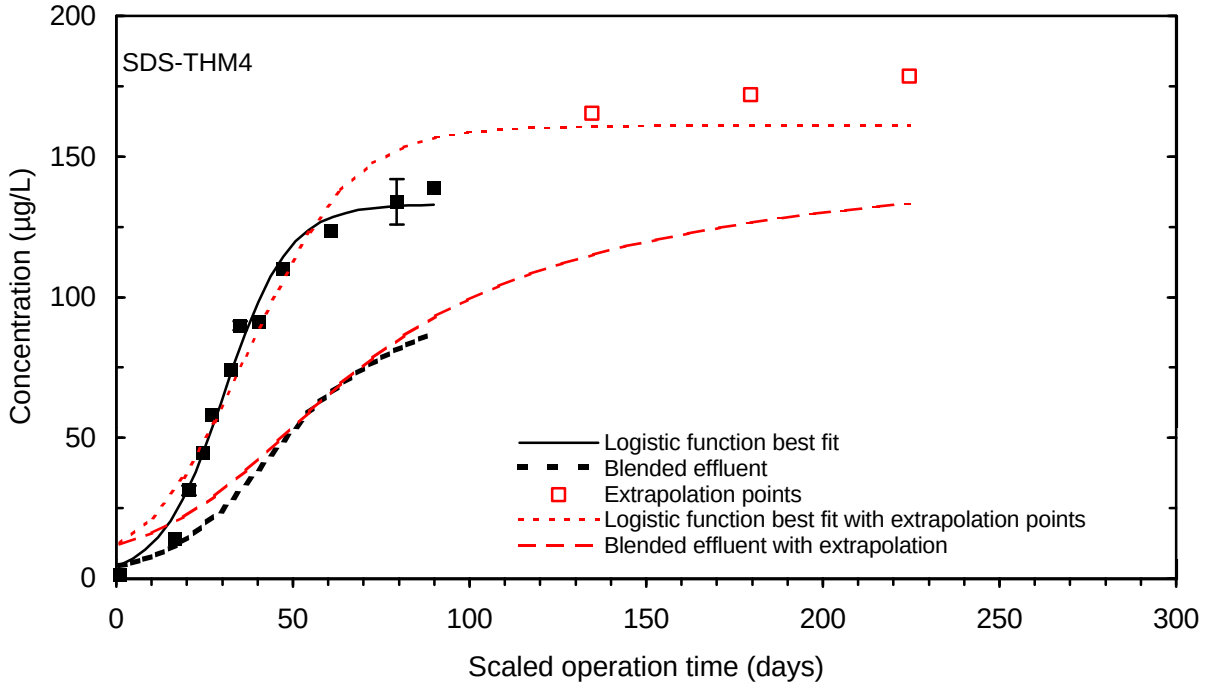

Figure B - 6 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (20 minute EBCT) during session 1, April

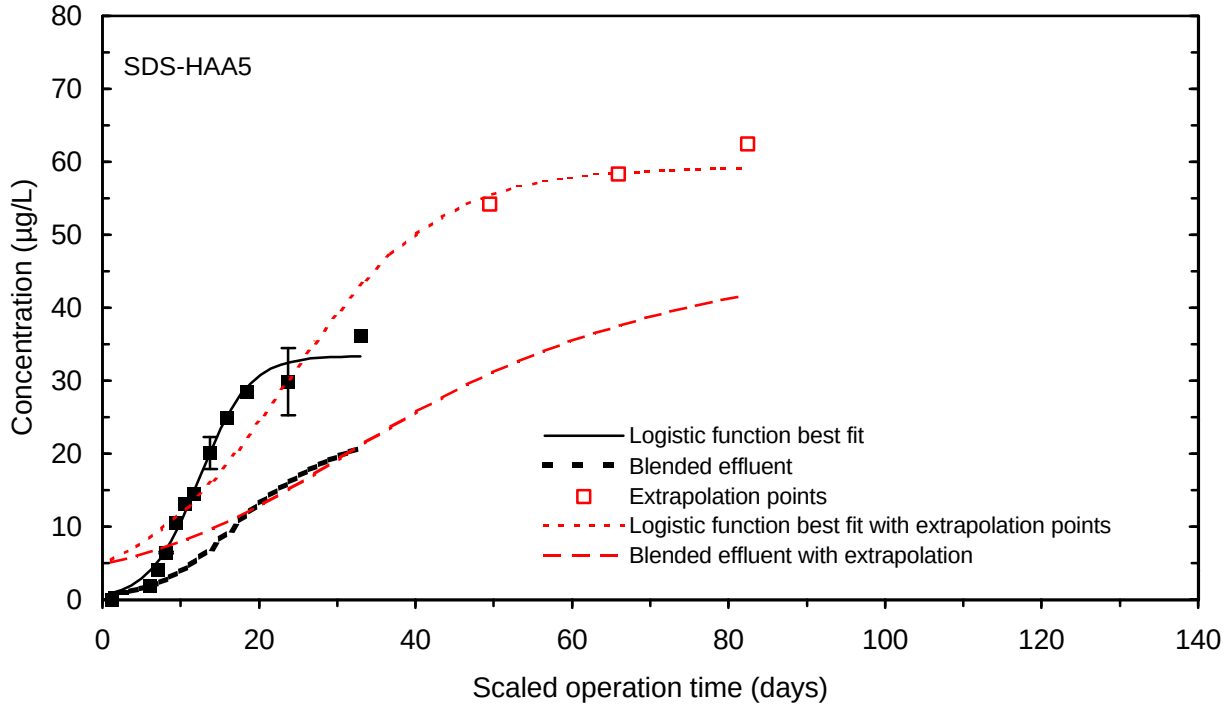

Figure B - 7 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (10 minute EBCT) during session 1, April

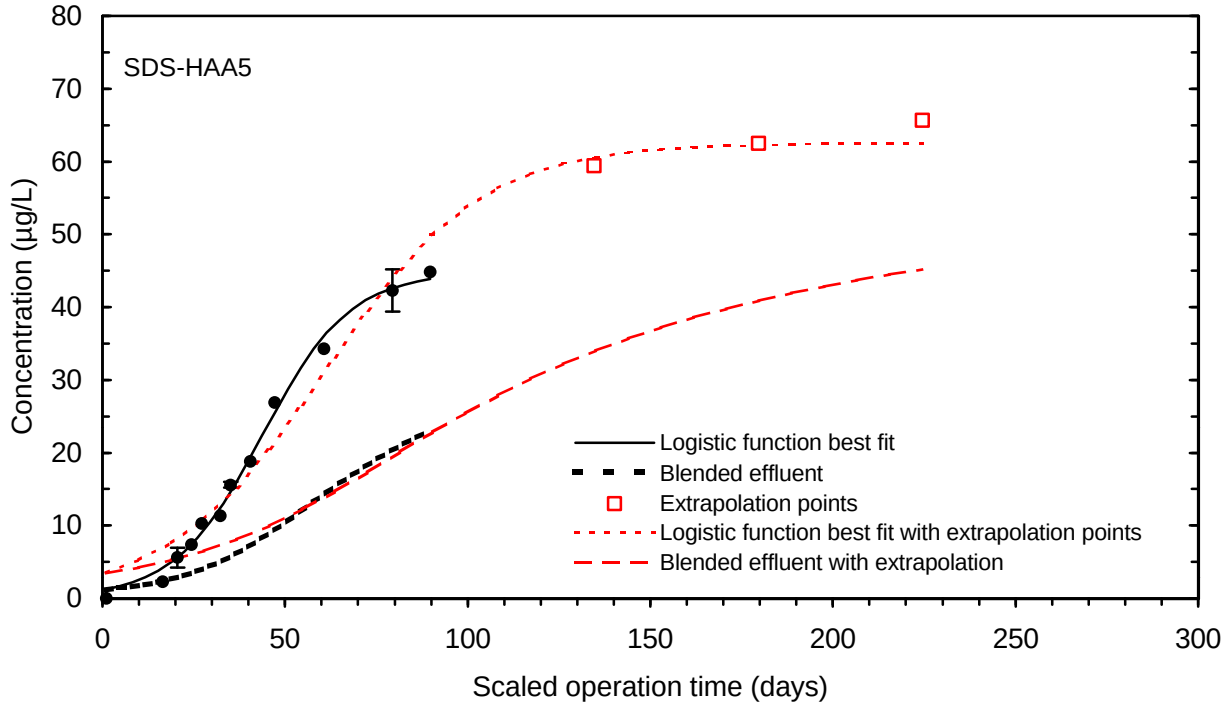

Figure B - 8 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (20 minute EBCT) during session 1, April

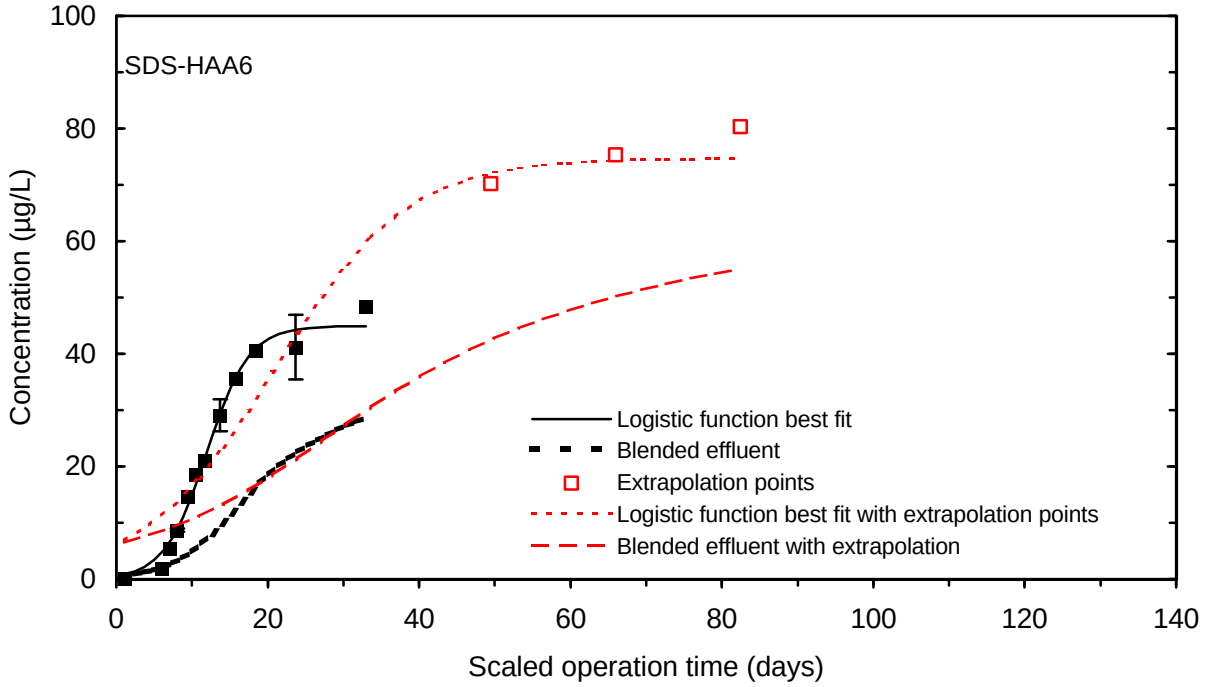

Figure B - 9 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (10 minute EBCT) during session 1, April

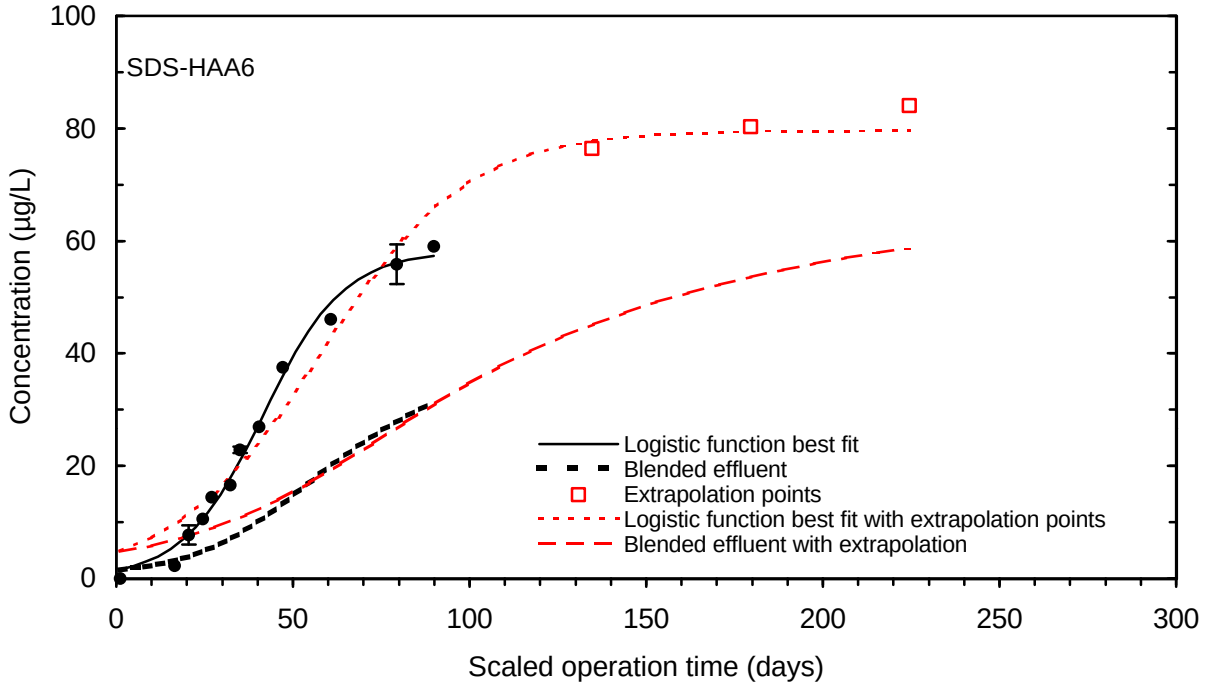

Figure B - 10 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (20 minute EBCT) during session 1, April

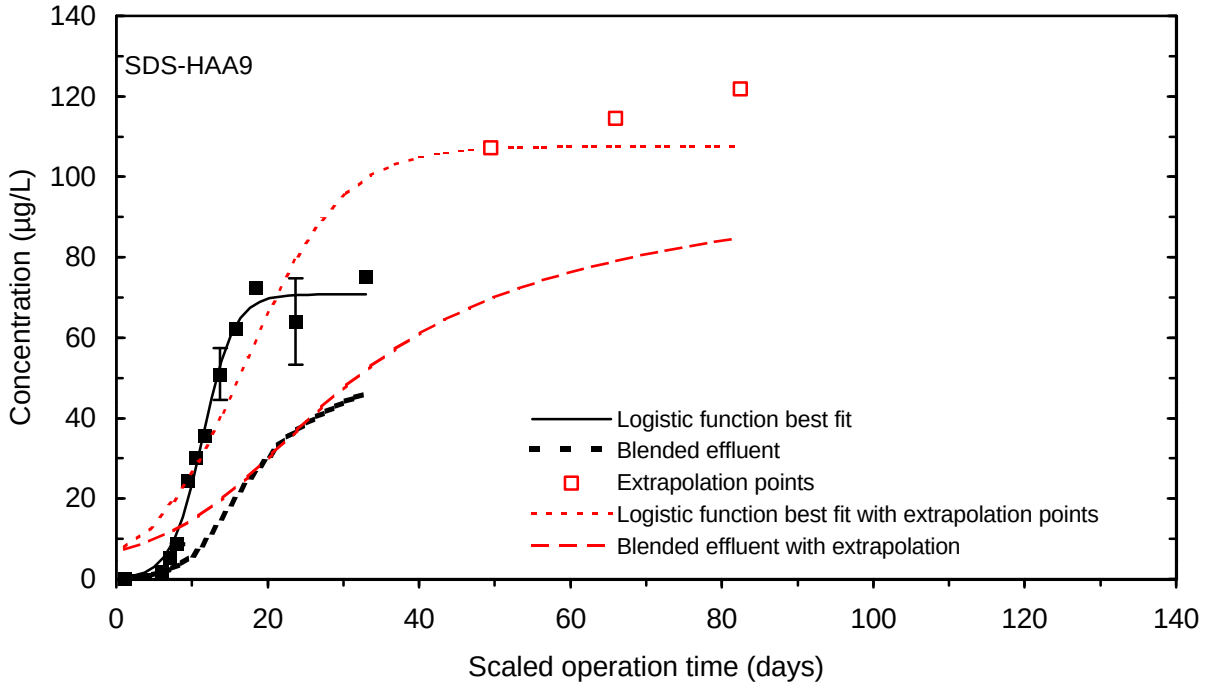

Figure B - 11 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (10 minute EBCT) during session 1, April

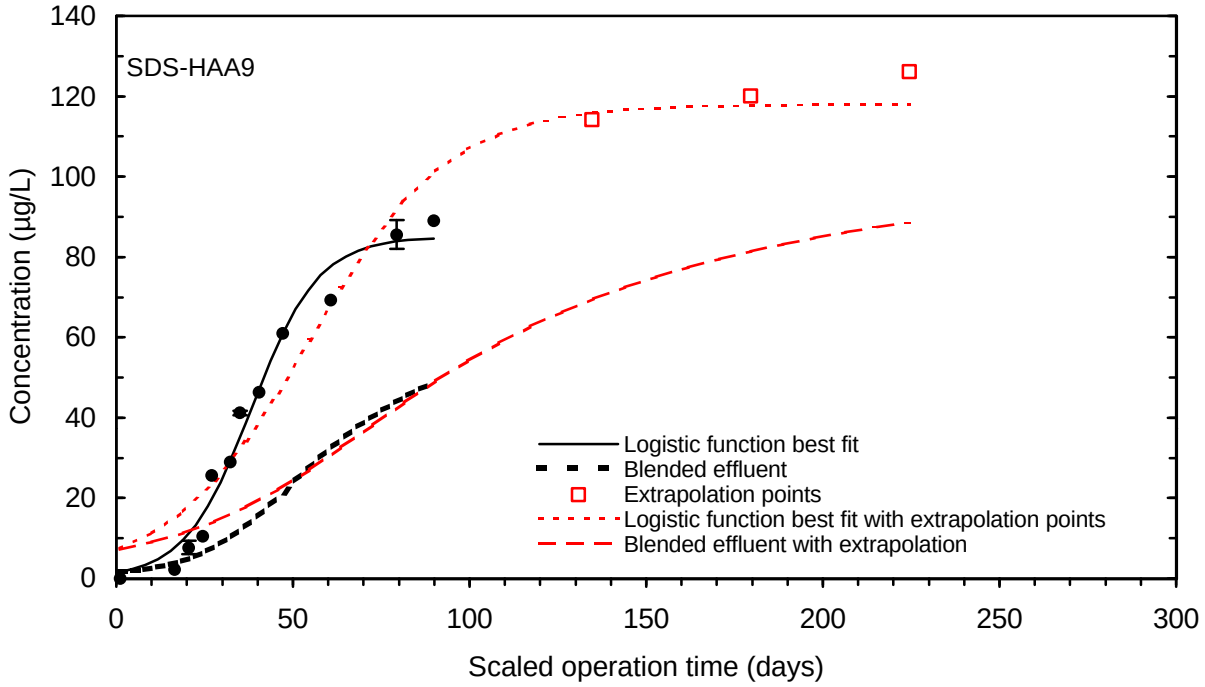

Figure B - 12 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (20 minute EBCT) during session 1, April

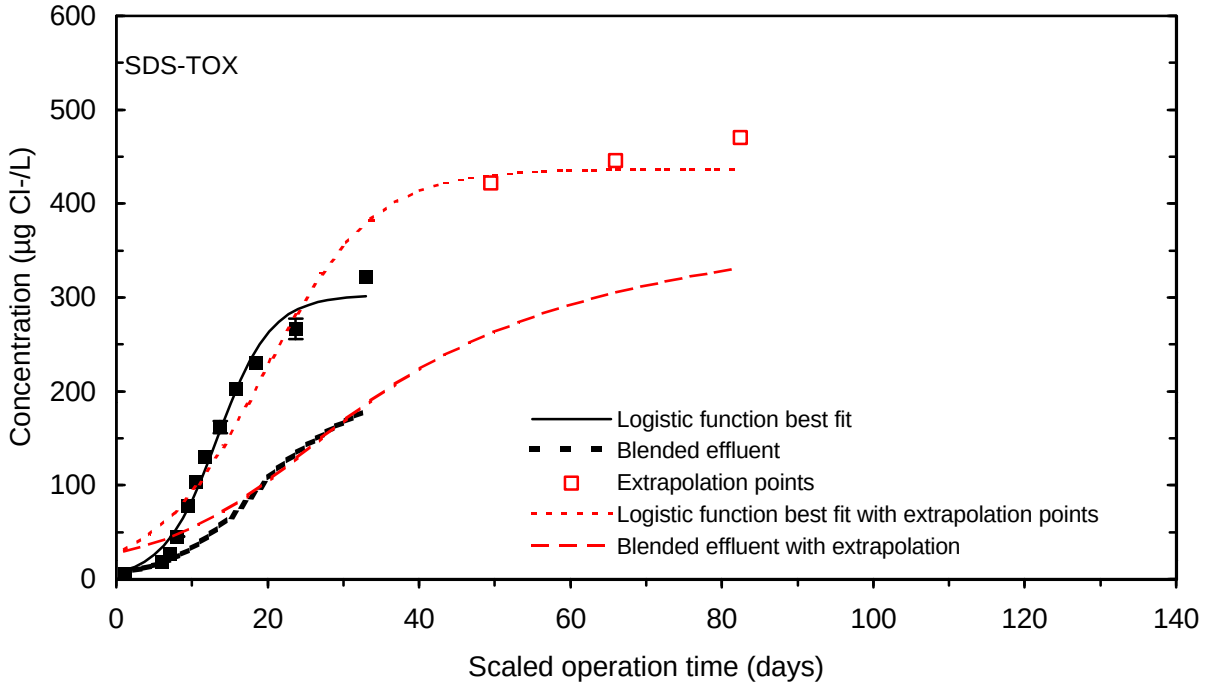

Figure B - 13 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (10 minute EBCT) during session 1, April

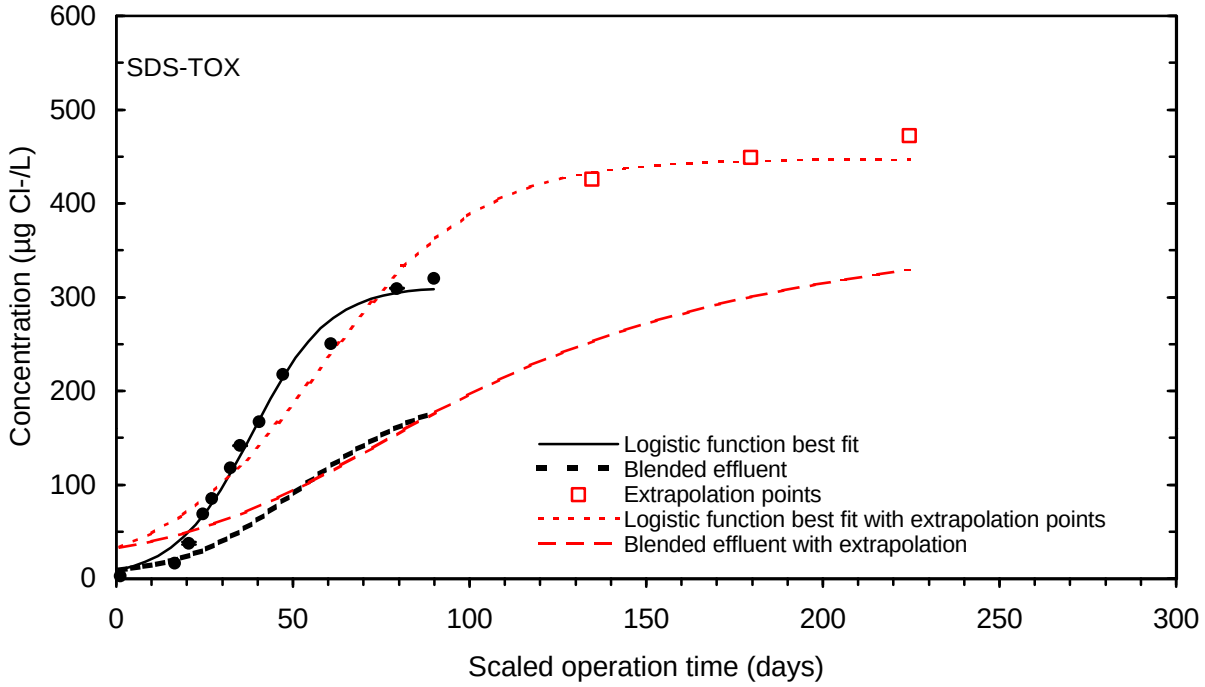

Figure B - 14 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (20 minute EBCT) during session 1, April

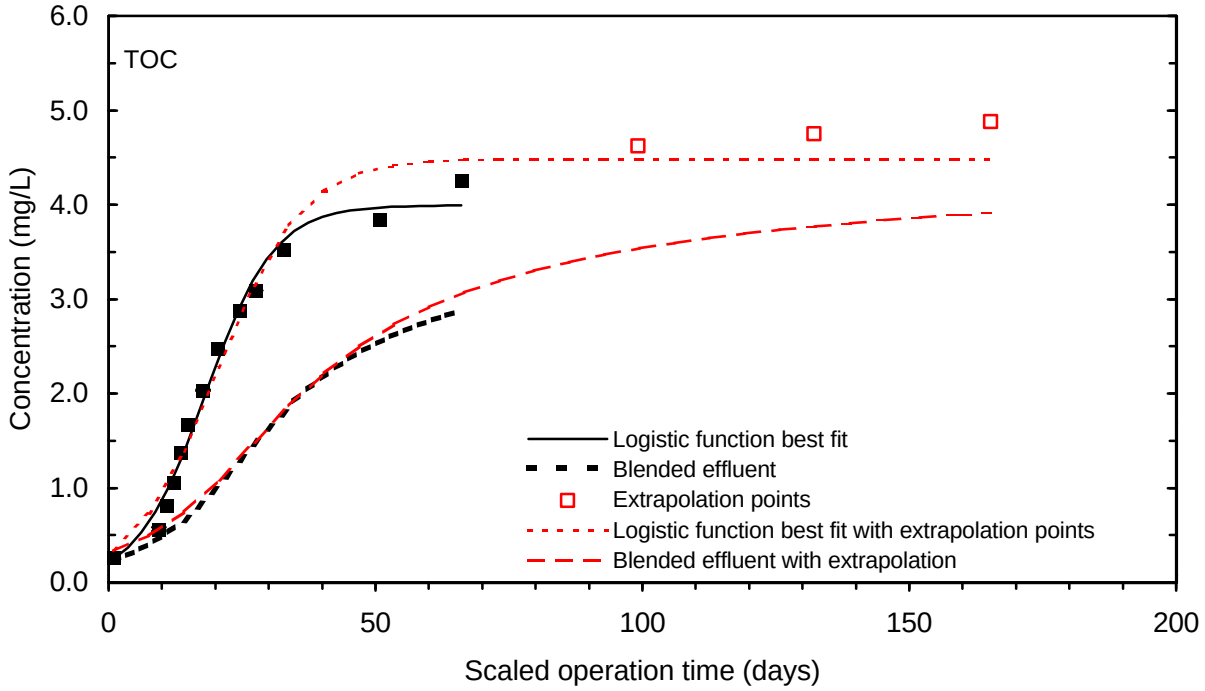

Figure B - 15 Single contactor and blended effluent extrapolated TOC breakthrough curve (10 minute EBCT) during session 2, August

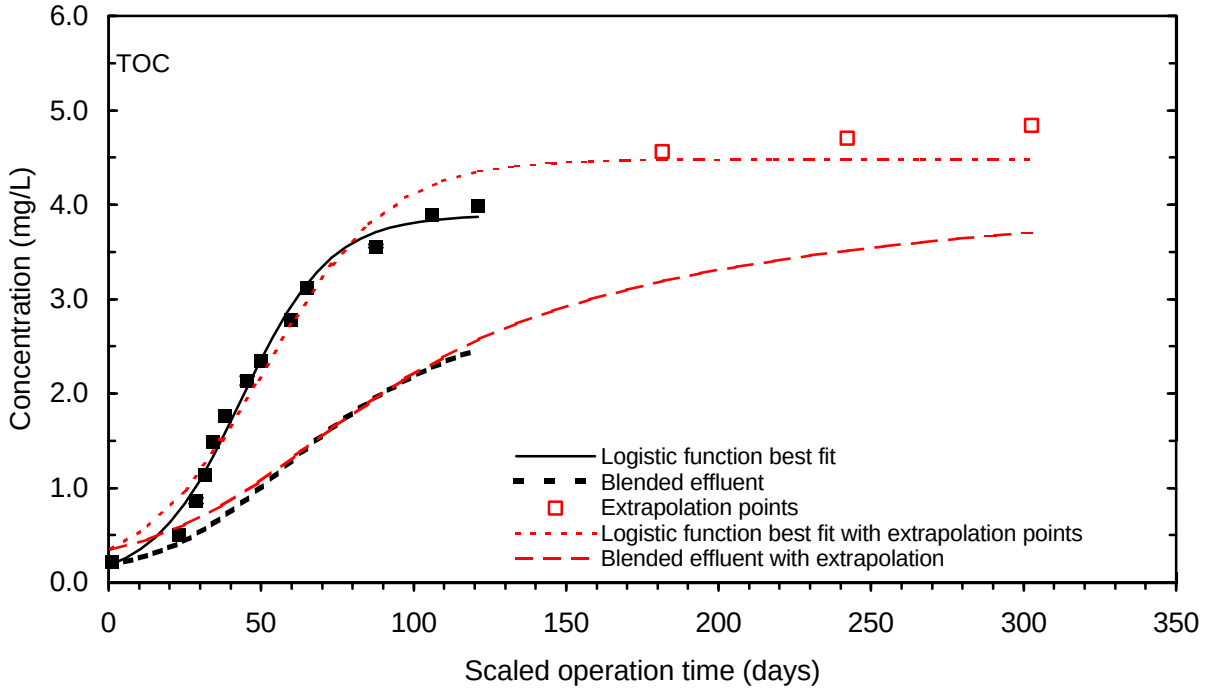

Figure B - 16 Single contactor and blended effluent extrapolated TOC breakthrough curve (20 minute EBCT) during session 2, August

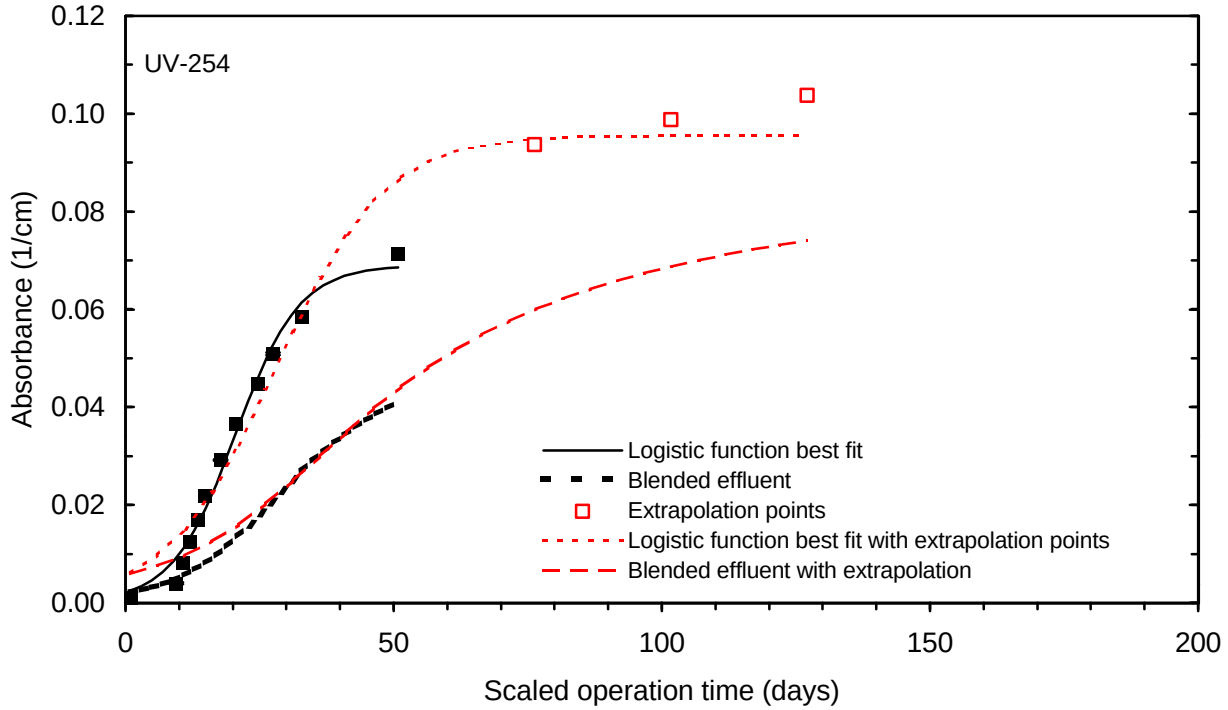

Figure B - 17 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (10 minute EBCT) during session 2, August

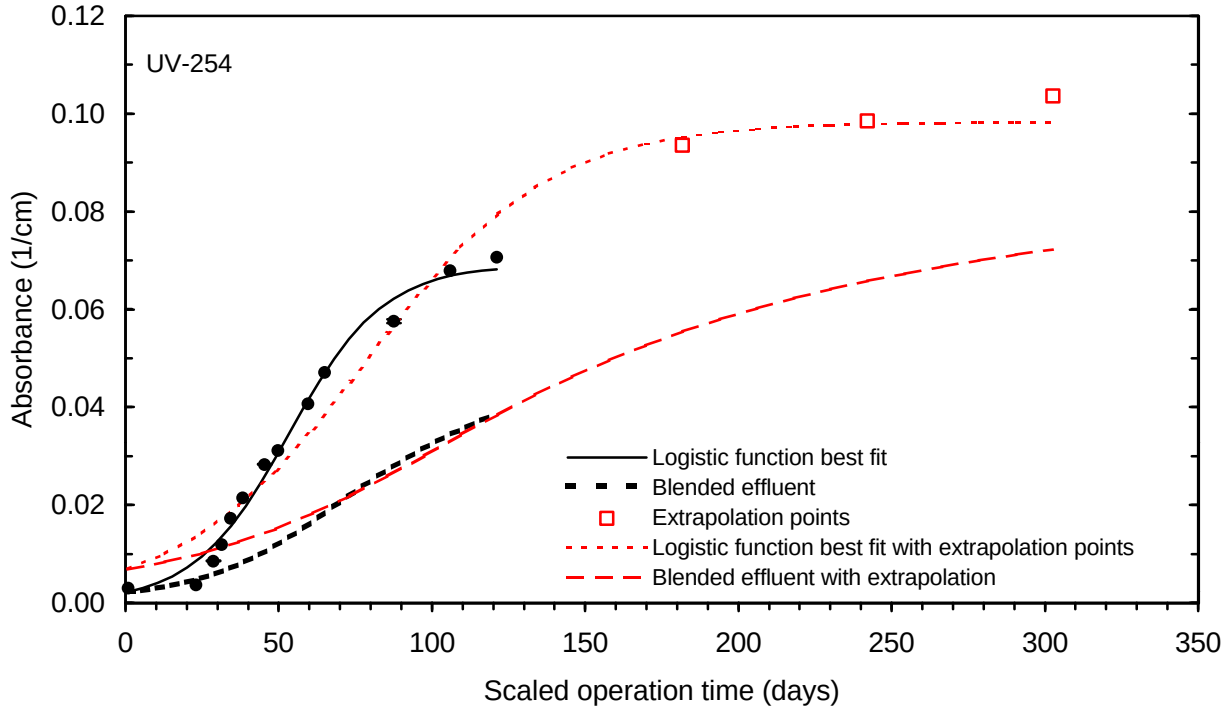

Figure B - 18 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (20 minute EBCT) during session 2, August

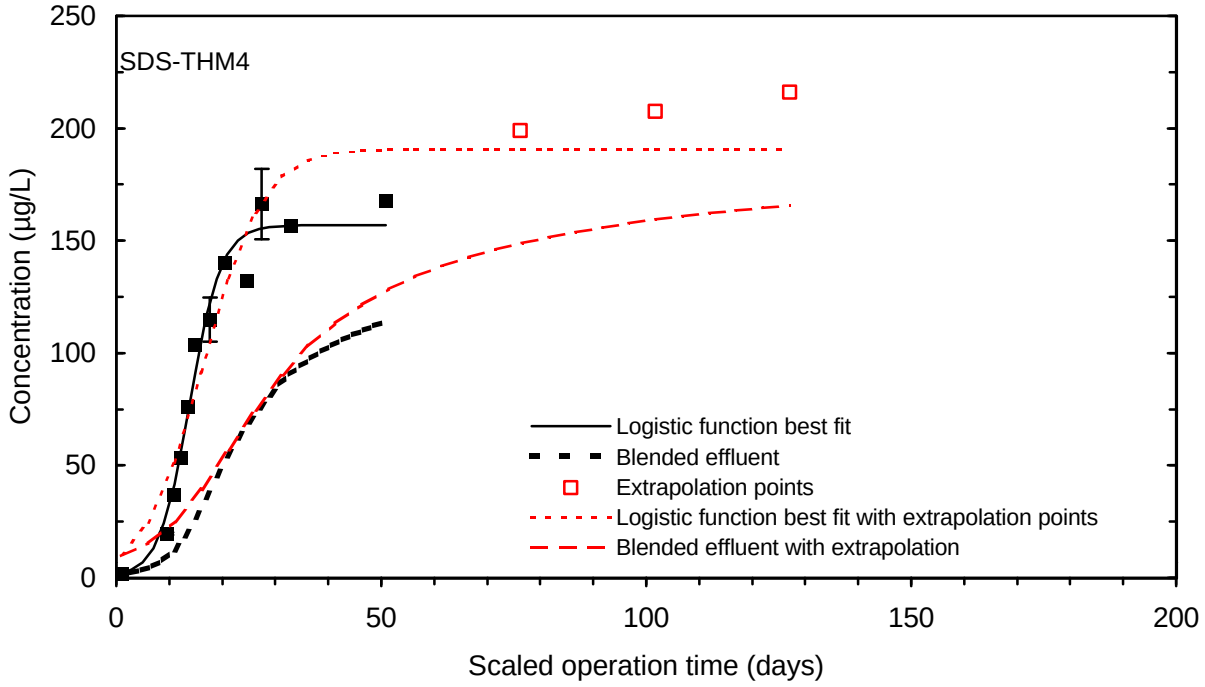

Figure B - 19 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (10 minute EBCT) during session 2, August

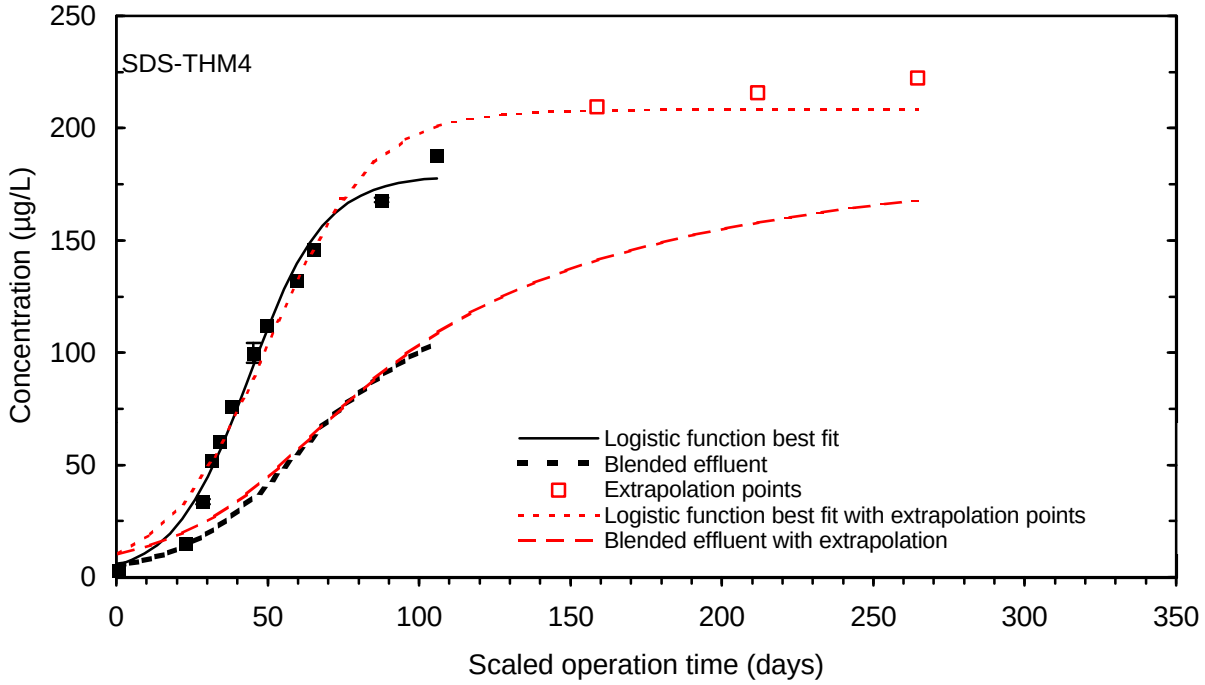

Figure B - 20 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (20 minute EBCT) during session 2, August

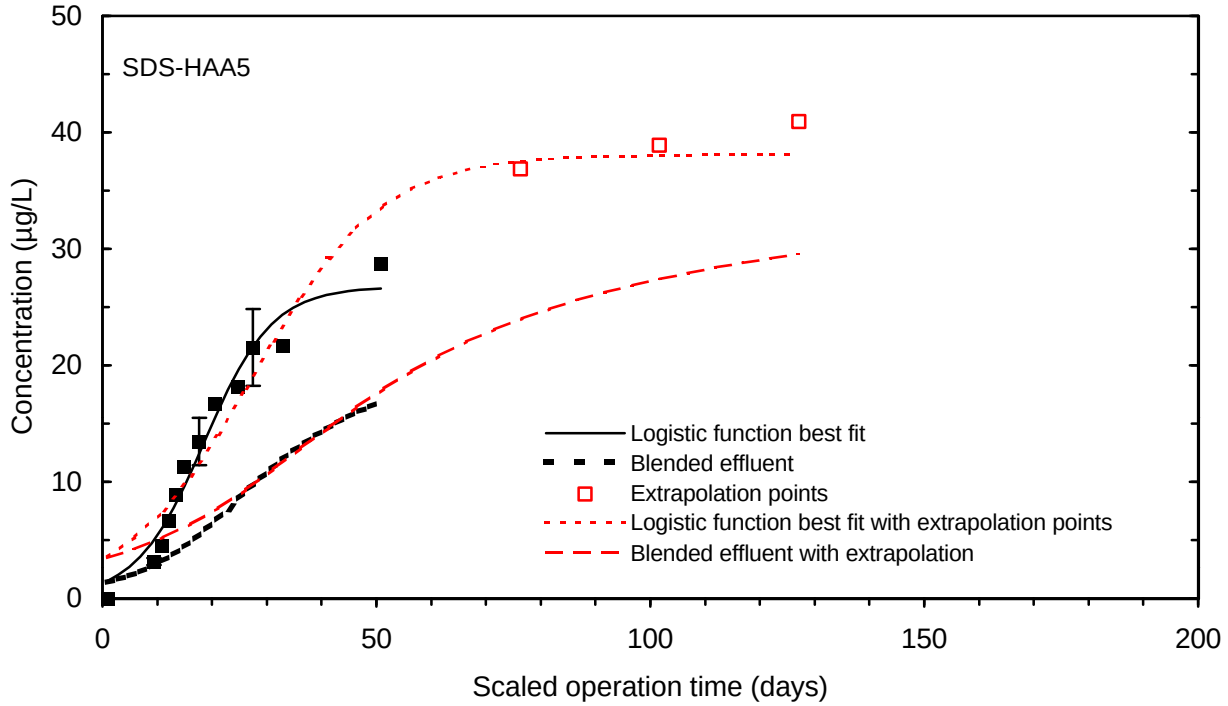

Figure B - 21 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (10 minute EBCT) during session 2, August

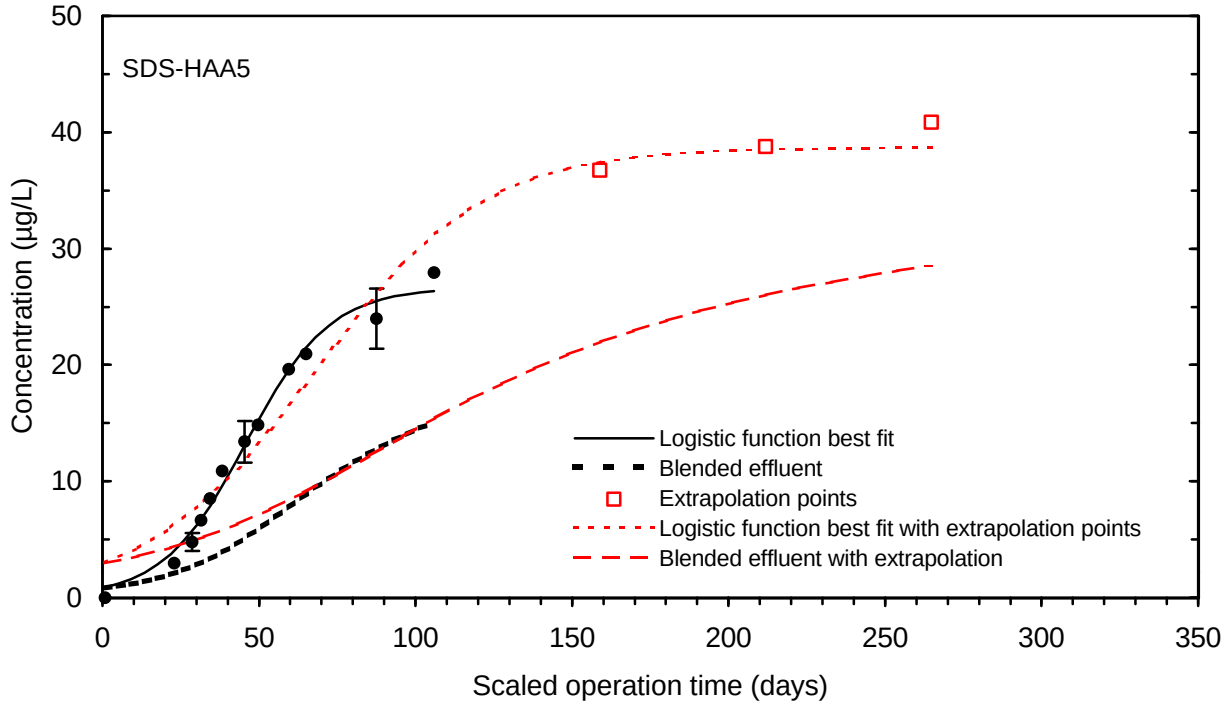

Figure B - 22 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (20 minute EBCT) during session 2, August

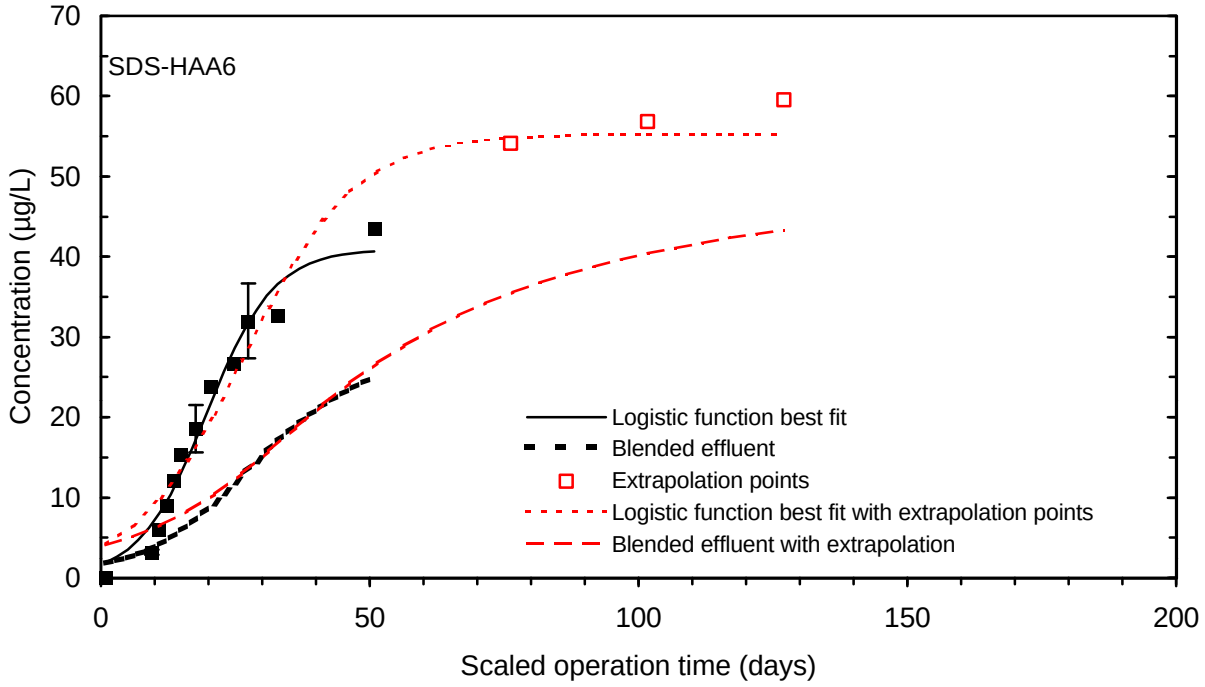

Figure B - 23 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (10 minute EBCT) during session 2, August

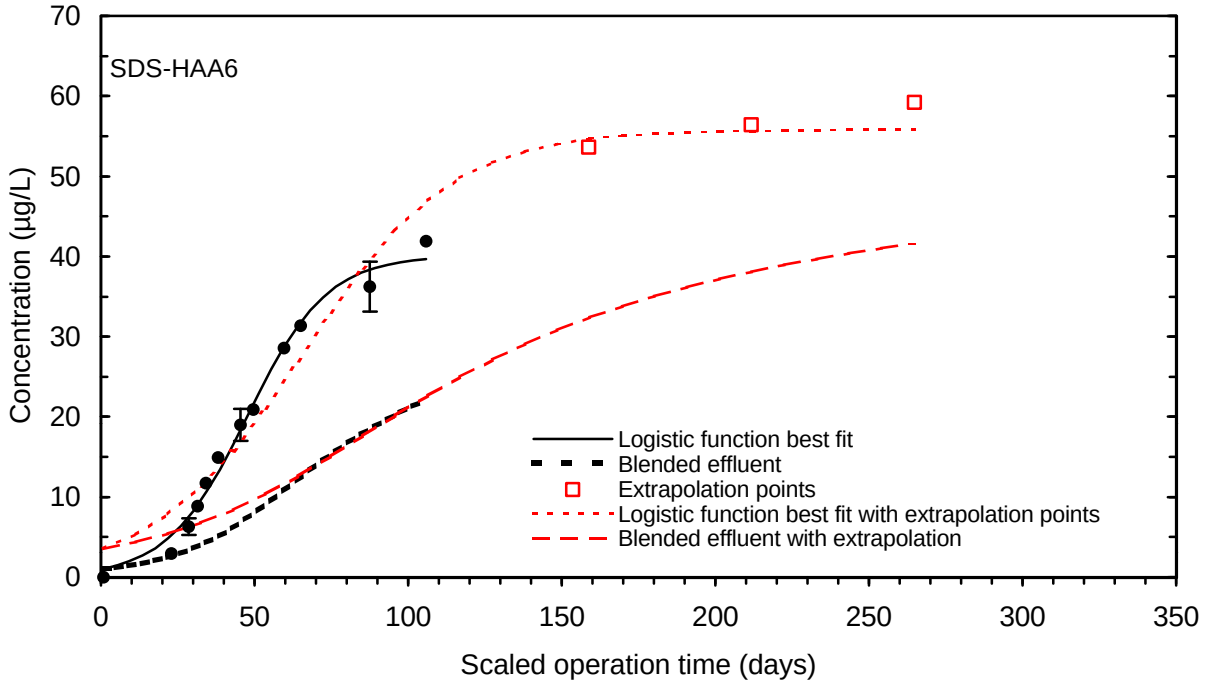

Figure B - 24 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (20 minute EBCT) during session 2, August

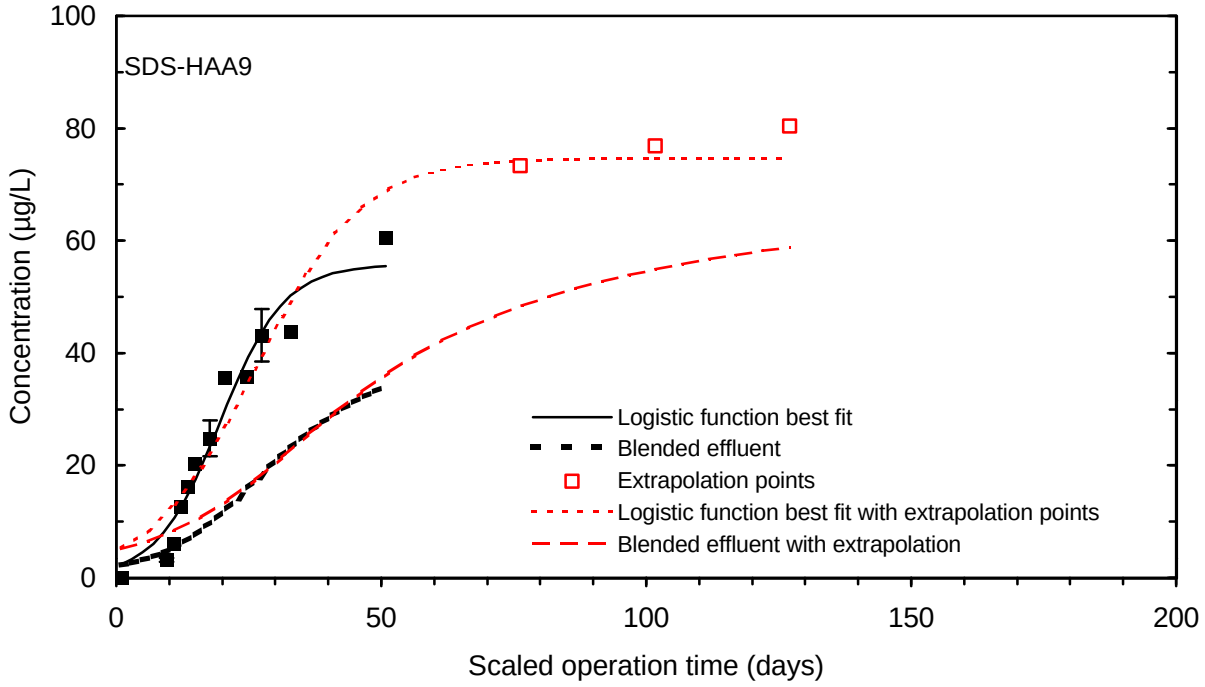

Figure B - 25 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (10 minute EBCT) during session 2, August

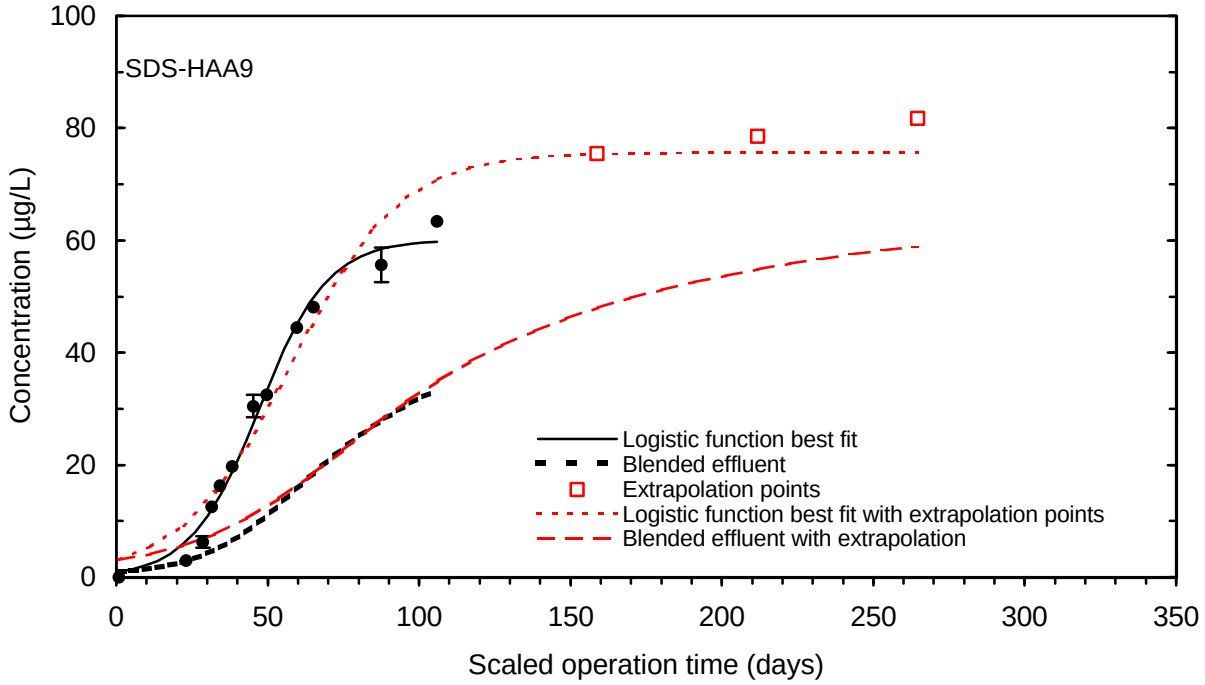

Figure B - 26 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (20 minute EBCT) during session 2, August

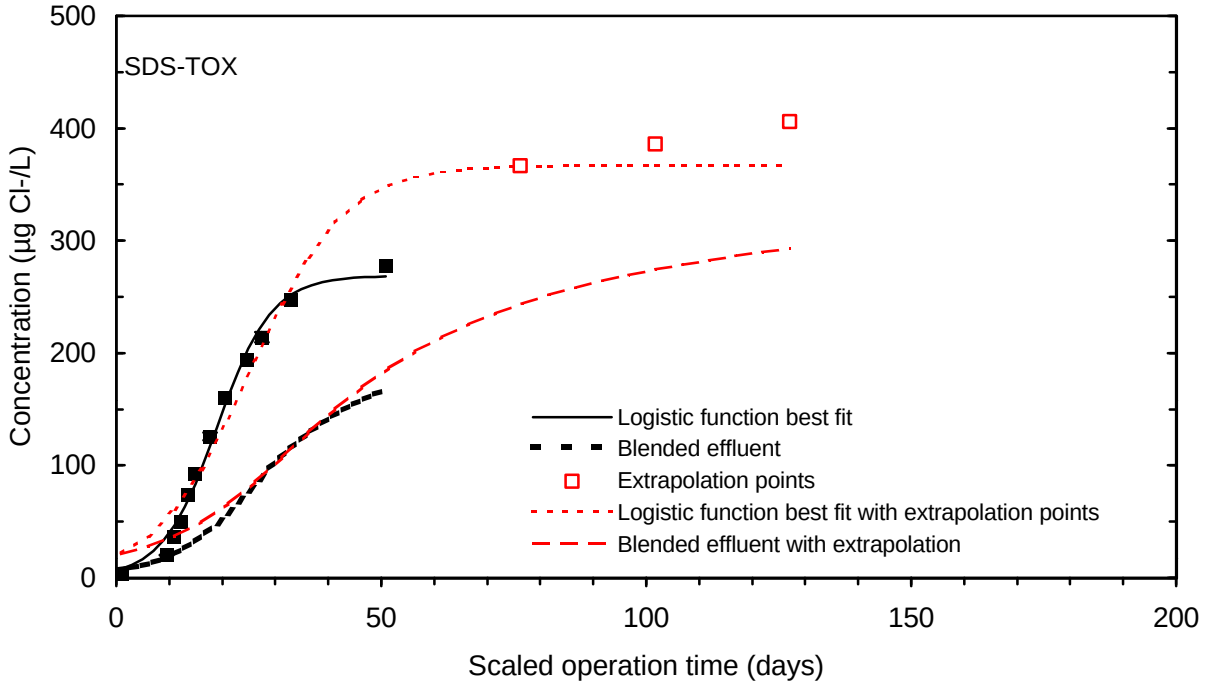

Figure B - 27 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (10 minute EBCT) during session 2, August

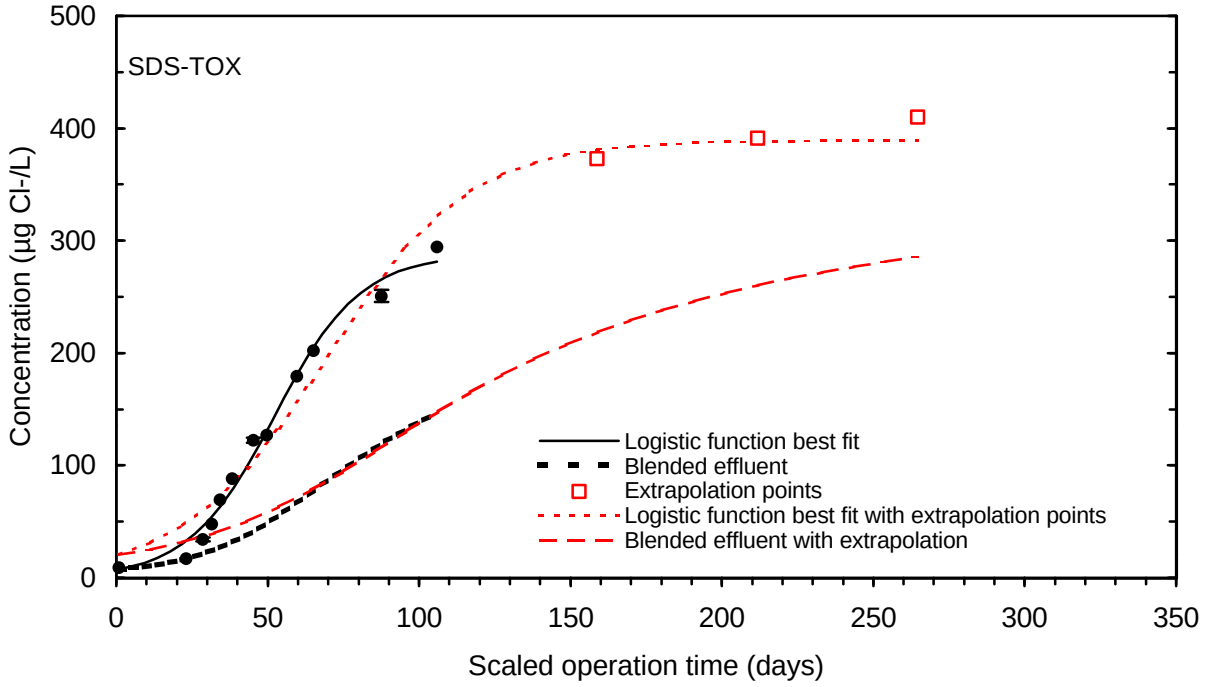

Figure B - 28 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (20 minute EBCT) during session 2, August

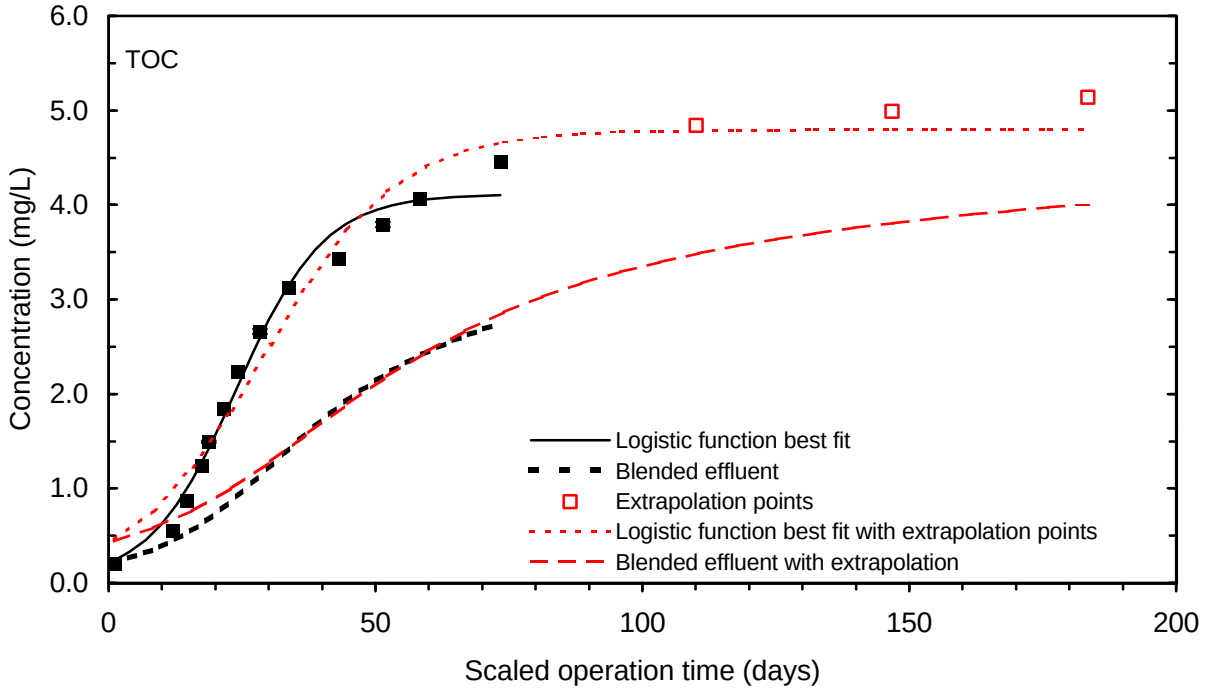

Figure B - 29 Single contactor and blended effluent extrapolated TOC breakthrough curve (10 minute EBCT) during session 3, October

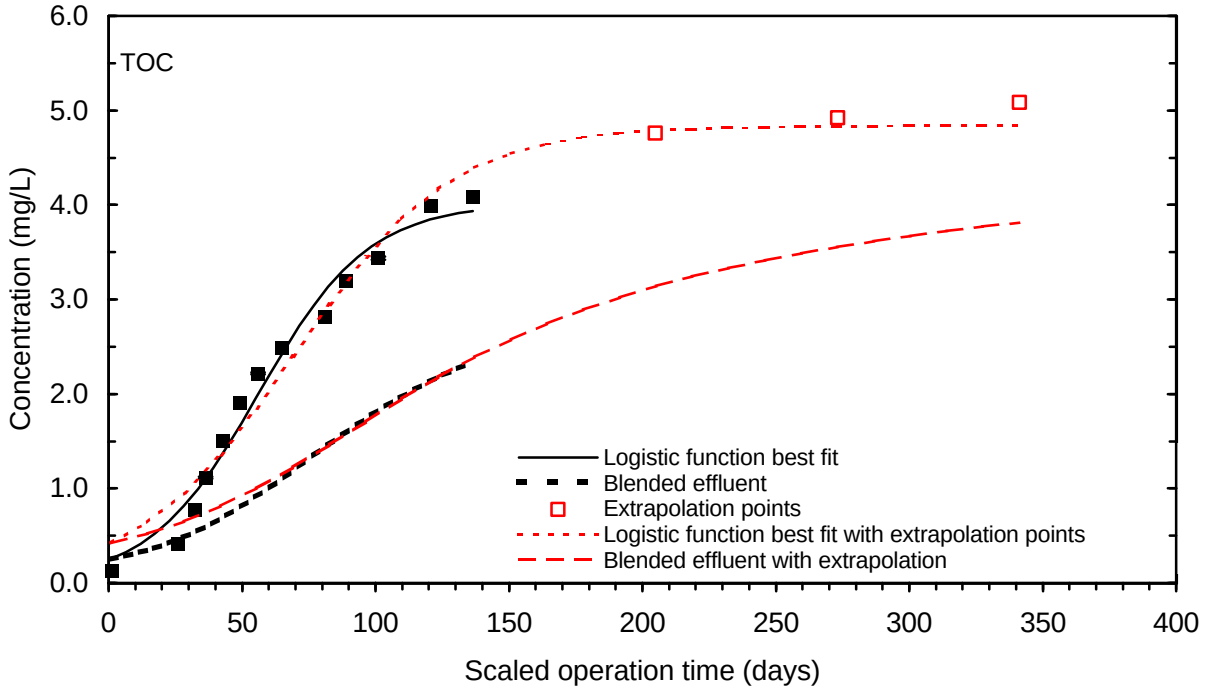

Figure B - 30 Single contactor and blended effluent extrapolated TOC breakthrough curve (20 minute EBCT) during session 3, October

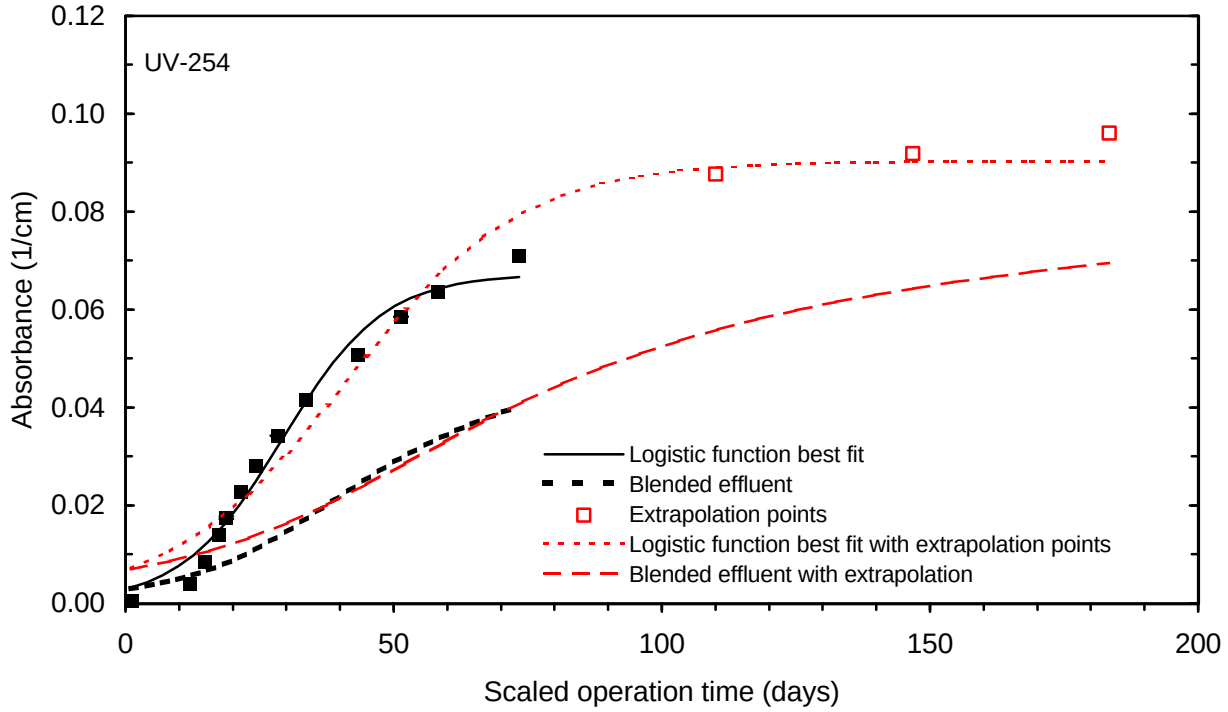

Figure B - 31 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (10 minute EBCT) during session 3, October

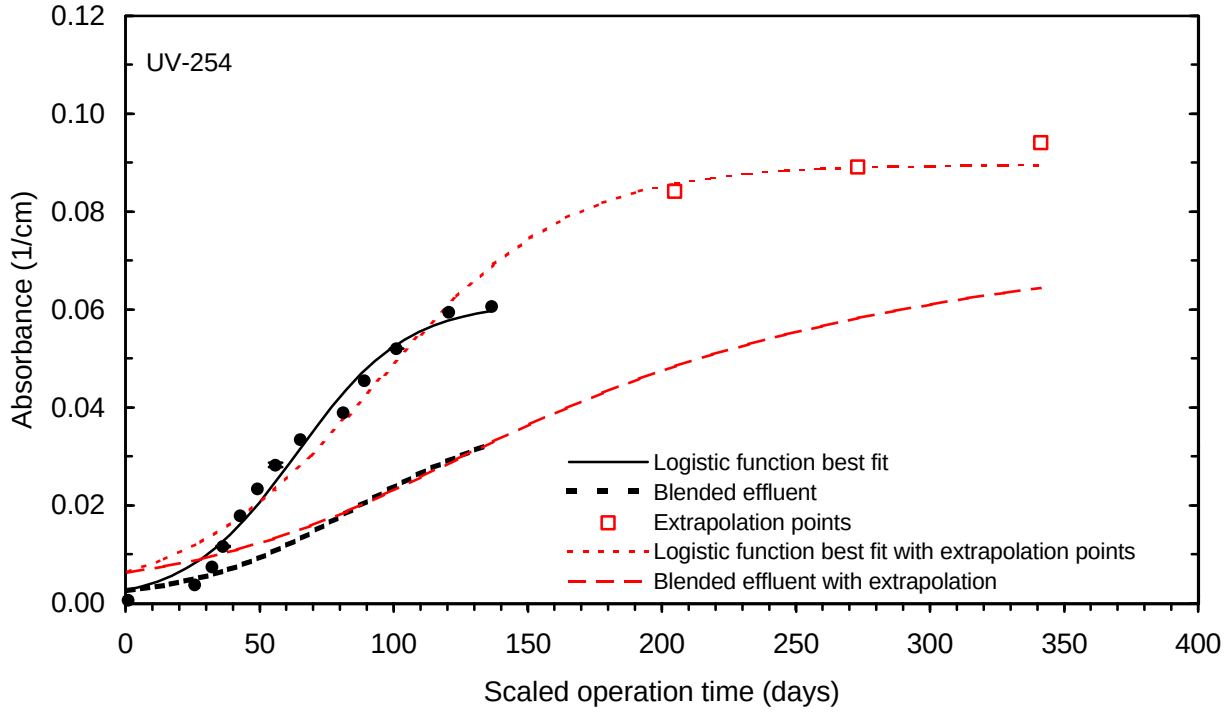

Figure B - 32 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (20 minute EBCT) during session 3, October

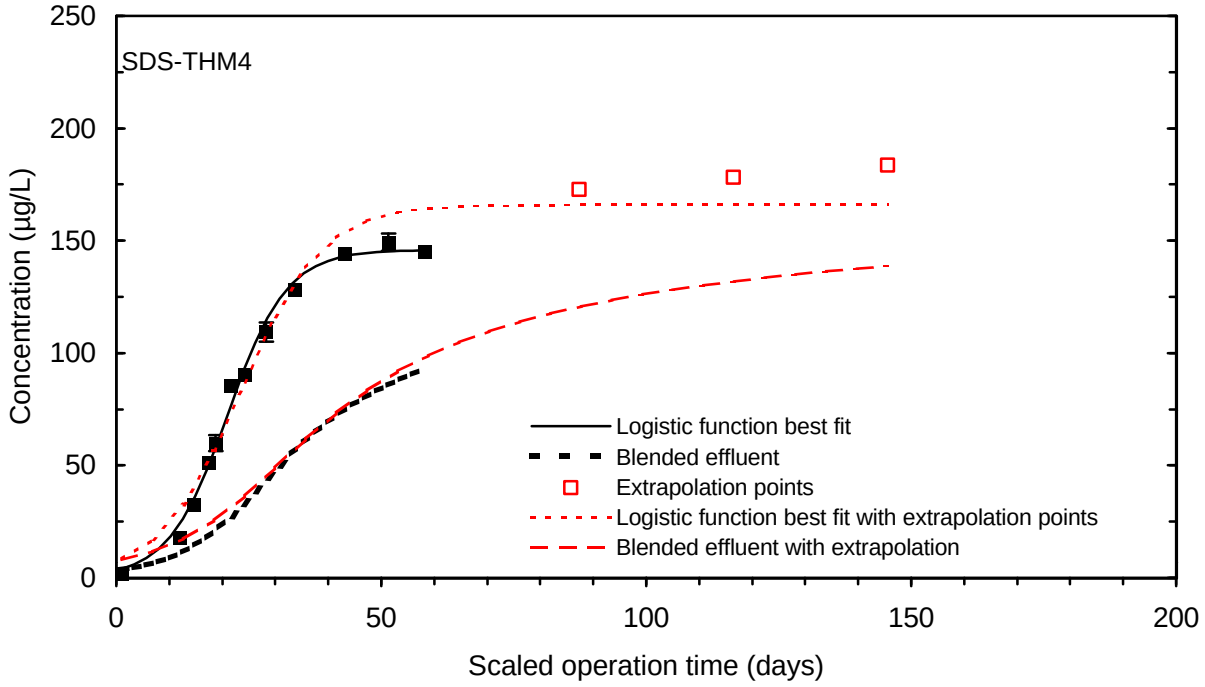

Figure B - 33 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (10 minute EBCT) during session 3, October

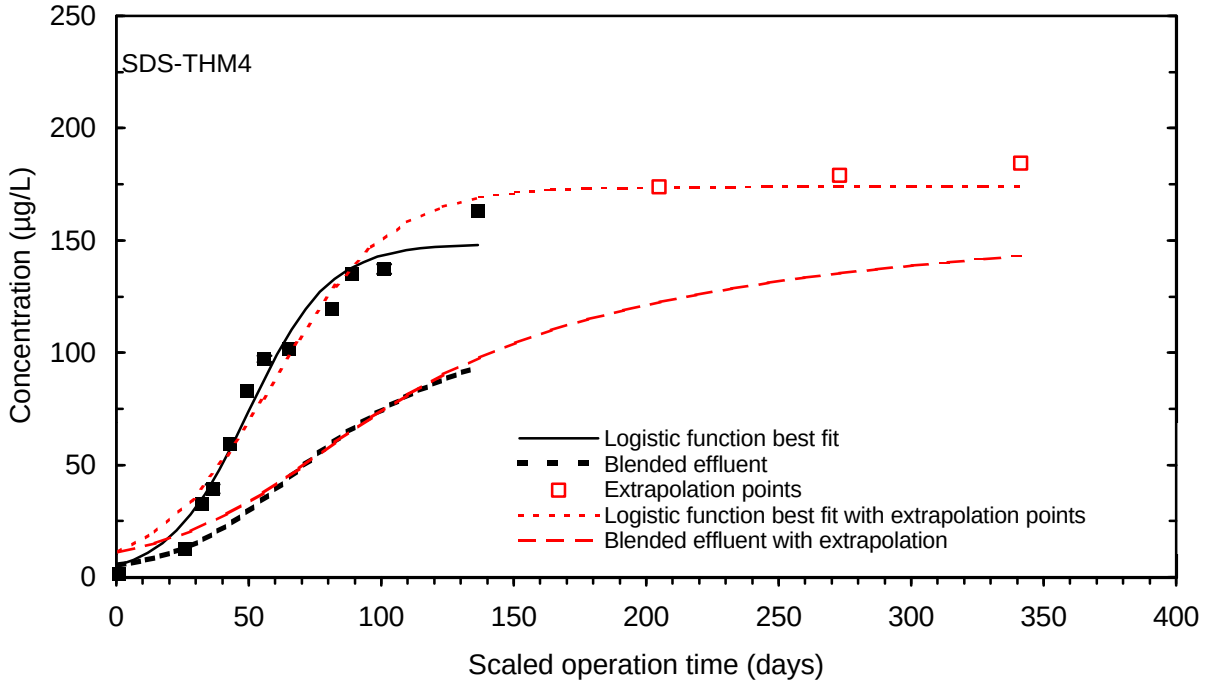

Figure B - 34 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (20 minute EBCT) during session 3, October

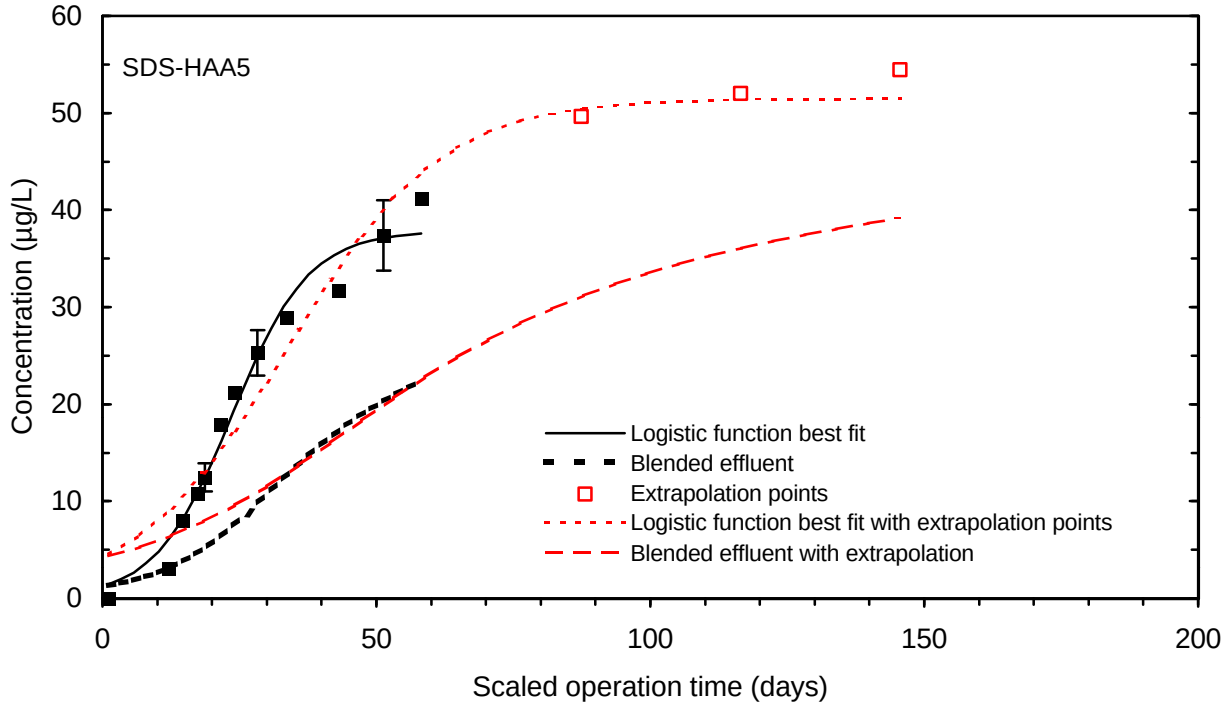

Figure B - 35 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (10 minute EBCT) during session 3, October

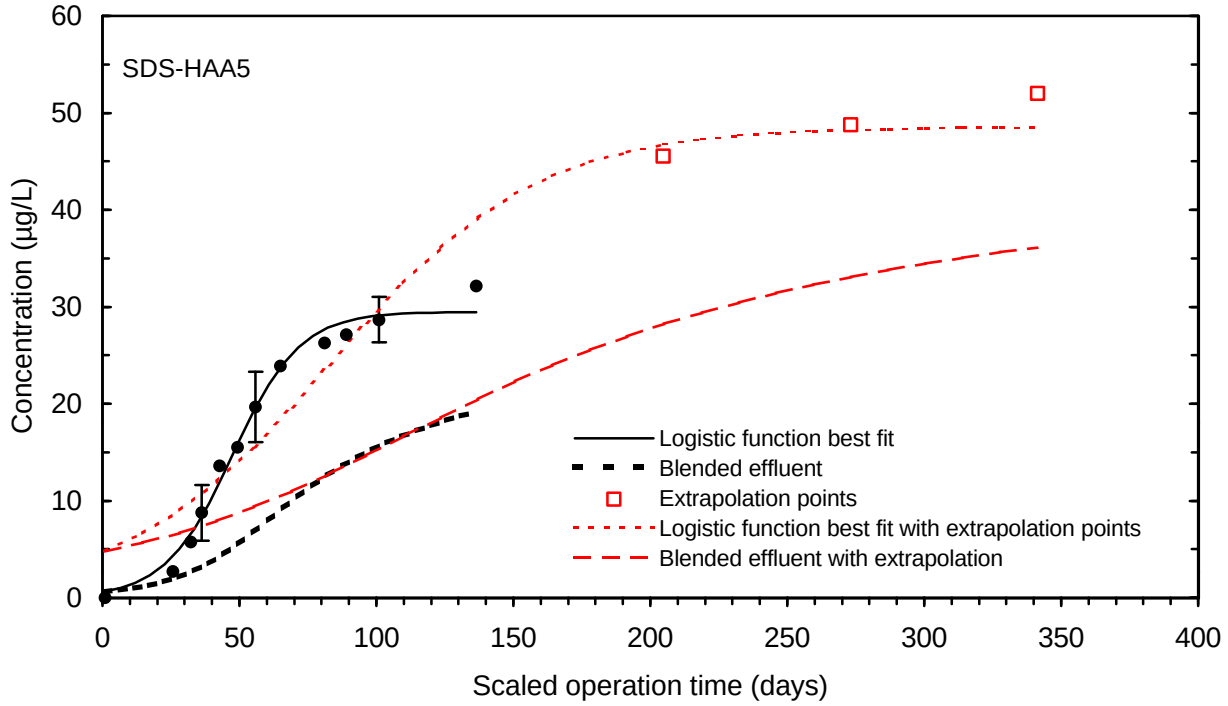

Figure B - 36 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (20 minute EBCT) during session 3, October

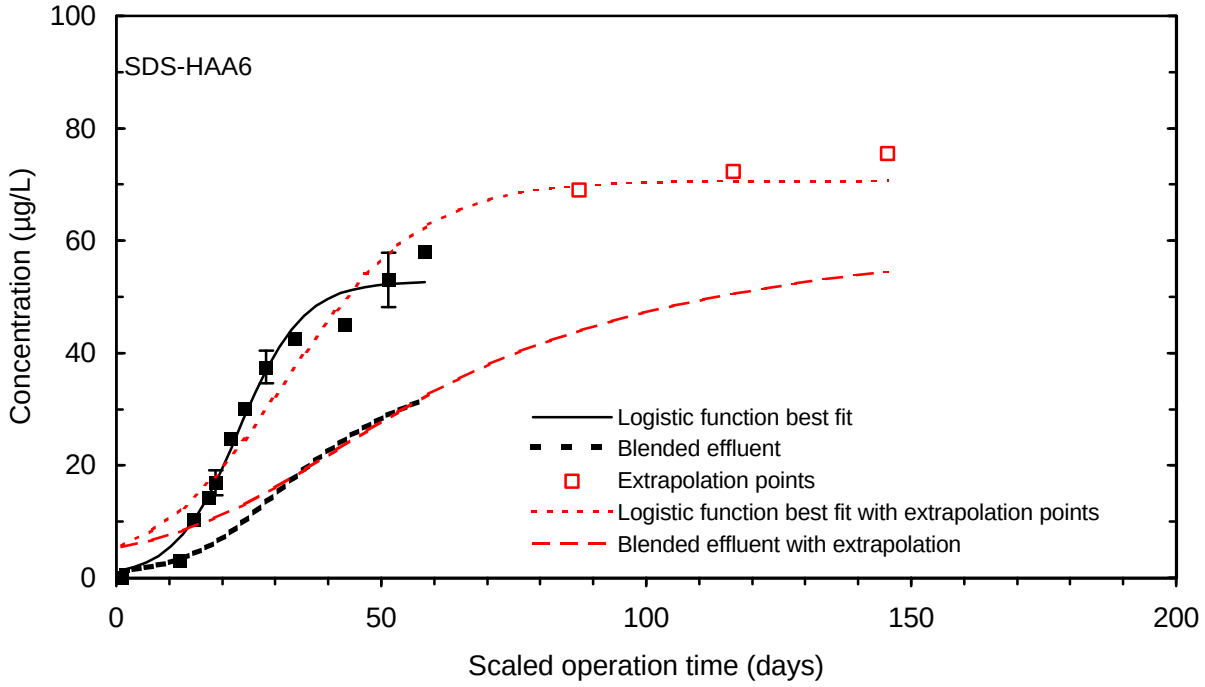

Figure B - 37 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (10 minute EBCT) during session 3, October

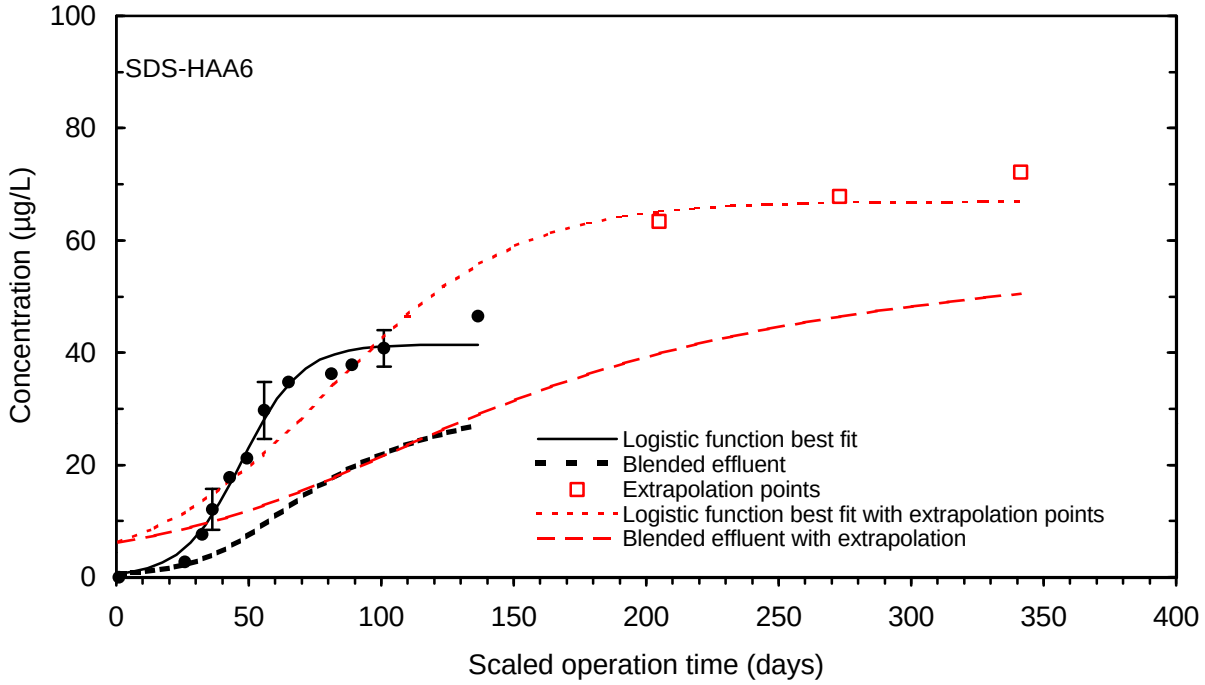

Figure B - 38 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (20 minute EBCT) during session 3, October

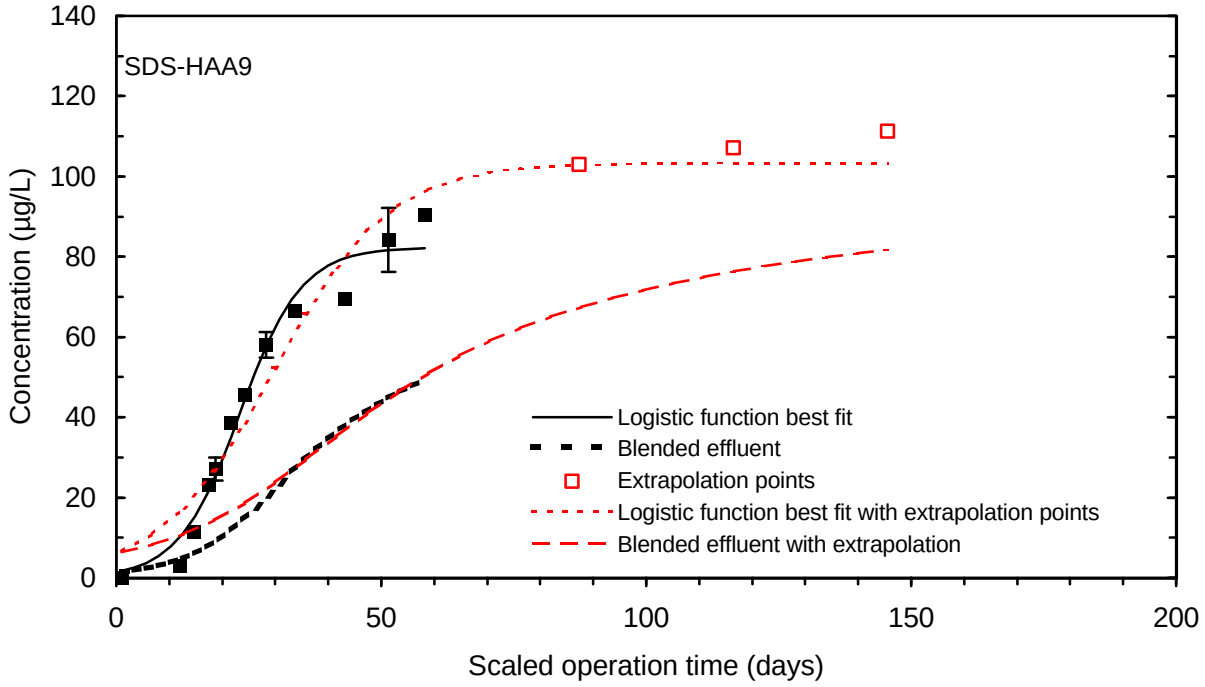

Figure B - 39 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (10 minute EBCT) during session 3, October

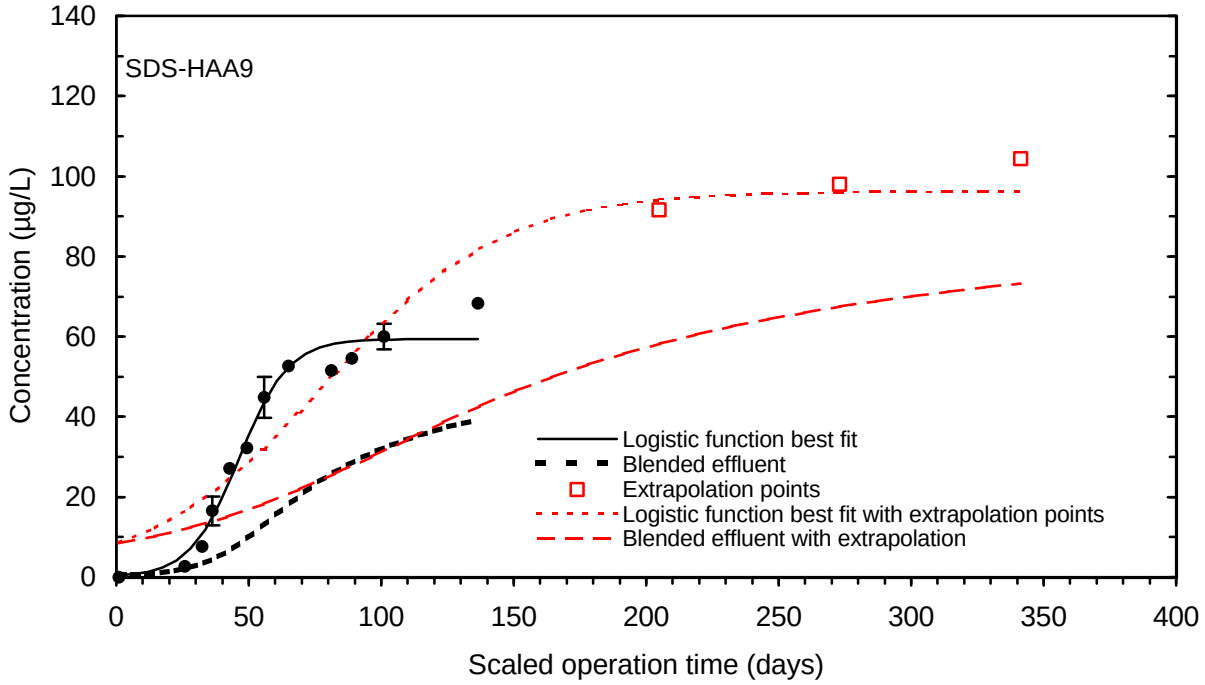

Figure B - 40 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (20 minute EBCT) during session 3, October

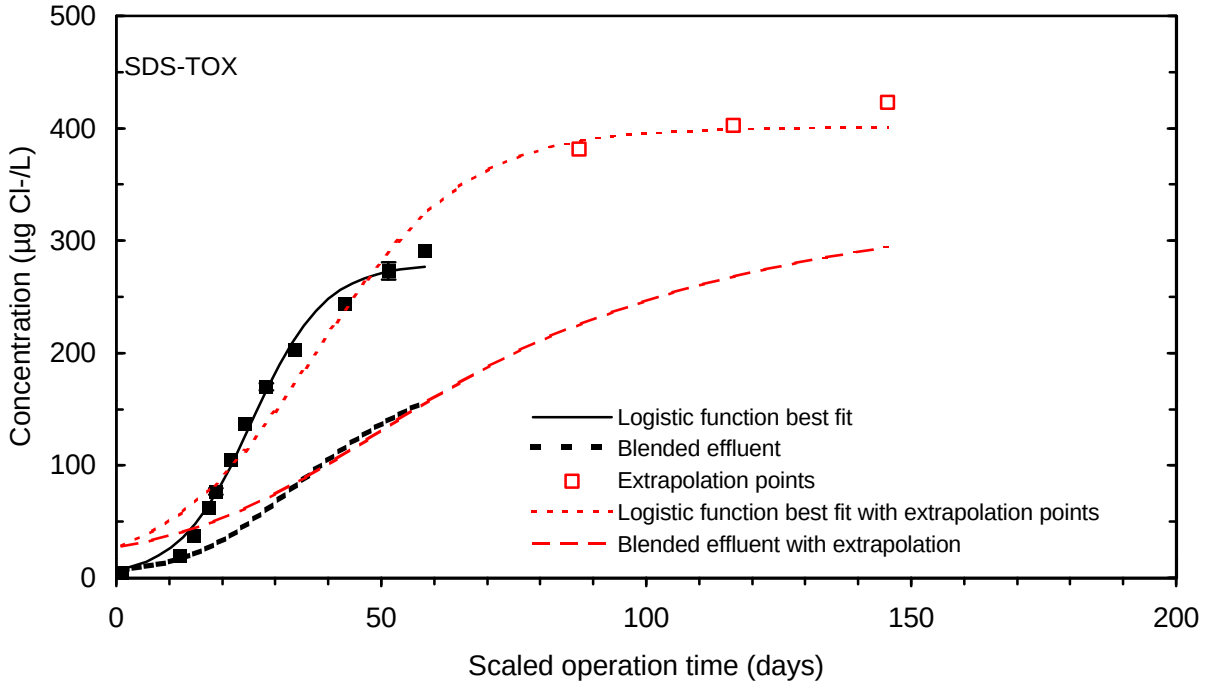

Figure B - 41 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (10 minute EBCT) during session 3, October

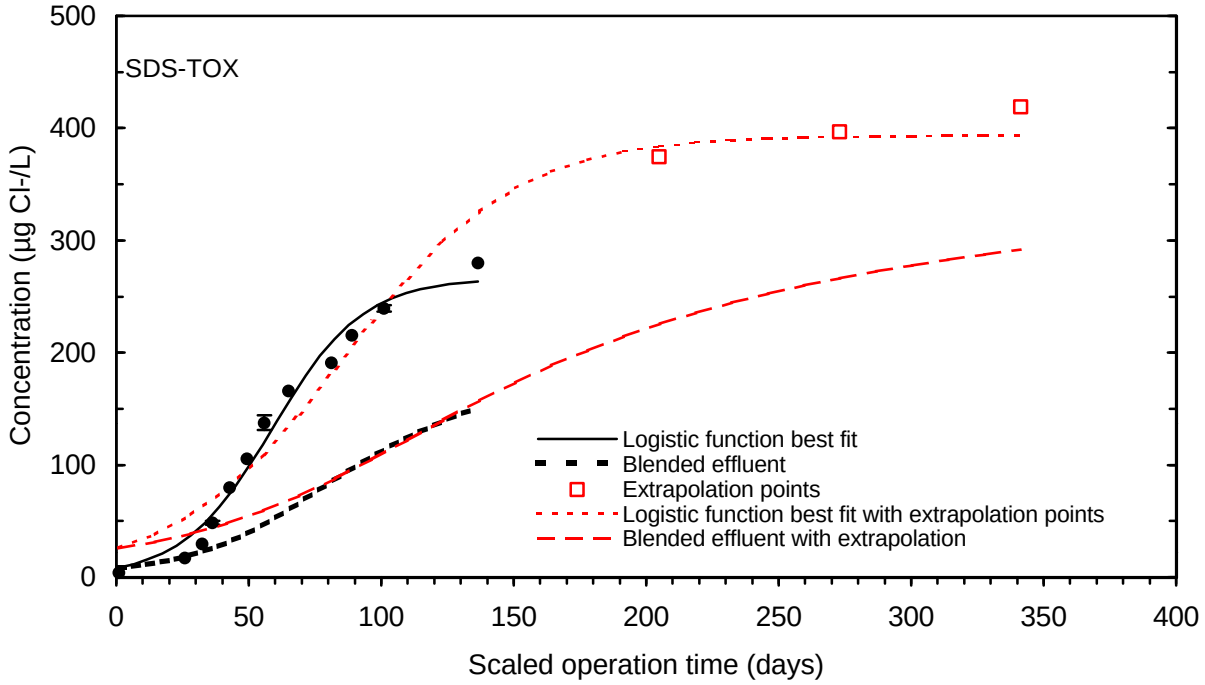

Figure B - 42 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (20 minute EBCT) during session 3, October

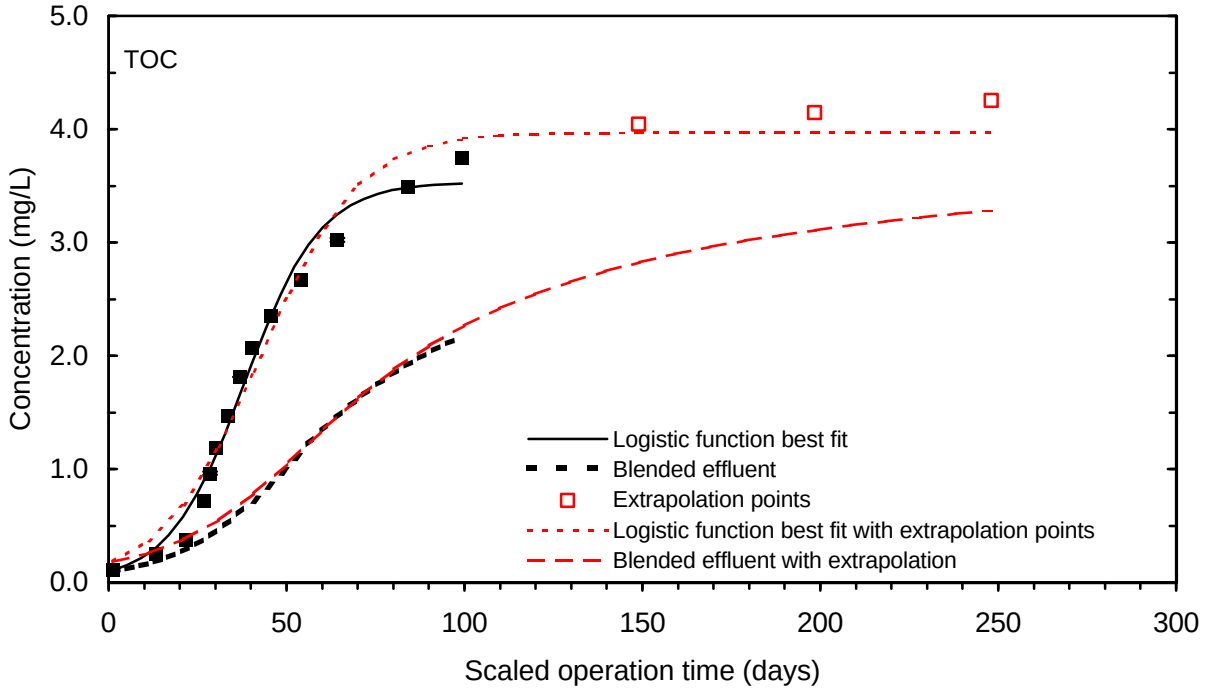

Figure B - 43 Single contactor and blended effluent extrapolated TOC breakthrough curve (10 minute EBCT) during session 4, October-EC

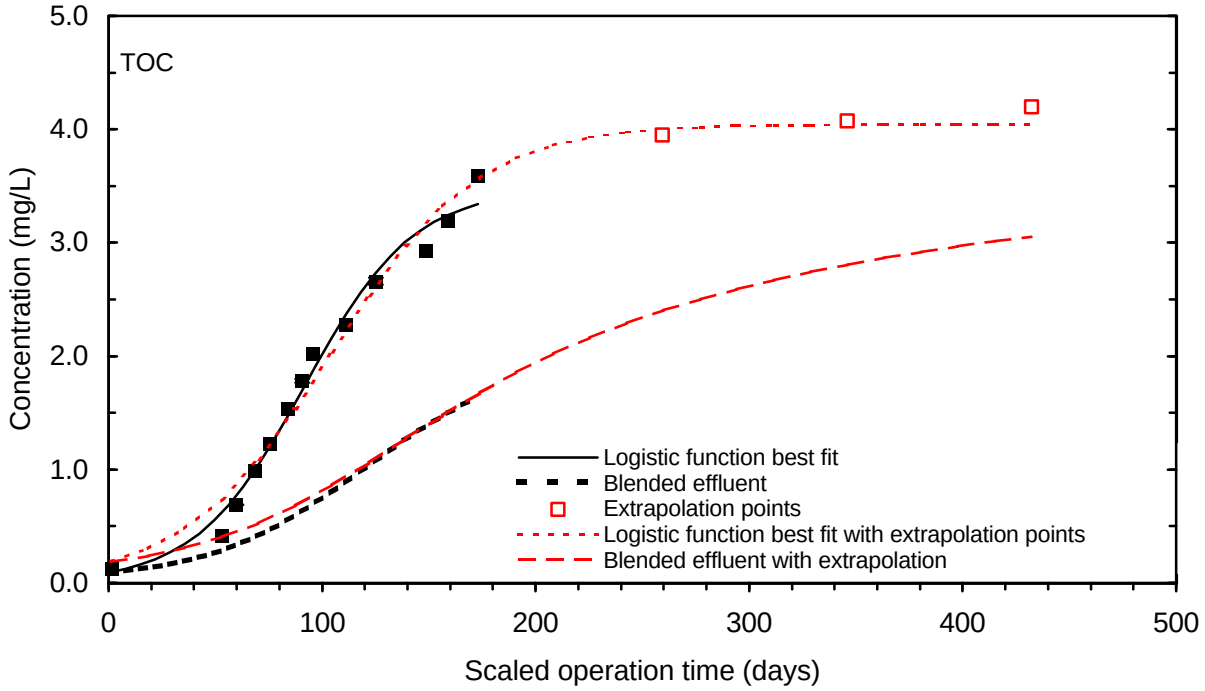

Figure B - 44 Single contactor and blended effluent extrapolated TOC breakthrough curve (20 minute EBCT) during session 4, October-EC

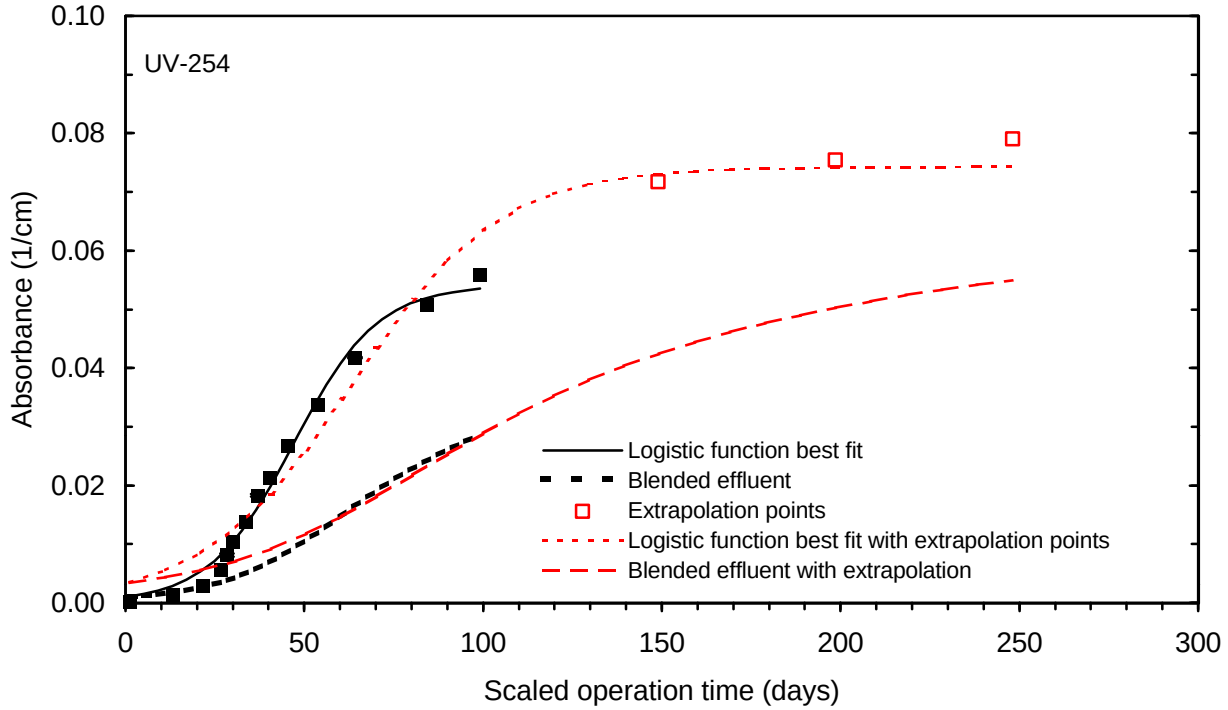

Figure B - 45 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (10 minute EBCT) during session 4, October-EC

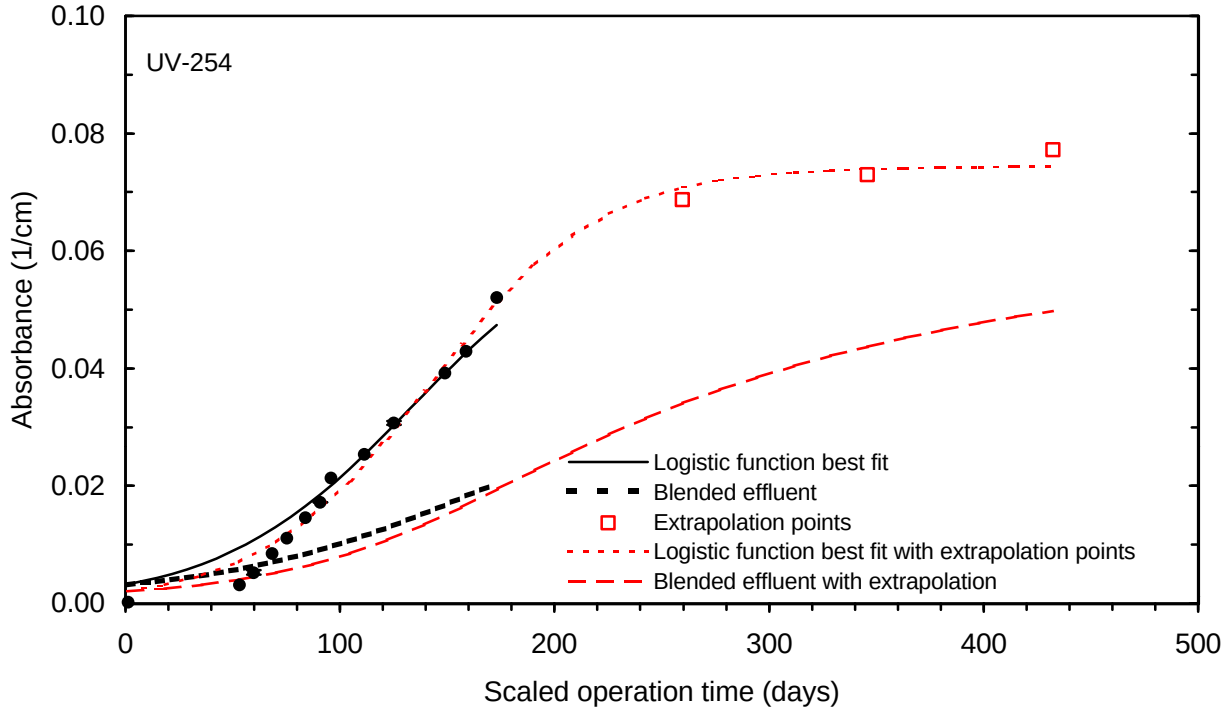

Figure B - 46 Single contactor and blended effluent extrapolated UV-254 breakthrough curve (20 minute EBCT) during session 4, October-EC

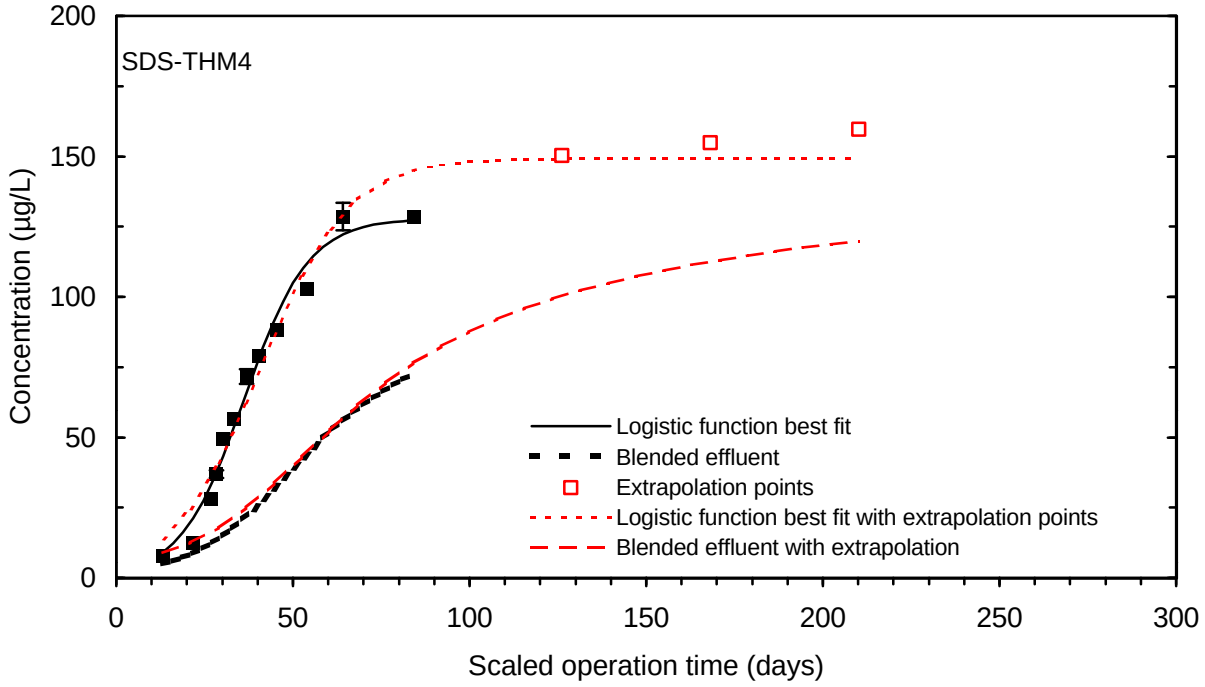

Figure B - 47 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (10 minute EBCT) during session 4, October-EC

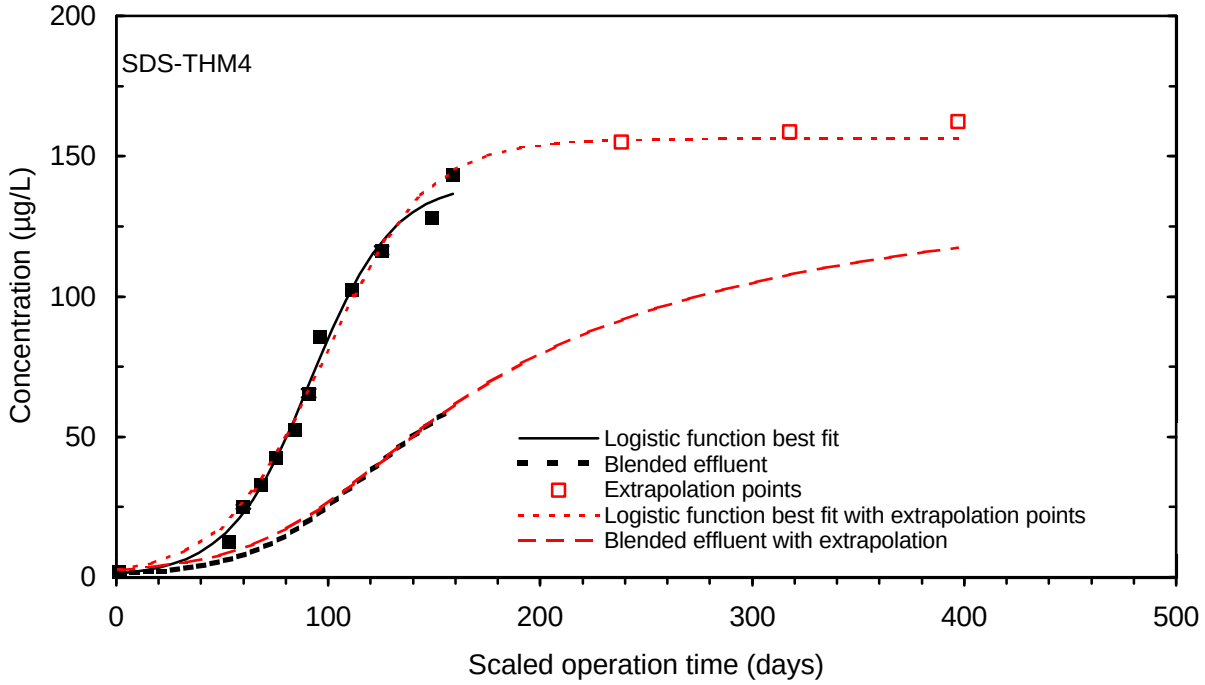

Figure B - 48 Single contactor and blended effluent extrapolated SDS-THM4 breakthrough curve (20 minute EBCT) during session 4, October-EC

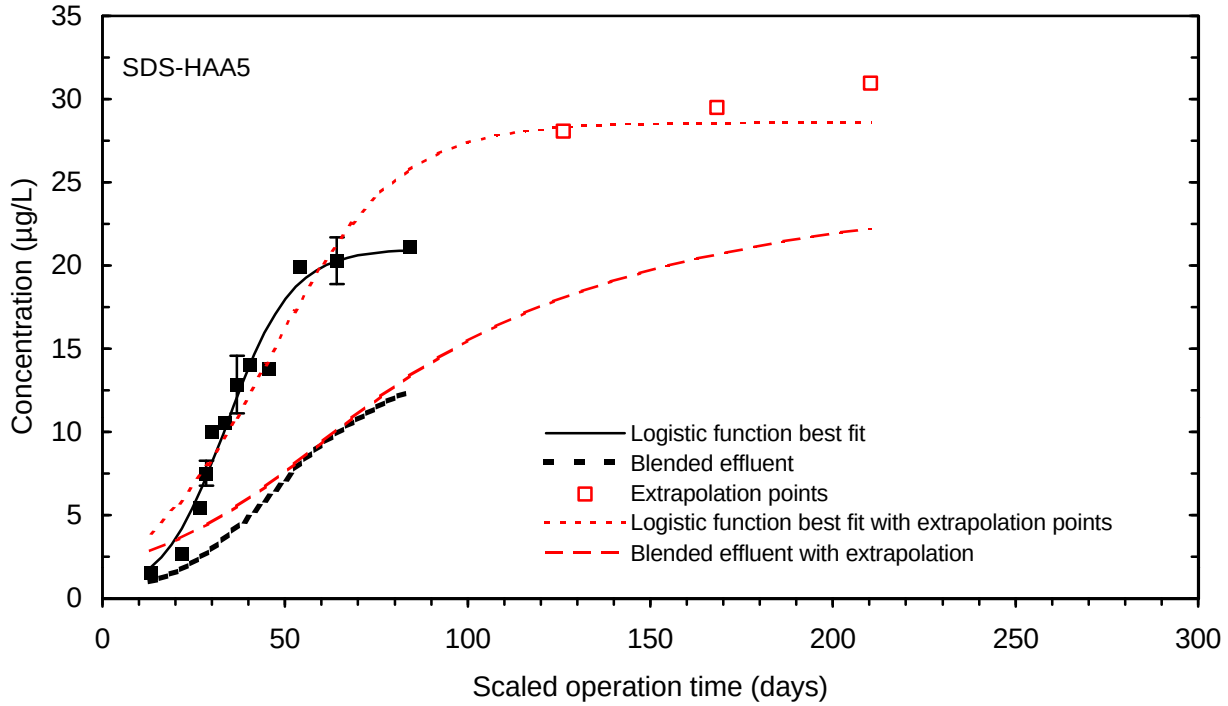

Figure B - 49 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (10 minute EBCT) during session 4, October-EC

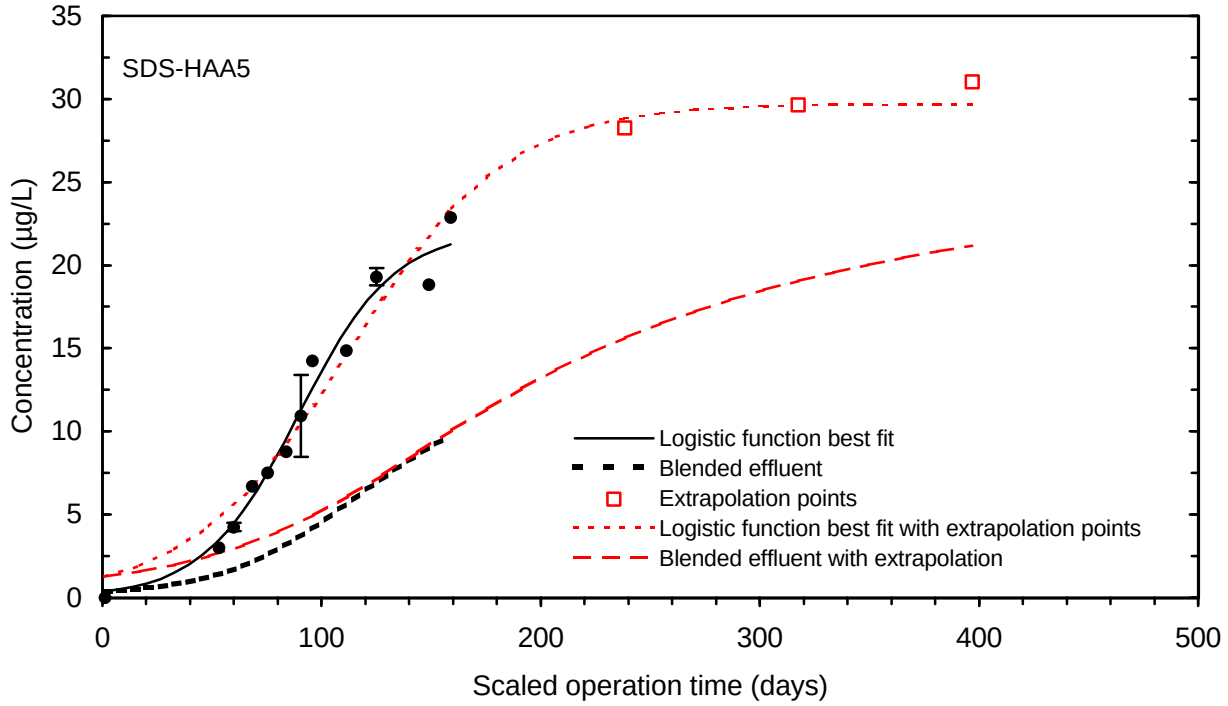

Figure B - 50 Single contactor and blended effluent extrapolated SDS-HAA5 breakthrough curve (20 minute EBCT) during session 4, October-EC

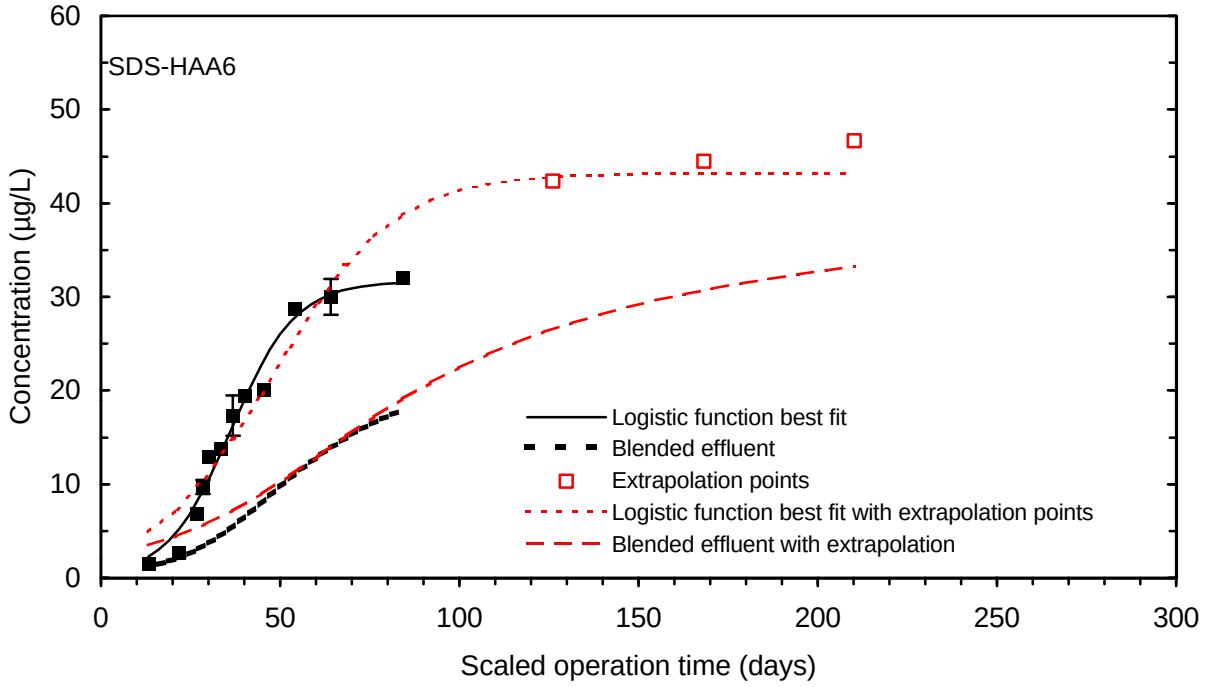

Figure B - 51 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (10 minute EBCT) during session 4, October-EC

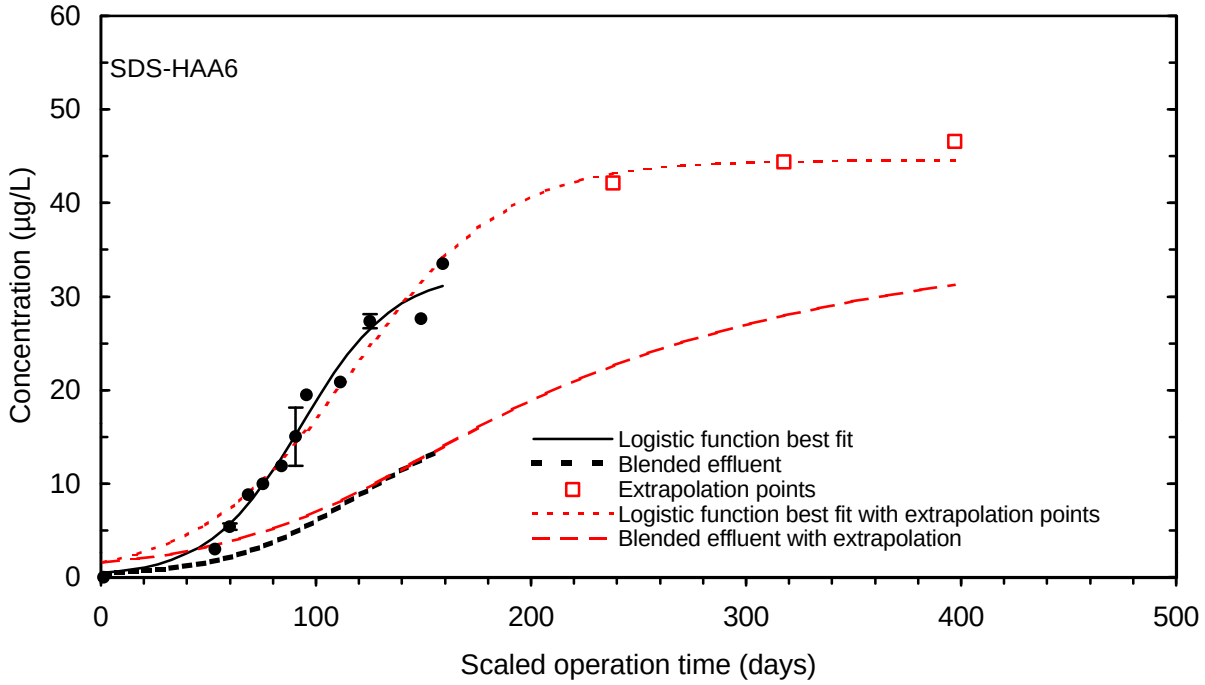

Figure B - 52 Single contactor and blended effluent extrapolated SDS-HAA6 breakthrough curve (20 minute EBCT) during session 4, October-EC

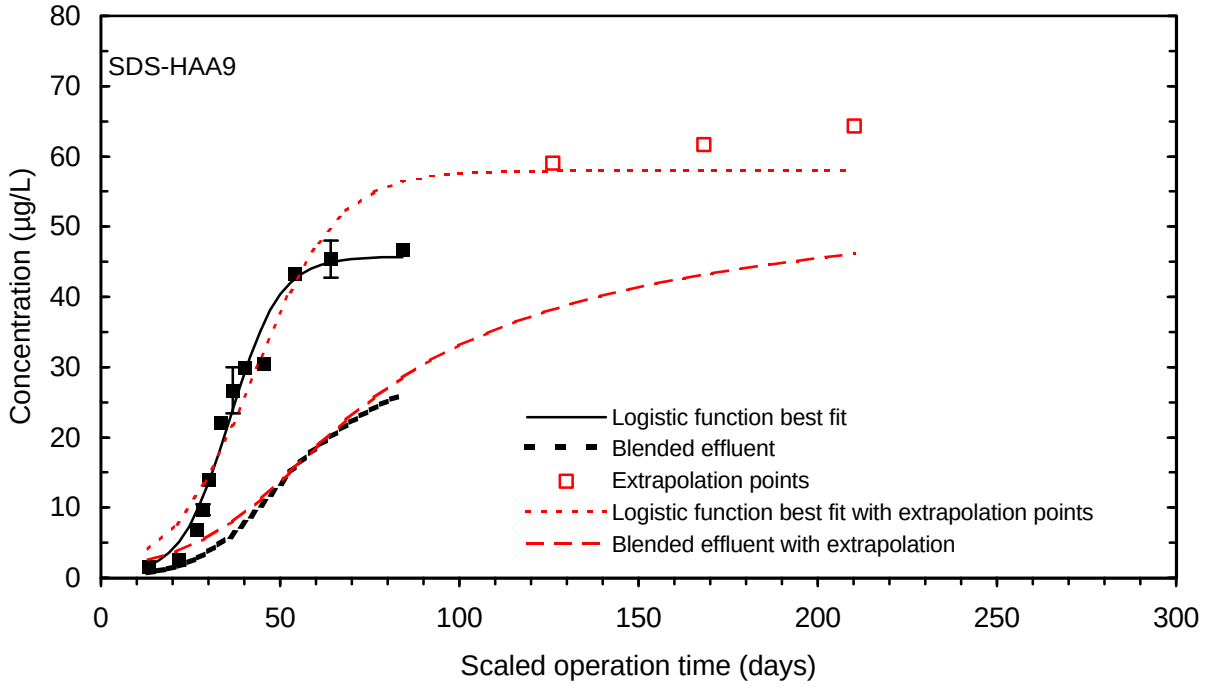

Figure B - 53 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (10 minute EBCT) during session 4, October-EC

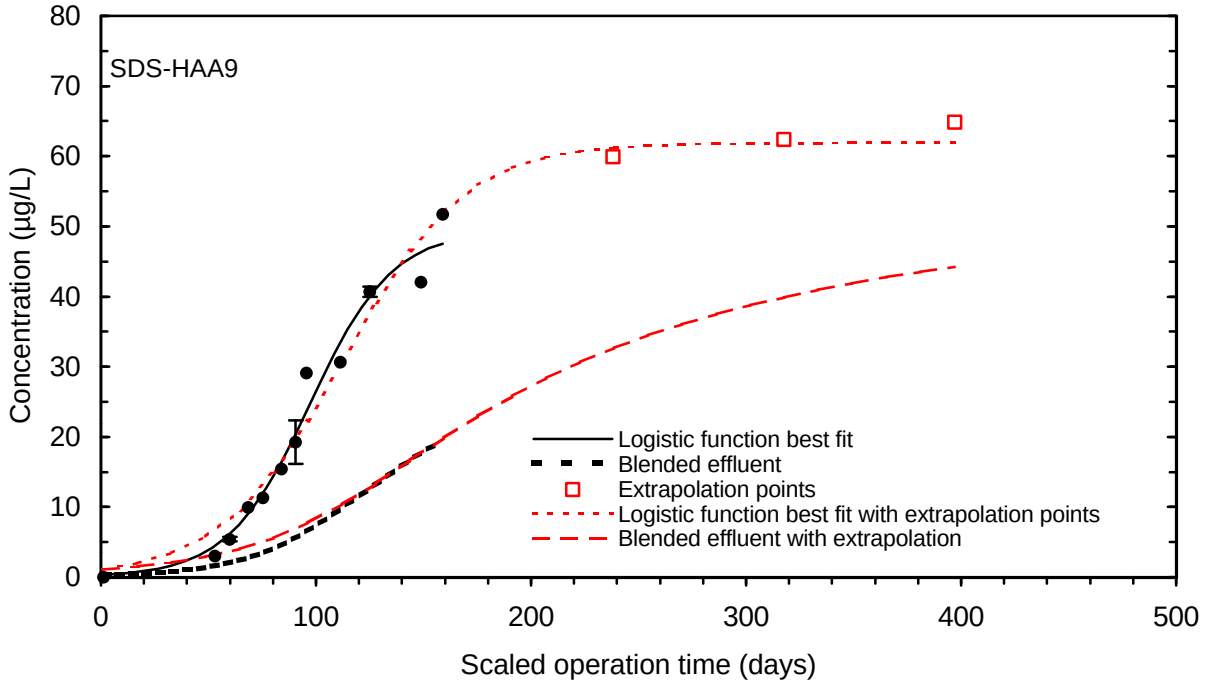

Figure B - 54 Single contactor and blended effluent extrapolated SDS-HAA9 breakthrough curve (20 minute EBCT) during session 4, October-EC

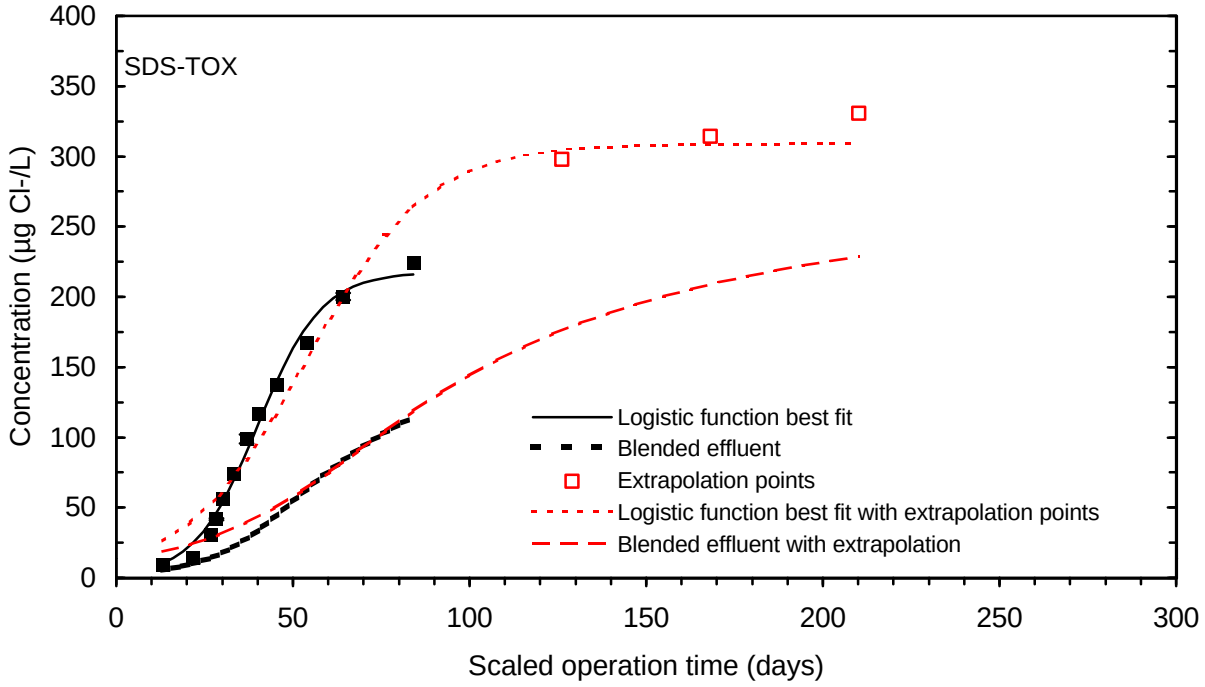

Figure B - 55 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (10 minute EBCT) during session 4, October-EC

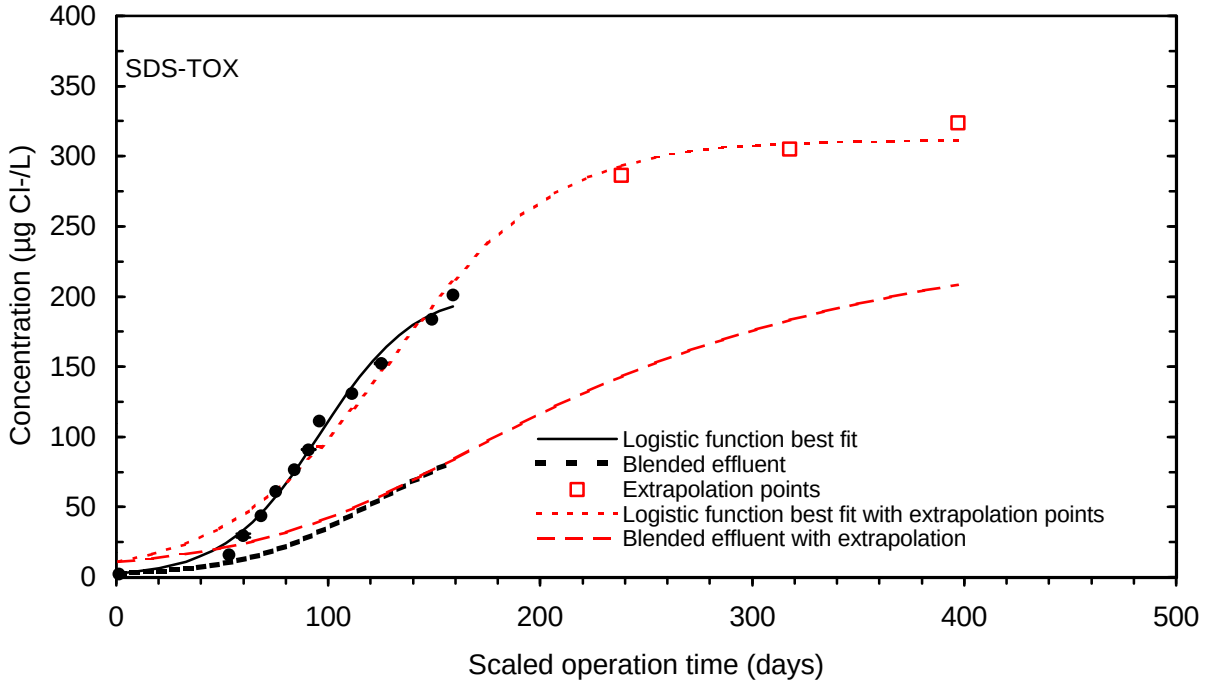

Figure B - 56 Single contactor and blended effluent extrapolated SDS-TOX breakthrough curve (20 minute EBCT) during session 4, October-EC

Summers & Hooper, Inc.
6 Knollcrest Drive
Cincinnati, OH 45237
Phone: (513) 679-2200
Fax: (513) 679-2201

Laboratory Report

Client:

Mr. Don Thomson
Water Quality Superintendent
Sweetwater Authority
505 Garret Avenue
Chula Vista, CA 91912-2328

Phone: 619-475-9047 Fax: 619-479-6271

Study Title: ICR RSSCT #1

Study #: 114

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
Fax: (513) 679-2201

Laboratory Test Results

Mr. Don Thomson
Water Quality Superintendent
Sweetwater Authority
505 Garret Avenue
P.O. Box 2328
Chula Vista, CA 91912-2328

Phone: 619-475-9047 Fax: 619-479-6271

Study#: 114
Study Title: ICR RSSCT #1

Sample ID: Raw **S&H ID:** 9804-528 **Date Sampled:** 4/29/98 12:42:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1	TOC-ICR	TOC	6.48	mg/L	SM 5310 C	1	0.50	4/29/98		5/7/98	7-0-259
2	TOC-ICR	TOC (Dupl)	6.60	mg/L	SM 5310 C	1	0.50	4/29/98		5/7/98	7-0-259
			6.54	**mg/L**	**1.8 % RPD**						

Sample ID: Settled **S&H ID:** 9804-529 **Date Sampled:** 4/29/98 12:40:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
3	TOC-ICR	TOC	5.95	mg/L	SM 5310 C	1	0.50	4/29/98		5/7/98	7-0-259
4	TOC-ICR	TOC (Dupl)	5.84	mg/L	SM 5310 C	1	0.50	4/29/98		5/7/98	7-0-259
			5.89	**mg/L**	**1.9 % RPD**						

Sample ID: Filtered **S&H ID:** 9804-530 **Date Sampled:** 4/29/98 12:44:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
5	TOC-ICR	TOC	5.87	mg/L	SM 5310 C	1	0.50	4/29/98		5/7/98	7-0-259
6	TOC-ICR	TOC (Dupl)	5.90	mg/L	SM 5310 C	1	0.50	4/29/98		5/7/98	7-0-259
			5.88	**mg/L**	**0.5 % RPD**						

Sample ID: Filtered **S&H ID:** 9805-12 **Date Sampled:** 4/30/98 11:05:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
7	TOC-ICR	TOC	5.94	mg/L	SM 5310 C	1	0.50	4/30/98		5/7/98	7-0-259
8	TOC-ICR	TOC	5.78	mg/L	SM 5310 C	1	0.50	4/30/98		5/9/98	7-0-261
9	TOC-ICR	TOC (Dupl)	6.00	mg/L	SM 5310 C	1	0.50	4/30/98		5/7/98	7-0-259
10	TOC-ICR	TOC (Dupl)	5.81	mg/L	SM 5310 C	1	0.50	4/30/98		5/9/98	7-0-261
			5.88	**mg/L**	**1.8 % RPD**						

Sample ID: 114 filtered on arrival **S&H ID:** 9805-121 **Date Sampled:** 5/6/98 3:50:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
11	TOC-ICR	TOC	5.77	mg/L	SM 5310 C	1	0.50	5/6/98		5/7/98	7-0-259
12	TOC-ICR	TOC (Dupl)	5.87	mg/L	SM 5310 C	1	0.50	5/6/98		5/7/98	7-0-259
			5.82	**mg/L**	**1.7 % RPD**						

Sample ID: 114 post 1 micron filter **S&H ID:** 9805-126 **Date Sampled:** 5/7/98 11:30:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
13	TOC-ICR	TOC	5.85	mg/L	SM 5310 C	1	0.50	5/7/98		5/7/98	7-0-259
14	TOC-ICR	TOC	5.81	mg/L	SM 5310 C	1	0.50	5/7/98		5/9/98	7-0-261

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

15	TOC-ICR	TOC (Dupl)	5.90	mg/L	SM 5310 C	1	0.50	5/7/98		5/7/98	7-0-259
16	TOC-ICR	TOC (Dupl)	5.69	mg/L	SM 5310 C	1	0.50	5/7/98		5/9/98	7-0-261
			5.81	**mg/L**	**1.5 % RPD**						

Sample ID: 114.INF.A-1 **S&H ID:** 9805-276 **Date Sampled:** 5/14/98 8:20:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
17	ALK	Alkalinity	125	mg/L	SM 2320 B	1	5	5/14/98		5/15/98	1-0-21
18	ALK	Alkalinity (Dupl)	129	mg/L	SM 2320 B	1	5	5/14/98		5/15/98	1-0-21
			127	**mg/L**	**3.1 % RPD**						
19	NH3	Ammonia Nitrogen	0.18	mg/L	EPA 350.1	1	0.05	5/14/98		5/27/98	MW78032
20	BR	Bromide	0.200	mg/L	EPA 300.0 A	2	0.040	5/14/98		6/3/98	MW78351
21	CaHardM	Calcium Hardness	120	mg/L CaCO3	EPA 200.7	1	5	5/14/98		6/4/98	MW n/a
22	CaMW	Calcium, Total, ICAP	48	mg/L	EPA 200.7	1	1	5/14/98	6/3/98	6/3/98	MW78329
23	MgMW	Magnesium, Total, ICAP	25	mg/L	EPA 200.7	1	0	5/14/98	6/3/98	6/3/98	MW78330
24	TotHard	Total Hardness as CaCO3 by ICP	223	mg/L CaCO3	SM 2340B	1	7	5/14/98		6/4/98	MW n/a

Sample ID: 114.INF.B-1 **S&H ID:** 9805-277 **Date Sampled:** 5/14/98 8:15:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
25	Cl2Dose	Chlorine Dose	4.63	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
26	Cl2Res	Chlorine Residual	0.82	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
27	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.4	%	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
28	HAA-ICR	2-Bromopropionic acid (Surrogate)	94.8	%	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
29	HAA-ICR	Bromochloroacetic acid	22.0	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
30	HAA-ICR	Bromodichloroacetic acid	37.8	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
31	HAA-ICR	Chlorodibromoacetic acid	16.8	µg/L	EPA 552.2	1	2.0	5/20/98	5/27/98	5/28/98	0-134-0
32	HAA-ICR	Dibromoacetic acid	13.0	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
33	HAA-ICR	Dichloroacetic acid	31.3	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
34	HAA-ICR	Monobromoacetic acid	1.2	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
35	HAA-ICR	Monochloroacetic acid	3.4	µg/L	EPA 552.2	1	2.0	5/20/98	5/27/98	5/28/98	0-134-0
36	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/20/98	5/27/98	5/28/98	0-134-0
37	HAA-ICR	Trichloroacetic acid	37.7	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
38	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
39	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
40	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	5/14/98		5/14/98	n/a
41	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
42	TEMP	Temperature	16.5	ºC	SM 2550 B	1	n/a	5/14/98		5/14/98	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. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

43	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
44	TOC-ICR	TOC	5.82	mg/L	SM 5310 C	1	0.50	5/14/98		5/15/98	7-0-268
45	TOC-ICR	TOC (Dupl)	5.90	mg/L	SM 5310 C	1	0.50	5/14/98		5/15/98	7-0-268
			5.86	**mg/L**	**1.4 % RPD**						
46	TOX-ICR	TOX	558	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
47	TOX-ICR	TOX (Dupl)	545	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
			552	**µg Cl-/L**	**2.4 % RPD**						
48	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.0	%	EPA 551.1	1	1.0	5/20/98	5/21/98	5/22/98	0-130-0
49	THM-ICR	Bromodichloromethane	68.1	µg/L	EPA 551.1	1	1.0	5/20/98	5/21/98	5/22/98	0-130-0
50	THM-ICR	Bromoform	8.5	µg/L	EPA 551.1	1	1.0	5/20/98	5/21/98	5/22/98	0-130-0
51	THM-ICR	Chloroform	65.0	µg/L	EPA 551.1	1	1.0	5/20/98	5/21/98	5/22/98	0-130-0
52	THM-ICR	Dibromochloromethane	54.6	µg/L	EPA 551.1	1	1.0	5/20/98	5/21/98	5/22/98	0-130-0
53	TURB	Turbidity	0.10	ntu	SM 2130 B	1	0.05	5/14/98		5/15/98	9-0-10
54	UV-ICR	UV	0.128	1/cm	SM 5910 B	1	0.009	5/14/98		5/15/98	8-0-184
55	UV-ICR	UV (Dupl)	0.127	1/cm	SM 5910 B	1	0.009	5/14/98		5/15/98	8-0-184
			0.128	**1/cm**	**0.8 % RPD**						

Sample ID: 114.10.Eff-1 **S&H ID:** 9805-288 **Date Sampled:** 5/14/98 10:46:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
56	Cl2Dose	Chlorine Dose	1.70	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
57	Cl2Res	Chlorine Residual	0.79	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
58	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.0	%	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
59	HAA-ICR	2-Bromopropionic acid (Surrogate)	89.2	%	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
60	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
61	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
62	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	5/27/98	5/28/98	0-134-0
63	HAA-ICR	Dibromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
64	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
65	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
66	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	5/27/98	5/28/98	0-134-0
67	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/20/98	5/27/98	5/28/98	0-134-0
68	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	5/27/98	5/28/98	0-134-0
69	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
70	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
71	pH	pH	8.4	Unit	SM 4500-H+ B	1	n/a	5/14/98		5/14/98	n/a
72	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
73	TEMP	Temperature	23.0	ºC	SM 2550 B	1	n/a	5/14/98		5/14/98	n/a
74	TIME	Cl2 Incubation Time	23.6	hrs	n/a	1	n/a	5/19/98		5/20/98	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. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

75	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	5/14/98		5/15/98	7-0-268
76	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	5/14/98		5/15/98	7-0-268
			ND	**mg/L**							
77	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
78	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
			ND	**µg Cl-/L**							
79	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.4	%	EPA 551.1	1	1.0	5/20/98	5/21/98	5/22/98	0-130-0
80	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/21/98	5/22/98	0-130-0
81	THM-ICR	Bromoform	1.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/21/98	5/22/98	0-130-0
82	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/21/98	5/22/98	0-130-0
83	THM-ICR	Dibromochloromethane	1.2	µg/L	EPA 551.1	1	1.0	5/20/98	5/21/98	5/22/98	0-130-0
84	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	5/14/98		5/15/98	8-0-184
85	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	5/14/98		5/15/98	8-0-184
			ND	**1/cm**							

Sample ID: 114.20.Eff-1 **S&H ID:** 9805-293 **Date Sampled:** 5/14/98 10:44:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
86	Cl2Dose	Chlorine Dose	1.70	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
87	Cl2Res	Chlorine Residual	0.70	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
88	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	99.6	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
89	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.0	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
90	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
91	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
92	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
93	HAA-ICR	Dibromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
94	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
95	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
96	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
97	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
98	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
99	pH	Cl2 pH - Final	8.2	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
100	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
101	pH	pH	8.4	Unit	SM 4500-H+ B	1	n/a	5/14/98		5/14/98	n/a
102	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
103	TEMP	Temperature	22.7	ºC	SM 2550 B	1	n/a	5/14/98		5/14/98	n/a
104	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
105	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	5/14/98		5/15/98	7-0-268
106	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	5/14/98		5/15/98	7-0-268

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

			ND	**mg/L**							
107	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
108	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
			ND	**µg Cl-/L**							
109	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.4	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
110	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
111	THM-ICR	Bromoform	1.3	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
112	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
113	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
114	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	5/14/98		5/15/98	8-0-184
115	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	5/14/98		5/15/98	8-0-184
			ND	**1/cm**							

Sample ID: 114.10.Eff-5 **S&H ID:** 9805-304 **Date Sampled:** 5/15/98 11:10:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
116	Cl2Dose	Chlorine Dose	1.91	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
117	Cl2Res	Chlorine Residual	0.72	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
118	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.8	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
119	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.0	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
120	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
121	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
122	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
123	HAA-ICR	Dibromoacetic acid	1.9	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
124	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
125	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
126	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
127	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
128	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
129	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
130	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
131	pH	pH	8.3	Unit	SM 4500-H+ B	1	n/a	5/15/98		5/15/98	n/a
132	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
133	TEMP	Temperature	21.4	ºC	SM 2550 B	1	n/a	5/15/98		5/15/98	n/a
134	TIME	Cl2 Incubation Time	23.6	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
135	TOC-ICR	TOC	0.55	mg/L	SM 5310 C	1	0.50	5/15/98		5/15/98	7-0-268
136	TOC-ICR	TOC (Dupl)	0.54	mg/L	SM 5310 C	1	0.50	5/15/98		5/15/98	7-0-268
			0.55	**mg/L**	**1.8 % RPD**						
137	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142

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

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138	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
			ND	**µg Cl-/L**							
139	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.2	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
140	THM-ICR	Bromodichloromethane	1.3	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
141	THM-ICR	Bromoform	8.5	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
142	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
143	THM-ICR	Dibromochloromethane	4.7	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
144	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	5/15/98		5/15/98	8-0-184
145	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	5/15/98		5/15/98	8-0-184
			ND	**1/cm**							

Sample ID: 114.10.Eff-6 **S&H ID:** 9805-306 **Date Sampled:** 5/15/98 1:00:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
146	Cl2Dose	Chlorine Dose	2.02	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
147	Cl2Res	Chlorine Residual	0.77	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
148	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.4	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
149	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.0	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
150	HAA-ICR	Bromochloroacetic acid	1.2	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
151	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
152	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
153	HAA-ICR	Dibromoacetic acid	3.0	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
154	HAA-ICR	Dichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
155	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
156	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
157	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
158	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
159	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
160	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
161	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/15/98		5/15/98	n/a
162	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
163	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	5/15/98		5/15/98	n/a
164	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
165	TOC-ICR	TOC	0.78	mg/L	SM 5310 C	1	0.50	5/15/98		5/15/98	7-0-268
166	TOC-ICR	TOC (Dupl)	0.75	mg/L	SM 5310 C	1	0.50	5/15/98		5/15/98	7-0-268
			0.77	**mg/L**	**3.9 % RPD**						
167	TOX-ICR	TOX	28	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
168	TOX-ICR	TOX (Dupl)	27	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
			28	**µg Cl-/L**	**3.6 % RPD**						

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

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169	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.8	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
170	THM-ICR	Bromodichloromethane	1.8	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
171	THM-ICR	Bromoform	11.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
172	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
173	THM-ICR	Dibromochloromethane	7.4	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
174	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	5/15/98		5/17/98	8-0-185
175	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	5/15/98		5/17/98	8-0-185
			ND	**1/cm**							

Sample ID: 114.10.Eff-7 **S&H ID:** 9805-308 **Date Sampled:** 5/15/98 4:21:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
176	Cl2Dose	Chlorine Dose	2.17	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
177	Cl2Res	Chlorine Residual	0.76	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
178	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.4	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
179	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.2	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
180	HAA-ICR	Bromochloroacetic acid	2.3	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
181	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
182	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
183	HAA-ICR	Dibromoacetic acid	5.1	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
184	HAA-ICR	Dichloroacetic acid	1.4	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
185	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
186	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
187	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
188	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
189	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
190	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
191	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/15/98		5/15/98	n/a
192	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
193	TEMP	Temperature	22.8	ºC	SM 2550 B	1	n/a	5/15/98		5/15/98	n/a
194	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
195	TOC-ICR	TOC	1.04	mg/L	SM 5310 C	1	0.50	5/15/98		5/15/98	7-0-268
196	TOC-ICR	TOC (Dupl)	1.07	mg/L	SM 5310 C	1	0.50	5/15/98		5/15/98	7-0-268
			1.06	**mg/L**	**2.8 % RPD**						
197	TOX-ICR	TOX	45	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
198	TOX-ICR	TOX (Dupl)	44	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
			45	**µg Cl-/L**	**2.2 % RPD**						
199	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.8	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0

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

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200	THM-ICR	Bromodichloromethane	3.2	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
201	THM-ICR	Bromoform	18.4	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
202	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
203	THM-ICR	Dibromochloromethane	13.1	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
204	UV-ICR	UV	0.013	1/cm	SM 5910 B	1	0.009	5/15/98		5/17/98	8-0-185
205	UV-ICR	UV (Dupl)	0.013	1/cm	SM 5910 B	1	0.009	5/15/98		5/17/98	8-0-185
			0.013	**1/cm**	**0.0 % RPD**						

Sample ID: 114.10.Eff-7d **S&H ID:** 9805-309 **Date Sampled:** 5/15/98 4:21:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
206	Cl2Dose	Chlorine Dose	2.16	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
207	Cl2Res	Chlorine Residual	0.78	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
208	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	105.2	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
209	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.4	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
210	HAA-ICR	Bromochloroacetic acid	2.2	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
211	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
212	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
213	HAA-ICR	Dibromoacetic acid	4.9	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
214	HAA-ICR	Dichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
215	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
216	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
217	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
218	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
219	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
220	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
221	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/15/98		5/15/98	n/a
222	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
223	TEMP	Temperature	22.9	ºC	SM 2550 B	1	n/a	5/15/98		5/15/98	n/a
224	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
225	TOC-ICR	TOC	1.05	mg/L	SM 5310 C	1	0.50	5/15/98		5/15/98	7-0-268
226	TOC-ICR	TOC (Dupl)	1.01	mg/L	SM 5310 C	1	0.50	5/15/98		5/15/98	7-0-268
			1.03	**mg/L**	**3.9 % RPD**						
227	TOX-ICR	TOX	46	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
228	TOX-ICR	TOX (Dupl)	47	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
			47	**µg Cl-/L**	**2.1 % RPD**						
229	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.8	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
230	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	101.6	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0

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

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			100.2	**%**	**2.8 % RPD**						
231	THM-ICR	Bromodichloromethane	3.2	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
232	THM-ICR	Bromodichloromethane (Lab Dupl)	3.0	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
			3.1	**µg/L**	**6.5 % RPD**						
233	THM-ICR	Bromoform	18.5	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
234	THM-ICR	Bromoform (Lab Dupl)	16.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
			17.7	**µg/L**	**9.0 % RPD**						
235	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
236	THM-ICR	Chloroform (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
			ND	**µg/L**							
237	THM-ICR	Dibromochloromethane	13.4	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
238	THM-ICR	Dibromochloromethane (Lab Dupl)	12.4	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
			12.9	**µg/L**	**7.8 % RPD**						
239	UV-ICR	UV	0.013	1/cm	SM 5910 B	1	0.009	5/15/98		5/17/98	8-0-185
240	UV-ICR	UV (Dupl)	0.013	1/cm	SM 5910 B	1	0.009	5/15/98		5/17/98	8-0-185
			0.013	**1/cm**	**0.0 % RPD**						

Sample ID: 114.INF.B-2 **S&H ID:** 9805-313 **Date Sampled:** 5/15/98 5:50:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
241	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	5/15/98		5/15/98	n/a
242	TEMP	Temperature	16.5	ºC	SM 2550 B	1	n/a	5/15/98		5/15/98	n/a
243	TOC-ICR	TOC	5.85	mg/L	SM 5310 C	1	0.50	5/15/98		5/15/98	7-0-268
244	TOC-ICR	TOC (Dupl)	6.01	mg/L	SM 5310 C	1	0.50	5/15/98		5/15/98	7-0-268
			5.93	**mg/L**	**2.7 % RPD**						

Sample ID: 114.10.Eff-8 **S&H ID:** 9805-315 **Date Sampled:** 5/15/98 7:42:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
245	Cl2Dose	Chlorine Dose	2.36	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
246	Cl2Res	Chlorine Residual	0.70	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
247	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.0	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
248	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.2	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
249	HAA-ICR	Bromochloroacetic acid	4.1	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
250	HAA-ICR	Bromodichloroacetic acid	2.0	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
251	HAA-ICR	Chlorodibromoacetic acid	3.8	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
252	HAA-ICR	Dibromoacetic acid	8.4	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
253	HAA-ICR	Dichloroacetic acid	2.2	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
254	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
255	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
256	HAA-ICR	Tribromoacetic acid	4.1	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

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257	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
258	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
259	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
260	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/15/98		5/15/98	n/a
261	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
262	TEMP	Temperature	23.9	ºC	SM 2550 B	1	n/a	5/15/98		5/15/98	n/a
263	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
264	TOC-ICR	TOC	1.43	mg/L	SM 5310 C	1	0.50	5/15/98		5/16/98	7-0-270
265	TOC-ICR	TOC (Dupl)	1.43	mg/L	SM 5310 C	1	0.50	5/15/98		5/16/98	7-0-270
			1.43	**mg/L**	**0.0 % RPD**						
266	TOX-ICR	TOX	78	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
267	TOX-ICR	TOX (Dupl)	77	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
			78	**µg Cl-/L**	**1.3 % RPD**						
268	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.0	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
269	THM-ICR	Bromodichloromethane	6.0	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
270	THM-ICR	Bromoform	24.3	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
271	THM-ICR	Chloroform	1.3	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
272	THM-ICR	Dibromochloromethane	21.4	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
273	UV-ICR	UV	0.022	1/cm	SM 5910 B	1	0.009	5/15/98		5/17/98	8-0-185
274	UV-ICR	UV (Dupl)	0.021	1/cm	SM 5910 B	1	0.009	5/15/98		5/17/98	8-0-185
			0.021	**1/cm**	**4.8 % RPD**						

Sample ID: 114.10.Eff-9 **S&H ID:** 9805-316 **Date Sampled:** 5/15/98 10:09:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
275	Cl2Dose	Chlorine Dose	2.54	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
276	Cl2Res	Chlorine Residual	0.79	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
277	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.0	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
278	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.4	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
279	HAA-ICR	Bromochloroacetic acid	5.3	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
280	HAA-ICR	Bromodichloroacetic acid	2.2	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
281	HAA-ICR	Chlorodibromoacetic acid	4.9	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
282	HAA-ICR	Dibromoacetic acid	10.4	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
283	HAA-ICR	Dichloroacetic acid	2.8	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
284	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
285	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
286	HAA-ICR	Tribromoacetic acid	4.5	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
287	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0

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

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288	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
289	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
290	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/15/98		5/15/98	n/a
291	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
292	TEMP	Temperature	23.4	ºC	SM 2550 B	1	n/a	5/15/98		5/15/98	n/a
293	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
294	TOC-ICR	TOC	1.81	mg/L	SM 5310 C	1	0.50	5/15/98		5/16/98	7-0-270
295	TOC-ICR	TOC (Dupl)	1.76	mg/L	SM 5310 C	1	0.50	5/15/98		5/16/98	7-0-270
			1.79	**mg/L**	**2.8 % RPD**						
296	TOX-ICR	TOX	106	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
297	TOX-ICR	TOX (Dupl)	101	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
			104	**µg Cl-/L**	**4.8 % RPD**						
298	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.0	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
299	THM-ICR	Bromodichloromethane	9.2	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
300	THM-ICR	Bromoform	29.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
301	THM-ICR	Chloroform	2.0	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
302	THM-ICR	Dibromochloromethane	30.1	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
303	UV-ICR	UV	0.028	1/cm	SM 5910 B	1	0.009	5/15/98		5/17/98	8-0-185
304	UV-ICR	UV (Dupl)	0.028	1/cm	SM 5910 B	1	0.009	5/15/98		5/17/98	8-0-185
			0.028	**1/cm**	**0.0 % RPD**						

Sample ID: 114.10.Eff-10 **S&H ID:** 9805-317 **Date Sampled:** 5/16/98 1:28:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
305	Cl2Dose	Chlorine Dose	2.68	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
306	Cl2Res	Chlorine Residual	0.73	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
307	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.0	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
308	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard) (Lab Dupl)	109.6	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
			106.8	**%**	**5.2 % RPD**						
309	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.6	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
310	HAA-ICR	2-Bromopropionic acid (Surrogate) (Lab Dupl)	92.8	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
			94.2	**%**	**3.0 % RPD**						
311	HAA-ICR	Bromochloroacetic acid	6.0	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
312	HAA-ICR	Bromochloroacetic acid (Lab Dupl)	6.9	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
			6.5	**µg/L**	**13.8 % RPD**						
313	HAA-ICR	Bromodichloroacetic acid	2.8	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
314	HAA-ICR	Bromodichloroacetic acid (Lab Dupl)	4.1	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0

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

Laboratory Test Results

Mr. Don Thomson
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			3.4	**µg/L**	**38.2 % RPD**						
315	HAA-ICR	Chlorodibromoacetic acid	5.0	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
316	HAA-ICR	Chlorodibromoacetic acid (Lab Dupl)	7.5	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
			6.3	**µg/L**	**39.7 % RPD**						
317	HAA-ICR	Dibromoacetic acid	10.0	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
318	HAA-ICR	Dibromoacetic acid (Lab Dupl)	12.4	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
			11.2	**µg/L**	**21.4 % RPD**						
319	HAA-ICR	Dichloroacetic acid	3.1	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
320	HAA-ICR	Dichloroacetic acid (Lab Dupl)	3.6	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
			3.4	**µg/L**	**14.7 % RPD**						
321	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
322	HAA-ICR	Monobromoacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
			ND	**µg/L**							
323	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
324	HAA-ICR	Monochloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
			ND	**µg/L**							
325	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
326	HAA-ICR	Tribromoacetic acid (Lab Dupl)	6.0	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
			5.0	**µg/L**	**42.0 % RPD**						
327	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
328	HAA-ICR	Trichloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
			ND	**µg/L**							
329	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
330	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
331	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/16/98		5/16/98	n/a
332	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
333	TEMP	Temperature	22.8	ºC	SM 2550 B	1	n/a	5/16/98		5/16/98	n/a
334	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
335	TOC-ICR	TOC	2.13	mg/L	SM 5310 C	1	0.50	5/16/98		5/16/98	7-0-270
336	TOC-ICR	TOC (Dupl)	2.13	mg/L	SM 5310 C	1	0.50	5/16/98		5/16/98	7-0-270
			2.13	**mg/L**	**0.0 % RPD**						
337	TOX-ICR	TOX	131	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
338	TOX-ICR	TOX (Dupl)	130	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/28/98	12-0-142
			131	**µg Cl-/L**	**0.8 % RPD**						
339	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.0	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
340	THM-ICR	Bromodichloromethane	12.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
341	THM-ICR	Bromoform	28.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
342	THM-ICR	Chloroform	2.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0

ND (non-detect): Result is below mininum reporting level (MRL).

NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

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343	THM-ICR	Dibromochloromethane	35.5	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
344	UV-ICR	UV	0.034	1/cm	SM 5910 B	1	0.009	5/16/98		5/17/98	8-0-185
345	UV-ICR	UV (Dupl)	0.034	1/cm	SM 5910 B	1	0.009	5/16/98		5/17/98	8-0-185
			0.034	**1/cm**	**0.0 % RPD**						

Sample ID: 114.10.Eff-12 **S&H ID:** 9805-319 **Date Sampled:** 5/16/98 6:46:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
346	Cl2Dose	Chlorine Dose	2.91	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
347	Cl2Res	Chlorine Residual	0.80	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
348	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	108.0	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
349	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.0	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
350	HAA-ICR	Bromochloroacetic acid	8.7	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
351	HAA-ICR	Bromodichloroacetic acid	5.9	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
352	HAA-ICR	Chlorodibromoacetic acid	8.7	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
353	HAA-ICR	Dibromoacetic acid	13.3	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
354	HAA-ICR	Dichloroacetic acid	4.7	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
355	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
356	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
357	HAA-ICR	Tribromoacetic acid	5.5	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
358	HAA-ICR	Trichloroacetic acid	1.0	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
359	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
360	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
361	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/16/98		5/16/98	n/a
362	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
363	TEMP	Temperature	21.2	ºC	SM 2550 B	1	n/a	5/16/98		5/16/98	n/a
364	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
365	TOC-ICR	TOC	2.55	mg/L	SM 5310 C	1	0.50	5/16/98		5/16/98	7-0-270
366	TOC-ICR	TOC (Dupl)	2.53	mg/L	SM 5310 C	1	0.50	5/16/98		5/16/98	7-0-270
			2.54	**mg/L**	**0.8 % RPD**						
367	TOX-ICR	TOX	162	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/29/98	12-0-143
368	TOX-ICR	TOX (Dupl)	166	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/29/98	12-0-143
			164	**µg Cl-/L**	**2.4 % RPD**						
369	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.2	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
370	THM-ICR	Bromodichloromethane	18.4	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
371	THM-ICR	Bromoform	27.0	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
372	THM-ICR	Chloroform	4.7	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
373	THM-ICR	Dibromochloromethane	41.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
374	UV-ICR	UV	0.043	1/cm	SM 5910 B	1	0.009	5/16/98		5/17/98	8-0-189

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

375	UV-ICR	UV (Dupl)	0.042	1/cm	SM 5910 B	1	0.009	5/16/98		5/17/98	8-0-189
			0.042	**1/cm**	**2.4 % RPD**						

Sample ID: 114.10.Eff-12d **S&H ID:** 9805-333 **Date Sampled:** 5/16/98 6:46:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
376	Cl2Dose	Chlorine Dose	2.95	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
377	Cl2Res	Chlorine Residual	0.88	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
378	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.4	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
379	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.4	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
380	HAA-ICR	Bromochloroacetic acid	9.4	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
381	HAA-ICR	Bromodichloroacetic acid	7.3	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
382	HAA-ICR	Chlorodibromoacetic acid	10.1	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
383	HAA-ICR	Dibromoacetic acid	14.5	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
384	HAA-ICR	Dichloroacetic acid	5.1	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
385	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
386	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
387	HAA-ICR	Tribromoacetic acid	6.2	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
388	HAA-ICR	Trichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
389	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
390	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
391	pH	pH	8.3	Unit	SM 4500-H+ B	1	n/a	5/16/98		5/16/98	n/a
392	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
393	TEMP	Temperature	21.2	ºC	SM 2550 B	1	n/a	5/16/98		5/16/98	n/a
394	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
395	TOC-ICR	TOC	2.57	mg/L	SM 5310 C	1	0.50	5/16/98		5/17/98	7-0-271
396	TOC-ICR	TOC (Dupl)	2.56	mg/L	SM 5310 C	1	0.50	5/16/98		5/17/98	7-0-271
			2.56	**mg/L**	**0.4 % RPD**						
397	TOX-ICR	TOX	161	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/29/98	12-0-143
398	TOX-ICR	TOX (Dupl)	160	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/29/98	12-0-143
			161	**µg Cl-/L**	**0.6 % RPD**						
399	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.2	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
400	THM-ICR	Bromodichloromethane	18.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
401	THM-ICR	Bromoform	27.0	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
402	THM-ICR	Chloroform	4.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
403	THM-ICR	Dibromochloromethane	43.1	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
404	UV-ICR	UV	0.042	1/cm	SM 5910 B	1	0.009	5/16/98		5/17/98	8-0-189
405	UV-ICR	UV (Dupl)	0.043	1/cm	SM 5910 B	1	0.009	5/16/98		5/17/98	8-0-189
			0.042	**1/cm**	**2.4 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

Sample ID: 114.10.Eff-14 **S&H ID:** 9805-334 **Date Sampled:** 5/16/98 12:08:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
406	Cl2Dose	Chlorine Dose	3.08	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
407	Cl2Res	Chlorine Residual	0.89	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
408	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.8	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
409	HAA-ICR	2-Bromopropionic acid (Surrogate)	99.2	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
410	HAA-ICR	Bromochloroacetic acid	10.5	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
411	HAA-ICR	Bromodichloroacetic acid	9.8	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
412	HAA-ICR	Chlorodibromoacetic acid	11.3	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
413	HAA-ICR	Dibromoacetic acid	14.6	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
414	HAA-ICR	Dichloroacetic acid	6.3	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
415	HAA-ICR	Monobromoacetic acid	1.3	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
416	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
417	HAA-ICR	Tribromoacetic acid	5.8	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
418	HAA-ICR	Trichloroacetic acid	2.8	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
419	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
420	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
421	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/16/98		5/16/98	n/a
422	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
423	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	5/16/98		5/16/98	n/a
424	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
425	TOC-ICR	TOC	2.84	mg/L	SM 5310 C	1	0.50	5/16/98		5/18/98	7-0-272
426	TOC-ICR	TOC (Dupl)	2.83	mg/L	SM 5310 C	1	0.50	5/16/98		5/18/98	7-0-272
			2.84	**mg/L**	**0.4 % RPD**						
427	TOX-ICR	TOX	206	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/29/98	12-0-143
428	TOX-ICR	TOX (Dupl)	201	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/29/98	12-0-143
			204	**µg Cl-/L**	**2.5 % RPD**						
429	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.8	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
430	THM-ICR	Bromodichloromethane	23.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
431	THM-ICR	Bromoform	25.0	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
432	THM-ICR	Chloroform	7.1	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
433	THM-ICR	Dibromochloromethane	47.3	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
434	UV-ICR	UV	0.050	1/cm	SM 5910 B	1	0.009	5/16/98		5/17/98	8-0-189
435	UV-ICR	UV (Dupl)	0.050	1/cm	SM 5910 B	1	0.009	5/16/98		5/17/98	8-0-189
			0.050	**1/cm**	**0.0 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

Sample ID: 114.INF.B-3 **S&H ID:** 9805-336 **Date Sampled:** 5/16/98 3:00:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
436	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	5/16/98		5/16/98	n/a
437	TEMP	Temperature	16.2	ºC	SM 2550 B	1	n/a	5/16/98		5/16/98	n/a
438	TOC-ICR	TOC	5.74	mg/L	SM 5310 C	1	0.50	5/16/98		5/19/98	7-0-273
439	TOC-ICR	TOC (Dupl)	5.74	mg/L	SM 5310 C	1	0.50	5/16/98		5/19/98	7-0-273
			5.74	**mg/L**	**0.0 % RPD**						

Sample ID: 114.20.Eff-8 **S&H ID:** 9805-338 **Date Sampled:** 5/16/98 1:55:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
440	Cl2Dose	Chlorine Dose	1.89	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
441	Cl2Res	Chlorine Residual	0.68	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
442	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.8	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
443	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.4	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
444	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
445	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
446	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
447	HAA-ICR	Dibromoacetic acid	2.3	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
448	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
449	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
450	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
451	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
452	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
453	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
454	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
455	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	5/16/98		5/16/98	n/a
456	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
457	TEMP	Temperature	21.4	ºC	SM 2550 B	1	n/a	5/16/98		5/16/98	n/a
458	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
459	TOC-ICR	TOC	0.51	mg/L	SM 5310 C	1	0.50	5/16/98		5/18/98	7-0-272
460	TOC-ICR	TOC (Dupl)	0.52	mg/L	SM 5310 C	1	0.50	5/16/98		5/18/98	7-0-272
			0.52	**mg/L**	**1.9 % RPD**						
461	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
462	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
			ND	**µg Cl-/L**							
463	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.2	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
464	THM-ICR	Bromodichloromethane	1.2	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

465	THM-ICR	Bromoform	8.6	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
466	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
467	THM-ICR	Dibromochloromethane	4.4	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
468	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	5/16/98		5/18/98	8-0-186
469	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	5/16/98		5/18/98	8-0-186
			ND	**1/cm**							

Sample ID: 114.10.Eff-16 **S&H ID:** 9805-343 **Date Sampled:** 5/16/98 6:38:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
470	Cl2Dose	Chlorine Dose	3.28	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
471	Cl2Res	Chlorine Residual	0.94	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
472	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	101.6	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
473	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.8	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
474	HAA-ICR	Bromochloroacetic acid	12.0	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
475	HAA-ICR	Bromodichloroacetic acid	13.9	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
476	HAA-ICR	Chlorodibromoacetic acid	13.0	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
477	HAA-ICR	Dibromoacetic acid	14.6	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
478	HAA-ICR	Dichloroacetic acid	8.0	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
479	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
480	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
481	HAA-ICR	Tribromoacetic acid	5.0	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
482	HAA-ICR	Trichloroacetic acid	5.9	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
483	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
484	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
485	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/16/98		5/16/98	n/a
486	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
487	TEMP	Temperature	23.6	ºC	SM 2550 B	1	n/a	5/16/98		5/16/98	n/a
488	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
489	TOC-ICR	TOC	3.23	mg/L	SM 5310 C	1	0.50	5/16/98		5/18/98	7-0-272
490	TOC-ICR	TOC (Dupl)	3.20	mg/L	SM 5310 C	1	0.50	5/16/98		5/18/98	7-0-272
			3.21	**mg/L**	**0.9 % RPD**						
491	TOX-ICR	TOX	236	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/29/98	12-0-143
492	TOX-ICR	TOX (Dupl)	225	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/29/98	12-0-143
			231	**µg Cl-/L**	**4.8 % RPD**						
493	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.6	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
494	THM-ICR	Bromodichloromethane	27.5	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
495	THM-ICR	Bromoform	21.7	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
496	THM-ICR	Chloroform	10.0	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

497	THM-ICR	Dibromochloromethane	49.9	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
498	UV-ICR	UV	0.059	1/cm	SM 5910 B	1	0.009	5/16/98		5/18/98	8-0-186
499	UV-ICR	UV (Dupl)	0.059	1/cm	SM 5910 B	1	0.009	5/16/98		5/18/98	8-0-186
			0.059	**1/cm**	**0.0 % RPD**						

Sample ID: 114.20.Eff-11 **S&H ID:** 9805-353 **Date Sampled:** 5/16/98 11:49:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
500	Cl2Dose	Chlorine Dose	2.10	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
501	Cl2Res	Chlorine Residual	0.84	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
502	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	99.2	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
503	HAA-ICR	2-Bromopropionic acid (Surrogate)	99.6	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
504	HAA-ICR	Bromochloroacetic acid	2.0	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
505	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
506	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
507	HAA-ICR	Dibromoacetic acid	3.4	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
508	HAA-ICR	Dichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
509	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
510	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
511	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
512	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
513	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
514	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
515	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	5/16/98		5/16/98	n/a
516	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
517	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	5/16/98		5/16/98	n/a
518	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
519	TOC-ICR	TOC	0.89	mg/L	SM 5310 C	1	0.50	5/16/98		5/17/98	7-0-271
520	TOC-ICR	TOC (Dupl)	0.94	mg/L	SM 5310 C	1	0.50	5/16/98		5/17/98	7-0-271
			0.92	**mg/L**	**5.4 % RPD**						
521	TOX-ICR	TOX	38	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
522	TOX-ICR	TOX (Dupl)	38	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
			38	**µg Cl-/L**	**0.0 % RPD**						
523	THM-ICR	1,2,3-Trichloropropane (Surrogate)	107.2	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
524	THM-ICR	Bromodichloromethane	2.5	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
525	THM-ICR	Bromoform	18.3	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
526	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
527	THM-ICR	Dibromochloromethane	11.4	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
528	UV-ICR	UV	0.011	1/cm	SM 5910 B	1	0.009	5/16/98		5/18/98	8-0-186

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

529	UV-ICR	UV (Dupl)	0.011	1/cm	SM 5910 B	1	0.009	5/16/98		5/18/98	8-0-186
			0.011	**1/cm**	**0.0 % RPD**						

Sample ID: 114.20.Eff-11d **S&H ID:** 9805-354 **Date Sampled:** 5/16/98 11:49:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
530	Cl2Dose	Chlorine Dose	2.10	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/19/98		5/19/98	n/a
531	Cl2Res	Chlorine Residual	0.68	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/19/98		5/20/98	n/a
532	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.0	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
533	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.8	%	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
534	HAA-ICR	Bromochloroacetic acid	2.3	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
535	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
536	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
537	HAA-ICR	Dibromoacetic acid	4.4	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
538	HAA-ICR	Dichloroacetic acid	1.8	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
539	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
540	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/20/98	6/1/98	6/2/98	0-138-0
541	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/20/98	6/1/98	6/2/98	0-138-0
542	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/20/98	6/1/98	6/2/98	0-138-0
543	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/20/98	n/a
544	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
545	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	5/16/98		5/16/98	n/a
546	TEMP	Cl2 Temperature	18.3	ºC	SM 2550 B	1	n/a	5/19/98		5/20/98	n/a
547	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	5/16/98		5/16/98	n/a
548	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	5/19/98		5/20/98	n/a
549	TOC-ICR	TOC	0.90	mg/L	SM 5310 C	1	0.50	5/16/98		5/17/98	7-0-271
550	TOC-ICR	TOC (Dupl)	0.93	mg/L	SM 5310 C	1	0.50	5/16/98		5/17/98	7-0-271
			0.92	**mg/L**	**3.3 % RPD**						
551	TOX-ICR	TOX	37	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
552	TOX-ICR	TOX (Dupl)	37	µg Cl-/L	SM 5320 B	1	25	5/20/98		5/27/98	12-0-141
			37	**µg Cl-/L**	**0.0 % RPD**						
553	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.2	%	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
554	THM-ICR	Bromodichloromethane	2.6	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
555	THM-ICR	Bromoform	17.5	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
556	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
557	THM-ICR	Dibromochloromethane	10.4	µg/L	EPA 551.1	1	1.0	5/20/98	5/28/98	5/29/98	0-136-0
558	UV-ICR	UV	0.011	1/cm	SM 5910 B	1	0.009	5/16/98		5/18/98	8-0-186
559	UV-ICR	UV (Dupl)	0.011	1/cm	SM 5910 B	1	0.009	5/16/98		5/18/98	8-0-186
			0.011	**1/cm**	**0.0 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

Sample ID: 114.20.Eff-14 **S&H ID:** 9805-358 **Date Sampled:** 5/17/98 9:58:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
560	Cl2Dose	Chlorine Dose	2.27	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/21/98		5/21/98	n/a
561	Cl2Res	Chlorine Residual	0.76	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/21/98		5/22/98	n/a
562	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	98.8	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
563	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.2	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
564	HAA-ICR	Bromochloroacetic acid	3.2	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
565	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
566	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/2/98	0-138-0
567	HAA-ICR	Dibromoacetic acid	6.2	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
568	HAA-ICR	Dichloroacetic acid	1.2	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
569	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
570	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/2/98	0-138-0
571	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/22/98	6/1/98	6/2/98	0-138-0
572	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
573	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/22/98	n/a
574	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
575	pH	pH	8.5	Unit	SM 4500-H+ B	1	n/a	5/17/98		5/17/98	n/a
576	TEMP	Cl2 Temperature	18.1	ºC	SM 2550 B	1	n/a	5/21/98		5/22/98	n/a
577	TEMP	Temperature	20.5	ºC	SM 2550 B	1	n/a	5/17/98		5/17/98	n/a
578	TIME	Cl2 Incubation Time	24.2	hrs	n/a	1	n/a	5/21/98		5/22/98	n/a
579	TOC-ICR	TOC	1.33	mg/L	SM 5310 C	1	0.50	5/17/98		5/17/98	7-0-271
580	TOC-ICR	TOC (Dupl)	1.29	mg/L	SM 5310 C	1	0.50	5/17/98		5/17/98	7-0-271
			1.31	**mg/L**	**3.1 % RPD**						
581	TOX-ICR	TOX	67	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
582	TOX-ICR	TOX (Dupl)	70	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
			69	**µg Cl-/L**	**4.3 % RPD**						
583	THM-ICR	1,2,3-Trichloropropane (Surrogate)	93.6	%	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
584	THM-ICR	Bromodichloromethane	4.5	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
585	THM-ICR	Bromoform	21.7	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
586	THM-ICR	Chloroform	1.0	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
587	THM-ICR	Dibromochloromethane	17.3	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
588	UV-ICR	UV	0.018	1/cm	SM 5910 B	1	0.009	5/17/98		5/18/98	8-0-186
589	UV-ICR	UV (Dupl)	0.018	1/cm	SM 5910 B	1	0.009	5/17/98		5/18/98	8-0-186
			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.

Summers & Hooper, Inc.
6 Knollcrest Drive
Cincinnati, OH 45237

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

Sample ID: 114.INF.B-4 **S&H ID:** 9805-362 **Date Sampled:** 5/17/98 1:30:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
590	Cl2Dose	Chlorine Dose	4.24	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/21/98		5/21/98	n/a
591	Cl2Res	Chlorine Residual	0.63	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/21/98		5/22/98	n/a
592	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	89.2	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
593	HAA-ICR	2-Bromopropionic acid (Surrogate)	110.4	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
594	HAA-ICR	Bromochloroacetic acid	21.2	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
595	HAA-ICR	Bromodichloroacetic acid	33.0	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
596	HAA-ICR	Chlorodibromoacetic acid	14.0	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/2/98	0-138-0
597	HAA-ICR	Dibromoacetic acid	11.2	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
598	HAA-ICR	Dichloroacetic acid	31.6	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
599	HAA-ICR	Monobromoacetic acid	1.1	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
600	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/2/98	0-138-0
601	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/22/98	6/1/98	6/2/98	0-138-0
602	HAA-ICR	Trichloroacetic acid	28.3	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
603	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/22/98	n/a
604	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
605	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	5/17/98		5/17/98	n/a
606	TEMP	Cl2 Temperature	18.1	ºC	SM 2550 B	1	n/a	5/21/98		5/22/98	n/a
607	TEMP	Temperature	17.2	ºC	SM 2550 B	1	n/a	5/17/98		5/17/98	n/a
608	TIME	Cl2 Incubation Time	24.4	hrs	n/a	1	n/a	5/21/98		5/22/98	n/a
609	TOC-ICR	TOC	5.61	mg/L	SM 5310 C	1	0.50	5/17/98		5/19/98	7-0-273
610	TOC-ICR	TOC (Dupl)	5.63	mg/L	SM 5310 C	1	0.50	5/17/98		5/19/98	7-0-273
			5.62	**mg/L**	**0.4 % RPD**						
611	TOX-ICR	TOX	551	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
612	TOX-ICR	TOX (Dupl)	535	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
			543	**µg Cl-/L**	**2.9 % RPD**						
613	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.8	%	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
614	THM-ICR	Bromodichloromethane	68.3	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
615	THM-ICR	Bromoform	8.7	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
616	THM-ICR	Chloroform	62.5	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
617	THM-ICR	Dibromochloromethane	55.0	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
618	TURB	Turbidity	0.20	ntu	SM 2130 B	1	0.05	5/17/98		5/17/98	9-0-11
619	UV-ICR	UV	0.127	1/cm	SM 5910 B	1	0.009	5/17/98		5/18/98	8-0-186
620	UV-ICR	UV (Dupl)	0.127	1/cm	SM 5910 B	1	0.009	5/17/98		5/18/98	8-0-186
			0.127	**1/cm**	**0.0 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

Sample ID: 114.20.Eff-16 **S&H ID:** 9805-364 **Date Sampled:** 5/17/98 4:41:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
621	Cl2Dose	Chlorine Dose	2.42	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/21/98		5/21/98	n/a
622	Cl2Res	Chlorine Residual	0.75	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/21/98		5/22/98	n/a
623	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.8	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
624	HAA-ICR	2-Bromopropionic acid (Surrogate)	94.4	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
625	HAA-ICR	Bromochloroacetic acid	4.1	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
626	HAA-ICR	Bromodichloroacetic acid	2.0	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
627	HAA-ICR	Chlorodibromoacetic acid	4.5	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/2/98	0-138-0
628	HAA-ICR	Dibromoacetic acid	8.7	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
629	HAA-ICR	Dichloroacetic acid	1.6	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
630	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
631	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/2/98	0-138-0
632	HAA-ICR	Tribromoacetic acid	4.8	µg/L	EPA 552.2	1	4.0	5/22/98	6/1/98	6/2/98	0-138-0
633	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
634	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/22/98	n/a
635	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
636	pH	pH	8.5	Unit	SM 4500-H+ B	1	n/a	5/17/98		5/17/98	n/a
637	TEMP	Cl2 Temperature	18.1	ºC	SM 2550 B	1	n/a	5/21/98		5/22/98	n/a
638	TEMP	Temperature	21.3	ºC	SM 2550 B	1	n/a	5/17/98		5/17/98	n/a
639	TIME	Cl2 Incubation Time	24.2	hrs	n/a	1	n/a	5/21/98		5/22/98	n/a
640	TOC-ICR	TOC	1.64	mg/L	SM 5310 C	1	0.50	5/17/98		5/17/98	7-0-271
641	TOC-ICR	TOC (Dupl)	1.63	mg/L	SM 5310 C	1	0.50	5/17/98		5/17/98	7-0-271
			1.63	**mg/L**	**0.6 % RPD**						
642	TOX-ICR	TOX	88	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
643	TOX-ICR	TOX (Dupl)	84	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
			86	**µg Cl-/L**	**4.7 % RPD**						
644	THM-ICR	1,2,3-Trichloropropane (Surrogate)	90.8	%	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
645	THM-ICR	Bromodichloromethane	6.8	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
646	THM-ICR	Bromoform	26.1	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
647	THM-ICR	Chloroform	1.3	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
648	THM-ICR	Dibromochloromethane	23.9	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
649	UV-ICR	UV	0.023	1/cm	SM 5910 B	1	0.009	5/17/98		5/18/98	8-0-186
650	UV-ICR	UV (Dupl)	0.023	1/cm	SM 5910 B	1	0.009	5/17/98		5/18/98	8-0-186
			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.

Summers & Hooper, Inc.
6 Knollcrest Drive
Cincinnati, OH 45237

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

Sample ID: 114.INF.A-2 **S&H ID:** 9805-367 **Date Sampled:** 5/17/98 1:35:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
651	ALK	Alkalinity	115	mg/L	SM 2320 B	1	5	5/17/98		5/18/98	1-0-21
652	ALK	Alkalinity (Dupl)	120	mg/L	SM 2320 B	1	5	5/17/98		5/18/98	1-0-21
			118	**mg/L**	**4.2 % RPD**						
653	NH3	Ammonia Nitrogen	0.52	mg/L	EPA 350.1	1	0.05	5/17/98		5/27/98	MW78032
654	BR	Bromide	0.200	mg/L	EPA 300.0 A	2	0.040	5/17/98		6/5/98	MW78447
655	CaHardM	Calcium Hardness	120	mg/L CaCO3	EPA 200.7	1	5	5/17/98		6/4/98	MW n/a
656	CaMW	Calcium, Total, ICAP	48	mg/L	EPA 200.7	1	1	5/17/98	6/3/98	6/3/98	MW78329
657	MgMW	Magnesium, Total, ICAP	25	mg/L	EPA 200.7	1	0	5/17/98	6/3/98	6/3/98	MW78330
658	TotHard	Total Hardness as CaCO3 by ICP	223	mg/L CaCO3	SM 2340B	1	7	5/17/98		6/4/98	MW n/a

Sample ID: 114.10.Eff-19 **S&H ID:** 9805-368 **Date Sampled:** 5/17/98 8:05:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
659	Cl2Dose	Chlorine Dose	3.32	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/21/98		5/21/98	n/a
660	Cl2Res	Chlorine Residual	0.82	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/21/98		5/22/98	n/a
661	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.4	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
662	HAA-ICR	2-Bromopropionic acid (Surrogate)	89.6	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
663	HAA-ICR	Bromochloroacetic acid	10.8	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
664	HAA-ICR	Bromodichloroacetic acid	11.4	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
665	HAA-ICR	Chlorodibromoacetic acid	8.9	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/2/98	0-138-0
666	HAA-ICR	Dibromoacetic acid	10.9	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
667	HAA-ICR	Dichloroacetic acid	8.8	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
668	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
669	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/2/98	0-138-0
670	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/22/98	6/1/98	6/2/98	0-138-0
671	HAA-ICR	Trichloroacetic acid	7.9	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/2/98	0-138-0
672	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/22/98	n/a
673	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
674	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/17/98		5/17/98	n/a
675	TEMP	Cl2 Temperature	18.1	ºC	SM 2550 B	1	n/a	5/21/98		5/22/98	n/a
676	TEMP	Temperature	21.9	ºC	SM 2550 B	1	n/a	5/17/98		5/17/98	n/a
677	TIME	Cl2 Incubation Time	24.2	hrs	n/a	1	n/a	5/21/98		5/22/98	n/a
678	TOC-ICR	TOC	3.58	mg/L	SM 5310 C	1	0.50	5/17/98		5/18/98	7-0-272
679	TOC-ICR	TOC (Dupl)	3.62	mg/L	SM 5310 C	1	0.50	5/17/98		5/18/98	7-0-272
			3.60	**mg/L**	**1.1 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

680	TOX-ICR	TOX	271	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
681	TOX-ICR	TOX (Dupl)	265	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
			268	**µg Cl-/L**	**2.2 % RPD**						
682	THM-ICR	1,2,3-Trichloropropane (Surrogate)	88.4	%	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
683	THM-ICR	Bromodichloromethane	36.1	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
684	THM-ICR	Bromoform	19.7	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
685	THM-ICR	Chloroform	15.1	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
686	THM-ICR	Dibromochloromethane	55.0	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
687	UV-ICR	UV	0.068	1/cm	SM 5910 B	1	0.009	5/17/98		5/18/98	8-0-186
688	UV-ICR	UV (Dupl)	0.068	1/cm	SM 5910 B	1	0.009	5/17/98		5/18/98	8-0-186
			0.068	**1/cm**	**0.0 % RPD**						

Sample ID: 114.10.Eff-19d **S&H ID:** 9805-369 **Date Sampled:** 5/17/98 8:05:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
689	Cl2Dose	Chlorine Dose	3.36	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/21/98		5/21/98	n/a
690	Cl2Res	Chlorine Residual	0.84	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/21/98		5/22/98	n/a
691	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	108.0	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
692	HAA-ICR	2-Bromopropionic acid (Surrogate)	90.8	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
693	HAA-ICR	Bromochloroacetic acid	11.9	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
694	HAA-ICR	Bromodichloroacetic acid	14.3	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
695	HAA-ICR	Chlorodibromoacetic acid	11.1	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/3/98	0-138-0
696	HAA-ICR	Dibromoacetic acid	12.6	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
697	HAA-ICR	Dichloroacetic acid	9.9	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
698	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
699	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/3/98	0-138-0
700	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/22/98	6/1/98	6/3/98	0-138-0
701	HAA-ICR	Trichloroacetic acid	9.7	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
702	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/22/98	n/a
703	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
704	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/17/98		5/17/98	n/a
705	TEMP	Cl2 Temperature	18.1	ºC	SM 2550 B	1	n/a	5/21/98		5/22/98	n/a
706	TEMP	Temperature	21.9	ºC	SM 2550 B	1	n/a	5/17/98		5/17/98	n/a
707	TIME	Cl2 Incubation Time	24.1	hrs	n/a	1	n/a	5/21/98		5/22/98	n/a
708	TOC-ICR	TOC	3.68	mg/L	SM 5310 C	1	0.50	5/17/98		5/18/98	7-0-272
709	TOC-ICR	TOC (Dupl)	3.67	mg/L	SM 5310 C	1	0.50	5/17/98		5/18/98	7-0-272
			3.67	**mg/L**	**0.3 % RPD**						
710	TOX-ICR	TOX	267	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
711	TOX-ICR	TOX (Dupl)	264	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

			266	**µg Cl-/L**	**1.1 % RPD**						
712	THM-ICR	1,2,3-Trichloropropane (Surrogate)	90.8	%	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
713	THM-ICR	Bromodichloromethane	33.8	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
714	THM-ICR	Bromoform	18.6	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
715	THM-ICR	Chloroform	14.1	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
716	THM-ICR	Dibromochloromethane	52.4	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
717	UV-ICR	UV	0.068	1/cm	SM 5910 B	1	0.009	5/17/98		5/18/98	8-0-186
718	UV-ICR	UV (Dupl)	0.068	1/cm	SM 5910 B	1	0.009	5/17/98		5/18/98	8-0-186
			0.068	**1/cm**	**0.0 % RPD**						

Sample ID: 114.20.Eff-18 **S&H ID:** 9805-371 **Date Sampled:** 5/18/98 6:04:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
719	Cl2Dose	Chlorine Dose	2.61	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/21/98		5/21/98	n/a
720	Cl2Res	Chlorine Residual	0.89	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/21/98		5/22/98	n/a
721	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.4	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
722	HAA-ICR	2-Bromopropionic acid (Surrogate)	89.2	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
723	HAA-ICR	Bromochloroacetic acid	5.2	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
724	HAA-ICR	Bromodichloroacetic acid	2.5	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
725	HAA-ICR	Chlorodibromoacetic acid	5.3	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/3/98	0-138-0
726	HAA-ICR	Dibromoacetic acid	9.4	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
727	HAA-ICR	Dichloroacetic acid	2.0	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
728	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
729	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/3/98	0-138-0
730	HAA-ICR	Tribromoacetic acid	4.5	µg/L	EPA 552.2	1	4.0	5/22/98	6/1/98	6/3/98	0-138-0
731	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
732	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/22/98	n/a
733	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
734	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	5/18/98		5/18/98	n/a
735	TEMP	Cl2 Temperature	18.1	ºC	SM 2550 B	1	n/a	5/21/98		5/22/98	n/a
736	TEMP	Temperature	20.5	ºC	SM 2550 B	1	n/a	5/18/98		5/18/98	n/a
737	TIME	Cl2 Incubation Time	24.2	hrs	n/a	1	n/a	5/21/98		5/22/98	n/a
738	TOC-ICR	TOC	2.05	mg/L	SM 5310 C	1	0.50	5/18/98		5/18/98	7-0-272
739	TOC-ICR	TOC (Dupl)	2.04	mg/L	SM 5310 C	1	0.50	5/18/98		5/18/98	7-0-272
			2.04	**mg/L**	**0.5 % RPD**						
740	TOX-ICR	TOX	116	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
741	TOX-ICR	TOX (Dupl)	120	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
			118	**µg Cl-/L**	**3.4 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

742	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.0	%	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
743	THM-ICR	Bromodichloromethane	10.9	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
744	THM-ICR	Bromoform	28.1	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
745	THM-ICR	Chloroform	2.3	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
746	THM-ICR	Dibromochloromethane	33.0	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
747	UV-ICR	UV	0.031	1/cm	SM 5910 B	1	0.009	5/18/98		5/19/98	8-0-187
748	UV-ICR	UV (Dupl)	0.031	1/cm	SM 5910 B	1	0.009	5/18/98		5/19/98	8-0-187
			0.031	**1/cm**	**0.0 % RPD**						

Sample ID: 114.10.Eff-21 **S&H ID:** 9805-373 **Date Sampled:** 5/18/98 7:42:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
749	Cl2Dose	Chlorine Dose	3.59	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/21/98		5/21/98	n/a
750	Cl2Res	Chlorine Residual	0.86	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/21/98		5/22/98	n/a
751	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	105.2	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
752	HAA-ICR	2-Bromopropionic acid (Surrogate)	89.2	%	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
753	HAA-ICR	Bromochloroacetic acid	12.3	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
754	HAA-ICR	Bromodichloroacetic acid	16.5	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
755	HAA-ICR	Chlorodibromoacetic acid	10.3	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/3/98	0-138-0
756	HAA-ICR	Dibromoacetic acid	10.5	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
757	HAA-ICR	Dichloroacetic acid	11.9	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
758	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
759	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/1/98	6/3/98	0-138-0
760	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/22/98	6/1/98	6/3/98	0-138-0
761	HAA-ICR	Trichloroacetic acid	13.7	µg/L	EPA 552.2	1	1.0	5/22/98	6/1/98	6/3/98	0-138-0
762	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/22/98	n/a
763	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
764	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/18/98		5/18/98	n/a
765	TEMP	Cl2 Temperature	18.1	ºC	SM 2550 B	1	n/a	5/21/98		5/22/98	n/a
766	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	5/18/98		5/18/98	n/a
767	TIME	Cl2 Incubation Time	24.2	hrs	n/a	1	n/a	5/21/98		5/22/98	n/a
768	TOC-ICR	TOC	4.18	mg/L	SM 5310 C	1	0.50	5/18/98		5/18/98	7-0-272
769	TOC-ICR	TOC (Dupl)	4.22	mg/L	SM 5310 C	1	0.50	5/18/98		5/18/98	7-0-272
			4.20	**mg/L**	**1.0 % RPD**						
770	TOX-ICR	TOX	319	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
771	TOX-ICR	TOX (Dupl)	327	µg Cl-/L	SM 5320 B	1	25	5/22/98		5/29/98	12-0-143
			323	**µg Cl-/L**	**2.5 % RPD**						
772	THM-ICR	1,2,3-Trichloropropane (Surrogate)	91.6	%	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0

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

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773	THM-ICR	Bromodichloromethane	39.3	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
774	THM-ICR	Bromoform	15.3	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
775	THM-ICR	Chloroform	20.5	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
776	THM-ICR	Dibromochloromethane	52.0	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
777	UV-ICR	UV	0.080	1/cm	SM 5910 B	1	0.009	5/18/98		5/19/98	8-0-187
778	UV-ICR	UV (Dupl)	0.080	1/cm	SM 5910 B	1	0.009	5/18/98		5/19/98	8-0-187
			0.080	**1/cm**	**0.0 % RPD**						

Sample ID: 114.20.Eff-20 **S&H ID:** 9805-390 **Date Sampled:** 5/18/98 12:58:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
779	Cl2Dose	Chlorine Dose	2.74	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/21/98		5/21/98	n/a
780	Cl2Res	Chlorine Residual	0.88	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/21/98		5/22/98	n/a
781	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	107.2	%	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
782	HAA-ICR	2-Bromopropionic acid (Surrogate)	91.2	%	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
783	HAA-ICR	Bromochloroacetic acid	7.3	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
784	HAA-ICR	Bromodichloroacetic acid	5.1	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
785	HAA-ICR	Chlorodibromoacetic acid	8.1	µg/L	EPA 552.2	1	2.0	5/22/98	6/4/98	6/4/98	0-140-0
786	HAA-ICR	Dibromoacetic acid	12.5	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
787	HAA-ICR	Dichloroacetic acid	3.3	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
788	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
789	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/4/98	6/4/98	0-140-0
790	HAA-ICR	Tribromoacetic acid	4.8	µg/L	EPA 552.2	1	4.0	5/22/98	6/4/98	6/4/98	0-140-0
791	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
792	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/22/98	n/a
793	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
794	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/18/98		5/18/98	n/a
795	TEMP	Cl2 Temperature	18.1	ºC	SM 2550 B	1	n/a	5/21/98		5/22/98	n/a
796	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	5/18/98		5/18/98	n/a
797	TIME	Cl2 Incubation Time	24.3	hrs	n/a	1	n/a	5/21/98		5/22/98	n/a
798	TOC-ICR	TOC	2.33	mg/L	SM 5310 C	1	0.50	5/18/98		5/19/98	7-0-273
799	TOC-ICR	TOC (Dupl)	2.34	mg/L	SM 5310 C	1	0.50	5/18/98		5/19/98	7-0-273
			2.34	**mg/L**	**0.4 % RPD**						
800	TOX-ICR	TOX	140	µg Cl-/L	SM 5320 B	1	25	5/22/98		6/1/98	12-0-144
801	TOX-ICR	TOX (Dupl)	143	µg Cl-/L	SM 5320 B	1	25	5/22/98		6/1/98	12-0-144
			142	**µg Cl-/L**	**2.1 % RPD**						
802	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.2	%	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
803	THM-ICR	Bromodichloromethane	15.2	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
804	THM-ICR	Bromoform	30.1	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0

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

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805	THM-ICR	Chloroform	3.4	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
806	THM-ICR	Dibromochloromethane	40.3	µg/L	EPA 551.1	1	1.0	5/22/98	5/28/98	5/29/98	0-136-0
807	UV-ICR	UV	0.036	1/cm	SM 5910 B	1	0.009	5/18/98		5/19/98	8-0-187
808	UV-ICR	UV (Dupl)	0.036	1/cm	SM 5910 B	1	0.009	5/18/98		5/19/98	8-0-187
			0.036	**1/cm**	**0.0 % RPD**						

Sample ID: 114.20.Eff-20d **S&H ID:** 9805-391 **Date Sampled:** 5/18/98 12:58:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
809	Cl2Dose	Chlorine Dose	2.75	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/21/98		5/21/98	n/a
810	Cl2Res	Chlorine Residual	0.82	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/21/98		5/22/98	n/a
811	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.4	%	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
812	HAA-ICR	2-Bromopropionic acid (Surrogate)	92.0	%	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
813	HAA-ICR	Bromochloroacetic acid	7.2	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
814	HAA-ICR	Bromodichloroacetic acid	5.3	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
815	HAA-ICR	Chlorodibromoacetic acid	8.4	µg/L	EPA 552.2	1	2.0	5/22/98	6/4/98	6/4/98	0-140-0
816	HAA-ICR	Dibromoacetic acid	12.0	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
817	HAA-ICR	Dichloroacetic acid	3.4	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
818	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
819	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/4/98	6/4/98	0-140-0
820	HAA-ICR	Tribromoacetic acid	5.0	µg/L	EPA 552.2	1	4.0	5/22/98	6/4/98	6/4/98	0-140-0
821	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
822	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/22/98	n/a
823	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
824	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/18/98		5/18/98	n/a
825	TEMP	Cl2 Temperature	18.1	ºC	SM 2550 B	1	n/a	5/21/98		5/22/98	n/a
826	TEMP	Temperature	21.1	ºC	SM 2550 B	1	n/a	5/18/98		5/18/98	n/a
827	TIME	Cl2 Incubation Time	24.4	hrs	n/a	1	n/a	5/21/98		5/22/98	n/a
828	TOC-ICR	TOC	2.37	mg/L	SM 5310 C	1	0.50	5/18/98		5/19/98	7-0-273
829	TOC-ICR	TOC (Dupl)	2.34	mg/L	SM 5310 C	1	0.50	5/18/98		5/19/98	7-0-273
			2.36	**mg/L**	**1.3 % RPD**						
830	TOX-ICR	TOX	142	µg Cl-/L	SM 5320 B	1	25	5/22/98		6/1/98	12-0-144
831	TOX-ICR	TOX (Dupl)	142	µg Cl-/L	SM 5320 B	1	25	5/22/98		6/1/98	12-0-144
			142	**µg Cl-/L**	**0.0 % RPD**						
832	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.6	%	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
833	THM-ICR	Bromodichloromethane	15.8	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
834	THM-ICR	Bromoform	30.3	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
835	THM-ICR	Chloroform	3.3	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
836	THM-ICR	Dibromochloromethane	41.2	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0

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

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837	UV-ICR	UV	0.036	1/cm	SM 5910 B	1	0.009	5/18/98		5/19/98	8-0-187
838	UV-ICR	UV (Dupl)	0.036	1/cm	SM 5910 B	1	0.009	5/18/98		5/19/98	8-0-187
			0.036	**1/cm**	**0.0 % RPD**						

Sample ID: 114.INF.B-5 **S&H ID:** 9805-400 **Date Sampled:** 5/19/98 9:50:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
839	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
840	TEMP	Temperature	15.3	ºC	SM 2550 B	1	n/a	5/19/98		5/19/98	n/a
841	TOC-ICR	TOC	5.74	mg/L	SM 5310 C	1	0.50	5/19/98		5/19/98	7-0-273
842	TOC-ICR	TOC (Dupl)	5.77	mg/L	SM 5310 C	1	0.50	5/19/98		5/19/98	7-0-273
			5.75	**mg/L**	**0.5 % RPD**						

Sample ID: 114.20.Eff-23 **S&H ID:** 9805-402 **Date Sampled:** 5/19/98 3:37:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
843	Cl2Dose	Chlorine Dose	2.88	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/21/98		5/21/98	n/a
844	Cl2Res	Chlorine Residual	0.91	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/21/98		5/22/98	n/a
845	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	103.2	%	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
846	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard) (Lab Dupl)	105.6	%	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
			104.4	**%**	**2.3 % RPD**						
847	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.2	%	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
848	HAA-ICR	2-Bromopropionic acid (Surrogate) (Lab Dupl)	91.6	%	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
			93.4	**%**	**3.9 % RPD**						
849	HAA-ICR	Bromochloroacetic acid	8.3	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
850	HAA-ICR	Bromochloroacetic acid (Lab Dupl)	8.1	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
			8.2	**µg/L**	**2.4 % RPD**						
851	HAA-ICR	Bromodichloroacetic acid	6.2	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
852	HAA-ICR	Bromodichloroacetic acid (Lab Dupl)	6.1	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
			6.2	**µg/L**	**1.6 % RPD**						
853	HAA-ICR	Chlorodibromoacetic acid	8.3	µg/L	EPA 552.2	1	2.0	5/22/98	6/4/98	6/4/98	0-140-0
854	HAA-ICR	Chlorodibromoacetic acid (Lab Dupl)	9.0	µg/L	EPA 552.2	1	2.0	5/22/98	6/4/98	6/4/98	0-140-0
			8.7	**µg/L**	**8.0 % RPD**						
855	HAA-ICR	Dibromoacetic acid	12.3	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
856	HAA-ICR	Dibromoacetic acid (Lab Dupl)	12.1	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
			12.2	**µg/L**	**1.6 % RPD**						
857	HAA-ICR	Dichloroacetic acid	4.0	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
858	HAA-ICR	Dichloroacetic acid (Lab Dupl)	4.1	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0

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

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			4.0	**µg/L**	**2.5 % RPD**						
859	HAA-ICR	Monobromoacetic acid	1.1	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
860	HAA-ICR	Monobromoacetic acid (Lab Dupl)	1.2	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
			1.1	**µg/L**	**9.1 % RPD**						
861	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/4/98	6/4/98	0-140-0
862	HAA-ICR	Monochloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/4/98	6/4/98	0-140-0
			ND	**µg/L**							
863	HAA-ICR	Tribromoacetic acid	4.4	µg/L	EPA 552.2	1	4.0	5/22/98	6/4/98	6/4/98	0-140-0
864	HAA-ICR	Tribromoacetic acid (Lab Dupl)	4.8	µg/L	EPA 552.2	1	4.0	5/22/98	6/4/98	6/4/98	0-140-0
			4.6	**µg/L**	**8.7 % RPD**						
865	HAA-ICR	Trichloroacetic acid	1.4	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
866	HAA-ICR	Trichloroacetic acid (Lab Dupl)	1.5	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/4/98	0-140-0
			1.5	**µg/L**	**6.7 % RPD**						
867	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/22/98	n/a
868	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
869	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
870	TEMP	Cl2 Temperature	18.1	ºC	SM 2550 B	1	n/a	5/21/98		5/22/98	n/a
871	TEMP	Temperature	20.5	ºC	SM 2550 B	1	n/a	5/19/98		5/19/98	n/a
872	TIME	Cl2 Incubation Time	24.4	hrs	n/a	1	n/a	5/21/98		5/22/98	n/a
873	TOC-ICR	TOC	2.65	mg/L	SM 5310 C	1	0.50	5/19/98		5/19/98	7-0-273
874	TOC-ICR	TOC (Dupl)	2.65	mg/L	SM 5310 C	1	0.50	5/19/98		5/19/98	7-0-273
			2.65	**mg/L**	**0.0 % RPD**						
875	TOX-ICR	TOX	169	µg Cl-/L	SM 5320 B	1	25	5/22/98		6/1/98	12-0-144
876	TOX-ICR	TOX (Dupl)	166	µg Cl-/L	SM 5320 B	1	25	5/22/98		6/1/98	12-0-144
			168	**µg Cl-/L**	**1.8 % RPD**						
877	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.4	%	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
878	THM-ICR	Bromodichloromethane	18.1	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
879	THM-ICR	Bromoform	26.8	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
880	THM-ICR	Chloroform	4.1	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
881	THM-ICR	Dibromochloromethane	42.4	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
882	UV-ICR	UV	0.041	1/cm	SM 5910 B	1	0.009	5/19/98		5/19/98	8-0-187
883	UV-ICR	UV (Dupl)	0.041	1/cm	SM 5910 B	1	0.009	5/19/98		5/19/98	8-0-187
			0.041	**1/cm**	**0.0 % RPD**						

Sample ID: 114.20.Eff-26 **S&H ID:** 9805-419 **Date Sampled:** 5/19/98 8:33:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
884	Cl2Dose	Chlorine Dose	3.09	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/21/98		5/21/98	n/a
885	Cl2Res	Chlorine Residual	0.83	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/21/98		5/22/98	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. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

886	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	101.6	%	EPA 552.2	1	1.0	5/22/98	6/4/98	6/5/98	0-140-0
887	HAA-ICR	2-Bromopropionic acid (Surrogate)	93.6	%	EPA 552.2	1	1.0	5/22/98	6/4/98	6/5/98	0-140-0
888	HAA-ICR	Bromochloroacetic acid	10.6	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/5/98	0-140-0
889	HAA-ICR	Bromodichloroacetic acid	9.1	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/5/98	0-140-0
890	HAA-ICR	Chlorodibromoacetic acid	10.1	µg/L	EPA 552.2	1	2.0	5/22/98	6/4/98	6/5/98	0-140-0
891	HAA-ICR	Dibromoacetic acid	13.8	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/5/98	0-140-0
892	HAA-ICR	Dichloroacetic acid	6.0	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/5/98	0-140-0
893	HAA-ICR	Monobromoacetic acid	1.2	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/5/98	0-140-0
894	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/22/98	6/4/98	6/5/98	0-140-0
895	HAA-ICR	Tribromoacetic acid	4.3	µg/L	EPA 552.2	1	4.0	5/22/98	6/4/98	6/5/98	0-140-0
896	HAA-ICR	Trichloroacetic acid	5.9	µg/L	EPA 552.2	1	1.0	5/22/98	6/4/98	6/5/98	0-140-0
897	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/22/98	n/a
898	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
899	pH	pH	8.3	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
900	TEMP	Cl2 Temperature	18.1	ºC	SM 2550 B	1	n/a	5/21/98		5/22/98	n/a
901	TEMP	Temperature	23.4	ºC	SM 2550 B	1	n/a	5/19/98		5/19/98	n/a
902	TIME	Cl2 Incubation Time	24.4	hrs	n/a	1	n/a	5/21/98		5/22/98	n/a
903	TOC-ICR	TOC	3.07	mg/L	SM 5310 C	1	0.50	5/19/98		5/20/98	7-0-276
904	TOC-ICR	TOC (Dupl)	3.10	mg/L	SM 5310 C	1	0.50	5/19/98		5/20/98	7-0-276
			3.09	**mg/L**	**1.0 % RPD**						
905	TOX-ICR	TOX	208	µg Cl-/L	SM 5320 B	1	25	5/22/98		6/3/98	12-0-145
906	TOX-ICR	TOX (Dupl)	227	µg Cl-/L	SM 5320 B	1	25	5/22/98		6/3/98	12-0-145
			218	**µg Cl-/L**	**8.7 % RPD**						
907	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.2	%	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
908	THM-ICR	Bromodichloromethane	26.4	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
909	THM-ICR	Bromoform	25.3	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
910	THM-ICR	Chloroform	7.7	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
911	THM-ICR	Dibromochloromethane	50.7	µg/L	EPA 551.1	1	1.0	5/22/98	6/3/98	6/3/98	0-139-0
912	UV-ICR	UV	0.054	1/cm	SM 5910 B	1	0.009	5/19/98		5/21/98	8-0-188
913	UV-ICR	UV (Dupl)	0.055	1/cm	SM 5910 B	1	0.009	5/19/98		5/21/98	8-0-188
			0.055	**1/cm**	**1.8 % RPD**						

Sample ID: 114.10.Eff-23 **S&H ID:** 9805-421 **Date Sampled:** 5/19/98 9:42:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
914	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/19/98		5/19/98	n/a
915	TEMP	Temperature	23.6	ºC	SM 2550 B	1	n/a	5/19/98		5/19/98	n/a
916	TOC-ICR	TOC	4.54	mg/L	SM 5310 C	1	0.50	5/19/98		5/20/98	7-0-276
917	TOC-ICR	TOC (Dupl)	4.46	mg/L	SM 5310 C	1	0.50	5/19/98		5/20/98	7-0-276

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

			4.50	**mg/L**	**1.8 % RPD**						

Sample ID: 114.20.Eff-31 **S&H ID:** 9805-432 **Date Sampled:** 5/21/98 7:08:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
918	Cl2Dose	Chlorine Dose	3.19	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/24/98		5/24/98	n/a
919	Cl2Res	Chlorine Residual	0.80	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/24/98		5/25/98	n/a
920	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.0	%	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
921	HAA-ICR	2-Bromopropionic acid (Surrogate)	92.4	%	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
922	HAA-ICR	Bromochloroacetic acid	11.8	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
923	HAA-ICR	Bromodichloroacetic acid	12.7	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
924	HAA-ICR	Chlorodibromoacetic acid	10.5	µg/L	EPA 552.2	1	2.0	5/25/98	6/4/98	6/5/98	0-140-0
925	HAA-ICR	Dibromoacetic acid	13.0	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
926	HAA-ICR	Dichloroacetic acid	8.0	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
927	HAA-ICR	Monobromoacetic acid	1.1	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
928	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/25/98	6/4/98	6/5/98	0-140-0
929	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/25/98	6/4/98	6/5/98	0-140-0
930	HAA-ICR	Trichloroacetic acid	12.2	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
931	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/25/98	n/a
932	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/24/98	n/a
933	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	5/21/98		5/21/98	n/a
934	TEMP	Cl2 Temperature	19.4	ºC	SM 2550 B	1	n/a	5/24/98		5/25/98	n/a
935	TEMP	Temperature	20.3	ºC	SM 2550 B	1	n/a	5/21/98		5/21/98	n/a
936	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	5/24/98		5/25/98	n/a
937	TOC-ICR	TOC	3.39	mg/L	SM 5310 C	1	0.50	5/21/98		5/21/98	7-0-277
938	TOC-ICR	TOC (Dupl)	3.40	mg/L	SM 5310 C	1	0.50	5/21/98		5/21/98	7-0-277
			3.40	**mg/L**	**0.3 % RPD**						
939	TOX-ICR	TOX	250	µg Cl-/L	SM 5320 B	1	25	5/25/98		6/3/98	12-0-145
940	TOX-ICR	TOX (Dupl)	251	µg Cl-/L	SM 5320 B	1	25	5/25/98		6/3/98	12-0-145
			251	**µg Cl-/L**	**0.4 % RPD**						
941	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.8	%	EPA 551.1	1	1.0	5/25/98	6/3/98	6/3/98	0-139-0
942	THM-ICR	Bromodichloromethane	34.1	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/3/98	0-139-0
943	THM-ICR	Bromoform	22.4	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/3/98	0-139-0
944	THM-ICR	Chloroform	12.3	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/3/98	0-139-0
945	THM-ICR	Dibromochloromethane	54.7	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/3/98	0-139-0
946	UV-ICR	UV	0.064	1/cm	SM 5910 B	1	0.009	5/21/98		5/21/98	8-0-188
947	UV-ICR	UV (Dupl)	0.064	1/cm	SM 5910 B	1	0.009	5/21/98		5/21/98	8-0-188
			0.064	**1/cm**	**0.0 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

Sample ID: 114.20.Eff-34 **S&H ID:** 9805-454 **Date Sampled:** 5/23/98 6:33:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
948	Cl2Dose	Chlorine Dose	3.44	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/24/98		5/24/98	n/a
949	Cl2Res	Chlorine Residual	0.74	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/24/98		5/25/98	n/a
950	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.0	%	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
951	HAA-ICR	2-Bromopropionic acid (Surrogate)	91.2	%	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
952	HAA-ICR	Bromochloroacetic acid	13.2	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
953	HAA-ICR	Bromodichloroacetic acid	18.2	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
954	HAA-ICR	Chlorodibromoacetic acid	11.0	µg/L	EPA 552.2	1	2.0	5/25/98	6/4/98	6/5/98	0-140-0
955	HAA-ICR	Dibromoacetic acid	12.5	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
956	HAA-ICR	Dichloroacetic acid	10.6	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
957	HAA-ICR	Monobromoacetic acid	1.3	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
958	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/25/98	6/4/98	6/5/98	0-140-0
959	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/25/98	6/4/98	6/5/98	0-140-0
960	HAA-ICR	Trichloroacetic acid	16.5	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
961	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/25/98	n/a
962	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/24/98	n/a
963	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	5/23/98		5/23/98	n/a
964	TEMP	Cl2 Temperature	19.4	ºC	SM 2550 B	1	n/a	5/24/98		5/25/98	n/a
965	TEMP	Temperature	20.9	ºC	SM 2550 B	1	n/a	5/23/98		5/23/98	n/a
966	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	5/24/98		5/25/98	n/a
967	TOC-ICR	TOC	3.97	mg/L	SM 5310 C	1	0.50	5/23/98		5/23/98	7-0-278
968	TOC-ICR	TOC (Dupl)	3.95	mg/L	SM 5310 C	1	0.50	5/23/98		5/23/98	7-0-278
			3.96	**mg/L**	**0.5 % RPD**						
969	TOX-ICR	TOX	307	µg Cl-/L	SM 5320 B	1	25	5/25/98		6/3/98	12-0-145
970	TOX-ICR	TOX (Dupl)	311	µg Cl-/L	SM 5320 B	1	25	5/25/98		6/3/98	12-0-145
			309	**µg Cl-/L**	**1.3 % RPD**						
971	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.6	%	EPA 551.1	1	1.0	5/25/98	6/3/98	6/3/98	0-139-0
972	THM-ICR	Bromodichloromethane	41.9	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/3/98	0-139-0
973	THM-ICR	Bromoform	18.3	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/3/98	0-139-0
974	THM-ICR	Chloroform	20.0	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/3/98	0-139-0
975	THM-ICR	Dibromochloromethane	57.8	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/3/98	0-139-0
976	UV-ICR	UV	0.077	1/cm	SM 5910 B	1	0.009	5/23/98		5/23/98	8-0-190
977	UV-ICR	UV (Dupl)	0.076	1/cm	SM 5910 B	1	0.009	5/23/98		5/23/98	8-0-190
			0.076	**1/cm**	**1.3 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

Sample ID: 114.20.Eff-34d **S&H ID:** 9805-455 **Date Sampled:** 5/23/98 6:33:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
978	Cl2Dose	Chlorine Dose	3.43	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/24/98		5/24/98	n/a
979	Cl2Res	Chlorine Residual	0.75	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/24/98		5/25/98	n/a
980	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.4	%	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
981	HAA-ICR	2-Bromopropionic acid (Surrogate)	93.2	%	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
982	HAA-ICR	Bromochloroacetic acid	13.9	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
983	HAA-ICR	Bromodichloroacetic acid	18.7	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
984	HAA-ICR	Chlorodibromoacetic acid	11.5	µg/L	EPA 552.2	1	2.0	5/25/98	6/4/98	6/5/98	0-140-0
985	HAA-ICR	Dibromoacetic acid	13.5	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
986	HAA-ICR	Dichloroacetic acid	11.1	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
987	HAA-ICR	Monobromoacetic acid	1.2	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
988	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/25/98	6/4/98	6/5/98	0-140-0
989	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/25/98	6/4/98	6/5/98	0-140-0
990	HAA-ICR	Trichloroacetic acid	17.9	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
991	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/25/98	n/a
992	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/24/98	n/a
993	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	5/23/98		5/23/98	n/a
994	TEMP	Cl2 Temperature	19.4	ºC	SM 2550 B	1	n/a	5/24/98		5/25/98	n/a
995	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	5/23/98		5/23/98	n/a
996	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	5/24/98		5/25/98	n/a
997	TOC-ICR	TOC	3.91	mg/L	SM 5310 C	1	0.50	5/23/98		5/23/98	7-0-278
998	TOC-ICR	TOC (Dupl)	3.95	mg/L	SM 5310 C	1	0.50	5/23/98		5/23/98	7-0-278
			3.93	**mg/L**	**1.0 % RPD**						
999	TOX-ICR	TOX	322	µg Cl-/L	SM 5320 B	1	25	5/25/98		6/3/98	12-0-145
1000	THM-ICR	1,2,3-Trichloropropane (Surrogate)	89.6	%	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1001	THM-ICR	Bromodichloromethane	39.4	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1002	THM-ICR	Bromoform	17.4	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1003	THM-ICR	Chloroform	18.5	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1004	THM-ICR	Dibromochloromethane	54.5	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1005	UV-ICR	UV	0.077	1/cm	SM 5910 B	1	0.009	5/23/98		5/23/98	8-0-190
1006	UV-ICR	UV (Dupl)	0.076	1/cm	SM 5910 B	1	0.009	5/23/98		5/23/98	8-0-190
			0.076	**1/cm**	**1.3 % RPD**						

Sample ID: 114.20.Eff-35 **S&H ID:** 9805-467 **Date Sampled:** 5/24/98 9:03:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1007	Cl2Dose	Chlorine Dose	3.60	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/24/98		5/24/98	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. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

1008	Cl2Res	Chlorine Residual	0.72	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/24/98		5/25/98	n/a
1009	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.0	%	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1010	HAA-ICR	2-Bromopropionic acid (Surrogate)	91.6	%	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1011	HAA-ICR	Bromochloroacetic acid	14.2	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1012	HAA-ICR	Bromodichloroacetic acid	19.3	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1013	HAA-ICR	Chlorodibromoacetic acid	10.7	µg/L	EPA 552.2	1	2.0	5/25/98	6/4/98	6/5/98	0-140-0
1014	HAA-ICR	Dibromoacetic acid	12.8	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1015	HAA-ICR	Dichloroacetic acid	12.2	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1016	HAA-ICR	Monobromoacetic acid	1.4	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1017	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/25/98	6/4/98	6/5/98	0-140-0
1018	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/25/98	6/4/98	6/5/98	0-140-0
1019	HAA-ICR	Trichloroacetic acid	18.4	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1020	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/25/98	n/a
1021	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/24/98	n/a
1022	pH	pH	8.5	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/24/98	n/a
1023	TEMP	Cl2 Temperature	19.4	ºC	SM 2550 B	1	n/a	5/24/98		5/25/98	n/a
1024	TEMP	Temperature	21.2	ºC	SM 2550 B	1	n/a	5/24/98		5/24/98	n/a
1025	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	5/24/98		5/25/98	n/a
1026	TOC-ICR	TOC	4.38	mg/L	SM 5310 C	1	0.50	5/24/98		5/24/98	7-0-281
1027	TOC-ICR	TOC (Dupl)	4.25	mg/L	SM 5310 C	1	0.50	5/24/98		5/24/98	7-0-281
			4.31	**mg/L**	**3.0 % RPD**						
1028	TOX-ICR	TOX	329	µg Cl-/L	SM 5320 B	1	25	5/25/98		6/3/98	12-0-145
1029	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.6	%	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1030	THM-ICR	Bromodichloromethane	43.6	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1031	THM-ICR	Bromoform	16.4	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1032	THM-ICR	Chloroform	22.9	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1033	THM-ICR	Dibromochloromethane	56.1	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1034	UV-ICR	UV	0.083	1/cm	SM 5910 B	1	0.009	5/24/98		5/24/98	8-0-191
1035	UV-ICR	UV (Dupl)	0.083	1/cm	SM 5910 B	1	0.009	5/24/98		5/24/98	8-0-191
			0.083	**1/cm**	**0.0 % RPD**						

Sample ID: 114.INF.B-6 **S&H ID:** 9805-468 **Date Sampled:** 5/24/98 10:05:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1036	Cl2Dose	Chlorine Dose	4.35	mg/L as Cl2	SM 4500-Cl B	1	n/a	5/24/98		5/24/98	n/a
1037	Cl2Res	Chlorine Residual	0.60	mg/L as Cl2	SM 4500-Cl F	1	0.10	5/24/98		5/25/98	n/a
1038	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.8	%	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0

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

Laboratory Test Results

Mr. Don Thomson
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1039	HAA-ICR	2-Bromopropionic acid (Surrogate)	91.6	%	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1040	HAA-ICR	Bromochloroacetic acid	18.5	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1041	HAA-ICR	Bromodichloroacetic acid	30.8	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1042	HAA-ICR	Chlorodibromoacetic acid	12.4	µg/L	EPA 552.2	1	2.0	5/25/98	6/4/98	6/5/98	0-140-0
1043	HAA-ICR	Dibromoacetic acid	9.7	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1044	HAA-ICR	Dichloroacetic acid	27.4	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1045	HAA-ICR	Monobromoacetic acid	1.2	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1046	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	5/25/98	6/4/98	6/5/98	0-140-0
1047	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	5/25/98	6/4/98	6/5/98	0-140-0
1048	HAA-ICR	Trichloroacetic acid	28.1	µg/L	EPA 552.2	1	1.0	5/25/98	6/4/98	6/5/98	0-140-0
1049	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/25/98	n/a
1050	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/24/98	n/a
1051	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	5/24/98		5/24/98	n/a
1052	TEMP	Cl2 Temperature	19.4	ºC	SM 2550 B	1	n/a	5/24/98		5/25/98	n/a
1053	TEMP	Temperature	18.0	ºC	SM 2550 B	1	n/a	5/24/98		5/24/98	n/a
1054	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	5/24/98		5/25/98	n/a
1055	TOC-ICR	TOC	5.74	mg/L	SM 5310 C	1	0.50	5/24/98		5/24/98	7-0-281
1056	TOC-ICR	TOC (Dupl)	5.78	mg/L	SM 5310 C	1	0.50	5/24/98		5/24/98	7-0-281
			5.76	**mg/L**	**0.7 % RPD**						
1057	TOX-ICR	TOX	510	µg Cl-/L	SM 5320 B	1	25	5/25/98		6/3/98	12-0-145
1058	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.4	%	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1059	THM-ICR	Bromodichloromethane	72.9	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1060	THM-ICR	Bromoform	8.6	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1061	THM-ICR	Chloroform	66.4	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1062	THM-ICR	Dibromochloromethane	56.0	µg/L	EPA 551.1	1	1.0	5/25/98	6/3/98	6/4/98	0-139-0
1063	TURB	Turbidity	0.10	ntu	SM 2130 B	1	0.05	5/24/98		5/24/98	9-0-11
1064	UV-ICR	UV	0.126	1/cm	SM 5910 B	1	0.009	5/24/98		5/24/98	8-0-191
1065	UV-ICR	UV (Dupl)	0.126	1/cm	SM 5910 B	1	0.009	5/24/98		5/24/98	8-0-191
			0.126	**1/cm**	**0.0 % RPD**						

Sample ID: 114.20.Eff-36 **S&H ID:** 9805-470 **Date Sampled:** 5/26/98 12:45:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1066	pH	pH	8.5	Unit	SM 4500-H+ B	1	n/a	5/26/98		5/26/98	n/a
1067	TEMP	Temperature	20.9	ºC	SM 2550 B	1	n/a	5/26/98		5/26/98	n/a
1068	TOC-ICR	TOC	4.41	mg/L	SM 5310 C	1	0.50	5/26/98		5/26/98	7-0-282
1069	TOC-ICR	TOC (Dupl)	4.53	mg/L	SM 5310 C	1	0.50	5/26/98		5/26/98	7-0-282
			4.47	**mg/L**	**2.7 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

End of laboratory test results

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Quality Control Report

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Phone: 619-475-9047 Fax: 619-479-6271

Study#: 114
Study Title: ICR RSSCT #1

Analysis: ALK (Alkalinity) **Method:** SM 2320 B

QC Batch ID: 1-0-21

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	100	103	mg/L	103%		05/15/98	9805-276	5		
Matrix Spike (Dupl)	Matrix Spike	100	98	mg/L	98%		05/15/98	9805-276	5		
		100	**100**	**mg/L**	**100%**	**5.0 %**					
Method Blank	Method Blank		ND*	mg/L			05/15/98	9805-302	5		
Standard	Standard	100	99	mg/L	99%		05/15/98	9805-303	5		
Standard (Dupl)	Standard	100	101	mg/L	101%		05/15/98	9805-303	5		
		100	**100**	**mg/L**	**100%**	**2.0 %**					
Matrix Spike	Matrix Spike	100	104	mg/L	104%		05/18/98	9805-367	5		
Matrix Spike (Dupl)	Matrix Spike	100	104	mg/L	104%		05/18/98	9805-367	5		
		100	**104**	**mg/L**	**104%**	**1.0 %**					
Method Blank	Method Blank		ND*	mg/L			05/18/98	9805-379	5		
Standard	Standard	100	100	mg/L	100%		05/18/98	9805-380	5		
Standard (Dupl)	Standard	100	100	mg/L	100%		05/18/98	9805-380	5		
		100	**100**	**mg/L**	**100%**	**0.0 %**					

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-259

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	mg/L			9805-127	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9805-127	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.49	mg/L	98%		9804-474	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.50	mg/L	100%		9804-474	0.5	50-150%	
		0.50	**0.49**	**mg/L**	**98%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	3.62	mg/L	91%		9804-475	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.62	mg/L	91%		9804-475	0.5	90-110%	
		4.00	**3.62**	**mg/L**	**91%**	**0.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-261

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	3.94	mg/L	98%		9805-159	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.01	mg/L	100%		9805-159	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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		4.00	**3.98**	**mg/L**	**100%**	**1.8 %**				
Method Blank	Method Blank		ND*	mg/L			9805-150	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9805-150	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.50	mg/L	100%		9804-474	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.51	mg/L	102%		9804-474	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%		9804-475	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.96	mg/L	99%		9804-475	0.5	90-110%	
		4.00	**3.95**	**mg/L**	**99%**	**0.5 %**			90-110%	10%
Standard	Standard	10.00	10.00	mg/L	100%		9804-511	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.09	mg/L	101%		9804-511	0.5	90-110%	
		10.00	**10.05**	**mg/L**	**101%**	**0.9 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-268

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.19	mg/L	105%		9805-294	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.05	mg/L	101%		9805-294	0.5		
		4.00	**4.12**	**mg/L**	**103%**	**3.4 %**				
Method Blank	Method Blank		ND*	mg/L			9805-312	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9805-312	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9805-257	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9805-257	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.15	mg/L	104%		9805-201	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.13	mg/L	103%		9805-201	0.5	90-110%	
		4.00	**4.14**	**mg/L**	**103%**	**0.5 %**			90-110%	10%
Standard	Standard	10.00	10.15	mg/L	102%		9804-511	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.25	mg/L	102%		9804-511	0.5	90-110%	
		10.00	**10.20**	**mg/L**	**102%**	**1.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-270

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.66	mg/L	117%		9805-317	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.69	mg/L	117%		9805-317	0.5		
		4.00	**4.68**	**mg/L**	**117%**	**0.9 %**				
Method Blank	Method Blank		ND*	mg/L			9805-314	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9805-314	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%		9805-257	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9805-257	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.88	mg/L	97%		9805-201	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.87	mg/L	97%		9805-201	0.5	90-110%	
		4.00	**3.87**	**mg/L**	**97%**	**0.3 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-271

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.11	mg/L	103%		9805-352	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.16	mg/L	104%		9805-352	0.5		
		4.00	**4.14**	**mg/L**	**103%**	**1.2 %**				
Method Blank	Method Blank		ND*	mg/L			9805-346	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9805-346	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.56	mg/L	112%		9804-474	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.48	mg/L	96%		9804-474	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**15.4 %**			50-150%	20%
Standard	Standard	4.00	4.18	mg/L	104%		9805-201	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.26	mg/L	106%		9805-201	0.5	90-110%	
		4.00	**4.22**	**mg/L**	**105%**	**1.9 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-272

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	10.00	9.85	mg/L	98%		9805-373	0.5		
Matrix Spike (Dupl)	Matrix Spike	10.00	9.71	mg/L	97%		9805-373	0.5		
		10.00	**9.78**	**mg/L**	**98%**	**1.4 %**				
Method Blank	Method Blank		ND*	mg/L			9805-383	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9805-383	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.51	mg/L	102%		9804-474	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.51	mg/L	102%		9804-474	0.5	50-150%	
		0.50	**0.51**	**mg/L**	**102%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.31	mg/L	108%		9805-201	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.31	mg/L	108%		9805-201	0.5	90-110%	
		4.00	**4.31**	**mg/L**	**108%**	**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.

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Quality Control Report

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Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-273

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	3.93	mg/L	98%		9805-402	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.89	mg/L	97%		9805-402	0.5		
		4.00	**3.91**	**mg/L**	**98%**	**1.0 %**				
Method Blank	Method Blank		ND*	mg/L			9805-410	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9805-410	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.55	mg/L	110%		9805-257	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9805-257	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**3.7 %**			50-150%	20%
Standard	Standard	4.00	3.98	mg/L	100%		9805-201	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.89	mg/L	97%		9805-201	0.5	90-110%	
		4.00	**3.93**	**mg/L**	**98%**	**2.3 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-276

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%		9805-245	0.5		
Matrix Spike	Matrix Spike	10.00	9.03	mg/L	90%		9805-421	0.5		
Matrix Spike (Dupl)	Matrix Spike	10.00	9.08	mg/L	91%		9805-421	0.5		
		10.00	**9.05**	**mg/L**	**91%**	**0.7 %**				
Method Blank	Method Blank		ND*	mg/L			9805-418	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9805-418	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9804-474	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9804-474	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%		9805-201	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.94	mg/L	98%		9805-201	0.5	90-110%	
		4.00	**3.95**	**mg/L**	**99%**	**0.8 %**			90-110%	10%
Standard	Standard	10.00	10.10	mg/L	101%		9804-511	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.15	mg/L	102%		9804-511	0.5	90-110%	
		10.00	**10.13**	**mg/L**	**101%**	**0.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-277

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	3.67	mg/L	92%		9805-430	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.67	mg/L	92%		9805-430	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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		4.00	**3.67**	**mg/L**	**92%**	**0.0 %**				
Method Blank	Method Blank		ND*	mg/L			9805-433	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9805-433	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9805-257	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9805-257	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.91	mg/L	98%		9805-201	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.87	mg/L	97%		9805-201	0.5	90-110%	
		4.00	**3.89**	**mg/L**	**97%**	**1.0 %**			90-110%	10%
Standard	Standard	10.00	9.87	mg/L	99%		9804-511	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.98	mg/L	100%		9804-511	0.5	90-110%	
		10.00	**9.93**	**mg/L**	**99%**	**1.1 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-278

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	10.00	9.00	mg/L	90%		9805-451	0.5		
Matrix Spike (Dupl)	Matrix Spike	10.00	9.04	mg/L	90%		9805-451	0.5		
		10.00	**9.02**	**mg/L**	**90%**	**0.6 %**				
Method Blank	Method Blank		ND*	mg/L			9805-449	0.5		
Method Blank	Method Blank		ND*	mg/L			9805-449	0.5		
Standard	Standard	0.50	0.56	mg/L	112%		9805-257	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9805-257	0.5	50-150%	
		0.50	**0.55**	**mg/L**	**110%**	**3.6 %**			50-150%	20%
Standard	Standard	4.00	3.87	mg/L	97%		9805-447	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.89	mg/L	97%		9805-447	0.5	90-110%	
		4.00	**3.88**	**mg/L**	**97%**	**0.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-281

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	10.00	8.64	mg/L	86%		9805-467	0.5		
Matrix Spike (Dupl)	Matrix Spike	10.00	8.76	mg/L	88%		9805-467	0.5		
		10.00	**8.70**	**mg/L**	**87%**	**1.4 %**				
Method Blank	Method Blank		ND*	mg/L			9805-465	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9805-465	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9805-257	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.60	mg/L	120%		9805-257	0.5	50-150%	
		0.50	**0.56**	**mg/L**	**112%**	**12.5 %**			50-150%	20%

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	4.00	4.24	mg/L	106%		9805-447	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.07	mg/L	102%		9805-447	0.5	90-110%	
		4.00	**4.16**	**mg/L**	**104%**	**4.1 %**			90-110%	10%
Standard	Standard	10.00	10.06	mg/L	101%		9804-511	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.99	mg/L	100%		9804-511	0.5	90-110%	
		10.00	**10.02**	**mg/L**	**100%**	**0.7 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-282

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	10.00	8.90	mg/L	89%		9805-470	0.5		
Matrix Spike (Dupl)	Matrix Spike	10.00	8.98	mg/L	90%		9805-470	0.5		
		10.00	**8.94**	**mg/L**	**89%**	**0.9 %**				
Method Blank	Method Blank		ND*	mg/L			9805-471	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9805-471	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9805-257	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9805-257	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%		9805-447	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.00	mg/L	100%		9805-447	0.5	90-110%	
		4.00	**4.00**	**mg/L**	**100%**	**0.3 %**			90-110%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-184

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9805-301	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-301	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9805-301	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-301	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9805-258	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9805-258	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%		9805-259	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.086	1/cm	98%		9805-259	0.009	85-115%	
		0.088	**0.086**	**1/cm**	**98%**	**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: 8-0-185

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9805-344	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-344	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9805-344	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-344	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9805-258	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9805-258	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.086	1/cm	98%		9805-259	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9805-259	0.009	85-115%	
		0.088	**0.086**	**1/cm**	**98%**	**1.2 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-186

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9805-388	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-388	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9805-388	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-388	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9805-258	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9805-258	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%		9805-259	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9805-259	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: 8-0-187

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9805-412	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-412	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9805-412	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-412	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	0.007	1/cm	78%		9805-258	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9805-258	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.084	1/cm	95%		9805-259	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.084	1/cm	95%		9805-259	0.009	85-115%	
		0.088	**0.084**	**1/cm**	**95%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-188

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9805-436	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-436	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9805-436	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-436	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9805-258	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9805-258	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%		9805-259	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.085	1/cm	97%		9805-259	0.009	85-115%	
		0.088	**0.085**	**1/cm**	**97%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-189

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9805-365	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-365	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9805-365	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-365	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9805-258	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9805-258	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%		9805-259	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9805-259	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: 8-0-190

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9805-463	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-463	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9805-463	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-463	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9805-258	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9805-258	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.084	1/cm	95%		9805-259	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.085	1/cm	97%		9805-259	0.009	85-115%	
		0.088	**0.085**	**1/cm**	**97%**	**1.2 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-191

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9805-469	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-469	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9805-469	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9805-469	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9805-258	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9805-258	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.084	1/cm	95%		9805-259	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.084	1/cm	95%		9805-259	0.009	85-115%	
		0.088	**0.084**	**1/cm**	**95%**	**0.0 %**			85-115%	10%

Analysis: TURB (Turbidity) **Method:** SM 2130 B

QC Batch ID: 9-0-10

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%		04/27/98	9902-79	0.05		
Standard	Standard	4.51	4.56	ntu	101%		04/29/98	9902-79	0.05		
Standard	Standard	4.51	4.56	ntu	101%		05/04/98	9902-79	0.05		
Standard	Standard	4.51	4.56	ntu	101%		05/06/98	9902-79	0.05		
Standard	Standard	4.51	4.56	ntu	101%		05/08/98	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	4.56	ntu	101%		05/11/98	9902-79	0.05
Standard	Standard	4.51	4.54	ntu	101%		05/15/98	9902-79	0.05

Analysis: TURB (Turbidity) **Method:** SM 2130 B

QC Batch ID: 9-0-11

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard	Standard	4.51	4.56	ntu	101%		05/17/98	9902-79	0.05		
Standard	Standard	4.51	4.58	ntu	102%		05/20/98	9902-79	0.05		
Standard	Standard	4.51	4.61	ntu	102%		05/23/98	9902-79	0.05		
Standard	Standard	4.51	4.62	ntu	102%		05/24/98	9902-79	0.05		
Standard	Standard	4.51	4.62	ntu	102%		06/01/98	9902-79	0.05		
Standard	Standard	4.51	4.56	ntu	101%		06/05/98	9902-79	0.05		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-141

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%		9805-481	25	75-125%	
Standard - TCP Aqueous	Standard	200	184	µg Cl-/L	92%		9805-480	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9805-482	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-142

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%		9805-489	25	75-125%	
Standard - TCP Aqueous	Standard	200	199	µg Cl-/L	100%		9805-488	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9805-490	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-143

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	198	µg Cl-/L	99%		9805-333	25		
Matrix Spike (Dupl)	Matrix Spike	200	204	µg Cl-/L	102%		9805-333	25		
		200	**201**	**µg Cl-/L**	**100%**	**3.5 %**				
Standard - TCP Aqueous	Standard	25	22	µg Cl-/L	88%		9805-497	25	75-125%	
Standard - TCP Aqueous	Standard	200	209	µg Cl-/L	104%		9805-496	25	85-115%	
Standard - TCP Aqueous	Standard	500	506	µg Cl-/L	101%		9805-499	25	85-115%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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System Blank	Blank		ND*	µg Cl-/L			9805-498	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-144

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	198	µg Cl-/L	99%		9805-391	25		
Matrix Spike (Dupl)	Matrix Spike	200	197	µg Cl-/L	98%		9805-391	25		
		200	**198**	**µg Cl-/L**	**99%**	**1.0 %**				
Standard - TCP Aqueous	Standard	25	26	µg Cl-/L	104%		9806-3	25	75-125%	
Standard - TCP Aqueous	Standard	200	197	µg Cl-/L	98%		9806-2	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9806-4	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-145

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%		9806-108	25	75-125%	
Standard - TCP Aqueous	Standard	200	203	µg Cl-/L	101%		9806-107	25	85-115%	
Standard - TCP Aqueous	Standard	500	460	µg Cl-/L	92%		9806-110	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9806-109	25		

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-130-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Bromodichloromethane	Duplicate	14.8	14.2	µg/L		4.1%	9805-214	1		
Bromodichloromethane	Matrix Spike	40.0	41.6	µg/L	104%		9805-261	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9805-437	1		
Bromodichloromethane	Secondary Source Std	20.0	21.0	µg/L	105%		9805-438	1	70-130%	
Bromodichloromethane	Standard	20.0	18.1	µg/L	91%		9805-439	1	80-120%	
Bromodichloromethane	Standard	20.0	19.4	µg/L	97%		9805-439	1	80-120%	
Bromodichloromethane	Standard	20.0	18.8	µg/L	94%		9805-439	1	80-120%	
Bromodichloromethane	Standard	40.0	41.4	µg/L	103%		9805-440	1	80-120%	
Bromodichloromethane	Standard	40.0	41.1	µg/L	103%		9805-440	1	80-120%	
Bromoform	Duplicate	ND	ND	µg/L		NA	9805-214	1		
Bromoform	Matrix Spike	40.0	43.2	µg/L	108%		9805-261	1		
Bromoform	Method Blank		ND*	µg/L			9805-437	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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Bromoform	Secondary Source Std	20.0	20.4	µg/L	102%		9805-438	1	70-130%
Bromoform	Standard	20.0	17.6	µg/L	88%		9805-439	1	80-120%
Bromoform	Standard	20.0	20.2	µg/L	101%		9805-439	1	80-120%
Bromoform	Standard	20.0	19.3	µg/L	97%		9805-439	1	80-120%
Bromoform	Standard	40.0	39.8	µg/L	99%		9805-440	1	80-120%
Bromoform	Standard	40.0	43.0	µg/L	108%		9805-440	1	80-120%
Chloroform	Duplicate	42.1	40.0	µg/L		5.1%	9805-214	1	
Chloroform	Matrix Spike	40.0	42.4	µg/L	106%		9805-261	1	
Chloroform	Method Blank		ND*	µg/L			9805-437	1	
Chloroform	Secondary Source Std	20.0	20.9	µg/L	104%		9805-438	1	70-130%
Chloroform	Standard	20.0	18.1	µg/L	91%		9805-439	1	80-120%
Chloroform	Standard	20.0	19.5	µg/L	97%		9805-439	1	80-120%
Chloroform	Standard	20.0	19.4	µg/L	97%		9805-439	1	80-120%
Chloroform	Standard	40.0	41.5	µg/L	104%		9805-440	1	80-120%
Chloroform	Standard	40.0	42.3	µg/L	106%		9805-440	1	80-120%
Dibromochloromethane	Duplicate	3.8	3.6	µg/L		5.4%	9805-214	1	
Dibromochloromethane	Matrix Spike	40.0	42.4	µg/L	106%		9805-261	1	
Dibromochloromethane	Method Blank		ND*	µg/L			9805-437	1	
Dibromochloromethane	Secondary Source Std	20.0	20.9	µg/L	104%		9805-438	1	70-130%
Dibromochloromethane	Standard	20.0	18.9	µg/L	94%		9805-439	1	80-120%
Dibromochloromethane	Standard	20.0	20.0	µg/L	100%		9805-439	1	80-120%
Dibromochloromethane	Standard	20.0	19.0	µg/L	95%		9805-439	1	80-120%
Dibromochloromethane	Standard	40.0	41.7	µg/L	104%		9805-440	1	80-120%
Dibromochloromethane	Standard	40.0	40.5	µg/L	101%		9805-440	1	80-120%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-136-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromodichloromethane	Duplicate	3.2	3.0	µg/L		6.5%	9805-309	1		
Bromodichloromethane	Matrix Spike	40.0	39.1	µg/L	98%		9805-353	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9805-491	1		
Bromodichloromethane	Secondary Source Std	20.0	21.7	µg/L	109%		9805-492	1	70-130%	
Bromodichloromethane	Standard	20.0	20.2	µg/L	101%		9805-493	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	20.0	19.5	µg/L	97%		9805-493	1	80-120%	
Bromodichloromethane	Standard	40.0	42.2	µg/L	106%		9805-494	1	80-120%	
Bromoform	Duplicate	18.5	16.9	µg/L		9.0%	9805-309	1		
Bromoform	Matrix Spike	40.0	36.5	µg/L	91%		9805-353	1		
Bromoform	Method Blank		ND*	µg/L			9805-491	1		
Bromoform	Secondary Source Std	20.0	20.6	µg/L	103%		9805-492	1	70-130%	
Bromoform	Standard	20.0	19.8	µg/L	99%		9805-493	1	80-120%	
Bromoform	Standard	20.0	18.1	µg/L	91%		9805-493	1	80-120%	
Bromoform	Standard	40.0	38.2	µg/L	96%		9805-494	1	80-120%	
Chloroform	Duplicate	ND	ND	µg/L		NA	9805-309	1		
Chloroform	Matrix Spike	40.0	42.8	µg/L	107%		9805-353	1		
Chloroform	Method Blank		ND*	µg/L			9805-491	1		
Chloroform	Secondary Source Std	20.0	21.6	µg/L	108%		9805-492	1	70-130%	
Chloroform	Standard	20.0	19.6	µg/L	98%		9805-493	1	80-120%	
Chloroform	Standard	20.0	19.0	µg/L	95%		9805-493	1	80-120%	
Chloroform	Standard	40.0	42.9	µg/L	107%		9805-494	1	80-120%	
Dibromochloromethane	Duplicate	13.4	12.4	µg/L		7.8%	9805-309	1		
Dibromochloromethane	Matrix Spike	40.0	39.2	µg/L	98%		9805-353	1		
Dibromochloromethane	Method Blank		ND*	µg/L			9805-491	1		
Dibromochloromethane	Secondary Source Std	20.0	21.0	µg/L	105%		9805-492	1	70-130%	
Dibromochloromethane	Standard	20.0	20.4	µg/L	102%		9805-493	1	80-120%	
Dibromochloromethane	Standard	20.0	19.8	µg/L	99%		9805-493	1	80-120%	
Dibromochloromethane	Standard	40.0	42.7	µg/L	107%		9805-494	1	80-120%	

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-139-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromodichloromethane	Duplicate	5.9	6.2	µg/L		5.0%	9805-417	1		
Bromodichloromethane	Matrix Spike	40.0	43.2	µg/L	108%		9805-454	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9806-102	1		
Bromodichloromethane	Secondary Source Std	50.0	48.3	µg/L	97%		9806-103	1	70-130%	
Bromodichloromethane	Standard	20.0	20.6	µg/L	103%		9806-104	1	80-120%	
Bromodichloromethane	Standard	20.0	20.0	µg/L	100%		9806-104	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	40.7	µg/L	102%		9806-105	1	80-120%
Bromodichloromethane	Standard	40.0	40.4	µg/L	101%		9806-105	1	80-120%
Bromoform	Duplicate	ND	ND	µg/L		NA	9805-417	1	
Bromoform	Matrix Spike	40.0	39.4	µg/L	98%		9805-454	1	
Bromoform	Method Blank		ND*	µg/L			9806-102	1	
Bromoform	Secondary Source Std	50.0	48.2	µg/L	96%		9806-103	1	70-130%
Bromoform	Standard	20.0	20.7	µg/L	103%		9806-104	1	80-120%
Bromoform	Standard	20.0	20.6	µg/L	103%		9806-104	1	80-120%
Bromoform	Standard	40.0	40.6	µg/L	102%		9806-105	1	80-120%
Bromoform	Standard	40.0	42.6	µg/L	106%		9806-105	1	80-120%
Chloroform	Duplicate	10.8	11.2	µg/L		3.6%	9805-417	1	
Chloroform	Matrix Spike	40.0	43.3	µg/L	108%		9805-454	1	
Chloroform	Method Blank		ND*	µg/L			9806-102	1	
Chloroform	Secondary Source Std	50.0	51.3	µg/L	103%		9806-103	1	70-130%
Chloroform	Standard	20.0	20.1	µg/L	101%		9806-104	1	80-120%
Chloroform	Standard	20.0	19.3	µg/L	97%		9806-104	1	80-120%
Chloroform	Standard	40.0	40.2	µg/L	101%		9806-105	1	80-120%
Chloroform	Standard	40.0	39.9	µg/L	100%		9806-105	1	80-120%
Dibromochloromethane	Duplicate	1.9	1.9	µg/L		0.0%	9805-417	1	
Dibromochloromethane	Matrix Spike	40.0	35.7	µg/L	89%		9805-454	1	
Dibromochloromethane	Method Blank		ND*	µg/L			9806-102	1	
Dibromochloromethane	Secondary Source Std	50.0	47.2	µg/L	94%		9806-103	1	70-130%
Dibromochloromethane	Standard	20.0	20.6	µg/L	103%		9806-104	1	80-120%
Dibromochloromethane	Standard	20.0	19.9	µg/L	99%		9806-104	1	80-120%
Dibromochloromethane	Standard	40.0	41.0	µg/L	102%		9806-105	1	80-120%
Dibromochloromethane	Standard	40.0	40.8	µg/L	102%		9806-105	1	80-120%

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-134-0

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Bromochloroacetic acid	Duplicate	4.9	4.5	µg/L		8.5%	9805-278	1		
Bromochloroacetic acid	Matrix Spike	40.0	39.5	µg/L	99%		9805-176	1		
Bromochloroacetic acid	Method Blank		ND*	µg/L			9805-483	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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Bromochloroacetic acid	Secondary Source Std	20.0	21.2	µg/L	106%		9805-484	1	70-130%
Bromochloroacetic acid	Standard	20.0	21.6	µg/L	108%		9805-485	1	80-120%
Bromochloroacetic acid	Standard	20.0	21.7	µg/L	109%		9805-485	1	80-120%
Bromochloroacetic acid	Standard	40.0	37.8	µg/L	94%		9805-486	1	80-120%
Bromodichloroacetic acid	Duplicate	6.0	5.2	µg/L		14.3%	9805-278	1	
Bromodichloroacetic acid	Matrix Spike	40.0	39.1	µg/L	98%		9805-176	1	
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9805-483	1	
Bromodichloroacetic acid	Secondary Source Std		ND	µg/L			9805-484	1	
Bromodichloroacetic acid	Standard	20.0	22.8	µg/L	114%		9805-485	1	80-120%
Bromodichloroacetic acid	Standard	20.0	23.0	µg/L	115%		9805-485	1	80-120%
Bromodichloroacetic acid	Standard	40.0	38.3	µg/L	96%		9805-486	1	80-120%
Chlorodibromoacetic acid	Duplicate	ND	ND	µg/L		NA	9805-278	2	
Chlorodibromoacetic acid	Matrix Spike	40.0	40.5	µg/L	101%		9805-176	2	
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9805-483	2	
Chlorodibromoacetic acid	Secondary Source Std		ND	µg/L			9805-484	2	
Chlorodibromoacetic acid	Standard	20.0	23.0	µg/L	115%		9805-485	2	80-120%
Chlorodibromoacetic acid	Standard	20.0	23.2	µg/L	116%		9805-485	2	80-120%
Chlorodibromoacetic acid	Standard	40.0	39.5	µg/L	99%		9805-486	2	80-120%
Dibromoacetic acid	Duplicate	ND	ND	µg/L		NA	9805-278	1	
Dibromoacetic acid	Matrix Spike	40.0	39.8	µg/L	99%		9805-176	1	
Dibromoacetic acid	Method Blank		ND*	µg/L			9805-483	1	
Dibromoacetic acid	Secondary Source Std	20.0	22.8	µg/L	114%		9805-484	1	70-130%
Dibromoacetic acid	Standard	20.0	22.3	µg/L	112%		9805-485	1	80-120%
Dibromoacetic acid	Standard	20.0	22.4	µg/L	112%		9805-485	1	80-120%
Dibromoacetic acid	Standard	40.0	37.9	µg/L	95%		9805-486	1	80-120%
Dichloroacetic acid	Duplicate	22.7	21.2	µg/L		6.8%	9805-278	1	
Dichloroacetic acid	Matrix Spike	40.0	41.6	µg/L	104%		9805-176	1	
Dichloroacetic acid	Method Blank		ND*	µg/L			9805-483	1	
Dichloroacetic acid	Secondary Source Std	20.0	22.3	µg/L	112%		9805-484	1	70-130%
Dichloroacetic acid	Standard	20.0	21.2	µg/L	106%		9805-485	1	80-120%
Dichloroacetic acid	Standard	20.0	22.8	µg/L	114%		9805-485	1	80-120%
Dichloroacetic acid	Standard	40.0	40.4	µg/L	101%		9805-486	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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Monobromoacetic acid	Duplicate	ND	ND	µg/L		NA	9805-278	1	
Monobromoacetic acid	Matrix Spike	40.0	37.9	µg/L	95%		9805-176	1	
Monobromoacetic acid	Method Blank		ND*	µg/L			9805-483	1	
Monobromoacetic acid	Secondary Source Std	20.0	21.6	µg/L	108%		9805-484	1	70-130%
Monobromoacetic acid	Standard	20.0	19.4	µg/L	97%		9805-485	1	80-120%
Monobromoacetic acid	Standard	20.0	19.9	µg/L	99%		9805-485	1	80-120%
Monobromoacetic acid	Standard	40.0	39.5	µg/L	99%		9805-486	1	80-120%
Monochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9805-278	2	
Monochloroacetic acid	Matrix Spike	40.0	34.3	µg/L	86%		9805-176	2	
Monochloroacetic acid	Method Blank		ND*	µg/L			9805-483	2	
Monochloroacetic acid	Secondary Source Std	20.0	20.0	µg/L	100%		9805-484	2	70-130%
Monochloroacetic acid	Standard	20.0	19.0	µg/L	95%		9805-485	2	80-120%
Monochloroacetic acid	Standard	20.0	20.6	µg/L	103%		9805-485	2	80-120%
Monochloroacetic acid	Standard	40.0	38.0	µg/L	95%		9805-486	2	80-120%
Tribromoacetic acid	Duplicate	ND	ND	µg/L		NA	9805-278	4	
Tribromoacetic acid	Matrix Spike	40.0	40.5	µg/L	101%		9805-176	4	
Tribromoacetic acid	Method Blank		ND*	µg/L			9805-483	4	
Tribromoacetic acid	Secondary Source Std		ND	µg/L			9805-484	4	
Tribromoacetic acid	Standard	20.0	21.6	µg/L	108%		9805-485	4	80-120%
Tribromoacetic acid	Standard	20.0	22.1	µg/L	111%		9805-485	4	80-120%
Tribromoacetic acid	Standard	40.0	38.3	µg/L	96%		9805-486	4	80-120%
Trichloroacetic acid	Duplicate	29.0	27.3	µg/L		6.0%	9805-278	1	
Trichloroacetic acid	Matrix Spike	40.0	36.9	µg/L	92%		9805-176	1	
Trichloroacetic acid	Method Blank		ND*	µg/L			9805-483	1	
Trichloroacetic acid	Secondary Source Std	20.0	22.7	µg/L	114%		9805-484	1	70-130%
Trichloroacetic acid	Standard	20.0	20.4	µg/L	102%		9805-485	1	80-120%
Trichloroacetic acid	Standard	20.0	20.5	µg/L	102%		9805-485	1	80-120%
Trichloroacetic acid	Standard	40.0	38.4	µg/L	96%		9805-486	1	80-120%

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-138-0

									Acceptance Criteria	
QC Type		**Spike**	**Recovery**	**Unit**	**Yield**	**RPD**	**S&H ID**	**MRL**	**Range**	**RPD**
Bromochloroacetic acid	Duplicate	6.0	6.9	µg/L		14.0%	9805-317	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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Bromochloroacetic acid	Matrix Spike	40.0	35.7	µg/L	89%		9805-349	1	
Bromochloroacetic acid	Method Blank		ND*	µg/L			9806-93	1	
Bromochloroacetic acid	Secondary Source Std	20.0	18.4	µg/L	92%		9806-94	1	70-130%
Bromochloroacetic acid	Standard	20.0	19.9	µg/L	99%		9806-95	1	80-120%
Bromochloroacetic acid	Standard	20.0	18.2	µg/L	91%		9806-95	1	80-120%
Bromochloroacetic acid	Standard	40.0	39.7	µg/L	99%		9806-96	1	80-120%
Bromodichloroacetic acid	Duplicate	2.8	4.1	µg/L		37.7%	9805-317	1	
Bromodichloroacetic acid	Matrix Spike	40.0	33.4	µg/L	83%		9805-349	1	
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9806-93	1	
Bromodichloroacetic acid	Secondary Source Std		ND	µg/L			9806-94	1	
Bromodichloroacetic acid	Standard	20.0	23.6	µg/L	118%		9806-95	1	80-120%
Bromodichloroacetic acid	Standard	20.0	23.0	µg/L	115%		9806-95	1	80-120%
Bromodichloroacetic acid	Standard	40.0	36.8	µg/L	92%		9806-96	1	80-120%
Chlorodibromoacetic acid	Duplicate	5.0	7.5	µg/L		40.0%	9805-317	2	
Chlorodibromoacetic acid	Matrix Spike	40.0	35.4	µg/L	89%		9805-349	2	
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9806-93	2	
Chlorodibromoacetic acid	Secondary Source Std		ND	µg/L			9806-94	2	
Chlorodibromoacetic acid	Standard	20.0	22.9	µg/L	115%		9806-95	2	80-120%
Chlorodibromoacetic acid	Standard	20.0	21.5	µg/L	108%		9806-95	2	80-120%
Chlorodibromoacetic acid	Standard	40.0	38.5	µg/L	96%		9806-96	2	80-120%
Dibromoacetic acid	Duplicate	10.0	12.4	µg/L		21.4%	9805-317	1	
Dibromoacetic acid	Matrix Spike	40.0	34.7	µg/L	87%		9805-349	1	
Dibromoacetic acid	Method Blank		ND*	µg/L			9806-93	1	
Dibromoacetic acid	Secondary Source Std	20.0	18.6	µg/L	93%		9806-94	1	70-130%
Dibromoacetic acid	Standard	20.0	21.1	µg/L	106%		9806-95	1	80-120%
Dibromoacetic acid	Standard	20.0	22.3	µg/L	112%		9806-95	1	80-120%
Dibromoacetic acid	Standard	40.0	38.7	µg/L	97%		9806-96	1	80-120%
Dichloroacetic acid	Duplicate	3.1	3.6	µg/L		14.9%	9805-317	1	
Dichloroacetic acid	Matrix Spike	40.0	39.2	µg/L	98%		9805-349	1	
Dichloroacetic acid	Method Blank		ND*	µg/L			9806-93	1	
Dichloroacetic acid	Secondary Source Std	20.0	19.0	µg/L	95%		9806-94	1	70-130%
Dichloroacetic acid	Standard	20.0	20.9	µg/L	104%		9806-95	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

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

Dichloroacetic acid	Standard	20.0	20.3	µg/L	102%		9806-95	1	80-120%
Dichloroacetic acid	Standard	40.0	42.2	µg/L	106%		9806-96	1	80-120%
Monobromoacetic acid	Duplicate	ND	ND	µg/L		NA	9805-317	1	
Monobromoacetic acid	Matrix Spike	40.0	43.6	µg/L	109%		9805-349	1	
Monobromoacetic acid	Method Blank		ND*	µg/L			9806-93	1	
Monobromoacetic acid	Secondary Source Std	20.0	19.0	µg/L	95%		9806-94	1	70-130%
Monobromoacetic acid	Standard	20.0	20.5	µg/L	102%		9806-95	1	80-120%
Monobromoacetic acid	Standard	20.0	18.9	µg/L	94%		9806-95	1	80-120%
Monobromoacetic acid	Standard	40.0	42.0	µg/L	105%		9806-96	1	80-120%
Monochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9805-317	2	
Monochloroacetic acid	Matrix Spike	40.0	44.8	µg/L	112%		9805-349	2	
Monochloroacetic acid	Method Blank		ND*	µg/L			9806-93	2	
Monochloroacetic acid	Secondary Source Std	20.0	18.1	µg/L	91%		9806-94	2	70-130%
Monochloroacetic acid	Standard	20.0	19.4	µg/L	97%		9806-95	2	80-120%
Monochloroacetic acid	Standard	20.0	18.8	µg/L	94%		9806-95	2	80-120%
Monochloroacetic acid	Standard	40.0	41.1	µg/L	103%		9806-96	2	80-120%
Tribromoacetic acid	Duplicate	3.9	6.0	µg/L		42.4%	9805-317	4	
Tribromoacetic acid	Matrix Spike	40.0	36.7	µg/L	92%		9805-349	4	
Tribromoacetic acid	Method Blank		ND*	µg/L			9806-93	4	
Tribromoacetic acid	Secondary Source Std		ND	µg/L			9806-94	4	
Tribromoacetic acid	Standard	20.0	22.1	µg/L	111%		9806-95	4	80-120%
Tribromoacetic acid	Standard	20.0	22.3	µg/L	112%		9806-95	4	80-120%
Tribromoacetic acid	Standard	40.0	37.7	µg/L	94%		9806-96	4	80-120%
Trichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9805-317	1	
Trichloroacetic acid	Matrix Spike	40.0	28.9	µg/L	72%		9805-349	1	
Trichloroacetic acid	Method Blank		ND*	µg/L			9806-93	1	
Trichloroacetic acid	Secondary Source Std	20.0	17.7	µg/L	89%		9806-94	1	70-130%
Trichloroacetic acid	Standard	20.0	23.1	µg/L	116%		9806-95	1	80-120%
Trichloroacetic acid	Standard	20.0	23.5	µg/L	118%		9806-95	1	80-120%
Trichloroacetic acid	Standard	40.0	36.7	µg/L	92%		9806-96	1	80-120%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Summers & Hooper, Inc.
6 Knollcrest Drive
Cincinnati, OH 45237

Quality Control Report

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-140-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Bromochloroacetic acid	Duplicate	8.3	8.1	µg/L		2.4%	9805-402	1		
Bromochloroacetic acid	Matrix Spike	40.0	39.6	µg/L	99%		9805-455	1		
Bromochloroacetic acid	Method Blank		ND*	µg/L			9806-180	1		
Bromochloroacetic acid	Standard	20.0	18.3	µg/L	92%		9806-182	1	80-120%	
Bromochloroacetic acid	Standard	40.0	36.0	µg/L	90%		9806-183	1	80-120%	
Bromochloroacetic acid	Standard	40.0	36.6	µg/L	92%		9806-183	1	80-120%	
Bromodichloroacetic acid	Duplicate	6.2	6.1	µg/L		1.6%	9805-402	1		
Bromodichloroacetic acid	Matrix Spike	40.0	38.8	µg/L	97%		9805-455	1		
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9806-180	1		
Bromodichloroacetic acid	Standard	20.0	20.0	µg/L	100%		9806-182	1	80-120%	
Bromodichloroacetic acid	Standard	40.0	37.2	µg/L	93%		9806-183	1	80-120%	
Bromodichloroacetic acid	Standard	40.0	38.2	µg/L	96%		9806-183	1	80-120%	
Chlorodibromoacetic acid	Duplicate	8.3	9.0	µg/L		8.1%	9805-402	2		
Chlorodibromoacetic acid	Matrix Spike	40.0	39.2	µg/L	98%		9805-455	2		
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9806-180	2		
Chlorodibromoacetic acid	Standard	20.0	20.3	µg/L	102%		9806-182	2	80-120%	
Chlorodibromoacetic acid	Standard	40.0	37.7	µg/L	94%		9806-183	2	80-120%	
Chlorodibromoacetic acid	Standard	40.0	39.0	µg/L	97%		9806-183	2	80-120%	
Dibromoacetic acid	Duplicate	12.3	12.1	µg/L		1.6%	9805-402	1		
Dibromoacetic acid	Matrix Spike	40.0	39.3	µg/L	98%		9805-455	1		
Dibromoacetic acid	Method Blank		ND*	µg/L			9806-180	1		
Dibromoacetic acid	Standard	20.0	17.7	µg/L	89%		9806-182	1	80-120%	
Dibromoacetic acid	Standard	40.0	34.6	µg/L	86%		9806-183	1	80-120%	
Dibromoacetic acid	Standard	40.0	35.4	µg/L	89%		9806-183	1	80-120%	
Dichloroacetic acid	Duplicate	4.0	4.1	µg/L		2.5%	9805-402	1		
Dichloroacetic acid	Matrix Spike	40.0	40.0	µg/L	100%		9805-455	1		
Dichloroacetic acid	Method Blank		ND*	µg/L			9806-180	1		
Dichloroacetic acid	Standard	20.0	20.4	µg/L	102%		9806-182	1	80-120%	
Dichloroacetic acid	Standard	40.0	38.5	µg/L	96%		9806-183	1	80-120%	
Dichloroacetic acid	Standard	40.0	39.5	µg/L	99%		9806-183	1	80-120%	
Monobromoacetic acid	Duplicate	1.1	1.2	µg/L		8.7%	9805-402	1		
Monobromoacetic acid	Matrix Spike	40.0	39.8	µg/L	99%		9805-455	1		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Summers & Hooper, Inc.
6 Knollcrest Drive
Cincinnati, OH 45237

Quality Control Report

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

Monobromoacetic acid	Method Blank		ND*	µg/L			9806-180	1	
Monobromoacetic acid	Standard	20.0	19.9	µg/L	99%		9806-182	1	80-120%
Monobromoacetic acid	Standard	40.0	38.0	µg/L	95%		9806-183	1	80-120%
Monobromoacetic acid	Standard	40.0	38.8	µg/L	97%		9806-183	1	80-120%
Monochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9805-402	2	
Monochloroacetic acid	Matrix Spike	40.0	40.5	µg/L	101%		9805-455	2	
Monochloroacetic acid	Method Blank		ND*	µg/L			9806-180	2	
Monochloroacetic acid	Standard	20.0	21.1	µg/L	106%		9806-182	2	80-120%
Monochloroacetic acid	Standard	40.0	43.4	µg/L	109%		9806-183	2	80-120%
Monochloroacetic acid	Standard	40.0	38.0	µg/L	95%		9806-183	2	80-120%
Tribromoacetic acid	Duplicate	4.4	4.8	µg/L		8.7%	9805-402	4	
Tribromoacetic acid	Matrix Spike	40.0	42.4	µg/L	106%		9805-455	4	
Tribromoacetic acid	Method Blank		ND*	µg/L			9806-180	4	
Tribromoacetic acid	Standard	20.0	20.0	µg/L	100%		9806-182	4	80-120%
Tribromoacetic acid	Standard	40.0	38.3	µg/L	96%		9806-183	4	80-120%
Tribromoacetic acid	Standard	40.0	40.5	µg/L	101%		9806-183	4	80-120%
Trichloroacetic acid	Duplicate	1.4	1.5	µg/L		6.9%	9805-402	1	
Trichloroacetic acid	Matrix Spike	40.0	36.9	µg/L	92%		9805-455	1	
Trichloroacetic acid	Method Blank		ND*	µg/L			9806-180	1	
Trichloroacetic acid	Standard	20.0	18.1	µg/L	91%		9806-182	1	80-120%
Trichloroacetic acid	Standard	40.0	33.3	µg/L	83%		9806-183	1	80-120%
Trichloroacetic acid	Standard	40.0	33.8	µg/L	84%		9806-183	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.

Summers & Hooper, Inc.
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QC Results from Montgomery Watson Laboratories

Printed on 7/12/99 4:08:23 PM

Mr. Don Thomson
Water Quality Superintendent
Sweetwater Authority
505 Garret Avenue
P.O. Box 2328
Chula Vista, CA 91912-2328

Phone: 619-475-9047 Fax: 619-479-6271

Study#: 114
Study Title: ICR RSSCT #1

QC Batch ID: 78032 **Report #:** 43296, 43324

Analysis: NH3 **Method:** ML/EPA 350.1

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Ammonia Nitrogen	1	1.07	107.0%		(80 - 120)
LCS2	Ammonia Nitrogen	1	1.08	108.0%		(80 - 120)
MBLK	Ammonia Nitrogen	ND	ND			
MS	Ammonia Nitrogen	1	0.96	96.0%		(80 - 120)
MSD	Ammonia Nitrogen	1	0.97	97.0%		(80 - 120)

QC Batch ID: 78329 **Report #:** 43296, 43324

Analysis: CA **Method:** EPA/ML 200.7

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Calcium, Total, ICAP	50	50	100.0%		(90 - 110)
LCS2	Calcium, Total, ICAP	50	50.9	102.0%		(90 - 110)
MBLK	Calcium, Total, ICAP	ND	ND			
MS	Calcium, Total, ICAP	50	52.3	105.0%		(80 - 120)

QC Batch ID: 78330 **Report #:** 43296, 43324

Analysis: MG **Method:** ML/EPA 200.7

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Magnesium, Total, ICAP	20	20.2	101.0%		(85 - 115)
LCS2	Magnesium, Total, ICAP	20	20.2	101.0%		(85 - 115)
MBLK	Magnesium, Total, ICAP	ND	ND			
MS	Magnesium, Total, ICAP	20	20.6	103.0%		(70 - 130)

QC Batch ID: 78351 **Report #:** 43296, 43324

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	0.1	100.0%		(90 - 110)
MBLK	Bromide	ND	ND			(70 - 130)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Don Thomson
Sweetwater Authority

Study#: 114
Study Title: ICR RSSCT #1

MS	Bromide	0.1	0.103	103.0%	(80 - 120)
MSD	Bromide	0.1	0.104	104.0%	(80 - 120)

QC Batch ID: 78447 **Report #:** 43324

Analysis: BR **Method:** ML/EPA 300

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Bromide	0.02	0.023	115.0%		(50 - 150)
LCS2	Bromide	0.1	0.099	99.0%		(90 - 110)
MS	Bromide	0.1	0.086	86.0%		(80 - 120)
MSD	Bromide	0.1	0.102	102.0%		(80 - 120)

End of MW QC report

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

Summers & Hooper, Inc.
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Cincinnati, OH 45237
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Comments

Mr. Don Thomson
Water Quality Superintendent
Sweetwater Authority
505 Garret Avenue
P.O. Box 2328
Chula Vista, CA 91912-2328

Phone: 619-475-9047 Fax: 619-479-6271

Study#: 114
Study Title: ICR RSSCT #1

Study comments

TOX results for samples 9805-455, 9805-467, 9805-468 not reported in duplicate. Ran out of sample before duplicate result could be attained.

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

End of comments

Summers & Hooper, Inc.
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Laboratory Report

Client:

Mr. Don Thomson
Water Quality Superintendent
Sweetwater Authority
505 Garret Avenue
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Phone: 619-475-9047 Fax: 619-479-6271

Study Title: ICR RSSCT #2

Study #: 131

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

Mr. Don Thomson
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Phone: 619-475-9047 Fax: 619-479-6271

Study#: 131
Study Title: ICR RSSCT #2

Sample ID: 131.Settled **S&H ID:** 9808-161 **Date Sampled:** 8/5/98 12:30:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1	TOC-ICR	TOC	6.55	mg/L	SM 5310 C	1	0.50	8/5/98		8/6/98	7-0-362
2	TOC-ICR	TOC (Dupl)	6.56	mg/L	SM 5310 C	1	0.50	8/5/98		8/6/98	7-0-362
			6.55	**mg/L**	**0.2 % RPD**						

Sample ID: 131.RAW **S&H ID:** 9808-237 **Date Sampled:** 8/6/98 10:20:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
3	TOC-ICR	TOC	7.50	mg/L	SM 5310 C	1	0.50	8/12/98		8/13/98	7-0-371
4	TOC-ICR	TOC (Dupl)	7.52	mg/L	SM 5310 C	1	0.50	8/12/98		8/13/98	7-0-371
			7.51	**mg/L**	**0.3 % RPD**						

Sample ID: 131.SET **S&H ID:** 9808-238 **Date Sampled:** 8/6/98 10:30:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
5	TOC-ICR	TOC	6.54	mg/L	SM 5310 C	1	0.50	8/12/98		8/13/98	7-0-371
6	TOC-ICR	TOC (Dupl)	6.64	mg/L	SM 5310 C	1	0.50	8/12/98		8/13/98	7-0-371
			6.59	**mg/L**	**1.5 % RPD**						

Sample ID: 131.FILT **S&H ID:** 9808-239 **Date Sampled:** 8/6/98 10:35:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
7	TOC-ICR	TOC	6.16	mg/L	SM 5310 C	1	0.50	8/12/98		8/13/98	7-0-371
8	TOC-ICR	TOC (Dupl)	6.42	mg/L	SM 5310 C	1	0.50	8/12/98		8/13/98	7-0-371
			6.29	**mg/L**	**4.1 % RPD**						

Sample ID: 131.10.Eff-1 **S&H ID:** 9808-299 **Date Sampled:** 8/17/98 9:51:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
9	Cl2Dose	Chlorine Dose	1.15	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/21/98		8/21/98	n/a
10	Cl2Res	Chlorine Residual	0.73	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/21/98		8/22/98	n/a
11	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	99.6	%	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
12	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.8	%	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
13	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
14	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
15	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/22/98	8/26/98	8/27/98	0-208-0

ND (non-detect): Result is below mininum reporting level (MRL).

NR (not reportable): Result did not meet QC criteria.

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

16	HAA-ICR	Dibromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
17	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
18	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
19	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/22/98	8/26/98	8/27/98	0-208-0
20	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/22/98	8/26/98	8/27/98	0-208-0
21	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
22	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	8/21/98		8/22/98	n/a
23	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/21/98		8/21/98	n/a
24	pH	pH	8.3	Unit	SM 4500-H+ B	1	n/a	8/17/98		8/17/98	n/a
25	TEMP	Cl2 Temperature	25.2	ºC	SM 2550 B	1	n/a	8/21/98		8/22/98	n/a
26	TEMP	Temperature	23.4	ºC	SM 2550 B	1	n/a	8/17/98		8/17/98	n/a
27	TIME	Cl2 Incubation Time	24.1	hrs	n/a	1	n/a	8/21/98		8/22/98	n/a
28	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	8/17/98		8/18/98	7-0-377
29	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	8/17/98		8/18/98	7-0-377
			ND	**mg/L**							
30	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	8/22/98		8/24/98	12-0-196
31	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	8/22/98		8/24/98	12-0-196
			ND	**µg Cl-/L**							
32	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.2	%	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
33	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
34	THM-ICR	Bromoform	2.1	µg/L	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
35	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
36	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
37	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	8/17/98		8/18/98	8-0-268
38	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	8/17/98		8/18/98	8-0-268
			ND	**1/cm**							

Sample ID: 131.10.Eff-5 **S&H ID:** 9808-303 **Date Sampled:** 8/19/98 12:04:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
39	Cl2Dose	Chlorine Dose	1.39	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/24/98		8/24/98	n/a
40	Cl2Res	Chlorine Residual	0.66	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/24/98		8/25/98	n/a
41	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	96.0	%	EPA 552.2	1	1.0	8/25/98	8/26/98	8/27/98	0-208-0
42	HAA-ICR	2-Bromopropionic acid (Surrogate)	101.2	%	EPA 552.2	1	1.0	8/25/98	8/26/98	8/27/98	0-208-0
43	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	8/26/98	8/27/98	0-208-0
44	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	8/26/98	8/27/98	0-208-0
45	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	8/26/98	8/27/98	0-208-0
46	HAA-ICR	Dibromoacetic acid	3.0	µg/L	EPA 552.2	1	1.0	8/25/98	8/26/98	8/27/98	0-208-0
47	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	8/26/98	8/27/98	0-208-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

48	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	8/26/98	8/27/98	0-208-0
49	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	8/26/98	8/27/98	0-208-0
50	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/25/98	8/26/98	8/27/98	0-208-0
51	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	8/26/98	8/27/98	0-208-0
52	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/25/98	n/a
53	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/24/98	n/a
54	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	8/19/98		8/19/98	n/a
55	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/24/98		8/25/98	n/a
56	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	8/19/98		8/19/98	n/a
57	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	8/24/98		8/25/98	n/a
58	TOC-ICR	TOC	0.54	mg/L	SM 5310 C	1	0.50	8/19/98		8/21/98	7-0-380
59	TOC-ICR	TOC (Dupl)	0.56	mg/L	SM 5310 C	1	0.50	8/19/98		8/21/98	7-0-380
			0.55	**mg/L**	**3.6 % RPD**						
60	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/25/98	12-0-197
61	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/25/98	12-0-197
			ND	**µg Cl-/L**							
62	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.0	%	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
63	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
64	THM-ICR	Bromoform	14.0	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
65	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
66	THM-ICR	Dibromochloromethane	5.4	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
67	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	8/19/98		8/19/98	8-0-269
68	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	8/19/98		8/19/98	8-0-269
			ND	**1/cm**							

Sample ID: 131.10.Eff-6 **S&H ID:** 9808-304 **Date Sampled:** 8/19/98 6:04:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
69	Cl2Dose	Chlorine Dose	1.55	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/24/98		8/24/98	n/a
70	Cl2Res	Chlorine Residual	0.67	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/24/98		8/25/98	n/a
71	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	96.8	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
72	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.4	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
73	HAA-ICR	Bromochloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
74	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
75	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
76	HAA-ICR	Dibromoacetic acid	4.6	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
77	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
78	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
79	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

80	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/25/98	9/2/98	9/2/98	0-210-0
81	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
82	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/25/98	n/a
83	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/24/98	n/a
84	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/19/98		8/19/98	n/a
85	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/24/98		8/25/98	n/a
86	TEMP	Temperature	22.7	ºC	SM 2550 B	1	n/a	8/19/98		8/19/98	n/a
87	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	8/24/98		8/25/98	n/a
88	TOC-ICR	TOC	0.81	mg/L	SM 5310 C	1	0.50	8/19/98		8/21/98	7-0-380
89	TOC-ICR	TOC (Dupl)	0.80	mg/L	SM 5310 C	1	0.50	8/19/98		8/21/98	7-0-380
			0.81	**mg/L**	**1.2 % RPD**						
90	TOX-ICR	TOX	37	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
91	TOX-ICR	TOX (Dupl)	36	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
			37	**µg Cl-/L**	**2.7 % RPD**						
92	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.4	%	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
93	THM-ICR	Bromodichloromethane	1.6	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
94	THM-ICR	Bromoform	25.0	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
95	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
96	THM-ICR	Dibromochloromethane	10.4	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
97	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	8/19/98		8/20/98	8-0-270
98	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	8/19/98		8/20/98	8-0-270
			ND	**1/cm**							

Sample ID: 131.10.Eff-7 **S&H ID:** 9808-305 **Date Sampled:** 8/20/98 12:10:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
99	Cl2Dose	Chlorine Dose	1.73	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/24/98		8/24/98	n/a
100	Cl2Res	Chlorine Residual	0.63	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/24/98		8/25/98	n/a
101	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	93.2	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
102	HAA-ICR	2-Bromopropionic acid (Surrogate)	99.6	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
103	HAA-ICR	Bromochloroacetic acid	2.3	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
104	HAA-ICR	Bromodichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
105	HAA-ICR	Chlorodibromoacetic acid	2.2	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
106	HAA-ICR	Dibromoacetic acid	6.7	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
107	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
108	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
109	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
110	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/25/98	9/2/98	9/2/98	0-210-0
111	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

112	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/25/98	n/a
113	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/24/98	n/a
114	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/20/98		8/20/98	n/a
115	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/24/98		8/25/98	n/a
116	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	8/20/98		8/20/98	n/a
117	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	8/24/98		8/25/98	n/a
118	TOC-ICR	TOC	1.05	mg/L	SM 5310 C	1	0.50	8/20/98		8/21/98	7-0-380
119	TOC-ICR	TOC (Dupl)	1.05	mg/L	SM 5310 C	1	0.50	8/20/98		8/21/98	7-0-380
			1.05	**mg/L**	**0.0 % RPD**						
120	TOX-ICR	TOX	52	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
121	TOX-ICR	TOX (Dupl)	48	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
			50	**µg Cl-/L**	**8.0 % RPD**						
122	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.8	%	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
123	THM-ICR	Bromodichloromethane	3.0	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
124	THM-ICR	Bromoform	33.3	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
125	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
126	THM-ICR	Dibromochloromethane	16.9	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
127	UV-ICR	UV	0.012	1/cm	SM 5910 B	1	0.009	8/20/98		8/20/98	8-0-270
128	UV-ICR	UV (Dupl)	0.012	1/cm	SM 5910 B	1	0.009	8/20/98		8/20/98	8-0-270
			0.012	**1/cm**	**0.0 % RPD**						

Sample ID: 131.10.Eff-8 **S&H ID:** 9808-306 **Date Sampled:** 8/20/98 6:21:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
129	Cl2Dose	Chlorine Dose	1.95	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/24/98		8/24/98	n/a
130	Cl2Res	Chlorine Residual	0.67	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/24/98		8/25/98	n/a
131	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	91.6	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
132	HAA-ICR	2-Bromopropionic acid (Surrogate)	102.8	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
133	HAA-ICR	Bromochloroacetic acid	3.2	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
134	HAA-ICR	Bromodichloroacetic acid	1.6	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
135	HAA-ICR	Chlorodibromoacetic acid	2.5	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
136	HAA-ICR	Dibromoacetic acid	8.9	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
137	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
138	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
139	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
140	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/25/98	9/2/98	9/2/98	0-210-0
141	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
142	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/25/98	n/a
143	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/24/98	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. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

144	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/20/98		8/20/98	n/a
145	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/24/98		8/25/98	n/a
146	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	8/20/98		8/20/98	n/a
147	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	8/24/98		8/25/98	n/a
148	TOC-ICR	TOC	1.37	mg/L	SM 5310 C	1	0.50	8/20/98		8/21/98	7-0-380
149	TOC-ICR	TOC (Dupl)	1.37	mg/L	SM 5310 C	1	0.50	8/20/98		8/21/98	7-0-380
			1.37	**mg/L**	**0.0 % RPD**						
150	TOX-ICR	TOX	74	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
151	TOX-ICR	TOX (Dupl)	75	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
			75	**µg Cl-/L**	**1.3 % RPD**						
152	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.0	%	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
153	THM-ICR	Bromodichloromethane	5.4	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
154	THM-ICR	Bromoform	44.3	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
155	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
156	THM-ICR	Dibromochloromethane	26.4	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
157	UV-ICR	UV	0.017	1/cm	SM 5910 B	1	0.009	8/20/98		8/20/98	8-0-270
158	UV-ICR	UV (Dupl)	0.017	1/cm	SM 5910 B	1	0.009	8/20/98		8/20/98	8-0-270
			0.017	**1/cm**	**0.0 % RPD**						

Sample ID: 131.10.Eff-9 **S&H ID:** 9808-307 **Date Sampled:** 8/20/98 12:37:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
159	Cl2Dose	Chlorine Dose	2.16	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/24/98		8/24/98	n/a
160	Cl2Res	Chlorine Residual	0.64	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/24/98		8/25/98	n/a
161	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	90.4	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
162	HAA-ICR	2-Bromopropionic acid (Surrogate)	101.2	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
163	HAA-ICR	Bromochloroacetic acid	4.0	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
164	HAA-ICR	Bromodichloroacetic acid	1.9	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
165	HAA-ICR	Chlorodibromoacetic acid	3.1	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
166	HAA-ICR	Dibromoacetic acid	10.1	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
167	HAA-ICR	Dichloroacetic acid	1.2	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
168	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
169	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
170	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/25/98	9/2/98	9/2/98	0-210-0
171	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
172	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/25/98	n/a
173	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/24/98	n/a
174	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	8/21/98		8/21/98	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. Don Thomson
Sweetwater Authority

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175	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/24/98		8/25/98	n/a
176	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	8/21/98		8/21/98	n/a
177	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	8/24/98		8/25/98	n/a
178	TOC-ICR	TOC	1.66	mg/L	SM 5310 C	1	0.50	8/21/98		8/21/98	7-0-380
179	TOC-ICR	TOC (Dupl)	1.67	mg/L	SM 5310 C	1	0.50	8/21/98		8/21/98	7-0-380
			1.67	**mg/L**	**0.6 % RPD**						
180	TOX-ICR	TOX	89	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
181	TOX-ICR	TOX (Dupl)	96	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
			93	**µg Cl-/L**	**7.5 % RPD**						
182	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.0	%	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
183	THM-ICR	Bromodichloromethane	9.3	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
184	THM-ICR	Bromoform	54.3	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
185	THM-ICR	Chloroform	1.5	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
186	THM-ICR	Dibromochloromethane	38.4	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
187	UV-ICR	UV	0.022	1/cm	SM 5910 B	1	0.009	8/21/98		8/20/98	8-0-270
188	UV-ICR	UV (Dupl)	0.022	1/cm	SM 5910 B	1	0.009	8/21/98		8/20/98	8-0-270
			0.022	**1/cm**	**0.0 % RPD**						

Sample ID: 131.10.Eff-11 **S&H ID:** 9808-309 **Date Sampled:** 8/21/98 1:17:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
189	Cl2Dose	Chlorine Dose	2.41	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/24/98		8/24/98	n/a
190	Cl2Res	Chlorine Residual	0.73	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/24/98		8/25/98	n/a
191	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	92.0	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
192	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.8	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
193	HAA-ICR	Bromochloroacetic acid	5.6	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
194	HAA-ICR	Bromodichloroacetic acid	2.4	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
195	HAA-ICR	Chlorodibromoacetic acid	3.9	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
196	HAA-ICR	Dibromoacetic acid	11.5	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
197	HAA-ICR	Dichloroacetic acid	1.9	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
198	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
199	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
200	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/25/98	9/2/98	9/2/98	0-210-0
201	HAA-ICR	Trichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
202	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/25/98	n/a
203	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/24/98	n/a
204	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	8/21/98		8/21/98	n/a
205	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/24/98		8/25/98	n/a
206	TEMP	Temperature	22.3	ºC	SM 2550 B	1	n/a	8/21/98		8/21/98	n/a

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

Laboratory Test Results

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Sweetwater Authority

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Study Title: ICR RSSCT #2

207	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	8/24/98		8/25/98	n/a
208	TOC-ICR	TOC	2.03	mg/L	SM 5310 C	1	0.50	8/21/98		8/22/98	7-0-380
209	TOC-ICR	TOC (Dupl)	2.04	mg/L	SM 5310 C	1	0.50	8/21/98		8/22/98	7-0-380
			2.04	**mg/L**	**0.5 % RPD**						
210	TOX-ICR	TOX	125	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
211	TOX-ICR	TOX (Dupl)	132	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
			129	**µg Cl-/L**	**5.4 % RPD**						
212	THM-ICR	1,2,3-Trichloropropane (Surrogate)	91.6	%	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
213	THM-ICR	Bromodichloromethane	14.5	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
214	THM-ICR	Bromoform	53.7	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
215	THM-ICR	Chloroform	2.5	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
216	THM-ICR	Dibromochloromethane	49.0	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
217	UV-ICR	UV	0.029	1/cm	SM 5910 B	1	0.009	8/21/98		8/21/98	8-0-271
218	UV-ICR	UV (Dupl)	0.029	1/cm	SM 5910 B	1	0.009	8/21/98		8/21/98	8-0-271
			0.029	**1/cm**	**0.0 % RPD**						

Sample ID: 131.10.Eff-13 **S&H ID:** 9808-311 **Date Sampled:** 8/21/98 2:07:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
219	Cl2Dose	Chlorine Dose	2.72	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/24/98		8/24/98	n/a
220	Cl2Res	Chlorine Residual	0.71	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/24/98		8/25/98	n/a
221	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	96.4	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
222	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.4	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
223	HAA-ICR	Bromochloroacetic acid	7.2	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
224	HAA-ICR	Bromodichloroacetic acid	3.1	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
225	HAA-ICR	Chlorodibromoacetic acid	4.5	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
226	HAA-ICR	Dibromoacetic acid	12.6	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
227	HAA-ICR	Dichloroacetic acid	2.7	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
228	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
229	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
230	HAA-ICR	Tribromoacetic acid	4.2	µg/L	EPA 552.2	1	4.0	8/25/98	9/2/98	9/2/98	0-210-0
231	HAA-ICR	Trichloroacetic acid	1.3	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
232	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/25/98	n/a
233	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/24/98	n/a
234	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	8/21/98		8/21/98	n/a
235	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/24/98		8/25/98	n/a
236	TEMP	Temperature	22.5	ºC	SM 2550 B	1	n/a	8/21/98		8/21/98	n/a
237	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	8/24/98		8/25/98	n/a

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

Laboratory Test Results

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Study Title: ICR RSSCT #2

238	TOC-ICR	TOC	2.46	mg/L	SM 5310 C	1	0.50	8/21/98		8/22/98	7-0-381
239	TOC-ICR	TOC (Dupl)	2.49	mg/L	SM 5310 C	1	0.50	8/21/98		8/22/98	7-0-381
			2.48	**mg/L**	**1.2 % RPD**						
240	TOX-ICR	TOX	162	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/31/98	12-0-200
241	TOX-ICR	TOX (Dupl)	160	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/31/98	12-0-200
			161	**µg Cl-/L**	**1.2 % RPD**						
242	THM-ICR	1,2,3-Trichloropropane (Surrogate)	93.6	%	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
243	THM-ICR	Bromodichloromethane	21.6	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
244	THM-ICR	Bromoform	51.8	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
245	THM-ICR	Chloroform	4.5	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
246	THM-ICR	Dibromochloromethane	62.6	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
247	UV-ICR	UV	0.037	1/cm	SM 5910 B	1	0.009	8/21/98		8/22/98	8-0-272
248	UV-ICR	UV (Dupl)	0.036	1/cm	SM 5910 B	1	0.009	8/21/98		8/22/98	8-0-272
			0.036	**1/cm**	**2.8 % RPD**						

Sample ID: 131.10.Eff-16 **S&H ID:** 9808-314 **Date Sampled:** 8/22/98 8:55:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
249	Cl2Dose	Chlorine Dose	3.10	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/26/98		8/26/98	n/a
250	Cl2Res	Chlorine Residual	0.69	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/26/98		8/27/98	n/a
251	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	94.8	%	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
252	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.8	%	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
253	HAA-ICR	Bromochloroacetic acid	8.5	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
254	HAA-ICR	Bromodichloroacetic acid	3.9	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
255	HAA-ICR	Chlorodibromoacetic acid	5.2	µg/L	EPA 552.2	1	2.0	8/27/98	9/2/98	9/3/98	0-210-0
256	HAA-ICR	Dibromoacetic acid	12.6	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
257	HAA-ICR	Dichloroacetic acid	3.9	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
258	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
259	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/27/98	9/2/98	9/3/98	0-210-0
260	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/27/98	9/2/98	9/3/98	0-210-0
261	HAA-ICR	Trichloroacetic acid	1.8	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
262	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/26/98		8/27/98	n/a
263	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/26/98		8/26/98	n/a
264	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	8/22/98		8/22/98	n/a
265	TEMP	Cl2 Temperature	25.8	ºC	SM 2550 B	1	n/a	8/26/98		8/27/98	n/a
266	TEMP	Temperature	22.1	ºC	SM 2550 B	1	n/a	8/22/98		8/22/98	n/a
267	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	8/26/98		8/27/98	n/a
268	TOC-ICR	TOC	2.85	mg/L	SM 5310 C	1	0.50	8/22/98		8/23/98	7-0-382
269	TOC-ICR	TOC (Dupl)	2.90	mg/L	SM 5310 C	1	0.50	8/22/98		8/23/98	7-0-382

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

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			2.88	**mg/L**	**1.7 % RPD**						
270	TOX-ICR	TOX	193	µg Cl-/L	SM 5320 B	1	25	8/27/98		9/1/98	12-0-201
271	TOX-ICR	TOX (Dupl)	196	µg Cl-/L	SM 5320 B	1	25	8/27/98		9/1/98	12-0-201
			195	**µg Cl-/L**	**1.5 % RPD**						
272	THM-ICR	1,2,3-Trichloropropane (Surrogate)	106.0	%	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
273	THM-ICR	Bromodichloromethane	28.7	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
274	THM-ICR	Bromoform	38.6	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
275	THM-ICR	Chloroform	8.0	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
276	THM-ICR	Dibromochloromethane	56.6	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
277	UV-ICR	UV	0.045	1/cm	SM 5910 B	1	0.009	8/22/98		8/23/98	8-0-273
278	UV-ICR	UV (Dupl)	0.045	1/cm	SM 5910 B	1	0.009	8/22/98		8/23/98	8-0-273
			0.045	**1/cm**	**0.0 % RPD**						

Sample ID: 131.10.Eff-18 **S&H ID:** 9808-316 **Date Sampled:** 8/22/98 9:24:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
279	Cl2Dose	Chlorine Dose	3.26	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/25/98		8/25/98	n/a
280	Cl2Res	Chlorine Residual	0.75	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/25/98		8/26/98	n/a
281	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	99.2	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
282	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard) (Lab Dupl)	96.0	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
			97.6	**%**	**3.3 % RPD**						
283	HAA-ICR	2-Bromopropionic acid (Surrogate)	92.4	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
284	HAA-ICR	2-Bromopropionic acid (Surrogate) (Lab Dupl)	97.2	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
			94.8	**%**	**5.1 % RPD**						
285	HAA-ICR	Bromochloroacetic acid	9.1	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
286	HAA-ICR	Bromochloroacetic acid (Lab Dupl)	10.5	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
			9.8	**µg/L**	**14.3 % RPD**						
287	HAA-ICR	Bromodichloroacetic acid	4.9	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
288	HAA-ICR	Bromodichloroacetic acid (Lab Dupl)	5.2	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
			5.1	**µg/L**	**5.9 % RPD**						
289	HAA-ICR	Chlorodibromoacetic acid	6.3	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
290	HAA-ICR	Chlorodibromoacetic acid (Lab Dupl)	6.0	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
			6.2	**µg/L**	**4.8 % RPD**						
291	HAA-ICR	Dibromoacetic acid	12.3	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
292	HAA-ICR	Dibromoacetic acid (Lab Dupl)	13.9	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
			13.1	**µg/L**	**12.2 % RPD**						
293	HAA-ICR	Dichloroacetic acid	4.5	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

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Study Title: ICR RSSCT #2

294	HAA-ICR	Dichloroacetic acid (Lab Dupl)	4.9	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
			4.7	**µg/L**	**8.5 % RPD**						
295	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
296	HAA-ICR	Monobromoacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
			ND	**µg/L**							
297	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
298	HAA-ICR	Monochloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
			ND	**µg/L**							
299	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/26/98	9/2/98	9/3/98	0-210-0
300	HAA-ICR	Tribromoacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	4.0	8/26/98	9/2/98	9/3/98	0-210-0
			ND	**µg/L**							
301	HAA-ICR	Trichloroacetic acid	2.0	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
302	HAA-ICR	Trichloroacetic acid (Lab Dupl)	2.2	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
			2.1	**µg/L**	**9.5 % RPD**						
303	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/26/98	n/a
304	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/25/98	n/a
305	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	8/22/98		8/22/98	n/a
306	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/25/98		8/26/98	n/a
307	TEMP	Temperature	23.8	ºC	SM 2550 B	1	n/a	8/22/98		8/22/98	n/a
308	TIME	Cl2 Incubation Time	23.3	hrs	n/a	1	n/a	8/25/98		8/26/98	n/a
309	TOC-ICR	TOC	3.05	mg/L	SM 5310 C	1	0.50	8/22/98		8/23/98	7-0-382
310	TOC-ICR	TOC (Dupl)	3.13	mg/L	SM 5310 C	1	0.50	8/22/98		8/23/98	7-0-382
			3.09	**mg/L**	**2.6 % RPD**						
311	TOX-ICR	TOX	216	µg Cl-/L	SM 5320 B	1	25	8/26/98		8/31/98	12-0-200
312	TOX-ICR	TOX (Dupl)	215	µg Cl-/L	SM 5320 B	1	25	8/26/98		8/31/98	12-0-200
			216	**µg Cl-/L**	**0.5 % RPD**						
313	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.6	%	EPA 551.1	1	1.0	8/26/98	8/27/98	8/27/98	0-209-0
314	THM-ICR	Bromodichloromethane	36.4	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/27/98	0-209-0
315	THM-ICR	Bromoform	39.3	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/27/98	0-209-0
316	THM-ICR	Chloroform	11.0	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/27/98	0-209-0
317	THM-ICR	Dibromochloromethane	71.8	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/27/98	0-209-0
318	UV-ICR	UV	0.051	1/cm	SM 5910 B	1	0.009	8/22/98		8/23/98	8-0-273
319	UV-ICR	UV (Dupl)	0.051	1/cm	SM 5910 B	1	0.009	8/22/98		8/23/98	8-0-273
			0.051	**1/cm**	**0.0 % RPD**						

Sample ID: 131.10.Eff-21 **S&H ID:** 9808-319 **Date Sampled:** 8/23/98 10:08:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
320	Cl2Dose	Chlorine Dose	3.55	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/26/98		8/26/98	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. Don Thomson
Sweetwater Authority

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321	Cl2Res	Chlorine Residual	0.81	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/26/98		8/27/98	n/a
322	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	90.4	%	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
323	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.4	%	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
324	HAA-ICR	Bromochloroacetic acid	11.0	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
325	HAA-ICR	Bromodichloroacetic acid	5.5	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
326	HAA-ICR	Chlorodibromoacetic acid	5.6	µg/L	EPA 552.2	1	2.0	8/27/98	9/2/98	9/3/98	0-210-0
327	HAA-ICR	Dibromoacetic acid	12.7	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
328	HAA-ICR	Dichloroacetic acid	6.2	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
329	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
330	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/27/98	9/2/98	9/3/98	0-210-0
331	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/27/98	9/2/98	9/3/98	0-210-0
332	HAA-ICR	Trichloroacetic acid	2.8	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
333	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/26/98		8/27/98	n/a
334	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/26/98		8/26/98	n/a
335	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	8/23/98		8/23/98	n/a
336	TEMP	Cl2 Temperature	25.8	ºC	SM 2550 B	1	n/a	8/26/98		8/27/98	n/a
337	TEMP	Temperature	24.0	ºC	SM 2550 B	1	n/a	8/23/98		8/23/98	n/a
338	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	8/26/98		8/27/98	n/a
339	TOC-ICR	TOC	3.52	mg/L	SM 5310 C	1	0.50	8/23/98		8/24/98	7-0-383
340	TOC-ICR	TOC (Dupl)	3.52	mg/L	SM 5310 C	1	0.50	8/23/98		8/24/98	7-0-383
			3.52	**mg/L**	**0.0 % RPD**						
341	TOX-ICR	TOX	249	µg Cl-/L	SM 5320 B	1	25	8/27/98		9/1/98	12-0-201
342	TOX-ICR	TOX (Dupl)	247	µg Cl-/L	SM 5320 B	1	25	8/27/98		9/1/98	12-0-201
			248	**µg Cl-/L**	**0.8 % RPD**						
343	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.2	%	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
344	THM-ICR	Bromodichloromethane	41.6	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
345	THM-ICR	Bromoform	33.8	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
346	THM-ICR	Chloroform	16.3	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
347	THM-ICR	Dibromochloromethane	65.2	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
348	UV-ICR	UV	0.059	1/cm	SM 5910 B	1	0.009	8/23/98		8/24/98	8-0-275
349	UV-ICR	UV (Dupl)	0.058	1/cm	SM 5910 B	1	0.009	8/23/98		8/24/98	8-0-275
			0.058	**1/cm**	**1.7 % RPD**						

Sample ID: 131.10.Eff-26 **S&H ID:** 9808-324 **Date Sampled:** 8/27/98 7:19:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
350	Cl2Dose	Chlorine Dose	3.77	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/28/98		8/28/98	n/a
351	Cl2Res	Chlorine Residual	0.78	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/28/98		8/29/98	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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352	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	97.6	%	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
353	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.6	%	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
354	HAA-ICR	Bromochloroacetic acid	14.7	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
355	HAA-ICR	Bromodichloroacetic acid	9.3	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
356	HAA-ICR	Chlorodibromoacetic acid	7.7	µg/L	EPA 552.2	1	2.0	8/29/98	9/2/98	9/3/98	0-210-0
357	HAA-ICR	Dibromoacetic acid	14.5	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
358	HAA-ICR	Dichloroacetic acid	9.5	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
359	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
360	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/29/98	9/2/98	9/3/98	0-210-0
361	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/29/98	9/2/98	9/3/98	0-210-0
362	HAA-ICR	Trichloroacetic acid	4.7	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
363	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/28/98		8/29/98	n/a
364	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/28/98		8/28/98	n/a
365	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	8/27/98		8/27/98	n/a
366	TEMP	Cl2 Temperature	25.0	ºC	SM 2550 B	1	n/a	8/28/98		8/29/98	n/a
367	TEMP	Temperature	21.1	ºC	SM 2550 B	1	n/a	8/27/98		8/27/98	n/a
368	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	8/28/98		8/29/98	n/a
369	TOC-ICR	TOC	3.84	mg/L	SM 5310 C	1	0.50	8/27/98		8/27/98	7-0-386
370	TOC-ICR	TOC (Dupl)	3.83	mg/L	SM 5310 C	1	0.50	8/27/98		8/27/98	7-0-386
			3.84	**mg/L**	**0.3 % RPD**						
371	TOX-ICR	TOX	275	µg Cl-/L	SM 5320 B	1	25	8/29/98		9/2/98	12-0-202
372	TOX-ICR	TOX (Dupl)	281	µg Cl-/L	SM 5320 B	1	25	8/29/98		9/2/98	12-0-202
			278	**µg Cl-/L**	**2.2 % RPD**						
373	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.8	%	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
374	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	104.8	%	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
			102.8	**%**	**3.9 % RPD**						
375	THM-ICR	Bromodichloromethane	50.6	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
376	THM-ICR	Bromodichloromethane (Lab Dupl)	49.6	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
			50.1	**µg/L**	**2.0 % RPD**						
377	THM-ICR	Bromoform	26.3	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
378	THM-ICR	Bromoform (Lab Dupl)	25.3	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
			25.8	**µg/L**	**3.9 % RPD**						
379	THM-ICR	Chloroform	26.3	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
380	THM-ICR	Chloroform (Lab Dupl)	25.7	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
			26.0	**µg/L**	**2.3 % RPD**						
381	THM-ICR	Dibromochloromethane	65.6	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
382	THM-ICR	Dibromochloromethane (Lab Dupl)	66.1	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
			65.8	**µg/L**	**0.8 % RPD**						
383	UV-ICR	UV	0.071	1/cm	SM 5910 B	1	0.009	8/27/98		8/27/98	8-0-277

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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384	UV-ICR	UV (Dupl)	0.071	1/cm	SM 5910 B	1	0.009	8/27/98		8/27/98	8-0-277
			0.071	**1/cm**	**0.0 % RPD**						

Sample ID: 131.10.Eff-27 **S&H ID:** 9808-325 **Date Sampled:** 8/30/98 4:11:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
385	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	8/30/98		8/30/98	n/a
386	TEMP	Temperature	21.5	ºC	SM 2550 B	1	n/a	8/30/98		8/30/98	n/a
387	TOC-ICR	TOC	4.29	mg/L	SM 5310 C	1	0.50	8/30/98		8/30/98	7-0-389
388	TOC-ICR	TOC (Dupl)	4.23	mg/L	SM 5310 C	1	0.50	8/30/98		8/30/98	7-0-389
			4.26	**mg/L**	**1.4 % RPD**						

Sample ID: 131.10.Eff-5d **S&H ID:** 9808-330 **Date Sampled:** 8/19/98 12:04:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
389	Cl2Dose	Chlorine Dose	1.39	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/24/98		8/24/98	n/a
390	Cl2Res	Chlorine Residual	0.65	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/24/98		8/25/98	n/a
391	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	94.4	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
392	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.8	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
393	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
394	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
395	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
396	HAA-ICR	Dibromoacetic acid	3.3	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
397	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
398	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
399	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
400	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/25/98	9/2/98	9/2/98	0-210-0
401	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
402	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/25/98	n/a
403	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/24/98	n/a
404	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/19/98		8/19/98	n/a
405	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/24/98		8/25/98	n/a
406	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	8/19/98		8/19/98	n/a
407	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	8/24/98		8/25/98	n/a
408	TOC-ICR	TOC	0.57	mg/L	SM 5310 C	1	0.50	8/19/98		8/21/98	7-0-380
409	TOC-ICR	TOC (Dupl)	0.57	mg/L	SM 5310 C	1	0.50	8/19/98		8/21/98	7-0-380
			0.57	**mg/L**	**0.0 % RPD**						
410	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
411	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/28/98	12-0-199
			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. Don Thomson
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412	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.4	%	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
413	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
414	THM-ICR	Bromoform	14.4	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
415	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
416	THM-ICR	Dibromochloromethane	5.5	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
417	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	8/19/98		8/19/98	8-0-269
418	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	8/19/98		8/19/98	8-0-269
			ND	**1/cm**							

Sample ID: 131.10.Eff-11d **S&H ID:** 9808-332 **Date Sampled:** 8/21/98 1:17:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
419	Cl2Dose	Chlorine Dose	2.41	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/24/98		8/24/98	n/a
420	Cl2Res	Chlorine Residual	0.58	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/24/98		8/25/98	n/a
421	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	96.0	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
422	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.2	%	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
423	HAA-ICR	Bromochloroacetic acid	4.7	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
424	HAA-ICR	Bromodichloroacetic acid	2.3	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
425	HAA-ICR	Chlorodibromoacetic acid	3.8	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
426	HAA-ICR	Dibromoacetic acid	9.9	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
427	HAA-ICR	Dichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
428	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
429	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/25/98	9/2/98	9/2/98	0-210-0
430	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/25/98	9/2/98	9/2/98	0-210-0
431	HAA-ICR	Trichloroacetic acid	1.0	µg/L	EPA 552.2	1	1.0	8/25/98	9/2/98	9/2/98	0-210-0
432	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/25/98	n/a
433	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/24/98	n/a
434	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/21/98		8/21/98	n/a
435	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/24/98		8/25/98	n/a
436	TEMP	Temperature	22.3	ºC	SM 2550 B	1	n/a	8/21/98		8/21/98	n/a
437	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	8/24/98		8/25/98	n/a
438	TOC-ICR	TOC	2.00	mg/L	SM 5310 C	1	0.50	8/21/98		8/22/98	7-0-380
439	TOC-ICR	TOC (Dupl)	2.06	mg/L	SM 5310 C	1	0.50	8/21/98		8/22/98	7-0-380
			2.03	**mg/L**	**3.0 % RPD**						
440	TOX-ICR	TOX	122	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/31/98	12-0-200
441	TOX-ICR	TOX (Dupl)	124	µg Cl-/L	SM 5320 B	1	25	8/25/98		8/31/98	12-0-200
			123	**µg Cl-/L**	**1.6 % RPD**						
442	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.8	%	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

443	THM-ICR	Bromodichloromethane	13.1	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
444	THM-ICR	Bromoform	49.2	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
445	THM-ICR	Chloroform	2.2	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
446	THM-ICR	Dibromochloromethane	45.4	µg/L	EPA 551.1	1	1.0	8/25/98	8/27/98	8/27/98	0-209-0
447	UV-ICR	UV	0.029	1/cm	SM 5910 B	1	0.009	8/21/98		8/21/98	8-0-271
448	UV-ICR	UV (Dupl)	0.029	1/cm	SM 5910 B	1	0.009	8/21/98		8/21/98	8-0-271
			0.029	**1/cm**	**0.0 % RPD**						

Sample ID: 131.10.Eff-18d **S&H ID:** 9808-335 **Date Sampled:** 8/22/98 9:24:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
449	Cl2Dose	Chlorine Dose	3.26	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/25/98		8/25/98	n/a
450	Cl2Res	Chlorine Residual	0.75	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/25/98		8/26/98	n/a
451	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.4	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
452	HAA-ICR	2-Bromopropionic acid (Surrogate)	94.4	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
453	HAA-ICR	Bromochloroacetic acid	11.2	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
454	HAA-ICR	Bromodichloroacetic acid	4.8	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
455	HAA-ICR	Chlorodibromoacetic acid	6.3	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
456	HAA-ICR	Dibromoacetic acid	15.1	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
457	HAA-ICR	Dichloroacetic acid	5.5	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
458	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
459	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
460	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/26/98	9/2/98	9/3/98	0-210-0
461	HAA-ICR	Trichloroacetic acid	2.6	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
462	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/26/98	n/a
463	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/25/98	n/a
464	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/22/98		8/22/98	n/a
465	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/25/98		8/26/98	n/a
466	TEMP	Temperature	23.8	ºC	SM 2550 B	1	n/a	8/22/98		8/22/98	n/a
467	TIME	Cl2 Incubation Time	23.4	hrs	n/a	1	n/a	8/25/98		8/26/98	n/a
468	TOC-ICR	TOC	3.07	mg/L	SM 5310 C	1	0.50	8/22/98		8/23/98	7-0-382
469	TOC-ICR	TOC (Dupl)	3.11	mg/L	SM 5310 C	1	0.50	8/22/98		8/23/98	7-0-382
			3.09	**mg/L**	**1.3 % RPD**						
470	TOX-ICR	TOX	210	µg Cl-/L	SM 5320 B	1	25	8/26/98		8/31/98	12-0-200
471	TOX-ICR	TOX (Dupl)	215	µg Cl-/L	SM 5320 B	1	25	8/26/98		8/31/98	12-0-200
			213	**µg Cl-/L**	**2.3 % RPD**						
472	THM-ICR	1,2,3-Trichloropropane (Surrogate)	107.2	%	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
473	THM-ICR	Bromodichloromethane	40.7	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
474	THM-ICR	Bromoform	43.6	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

475	THM-ICR	Chloroform	12.6	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
476	THM-ICR	Dibromochloromethane	77.4	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
477	UV-ICR	UV	0.051	1/cm	SM 5910 B	1	0.009	8/22/98		8/23/98	8-0-273
478	UV-ICR	UV (Dupl)	0.051	1/cm	SM 5910 B	1	0.009	8/22/98		8/23/98	8-0-273
			0.051	**1/cm**	**0.0 % RPD**						

Sample ID: 131.20.Eff-1 **S&H ID:** 9808-339 **Date Sampled:** 8/17/98 8:48:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
479	Cl2Dose	Chlorine Dose	1.25	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/21/98		8/21/98	n/a
480	Cl2Res	Chlorine Residual	0.86	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/21/98		8/22/98	n/a
481	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	97.6	%	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
482	HAA-ICR	2-Bromopropionic acid (Surrogate)	104.4	%	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
483	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
484	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
485	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/22/98	8/26/98	8/27/98	0-208-0
486	HAA-ICR	Dibromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
487	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
488	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
489	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/22/98	8/26/98	8/27/98	0-208-0
490	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/22/98	8/26/98	8/27/98	0-208-0
491	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
492	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	8/21/98		8/22/98	n/a
493	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	8/21/98		8/21/98	n/a
494	pH	pH	8.8	Unit	SM 4500-H+ B	1	n/a	8/17/98		8/17/98	n/a
495	TEMP	Cl2 Temperature	25.2	ºC	SM 2550 B	1	n/a	8/21/98		8/22/98	n/a
496	TEMP	Temperature	23.5	ºC	SM 2550 B	1	n/a	8/17/98		8/17/98	n/a
497	TIME	Cl2 Incubation Time	24.2	hrs	n/a	1	n/a	8/21/98		8/22/98	n/a
498	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	8/17/98		8/18/98	7-0-377
499	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	8/17/98		8/18/98	7-0-377
			ND	**mg/L**							
500	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	8/22/98		8/24/98	12-0-196
501	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	8/22/98		8/24/98	12-0-196
			ND	**µg Cl-/L**							
502	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.0	%	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
503	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
504	THM-ICR	Bromoform	1.9	µg/L	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
505	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
506	THM-ICR	Dibromochloromethane	1.1	µg/L	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

507	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	8/17/98		8/18/98	8-0-268
508	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	8/17/98		8/18/98	8-0-268
			ND	**1/cm**							

Sample ID: 131.20.Eff-9 **S&H ID:** 9808-347 **Date Sampled:** 8/22/98 1:23:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
509	Cl2Dose	Chlorine Dose	1.40	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/25/98		8/25/98	n/a
510	Cl2Res	Chlorine Residual	0.66	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/25/98		8/26/98	n/a
511	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	95.2	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
512	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.8	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
513	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
514	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
515	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
516	HAA-ICR	Dibromoacetic acid	3.0	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
517	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
518	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
519	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
520	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/26/98	9/2/98	9/3/98	0-210-0
521	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
522	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/26/98	n/a
523	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/25/98	n/a
524	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/22/98		8/22/98	n/a
525	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/25/98		8/26/98	n/a
526	TEMP	Temperature	22.8	ºC	SM 2550 B	1	n/a	8/22/98		8/22/98	n/a
527	TIME	Cl2 Incubation Time	23.4	hrs	n/a	1	n/a	8/25/98		8/26/98	n/a
528	TOC-ICR	TOC	0.51	mg/L	SM 5310 C	1	0.50	8/22/98		8/22/98	7-0-381
529	TOC-ICR	TOC (Dupl)	0.50	mg/L	SM 5310 C	1	0.50	8/22/98		8/22/98	7-0-381
			0.51	**mg/L**	**2.0 % RPD**						
530	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	8/26/98		8/31/98	12-0-200
531	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	8/26/98		8/31/98	12-0-200
			ND	**µg Cl-/L**							
532	THM-ICR	1,2,3-Trichloropropane (Surrogate)	93.6	%	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
533	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
534	THM-ICR	Bromoform	11.3	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
535	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
536	THM-ICR	Dibromochloromethane	3.9	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
537	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	8/22/98		8/22/98	8-0-272
538	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	8/22/98		8/22/98	8-0-272

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

ND 1/cm

Sample ID: 131.20.Eff-13 **S&H ID:** 9808-351 **Date Sampled:** 8/23/98 2:42:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
539	Cl2Dose	Chlorine Dose	1.67	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/25/98		8/25/98	n/a
540	Cl2Res	Chlorine Residual	0.63	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/25/98		8/26/98	n/a
541	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	94.0	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
542	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.4	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
543	HAA-ICR	Bromochloroacetic acid	1.6	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
544	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
545	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
546	HAA-ICR	Dibromoacetic acid	5.2	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
547	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
548	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
549	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
550	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/26/98	9/2/98	9/3/98	0-210-0
551	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
552	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/26/98	n/a
553	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/25/98	n/a
554	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/23/98		8/23/98	n/a
555	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/25/98		8/26/98	n/a
556	TEMP	Temperature	22.7	ºC	SM 2550 B	1	n/a	8/23/98		8/23/98	n/a
557	TIME	Cl2 Incubation Time	23.5	hrs	n/a	1	n/a	8/25/98		8/26/98	n/a
558	TOC-ICR	TOC	0.85	mg/L	SM 5310 C	1	0.50	8/23/98		8/23/98	7-0-382
559	TOC-ICR	TOC (Dupl)	0.85	mg/L	SM 5310 C	1	0.50	8/23/98		8/23/98	7-0-382
			0.85	**mg/L**	**0.0 % RPD**						
560	TOX-ICR	TOX	34	µg Cl-/L	SM 5320 B	1	25	8/26/98		8/31/98	12-0-200
561	TOX-ICR	TOX (Dupl)	36	µg Cl-/L	SM 5320 B	1	25	8/26/98		8/31/98	12-0-200
			35	**µg Cl-/L**	**5.7 % RPD**						
562	THM-ICR	1,2,3-Trichloropropane (Surrogate)	93.2	%	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
563	THM-ICR	Bromodichloromethane	1.6	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
564	THM-ICR	Bromoform	22.4	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
565	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
566	THM-ICR	Dibromochloromethane	10.3	µg/L	EPA 551.1	1	1.0	8/26/98	8/27/98	8/28/98	0-209-0
567	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	8/23/98		8/23/98	8-0-274
568	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	8/23/98		8/23/98	8-0-274
			ND	**1/cm**							

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

Sample ID: 131.20.Eff-15 **S&H ID:** 9808-353 **Date Sampled:** 8/23/98 3:41:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
569	Cl2Dose	Chlorine Dose	1.86	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/25/98		8/25/98	n/a
570	Cl2Res	Chlorine Residual	0.76	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/25/98		8/26/98	n/a
571	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	97.2	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
572	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.4	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
573	HAA-ICR	Bromochloroacetic acid	2.2	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
574	HAA-ICR	Bromodichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
575	HAA-ICR	Chlorodibromoacetic acid	2.2	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
576	HAA-ICR	Dibromoacetic acid	6.6	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
577	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
578	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
579	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
580	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/26/98	9/2/98	9/3/98	0-210-0
581	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
582	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/26/98	n/a
583	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/25/98	n/a
584	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/23/98		8/23/98	n/a
585	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/25/98		8/26/98	n/a
586	TEMP	Temperature	23.4	ºC	SM 2550 B	1	n/a	8/23/98		8/23/98	n/a
587	TIME	Cl2 Incubation Time	23.4	hrs	n/a	1	n/a	8/25/98		8/26/98	n/a
588	TOC-ICR	TOC	1.12	mg/L	SM 5310 C	1	0.50	8/23/98		8/23/98	7-0-382
589	TOC-ICR	TOC (Dupl)	1.16	mg/L	SM 5310 C	1	0.50	8/23/98		8/23/98	7-0-382
			1.14	**mg/L**	**3.5 % RPD**						
590	TOX-ICR	TOX	48	µg Cl-/L	SM 5320 B	1	25	8/26/98		9/1/98	12-0-201
591	TOX-ICR	TOX (Dupl)	48	µg Cl-/L	SM 5320 B	1	25	8/26/98		9/1/98	12-0-201
			48	**µg Cl-/L**	**0.0 % RPD**						
592	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.8	%	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
593	THM-ICR	Bromodichloromethane	3.3	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
594	THM-ICR	Bromoform	32.1	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
595	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
596	THM-ICR	Dibromochloromethane	16.5	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
597	UV-ICR	UV	0.012	1/cm	SM 5910 B	1	0.009	8/23/98		8/24/98	8-0-275
598	UV-ICR	UV (Dupl)	0.012	1/cm	SM 5910 B	1	0.009	8/23/98		8/24/98	8-0-275
			0.012	**1/cm**	**0.0 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

Sample ID: 131.20.Eff-17 **S&H ID:** 9808-355 **Date Sampled:** 8/24/98 4:29:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
599	Cl2Dose	Chlorine Dose	2.11	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/25/98		8/25/98	n/a
600	Cl2Res	Chlorine Residual	0.82	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/25/98		8/26/98	n/a
601	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	94.8	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
602	HAA-ICR	2-Bromopropionic acid (Surrogate)	99.6	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
603	HAA-ICR	Bromochloroacetic acid	3.2	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
604	HAA-ICR	Bromodichloroacetic acid	1.7	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
605	HAA-ICR	Chlorodibromoacetic acid	2.8	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
606	HAA-ICR	Dibromoacetic acid	8.6	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
607	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
608	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
609	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
610	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/26/98	9/2/98	9/3/98	0-210-0
611	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
612	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/26/98	n/a
613	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/25/98	n/a
614	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/24/98	n/a
615	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/25/98		8/26/98	n/a
616	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	8/24/98		8/24/98	n/a
617	TIME	Cl2 Incubation Time	23.4	hrs	n/a	1	n/a	8/25/98		8/26/98	n/a
618	TOC-ICR	TOC	1.49	mg/L	SM 5310 C	1	0.50	8/24/98		8/24/98	7-0-383
619	TOC-ICR	TOC (Dupl)	1.49	mg/L	SM 5310 C	1	0.50	8/24/98		8/24/98	7-0-383
			1.49	**mg/L**	**0.0 % RPD**						
620	TOX-ICR	TOX	70	µg Cl-/L	SM 5320 B	1	25	8/26/98		9/1/98	12-0-201
621	TOX-ICR	TOX (Dupl)	70	µg Cl-/L	SM 5320 B	1	25	8/26/98		9/1/98	12-0-201
			70	**µg Cl-/L**	**0.0 % RPD**						
622	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.2	%	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
623	THM-ICR	Bromodichloromethane	4.9	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
624	THM-ICR	Bromoform	33.3	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
625	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
626	THM-ICR	Dibromochloromethane	22.2	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
627	UV-ICR	UV	0.017	1/cm	SM 5910 B	1	0.009	8/24/98		8/24/98	8-0-275
628	UV-ICR	UV (Dupl)	0.018	1/cm	SM 5910 B	1	0.009	8/24/98		8/24/98	8-0-275
			0.018	**1/cm**	**5.6 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

Sample ID: 131.20.Eff-20 **S&H ID:** 9808-358 **Date Sampled:** 8/24/98 10:17:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
629	Cl2Dose	Chlorine Dose	2.31	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/26/98		8/26/98	n/a
630	Cl2Res	Chlorine Residual	0.70	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/26/98		8/27/98	n/a
631	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	93.6	%	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
632	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.0	%	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
633	HAA-ICR	Bromochloroacetic acid	4.0	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
634	HAA-ICR	Bromodichloroacetic acid	1.8	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
635	HAA-ICR	Chlorodibromoacetic acid	2.9	µg/L	EPA 552.2	1	2.0	8/27/98	9/2/98	9/3/98	0-210-0
636	HAA-ICR	Dibromoacetic acid	9.6	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
637	HAA-ICR	Dichloroacetic acid	1.2	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
638	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
639	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/27/98	9/2/98	9/3/98	0-210-0
640	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/27/98	9/2/98	9/3/98	0-210-0
641	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/27/98	9/2/98	9/3/98	0-210-0
642	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/26/98		8/27/98	n/a
643	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/26/98		8/26/98	n/a
644	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/24/98		8/24/98	n/a
645	TEMP	Cl2 Temperature	25.8	ºC	SM 2550 B	1	n/a	8/26/98		8/27/98	n/a
646	TEMP	Temperature	23.1	ºC	SM 2550 B	1	n/a	8/24/98		8/24/98	n/a
647	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	8/26/98		8/27/98	n/a
648	TOC-ICR	TOC	1.75	mg/L	SM 5310 C	1	0.50	8/24/98		8/25/98	7-0-384
649	TOC-ICR	TOC (Dupl)	1.77	mg/L	SM 5310 C	1	0.50	8/24/98		8/25/98	7-0-384
			1.76	**mg/L**	**1.1 % RPD**						
650	TOX-ICR	TOX	80	µg Cl-/L	SM 5320 B	1	25	8/27/98		9/1/98	12-0-201
651	TOX-ICR	TOX (Dupl)	97	µg Cl-/L	SM 5320 B	1	25	8/27/98		9/1/98	12-0-201
			89	**µg Cl-/L**	**19.1 % RPD**						
652	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.0	%	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
653	THM-ICR	Bromodichloromethane	7.7	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
654	THM-ICR	Bromoform	37.6	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
655	THM-ICR	Chloroform	1.1	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
656	THM-ICR	Dibromochloromethane	29.4	µg/L	EPA 551.1	1	1.0	8/27/98	9/8/98	9/8/98	0-211-0
657	UV-ICR	UV	0.021	1/cm	SM 5910 B	1	0.009	8/24/98		8/25/98	8-0-276
658	UV-ICR	UV (Dupl)	0.022	1/cm	SM 5910 B	1	0.009	8/24/98		8/25/98	8-0-276
			0.021	**1/cm**	**4.8 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

Sample ID: 131.20.Eff-24 **S&H ID:** 9808-362 **Date Sampled:** 8/26/98 6:48:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
659	Cl2Dose	Chlorine Dose	2.57	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/28/98		8/28/98	n/a
660	Cl2Res	Chlorine Residual	0.75	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/28/98		8/29/98	n/a
661	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	94.8	%	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
662	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.2	%	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
663	HAA-ICR	Bromochloroacetic acid	5.5	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
664	HAA-ICR	Bromodichloroacetic acid	2.6	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
665	HAA-ICR	Chlorodibromoacetic acid	4.4	µg/L	EPA 552.2	1	2.0	8/29/98	9/2/98	9/3/98	0-210-0
666	HAA-ICR	Dibromoacetic acid	9.6	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
667	HAA-ICR	Dichloroacetic acid	1.8	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
668	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
669	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/29/98	9/2/98	9/3/98	0-210-0
670	HAA-ICR	Tribromoacetic acid	4.4	µg/L	EPA 552.2	1	4.0	8/29/98	9/2/98	9/3/98	0-210-0
671	HAA-ICR	Trichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
672	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	8/28/98		8/29/98	n/a
673	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/28/98		8/28/98	n/a
674	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	8/26/98		8/26/98	n/a
675	TEMP	Cl2 Temperature	25.0	ºC	SM 2550 B	1	n/a	8/28/98		8/29/98	n/a
676	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	8/26/98		8/26/98	n/a
677	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	8/28/98		8/29/98	n/a
678	TOC-ICR	TOC	2.11	mg/L	SM 5310 C	1	0.50	8/26/98		8/26/98	7-0-385
679	TOC-ICR	TOC (Dupl)	2.21	mg/L	SM 5310 C	1	0.50	8/26/98		8/26/98	7-0-385
			2.16	**mg/L**	**4.6 % RPD**						
680	TOX-ICR	TOX	122	µg Cl-/L	SM 5320 B	1	25	8/29/98		9/1/98	12-0-201
681	TOX-ICR	TOX (Dupl)	126	µg Cl-/L	SM 5320 B	1	25	8/29/98		9/1/98	12-0-201
			124	**µg Cl-/L**	**3.2 % RPD**						
682	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.8	%	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
683	THM-ICR	Bromodichloromethane	14.3	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
684	THM-ICR	Bromoform	43.5	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
685	THM-ICR	Chloroform	2.7	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
686	THM-ICR	Dibromochloromethane	41.6	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
687	UV-ICR	UV	0.028	1/cm	SM 5910 B	1	0.009	8/26/98		8/27/98	8-0-277
688	UV-ICR	UV (Dupl)	0.028	1/cm	SM 5910 B	1	0.009	8/26/98		8/27/98	8-0-277
			0.028	**1/cm**	**0.0 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

Sample ID: 131.20.Eff-25 **S&H ID:** 9808-363 **Date Sampled:** 8/27/98 1:57:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
689	Cl2Dose	Chlorine Dose	2.73	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/31/98		8/31/98	n/a
690	Cl2Res	Chlorine Residual	0.80	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/31/98		9/1/98	n/a
691	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	98.0	%	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
692	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.0	%	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
693	HAA-ICR	Bromochloroacetic acid	6.1	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
694	HAA-ICR	Bromodichloroacetic acid	2.7	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
695	HAA-ICR	Chlorodibromoacetic acid	4.6	µg/L	EPA 552.2	1	2.0	9/1/98	9/2/98	9/3/98	0-210-0
696	HAA-ICR	Dibromoacetic acid	11.7	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
697	HAA-ICR	Dichloroacetic acid	2.0	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
698	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
699	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	9/1/98	9/2/98	9/3/98	0-210-0
700	HAA-ICR	Tribromoacetic acid	4.2	µg/L	EPA 552.2	1	4.0	9/1/98	9/2/98	9/3/98	0-210-0
701	HAA-ICR	Trichloroacetic acid	1.2	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
702	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/31/98		9/1/98	n/a
703	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	8/31/98		8/31/98	n/a
704	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	8/27/98		8/27/98	n/a
705	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/31/98		9/1/98	n/a
706	TEMP	Temperature	21.4	ºC	SM 2550 B	1	n/a	8/27/98		8/27/98	n/a
707	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	8/31/98		9/1/98	n/a
708	TOC-ICR	TOC	2.30	mg/L	SM 5310 C	1	0.50	8/27/98		8/27/98	7-0-386
709	TOC-ICR	TOC (Dupl)	2.41	mg/L	SM 5310 C	1	0.50	8/27/98		8/27/98	7-0-386
			2.36	**mg/L**	**4.7 % RPD**						
710	TOX-ICR	TOX	124	µg Cl-/L	SM 5320 B	1	25	9/1/98		9/2/98	12-0-202
711	TOX-ICR	TOX (Dupl)	130	µg Cl-/L	SM 5320 B	1	25	9/1/98		9/2/98	12-0-202
			127	**µg Cl-/L**	**4.7 % RPD**						
712	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.4	%	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
713	THM-ICR	Bromodichloromethane	17.0	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
714	THM-ICR	Bromoform	45.7	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
715	THM-ICR	Chloroform	3.3	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
716	THM-ICR	Dibromochloromethane	46.0	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
717	UV-ICR	UV	0.031	1/cm	SM 5910 B	1	0.009	8/27/98		8/27/98	8-0-277
718	UV-ICR	UV (Dupl)	0.031	1/cm	SM 5910 B	1	0.009	8/27/98		8/27/98	8-0-277
			0.031	**1/cm**	**0.0 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

Sample ID: 131.20.Eff-27 **S&H ID:** 9808-365 **Date Sampled:** 8/28/98 10:44:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
719	Cl2Dose	Chlorine Dose	3.03	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/31/98		8/31/98	n/a
720	Cl2Res	Chlorine Residual	0.72	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/31/98		9/1/98	n/a
721	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.4	%	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
722	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.8	%	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
723	HAA-ICR	Bromochloroacetic acid	9.0	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
724	HAA-ICR	Bromodichloroacetic acid	4.5	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
725	HAA-ICR	Chlorodibromoacetic acid	6.5	µg/L	EPA 552.2	1	2.0	9/1/98	9/2/98	9/3/98	0-210-0
726	HAA-ICR	Dibromoacetic acid	14.4	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
727	HAA-ICR	Dichloroacetic acid	3.5	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
728	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
729	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	9/1/98	9/2/98	9/3/98	0-210-0
730	HAA-ICR	Tribromoacetic acid	4.9	µg/L	EPA 552.2	1	4.0	9/1/98	9/2/98	9/3/98	0-210-0
731	HAA-ICR	Trichloroacetic acid	1.7	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
732	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/31/98		9/1/98	n/a
733	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	8/31/98		8/31/98	n/a
734	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/28/98		8/28/98	n/a
735	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/31/98		9/1/98	n/a
736	TEMP	Temperature	22.2	ºC	SM 2550 B	1	n/a	8/28/98		8/28/98	n/a
737	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	8/31/98		9/1/98	n/a
738	TOC-ICR	TOC	2.78	mg/L	SM 5310 C	1	0.50	8/28/98		8/29/98	7-0-388
739	TOC-ICR	TOC (Dupl)	2.79	mg/L	SM 5310 C	1	0.50	8/28/98		8/29/98	7-0-388
			2.79	**mg/L**	**0.4 % RPD**						
740	TOX-ICR	TOX	180	µg Cl-/L	SM 5320 B	1	25	9/1/98		9/2/98	12-0-202
741	TOX-ICR	TOX (Dupl)	179	µg Cl-/L	SM 5320 B	1	25	9/1/98		9/2/98	12-0-202
			180	**µg Cl-/L**	**0.6 % RPD**						
742	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.8	%	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
743	THM-ICR	Bromodichloromethane	26.1	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
744	THM-ICR	Bromoform	43.2	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
745	THM-ICR	Chloroform	6.6	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
746	THM-ICR	Dibromochloromethane	56.3	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
747	UV-ICR	UV	0.041	1/cm	SM 5910 B	1	0.009	8/28/98		8/29/98	8-0-278
748	UV-ICR	UV (Dupl)	0.041	1/cm	SM 5910 B	1	0.009	8/28/98		8/29/98	8-0-278
			0.041	**1/cm**	**0.0 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

Sample ID: 131.20.Eff-29 **S&H ID:** 9808-367 **Date Sampled:** 8/29/98 11:28:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
749	Cl2Dose	Chlorine Dose	3.26	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/31/98		8/31/98	n/a
750	Cl2Res	Chlorine Residual	0.73	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/31/98		9/1/98	n/a
751	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	101.6	%	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
752	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.0	%	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
753	HAA-ICR	Bromochloroacetic acid	10.4	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
754	HAA-ICR	Bromodichloroacetic acid	5.2	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
755	HAA-ICR	Chlorodibromoacetic acid	7.1	µg/L	EPA 552.2	1	2.0	9/1/98	9/2/98	9/3/98	0-210-0
756	HAA-ICR	Dibromoacetic acid	14.3	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
757	HAA-ICR	Dichloroacetic acid	4.5	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
758	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
759	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	9/1/98	9/2/98	9/3/98	0-210-0
760	HAA-ICR	Tribromoacetic acid	4.5	µg/L	EPA 552.2	1	4.0	9/1/98	9/2/98	9/3/98	0-210-0
761	HAA-ICR	Trichloroacetic acid	2.1	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
762	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/31/98		9/1/98	n/a
763	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	8/31/98		8/31/98	n/a
764	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/29/98		8/29/98	n/a
765	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/31/98		9/1/98	n/a
766	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	8/29/98		8/29/98	n/a
767	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	8/31/98		9/1/98	n/a
768	TOC-ICR	TOC	3.14	mg/L	SM 5310 C	1	0.50	8/29/98		8/30/98	7-0-389
769	TOC-ICR	TOC (Dupl)	3.11	mg/L	SM 5310 C	1	0.50	8/29/98		8/30/98	7-0-389
			3.13	**mg/L**	**1.0 % RPD**						
770	TOX-ICR	TOX	199	µg Cl-/L	SM 5320 B	1	25	9/1/98		9/2/98	12-0-202
771	TOX-ICR	TOX (Dupl)	205	µg Cl-/L	SM 5320 B	1	25	9/1/98		9/2/98	12-0-202
			202	**µg Cl-/L**	**3.0 % RPD**						
772	THM-ICR	1,2,3-Trichloropropane (Surrogate)	89.2	%	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
773	THM-ICR	Bromodichloromethane	33.0	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
774	THM-ICR	Bromoform	40.4	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
775	THM-ICR	Chloroform	9.8	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
776	THM-ICR	Dibromochloromethane	62.8	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
777	UV-ICR	UV	0.047	1/cm	SM 5910 B	1	0.009	8/29/98		8/31/98	8-0-279
778	UV-ICR	UV (Dupl)	0.047	1/cm	SM 5910 B	1	0.009	8/29/98		8/31/98	8-0-279
			0.047	**1/cm**	**0.0 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

Sample ID: 131.20.Eff-13d **S&H ID:** 9808-372 **Date Sampled:** 8/23/98 2:42:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
779	Cl2Dose	Chlorine Dose	1.67	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/25/98		8/25/98	n/a
780	Cl2Res	Chlorine Residual	0.72	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/25/98		8/26/98	n/a
781	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	95.2	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
782	HAA-ICR	2-Bromopropionic acid (Surrogate)	99.2	%	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
783	HAA-ICR	Bromochloroacetic acid	1.4	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
784	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
785	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
786	HAA-ICR	Dibromoacetic acid	4.4	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
787	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
788	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
789	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/26/98	9/2/98	9/3/98	0-210-0
790	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/26/98	9/2/98	9/3/98	0-210-0
791	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/26/98	9/2/98	9/3/98	0-210-0
792	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/26/98	n/a
793	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	8/25/98		8/25/98	n/a
794	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	8/23/98		8/23/98	n/a
795	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/25/98		8/26/98	n/a
796	TEMP	Temperature	22.7	ºC	SM 2550 B	1	n/a	8/23/98		8/23/98	n/a
797	TIME	Cl2 Incubation Time	23.4	hrs	n/a	1	n/a	8/25/98		8/26/98	n/a
798	TOC-ICR	TOC	0.87	mg/L	SM 5310 C	1	0.50	8/23/98		8/23/98	7-0-382
799	TOC-ICR	TOC (Dupl)	0.89	mg/L	SM 5310 C	1	0.50	8/23/98		8/23/98	7-0-382
			0.88	**mg/L**	**2.3 % RPD**						
800	TOX-ICR	TOX	34	µg Cl-/L	SM 5320 B	1	25	8/26/98		8/31/98	12-0-200
801	TOX-ICR	TOX (Dupl)	32	µg Cl-/L	SM 5320 B	1	25	8/26/98		8/31/98	12-0-200
			33	**µg Cl-/L**	**6.1 % RPD**						
802	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.4	%	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
803	THM-ICR	Bromodichloromethane	1.6	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
804	THM-ICR	Bromoform	22.1	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
805	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
806	THM-ICR	Dibromochloromethane	9.5	µg/L	EPA 551.1	1	1.0	8/26/98	9/8/98	9/8/98	0-211-0
807	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	8/23/98		8/23/98	8-0-274
808	UV-ICR	UV (Dupl)	0.009	1/cm	SM 5910 B	1	0.009	8/23/98		8/23/98	8-0-274
			ND	**1/cm**							

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

Sample ID: 131.20.Eff-24d **S&H ID:** 9808-377 **Date Sampled:** 8/26/98 6:48:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
809	Cl2Dose	Chlorine Dose	2.57	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/28/98		8/28/98	n/a
810	Cl2Res	Chlorine Residual	0.80	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/28/98		8/29/98	n/a
811	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.8	%	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
812	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.0	%	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
813	HAA-ICR	Bromochloroacetic acid	5.7	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
814	HAA-ICR	Bromodichloroacetic acid	2.6	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
815	HAA-ICR	Chlorodibromoacetic acid	4.4	µg/L	EPA 552.2	1	2.0	8/29/98	9/2/98	9/3/98	0-210-0
816	HAA-ICR	Dibromoacetic acid	11.4	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
817	HAA-ICR	Dichloroacetic acid	1.9	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
818	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
819	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	8/29/98	9/2/98	9/3/98	0-210-0
820	HAA-ICR	Tribromoacetic acid	4.5	µg/L	EPA 552.2	1	4.0	8/29/98	9/2/98	9/3/98	0-210-0
821	HAA-ICR	Trichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	8/29/98	9/2/98	9/3/98	0-210-0
822	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	8/28/98		8/29/98	n/a
823	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	8/28/98		8/28/98	n/a
824	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	8/26/98		8/26/98	n/a
825	TEMP	Cl2 Temperature	25.0	ºC	SM 2550 B	1	n/a	8/28/98		8/29/98	n/a
826	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	8/26/98		8/26/98	n/a
827	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	8/28/98		8/29/98	n/a
828	TOC-ICR	TOC	2.10	mg/L	SM 5310 C	1	0.50	8/26/98		8/26/98	7-0-385
829	TOC-ICR	TOC (Dupl)	2.12	mg/L	SM 5310 C	1	0.50	8/26/98		8/26/98	7-0-385
			2.11	**mg/L**	**0.9 % RPD**						
830	TOX-ICR	TOX	124	µg Cl-/L	SM 5320 B	1	25	8/29/98		9/2/98	12-0-202
831	TOX-ICR	TOX (Dupl)	120	µg Cl-/L	SM 5320 B	1	25	8/29/98		9/2/98	12-0-202
			122	**µg Cl-/L**	**3.3 % RPD**						
832	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.2	%	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
833	THM-ICR	Bromodichloromethane	13.2	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
834	THM-ICR	Bromoform	41.0	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
835	THM-ICR	Chloroform	2.4	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
836	THM-ICR	Dibromochloromethane	41.1	µg/L	EPA 551.1	1	1.0	8/29/98	9/8/98	9/8/98	0-211-0
837	UV-ICR	UV	0.028	1/cm	SM 5910 B	1	0.009	8/26/98		8/27/98	8-0-277
838	UV-ICR	UV (Dupl)	0.028	1/cm	SM 5910 B	1	0.009	8/26/98		8/27/98	8-0-277
			0.028	**1/cm**	**0.0 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

Sample ID: 131.Inf.A-1 **S&H ID:** 9808-379 **Date Sampled:** 8/17/98 4:20:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
839	ALK	Alkalinity	132	mg/L	SM 2320 B	1	5	8/17/98		8/18/98	1-0-31
840	ALK	Alkalinity (Dupl)	132	mg/L	SM 2320 B	1	5	8/17/98		8/18/98	1-0-31
			132	**mg/L**	**0.0 % RPD**						
841	NH3	Ammonia Nitrogen	ND	mg/L	EPA 350.1	1	0.05	8/17/98		8/26/98	MW83236
842	BR	Bromide	0.260	mg/L	EPA 300.0 A	1	0.020	8/17/98		8/31/98	MW83484
843	CaHardM	Calcium Hardness	130	mg/L CaCO3	EPA 200.7	1	5	8/17/98		9/3/98	MW n/a
844	CaMW	Calcium, Total, ICAP	52	mg/L	EPA 200.7	1	1	8/17/98	9/3/98	9/3/98	MW83508
845	MgMW	Magnesium, Total, ICAP	26	mg/L	EPA 200.7	1	0	8/17/98	9/3/98	9/3/98	MW83537
846	TotHard	Total Hardness as CaCO3 by ICP	237	mg/L CaCO3	SM 2340B	1	7	8/17/98		9/3/98	MW n/a

Sample ID: 131.Inf.A-2 **S&H ID:** 9808-380 **Date Sampled:** 8/28/98 10:45:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
847	ALK	Alkalinity	119	mg/L	SM 2320 B	1	5	8/28/98		8/28/98	1-0-31
848	ALK	Alkalinity (Dupl)	119	mg/L	SM 2320 B	1	5	8/28/98		8/28/98	1-0-31
			119	**mg/L**	**0.0 % RPD**						
849	NH3	Ammonia Nitrogen	ND	mg/L	EPA 350.1	1	0.05	8/28/98		9/10/98	MW83827
850	BR	Bromide	0.290	mg/L	EPA 300.0 A	2	0.040	8/28/98		9/8/98	MW83683
851	CaHardM	Calcium Hardness	135	mg/L CaCO3	EPA 200.7	1	5	8/28/98		9/9/98	MW n/a
852	CaMW	Calcium, Total, ICAP	54	mg/L	EPA 200.7	1	1	8/28/98	9/9/98	9/9/98	MW83714
853	MgMW	Magnesium, Total, ICAP	27	mg/L	EPA 200.7	1	0	8/28/98	9/9/98	9/9/98	MW83717
854	TotHard	Total Hardness as CaCO3 by ICP	246	mg/L CaCO3	SM 2340B	1	7	8/28/98		9/9/98	MW n/a

Sample ID: 131.Inf.B-1 **S&H ID:** 9808-381 **Date Sampled:** 8/17/98 4:20:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
855	Cl2Dose	Chlorine Dose	5.25	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/21/98		8/21/98	n/a
856	Cl2Res	Chlorine Residual	0.73	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/21/98		8/22/98	n/a
857	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.8	%	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
858	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.8	%	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
859	HAA-ICR	Bromochloroacetic acid	22.9	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
860	HAA-ICR	Bromodichloroacetic acid	18.8	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
861	HAA-ICR	Chlorodibromoacetic acid	9.6	µg/L	EPA 552.2	1	2.0	8/22/98	8/26/98	8/27/98	0-208-0
862	HAA-ICR	Dibromoacetic acid	13.1	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
863	HAA-ICR	Dichloroacetic acid	24.2	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

864	HAA-ICR	Monobromoacetic acid	2.7	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
865	HAA-ICR	Monochloroacetic acid	3.8	µg/L	EPA 552.2	1	2.0	8/22/98	8/26/98	8/27/98	0-208-0
866	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	8/22/98	8/26/98	8/27/98	0-208-0
867	HAA-ICR	Trichloroacetic acid	14.9	µg/L	EPA 552.2	1	1.0	8/22/98	8/26/98	8/27/98	0-208-0
868	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	8/21/98		8/22/98	n/a
869	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	8/21/98		8/21/98	n/a
870	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	8/17/98		8/17/98	n/a
871	TEMP	Cl2 Temperature	25.2	ºC	SM 2550 B	1	n/a	8/21/98		8/22/98	n/a
872	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	8/17/98		8/17/98	n/a
873	TIME	Cl2 Incubation Time	24.2	hrs	n/a	1	n/a	8/21/98		8/22/98	n/a
874	TOC-ICR	TOC	5.40	mg/L	SM 5310 C	1	0.50	8/17/98		8/18/98	7-0-377
875	TOC-ICR	TOC (Dupl)	5.40	mg/L	SM 5310 C	1	0.50	8/17/98		8/18/98	7-0-377
			5.40	**mg/L**	**0.0 % RPD**						
876	TOX-ICR	TOX	480	µg Cl-/L	SM 5320 B	1	25	8/22/98		8/24/98	12-0-196
877	TOX-ICR	TOX (Dupl)	410	µg Cl-/L	SM 5320 B	1	25	8/22/98		8/24/98	12-0-196
			445	**µg Cl-/L**	**15.7 % RPD**						
878	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.8	%	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
879	THM-ICR	Bromodichloromethane	92.4	µg/L	EPA 551.1	2	1.0	8/22/98	8/27/98	8/28/98	0-209-0
880	THM-ICR	Bromoform	12.8	µg/L	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
881	THM-ICR	Chloroform	82.5	µg/L	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
882	THM-ICR	Dibromochloromethane	69.1	µg/L	EPA 551.1	1	1.0	8/22/98	8/27/98	8/27/98	0-209-0
883	TURB	Turbidity	0.10	ntu	SM 2130 B	1	0.05	8/17/98		8/17/98	9-0-16
884	UV-ICR	UV	0.118	1/cm	SM 5910 B	1	0.009	8/17/98		8/18/98	8-0-268
885	UV-ICR	UV (Dupl)	0.118	1/cm	SM 5910 B	1	0.009	8/17/98		8/18/98	8-0-268
			0.118	**1/cm**	**0.0 % RPD**						

Sample ID: 131.Inf.B-2 **S&H ID:** 9808-382 **Date Sampled:** 8/19/98 9:12:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
886	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	8/19/98		8/19/98	n/a
887	TEMP	Temperature	18.4	ºC	SM 2550 B	1	n/a	8/19/98		8/19/98	n/a
888	TOC-ICR	TOC	5.37	mg/L	SM 5310 C	1	0.50	8/19/98		8/19/98	7-0-379
889	TOC-ICR	TOC (Dupl)	5.43	mg/L	SM 5310 C	1	0.50	8/19/98		8/19/98	7-0-379
			5.40	**mg/L**	**1.1 % RPD**						

Sample ID: 131.Inf.B-3 **S&H ID:** 9808-383 **Date Sampled:** 8/23/98 12:35:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
890	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	8/23/98		8/23/98	n/a
891	TEMP	Temperature	19.7	ºC	SM 2550 B	1	n/a	8/23/98		8/23/98	n/a

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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Cincinnati, OH 45237

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

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892	TOC-ICR	TOC	5.23	mg/L	SM 5310 C	1	0.50	8/23/98		8/24/98	7-0-382
893	TOC-ICR	TOC (Dupl)	5.13	mg/L	SM 5310 C	1	0.50	8/23/98		8/24/98	7-0-382
			5.18	**mg/L**	**1.9 % RPD**						

Sample ID: 131.Inf.B-4 **S&H ID:** 9808-384 **Date Sampled:** 8/28/98 10:40:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
894	Cl2Dose	Chlorine Dose	5.25	mg/L as Cl2	SM 4500-Cl B	1	n/a	8/31/98		8/31/98	n/a
895	Cl2Res	Chlorine Residual	0.69	mg/L as Cl2	SM 4500-Cl F	1	0.10	8/31/98		9/1/98	n/a
896	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.8	%	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
897	HAA-ICR	2-Bromopropionic acid (Surrogate)	94.4	%	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
898	HAA-ICR	Bromochloroacetic acid	19.7	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
899	HAA-ICR	Bromodichloroacetic acid	14.5	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
900	HAA-ICR	Chlorodibromoacetic acid	7.5	µg/L	EPA 552.2	1	2.0	9/1/98	9/2/98	9/3/98	0-210-0
901	HAA-ICR	Dibromoacetic acid	10.9	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
902	HAA-ICR	Dichloroacetic acid	21.0	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
903	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
904	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	9/1/98	9/2/98	9/3/98	0-210-0
905	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	9/1/98	9/2/98	9/3/98	0-210-0
906	HAA-ICR	Trichloroacetic acid	10.4	µg/L	EPA 552.2	1	1.0	9/1/98	9/2/98	9/3/98	0-210-0
907	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	8/31/98		9/1/98	n/a
908	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	8/31/98		8/31/98	n/a
909	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	8/28/98		8/28/98	n/a
910	TEMP	Cl2 Temperature	25.1	ºC	SM 2550 B	1	n/a	8/31/98		9/1/98	n/a
911	TEMP	Temperature	16.3	ºC	SM 2550 B	1	n/a	8/28/98		8/28/98	n/a
912	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	8/31/98		9/1/98	n/a
913	TOC-ICR	TOC	5.11	mg/L	SM 5310 C	1	0.50	8/28/98		8/28/98	7-0-387
914	TOC-ICR	TOC (Dupl)	5.09	mg/L	SM 5310 C	1	0.50	8/28/98		8/28/98	7-0-387
			5.10	**mg/L**	**0.4 % RPD**						
915	TOX-ICR	TOX	455	µg Cl-/L	SM 5320 B	1	25	9/1/98		9/2/98	12-0-202
916	TOX-ICR	TOX (Dupl)	460	µg Cl-/L	SM 5320 B	1	25	9/1/98		9/2/98	12-0-202
			458	**µg Cl-/L**	**1.1 % RPD**						
917	THM-ICR	1,2,3-Trichloropropane (Surrogate)	90.8	%	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
918	THM-ICR	Bromodichloromethane	77.0	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
919	THM-ICR	Bromoform	12.9	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
920	THM-ICR	Chloroform	67.0	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
921	THM-ICR	Dibromochloromethane	67.9	µg/L	EPA 551.1	1	1.0	9/1/98	9/8/98	9/8/98	0-211-0
922	TURB	Turbidity	0.20	ntu	SM 2130 B	1	0.05	8/28/98		8/28/98	9-0-17
923	UV-ICR	UV	0.119	1/cm	SM 5910 B	1	0.009	8/28/98		8/29/98	8-0-278

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

924	UV-ICR	UV (Dupl)	0.119	1/cm	SM 5910 B	1	0.009	8/28/98		8/29/98	8-0-278
			0.119	**1/cm**	**0.0 % RPD**						

Sample ID: 131.Inf.B-5 **S&H ID:** 9808-385 **Date Sampled:** 8/31/98 12:25:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
925	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	8/31/98		8/31/98	n/a
926	TEMP	Temperature	19.3	ºC	SM 2550 B	1	n/a	8/31/98		8/31/98	n/a
927	TOC-ICR	TOC	5.29	mg/L	SM 5310 C	1	0.50	8/31/98		8/31/98	7-0-390
928	TOC-ICR	TOC (Dupl)	5.32	mg/L	SM 5310 C	1	0.50	8/31/98		8/31/98	7-0-390
			5.30	**mg/L**	**0.6 % RPD**						

Sample ID: 131.Inf.B-6 **S&H ID:** 9808-386 **Date Sampled:** 9/7/98 3:45:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
929	Cl2Dose	Chlorine Dose	5.25	mg/L as Cl2	SM 4500-Cl B	1	n/a	9/8/98		9/8/98	n/a
930	Cl2Res	Chlorine Residual	0.55	mg/L as Cl2	SM 4500-Cl F	1	0.10	9/8/98		9/9/98	n/a
931	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	109.2	%	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
932	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.6	%	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
933	HAA-ICR	Bromochloroacetic acid	18.8	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
934	HAA-ICR	Bromodichloroacetic acid	13.7	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
935	HAA-ICR	Chlorodibromoacetic acid	6.5	µg/L	EPA 552.2	1	2.0	9/9/98	9/21/98	9/21/98	0-217-0
936	HAA-ICR	Dibromoacetic acid	10.4	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
937	HAA-ICR	Dichloroacetic acid	20.9	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
938	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
939	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	9/9/98	9/21/98	9/21/98	0-217-0
940	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	9/9/98	9/21/98	9/21/98	0-217-0
941	HAA-ICR	Trichloroacetic acid	9.2	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
942	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	9/8/98		9/9/98	n/a
943	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	9/8/98		9/8/98	n/a
944	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	9/7/98		9/7/98	n/a
945	TEMP	Cl2 Temperature	26.0	ºC	SM 2550 B	1	n/a	9/8/98		9/9/98	n/a
946	TEMP	Temperature	19.6	ºC	SM 2550 B	1	n/a	9/7/98		9/7/98	n/a
947	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	9/8/98		9/9/98	n/a
948	TOC-ICR	TOC	5.17	mg/L	SM 5310 C	1	0.50	9/7/98		9/7/98	7-0-397
949	TOC-ICR	TOC (Dupl)	5.19	mg/L	SM 5310 C	1	0.50	9/7/98		9/7/98	7-0-397
			5.18	**mg/L**	**0.4 % RPD**						
950	TOX-ICR	TOX	498	µg Cl-/L	SM 5320 B	1	25	9/9/98		9/10/98	12-0-205
951	TOX-ICR	TOX (Dupl)	486	µg Cl-/L	SM 5320 B	1	25	9/9/98		9/10/98	12-0-205
			492	**µg Cl-/L**	**2.4 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

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952	THM-ICR	1,2,3-Trichloropropane (Surrogate)	90.4	%	EPA 551.1	1	1.0	9/9/98	9/14/98	9/14/98	0-215-0
953	THM-ICR	Bromodichloromethane	85.5	µg/L	EPA 551.1	1	1.0	9/9/98	9/14/98	9/14/98	0-215-0
954	THM-ICR	Bromoform	12.5	µg/L	EPA 551.1	1	1.0	9/9/98	9/14/98	9/14/98	0-215-0
955	THM-ICR	Chloroform	74.5	µg/L	EPA 551.1	1	1.0	9/9/98	9/14/98	9/14/98	0-215-0
956	THM-ICR	Dibromochloromethane	69.9	µg/L	EPA 551.1	1	1.0	9/9/98	9/14/98	9/14/98	0-215-0
957	TURB	Turbidity	0.15	ntu	SM 2130 B	1	0.05	9/7/98		9/7/98	9-0-17
958	UV-ICR	UV	0.120	1/cm	SM 5910 B	1	0.009	9/7/98		9/8/98	8-0-287
959	UV-ICR	UV (Dupl)	0.120	1/cm	SM 5910 B	1	0.009	9/7/98		9/8/98	8-0-287
			0.120	**1/cm**	**0.0 % RPD**						

Sample ID: 131.20.Eff-34 **S&H ID:** 9808-498 **Date Sampled:** 9/3/98 5:24:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
960	Cl2Dose	Chlorine Dose	3.58	mg/L as Cl2	SM 4500-Cl B	1	n/a	9/7/98		9/7/98	n/a
961	Cl2Res	Chlorine Residual	0.84	mg/L as Cl2	SM 4500-Cl F	1	0.10	9/7/98		9/8/98	n/a
962	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.0	%	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
963	HAA-ICR	2-Bromopropionic acid (Surrogate)	94.4	%	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
964	HAA-ICR	Bromochloroacetic acid	12.5	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
965	HAA-ICR	Bromodichloroacetic acid	8.6	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
966	HAA-ICR	Chlorodibromoacetic acid	8.3	µg/L	EPA 552.2	1	2.0	9/8/98	9/21/98	9/21/98	0-217-0
967	HAA-ICR	Dibromoacetic acid	15.4	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
968	HAA-ICR	Dichloroacetic acid	6.6	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
969	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
970	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	9/8/98	9/21/98	9/21/98	0-217-0
971	HAA-ICR	Tribromoacetic acid	4.4	µg/L	EPA 552.2	1	4.0	9/8/98	9/21/98	9/21/98	0-217-0
972	HAA-ICR	Trichloroacetic acid	3.3	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
973	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	9/7/98		9/8/98	n/a
974	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	9/7/98		9/7/98	n/a
975	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	9/3/98		9/3/98	n/a
976	TEMP	Cl2 Temperature	26.2	ºC	SM 2550 B	1	n/a	9/7/98		9/8/98	n/a
977	TEMP	Temperature	20.9	ºC	SM 2550 B	1	n/a	9/3/98		9/3/98	n/a
978	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	9/7/98		9/8/98	n/a
979	TOC-ICR	TOC	3.53	mg/L	SM 5310 C	1	0.50	9/3/98		9/3/98	7-0-393
980	TOC-ICR	TOC (Dupl)	3.58	mg/L	SM 5310 C	1	0.50	9/3/98		9/3/98	7-0-393
			3.55	**mg/L**	**1.4 % RPD**						
981	TOX-ICR	TOX	246	µg Cl-/L	SM 5320 B	1	25	9/8/98		9/10/98	12-0-205
982	TOX-ICR	TOX (Dupl)	250	µg Cl-/L	SM 5320 B	1	25	9/8/98		9/10/98	12-0-205
			248	**µg Cl-/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

Mr. Don Thomson
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983	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.8	%	EPA 551.1	1	1.0	9/8/98	9/14/98	9/14/98	0-215-0
984	THM-ICR	Bromodichloromethane	43.1	µg/L	EPA 551.1	1	1.0	9/8/98	9/14/98	9/14/98	0-215-0
985	THM-ICR	Bromoform	32.4	µg/L	EPA 551.1	1	1.0	9/8/98	9/14/98	9/14/98	0-215-0
986	THM-ICR	Chloroform	17.4	µg/L	EPA 551.1	1	1.0	9/8/98	9/14/98	9/14/98	0-215-0
987	THM-ICR	Dibromochloromethane	74.6	µg/L	EPA 551.1	1	1.0	9/8/98	9/14/98	9/14/98	0-215-0
988	UV-ICR	UV	0.057	1/cm	SM 5910 B	1	0.009	9/3/98		9/3/98	8-0-282
989	UV-ICR	UV (Dupl)	0.057	1/cm	SM 5910 B	1	0.009	9/3/98		9/3/98	8-0-282
			0.057	**1/cm**	**0.0 % RPD**						

Sample ID: 131.20.Eff-36 **S&H ID:** 9808-500 **Date Sampled:** 9/6/98 4:07:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
990	Cl2Dose	Chlorine Dose	3.81	mg/L as Cl2	SM 4500-Cl B	1	n/a	9/8/98		9/8/98	n/a
991	Cl2Res	Chlorine Residual	0.85	mg/L as Cl2	SM 4500-Cl F	1	0.10	9/8/98		9/9/98	n/a
992	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	101.6	%	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
993	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.4	%	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
994	HAA-ICR	Bromochloroacetic acid	14.0	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
995	HAA-ICR	Bromodichloroacetic acid	9.5	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
996	HAA-ICR	Chlorodibromoacetic acid	7.9	µg/L	EPA 552.2	1	2.0	9/9/98	9/21/98	9/21/98	0-217-0
997	HAA-ICR	Dibromoacetic acid	14.4	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
998	HAA-ICR	Dichloroacetic acid	9.3	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
999	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
1000	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	9/9/98	9/21/98	9/21/98	0-217-0
1001	HAA-ICR	Tribromoacetic acid	4.1	µg/L	EPA 552.2	1	4.0	9/9/98	9/21/98	9/21/98	0-217-0
1002	HAA-ICR	Trichloroacetic acid	4.3	µg/L	EPA 552.2	1	1.0	9/9/98	9/21/98	9/21/98	0-217-0
1003	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	9/8/98		9/9/98	n/a
1004	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	9/8/98		9/8/98	n/a
1005	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	9/6/98		9/6/98	n/a
1006	TEMP	Cl2 Temperature	26.0	ºC	SM 2550 B	1	n/a	9/8/98		9/9/98	n/a
1007	TEMP	Temperature	22.9	ºC	SM 2550 B	1	n/a	9/6/98		9/6/98	n/a
1008	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	9/8/98		9/9/98	n/a
1009	TOC-ICR	TOC	3.89	mg/L	SM 5310 C	1	0.50	9/6/98		9/7/98	7-0-397
1010	TOC-ICR	TOC (Dupl)	3.90	mg/L	SM 5310 C	1	0.50	9/6/98		9/7/98	7-0-397
			3.90	**mg/L**	**0.3 % RPD**						
1011	TOX-ICR	TOX	297	µg Cl-/L	SM 5320 B	1	25	9/9/98		9/10/98	12-0-205
1012	TOX-ICR	TOX (Dupl)	292	µg Cl-/L	SM 5320 B	1	25	9/9/98		9/10/98	12-0-205
			295	**µg Cl-/L**	**1.7 % RPD**						
1013	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.4	%	EPA 551.1	1	1.0	9/9/98	9/14/98	9/14/98	0-215-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

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1014	THM-ICR	Bromodichloromethane	53.9	µg/L	EPA 551.1	1	1.0	9/9/98	9/14/98	9/14/98	0-215-0
1015	THM-ICR	Bromoform	27.7	µg/L	EPA 551.1	1	1.0	9/9/98	9/14/98	9/14/98	0-215-0
1016	THM-ICR	Chloroform	26.6	µg/L	EPA 551.1	1	1.0	9/9/98	9/14/98	9/14/98	0-215-0
1017	THM-ICR	Dibromochloromethane	79.7	µg/L	EPA 551.1	1	1.0	9/9/98	9/14/98	9/14/98	0-215-0
1018	UV-ICR	UV	0.068	1/cm	SM 5910 B	1	0.009	9/6/98		9/7/98	8-0-286
1019	UV-ICR	UV (Dupl)	0.068	1/cm	SM 5910 B	1	0.009	9/6/98		9/7/98	8-0-286
			0.068	**1/cm**	**0.0 % RPD**						

Sample ID: 131.20.Eff-37 **S&H ID:** 9808-501 **Date Sampled:** 9/9/98 12:49:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1020	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	9/9/98		9/9/98	n/a
1021	TEMP	Temperature	21.4	ºC	SM 2550 B	1	n/a	9/9/98		9/9/98	n/a
1022	TOC-ICR	TOC	3.98	mg/L	SM 5310 C	1	0.50	9/9/98		9/9/98	7-0-399
1023	TOC-ICR	TOC (Dupl)	3.99	mg/L	SM 5310 C	1	0.50	9/9/98		9/9/98	7-0-399
			3.99	**mg/L**	**0.3 % RPD**						
1024	UV-ICR	UV	0.071	1/cm	SM 5910 B	1	0.009	9/9/98		9/10/98	8-0-289
1025	UV-ICR	UV (Dupl)	0.071	1/cm	SM 5910 B	1	0.009	9/9/98		9/10/98	8-0-289
			0.071	**1/cm**	**0.0 % RPD**						

Sample ID: 131.20.Eff-34d **S&H ID:** 9808-507 **Date Sampled:** 9/3/98 5:24:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1026	Cl2Dose	Chlorine Dose	3.58	mg/L as Cl2	SM 4500-Cl B	1	n/a	9/7/98		9/7/98	n/a
1027	Cl2Res	Chlorine Residual	0.93	mg/L as Cl2	SM 4500-Cl F	1	0.10	9/7/98		9/8/98	n/a
1028	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	101.6	%	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
1029	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.8	%	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
1030	HAA-ICR	Bromochloroacetic acid	12.0	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
1031	HAA-ICR	Bromodichloroacetic acid	6.8	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
1032	HAA-ICR	Chlorodibromoacetic acid	6.7	µg/L	EPA 552.2	1	2.0	9/8/98	9/21/98	9/21/98	0-217-0
1033	HAA-ICR	Dibromoacetic acid	13.6	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
1034	HAA-ICR	Dichloroacetic acid	6.3	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
1035	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
1036	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	9/8/98	9/21/98	9/21/98	0-217-0
1037	HAA-ICR	Tribromoacetic acid	4.0	µg/L	EPA 552.2	1	4.0	9/8/98	9/21/98	9/21/98	0-217-0
1038	HAA-ICR	Trichloroacetic acid	2.8	µg/L	EPA 552.2	1	1.0	9/8/98	9/21/98	9/21/98	0-217-0
1039	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	9/7/98		9/8/98	n/a
1040	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	9/7/98		9/7/98	n/a
1041	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	9/3/98		9/3/98	n/a
1042	TEMP	Cl2 Temperature	26.2	ºC	SM 2550 B	1	n/a	9/7/98		9/8/98	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. Don Thomson
Sweetwater Authority

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Study Title: ICR RSSCT #2

1043	TEMP	Temperature	20.9	ºC	SM 2550 B	1	n/a	9/3/98		9/3/98	n/a
1044	TIME	Cl2 Incubation Time	24.1	hrs	n/a	1	n/a	9/7/98		9/8/98	n/a
1045	TOC-ICR	TOC	3.53	mg/L	SM 5310 C	1	0.50	9/3/98		9/3/98	7-0-393
1046	TOC-ICR	TOC (Dupl)	3.61	mg/L	SM 5310 C	1	0.50	9/3/98		9/3/98	7-0-393
			3.57	**mg/L**	**2.2 % RPD**						
1047	TOX-ICR	TOX	254	µg Cl-/L	SM 5320 B	1	25	9/8/98		9/10/98	12-0-205
1048	TOX-ICR	TOX (Dupl)	253	µg Cl-/L	SM 5320 B	1	25	9/8/98		9/10/98	12-0-205
			254	**µg Cl-/L**	**0.4 % RPD**						
1049	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.0	%	EPA 551.1	1	1.0	9/8/98	9/14/98	9/14/98	0-215-0
1050	THM-ICR	Bromodichloromethane	44.1	µg/L	EPA 551.1	1	1.0	9/8/98	9/14/98	9/14/98	0-215-0
1051	THM-ICR	Bromoform	32.9	µg/L	EPA 551.1	1	1.0	9/8/98	9/14/98	9/14/98	0-215-0
1052	THM-ICR	Chloroform	17.4	µg/L	EPA 551.1	1	1.0	9/8/98	9/14/98	9/14/98	0-215-0
1053	THM-ICR	Dibromochloromethane	74.0	µg/L	EPA 551.1	1	1.0	9/8/98	9/14/98	9/14/98	0-215-0
1054	UV-ICR	UV	0.058	1/cm	SM 5910 B	1	0.009	9/3/98		9/3/98	8-0-282
1055	UV-ICR	UV (Dupl)	0.058	1/cm	SM 5910 B	1	0.009	9/3/98		9/3/98	8-0-282
			0.058	**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.
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Quality Control Report

Mr. Don Thomson
Water Quality Superintendent
Sweetwater Authority
505 Garret Avenue
P.O. Box 2328
Chula Vista, CA 91912-2328

Phone: 619-475-9047 Fax: 619-479-6271

Study#: 131
Study Title: ICR RSSCT #2

Analysis: ALK (Alkalinity) **Method:** SM 2320 B

QC Batch ID: 1-0-31

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	100	93	mg/L	93%		08/18/98	9808-379	5		
Matrix Spike (Dupl)	Matrix Spike	100	96	mg/L	96%		08/18/98	9808-379	5		
		100	**94**	**mg/L**	**94%**	**3.2 %**					
Method Blank	Method Blank		ND*	mg/L			08/18/98	9808-393	5		
Standard	Standard	100	100	mg/L	100%		08/18/98	9808-394	5		
Standard (Dupl)	Standard	100	100	mg/L	100%		08/18/98	9808-394	5		
		100	**100**	**mg/L**	**100%**	**0.0 %**					
Matrix Spike	Matrix Spike	100	95	mg/L	95%		08/28/98	9808-380	5		
Matrix Spike (Dupl)	Matrix Spike	100	92	mg/L	92%		08/28/98	9808-380	5		
		100	**94**	**mg/L**	**94%**	**3.2 %**					
Method Blank	Method Blank		ND*	mg/L			08/28/98	9808-489	5		
Standard	Standard	100	97	mg/L	97%		08/28/98	9808-490	5		
Standard (Dupl)	Standard	100	98	mg/L	98%		08/28/98	9808-490	5		
		100	**97**	**mg/L**	**97%**	**1.0 %**					
Matrix Spike	Matrix Spike	100	94	mg/L	94%		09/01/98	9808-588	5		
Matrix Spike (Dupl)	Matrix Spike	100	94	mg/L	94%		09/01/98	9808-588	5		
		100	**94**	**mg/L**	**94%**	**0.0 %**					
Method Blank	Method Blank		ND*	mg/L			09/01/98	9809-1	5		
Standard	Standard	100	99	mg/L	99%		09/01/98	9809-2	5		
Standard (Dupl)	Standard	100	106	mg/L	106%		09/01/98	9809-2	5		
		100	**103**	**mg/L**	**103%**	**6.8 %**					

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-362

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%		9808-21	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.28	mg/L	107%		9808-21	0.5		
		4.00	**4.28**	**mg/L**	**107%**	**0.5 %**				
Method Blank	Method Blank		ND*	mg/L			9808-156	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-156	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.46	mg/L	92%		9807-587	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.48	mg/L	96%		9807-587	0.5	50-150%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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		0.50	**0.47**	**mg/L**	**94%**	**4.3 %**			50-150%	20%
Standard	Standard	4.00	4.04	mg/L	101%		9807-434	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.06	mg/L	101%		9807-434	0.5	90-110%	
		4.00	**4.05**	**mg/L**	**101%**	**0.5 %**			90-110%	10%
Standard	Standard	4.00	4.13	mg/L	103%		9807-434	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.07	mg/L	102%		9807-434	0.5	90-110%	
		4.00	**4.10**	**mg/L**	**102%**	**1.5 %**			90-110%	10%
Standard	Standard	10.00	10.41	mg/L	104%		9808-163	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.48	mg/L	105%		9808-163	0.5	90-110%	
		10.00	**10.44**	**mg/L**	**104%**	**0.7 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-371

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.15	mg/L	104%		9808-121	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.05	mg/L	101%		9808-121	0.5		
		4.00	**4.10**	**mg/L**	**102%**	**2.4 %**				
Method Blank	Method Blank		ND*	mg/L			9808-257	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-257	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.56	mg/L	112%		9807-587	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.56	mg/L	112%		9807-587	0.5	50-150%	
		0.50	**0.56**	**mg/L**	**112%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.14	mg/L	103%		9808-191	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.17	mg/L	104%		9808-191	0.5	90-110%	
		4.00	**4.16**	**mg/L**	**104%**	**0.7 %**			90-110%	10%
Standard	Standard	4.00	4.13	mg/L	103%		9808-191	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.14	mg/L	103%		9808-191	0.5	90-110%	
		4.00	**4.14**	**mg/L**	**103%**	**0.2 %**			90-110%	10%
Standard	Standard	10.00	10.06	mg/L	101%		9808-163	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.09	mg/L	101%		9808-163	0.5	90-110%	
		10.00	**10.07**	**mg/L**	**101%**	**0.3 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-377

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.06	mg/L	101%		9808-339	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.95	mg/L	99%		9808-339	0.5		
		4.00	**4.01**	**mg/L**	**100%**	**2.7 %**				
Method Blank	Method Blank		ND*	mg/L			9808-387	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-387	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%		9807-587	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9807-587	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.18	mg/L	104%		9808-191	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.18	mg/L	104%		9808-191	0.5	90-110%	
		4.00	**4.18**	**mg/L**	**104%**	**0.0 %**			90-110%	10%
Standard	Standard	10.00	9.66	mg/L	97%		9808-163	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.61	mg/L	96%		9808-163	0.5	90-110%	
		10.00	**9.63**	**mg/L**	**96%**	**0.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-379

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%		9808-484	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.13	mg/L	103%		9808-484	0.5		
		4.00	**4.08**	**mg/L**	**102%**	**2.5 %**				
Method Blank	Method Blank		ND*	mg/L			9808-404	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-404	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.55	mg/L	110%		9807-587	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.51	mg/L	102%		9807-587	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**7.5 %**			50-150%	20%
Standard	Standard	4.00	4.10	mg/L	102%		9808-191	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.10	mg/L	102%		9808-191	0.5	90-110%	
		4.00	**4.10**	**mg/L**	**102%**	**0.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-380

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.04	mg/L	101%		9808-304	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.01	mg/L	100%		9808-304	0.5		
		4.00	**4.02**	**mg/L**	**100%**	**0.7 %**				
Method Blank	Method Blank		ND*	mg/L			9808-421	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-421	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.50	mg/L	100%		9807-587	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.50	mg/L	100%		9807-587	0.5	50-150%	
		0.50	**0.50**	**mg/L**	**100%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.91	mg/L	98%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.93	mg/L	98%		9808-409	0.5	90-110%	
		4.00	**3.92**	**mg/L**	**98%**	**0.5 %**			90-110%	10%
Standard	Standard	10.00	9.91	mg/L	99%		9808-163	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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Standard (Dupl)	Standard	10.00	9.97	mg/L	100%		9808-163	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: 7-0-381

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.28	mg/L	107%		9808-348	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.30	mg/L	108%		9808-348	0.5		
		4.00	**4.29**	**mg/L**	**107%**	**0.5 %**				
Method Blank	Method Blank		ND*	mg/L			9808-431	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-431	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9807-587	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9807-587	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.97	mg/L	99%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.04	mg/L	101%		9808-409	0.5	90-110%	
		4.00	**4.00**	**mg/L**	**100%**	**1.8 %**			90-110%	10%
Standard	Standard	10.00	10.07	mg/L	101%		9808-163	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.09	mg/L	101%		9808-163	0.5	90-110%	
		10.00	**10.08**	**mg/L**	**101%**	**0.2 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-382

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%		9808-372	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.93	mg/L	98%		9808-372	0.5		
		4.00	**3.92**	**mg/L**	**98%**	**0.3 %**				
Method Blank	Method Blank		ND*	mg/L			9808-432	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-432	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9807-587	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.51	mg/L	102%		9807-587	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%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.98	mg/L	100%		9808-409	0.5	90-110%	
		4.00	**3.96**	**mg/L**	**99%**	**1.0 %**			90-110%	10%
Standard	Standard	10.00	9.61	mg/L	96%		9808-163	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.80	mg/L	98%		9808-163	0.5	90-110%	
		10.00	**9.70**	**mg/L**	**97%**	**2.0 %**			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: 7-0-383

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.06	mg/L	101%		9808-354	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.12	mg/L	103%		9808-354	0.5		
		4.00	**4.09**	**mg/L**	**102%**	**1.5 %**				
Method Blank	Method Blank		ND*	mg/L			9808-435	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-435	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9807-587	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9807-587	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%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.00	mg/L	100%		9808-409	0.5	90-110%	
		4.00	**3.97**	**mg/L**	**99%**	**1.3 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-384

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%		9808-359	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.99	mg/L	100%		9808-359	0.5		
		4.00	**3.99**	**mg/L**	**100%**	**0.5 %**				
Method Blank	Method Blank		ND*	mg/L			9808-448	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-448	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9807-587	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9807-587	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.97	mg/L	99%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.99	mg/L	100%		9808-409	0.5	90-110%	
		4.00	**3.98**	**mg/L**	**100%**	**0.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-385

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.15	mg/L	104%		9808-361	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.01	mg/L	100%		9808-361	0.5		
		4.00	**4.08**	**mg/L**	**102%**	**3.4 %**				
Method Blank	Method Blank		ND*	mg/L			9808-465	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-465	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	0.51	mg/L	102%		9807-587	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9807-587	0.5	50-150%	
		0.50	**0.51**	**mg/L**	**102%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	4.05	mg/L	101%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.98	mg/L	100%		9808-409	0.5	90-110%	
		4.00	**4.02**	**mg/L**	**100%**	**1.7 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-386

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%		9808-363	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.00	mg/L	100%		9808-363	0.5		
		4.00	**4.06**	**mg/L**	**101%**	**3.0 %**				
Method Blank	Method Blank		ND*	mg/L			9808-474	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-474	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9807-587	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9807-587	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.00	mg/L	100%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.00	mg/L	100%		9808-409	0.5	90-110%	
		4.00	**4.00**	**mg/L**	**100%**	**0.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-387

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%		9808-364	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.81	mg/L	95%		9808-364	0.5		
		4.00	**3.87**	**mg/L**	**97%**	**3.4 %**				
Method Blank	Method Blank		ND*	mg/L			9808-483	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-483	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.51	mg/L	102%		9808-425	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9808-425	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**3.8 %**			50-150%	20%
Standard	Standard	4.00	3.94	mg/L	98%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.04	mg/L	101%		9808-409	0.5	90-110%	
		4.00	**3.99**	**mg/L**	**100%**	**2.5 %**			90-110%	10%
Standard	Standard	10.00	9.35	mg/L	93%		9808-163	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.54	mg/L	95%		9808-163	0.5	90-110%	
		10.00	**9.45**	**mg/L**	**94%**	**2.0 %**			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: 7-0-388

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.09	mg/L	102%		9808-365	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.09	mg/L	102%		9808-365	0.5		
		4.00	**4.09**	**mg/L**	**102%**	**0.0 %**				
Method Blank	Method Blank		ND*	mg/L			9808-492	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-492	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9808-425	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9808-425	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.98	mg/L	100%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.03	mg/L	101%		9808-409	0.5	90-110%	
		4.00	**4.01**	**mg/L**	**100%**	**1.2 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-389

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	3.71	mg/L	93%		9808-367	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.92	mg/L	98%		9808-367	0.5		
		4.00	**3.82**	**mg/L**	**95%**	**5.8 %**				
Method Blank	Method Blank		ND*	mg/L			9808-494	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-494	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9808-425	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9808-425	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.02	mg/L	100%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.97	mg/L	99%		9808-409	0.5	90-110%	
		4.00	**3.99**	**mg/L**	**100%**	**1.3 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-390

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	3.64	mg/L	91%		9808-495	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.72	mg/L	93%		9808-495	0.5		
		4.00	**3.68**	**mg/L**	**92%**	**2.2 %**				
Method Blank	Method Blank		ND*	mg/L			9808-597	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9808-597	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	0.51	mg/L	102%		9808-425	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9808-425	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%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.07	mg/L	102%		9808-409	0.5	90-110%	
		4.00	**4.04**	**mg/L**	**101%**	**1.7 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-393

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%		9808-517	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.01	mg/L	100%		9808-517	0.5		
		4.00	**3.98**	**mg/L**	**100%**	**1.8 %**				
Method Blank	Method Blank		ND*	mg/L			9809-28	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9809-28	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.49	mg/L	98%		9808-425	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.50	mg/L	100%		9808-425	0.5	50-150%	
		0.50	**0.50**	**mg/L**	**100%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	4.01	mg/L	100%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.04	mg/L	101%		9808-409	0.5	90-110%	
		4.00	**4.03**	**mg/L**	**101%**	**0.7 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-397

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%		9808-565	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.93	mg/L	98%		9808-565	0.5		
		4.00	**3.94**	**mg/L**	**98%**	**0.8 %**				
Method Blank	Method Blank		ND*	mg/L			9809-40	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9809-40	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.51	mg/L	102%		9808-425	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.50	mg/L	100%		9808-425	0.5	50-150%	
		0.50	**0.50**	**mg/L**	**100%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	3.83	mg/L	96%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.89	mg/L	97%		9808-409	0.5	90-110%	
		4.00	**3.86**	**mg/L**	**96%**	**1.6 %**			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: 7-0-399

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%		9809-51	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.97	mg/L	99%		9809-51	0.5		
		4.00	**3.99**	**mg/L**	**100%**	**1.0 %**				
Method Blank	Method Blank		ND*	mg/L			9809-139	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9809-139	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.50	mg/L	100%		9808-425	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.50	mg/L	100%		9808-425	0.5	50-150%	
		0.50	**0.50**	**mg/L**	**100%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.91	mg/L	98%		9808-409	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.01	mg/L	100%		9808-409	0.5	90-110%	
		4.00	**3.96**	**mg/L**	**99%**	**2.5 %**			90-110%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-268

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9808-392	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-392	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-392	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-392	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9808-173	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-173	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%		9808-174	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9808-174	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: 8-0-269

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9808-402	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-402	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-402	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-402	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%		9808-173	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-173	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%		9808-174	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.087	1/cm	99%		9808-174	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: 8-0-270

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9808-415	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-415	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-415	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-415	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9808-173	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-173	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%		9808-174	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.088	1/cm	100%		9808-174	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: 8-0-271

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9808-422	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-422	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-422	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-422	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.091	1/cm	103%		9808-424	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.091	1/cm	103%		9808-424	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: 8-0-272

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9808-430	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-430	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-430	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-430	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.090	1/cm	102%		9808-424	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.090	1/cm	102%		9808-424	0.009	85-115%	
		0.088	**0.090**	**1/cm**	**102%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-273

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9808-433	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-433	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-433	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-433	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.090	1/cm	102%		9808-424	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.090	1/cm	102%		9808-424	0.009	85-115%	
		0.088	**0.090**	**1/cm**	**102%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-274

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9808-433	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-433	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-433	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-433	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%		9808-423	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.090	1/cm	102%		9808-424	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.090	1/cm	102%		9808-424	0.009	85-115%	
		0.088	**0.090**	**1/cm**	**102%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-275

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9808-434	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-434	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-434	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-434	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.090	1/cm	102%		9808-424	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.090	1/cm	102%		9808-424	0.009	85-115%	
		0.088	**0.090**	**1/cm**	**102%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-276

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9808-447	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-447	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-447	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-447	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.091	1/cm	103%		9808-424	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.091	1/cm	103%		9808-424	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: 8-0-277

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9808-475	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-475	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-475	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-475	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.092	1/cm	105%		9808-424	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.092	1/cm	105%		9808-424	0.009	85-115%	
		0.088	**0.092**	**1/cm**	**105%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-278

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9808-493	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-493	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-493	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-493	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.093	1/cm	106%		9808-424	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.093	1/cm	106%		9808-424	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: 8-0-279

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9808-596	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-596	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9808-596	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9808-596	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%		9808-423	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9808-423	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.091	1/cm	103%		9808-424	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.091	1/cm	103%		9808-424	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: 8-0-282

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9809-25	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9809-25	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9809-25	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9809-25	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9809-7	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9809-7	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.098	1/cm	111%		9809-8	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.098	1/cm	111%		9809-8	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: 8-0-286

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9809-39	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9809-39	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9809-39	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9809-39	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9809-7	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9809-7	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.096	1/cm	109%		9809-8	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.096	1/cm	109%		9809-8	0.009	85-115%	
		0.088	**0.096**	**1/cm**	**109%**	**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: 8-0-287

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9809-45	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9809-45	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9809-45	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9809-45	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.009	1/cm	100%		9809-7	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.009	1/cm	100%		9809-7	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%		9809-8	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.097	1/cm	110%		9809-8	0.009	85-115%	
		0.088	**0.097**	**1/cm**	**110%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-289

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9809-158	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9809-158	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9809-158	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9809-158	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9809-7	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9809-7	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.097	1/cm	110%		9809-8	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.098	1/cm	111%		9809-8	0.009	85-115%	
		0.088	**0.098**	**1/cm**	**111%**	**1.0 %**			85-115%	10%

Analysis: TURB (Turbidity) **Method:** SM 2130 B

QC Batch ID: 9-0-16

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Standard	Standard	5.41	5.49	ntu	101%		08/14/98	9807-108	0.05		
Standard	Standard	5.41	5.52	ntu	102%		08/14/98	9807-108	0.05		
Standard	Standard	5.41	5.50	ntu	102%		08/14/98	9807-108	0.05		
Standard	Standard	5.41	5.48	ntu	101%		08/14/98	9807-108	0.05		
Standard	Standard	5.41	5.47	ntu	101%		08/16/98	9807-108	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	5.41	5.47	ntu	101%		08/16/98	9807-108	0.05		
Standard	Standard	5.41	5.58	ntu	103%		08/16/98	9807-108	0.05		
Standard	Standard	5.41	5.48	ntu	101%		08/16/98	9807-108	0.05		
Standard	Standard	5.41	5.47	ntu	101%		08/17/98	9807-108	0.05		
Standard	Standard	5.41	5.49	ntu	101%		08/17/98	9807-108	0.05		

Analysis: TURB (Turbidity) **Method:** SM 2130 B

QC Batch ID: 9-0-17

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Standard	Standard	5.41	5.49	ntu	101%		08/28/98	9807-108	0.05		
Standard	Standard	5.41	5.48	ntu	101%		08/31/98	9807-108	0.05		
Standard	Standard	5.41	5.48	ntu	101%		09/07/98	9807-108	0.05		
Standard	Standard	5.41	5.48	ntu	101%		09/08/98	9807-108	0.05		
Standard	Standard	5.41	5.51	ntu	102%		09/14/98	9807-108	0.05		
Standard	Standard	5.41	5.51	ntu	102%		09/17/98	9807-108	0.05		
Standard	Standard	5.41	5.52	ntu	102%		09/20/98	9807-108	0.05		
Standard	Standard	5.41	5.52	ntu	102%		09/25/98	9807-108	0.05		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-196

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	200	185	µg Cl-/L	93%		9808-252	25		
Matrix Spike (Dupl)	Matrix Spike	200	185	µg Cl-/L	93%		9808-252	25		
		200	**185**	**µg Cl-/L**	**93%**	**0.5 %**				
Standard - TCP Aqueous	Standard	25	23	µg Cl-/L	92%		9808-445	25	75-125%	
Standard - TCP Aqueous	Standard	200	193	µg Cl-/L	96%		9808-444	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9808-446	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-197

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Standard - TCP Aqueous	Standard	25	21	µg Cl-/L	84%		9808-451	25	75-125%	
Standard - TCP Aqueous	Standard	200	195	µg Cl-/L	97%		9808-450	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9808-452	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: 12-0-199

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	200	µg Cl-/L	100%		9808-330	25		
Matrix Spike (Dupl)	Matrix Spike	200	197	µg Cl-/L	98%		9808-330	25		
		200	**198**	**µg Cl-/L**	**99%**	**1.5 %**				
Standard - TCP Aqueous	Standard	25	25	µg Cl-/L	100%		9808-487	25	75-125%	
Standard - TCP Aqueous	Standard	200	197	µg Cl-/L	98%		9808-486	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9808-488	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-200

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	25	µg Cl-/L	100%		9808-600	25	75-125%	
Standard - TCP Aqueous	Standard	200	192	µg Cl-/L	96%		9808-599	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9808-601	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-201

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%		9809-12	25	75-125%	
Standard - TCP Aqueous	Standard	200	228	µg Cl-/L	114%		9809-11	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9809-13	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-202

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	20	µg Cl-/L	80%		9809-17	25	75-125%	
Standard - TCP Aqueous	Standard	200	198	µg Cl-/L	99%		9809-16	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9809-18	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-205

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	197	µg Cl-/L	98%		9808-507	25		
Matrix Spike (Dupl)	Matrix Spike	200	192	µg Cl-/L	96%		9808-507	25		
		200	**194**	**µg Cl-/L**	**97%**	**3.1 %**				

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Standard - TCP Aqueous	Standard	25	23	µg Cl-/L	92%		9809-154	25	75-125%
Standard - TCP Aqueous	Standard	200	201	µg Cl-/L	100%		9809-153	25	85-115%
System Blank	Blank		ND*	µg Cl-/L			9809-155	25	

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-209-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Bromodichloromethane	Duplicate	35.6	33.1	µg/L		7.3%	9808-252	1		
Bromodichloromethane	Matrix Spike	40.0	40.6	µg/L	102%		9808-303	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9808-476	1		
Bromodichloromethane	Secondary Source Std	8.0	9.1	µg/L	114%		9808-477	1	70-130%	
Bromodichloromethane	Standard	20.0	21.3	µg/L	106%		9808-478	1	80-120%	
Bromodichloromethane	Standard	20.0	21.7	µg/L	109%		9808-478	1	80-120%	
Bromodichloromethane	Standard	40.0	39.9	µg/L	100%		9808-479	1	80-120%	
Bromodichloromethane	Standard	40.0	40.4	µg/L	101%		9808-479	1	80-120%	
Bromoform	Duplicate	5.4	5.0	µg/L		7.7%	9808-252	1		
Bromoform	Matrix Spike	40.0	40.5	µg/L	101%		9808-303	1		
Bromoform	Method Blank		ND*	µg/L			9808-476	1		
Bromoform	Secondary Source Std	8.0	7.2	µg/L	90%		9808-477	1	70-130%	
Bromoform	Standard	20.0	19.0	µg/L	95%		9808-478	1	80-120%	
Bromoform	Standard	20.0	19.4	µg/L	97%		9808-478	1	80-120%	
Bromoform	Standard	40.0	38.8	µg/L	97%		9808-479	1	80-120%	
Bromoform	Standard	40.0	41.7	µg/L	104%		9808-479	1	80-120%	
Chloroform	Duplicate	36.8	34.0	µg/L		7.9%	9808-252	1		
Chloroform	Matrix Spike	40.0	40.5	µg/L	101%		9808-303	1		
Chloroform	Method Blank		ND*	µg/L			9808-476	1		
Chloroform	Secondary Source Std	8.0	9.0	µg/L	113%		9808-477	1	70-130%	
Chloroform	Standard	20.0	20.6	µg/L	103%		9808-478	1	80-120%	
Chloroform	Standard	20.0	20.9	µg/L	104%		9808-478	1	80-120%	
Chloroform	Standard	40.0	40.2	µg/L	101%		9808-479	1	80-120%	
Chloroform	Standard	40.0	40.6	µg/L	102%		9808-479	1	80-120%	
Dibromochloromethane	Duplicate	28.9	26.9	µg/L		7.2%	9808-252	1		
Dibromochloromethane	Matrix Spike	40.0	40.6	µg/L	102%		9808-303	1		
Dibromochloromethane	Method Blank		ND*	µg/L			9808-476	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	Secondary Source Std	8.0	8.8	µg/L	110%		9808-477	1	70-130%
Dibromochloromethane	Standard	20.0	21.6	µg/L	108%		9808-478	1	80-120%
Dibromochloromethane	Standard	20.0	22.1	µg/L	111%		9808-478	1	80-120%
Dibromochloromethane	Standard	40.0	40.5	µg/L	101%		9808-479	1	80-120%
Dibromochloromethane	Standard	40.0	41.0	µg/L	102%		9808-479	1	80-120%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-211-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromodichloromethane	Duplicate	50.6	49.6	µg/L		2.0%	9808-324	1		
Bromodichloromethane	Matrix Spike	40.0	35.5	µg/L	89%		9808-512	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9809-46	1		
Bromodichloromethane	Secondary Source Std	20.0	21.4	µg/L	107%		9809-47	1	70-130%	
Bromodichloromethane	Standard	20.0	21.0	µg/L	105%		9809-48	1	80-120%	
Bromodichloromethane	Standard	20.0	21.6	µg/L	108%		9809-48	1	80-120%	
Bromodichloromethane	Standard	40.0	39.2	µg/L	98%		9809-49	1	80-120%	
Bromoform	Duplicate	26.3	25.3	µg/L		3.9%	9808-324	1		
Bromoform	Matrix Spike	40.0	33.2	µg/L	83%		9808-512	1		
Bromoform	Method Blank		ND*	µg/L			9809-46	1		
Bromoform	Secondary Source Std	20.0	19.5	µg/L	97%		9809-47	1	70-130%	
Bromoform	Standard	20.0	20.9	µg/L	104%		9809-48	1	80-120%	
Bromoform	Standard	20.0	20.1	µg/L	101%		9809-48	1	80-120%	
Bromoform	Standard	40.0	37.1	µg/L	93%		9809-49	1	80-120%	
Chloroform	Duplicate	26.3	25.7	µg/L		2.3%	9808-324	1		
Chloroform	Matrix Spike	40.0	36.1	µg/L	90%		9808-512	1		
Chloroform	Method Blank		ND*	µg/L			9809-46	1		
Chloroform	Secondary Source Std	20.0	22.3	µg/L	112%		9809-47	1	70-130%	
Chloroform	Standard	20.0	19.9	µg/L	99%		9809-48	1	80-120%	
Chloroform	Standard	20.0	20.4	µg/L	102%		9809-48	1	80-120%	
Chloroform	Standard	40.0	39.8	µg/L	99%		9809-49	1	80-120%	
Dibromochloromethane	Duplicate	65.6	66.1	µg/L		0.8%	9808-324	1		
Dibromochloromethane	Matrix Spike	40.0	37.6	µg/L	94%		9808-512	1		
Dibromochloromethane	Method Blank		ND*	µg/L			9809-46	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	Secondary Source Std	20.0	20.1	µg/L	101%		9809-47	1	70-130%
Dibromochloromethane	Standard	20.0	21.0	µg/L	105%		9809-48	1	80-120%
Dibromochloromethane	Standard	20.0	22.1	µg/L	111%		9809-48	1	80-120%
Dibromochloromethane	Standard	40.0	39.9	µg/L	100%		9809-49	1	80-120%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-215-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromodichloromethane	Duplicate	22.1	22.7	µg/L		2.7%	9808-525	1		
Bromodichloromethane	Matrix Spike	40.0	40.3	µg/L	101%		9809-157	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9809-176	1		
Bromodichloromethane	Secondary Source Std	20.0	20.1	µg/L	101%		9809-177	1	70-130%	
Bromodichloromethane	Standard	20.0	21.0	µg/L	105%		9809-178	1	80-120%	
Bromodichloromethane	Standard	20.0	21.7	µg/L	109%		9809-178	1	80-120%	
Bromodichloromethane	Standard	40.0	39.5	µg/L	99%		9809-179	1	80-120%	
Bromoform	Duplicate	3.5	3.5	µg/L		0.0%	9808-525	1		
Bromoform	Matrix Spike	40.0	43.4	µg/L	109%		9809-157	1		
Bromoform	Method Blank		ND*	µg/L			9809-176	1		
Bromoform	Secondary Source Std	20.0	17.7	µg/L	89%		9809-177	1	70-130%	
Bromoform	Standard	20.0	20.3	µg/L	102%		9809-178	1	80-120%	
Bromoform	Standard	20.0	21.7	µg/L	109%		9809-178	1	80-120%	
Bromoform	Standard	40.0	41.2	µg/L	103%		9809-179	1	80-120%	
Chloroform	Duplicate	14.9	15.4	µg/L		3.3%	9808-525	1		
Chloroform	Matrix Spike	40.0	42.7	µg/L	107%		9809-157	1		
Chloroform	Method Blank		ND*	µg/L			9809-176	1		
Chloroform	Secondary Source Std	20.0	20.8	µg/L	104%		9809-177	1	70-130%	
Chloroform	Standard	20.0	20.7	µg/L	103%		9809-178	1	80-120%	
Chloroform	Standard	20.0	21.4	µg/L	107%		9809-178	1	80-120%	
Chloroform	Standard	40.0	39.5	µg/L	99%		9809-179	1	80-120%	
Dibromochloromethane	Duplicate	18.6	19.1	µg/L		2.7%	9808-525	1		
Dibromochloromethane	Matrix Spike	40.0	40.8	µg/L	102%		9809-157	1		
Dibromochloromethane	Method Blank		ND*	µg/L			9809-176	1		
Dibromochloromethane	Secondary Source Std	20.0	18.3	µg/L	92%		9809-177	1	70-130%	

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	Standard	20.0	20.6	µg/L	103%		9809-178	1	80-120%
Dibromochloromethane	Standard	20.0	21.4	µg/L	107%		9809-178	1	80-120%
Dibromochloromethane	Standard	40.0	40.6	µg/L	102%		9809-179	1	80-120%

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-208-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Bromochloroacetic acid	Duplicate	3.7	3.8	µg/L		2.7%	9808-216	1		
Bromochloroacetic acid	Matrix Spike	40.0	38.4	µg/L	96%		9808-299	1		
Bromochloroacetic acid	Method Blank		ND*	µg/L			9808-466	1		
Bromochloroacetic acid	Secondary Source Std	20.0	16.7	µg/L	83%		9808-467	1	70-130%	
Bromochloroacetic acid	Standard	20.0	20.1	µg/L	101%		9808-468	1	80-120%	
Bromochloroacetic acid	Standard	20.0	19.9	µg/L	99%		9808-468	1	80-120%	
Bromochloroacetic acid	Standard	40.0	40.1	µg/L	100%		9808-469	1	80-120%	
Bromodichloroacetic acid	Duplicate	1.1	1.2	µg/L		8.7%	9808-216	1		
Bromodichloroacetic acid	Matrix Spike	40.0	39.6	µg/L	99%		9808-299	1		
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9808-466	1		
Bromodichloroacetic acid	Secondary Source Std		ND	µg/L			9808-467	1	70-130%	
Bromodichloroacetic acid	Standard	20.0	20.0	µg/L	100%		9808-468	1	80-120%	
Bromodichloroacetic acid	Standard	20.0	22.0	µg/L	110%		9808-468	1	80-120%	
Bromodichloroacetic acid	Standard	40.0	41.5	µg/L	104%		9808-469	1	80-120%	
Chlorodibromoacetic acid	Duplicate	ND	ND	µg/L		NA	9808-216	2		
Chlorodibromoacetic acid	Matrix Spike	40.0	38.2	µg/L	96%		9808-299	2		
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9808-466	2		
Chlorodibromoacetic acid	Secondary Source Std		ND	µg/L			9808-467	2	70-130%	
Chlorodibromoacetic acid	Standard	20.0	19.8	µg/L	99%		9808-468	2	80-120%	
Chlorodibromoacetic acid	Standard	20.0	22.7	µg/L	114%		9808-468	2	80-120%	
Chlorodibromoacetic acid	Standard	40.0	42.5	µg/L	106%		9808-469	2	80-120%	
Dibromoacetic acid	Duplicate	4.8	4.9	µg/L		2.1%	9808-216	1		
Dibromoacetic acid	Matrix Spike	40.0	38.1	µg/L	95%		9808-299	1		
Dibromoacetic acid	Method Blank		ND*	µg/L			9808-466	1		
Dibromoacetic acid	Secondary Source Std	20.0	16.4	µg/L	82%		9808-467	1	70-130%	
Dibromoacetic acid	Standard	20.0	20.2	µg/L	101%		9808-468	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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Dibromoacetic acid	Standard	20.0	19.9	µg/L	99%		9808-468	1	80-120%
Dibromoacetic acid	Standard	40.0	39.1	µg/L	98%		9808-469	1	80-120%
Dichloroacetic acid	Duplicate	5.8	6.0	µg/L		3.4%	9808-216	1	
Dichloroacetic acid	Matrix Spike	40.0	39.5	µg/L	99%		9808-299	1	
Dichloroacetic acid	Method Blank		ND*	µg/L			9808-466	1	
Dichloroacetic acid	Secondary Source Std	20.0	17.9	µg/L	89%		9808-467	1	70-130%
Dichloroacetic acid	Standard	20.0	19.9	µg/L	99%		9808-468	1	80-120%
Dichloroacetic acid	Standard	20.0	19.2	µg/L	96%		9808-468	1	80-120%
Dichloroacetic acid	Standard	40.0	39.7	µg/L	99%		9808-469	1	80-120%
Monobromoacetic acid	Duplicate	ND	ND	µg/L		NA	9808-216	1	
Monobromoacetic acid	Matrix Spike	40.0	44.3	µg/L	111%		9808-299	1	
Monobromoacetic acid	Method Blank		ND*	µg/L			9808-466	1	
Monobromoacetic acid	Secondary Source Std	20.0	21.1	µg/L	106%		9808-467	1	70-130%
Monobromoacetic acid	Standard	20.0	20.8	µg/L	104%		9808-468	1	80-120%
Monobromoacetic acid	Standard	20.0	20.1	µg/L	101%		9808-468	1	80-120%
Monobromoacetic acid	Standard	40.0	39.7	µg/L	99%		9808-469	1	80-120%
Monochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9808-216	2	
Monochloroacetic acid	Matrix Spike	40.0	44.5	µg/L	111%		9808-299	2	
Monochloroacetic acid	Method Blank		ND*	µg/L			9808-466	2	
Monochloroacetic acid	Secondary Source Std	20.0	22.2	µg/L	111%		9808-467	2	70-130%
Monochloroacetic acid	Standard	20.0	22.4	µg/L	112%		9808-468	2	80-120%
Monochloroacetic acid	Standard	20.0	20.3	µg/L	102%		9808-468	2	80-120%
Monochloroacetic acid	Standard	40.0	39.1	µg/L	98%		9808-469	2	80-120%
Tribromoacetic acid	Duplicate	ND	ND	µg/L		NA	9808-216	4	
Tribromoacetic acid	Matrix Spike	40.0	36.9	µg/L	92%		9808-299	4	
Tribromoacetic acid	Method Blank		ND*	µg/L			9808-466	4	
Tribromoacetic acid	Secondary Source Std		ND	µg/L			9808-467	4	70-130%
Tribromoacetic acid	Standard	20.0	19.4	µg/L	97%		9808-468	4	80-120%
Tribromoacetic acid	Standard	20.0	23.4	µg/L	117%		9808-468	4	80-120%
Tribromoacetic acid	Standard	40.0	41.2	µg/L	103%		9808-469	4	80-120%
Trichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9808-216	1	
Trichloroacetic acid	Matrix Spike	40.0	37.8	µg/L	94%		9808-299	1	
Trichloroacetic acid	Method Blank		ND*	µg/L			9808-466	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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Trichloroacetic acid	Secondary Source Std	20.0	15.7	µg/L	78%		9808-467	1	70-130%
Trichloroacetic acid	Standard	20.0	20.0	µg/L	100%		9808-468	1	80-120%
Trichloroacetic acid	Standard	20.0	19.8	µg/L	99%		9808-468	1	80-120%
Trichloroacetic acid	Standard	40.0	40.5	µg/L	101%		9808-469	1	80-120%

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-210-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromochloroacetic acid	Duplicate	9.1	10.5	µg/L		14.3%	9808-316	1		
Bromochloroacetic acid	Matrix Spike	40.0	33.1	µg/L	83%		9808-358	1		
Bromochloroacetic acid	Method Blank		ND*	µg/L			9809-21	1		
Bromochloroacetic acid	Secondary Source Std	20.0	19.6	µg/L	98%		9809-22	1	70-130%	
Bromochloroacetic acid	Standard	20.0	18.5	µg/L	93%		9809-23	1	80-120%	
Bromochloroacetic acid	Standard	20.0	17.5	µg/L	88%		9809-23	1	80-120%	
Bromochloroacetic acid	Standard	40.0	41.7	µg/L	104%		9809-24	1	80-120%	
Bromodichloroacetic acid	Duplicate	4.9	5.2	µg/L		5.9%	9808-316	1		
Bromodichloroacetic acid	Matrix Spike	40.0	29.8	µg/L	75%		9808-358	1		
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9809-21	1		
Bromodichloroacetic acid	Secondary Source Std		ND	µg/L			9809-22	1	70-130%	
Bromodichloroacetic acid	Standard	20.0	16.7	µg/L	83%		9809-23	1	80-120%	
Bromodichloroacetic acid	Standard	20.0	17.5	µg/L	88%		9809-23	1	80-120%	
Bromodichloroacetic acid	Standard	40.0	46.1	µg/L	115%		9809-24	1	80-120%	
Chlorodibromoacetic acid	Duplicate	6.3	6.0	µg/L		4.9%	9808-316	2		
Chlorodibromoacetic acid	Matrix Spike	40.0	28.2	µg/L	70%		9808-358	2		
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9809-21	2		
Chlorodibromoacetic acid	Secondary Source Std		ND	µg/L			9809-22	2	70-130%	
Chlorodibromoacetic acid	Standard	20.0	16.9	µg/L	84%		9809-23	2	80-120%	
Chlorodibromoacetic acid	Standard	20.0	18.8	µg/L	94%		9809-23	2	80-120%	
Chlorodibromoacetic acid	Standard	40.0	46.2	µg/L	116%		9809-24	2	80-120%	
Dibromoacetic acid	Duplicate	12.3	13.9	µg/L		12.2%	9808-316	1		
Dibromoacetic acid	Matrix Spike	40.0	31.8	µg/L	80%		9808-358	1		
Dibromoacetic acid	Method Blank		ND*	µg/L			9809-21	1		
Dibromoacetic acid	Secondary Source Std	20.0	19.7	µg/L	98%		9809-22	1	70-130%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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Dibromoacetic acid	Standard	20.0	17.5	µg/L	88%		9809-23	1	80-120%
Dibromoacetic acid	Standard	20.0	16.8	µg/L	84%		9809-23	1	80-120%
Dibromoacetic acid	Standard	40.0	42.8	µg/L	107%		9809-24	1	80-120%
Dichloroacetic acid	Duplicate	4.5	4.9	µg/L		8.5%	9808-316	1	
Dichloroacetic acid	Matrix Spike	40.0	35.4	µg/L	89%		9808-358	1	
Dichloroacetic acid	Method Blank		ND*	µg/L			9809-21	1	
Dichloroacetic acid	Secondary Source Std	20.0	20.9	µg/L	104%		9809-22	1	70-130%
Dichloroacetic acid	Standard	20.0	19.4	µg/L	97%		9809-23	1	80-120%
Dichloroacetic acid	Standard	20.0	18.5	µg/L	93%		9809-23	1	80-120%
Dichloroacetic acid	Standard	40.0	39.7	µg/L	99%		9809-24	1	80-120%
Monobromoacetic acid	Duplicate	ND	ND	µg/L		NA	9808-316	1	
Monobromoacetic acid	Matrix Spike	40.0	41.6	µg/L	104%		9808-358	1	
Monobromoacetic acid	Method Blank		ND*	µg/L			9809-21	1	
Monobromoacetic acid	Secondary Source Std	20.0	22.0	µg/L	110%		9809-22	1	70-130%
Monobromoacetic acid	Standard	20.0	20.6	µg/L	103%		9809-23	1	80-120%
Monobromoacetic acid	Standard	20.0	19.4	µg/L	97%		9809-23	1	80-120%
Monobromoacetic acid	Standard	40.0	39.7	µg/L	99%		9809-24	1	80-120%
Monochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9808-316	2	
Monochloroacetic acid	Matrix Spike	40.0	43.8	µg/L	110%		9808-358	2	
Monochloroacetic acid	Method Blank		ND*	µg/L			9809-21	2	
Monochloroacetic acid	Secondary Source Std	20.0	20.3	µg/L	102%		9809-22	2	70-130%
Monochloroacetic acid	Standard	20.0	19.1	µg/L	96%		9809-23	2	80-120%
Monochloroacetic acid	Standard	20.0	19.9	µg/L	99%		9809-23	2	80-120%
Monochloroacetic acid	Standard	40.0	42.4	µg/L	106%		9809-24	2	80-120%
Tribromoacetic acid	Duplicate	ND	ND	µg/L		NA	9808-316	4	
Tribromoacetic acid	Matrix Spike	40.0	30.0	µg/L	75%		9808-358	4	
Tribromoacetic acid	Method Blank		ND*	µg/L			9809-21	4	
Tribromoacetic acid	Secondary Source Std		ND	µg/L			9809-22	4	70-130%
Tribromoacetic acid	Standard	20.0	17.5	µg/L	88%		9809-23	4	80-120%
Tribromoacetic acid	Standard	20.0	18.8	µg/L	94%		9809-23	4	80-120%
Tribromoacetic acid	Standard	40.0	45.5	µg/L	114%		9809-24	4	80-120%
Trichloroacetic acid	Duplicate	2.0	2.2	µg/L		9.5%	9808-316	1	
Trichloroacetic acid	Matrix Spike	40.0	29.6	µg/L	74%		9808-358	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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Cincinnati, OH 45237

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Trichloroacetic acid	Method Blank		ND*	µg/L			9809-21	1	
Trichloroacetic acid	Secondary Source Std	20.0	18.4	µg/L	92%		9809-22	1	70-130%
Trichloroacetic acid	Standard	20.0	16.5	µg/L	82%		9809-23	1	80-120%
Trichloroacetic acid	Standard	20.0	16.4	µg/L	82%		9809-23	1	80-120%
Trichloroacetic acid	Standard	40.0	43.3	µg/L	108%		9809-24	1	80-120%

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-217-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9809-53	1		
Bromochloroacetic acid	Matrix Spike	40.0	35.1	µg/L	88%		9809-94	1		
Bromochloroacetic acid	Method Blank		ND*	µg/L			9809-400	1		
Bromochloroacetic acid	Secondary Source Std	20.0	16.6	µg/L	83%		9809-407	1	70-130%	
Bromochloroacetic acid	Standard	20.0	19.9	µg/L	99%		9809-408	1	80-120%	
Bromochloroacetic acid	Standard	20.0	19.7	µg/L	98%		9809-408	1	80-120%	
Bromochloroacetic acid	Standard	40.0	41.2	µg/L	103%		9809-409	1	80-120%	
Bromodichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9809-53	1		
Bromodichloroacetic acid	Matrix Spike	40.0	31.2	µg/L	78%		9809-94	1		
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9809-400	1		
Bromodichloroacetic acid	Secondary Source Std		ND	µg/L			9809-407	1	70-130%	
Bromodichloroacetic acid	Standard	20.0	17.6	µg/L	88%		9809-408	1	80-120%	
Bromodichloroacetic acid	Standard	20.0	17.2	µg/L	86%		9809-408	1	80-120%	
Bromodichloroacetic acid	Standard	40.0	44.5	µg/L	111%		9809-409	1	80-120%	
Chlorodibromoacetic acid	Duplicate	ND	ND	µg/L		NA	9809-53	2		
Chlorodibromoacetic acid	Matrix Spike	40.0	31.0	µg/L	78%		9809-94	2		
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9809-400	2		
Chlorodibromoacetic acid	Secondary Source Std		ND	µg/L			9809-407	2	70-130%	
Chlorodibromoacetic acid	Standard	20.0	17.4	µg/L	87%		9809-408	2	80-120%	
Chlorodibromoacetic acid	Standard	20.0	17.0	µg/L	85%		9809-408	2	80-120%	
Chlorodibromoacetic acid	Standard	40.0	44.0	µg/L	110%		9809-409	2	80-120%	
Dibromoacetic acid	Duplicate	2.0	1.8	µg/L		10.5%	9809-53	1		
Dibromoacetic acid	Matrix Spike	40.0	32.1	µg/L	80%		9809-94	1		
Dibromoacetic acid	Method Blank		ND*	µg/L			9809-400	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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Dibromoacetic acid	Secondary Source Std	20.0	15.2	µg/L	76%		9809-407	1	70-130%
Dibromoacetic acid	Standard	20.0	19.3	µg/L	97%		9809-408	1	80-120%
Dibromoacetic acid	Standard	20.0	19.1	µg/L	96%		9809-408	1	80-120%
Dibromoacetic acid	Standard	40.0	42.2	µg/L	106%		9809-409	1	80-120%
Dichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9809-53	1	
Dichloroacetic acid	Matrix Spike	40.0	38.8	µg/L	97%		9809-94	1	
Dichloroacetic acid	Method Blank		ND*	µg/L			9809-400	1	
Dichloroacetic acid	Secondary Source Std	20.0	19.4	µg/L	97%		9809-407	1	70-130%
Dichloroacetic acid	Standard	20.0	19.9	µg/L	99%		9809-408	1	80-120%
Dichloroacetic acid	Standard	20.0	19.6	µg/L	98%		9809-408	1	80-120%
Dichloroacetic acid	Standard	40.0	40.0	µg/L	100%		9809-409	1	80-120%
Monobromoacetic acid	Duplicate	ND	ND	µg/L		NA	9809-53	1	
Monobromoacetic acid	Matrix Spike	40.0	43.4	µg/L	109%		9809-94	1	
Monobromoacetic acid	Method Blank		ND*	µg/L			9809-400	1	
Monobromoacetic acid	Secondary Source Std	20.0	22.1	µg/L	111%		9809-407	1	70-130%
Monobromoacetic acid	Standard	20.0	19.3	µg/L	97%		9809-408	1	80-120%
Monobromoacetic acid	Standard	20.0	19.1	µg/L	96%		9809-408	1	80-120%
Monobromoacetic acid	Standard	40.0	40.7	µg/L	102%		9809-409	1	80-120%
Monochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9809-53	2	
Monochloroacetic acid	Matrix Spike	40.0	40.9	µg/L	102%		9809-94	2	
Monochloroacetic acid	Method Blank		ND*	µg/L			9809-400	2	
Monochloroacetic acid	Secondary Source Std	20.0	21.5	µg/L	108%		9809-407	2	70-130%
Monochloroacetic acid	Standard	20.0	17.8	µg/L	89%		9809-408	2	80-120%
Monochloroacetic acid	Standard	20.0	18.5	µg/L	93%		9809-408	2	80-120%
Monochloroacetic acid	Standard	40.0	40.3	µg/L	101%		9809-409	2	80-120%
Tribromoacetic acid	Duplicate	ND	ND	µg/L		NA	9809-53	4	
Tribromoacetic acid	Matrix Spike	40.0	34.6	µg/L	86%		9809-94	4	
Tribromoacetic acid	Method Blank		ND*	µg/L			9809-400	4	
Tribromoacetic acid	Secondary Source Std		ND	µg/L			9809-407	4	70-130%
Tribromoacetic acid	Standard	20.0	17.6	µg/L	88%		9809-408	4	80-120%
Tribromoacetic acid	Standard	20.0	17.4	µg/L	87%		9809-408	4	80-120%
Tribromoacetic acid	Standard	40.0	42.6	µg/L	106%		9809-409	4	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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Trichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9809-53	1	
Trichloroacetic acid	Matrix Spike	40.0	29.6	µg/L	74%		9809-94	1	
Trichloroacetic acid	Method Blank		ND*	µg/L			9809-400	1	
Trichloroacetic acid	Secondary Source Std	20.0	14.1	µg/L	70%		9809-407	1	70-130%
Trichloroacetic acid	Standard	20.0	17.8	µg/L	89%		9809-408	1	80-120%
Trichloroacetic acid	Standard	20.0	17.5	µg/L	88%		9809-408	1	80-120%
Trichloroacetic acid	Standard	40.0	43.5	µg/L	109%		9809-409	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#: 131
Study Title: ICR RSSCT #2

QC Batch ID: 83236 **Report #:** 46452

Analysis: NH3 **Method:** ML/EPA 350.1

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Ammonia Nitrogen	1	1.04	104.0%		(80 - 120)
LCS2	Ammonia Nitrogen	1	1.04	104.0%		(80 - 120)
MBLK	Ammonia Nitrogen	ND	ND			
MS	Ammonia Nitrogen	1	1.11	111.0%		(80 - 120)
MSD	Ammonia Nitrogen	1	1.12	112.0%		(80 - 120)

QC Batch ID: 83484 **Report #:** 46452

Analysis: BR **Method:** ML/EPA 300

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Bromide	0.02	0.025	125.0%		(50 - 150)
LCS2	Bromide	0.1	0.105	105.0%		(90 - 110)
MBLK	Bromide	ND	ND			(70 - 130)
MS	Bromide	0.02	0.02	100.0%		(80 - 120)

QC Batch ID: 83508 **Report #:** 46452

Analysis: CA **Method:** EPA/ML 200.7

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Calcium, Total, ICAP	50	46.7	93.0%		(90 - 110)
LCS2	Calcium, Total, ICAP	50	47	94.0%		(90 - 110)
MBLK	Calcium, Total, ICAP	ND	ND			
MS	Calcium, Total, ICAP	50	55.1	110.0%		(80 - 120)

QC Batch ID: 83537 **Report #:** 46452

Analysis: MG **Method:** ML/EPA 200.7

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Magnesium, Total, ICAP	20	18.6	93.0%		(85 - 115)
LCS2	Magnesium, Total, ICAP	20	18.7	94.0%		(85 - 115)
MBLK	Magnesium, Total, ICAP	ND	ND			
MS	Magnesium, Total, ICAP	20	21.8	109.0%		(70 - 130)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

Summers & Hooper, Inc.
6 Knollcrest Drive
Cincinnati, OH 45237

QC Results from Montgomery Watson Laboratories

Mr. Don Thomson
Sweetwater Authority

Study#: 131
Study Title: ICR RSSCT #2

QC Batch ID: 83683 **Report #:** 46775

Analysis: BR **Method:** ML/EPA 300

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Bromide	0.02	0.019	95.0%		(50 - 150)
LCS2	Bromide	0.1	0.097	97.0%		(90 - 110)
MBLK	Bromide	ND	ND			(70 - 130)
MS	Bromide	0.1	0.108	108.0%		(80 - 120)
MSD	Bromide	0.1	0.11	110.0%		(80 - 120)

QC Batch ID: 83714 **Report #:** 46775
46776

Analysis: CA **Method:** EPA/ML 200.7

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Calcium, Total, ICAP	50	54.1	108.0%		(85 - 115)
LCS2	Calcium, Total, ICAP	50	54.1	108.0%		(85 - 115)
MBLK	Calcium, Total, ICAP	ND	ND			
MS	Calcium, Total, ICAP	50	53.7	107.0%		(80 - 120)

QC Batch ID: 83717 **Report #:** 46775
46776

Analysis: MG **Method:** ML/EPA 200.7

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Magnesium, Total, ICAP	20	21	105.0%		(85 - 115)
LCS2	Magnesium, Total, ICAP	20	21	105.0%		(85 - 115)
MBLK	Magnesium, Total, ICAP	ND	ND			
MS	Magnesium, Total, ICAP	20	21.2	106.0%		(70 - 130)

QC Batch ID: 83827 **Report #:** 46775
46776

Analysis: NH3 **Method:** ML/EPA 350.1

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Ammonia Nitrogen	1	1.01	101.0%		(80 - 120)
LCS2	Ammonia Nitrogen	1	1.03	103.0%		(80 - 120)
MBLK	Ammonia Nitrogen	ND	ND			
MS	Ammonia Nitrogen	1	0.9	90.0%		(80 - 120)
MSD	Ammonia Nitrogen	1	0.91	91.0%		(80 - 120)

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

Mr. Don Thomson
Water Quality Superintendent
Sweetwater Authority
505 Garret Avenue
P.O. Box 2328
Chula Vista, CA 91912-2328

Phone: 619-475-9047 Fax: 619-479-6271

Study#: 131
Study Title: ICR RSSCT #2

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

End of comments

Summers & Hooper, Inc.
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Phone: (513) 679-2200
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Laboratory Report

Client:

Mr. Don Thomson
Water Quality Superintendent
Sweetwater Authority
505 Garret Avenue
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Phone: 619-475-9047 Fax: 619-479-6271

Study Title: ICR RSSCT #3,4

Study #: 179

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

Mr. Don Thomson
Water Quality Superintendent
Sweetwater Authority
505 Garret Avenue
P.O. Box 2328
Chula Vista, CA 91912-2328

Phone: 619-475-9047 Fax: 619-479-6271

Study#: 179
Study Title: ICR RSSCT 3,4

Sample ID: Sweet. Raw. Drum **S&H ID:** 9810-442 **Date Sampled:** 10/21/98 1:55:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1	TOC-ICR	TOC	6.26	mg/L	SM 5310 C	1	0.50	10/21/98		11/3/98	7-0-451
2	TOC-ICR	TOC (Dupl)	6.20	mg/L	SM 5310 C	1	0.50	10/21/98		11/3/98	7-0-451
			6.23	**mg/L**	**1.0 % RPD**						

Sample ID: Sweet. Settled **S&H ID:** 9810-443 **Date Sampled:** 10/21/98 2:00:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
3	TOC-ICR	TOC	5.63	mg/L	SM 5310 C	1	0.50	10/21/98		11/4/98	7-0-452
4	TOC-ICR	TOC (Dupl)	5.60	mg/L	SM 5310 C	1	0.50	10/21/98		11/4/98	7-0-452
			5.62	**mg/L**	**0.5 % RPD**						

Sample ID: Sweet. Filtered **S&H ID:** 9810-444 **Date Sampled:** 10/21/98 3:00:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
5	TOC-ICR	TOC	5.53	mg/L	SM 5310 C	1	0.50	10/21/98		11/3/98	7-0-451
6	TOC-ICR	TOC (Dupl)	5.59	mg/L	SM 5310 C	1	0.50	10/21/98		11/3/98	7-0-451
			5.56	**mg/L**	**1.1 % RPD**						

Sample ID: Swe.Filtered.S&H **S&H ID:** 9811-27 **Date Sampled:** 11/3/98 9:55:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
7	TOC-ICR	TOC	5.60	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
8	TOC-ICR	TOC (Dupl)	5.68	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
			5.64	**mg/L**	**1.4 % RPD**						

Sample ID: Swe.Filtered+1.0micfilter.S&H **S&H ID:** 9811-28 **Date Sampled:** 11/3/98 12:05:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
9	TOC-ICR	TOC	5.59	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
10	TOC-ICR	TOC (Dupl)	5.52	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
			5.55	**mg/L**	**1.3 % RPD**						

Sample ID: Jar 1 **S&H ID:** 9811-33 **Date Sampled:** 11/3/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
11	TOC-ICR	TOC	5.06	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
12	TOC-ICR	TOC (Dupl)	5.07	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
			5.06	**mg/L**	**0.2 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

13	TURB	Turbidity	0.80	ntu	SM 2130 B	1	0.05	11/3/98		11/3/98	9-0-20

Sample ID: Jar 2 **S&H ID:** 9811-34 **Date Sampled:** 11/3/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
14	TOC-ICR	TOC	4.87	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
15	TOC-ICR	TOC (Dupl)	4.89	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
			4.88	**mg/L**	**0.4 % RPD**						
16	TURB	Turbidity	0.80	ntu	SM 2130 B	1	0.05	11/3/98		11/3/98	9-0-20

Sample ID: Jar 3 **S&H ID:** 9811-35 **Date Sampled:** 11/3/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
17	TOC-ICR	TOC	4.59	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
18	TOC-ICR	TOC (Dupl)	4.71	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
			4.65	**mg/L**	**2.6 % RPD**						
19	TURB	Turbidity	1.00	ntu	SM 2130 B	1	0.05	11/3/98		11/3/98	9-0-20

Sample ID: Jar 4 **S&H ID:** 9811-36 **Date Sampled:** 11/3/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
20	TOC-ICR	TOC	4.50	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
21	TOC-ICR	TOC (Dupl)	4.50	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
			4.50	**mg/L**	**0.0 % RPD**						
22	TURB	Turbidity	0.65	ntu	SM 2130 B	1	0.05	11/3/98		11/3/98	9-0-20

Sample ID: Jar 5 **S&H ID:** 9811-37 **Date Sampled:** 11/3/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
23	TOC-ICR	TOC	4.21	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
24	TOC-ICR	TOC (Dupl)	4.23	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
			4.22	**mg/L**	**0.5 % RPD**						
25	TURB	Turbidity	0.75	ntu	SM 2130 B	1	0.05	11/3/98		11/3/98	9-0-20

Sample ID: Jar 6 **S&H ID:** 9811-38 **Date Sampled:** 11/3/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
26	TOC-ICR	TOC	3.96	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
27	TOC-ICR	TOC (Dupl)	3.95	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
			3.96	**mg/L**	**0.3 % RPD**						
28	TURB	Turbidity	0.70	ntu	SM 2130 B	1	0.05	11/3/98		11/3/98	9-0-20

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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Cincinnati, OH 45237

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Sample ID: Raw **S&H ID:** 9811-39 **Date Sampled:** 11/3/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
29	ALK	Alkalinity	157	mg/L	SM 2320 B	1	5	11/3/98		11/4/98	1-0-36
30	ALK	Alkalinity (Dupl)	156	mg/L	SM 2320 B	1	5	11/3/98		11/4/98	1-0-36
			157	**mg/L**	**0.6 % RPD**						
31	TOC-ICR	TOC	6.23	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
32	TOC-ICR	TOC (Dupl)	6.23	mg/L	SM 5310 C	1	0.50	11/3/98		11/3/98	7-0-451
			6.23	**mg/L**	**0.0 % RPD**						
33	TURB	Turbidity	13.00	ntu	SM 2130 B	1	0.05	11/3/98		11/3/98	9-0-20

Sample ID: 179.10.Eff-1 **S&H ID:** 9811-40 **Date Sampled:** 11/3/98 8:04:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
34	Cl2Dose	Chlorine Dose	1.55	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/5/98		11/5/98	n/a
35	Cl2Res	Chlorine Residual	0.70	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/5/98		11/6/98	n/a
36	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.0	%	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
37	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.0	%	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
38	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
39	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
40	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/6/98	11/11/98	11/11/98	0-262-0
41	HAA-ICR	Dibromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
42	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
43	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
44	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/6/98	11/11/98	11/11/98	0-262-0
45	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/6/98	11/11/98	11/11/98	0-262-0
46	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
47	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/6/98	n/a
48	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/5/98	n/a
49	pH	pH	8.4	Unit	SM 4500-H+ B	1	n/a	11/3/98		11/3/98	n/a
50	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/5/98		11/6/98	n/a
51	TEMP	Temperature	21.9	ºC	SM 2550 B	1	n/a	11/3/98		11/3/98	n/a
52	TIME	Cl2 Incubation Time	24.1	hrs	n/a	1	n/a	11/5/98		11/6/98	n/a
53	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	11/3/98		11/4/98	7-0-452
54	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	11/3/98		11/4/98	7-0-452
			ND	**mg/L**							
55	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	11/6/98		11/10/98	12-0-240
56	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	11/6/98		11/10/98	12-0-240
			ND	**µg Cl-/L**							
57	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.8	%	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

58	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
59	THM-ICR	Bromoform	1.9	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
60	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
61	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
62	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/3/98		11/4/98	8-0-346
63	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/3/98		11/4/98	8-0-346
			ND	**1/cm**							

Sample ID: 179.10.Eff-7 **S&H ID:** 9811-46 **Date Sampled:** 11/4/98 11:47:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
64	Cl2Dose	Chlorine Dose	1.85	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/5/98		11/5/98	n/a
65	Cl2Res	Chlorine Residual	0.65	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/5/98		11/6/98	n/a
66	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.0	%	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
67	HAA-ICR	2-Bromopropionic acid (Surrogate)	101.2	%	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
68	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
69	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
70	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/6/98	11/11/98	11/11/98	0-262-0
71	HAA-ICR	Dibromoacetic acid	3.0	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
72	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
73	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
74	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/6/98	11/11/98	11/11/98	0-262-0
75	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/6/98	11/11/98	11/11/98	0-262-0
76	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
77	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/6/98	n/a
78	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/5/98	n/a
79	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	11/4/98		11/4/98	n/a
80	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/5/98		11/6/98	n/a
81	TEMP	Temperature	21.3	ºC	SM 2550 B	1	n/a	11/4/98		11/4/98	n/a
82	TIME	Cl2 Incubation Time	24.1	hrs	n/a	1	n/a	11/5/98		11/6/98	n/a
83	TOC-ICR	TOC	0.54	mg/L	SM 5310 C	1	0.50	11/4/98		11/5/98	7-0-453
84	TOC-ICR	TOC (Dupl)	0.57	mg/L	SM 5310 C	1	0.50	11/4/98		11/5/98	7-0-453
			0.55	**mg/L**	**5.5 % RPD**						
85	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	11/6/98		11/10/98	12-0-240
86	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	11/6/98		11/10/98	12-0-240
			ND	**µg Cl-/L**							
87	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.2	%	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
88	THM-ICR	Bromodichloromethane	1.0	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
89	THM-ICR	Bromoform	11.0	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

90	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
91	THM-ICR	Dibromochloromethane	5.5	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
92	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/4/98		11/5/98	8-0-347
93	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/4/98		11/5/98	8-0-347
			ND	**1/cm**							

Sample ID: 179.10.Eff-9 **S&H ID:** 9811-48 **Date Sampled:** 11/5/98 6:33:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
94	Cl2Dose	Chlorine Dose	2.05	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
95	Cl2Res	Chlorine Residual	0.73	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
96	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.0	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/11/98	0-262-0
97	HAA-ICR	2-Bromopropionic acid (Surrogate)	101.2	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/11/98	0-262-0
98	HAA-ICR	Bromochloroacetic acid	2.4	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/11/98	0-262-0
99	HAA-ICR	Bromodichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/11/98	0-262-0
100	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/11/98	0-262-0
101	HAA-ICR	Dibromoacetic acid	6.5	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/11/98	0-262-0
102	HAA-ICR	Dichloroacetic acid	1.4	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/11/98	0-262-0
103	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/11/98	0-262-0
104	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/11/98	0-262-0
105	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/11/98	0-262-0
106	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/11/98	0-262-0
107	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
108	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
109	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/5/98	n/a
110	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
111	TEMP	Temperature	21.3	ºC	SM 2550 B	1	n/a	11/5/98		11/5/98	n/a
112	TIME	Cl2 Incubation Time	23.6	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
113	TOC-ICR	TOC	0.86	mg/L	SM 5310 C	1	0.50	11/5/98		11/5/98	7-0-453
114	TOC-ICR	TOC (Dupl)	0.87	mg/L	SM 5310 C	1	0.50	11/5/98		11/5/98	7-0-453
			0.86	**mg/L**	**1.2 % RPD**						
115	TOX-ICR	TOX	37	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/11/98	12-0-241
116	TOX-ICR	TOX (Dupl)	39	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/11/98	12-0-241
			38	**µg Cl-/L**	**5.3 % RPD**						
117	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.4	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
118	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	101.6	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
			101.0	**%**	**1.2 % RPD**						
119	THM-ICR	Bromodichloromethane	2.1	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0

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

Laboratory Test Results

Mr. Don Thomson
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Study Title: ICR RSSCT 3,4

120	THM-ICR	Bromodichloromethane (Lab Dupl)	2.2	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
			2.2	**µg/L**	**4.5 % RPD**						
121	THM-ICR	Bromoform	18.9	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
122	THM-ICR	Bromoform (Lab Dupl)	20.2	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
			19.5	**µg/L**	**6.7 % RPD**						
123	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
124	THM-ICR	Chloroform (Lab Dupl)	ND	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
			ND	**µg/L**							
125	THM-ICR	Dibromochloromethane	10.5	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
126	THM-ICR	Dibromochloromethane (Lab Dupl)	11.0	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
			10.8	**µg/L**	**4.6 % RPD**						
127	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/5/98		11/5/98	8-0-347
128	UV-ICR	UV (Dupl)	0.009	1/cm	SM 5910 B	1	0.009	11/5/98		11/5/98	8-0-347
			ND	**1/cm**							

Sample ID: 179.10.Eff-11 **S&H ID:** 9811-50 **Date Sampled:** 11/5/98 1:27:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
129	Cl2Dose	Chlorine Dose	2.32	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
130	Cl2Res	Chlorine Residual	0.87	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
131	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.4	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
132	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard) (Lab Dupl)	100.4	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
			102.4	**%**	**3.9 % RPD**						
133	HAA-ICR	2-Bromopropionic acid (Surrogate)	101.2	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
134	HAA-ICR	2-Bromopropionic acid (Surrogate) (Lab Dupl)	98.4	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
			99.8	**%**	**2.8 % RPD**						
135	HAA-ICR	Bromochloroacetic acid	3.9	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
136	HAA-ICR	Bromochloroacetic acid (Lab Dupl)	3.4	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
			3.6	**µg/L**	**13.9 % RPD**						
137	HAA-ICR	Bromodichloroacetic acid	1.6	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
138	HAA-ICR	Bromodichloroacetic acid (Lab Dupl)	1.5	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
			1.6	**µg/L**	**6.2 % RPD**						
139	HAA-ICR	Chlorodibromoacetic acid	2.6	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
140	HAA-ICR	Chlorodibromoacetic acid (Lab Dupl)	2.1	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
			2.4	**µg/L**	**20.8 % RPD**						
141	HAA-ICR	Dibromoacetic acid	9.2	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
142	HAA-ICR	Dibromoacetic acid (Lab Dupl)	7.6	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
			8.4	**µg/L**	**19.0 % RPD**						

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

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Study Title: ICR RSSCT 3,4

143	HAA-ICR	Dichloroacetic acid	2.4	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
144	HAA-ICR	Dichloroacetic acid (Lab Dupl)	2.3	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
			2.3	**µg/L**	**4.3 % RPD**						
145	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
146	HAA-ICR	Monobromoacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
			ND	**µg/L**							
147	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
148	HAA-ICR	Monochloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
			ND	**µg/L**							
149	HAA-ICR	Tribromoacetic acid	4.8	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
150	HAA-ICR	Tribromoacetic acid (Lab Dupl)	4.6	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
			4.7	**µg/L**	**4.3 % RPD**						
151	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
152	HAA-ICR	Trichloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
			ND	**µg/L**							
153	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
154	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
155	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/5/98	n/a
156	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
157	TEMP	Temperature	21.2	ºC	SM 2550 B	1	n/a	11/5/98		11/5/98	n/a
158	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
159	TOC-ICR	TOC	1.24	mg/L	SM 5310 C	1	0.50	11/5/98		11/5/98	7-0-453
160	TOC-ICR	TOC (Dupl)	1.25	mg/L	SM 5310 C	1	0.50	11/5/98		11/5/98	7-0-453
			1.25	**mg/L**	**0.8 % RPD**						
161	TOX-ICR	TOX	63	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/11/98	12-0-241
162	TOX-ICR	TOX (Dupl)	61	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/11/98	12-0-241
			62	**µg Cl-/L**	**3.2 % RPD**						
163	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.6	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
164	THM-ICR	Bromodichloromethane	4.6	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
165	THM-ICR	Bromoform	27.8	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
166	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
167	THM-ICR	Dibromochloromethane	19.0	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
168	UV-ICR	UV	0.014	1/cm	SM 5910 B	1	0.009	11/5/98		11/6/98	8-0-348
169	UV-ICR	UV (Dupl)	0.014	1/cm	SM 5910 B	1	0.009	11/5/98		11/6/98	8-0-348
			0.014	**1/cm**	**0.0 % RPD**						

Sample ID: 179.10.Eff-12 **S&H ID:** 9811-51 **Date Sampled:** 11/5/98 5:00:00 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. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

170	Cl2Dose	Chlorine Dose	2.49	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
171	Cl2Res	Chlorine Residual	0.81	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
172	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.0	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
173	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.2	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
174	HAA-ICR	Bromochloroacetic acid	4.1	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
175	HAA-ICR	Bromodichloroacetic acid	1.9	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
176	HAA-ICR	Chlorodibromoacetic acid	2.6	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
177	HAA-ICR	Dibromoacetic acid	8.7	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
178	HAA-ICR	Dichloroacetic acid	3.0	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
179	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
180	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
181	HAA-ICR	Tribromoacetic acid	5.3	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
182	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
183	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
184	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
185	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/5/98	n/a
186	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
187	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	11/5/98		11/5/98	n/a
188	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
189	TOC-ICR	TOC	1.49	mg/L	SM 5310 C	1	0.50	11/5/98		11/5/98	7-0-453
190	TOC-ICR	TOC (Dupl)	1.51	mg/L	SM 5310 C	1	0.50	11/5/98		11/5/98	7-0-453
			1.50	**mg/L**	**1.3 % RPD**						
191	TOX-ICR	TOX	77	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/11/98	12-0-241
192	TOX-ICR	TOX (Dupl)	77	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/11/98	12-0-241
			77	**µg Cl-/L**	**0.0 % RPD**						
193	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.2	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
194	THM-ICR	Bromodichloromethane	6.0	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
195	THM-ICR	Bromoform	29.3	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
196	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
197	THM-ICR	Dibromochloromethane	22.9	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
198	UV-ICR	UV	0.017	1/cm	SM 5910 B	1	0.009	11/5/98		11/6/98	8-0-348
199	UV-ICR	UV (Dupl)	0.017	1/cm	SM 5910 B	1	0.009	11/5/98		11/6/98	8-0-348
			0.017	**1/cm**	**0.0 % RPD**						

Sample ID: 179.10.Eff-14 **S&H ID:** 9811-53 **Date Sampled:** 11/5/98 11:54:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
200	Cl2Dose	Chlorine Dose	2.73	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
201	Cl2Res	Chlorine Residual	0.77	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	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. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

202	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	96.8	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
203	HAA-ICR	2-Bromopropionic acid (Surrogate)	106.4	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
204	HAA-ICR	Bromochloroacetic acid	6.9	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
205	HAA-ICR	Bromodichloroacetic acid	2.7	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
206	HAA-ICR	Chlorodibromoacetic acid	4.3	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
207	HAA-ICR	Dibromoacetic acid	12.8	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
208	HAA-ICR	Dichloroacetic acid	5.1	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
209	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
210	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
211	HAA-ICR	Tribromoacetic acid	6.8	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
212	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
213	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
214	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
215	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/5/98	n/a
216	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
217	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	11/5/98		11/5/98	n/a
218	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
219	TOC-ICR	TOC	1.84	mg/L	SM 5310 C	1	0.50	11/5/98		11/6/98	7-0-454
220	TOC-ICR	TOC (Dupl)	1.85	mg/L	SM 5310 C	1	0.50	11/5/98		11/6/98	7-0-454
			1.85	**mg/L**	**0.5 % RPD**						
221	TOX-ICR	TOX	105	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
222	TOX-ICR	TOX (Dupl)	105	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
			105	**µg Cl-/L**	**0.0 % RPD**						
223	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.4	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
224	THM-ICR	Bromodichloromethane	10.6	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
225	THM-ICR	Bromoform	38.4	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
226	THM-ICR	Chloroform	1.9	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
227	THM-ICR	Dibromochloromethane	34.7	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
228	UV-ICR	UV	0.023	1/cm	SM 5910 B	1	0.009	11/5/98		11/6/98	8-0-348
229	UV-ICR	UV (Dupl)	0.023	1/cm	SM 5910 B	1	0.009	11/5/98		11/6/98	8-0-348
			0.023	**1/cm**	**0.0 % RPD**						

Sample ID: 179.10.Eff-16 **S&H ID:** 9811-55 **Date Sampled:** 11/6/98 6:52:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
230	Cl2Dose	Chlorine Dose	2.99	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
231	Cl2Res	Chlorine Residual	0.82	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
232	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	101.6	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0

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

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233	HAA-ICR	2-Bromopropionic acid (Surrogate)	99.2	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
234	HAA-ICR	Bromochloroacetic acid	8.9	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
235	HAA-ICR	Bromodichloroacetic acid	3.8	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
236	HAA-ICR	Chlorodibromoacetic acid	4.9	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
237	HAA-ICR	Dibromoacetic acid	13.2	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
238	HAA-ICR	Dichloroacetic acid	6.9	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
239	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
240	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
241	HAA-ICR	Tribromoacetic acid	6.8	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
242	HAA-ICR	Trichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
243	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
244	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
245	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	11/6/98		11/6/98	n/a
246	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
247	TEMP	Temperature	21.1	ºC	SM 2550 B	1	n/a	11/6/98		11/6/98	n/a
248	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
249	TOC-ICR	TOC	2.22	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
250	TOC-ICR	TOC (Dupl)	2.25	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
			2.24	**mg/L**	**1.3 % RPD**						
251	TOX-ICR	TOX	136	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
252	TOX-ICR	TOX (Dupl)	138	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
			137	**µg Cl-/L**	**1.5 % RPD**						
253	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.0	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
254	THM-ICR	Bromodichloromethane	13.9	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
255	THM-ICR	Bromoform	34.9	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
256	THM-ICR	Chloroform	2.7	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
257	THM-ICR	Dibromochloromethane	39.0	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
258	UV-ICR	UV	0.028	1/cm	SM 5910 B	1	0.009	11/6/98		11/6/98	8-0-349
259	UV-ICR	UV (Dupl)	0.028	1/cm	SM 5910 B	1	0.009	11/6/98		11/6/98	8-0-349
			0.028	**1/cm**	**0.0 % RPD**						

Sample ID: 179.10.Eff-19 **S&H ID:** 9811-58 **Date Sampled:** 11/6/98 5:13:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
260	Cl2Dose	Chlorine Dose	3.29	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
261	Cl2Res	Chlorine Residual	0.87	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
262	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.8	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
263	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.0	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0

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

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264	HAA-ICR	Bromochloroacetic acid	12.5	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
265	HAA-ICR	Bromodichloroacetic acid	5.8	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
266	HAA-ICR	Chlorodibromoacetic acid	7.1	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
267	HAA-ICR	Dibromoacetic acid	16.7	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
268	HAA-ICR	Dichloroacetic acid	7.3	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
269	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
270	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
271	HAA-ICR	Tribromoacetic acid	7.8	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
272	HAA-ICR	Trichloroacetic acid	2.5	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
273	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
274	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
275	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/6/98		11/6/98	n/a
276	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
277	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	11/6/98		11/6/98	n/a
278	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
279	TOC-ICR	TOC	2.66	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
280	TOC-ICR	TOC (Dupl)	2.64	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
			2.65	**mg/L**	**0.8 % RPD**						
281	TOX-ICR	TOX	169	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
282	TOX-ICR	TOX (Dupl)	167	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
			168	**µg Cl-/L**	**1.2 % RPD**						
283	THM-ICR	1,2,3-Trichloropropane (Surrogate)	91.2	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
284	THM-ICR	Bromodichloromethane	19.7	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
285	THM-ICR	Bromoform	36.1	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
286	THM-ICR	Chloroform	4.3	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
287	THM-ICR	Dibromochloromethane	47.1	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
288	UV-ICR	UV	0.034	1/cm	SM 5910 B	1	0.009	11/6/98		11/7/98	8-0-350
289	UV-ICR	UV (Dupl)	0.034	1/cm	SM 5910 B	1	0.009	11/6/98		11/7/98	8-0-350
			0.034	**1/cm**	**0.0 % RPD**						

Sample ID: 179.10.Eff-20 **S&H ID:** 9811-59 **Date Sampled:** 11/7/98 6:56:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
290	Cl2Dose	Chlorine Dose	3.61	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
291	Cl2Res	Chlorine Residual	0.86	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
292	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	108.4	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
293	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.0	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
294	HAA-ICR	Bromochloroacetic acid	13.6	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
295	HAA-ICR	Bromodichloroacetic acid	7.8	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0

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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Study#: 179
Study Title: ICR RSSCT 3,4

296	HAA-ICR	Chlorodibromoacetic acid	8.2	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
297	HAA-ICR	Dibromoacetic acid	16.8	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
298	HAA-ICR	Dichloroacetic acid	7.5	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
299	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
300	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
301	HAA-ICR	Tribromoacetic acid	8.0	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
302	HAA-ICR	Trichloroacetic acid	4.6	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
303	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
304	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
305	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/7/98		11/7/98	n/a
306	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
307	TEMP	Temperature	21.5	ºC	SM 2550 B	1	n/a	11/7/98		11/7/98	n/a
308	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
309	TOC-ICR	TOC	3.08	mg/L	SM 5310 C	1	0.50	11/7/98		11/7/98	7-0-455
310	TOC-ICR	TOC (Dupl)	3.18	mg/L	SM 5310 C	1	0.50	11/7/98		11/7/98	7-0-455
			3.13	**mg/L**	**3.2 % RPD**						
311	TOX-ICR	TOX	202	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
312	TOX-ICR	TOX (Dupl)	203	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
			203	**µg Cl-/L**	**0.5 % RPD**						
313	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.2	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
314	THM-ICR	Bromodichloromethane	27.6	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
315	THM-ICR	Bromoform	36.0	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
316	THM-ICR	Chloroform	7.1	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
317	THM-ICR	Dibromochloromethane	57.5	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
318	UV-ICR	UV	0.042	1/cm	SM 5910 B	1	0.009	11/7/98		11/7/98	8-0-350
319	UV-ICR	UV (Dupl)	0.042	1/cm	SM 5910 B	1	0.009	11/7/98		11/7/98	8-0-350
			0.042	**1/cm**	**0.0 % RPD**						

Sample ID: 179.10.Eff-25 **S&H ID:** 9811-64 **Date Sampled:** 11/8/98 7:01:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
320	Cl2Dose	Chlorine Dose	3.68	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
321	Cl2Res	Chlorine Residual	0.72	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
322	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.0	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
323	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.8	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
324	HAA-ICR	Bromochloroacetic acid	13.4	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
325	HAA-ICR	Bromodichloroacetic acid	9.6	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
326	HAA-ICR	Chlorodibromoacetic acid	8.1	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
327	HAA-ICR	Dibromoacetic acid	16.7	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

328	HAA-ICR	Dichloroacetic acid	7.6	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
329	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
330	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
331	HAA-ICR	Tribromoacetic acid	6.7	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/16/98	0-265-0
332	HAA-ICR	Trichloroacetic acid	7.4	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
333	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
334	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
335	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/8/98		11/8/98	n/a
336	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
337	TEMP	Temperature	21.4	ºC	SM 2550 B	1	n/a	11/8/98		11/8/98	n/a
338	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
339	TOC-ICR	TOC	3.43	mg/L	SM 5310 C	1	0.50	11/8/98		11/8/98	7-0-456
340	TOC-ICR	TOC (Dupl)	3.43	mg/L	SM 5310 C	1	0.50	11/8/98		11/8/98	7-0-456
			3.43	**mg/L**	**0.0 % RPD**						
341	TOX-ICR	TOX	248	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
342	TOX-ICR	TOX (Dupl)	240	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
			244	**µg Cl-/L**	**3.3 % RPD**						
343	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.8	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
344	THM-ICR	Bromodichloromethane	34.9	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
345	THM-ICR	Bromoform	35.3	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
346	THM-ICR	Chloroform	10.6	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
347	THM-ICR	Dibromochloromethane	63.3	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
348	UV-ICR	UV	0.051	1/cm	SM 5910 B	1	0.009	11/8/98		11/8/98	8-0-351
349	UV-ICR	UV (Dupl)	0.051	1/cm	SM 5910 B	1	0.009	11/8/98		11/8/98	8-0-351
			0.051	**1/cm**	**0.0 % RPD**						

Sample ID: 179.10.Eff-27 **S&H ID:** 9811-66 **Date Sampled:** 11/9/98 3:48:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
350	Cl2Dose	Chlorine Dose	3.92	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
351	Cl2Res	Chlorine Residual	0.74	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
352	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.4	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
353	HAA-ICR	2-Bromopropionic acid (Surrogate)	94.4	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
354	HAA-ICR	Bromochloroacetic acid	15.0	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
355	HAA-ICR	Bromodichloroacetic acid	13.5	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
356	HAA-ICR	Chlorodibromoacetic acid	9.5	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
357	HAA-ICR	Dibromoacetic acid	17.5	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
358	HAA-ICR	Dichloroacetic acid	9.1	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
359	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0

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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Study Title: ICR RSSCT 3,4

360	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
361	HAA-ICR	Tribromoacetic acid	6.6	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/16/98	0-265-0
362	HAA-ICR	Trichloroacetic acid	8.9	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
363	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
364	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
365	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
366	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
367	TEMP	Temperature	21.5	ºC	SM 2550 B	1	n/a	11/9/98		11/9/98	n/a
368	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
369	TOC-ICR	TOC	3.80	mg/L	SM 5310 C	1	0.50	11/9/98		11/9/98	7-0-457
370	TOC-ICR	TOC (Dupl)	3.76	mg/L	SM 5310 C	1	0.50	11/9/98		11/9/98	7-0-457
			3.78	**mg/L**	**1.1 % RPD**						
371	TOX-ICR	TOX	275	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/16/98	12-0-244
372	TOX-ICR	TOX (Dupl)	270	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/16/98	12-0-244
			273	**µg Cl-/L**	**1.8 % RPD**						
373	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.0	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
374	THM-ICR	Bromodichloromethane	39.2	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
375	THM-ICR	Bromoform	30.1	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
376	THM-ICR	Chloroform	14.2	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
377	THM-ICR	Dibromochloromethane	63.9	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
378	UV-ICR	UV	0.059	1/cm	SM 5910 B	1	0.009	11/9/98		11/9/98	8-0-354
379	UV-ICR	UV (Dupl)	0.058	1/cm	SM 5910 B	1	0.009	11/9/98		11/9/98	8-0-354
			0.058	**1/cm**	**1.7 % RPD**						

Sample ID: 179.10.Eff-29 **S&H ID:** 9811-68 **Date Sampled:** 11/9/98 9:23:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
380	Cl2Dose	Chlorine Dose	4.11	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/12/98		11/12/98	n/a
381	Cl2Res	Chlorine Residual	0.65	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/12/98		11/13/98	n/a
382	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	98.0	%	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
383	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.2	%	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
384	HAA-ICR	Bromochloroacetic acid	16.9	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
385	HAA-ICR	Bromodichloroacetic acid	16.0	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
386	HAA-ICR	Chlorodibromoacetic acid	10.1	µg/L	EPA 552.2	1	2.0	11/13/98	11/16/98	11/17/98	0-265-0
387	HAA-ICR	Dibromoacetic acid	20.0	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
388	HAA-ICR	Dichloroacetic acid	10.1	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
389	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
390	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/13/98	11/16/98	11/17/98	0-265-0
391	HAA-ICR	Tribromoacetic acid	6.2	µg/L	EPA 552.2	1	4.0	11/13/98	11/16/98	11/17/98	0-265-0

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

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392	HAA-ICR	Trichloroacetic acid	11.0	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
393	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/12/98		11/13/98	n/a
394	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/12/98		11/12/98	n/a
395	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
396	TEMP	Cl2 Temperature	23.4	ºC	SM 2550 B	1	n/a	11/12/98		11/13/98	n/a
397	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	11/9/98		11/9/98	n/a
398	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	11/12/98		11/13/98	n/a
399	TOC-ICR	TOC	4.06	mg/L	SM 5310 C	1	0.50	11/9/98		11/10/98	7-0-458
400	TOC-ICR	TOC (Dupl)	4.06	mg/L	SM 5310 C	1	0.50	11/9/98		11/10/98	7-0-458
			4.06	**mg/L**	**0.0 % RPD**						
401	TOX-ICR	TOX	295	µg Cl-/L	SM 5320 B	1	25	11/13/98		11/18/98	12-0-246
402	TOX-ICR	TOX (Dupl)	286	µg Cl-/L	SM 5320 B	1	25	11/13/98		11/18/98	12-0-246
			291	**µg Cl-/L**	**3.1 % RPD**						
403	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.0	%	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
404	THM-ICR	Bromodichloromethane	40.8	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
405	THM-ICR	Bromoform	28.4	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
406	THM-ICR	Chloroform	16.0	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
407	THM-ICR	Dibromochloromethane	60.0	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
408	UV-ICR	UV	0.064	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-355
409	UV-ICR	UV (Dupl)	0.064	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-355
			0.064	**1/cm**	**0.0 % RPD**						

Sample ID: 179.10.Eff-30 **S&H ID:** 9811-69 **Date Sampled:** 11/11/98 11:53:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
410	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/11/98		11/11/98	n/a
411	TEMP	Temperature	21.2	ºC	SM 2550 B	1	n/a	11/11/98		11/11/98	n/a
412	TOC-ICR	TOC	4.44	mg/L	SM 5310 C	1	0.50	11/11/98		11/11/98	7-0-459
413	TOC-ICR	TOC (Dupl)	4.47	mg/L	SM 5310 C	1	0.50	11/11/98		11/11/98	7-0-459
			4.46	**mg/L**	**0.7 % RPD**						
414	UV-ICR	UV	0.071	1/cm	SM 5910 B	1	0.009	11/11/98		11/11/98	8-0-357
415	UV-ICR	UV (Dupl)	0.071	1/cm	SM 5910 B	1	0.009	11/11/98		11/11/98	8-0-357
			0.071	**1/cm**	**0.0 % RPD**						

Sample ID: 179.10.Eff-12d **S&H ID:** 9811-72 **Date Sampled:** 11/5/98 5:00:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
416	Cl2Dose	Chlorine Dose	2.49	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
417	Cl2Res	Chlorine Residual	0.83	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
418	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.8	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0

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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Sweetwater Authority

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Study Title: ICR RSSCT 3,4

419	HAA-ICR	2-Bromopropionic acid (Surrogate)	101.6	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
420	HAA-ICR	Bromochloroacetic acid	4.9	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
421	HAA-ICR	Bromodichloroacetic acid	1.8	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
422	HAA-ICR	Chlorodibromoacetic acid	3.0	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
423	HAA-ICR	Dibromoacetic acid	9.7	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
424	HAA-ICR	Dichloroacetic acid	3.5	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
425	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
426	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
427	HAA-ICR	Tribromoacetic acid	5.7	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
428	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
429	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
430	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
431	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/5/98	n/a
432	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
433	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	11/5/98		11/5/98	n/a
434	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
435	TOC-ICR	TOC	1.49	mg/L	SM 5310 C	1	0.50	11/5/98		11/5/98	7-0-453
436	TOC-ICR	TOC (Dupl)	1.49	mg/L	SM 5310 C	1	0.50	11/5/98		11/5/98	7-0-453
			1.49	**mg/L**	**0.0 % RPD**						
437	TOX-ICR	TOX	73	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
438	TOX-ICR	TOX (Dupl)	81	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
			77	**µg Cl-/L**	**10.4 % RPD**						
439	THM-ICR	1,2,3-Trichloropropane (Surrogate)	91.2	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
440	THM-ICR	Bromodichloromethane	6.7	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
441	THM-ICR	Bromoform	30.5	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
442	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
443	THM-ICR	Dibromochloromethane	24.5	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
444	UV-ICR	UV	0.018	1/cm	SM 5910 B	1	0.009	11/5/98		11/6/98	8-0-348
445	UV-ICR	UV (Dupl)	0.018	1/cm	SM 5910 B	1	0.009	11/5/98		11/6/98	8-0-348
			0.018	**1/cm**	**0.0 % RPD**						

Sample ID: 179.10.Eff-19d **S&H ID:** 9811-75 **Date Sampled:** 11/6/98 5:13:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
446	Cl2Dose	Chlorine Dose	3.29	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
447	Cl2Res	Chlorine Residual	0.88	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
448	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.0	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
449	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.4	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

450	HAA-ICR	Bromochloroacetic acid	11.9	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
451	HAA-ICR	Bromodichloroacetic acid	5.5	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
452	HAA-ICR	Chlorodibromoacetic acid	6.7	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
453	HAA-ICR	Dibromoacetic acid	15.4	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
454	HAA-ICR	Dichloroacetic acid	6.6	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
455	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
456	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
457	HAA-ICR	Tribromoacetic acid	8.2	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
458	HAA-ICR	Trichloroacetic acid	2.1	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
459	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
460	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
461	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/6/98		11/6/98	n/a
462	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
463	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	11/6/98		11/6/98	n/a
464	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
465	TOC-ICR	TOC	2.67	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
466	TOC-ICR	TOC (Dupl)	2.68	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
			2.67	**mg/L**	**0.4 % RPD**						
467	TOX-ICR	TOX	171	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
468	TOX-ICR	TOX (Dupl)	173	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
			172	**µg Cl-/L**	**1.2 % RPD**						
469	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.6	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
470	THM-ICR	Bromodichloromethane	20.7	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
471	THM-ICR	Bromoform	36.7	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
472	THM-ICR	Chloroform	4.5	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
473	THM-ICR	Dibromochloromethane	49.5	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
474	UV-ICR	UV	0.034	1/cm	SM 5910 B	1	0.009	11/6/98		11/7/98	8-0-350
475	UV-ICR	UV (Dupl)	0.034	1/cm	SM 5910 B	1	0.009	11/6/98		11/7/98	8-0-350
			0.034	**1/cm**	**0.0 % RPD**						

Sample ID: 179.10.Eff-27d **S&H ID:** 9811-77 **Date Sampled:** 11/9/98 3:48:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
476	Cl2Dose	Chlorine Dose	3.92	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
477	Cl2Res	Chlorine Residual	0.70	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
478	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.0	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
479	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.8	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
480	HAA-ICR	Bromochloroacetic acid	16.3	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
481	HAA-ICR	Bromodichloroacetic acid	15.0	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0

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

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482	HAA-ICR	Chlorodibromoacetic acid	10.5	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
483	HAA-ICR	Dibromoacetic acid	19.6	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
484	HAA-ICR	Dichloroacetic acid	9.4	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
485	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
486	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
487	HAA-ICR	Tribromoacetic acid	7.2	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/16/98	0-265-0
488	HAA-ICR	Trichloroacetic acid	10.1	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
489	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
490	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
491	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
492	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
493	TEMP	Temperature	21.4	ºC	SM 2550 B	1	n/a	11/9/98		11/9/98	n/a
494	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
495	TOC-ICR	TOC	3.86	mg/L	SM 5310 C	1	0.50	11/9/98		11/9/98	7-0-457
496	TOC-ICR	TOC (Dupl)	3.75	mg/L	SM 5310 C	1	0.50	11/9/98		11/9/98	7-0-457
			3.80	**mg/L**	**2.9 % RPD**						
497	TOX-ICR	TOX	274	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
498	TOX-ICR	TOX (Dupl)	273	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
			274	**µg Cl-/L**	**0.4 % RPD**						
499	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.0	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
500	THM-ICR	Bromodichloromethane	40.0	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
501	THM-ICR	Bromoform	31.4	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
502	THM-ICR	Chloroform	14.7	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
503	THM-ICR	Dibromochloromethane	65.1	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
504	UV-ICR	UV	0.058	1/cm	SM 5910 B	1	0.009	11/9/98		11/9/98	8-0-354
505	UV-ICR	UV (Dupl)	0.058	1/cm	SM 5910 B	1	0.009	11/9/98		11/9/98	8-0-354
			0.058	**1/cm**	**0.0 % RPD**						

Sample ID: 179.20.Eff-1 **S&H ID:** 9811-80 **Date Sampled:** 11/3/98 7:58:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
506	Cl2Dose	Chlorine Dose	1.65	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/5/98		11/5/98	n/a
507	Cl2Res	Chlorine Residual	0.98	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/5/98		11/6/98	n/a
508	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.0	%	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
509	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.8	%	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
510	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
511	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
512	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/6/98	11/11/98	11/11/98	0-262-0
513	HAA-ICR	Dibromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0

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

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514	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
515	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
516	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/6/98	11/11/98	11/11/98	0-262-0
517	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/6/98	11/11/98	11/11/98	0-262-0
518	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
519	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/6/98	n/a
520	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/5/98	n/a
521	pH	pH	8.9	Unit	SM 4500-H+ B	1	n/a	11/3/98		11/3/98	n/a
522	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/5/98		11/6/98	n/a
523	TEMP	Temperature	21.8	ºC	SM 2550 B	1	n/a	11/3/98		11/3/98	n/a
524	TIME	Cl2 Incubation Time	24.1	hrs	n/a	1	n/a	11/5/98		11/6/98	n/a
525	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	11/3/98		11/4/98	7-0-452
526	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	11/3/98		11/4/98	7-0-452
			ND	**mg/L**							
527	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	11/6/98		11/11/98	12-0-241
528	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	11/6/98		11/11/98	12-0-241
			ND	**µg Cl-/L**							
529	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.4	%	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
530	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
531	THM-ICR	Bromoform	1.5	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
532	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
533	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
534	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/3/98		11/4/98	8-0-346
535	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/3/98		11/4/98	8-0-346
			ND	**1/cm**							

Sample ID: 179.20.Eff-4 **S&H ID:** 9811-83 **Date Sampled:** 11/6/98 11:02:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
536	Cl2Dose	Chlorine Dose	1.74	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
537	Cl2Res	Chlorine Residual	0.76	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
538	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.0	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
539	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.4	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
540	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
541	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
542	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
543	HAA-ICR	Dibromoacetic acid	2.7	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
544	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
545	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0

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

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546	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
547	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
548	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
549	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
550	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
551	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/6/98		11/6/98	n/a
552	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
553	TEMP	Temperature	21.2	ºC	SM 2550 B	1	n/a	11/6/98		11/6/98	n/a
554	TIME	Cl2 Incubation Time	23.7	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
555	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
556	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
			ND	**mg/L**							
557	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/13/98	12-0-243
558	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/13/98	12-0-243
			ND	**µg Cl-/L**							
559	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.8	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
560	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
561	THM-ICR	Bromoform	8.4	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
562	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
563	THM-ICR	Dibromochloromethane	4.1	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/12/98	0-263-0
564	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/6/98		11/6/98	8-0-349
565	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/6/98		11/6/98	8-0-349
			ND	**1/cm**							

Sample ID: 179.20.Eff-6 **S&H ID:** 9811-85 **Date Sampled:** 11/7/98 3:36:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
566	Cl2Dose	Chlorine Dose	1.98	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
567	Cl2Res	Chlorine Residual	0.78	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
568	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.4	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
569	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.4	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
570	HAA-ICR	Bromochloroacetic acid	1.9	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
571	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
572	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
573	HAA-ICR	Dibromoacetic acid	4.2	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
574	HAA-ICR	Dichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
575	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
576	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
577	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

578	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
579	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
580	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
581	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/7/98		11/7/98	n/a
582	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
583	TEMP	Temperature	21.1	ºC	SM 2550 B	1	n/a	11/7/98		11/7/98	n/a
584	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
585	TOC-ICR	TOC	0.76	mg/L	SM 5310 C	1	0.50	11/7/98		11/7/98	7-0-455
586	TOC-ICR	TOC (Dupl)	0.78	mg/L	SM 5310 C	1	0.50	11/7/98		11/7/98	7-0-455
			0.77	**mg/L**	**2.6 % RPD**						
587	TOX-ICR	TOX	31	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
588	TOX-ICR	TOX (Dupl)	29	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/12/98	12-0-242
			30	**µg Cl-/L**	**6.7 % RPD**						
589	THM-ICR	1,2,3-Trichloropropane (Surrogate)	90.4	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
590	THM-ICR	Bromodichloromethane	2.0	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
591	THM-ICR	Bromoform	20.3	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
592	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
593	THM-ICR	Dibromochloromethane	10.4	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
594	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/7/98		11/7/98	8-0-350
595	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/7/98		11/7/98	8-0-350
			ND	**1/cm**							

Sample ID: 179.20.Eff-8 **S&H ID:** 9811-87 **Date Sampled:** 11/7/98 1:33:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
596	Cl2Dose	Chlorine Dose	2.23	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
597	Cl2Res	Chlorine Residual	0.82	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
598	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.0	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
599	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.6	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
600	HAA-ICR	Bromochloroacetic acid	3.0	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
601	HAA-ICR	Bromodichloroacetic acid	1.0	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
602	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
603	HAA-ICR	Dibromoacetic acid	6.2	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
604	HAA-ICR	Dichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
605	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
606	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
607	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
608	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
609	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	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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Study Title: ICR RSSCT 3,4

610	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
611	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/7/98		11/7/98	n/a
612	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
613	TEMP	Temperature	21.4	ºC	SM 2550 B	1	n/a	11/7/98		11/7/98	n/a
614	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
615	TOC-ICR	TOC	1.13	mg/L	SM 5310 C	1	0.50	11/7/98		11/7/98	7-0-455
616	TOC-ICR	TOC (Dupl)	1.09	mg/L	SM 5310 C	1	0.50	11/7/98		11/7/98	7-0-455
			1.11	**mg/L**	**3.6 % RPD**						
617	TOX-ICR	TOX	47	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/13/98	12-0-243
618	TOX-ICR	TOX (Dupl)	48	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/13/98	12-0-243
			48	**µg Cl-/L**	**2.1 % RPD**						
619	THM-ICR	1,2,3-Trichloropropane (Surrogate)	86.8	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
620	THM-ICR	Bromodichloromethane	2.8	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
621	THM-ICR	Bromoform	23.7	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
622	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
623	THM-ICR	Dibromochloromethane	13.9	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
624	UV-ICR	UV	0.012	1/cm	SM 5910 B	1	0.009	11/7/98		11/8/98	8-0-351
625	UV-ICR	UV (Dupl)	0.012	1/cm	SM 5910 B	1	0.009	11/7/98		11/8/98	8-0-351
			0.012	**1/cm**	**0.0 % RPD**						

Sample ID: 179.20.Eff-10 **S&H ID:** 9811-89 **Date Sampled:** 11/8/98 6:13:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
626	Cl2Dose	Chlorine Dose	2.43	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
627	Cl2Res	Chlorine Residual	0.81	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
628	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.0	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
629	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.8	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
630	HAA-ICR	Bromochloroacetic acid	4.2	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
631	HAA-ICR	Bromodichloroacetic acid	1.7	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
632	HAA-ICR	Chlorodibromoacetic acid	2.8	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
633	HAA-ICR	Dibromoacetic acid	10.1	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
634	HAA-ICR	Dichloroacetic acid	3.5	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
635	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
636	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
637	HAA-ICR	Tribromoacetic acid	4.8	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/16/98	0-265-0
638	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
639	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
640	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
641	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/8/98		11/8/98	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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642	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
643	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	11/8/98		11/8/98	n/a
644	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
645	TOC-ICR	TOC	1.51	mg/L	SM 5310 C	1	0.50	11/8/98		11/8/98	7-0-456
646	TOC-ICR	TOC (Dupl)	1.51	mg/L	SM 5310 C	1	0.50	11/8/98		11/8/98	7-0-456
			1.51	**mg/L**	**0.0 % RPD**						
647	TOX-ICR	TOX	81	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
648	TOX-ICR	TOX (Dupl)	79	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
			80	**µg Cl-/L**	**2.5 % RPD**						
649	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.2	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
650	THM-ICR	Bromodichloromethane	5.7	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
651	THM-ICR	Bromoform	30.8	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
652	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
653	THM-ICR	Dibromochloromethane	23.1	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
654	UV-ICR	UV	0.018	1/cm	SM 5910 B	1	0.009	11/8/98		11/8/98	8-0-351
655	UV-ICR	UV (Dupl)	0.018	1/cm	SM 5910 B	1	0.009	11/8/98		11/8/98	8-0-351
			0.018	**1/cm**	**0.0 % RPD**						

Sample ID: 179.20.Eff-13 **S&H ID:** 9811-92 **Date Sampled:** 11/8/98 10:34:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
656	Cl2Dose	Chlorine Dose	2.69	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
657	Cl2Res	Chlorine Residual	0.77	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
658	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	99.2	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
659	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.4	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
660	HAA-ICR	Bromochloroacetic acid	5.6	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
661	HAA-ICR	Bromodichloroacetic acid	2.3	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
662	HAA-ICR	Chlorodibromoacetic acid	3.7	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
663	HAA-ICR	Dibromoacetic acid	11.2	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
664	HAA-ICR	Dichloroacetic acid	4.4	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
665	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
666	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
667	HAA-ICR	Tribromoacetic acid	5.0	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/16/98	0-265-0
668	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
669	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
670	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
671	pH	pH	8.1	Unit	SM 4500-H+ B	1	n/a	11/8/98		11/8/98	n/a
672	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	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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673	TEMP	Temperature	21.2	ºC	SM 2550 B	1	n/a	11/8/98		11/8/98	n/a
674	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
675	TOC-ICR	TOC	1.91	mg/L	SM 5310 C	1	0.50	11/8/98		11/9/98	7-0-457
676	TOC-ICR	TOC (Dupl)	1.91	mg/L	SM 5310 C	1	0.50	11/8/98		11/9/98	7-0-457
			1.91	**mg/L**	**0.0 % RPD**						
677	TOX-ICR	TOX	106	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/16/98	12-0-244
678	TOX-ICR	TOX (Dupl)	105	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/16/98	12-0-244
			106	**µg Cl-/L**	**0.9 % RPD**						
679	THM-ICR	1,2,3-Trichloropropane (Surrogate)	106.4	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
680	THM-ICR	Bromodichloromethane	10.0	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
681	THM-ICR	Bromoform	37.4	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
682	THM-ICR	Chloroform	1.5	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
683	THM-ICR	Dibromochloromethane	34.0	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
684	UV-ICR	UV	0.023	1/cm	SM 5910 B	1	0.009	11/8/98		11/9/98	8-0-352
685	UV-ICR	UV (Dupl)	0.024	1/cm	SM 5910 B	1	0.009	11/8/98		11/9/98	8-0-352
			0.024	**1/cm**	**4.2 % RPD**						

Sample ID: 179.20.Eff-15 **S&H ID:** 9811-94 **Date Sampled:** 11/9/98 3:20:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
686	Cl2Dose	Chlorine Dose	2.89	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
687	Cl2Res	Chlorine Residual	0.76	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
688	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.0	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
689	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.6	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
690	HAA-ICR	Bromochloroacetic acid	10.8	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
691	HAA-ICR	Bromodichloroacetic acid	3.5	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
692	HAA-ICR	Chlorodibromoacetic acid	5.5	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
693	HAA-ICR	Dibromoacetic acid	15.7	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
694	HAA-ICR	Dichloroacetic acid	4.7	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
695	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
696	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
697	HAA-ICR	Tribromoacetic acid	7.4	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/16/98	0-265-0
698	HAA-ICR	Trichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
699	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
700	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
701	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
702	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
703	TEMP	Temperature	22.6	ºC	SM 2550 B	1	n/a	11/9/98		11/9/98	n/a
704	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/10/98		11/11/98	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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705	TOC-ICR	TOC	2.17	mg/L	SM 5310 C	1	0.50	11/9/98		11/9/98	7-0-457
706	TOC-ICR	TOC (Dupl)	2.25	mg/L	SM 5310 C	1	0.50	11/9/98		11/9/98	7-0-457
			2.21	**mg/L**	**3.6 % RPD**						
707	TOX-ICR	TOX	134	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/16/98	12-0-244
708	TOX-ICR	TOX (Dupl)	135	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/16/98	12-0-244
			135	**µg Cl-/L**	**0.7 % RPD**						
709	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.2	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
710	THM-ICR	Bromodichloromethane	14.1	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
711	THM-ICR	Bromoform	40.3	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
712	THM-ICR	Chloroform	2.4	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
713	THM-ICR	Dibromochloromethane	41.2	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
714	UV-ICR	UV	0.028	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-355
715	UV-ICR	UV (Dupl)	0.028	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-355
			0.028	**1/cm**	**0.0 % RPD**						

Sample ID: 179.20.Eff-19 **S&H ID:** 9811-98 **Date Sampled:** 11/10/98 2:50:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
716	Cl2Dose	Chlorine Dose	3.08	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/12/98		11/12/98	n/a
717	Cl2Res	Chlorine Residual	0.66	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/12/98		11/13/98	n/a
718	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	96.0	%	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
719	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.8	%	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
720	HAA-ICR	Bromochloroacetic acid	10.8	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
721	HAA-ICR	Bromodichloroacetic acid	4.3	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
722	HAA-ICR	Chlorodibromoacetic acid	6.3	µg/L	EPA 552.2	1	2.0	11/13/98	11/16/98	11/17/98	0-265-0
723	HAA-ICR	Dibromoacetic acid	17.6	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
724	HAA-ICR	Dichloroacetic acid	4.4	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
725	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
726	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/13/98	11/16/98	11/17/98	0-265-0
727	HAA-ICR	Tribromoacetic acid	7.3	µg/L	EPA 552.2	1	4.0	11/13/98	11/16/98	11/17/98	0-265-0
728	HAA-ICR	Trichloroacetic acid	1.9	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
729	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/12/98		11/13/98	n/a
730	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/12/98		11/12/98	n/a
731	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
732	TEMP	Cl2 Temperature	23.4	ºC	SM 2550 B	1	n/a	11/12/98		11/13/98	n/a
733	TEMP	Temperature	23.1	ºC	SM 2550 B	1	n/a	11/10/98		11/10/98	n/a
734	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	11/12/98		11/13/98	n/a
735	TOC-ICR	TOC	2.48	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458
736	TOC-ICR	TOC (Dupl)	2.51	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458

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

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			2.50	**mg/L**	**1.2 % RPD**						
737	TOX-ICR	TOX	170	µg Cl-/L	SM 5320 B	1	25	11/13/98		11/18/98	12-0-246
738	TOX-ICR	TOX (Dupl)	162	µg Cl-/L	SM 5320 B	1	25	11/13/98		11/18/98	12-0-246
			166	**µg Cl-/L**	**4.8 % RPD**						
739	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.2	%	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
740	THM-ICR	Bromodichloromethane	17.8	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
741	THM-ICR	Bromoform	37.9	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
742	THM-ICR	Chloroform	3.3	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
743	THM-ICR	Dibromochloromethane	42.8	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
744	UV-ICR	UV	0.034	1/cm	SM 5910 B	1	0.009	11/10/98		11/10/98	8-0-356
745	UV-ICR	UV (Dupl)	0.033	1/cm	SM 5910 B	1	0.009	11/10/98		11/10/98	8-0-356
			0.034	**1/cm**	**2.9 % RPD**						

Sample ID: 179.20.Eff-23 **S&H ID:** 9811-102 **Date Sampled:** 11/12/98 7:48:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
746	Cl2Dose	Chlorine Dose	3.31	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
747	Cl2Res	Chlorine Residual	0.62	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
748	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	105.6	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
749	HAA-ICR	2-Bromopropionic acid (Surrogate)	99.6	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
750	HAA-ICR	Bromochloroacetic acid	9.9	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
751	HAA-ICR	Bromodichloroacetic acid	4.6	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
752	HAA-ICR	Chlorodibromoacetic acid	5.0	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
753	HAA-ICR	Dibromoacetic acid	15.4	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
754	HAA-ICR	Dichloroacetic acid	4.8	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
755	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
756	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
757	HAA-ICR	Tribromoacetic acid	5.7	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/23/98	0-270-0
758	HAA-ICR	Trichloroacetic acid	6.0	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
759	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
760	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
761	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/12/98		11/12/98	n/a
762	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
763	TEMP	Temperature	21.3	ºC	SM 2550 B	1	n/a	11/12/98		11/12/98	n/a
764	TIME	Cl2 Incubation Time	24.2	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
765	TOC-ICR	TOC	2.80	mg/L	SM 5310 C	1	0.50	11/12/98		11/12/98	7-0-460
766	TOC-ICR	TOC (Dupl)	2.84	mg/L	SM 5310 C	1	0.50	11/12/98		11/12/98	7-0-460
			2.82	**mg/L**	**1.4 % RPD**						
767	TOX-ICR	TOX	191	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/24/98	12-0-250

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

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768	TOX-ICR	TOX (Dupl)	191	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/24/98	12-0-250
			191	**µg Cl-/L**	**0.0 % RPD**						
769	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.2	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
770	THM-ICR	Bromodichloromethane	22.6	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
771	THM-ICR	Bromoform	38.8	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
772	THM-ICR	Chloroform	5.1	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
773	THM-ICR	Dibromochloromethane	53.3	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
774	UV-ICR	UV	0.039	1/cm	SM 5910 B	1	0.009	11/12/98		11/12/98	8-0-358
775	UV-ICR	UV (Dupl)	0.039	1/cm	SM 5910 B	1	0.009	11/12/98		11/12/98	8-0-358
			0.039	**1/cm**	**0.0 % RPD**						

Sample ID: 179.20.Eff-25 **S&H ID:** 9811-104 **Date Sampled:** 11/13/98 3:41:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
776	Cl2Dose	Chlorine Dose	3.55	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
777	Cl2Res	Chlorine Residual	0.63	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
778	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.4	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
779	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.2	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
780	HAA-ICR	Bromochloroacetic acid	10.7	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
781	HAA-ICR	Bromodichloroacetic acid	6.1	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
782	HAA-ICR	Chlorodibromoacetic acid	5.4	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
783	HAA-ICR	Dibromoacetic acid	15.1	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
784	HAA-ICR	Dichloroacetic acid	5.6	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
785	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
786	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
787	HAA-ICR	Tribromoacetic acid	5.3	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/23/98	0-270-0
788	HAA-ICR	Trichloroacetic acid	6.3	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
789	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
790	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
791	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	11/13/98		11/13/98	n/a
792	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
793	TEMP	Temperature	20.2	ºC	SM 2550 B	1	n/a	11/13/98		11/13/98	n/a
794	TIME	Cl2 Incubation Time	24.2	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
795	TOC-ICR	TOC	3.20	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461
796	TOC-ICR	TOC (Dupl)	3.19	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461
			3.20	**mg/L**	**0.3 % RPD**						
797	TOX-ICR	TOX	214	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/23/98	12-0-249
798	TOX-ICR	TOX (Dupl)	217	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/23/98	12-0-249
			216	**µg Cl-/L**	**1.4 % RPD**						

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

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799	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.8	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
800	THM-ICR	Bromodichloromethane	29.0	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
801	THM-ICR	Bromoform	37.7	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
802	THM-ICR	Chloroform	7.6	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
803	THM-ICR	Dibromochloromethane	61.0	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
804	UV-ICR	UV	0.046	1/cm	SM 5910 B	1	0.009	11/13/98		11/13/98	8-0-360
805	UV-ICR	UV (Dupl)	0.046	1/cm	SM 5910 B	1	0.009	11/13/98		11/13/98	8-0-360
			0.046	**1/cm**	**0.0 % RPD**						

Sample ID: 179.20.Eff-27 **S&H ID:** 9811-106 **Date Sampled:** 11/14/98 9:51:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
806	Cl2Dose	Chlorine Dose	3.74	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/17/98		11/17/98	n/a
807	Cl2Res	Chlorine Residual	0.79	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/17/98		11/18/98	n/a
808	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.0	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
809	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.2	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
810	HAA-ICR	Bromochloroacetic acid	12.6	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
811	HAA-ICR	Bromodichloroacetic acid	8.5	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
812	HAA-ICR	Chlorodibromoacetic acid	6.2	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
813	HAA-ICR	Dibromoacetic acid	16.3	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
814	HAA-ICR	Dichloroacetic acid	6.8	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
815	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
816	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
817	HAA-ICR	Tribromoacetic acid	5.6	µg/L	EPA 552.2	1	4.0	11/18/98	11/23/98	11/24/98	0-270-0
818	HAA-ICR	Trichloroacetic acid	6.7	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
819	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/18/98	n/a
820	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/17/98	n/a
821	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	11/14/98		11/14/98	n/a
822	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/17/98		11/18/98	n/a
823	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	11/14/98		11/14/98	n/a
824	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	11/17/98		11/18/98	n/a
825	TOC-ICR	TOC	3.42	mg/L	SM 5310 C	1	0.50	11/14/98		11/14/98	7-0-462
826	TOC-ICR	TOC (Dupl)	3.44	mg/L	SM 5310 C	1	0.50	11/14/98		11/14/98	7-0-462
			3.43	**mg/L**	**0.6 % RPD**						
827	TOX-ICR	TOX	241	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
828	TOX-ICR	TOX (Dupl)	241	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
			241	**µg Cl-/L**	**0.0 % RPD**						
829	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.4	%	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0

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

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830	THM-ICR	Bromodichloromethane	32.3	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
831	THM-ICR	Bromoform	32.9	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
832	THM-ICR	Chloroform	9.8	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
833	THM-ICR	Dibromochloromethane	61.3	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
834	UV-ICR	UV	0.052	1/cm	SM 5910 B	1	0.009	11/14/98		11/15/98	8-0-362
835	UV-ICR	UV (Dupl)	0.052	1/cm	SM 5910 B	1	0.009	11/14/98		11/15/98	8-0-362
			0.052	**1/cm**	**0.0 % RPD**						

Sample ID: 179.20.Eff-29 **S&H ID:** 9811-108 **Date Sampled:** 11/16/98 12:01:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
836	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	11/16/98		11/16/98	n/a
837	TEMP	Temperature	21.3	ºC	SM 2550 B	1	n/a	11/16/98		11/16/98	n/a
838	TOC-ICR	TOC	4.00	mg/L	SM 5310 C	1	0.50	11/16/98		11/16/98	7-0-464
839	TOC-ICR	TOC (Dupl)	3.99	mg/L	SM 5310 C	1	0.50	11/16/98		11/16/98	7-0-464
			4.00	**mg/L**	**0.2 % RPD**						
840	UV-ICR	UV	0.060	1/cm	SM 5910 B	1	0.009	11/16/98		11/16/98	8-0-363
841	UV-ICR	UV (Dupl)	0.059	1/cm	SM 5910 B	1	0.009	11/16/98		11/16/98	8-0-363
			0.059	**1/cm**	**1.7 % RPD**						

Sample ID: 179.20.Eff-30 **S&H ID:** 9811-109 **Date Sampled:** 11/18/98 4:32:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
842	Cl2Dose	Chlorine Dose	4.16	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/19/98		11/19/98	n/a
843	Cl2Res	Chlorine Residual	0.85	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/19/98		11/20/98	n/a
844	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	103.2	%	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
845	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.4	%	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
846	HAA-ICR	Bromochloroacetic acid	14.4	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
847	HAA-ICR	Bromodichloroacetic acid	11.1	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
848	HAA-ICR	Chlorodibromoacetic acid	6.2	µg/L	EPA 552.2	1	2.0	11/20/98	12/1/98	12/1/98	0-273-0
849	HAA-ICR	Dibromoacetic acid	16.1	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
850	HAA-ICR	Dichloroacetic acid	9.2	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
851	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
852	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/20/98	12/1/98	12/1/98	0-273-0
853	HAA-ICR	Tribromoacetic acid	4.5	µg/L	EPA 552.2	1	4.0	11/20/98	12/1/98	12/1/98	0-273-0
854	HAA-ICR	Trichloroacetic acid	6.8	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
855	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/19/98		11/20/98	n/a
856	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/19/98		11/19/98	n/a
857	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/18/98		11/18/98	n/a
858	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/19/98		11/20/98	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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859	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	11/18/98		11/18/98	n/a
860	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	11/19/98		11/20/98	n/a
861	TOC-ICR	TOC	4.02	mg/L	SM 5310 C	1	0.50	11/18/98		11/18/98	7-0-466
862	TOC-ICR	TOC (Dupl)	4.14	mg/L	SM 5310 C	1	0.50	11/18/98		11/18/98	7-0-466
			4.08	**mg/L**	**2.9 % RPD**						
863	TOX-ICR	TOX	281	µg Cl-/L	SM 5320 B	1	25	11/20/98		11/25/98	12-0-251
864	TOX-ICR	TOX (Dupl)	280	µg Cl-/L	SM 5320 B	1	25	11/20/98		11/25/98	12-0-251
			281	**µg Cl-/L**	**0.4 % RPD**						
865	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.6	%	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
866	THM-ICR	Bromodichloromethane	42.9	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
867	THM-ICR	Bromoform	34.1	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
868	THM-ICR	Chloroform	16.9	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
869	THM-ICR	Dibromochloromethane	69.4	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
870	UV-ICR	UV	0.061	1/cm	SM 5910 B	1	0.009	11/18/98		11/19/98	8-0-365
871	UV-ICR	UV (Dupl)	0.061	1/cm	SM 5910 B	1	0.009	11/18/98		11/19/98	8-0-365
			0.061	**1/cm**	**0.0 % RPD**						

Sample ID: 179.20.Eff-8d **S&H ID:** 9811-110 **Date Sampled:** 11/7/98 1:33:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
872	Cl2Dose	Chlorine Dose	2.23	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
873	Cl2Res	Chlorine Residual	0.88	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
874	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	110.0	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
875	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.2	%	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
876	HAA-ICR	Bromochloroacetic acid	3.8	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
877	HAA-ICR	Bromodichloroacetic acid	1.4	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
878	HAA-ICR	Chlorodibromoacetic acid	2.3	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
879	HAA-ICR	Dibromoacetic acid	8.8	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
880	HAA-ICR	Dichloroacetic acid	1.3	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
881	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
882	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/10/98	11/11/98	11/12/98	0-262-0
883	HAA-ICR	Tribromoacetic acid	4.2	µg/L	EPA 552.2	1	4.0	11/10/98	11/11/98	11/12/98	0-262-0
884	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/10/98	11/11/98	11/12/98	0-262-0
885	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
886	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
887	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/7/98		11/7/98	n/a
888	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
889	TEMP	Temperature	21.4	ºC	SM 2550 B	1	n/a	11/7/98		11/7/98	n/a
890	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	11/9/98		11/10/98	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. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

891	TOC-ICR	TOC	1.13	mg/L	SM 5310 C	1	0.50	11/7/98		11/7/98	7-0-455
892	TOC-ICR	TOC (Dupl)	1.11	mg/L	SM 5310 C	1	0.50	11/7/98		11/7/98	7-0-455
			1.12	**mg/L**	**1.8 % RPD**						
893	TOX-ICR	TOX	49	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/13/98	12-0-243
894	TOX-ICR	TOX (Dupl)	49	µg Cl-/L	SM 5320 B	1	25	11/10/98		11/13/98	12-0-243
			49	**µg Cl-/L**	**0.0 % RPD**						
895	THM-ICR	1,2,3-Trichloropropane (Surrogate)	91.2	%	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
896	THM-ICR	Bromodichloromethane	2.7	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
897	THM-ICR	Bromoform	22.4	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
898	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
899	THM-ICR	Dibromochloromethane	13.2	µg/L	EPA 551.1	1	1.0	11/10/98	11/12/98	11/13/98	0-263-0
900	UV-ICR	UV	0.012	1/cm	SM 5910 B	1	0.009	11/7/98		11/8/98	8-0-351
901	UV-ICR	UV (Dupl)	0.012	1/cm	SM 5910 B	1	0.009	11/7/98		11/8/98	8-0-351
			0.012	**1/cm**	**0.0 % RPD**						

Sample ID: 179.20.Eff-15d **S&H ID:** 9811-111 **Date Sampled:** 11/9/98 3:20:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
902	Cl2Dose	Chlorine Dose	2.89	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
903	Cl2Res	Chlorine Residual	0.76	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
904	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.8	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
905	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.2	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
906	HAA-ICR	Bromochloroacetic acid	9.3	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
907	HAA-ICR	Bromodichloroacetic acid	3.2	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
908	HAA-ICR	Chlorodibromoacetic acid	4.6	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
909	HAA-ICR	Dibromoacetic acid	13.7	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
910	HAA-ICR	Dichloroacetic acid	4.2	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
911	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
912	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
913	HAA-ICR	Tribromoacetic acid	6.1	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/16/98	0-265-0
914	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
915	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
916	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
917	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
918	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
919	TEMP	Temperature	22.5	ºC	SM 2550 B	1	n/a	11/9/98		11/9/98	n/a
920	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
921	TOC-ICR	TOC	2.20	mg/L	SM 5310 C	1	0.50	11/9/98		11/9/98	7-0-457
922	TOC-ICR	TOC (Dupl)	2.23	mg/L	SM 5310 C	1	0.50	11/9/98		11/9/98	7-0-457

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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Sweetwater Authority

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Study Title: ICR RSSCT 3,4

			2.21	**mg/L**	**1.4 % RPD**						
923	TOX-ICR	TOX	136	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
924	TOX-ICR	TOX (Dupl)	146	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
			141	**µg Cl-/L**	**7.1 % RPD**						
925	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.0	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
926	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	98.0	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
			101.0	**%**	**5.9 % RPD**						
927	THM-ICR	Bromodichloromethane	13.7	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
928	THM-ICR	Bromodichloromethane (Lab Dupl)	13.7	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
			13.7	**µg/L**	**0.0 % RPD**						
929	THM-ICR	Bromoform	38.8	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
930	THM-ICR	Bromoform (Lab Dupl)	40.8	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
			39.8	**µg/L**	**5.0 % RPD**						
931	THM-ICR	Chloroform	2.3	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
932	THM-ICR	Chloroform (Lab Dupl)	2.3	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
			2.3	**µg/L**	**0.0 % RPD**						
933	THM-ICR	Dibromochloromethane	40.7	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
934	THM-ICR	Dibromochloromethane (Lab Dupl)	40.6	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
			40.7	**µg/L**	**0.2 % RPD**						
935	UV-ICR	UV	0.029	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-355
936	UV-ICR	UV (Dupl)	0.029	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-355
			0.029	**1/cm**	**0.0 % RPD**						

Sample ID: 179.20.Eff-27d **S&H ID:** 9811-113 **Date Sampled:** 11/14/98 9:51:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
937	Cl2Dose	Chlorine Dose	3.74	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/17/98		11/17/98	n/a
938	Cl2Res	Chlorine Residual	0.81	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/17/98		11/18/98	n/a
939	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	106.0	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
940	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.2	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
941	HAA-ICR	Bromochloroacetic acid	11.7	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
942	HAA-ICR	Bromodichloroacetic acid	7.6	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
943	HAA-ICR	Chlorodibromoacetic acid	5.7	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
944	HAA-ICR	Dibromoacetic acid	14.8	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
945	HAA-ICR	Dichloroacetic acid	6.7	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
946	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
947	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
948	HAA-ICR	Tribromoacetic acid	5.0	µg/L	EPA 552.2	1	4.0	11/18/98	11/23/98	11/24/98	0-270-0
949	HAA-ICR	Trichloroacetic acid	6.0	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

950	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/18/98	n/a
951	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/17/98	n/a
952	pH	pH	8.2	Unit	SM 4500-H+ B	1	n/a	11/14/98		11/14/98	n/a
953	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/17/98		11/18/98	n/a
954	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	11/14/98		11/14/98	n/a
955	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	11/17/98		11/18/98	n/a
956	TOC-ICR	TOC	3.47	mg/L	SM 5310 C	1	0.50	11/14/98		11/14/98	7-0-462
957	TOC-ICR	TOC (Dupl)	3.42	mg/L	SM 5310 C	1	0.50	11/14/98		11/14/98	7-0-462
			3.45	**mg/L**	**1.4 % RPD**						
958	TOX-ICR	TOX	239	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
959	TOX-ICR	TOX (Dupl)	238	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
			239	**µg Cl-/L**	**0.4 % RPD**						
960	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.8	%	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
961	THM-ICR	Bromodichloromethane	34.0	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
962	THM-ICR	Bromoform	33.1	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
963	THM-ICR	Chloroform	10.5	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
964	THM-ICR	Dibromochloromethane	60.8	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
965	UV-ICR	UV	0.052	1/cm	SM 5910 B	1	0.009	11/14/98		11/15/98	8-0-362
966	UV-ICR	UV (Dupl)	0.052	1/cm	SM 5910 B	1	0.009	11/14/98		11/15/98	8-0-362
			0.052	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Inf.A-1 **S&H ID:** 9811-120 **Date Sampled:** 11/3/98 4:55:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
967	ALK	Alkalinity	142	mg/L	SM 2320 B	1	5	11/3/98		11/4/98	1-0-36
968	ALK	Alkalinity (Dupl)	140	mg/L	SM 2320 B	1	5	11/3/98		11/4/98	1-0-36
			141	**mg/L**	**1.4 % RPD**						
969	NH3	Ammonia Nitrogen	0.09	mg/L	EPA 350.1	1	0.05	11/3/98		11/23/98	MW87692
970	BR	Bromide	0.300	mg/L	EPA 300.0 A	2	0.040	11/3/98		11/12/98	MW87324
971	CaHardM	Calcium Hardness	120	mg/L CaCO3	EPA 200.7	1	5	11/3/98		11/13/98	MW n/a
972	CaMW	Calcium, Total, ICAP	48	mg/L	EPA 200.7	1	1	11/3/98	11/13/98	11/13/98	MW87220
973	MgMW	Magnesium, Total, ICAP	25	mg/L	EPA 200.7	1	0	11/3/98	11/13/98	11/13/98	MW87223
974	TotHard	Total Hardness as CaCO3 by ICP	221	mg/L CaCO3	SM 2340B	1	7	11/3/98		11/13/98	MW n/a

Sample ID: 179.Inf.A-2 **S&H ID:** 9811-121 **Date Sampled:** 11/10/98 2:05:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
975	ALK	Alkalinity	135	mg/L	SM 2320 B	1	5	11/10/98		11/11/98	1-0-37
976	ALK	Alkalinity (Dupl)	135	mg/L	SM 2320 B	1	5	11/10/98		11/11/98	1-0-37
			135	**mg/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. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

977	NH3	Ammonia Nitrogen	0.10	mg/L	EPA 350.1	1	0.05	11/10/98		12/2/98	MW88168
978	BR	Bromide	0.300	mg/L	EPA 300.0 A	1	0.020	11/10/98		11/19/98	MW87590
979	CaHardM	Calcium Hardness	123	mg/L CaCO3	EPA 200.7	1	5	11/10/98		11/24/98	MW n/a
980	CaMW	Calcium, Total, ICAP	49	mg/L	EPA 200.7	1	1	11/10/98	11/24/98	11/24/98	MW87798
981	MgMW	Magnesium, Total, ICAP	24	mg/L	EPA 200.7	1	0	11/10/98	11/24/98	11/24/98	MW87801
982	TotHard	Total Hardness as CaCO3 by ICP	222	mg/L CaCO3	SM 2340B	1	7	11/10/98		11/24/98	MW n/a

Sample ID: 179.Inf.B-1 **S&H ID:** 9811-122 **Date Sampled:** 11/3/98 4:55:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
983	Cl2Dose	Chlorine Dose	5.65	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/5/98		11/5/98	n/a
984	Cl2Res	Chlorine Residual	1.04	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/5/98		11/6/98	n/a
985	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	110.0	%	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
986	HAA-ICR	2-Bromopropionic acid (Surrogate)	94.0	%	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
987	HAA-ICR	Bromochloroacetic acid	25.0	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
988	HAA-ICR	Bromodichloroacetic acid	25.4	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
989	HAA-ICR	Chlorodibromoacetic acid	11.7	µg/L	EPA 552.2	1	2.0	11/6/98	11/11/98	11/11/98	0-262-0
990	HAA-ICR	Dibromoacetic acid	16.0	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
991	HAA-ICR	Dichloroacetic acid	29.3	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
992	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
993	HAA-ICR	Monochloroacetic acid	4.8	µg/L	EPA 552.2	1	2.0	11/6/98	11/11/98	11/11/98	0-262-0
994	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/6/98	11/11/98	11/11/98	0-262-0
995	HAA-ICR	Trichloroacetic acid	17.3	µg/L	EPA 552.2	1	1.0	11/6/98	11/11/98	11/11/98	0-262-0
996	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/6/98	n/a
997	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/5/98		11/5/98	n/a
998	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	11/3/98		11/3/98	n/a
999	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/5/98		11/6/98	n/a
1000	TEMP	Temperature	23.8	ºC	SM 2550 B	1	n/a	11/3/98		11/3/98	n/a
1001	TIME	Cl2 Incubation Time	24.1	hrs	n/a	1	n/a	11/5/98		11/6/98	n/a
1002	TOC-ICR	TOC	5.65	mg/L	SM 5310 C	1	0.50	11/3/98		11/4/98	7-0-452
1003	TOC-ICR	TOC (Dupl)	5.69	mg/L	SM 5310 C	1	0.50	11/3/98		11/4/98	7-0-452
			5.67	**mg/L**	**0.7 % RPD**						
1004	TOX-ICR	TOX	503	µg Cl-/L	SM 5320 B	1	25	11/6/98		11/11/98	12-0-241
1005	TOX-ICR	TOX (Dupl)	487	µg Cl-/L	SM 5320 B	1	25	11/6/98		11/11/98	12-0-241
			495	**µg Cl-/L**	**3.2 % RPD**						
1006	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.8	%	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
1007	THM-ICR	Bromodichloromethane	65.9	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

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Study Title: ICR RSSCT 3,4

1008	THM-ICR	Bromoform	14.7	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
1009	THM-ICR	Chloroform	54.1	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
1010	THM-ICR	Dibromochloromethane	65.4	µg/L	EPA 551.1	1	1.0	11/6/98	11/12/98	11/12/98	0-263-0
1011	TURB	Turbidity	0.15	ntu	SM 2130 B	1	0.05	11/3/98		11/3/98	9-0-20
1012	UV-ICR	UV	0.109	1/cm	SM 5910 B	1	0.009	11/3/98		11/4/98	8-0-346
1013	UV-ICR	UV (Dupl)	0.109	1/cm	SM 5910 B	1	0.009	11/3/98		11/4/98	8-0-346
			0.109	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Inf.B-2 **S&H ID:** 9811-123 **Date Sampled:** 11/6/98 9:30:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1014	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	11/6/98		11/6/98	n/a
1015	TEMP	Temperature	16.4	ºC	SM 2550 B	1	n/a	11/6/98		11/6/98	n/a
1016	TOC-ICR	TOC	5.60	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
1017	TOC-ICR	TOC (Dupl)	5.59	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
			5.59	**mg/L**	**0.2 % RPD**						

Sample ID: 179.Inf.B-3 **S&H ID:** 9811-124 **Date Sampled:** 11/7/98 3:40:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1018	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	11/7/98		11/7/98	n/a
1019	TEMP	Temperature	16.4	ºC	SM 2550 B	1	n/a	11/7/98		11/7/98	n/a
1020	TOC-ICR	TOC	5.70	mg/L	SM 5310 C	1	0.50	11/7/98		11/7/98	7-0-455
1021	TOC-ICR	TOC (Dupl)	5.67	mg/L	SM 5310 C	1	0.50	11/7/98		11/7/98	7-0-455
			5.69	**mg/L**	**0.5 % RPD**						

Sample ID: 179.Inf.B-4 **S&H ID:** 9811-125 **Date Sampled:** 11/10/98 2:00:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1022	Cl2Dose	Chlorine Dose	5.35	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/12/98		11/12/98	n/a
1023	Cl2Res	Chlorine Residual	0.69	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/12/98		11/13/98	n/a
1024	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.4	%	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
1025	HAA-ICR	2-Bromopropionic acid (Surrogate)	90.8	%	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
1026	HAA-ICR	Bromochloroacetic acid	23.9	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
1027	HAA-ICR	Bromodichloroacetic acid	28.8	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
1028	HAA-ICR	Chlorodibromoacetic acid	13.5	µg/L	EPA 552.2	1	2.0	11/13/98	11/16/98	11/17/98	0-265-0
1029	HAA-ICR	Dibromoacetic acid	17.4	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
1030	HAA-ICR	Dichloroacetic acid	23.9	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
1031	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
1032	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/13/98	11/16/98	11/17/98	0-265-0

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

Laboratory Test Results

Mr. Don Thomson
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1033	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/13/98	11/16/98	11/17/98	0-265-0
1034	HAA-ICR	Trichloroacetic acid	20.1	µg/L	EPA 552.2	1	1.0	11/13/98	11/16/98	11/17/98	0-265-0
1035	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/12/98		11/13/98	n/a
1036	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/12/98		11/12/98	n/a
1037	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1038	TEMP	Cl2 Temperature	23.4	ºC	SM 2550 B	1	n/a	11/12/98		11/13/98	n/a
1039	TEMP	Temperature	17.3	ºC	SM 2550 B	1	n/a	11/10/98		11/10/98	n/a
1040	TIME	Cl2 Incubation Time	24.1	hrs	n/a	1	n/a	11/12/98		11/13/98	n/a
1041	TOC-ICR	TOC	5.54	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458
1042	TOC-ICR	TOC (Dupl)	5.52	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458
			5.53	**mg/L**	**0.4 % RPD**						
1043	TOX-ICR	TOX	504	µg Cl-/L	SM 5320 B	1	25	11/13/98		11/19/98	12-0-247
1044	TOX-ICR	TOX (Dupl)	474	µg Cl-/L	SM 5320 B	1	25	11/13/98		11/19/98	12-0-247
			489	**µg Cl-/L**	**6.1 % RPD**						
1045	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.8	%	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
1046	THM-ICR	Bromodichloromethane	65.8	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
1047	THM-ICR	Bromoform	16.5	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
1048	THM-ICR	Chloroform	52.2	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
1049	THM-ICR	Dibromochloromethane	59.7	µg/L	EPA 551.1	1	1.0	11/13/98	11/17/98	11/18/98	0-266-0
1050	TURB	Turbidity	0.15	ntu	SM 2130 B	1	0.05	11/10/98		11/10/98	9-0-21
1051	UV-ICR	UV	0.108	1/cm	SM 5910 B	1	0.009	11/10/98		11/10/98	8-0-356
1052	UV-ICR	UV (Dupl)	0.108	1/cm	SM 5910 B	1	0.009	11/10/98		11/10/98	8-0-356
			0.108	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Inf.B-5 **S&H ID:** 9811-126 **Date Sampled:** 11/16/98 12:45:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1053	pH	pH	8.0	Unit	SM 4500-H+ B	1	n/a	11/16/98		11/16/98	n/a
1054	TEMP	Temperature	18.2	ºC	SM 2550 B	1	n/a	11/16/98		11/16/98	n/a
1055	TOC-ICR	TOC	5.56	mg/L	SM 5310 C	1	0.50	11/16/98		11/16/98	7-0-464
1056	TOC-ICR	TOC (Dupl)	5.57	mg/L	SM 5310 C	1	0.50	11/16/98		11/16/98	7-0-464
			5.56	**mg/L**	**0.2 % RPD**						

Sample ID: 179.Inf.B-6 **S&H ID:** 9811-127 **Date Sampled:** 11/17/98 4:25:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1057	Cl2Dose	Chlorine Dose	5.35	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/19/98		11/19/98	n/a
1058	Cl2Res	Chlorine Residual	0.74	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/19/98		11/20/98	n/a
1059	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	105.6	%	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

1060	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.8	%	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1061	HAA-ICR	Bromochloroacetic acid	22.2	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1062	HAA-ICR	Bromodichloroacetic acid	25.9	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1063	HAA-ICR	Chlorodibromoacetic acid	10.0	µg/L	EPA 552.2	1	2.0	11/20/98	12/1/98	12/1/98	0-273-0
1064	HAA-ICR	Dibromoacetic acid	16.1	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1065	HAA-ICR	Dichloroacetic acid	22.8	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1066	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1067	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/20/98	12/1/98	12/1/98	0-273-0
1068	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/20/98	12/1/98	12/1/98	0-273-0
1069	HAA-ICR	Trichloroacetic acid	17.4	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1070	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/19/98		11/20/98	n/a
1071	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/19/98		11/19/98	n/a
1072	pH	pH	7.7	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/17/98	n/a
1073	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/19/98		11/20/98	n/a
1074	TEMP	Temperature	18.6	ºC	SM 2550 B	1	n/a	11/17/98		11/17/98	n/a
1075	TIME	Cl2 Incubation Time	24.1	hrs	n/a	1	n/a	11/19/98		11/20/98	n/a
1076	TOC-ICR	TOC	5.44	mg/L	SM 5310 C	1	0.50	11/17/98		11/18/98	7-0-466
1077	TOC-ICR	TOC (Dupl)	5.44	mg/L	SM 5310 C	1	0.50	11/17/98		11/18/98	7-0-466
			5.44	**mg/L**	**0.0 % RPD**						
1078	TOX-ICR	TOX	474	µg Cl-/L	SM 5320 B	1	25	11/20/98		11/25/98	12-0-251
1079	TOX-ICR	TOX (Dupl)	474	µg Cl-/L	SM 5320 B	1	25	11/20/98		11/25/98	12-0-251
			474	**µg Cl-/L**	**0.0 % RPD**						
1080	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.2	%	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1081	THM-ICR	Bromodichloromethane	66.8	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1082	THM-ICR	Bromoform	16.9	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1083	THM-ICR	Chloroform	50.9	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1084	THM-ICR	Dibromochloromethane	70.7	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1085	TURB	Turbidity	0.15	ntu	SM 2130 B	1	0.05	11/17/98		11/17/98	9-0-21
1086	UV-ICR	UV	0.109	1/cm	SM 5910 B	1	0.009	11/17/98		11/18/98	8-0-364
1087	UV-ICR	UV (Dupl)	0.109	1/cm	SM 5910 B	1	0.009	11/17/98		11/18/98	8-0-364
			0.109	**1/cm**	**0.0 % RPD**						

Sample ID: Raw.Enh.B1 **S&H ID:** 9811-137 **Date Sampled:** 11/5/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1088	TOC-ICR	TOC	6.45	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
1089	TOC-ICR	TOC (Dupl)	6.45	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
			6.45	**mg/L**	**0.0 % RPD**						
1090	TURB	Turbidity	8.60	ntu	SM 2130 B	1	0.05	11/5/98		11/5/98	9-0-20

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Sample ID: Raw.Enh.B2 **S&H ID:** 9811-138 **Date Sampled:** 11/5/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1091	TOC-ICR	TOC	6.35	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
1092	TOC-ICR	TOC (Dupl)	6.24	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
			6.29	**mg/L**	**1.7 % RPD**						
1093	TURB	Turbidity	9.10	ntu	SM 2130 B	1	0.05	11/5/98		11/5/98	9-0-20

Sample ID: Raw.Enh.B3 **S&H ID:** 9811-139 **Date Sampled:** 11/5/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1094	TOC-ICR	TOC	6.36	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
1095	TOC-ICR	TOC (Dupl)	6.58	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
			6.47	**mg/L**	**3.4 % RPD**						
1096	TURB	Turbidity	8.10	ntu	SM 2130 B	1	0.05	11/5/98		11/5/98	9-0-20

Sample ID: Settled.Enh.B1 **S&H ID:** 9811-140 **Date Sampled:** 11/5/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1097	TOC-ICR	TOC	4.64	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
1098	TOC-ICR	TOC (Dupl)	4.64	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
			4.64	**mg/L**	**0.0 % RPD**						
1099	TURB	Turbidity	1.30	ntu	SM 2130 B	1	0.05	11/5/98		11/5/98	9-0-20

Sample ID: Settled.Enh.B2 **S&H ID:** 9811-141 **Date Sampled:** 11/5/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1100	TOC-ICR	TOC	4.58	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
1101	TOC-ICR	TOC (Dupl)	4.58	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
			4.58	**mg/L**	**0.0 % RPD**						
1102	TURB	Turbidity	1.30	ntu	SM 2130 B	1	0.05	11/5/98		11/5/98	9-0-20

Sample ID: Settled.Enh.B3 **S&H ID:** 9811-142 **Date Sampled:** 11/5/98

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1103	TOC-ICR	TOC	4.44	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
1104	TOC-ICR	TOC (Dupl)	4.58	mg/L	SM 5310 C	1	0.50	11/5/98		11/7/98	7-0-454
			4.51	**mg/L**	**3.1 % RPD**						
1105	TURB	Turbidity	0.90	ntu	SM 2130 B	1	0.05	11/5/98		11/5/98	9-0-20

Sample ID: 179.Opt10.Eff-1 **S&H ID:** 9811-156 **Date Sampled:** 11/6/98 7:47:00 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. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

1106	Cl2Dose	Chlorine Dose	1.25	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/9/98		11/9/98	n/a
1107	Cl2Res	Chlorine Residual	0.63	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/9/98		11/10/98	n/a
1108	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/10/98	n/a
1109	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
1110	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	11/6/98		11/6/98	n/a
1111	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/9/98		11/10/98	n/a
1112	TEMP	Temperature	21.6	ºC	SM 2550 B	1	n/a	11/6/98		11/6/98	n/a
1113	TIME	Cl2 Incubation Time	23.5	hrs	n/a	1	n/a	11/9/98		11/10/98	n/a
1114	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	11/6/98		11/7/98	7-0-455
1115	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	11/6/98		11/7/98	7-0-455
			ND	**mg/L**							
1116	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/6/98		11/7/98	8-0-350
1117	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/6/98		11/7/98	8-0-350
			ND	**1/cm**							

Sample ID: 179.Opt10.Eff-2 **S&H ID:** 9811-157 **Date Sampled:** 11/8/98 1:58:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1118	Cl2Dose	Chlorine Dose	1.51	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
1119	Cl2Res	Chlorine Residual	0.71	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
1120	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.4	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1121	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.0	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1122	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1123	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1124	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
1125	HAA-ICR	Dibromoacetic acid	1.5	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1126	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1127	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1128	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
1129	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/16/98	0-265-0
1130	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1131	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
1132	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1133	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	11/8/98		11/8/98	n/a
1134	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
1135	TEMP	Temperature	20.3	ºC	SM 2550 B	1	n/a	11/8/98		11/8/98	n/a
1136	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
1137	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	11/8/98		11/8/98	7-0-456
1138	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	11/8/98		11/8/98	7-0-456

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

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			ND	**mg/L**							
1139	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
1140	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
			ND	**µg Cl-/L**							
1141	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.8	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1142	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1143	THM-ICR	Bromoform	6.3	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1144	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1145	THM-ICR	Dibromochloromethane	1.3	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1146	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/8/98		11/8/98	8-0-351
1147	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/8/98		11/8/98	8-0-351
			ND	**1/cm**							

Sample ID: 179.Opt10.Eff-6 **S&H ID:** 9811-161 **Date Sampled:** 11/8/98 11:17:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1148	Cl2Dose	Chlorine Dose	1.61	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
1149	Cl2Res	Chlorine Residual	0.57	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
1150	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	98.8	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1151	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard) (Lab Dupl)	101.2	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
			100.0	**%**	**2.4 % RPD**						
1152	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.4	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1153	HAA-ICR	2-Bromopropionic acid (Surrogate) (Lab Dupl)	97.2	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
			97.8	**%**	**1.2 % RPD**						
1154	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1155	HAA-ICR	Bromochloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
			ND	**µg/L**							
1156	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1157	HAA-ICR	Bromodichloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
			ND	**µg/L**							
1158	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
1159	HAA-ICR	Chlorodibromoacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
			ND	**µg/L**							
1160	HAA-ICR	Dibromoacetic acid	2.5	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1161	HAA-ICR	Dibromoacetic acid (Lab Dupl)	2.8	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
			2.6	**µg/L**	**11.5 % RPD**						
1162	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0

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

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1163	HAA-ICR	Dichloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
			ND	**µg/L**							
1164	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1165	HAA-ICR	Monobromoacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
			ND	**µg/L**							
1166	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/16/98	0-265-0
1167	HAA-ICR	Monochloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
			ND	**µg/L**							
1168	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/16/98	0-265-0
1169	HAA-ICR	Tribromoacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/17/98	0-265-0
			ND	**µg/L**							
1170	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/16/98	0-265-0
1171	HAA-ICR	Trichloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
			ND	**µg/L**							
1172	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
1173	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1174	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	11/8/98		11/8/98	n/a
1175	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
1176	TEMP	Temperature	20.6	ºC	SM 2550 B	1	n/a	11/8/98		11/8/98	n/a
1177	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
1178	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	11/8/98		11/9/98	7-0-457
1179	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	11/8/98		11/9/98	7-0-457
			ND	**mg/L**							
1180	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
1181	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
			ND	**µg Cl-/L**							
1182	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.0	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1183	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1184	THM-ICR	Bromoform	9.9	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1185	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1186	THM-ICR	Dibromochloromethane	2.6	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1187	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/8/98		11/9/98	8-0-354
1188	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/8/98		11/9/98	8-0-354
			ND	**1/cm**							

Sample ID: 179.Opt10.Eff-9 **S&H ID:** 9811-164 **Date Sampled:** 11/9/98 12:10:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1189	Cl2Dose	Chlorine Dose	1.89	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	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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1190	Cl2Res	Chlorine Residual	0.69	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
1191	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	99.2	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1192	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.8	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1193	HAA-ICR	Bromochloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1194	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1195	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
1196	HAA-ICR	Dibromoacetic acid	5.4	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1197	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1198	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1199	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
1200	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/17/98	0-265-0
1201	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1202	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
1203	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1204	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
1205	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
1206	TEMP	Temperature	20.6	ºC	SM 2550 B	1	n/a	11/9/98		11/9/98	n/a
1207	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
1208	TOC-ICR	TOC	0.72	mg/L	SM 5310 C	1	0.50	11/9/98		11/9/98	7-0-457
1209	TOC-ICR	TOC (Dupl)	0.73	mg/L	SM 5310 C	1	0.50	11/9/98		11/9/98	7-0-457
			0.72	**mg/L**	**1.4 % RPD**						
1210	TOX-ICR	TOX	30	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
1211	TOX-ICR	TOX (Dupl)	32	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/17/98	12-0-245
			31	**µg Cl-/L**	**6.5 % RPD**						
1212	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.4	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1213	THM-ICR	Bromodichloromethane	1.1	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1214	THM-ICR	Bromoform	19.2	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1215	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1216	THM-ICR	Dibromochloromethane	7.6	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1217	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/9/98		11/9/98	8-0-354
1218	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/9/98		11/9/98	8-0-354
			ND	**1/cm**							

Sample ID: 179.Opt10.Eff-10 **S&H ID:** 9811-165 **Date Sampled:** 11/9/98 4:28:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1219	Cl2Dose	Chlorine Dose	2.09	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
1220	Cl2Res	Chlorine Residual	0.80	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	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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1221	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	98.4	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1222	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.4	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1223	HAA-ICR	Bromochloroacetic acid	2.2	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1224	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1225	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
1226	HAA-ICR	Dibromoacetic acid	7.9	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1227	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1228	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1229	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
1230	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/17/98	0-265-0
1231	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1232	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
1233	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1234	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
1235	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
1236	TEMP	Temperature	22.0	ºC	SM 2550 B	1	n/a	11/9/98		11/9/98	n/a
1237	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
1238	TOC-ICR	TOC	0.96	mg/L	SM 5310 C	1	0.50	11/9/98		11/10/98	7-0-457
1239	TOC-ICR	TOC (Dupl)	0.95	mg/L	SM 5310 C	1	0.50	11/9/98		11/10/98	7-0-457
			0.95	**mg/L**	**1.1 % RPD**						
1240	TOX-ICR	TOX	42	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/13/98	12-0-243
1241	TOX-ICR	TOX (Dupl)	43	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/13/98	12-0-243
			43	**µg Cl-/L**	**2.3 % RPD**						
1242	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.2	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1243	THM-ICR	Bromodichloromethane	1.8	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1244	THM-ICR	Bromoform	24.9	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1245	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1246	THM-ICR	Dibromochloromethane	10.9	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1247	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-355
1248	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-355
			ND	**1/cm**							

Sample ID: 179.Opt10.Eff-11 **S&H ID:** 9811-166 **Date Sampled:** 11/9/98 8:42:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1249	Cl2Dose	Chlorine Dose	2.27	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
1250	Cl2Res	Chlorine Residual	0.74	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
1251	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	101.2	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

1252	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.6	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1253	HAA-ICR	Bromochloroacetic acid	2.9	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1254	HAA-ICR	Bromodichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1255	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
1256	HAA-ICR	Dibromoacetic acid	8.9	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1257	HAA-ICR	Dichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1258	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1259	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
1260	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/17/98	0-265-0
1261	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1262	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
1263	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1264	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
1265	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
1266	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	11/9/98		11/9/98	n/a
1267	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
1268	TOC-ICR	TOC	1.18	mg/L	SM 5310 C	1	0.50	11/9/98		11/10/98	7-0-458
1269	TOC-ICR	TOC (Dupl)	1.19	mg/L	SM 5310 C	1	0.50	11/9/98		11/10/98	7-0-458
			1.19	**mg/L**	**0.8 % RPD**						
1270	TOX-ICR	TOX	56	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/13/98	12-0-243
1271	TOX-ICR	TOX (Dupl)	57	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/13/98	12-0-243
			57	**µg Cl-/L**	**1.8 % RPD**						
1272	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.6	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1273	THM-ICR	Bromodichloromethane	3.2	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1274	THM-ICR	Bromoform	30.0	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1275	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1276	THM-ICR	Dibromochloromethane	16.4	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1277	UV-ICR	UV	0.010	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-356
1278	UV-ICR	UV (Dupl)	0.010	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-356
			0.010	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt10.Eff-13 **S&H ID:** 9811-168 **Date Sampled:** 11/10/98 5:20:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1279	Cl2Dose	Chlorine Dose	2.52	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
1280	Cl2Res	Chlorine Residual	0.75	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
1281	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	105.2	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1282	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.4	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

1283	HAA-ICR	Bromochloroacetic acid	3.2	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1284	HAA-ICR	Bromodichloroacetic acid	1.6	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1285	HAA-ICR	Chlorodibromoacetic acid	2.2	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1286	HAA-ICR	Dibromoacetic acid	9.4	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1287	HAA-ICR	Dichloroacetic acid	1.2	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1288	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1289	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1290	HAA-ICR	Tribromoacetic acid	4.6	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/23/98	0-270-0
1291	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1292	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
1293	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1294	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1295	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
1296	TEMP	Temperature	20.5	ºC	SM 2550 B	1	n/a	11/10/98		11/10/98	n/a
1297	TIME	Cl2 Incubation Time	24.4	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
1298	TOC-ICR	TOC	1.46	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458
1299	TOC-ICR	TOC (Dupl)	1.49	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458
			1.48	**mg/L**	**2.0 % RPD**						
1300	TOX-ICR	TOX	75	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/23/98	12-0-249
1301	TOX-ICR	TOX (Dupl)	73	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/23/98	12-0-249
			74	**µg Cl-/L**	**2.7 % RPD**						
1302	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.0	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1303	THM-ICR	Bromodichloromethane	4.5	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1304	THM-ICR	Bromoform	32.8	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1305	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1306	THM-ICR	Dibromochloromethane	19.1	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1307	UV-ICR	UV	0.014	1/cm	SM 5910 B	1	0.009	11/10/98		11/10/98	8-0-355
1308	UV-ICR	UV (Dupl)	0.014	1/cm	SM 5910 B	1	0.009	11/10/98		11/10/98	8-0-355
			0.014	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt10.Eff-15 **S&H ID:** 9811-170 **Date Sampled:** 11/10/98 2:02:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1309	Cl2Dose	Chlorine Dose	2.78	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
1310	Cl2Res	Chlorine Residual	0.84	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
1311	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.4	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1312	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.8	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1313	HAA-ICR	Bromochloroacetic acid	4.3	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1314	HAA-ICR	Bromodichloroacetic acid	1.6	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

1315	HAA-ICR	Chlorodibromoacetic acid	2.5	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1316	HAA-ICR	Dibromoacetic acid	10.5	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1317	HAA-ICR	Dichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1318	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1319	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1320	HAA-ICR	Tribromoacetic acid	4.7	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/23/98	0-270-0
1321	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1322	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
1323	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1324	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1325	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
1326	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	11/10/98		11/10/98	n/a
1327	TIME	Cl2 Incubation Time	24.4	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
1328	TOC-ICR	TOC	1.82	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458
1329	TOC-ICR	TOC (Dupl)	1.81	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458
			1.81	**mg/L**	**0.6 % RPD**						
1330	TOX-ICR	TOX	95	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/20/98	12-0-248
1331	TOX-ICR	TOX (Dupl)	97	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/20/98	12-0-248
			96	**µg Cl-/L**	**2.1 % RPD**						
1332	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.6	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1333	THM-ICR	Bromodichloromethane	7.3	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1334	THM-ICR	Bromoform	35.8	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1335	THM-ICR	Chloroform	1.3	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1336	THM-ICR	Dibromochloromethane	25.9	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1337	UV-ICR	UV	0.018	1/cm	SM 5910 B	1	0.009	11/10/98		11/10/98	8-0-356
1338	UV-ICR	UV (Dupl)	0.018	1/cm	SM 5910 B	1	0.009	11/10/98		11/10/98	8-0-356
			0.018	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt10.Eff-17 **S&H ID:** 9811-172 **Date Sampled:** 11/10/98 10:42:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1339	Cl2Dose	Chlorine Dose	2.98	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
1340	Cl2Res	Chlorine Residual	0.94	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
1341	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.4	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1342	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.4	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1343	HAA-ICR	Bromochloroacetic acid	5.4	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1344	HAA-ICR	Bromodichloroacetic acid	2.3	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1345	HAA-ICR	Chlorodibromoacetic acid	3.1	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1346	HAA-ICR	Dibromoacetic acid	12.3	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

1347	HAA-ICR	Dichloroacetic acid	1.8	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1348	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1349	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1350	HAA-ICR	Tribromoacetic acid	5.2	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/23/98	0-270-0
1351	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1352	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
1353	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1354	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1355	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
1356	TEMP	Temperature	21.2	ºC	SM 2550 B	1	n/a	11/10/98		11/10/98	n/a
1357	TIME	Cl2 Incubation Time	24.5	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
1358	TOC-ICR	TOC	2.04	mg/L	SM 5310 C	1	0.50	11/10/98		11/11/98	7-0-459
1359	TOC-ICR	TOC (Dupl)	2.10	mg/L	SM 5310 C	1	0.50	11/10/98		11/11/98	7-0-459
			2.07	**mg/L**	**2.9 % RPD**						
1360	TOX-ICR	TOX	120	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/20/98	12-0-248
1361	TOX-ICR	TOX (Dupl)	114	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/20/98	12-0-248
			117	**µg Cl-/L**	**5.1 % RPD**						
1362	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.4	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1363	THM-ICR	Bromodichloromethane	10.0	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1364	THM-ICR	Bromoform	35.7	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1365	THM-ICR	Chloroform	1.8	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1366	THM-ICR	Dibromochloromethane	31.6	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1367	UV-ICR	UV	0.021	1/cm	SM 5910 B	1	0.009	11/10/98		11/11/98	8-0-357
1368	UV-ICR	UV (Dupl)	0.021	1/cm	SM 5910 B	1	0.009	11/10/98		11/11/98	8-0-357
			0.021	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt10.Eff-20 **S&H ID:** 9811-175 **Date Sampled:** 11/11/98 11:57:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1369	Cl2Dose	Chlorine Dose	3.20	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
1370	Cl2Res	Chlorine Residual	0.96	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
1371	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	103.6	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1372	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.8	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1373	HAA-ICR	Bromochloroacetic acid	6.3	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1374	HAA-ICR	Bromodichloroacetic acid	2.8	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1375	HAA-ICR	Chlorodibromoacetic acid	3.1	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1376	HAA-ICR	Dibromoacetic acid	11.6	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1377	HAA-ICR	Dichloroacetic acid	2.2	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1378	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0

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

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1379	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1380	HAA-ICR	Tribromoacetic acid	4.6	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/23/98	0-270-0
1381	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1382	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
1383	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1384	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/11/98		11/11/98	n/a
1385	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
1386	TEMP	Temperature	20.7	ºC	SM 2550 B	1	n/a	11/11/98		11/11/98	n/a
1387	TIME	Cl2 Incubation Time	24.4	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
1388	TOC-ICR	TOC	2.37	mg/L	SM 5310 C	1	0.50	11/11/98		11/11/98	7-0-459
1389	TOC-ICR	TOC (Dupl)	2.34	mg/L	SM 5310 C	1	0.50	11/11/98		11/11/98	7-0-459
			2.36	**mg/L**	**1.3 % RPD**						
1390	TOX-ICR	TOX	137	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/20/98	12-0-248
1391	TOX-ICR	TOX (Dupl)	138	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/20/98	12-0-248
			138	**µg Cl-/L**	**0.7 % RPD**						
1392	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.8	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1393	THM-ICR	Bromodichloromethane	14.0	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1394	THM-ICR	Bromoform	34.8	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1395	THM-ICR	Chloroform	2.8	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1396	THM-ICR	Dibromochloromethane	36.6	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1397	UV-ICR	UV	0.027	1/cm	SM 5910 B	1	0.009	11/11/98		11/12/98	8-0-358
1398	UV-ICR	UV (Dupl)	0.027	1/cm	SM 5910 B	1	0.009	11/11/98		11/12/98	8-0-358
			0.027	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt10.Eff-23 **S&H ID:** 9811-178 **Date Sampled:** 11/12/98 9:38:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1399	Cl2Dose	Chlorine Dose	3.45	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
1400	Cl2Res	Chlorine Residual	1.16	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
1401	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	103.2	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1402	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard) (Lab Dupl)	107.2	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
			105.2	**%**	**3.8 % RPD**						
1403	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.6	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1404	HAA-ICR	2-Bromopropionic acid (Surrogate) (Lab Dupl)	97.6	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
			97.6	**%**	**0.0 % RPD**						
1405	HAA-ICR	Bromochloroacetic acid	9.1	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1406	HAA-ICR	Bromochloroacetic acid (Lab Dupl)	8.6	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0

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

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			8.8	**µg/L**	**5.7 % RPD**						
1407	HAA-ICR	Bromodichloroacetic acid	4.5	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1408	HAA-ICR	Bromodichloroacetic acid (Lab Dupl)	3.9	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
			4.2	**µg/L**	**14.3 % RPD**						
1409	HAA-ICR	Chlorodibromoacetic acid	5.0	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1410	HAA-ICR	Chlorodibromoacetic acid (Lab Dupl)	4.4	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
			4.7	**µg/L**	**12.8 % RPD**						
1411	HAA-ICR	Dibromoacetic acid	16.0	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1412	HAA-ICR	Dibromoacetic acid (Lab Dupl)	14.2	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
			15.1	**µg/L**	**11.9 % RPD**						
1413	HAA-ICR	Dichloroacetic acid	3.4	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1414	HAA-ICR	Dichloroacetic acid (Lab Dupl)	3.3	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
			3.3	**µg/L**	**3.0 % RPD**						
1415	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1416	HAA-ICR	Monobromoacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
			ND	**µg/L**							
1417	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1418	HAA-ICR	Monochloroacetic acid (Lab Dupl)	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
			ND	**µg/L**							
1419	HAA-ICR	Tribromoacetic acid	6.1	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/23/98	0-270-0
1420	HAA-ICR	Tribromoacetic acid (Lab Dupl)	5.2	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/23/98	0-270-0
			5.7	**µg/L**	**15.8 % RPD**						
1421	HAA-ICR	Trichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1422	HAA-ICR	Trichloroacetic acid (Lab Dupl)	1.4	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
			1.5	**µg/L**	**6.7 % RPD**						
1423	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
1424	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1425	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/12/98		11/12/98	n/a
1426	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
1427	TEMP	Temperature	20.3	ºC	SM 2550 B	1	n/a	11/12/98		11/12/98	n/a
1428	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
1429	TOC-ICR	TOC	2.68	mg/L	SM 5310 C	1	0.50	11/12/98		11/12/98	7-0-460
1430	TOC-ICR	TOC (Dupl)	2.66	mg/L	SM 5310 C	1	0.50	11/12/98		11/12/98	7-0-460
			2.67	**mg/L**	**0.7 % RPD**						
1431	TOX-ICR	TOX	168	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/23/98	12-0-249
1432	TOX-ICR	TOX (Dupl)	166	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/23/98	12-0-249
			167	**µg Cl-/L**	**1.2 % RPD**						
1433	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.8	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0

ND (non-detect): Result is below mininum reporting level (MRL).

NR (not reportable): Result did not meet QC criteria.

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1434	THM-ICR	Bromodichloromethane	19.7	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1435	THM-ICR	Bromoform	34.2	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1436	THM-ICR	Chloroform	4.6	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1437	THM-ICR	Dibromochloromethane	44.3	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1438	UV-ICR	UV	0.034	1/cm	SM 5910 B	1	0.009	11/12/98		11/12/98	8-0-358
1439	UV-ICR	UV (Dupl)	0.034	1/cm	SM 5910 B	1	0.009	11/12/98		11/12/98	8-0-358
			0.034	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt10.Eff-27 **S&H ID:** 9811-182 **Date Sampled:** 11/13/98 11:28:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1440	Cl2Dose	Chlorine Dose	3.74	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
1441	Cl2Res	Chlorine Residual	1.10	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
1442	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.4	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1443	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.8	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1444	HAA-ICR	Bromochloroacetic acid	9.5	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1445	HAA-ICR	Bromodichloroacetic acid	4.5	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1446	HAA-ICR	Chlorodibromoacetic acid	5.0	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1447	HAA-ICR	Dibromoacetic acid	13.9	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1448	HAA-ICR	Dichloroacetic acid	4.0	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1449	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1450	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/23/98	0-270-0
1451	HAA-ICR	Tribromoacetic acid	5.4	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/23/98	0-270-0
1452	HAA-ICR	Trichloroacetic acid	1.6	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/23/98	0-270-0
1453	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
1454	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1455	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	11/13/98		11/13/98	n/a
1456	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
1457	TEMP	Temperature	20.0	ºC	SM 2550 B	1	n/a	11/13/98		11/13/98	n/a
1458	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
1459	TOC-ICR	TOC	3.03	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461
1460	TOC-ICR	TOC (Dupl)	3.03	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461
			3.03	**mg/L**	**0.0 % RPD**						
1461	TOX-ICR	TOX	200	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/23/98	12-0-249
1462	TOX-ICR	TOX (Dupl)	200	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/23/98	12-0-249
			200	**µg Cl-/L**	**0.0 % RPD**						
1463	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.4	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1464	THM-ICR	Bromodichloromethane	28.2	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1465	THM-ICR	Bromoform	39.0	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0

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

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1466	THM-ICR	Chloroform	7.7	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1467	THM-ICR	Dibromochloromethane	56.2	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1468	UV-ICR	UV	0.042	1/cm	SM 5910 B	1	0.009	11/13/98		11/14/98	8-0-361
1469	UV-ICR	UV (Dupl)	0.042	1/cm	SM 5910 B	1	0.009	11/13/98		11/14/98	8-0-361
			0.042	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt10.Eff-29 **S&H ID:** 9811-184 **Date Sampled:** 11/15/98 2:09:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1470	Cl2Dose	Chlorine Dose	3.73	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/17/98		11/17/98	n/a
1471	Cl2Res	Chlorine Residual	0.81	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/17/98		11/18/98	n/a
1472	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	105.2	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1473	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.2	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1474	HAA-ICR	Bromochloroacetic acid	10.9	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1475	HAA-ICR	Bromodichloroacetic acid	5.4	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1476	HAA-ICR	Chlorodibromoacetic acid	4.8	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1477	HAA-ICR	Dibromoacetic acid	13.8	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1478	HAA-ICR	Dichloroacetic acid	5.2	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1479	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1480	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1481	HAA-ICR	Tribromoacetic acid	4.5	µg/L	EPA 552.2	1	4.0	11/18/98	11/23/98	11/24/98	0-270-0
1482	HAA-ICR	Trichloroacetic acid	2.1	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1483	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/18/98	n/a
1484	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/17/98	n/a
1485	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1486	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/17/98		11/18/98	n/a
1487	TEMP	Temperature	20.4	ºC	SM 2550 B	1	n/a	11/15/98		11/15/98	n/a
1488	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	11/17/98		11/18/98	n/a
1489	TOC-ICR	TOC	3.47	mg/L	SM 5310 C	1	0.50	11/15/98		11/15/98	7-0-463
1490	TOC-ICR	TOC (Dupl)	3.51	mg/L	SM 5310 C	1	0.50	11/15/98		11/15/98	7-0-463
			3.49	**mg/L**	**1.1 % RPD**						
1491	TOX-ICR	TOX	224	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
1492	TOX-ICR	TOX (Dupl)	226	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
			225	**µg Cl-/L**	**0.9 % RPD**						
1493	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.6	%	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1494	THM-ICR	Bromodichloromethane	32.0	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1495	THM-ICR	Bromoform	30.9	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1496	THM-ICR	Chloroform	10.5	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1497	THM-ICR	Dibromochloromethane	55.2	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0

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

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1498	UV-ICR	UV	0.051	1/cm	SM 5910 B	1	0.009	11/15/98		11/16/98	8-0-363
1499	UV-ICR	UV (Dupl)	0.051	1/cm	SM 5910 B	1	0.009	11/15/98		11/16/98	8-0-363
			0.051	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt10.Eff-30 **S&H ID:** 9811-185 **Date Sampled:** 11/17/98 4:42:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1500	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/17/98	n/a
1501	TEMP	Temperature	19.4	ºC	SM 2550 B	1	n/a	11/17/98		11/17/98	n/a
1502	TOC-ICR	TOC	3.70	mg/L	SM 5310 C	1	0.50	11/17/98		11/17/98	7-0-465
1503	TOC-ICR	TOC (Dupl)	3.80	mg/L	SM 5310 C	1	0.50	11/17/98		11/17/98	7-0-465
			3.75	**mg/L**	**2.7 % RPD**						
1504	UV-ICR	UV	0.056	1/cm	SM 5910 B	1	0.009	11/17/98		11/18/98	8-0-364
1505	UV-ICR	UV (Dupl)	0.056	1/cm	SM 5910 B	1	0.009	11/17/98		11/18/98	8-0-364
			0.056	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt10.Eff-10d **S&H ID:** 9811-188 **Date Sampled:** 11/9/98 4:28:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1506	Cl2Dose	Chlorine Dose	2.09	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
1507	Cl2Res	Chlorine Residual	0.70	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
1508	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.0	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1509	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.4	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1510	HAA-ICR	Bromochloroacetic acid	2.2	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1511	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1512	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
1513	HAA-ICR	Dibromoacetic acid	7.1	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1514	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1515	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1516	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
1517	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/17/98	0-265-0
1518	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1519	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
1520	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1521	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	11/9/98		11/9/98	n/a
1522	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
1523	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	11/9/98		11/9/98	n/a
1524	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
1525	TOC-ICR	TOC	0.97	mg/L	SM 5310 C	1	0.50	11/9/98		11/10/98	7-0-457
1526	TOC-ICR	TOC (Dupl)	0.97	mg/L	SM 5310 C	1	0.50	11/9/98		11/10/98	7-0-457

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

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			0.97	**mg/L**	**0.0 % RPD**						
1527	TOX-ICR	TOX	41	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/13/98	12-0-243
1528	TOX-ICR	TOX (Dupl)	41	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/13/98	12-0-243
			41	**µg Cl-/L**	**0.0 % RPD**						
1529	THM-ICR	1,2,3-Trichloropropane (Surrogate)	92.4	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1530	THM-ICR	Bromodichloromethane	1.8	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1531	THM-ICR	Bromoform	23.8	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1532	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1533	THM-ICR	Dibromochloromethane	10.7	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1534	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-355
1535	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/9/98		11/10/98	8-0-355
			ND	**1/cm**							

Sample ID: 179.Opt10.Eff-15d **S&H ID:** 9811-190 **Date Sampled:** 11/10/98 2:02:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1536	Cl2Dose	Chlorine Dose	2.78	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
1537	Cl2Res	Chlorine Residual	0.90	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
1538	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	105.6	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1539	HAA-ICR	2-Bromopropionic acid (Surrogate)	99.2	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1540	HAA-ICR	Bromochloroacetic acid	4.7	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1541	HAA-ICR	Bromodichloroacetic acid	2.0	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1542	HAA-ICR	Chlorodibromoacetic acid	2.7	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/24/98	0-270-0
1543	HAA-ICR	Dibromoacetic acid	12.2	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1544	HAA-ICR	Dichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1545	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1546	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/24/98	0-270-0
1547	HAA-ICR	Tribromoacetic acid	5.3	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/24/98	0-270-0
1548	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1549	pH	Cl2 pH - Final	8.1	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
1550	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1551	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1552	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
1553	TEMP	Temperature	21.7	ºC	SM 2550 B	1	n/a	11/10/98		11/10/98	n/a
1554	TIME	Cl2 Incubation Time	24.4	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
1555	TOC-ICR	TOC	1.81	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458
1556	TOC-ICR	TOC (Dupl)	1.82	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458
			1.81	**mg/L**	**0.6 % RPD**						
1557	TOX-ICR	TOX	102	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/20/98	12-0-248

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

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1558	TOX-ICR	TOX (Dupl)	102	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/20/98	12-0-248
			102	**µg Cl-/L**	**0.0 % RPD**						
1559	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.6	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1560	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	102.4	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
			102.0	**%**	**0.8 % RPD**						
1561	THM-ICR	Bromodichloromethane	7.7	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1562	THM-ICR	Bromodichloromethane (Lab Dupl)	7.5	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
			7.6	**µg/L**	**2.6 % RPD**						
1563	THM-ICR	Bromoform	37.6	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1564	THM-ICR	Bromoform (Lab Dupl)	36.2	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
			36.9	**µg/L**	**3.8 % RPD**						
1565	THM-ICR	Chloroform	1.4	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1566	THM-ICR	Chloroform (Lab Dupl)	1.3	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
			1.4	**µg/L**	**7.1 % RPD**						
1567	THM-ICR	Dibromochloromethane	27.3	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1568	THM-ICR	Dibromochloromethane (Lab Dupl)	26.8	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
			27.1	**µg/L**	**1.8 % RPD**						
1569	UV-ICR	UV	0.018	1/cm	SM 5910 B	1	0.009	11/10/98		11/10/98	8-0-356
1570	UV-ICR	UV (Dupl)	0.018	1/cm	SM 5910 B	1	0.009	11/10/98		11/10/98	8-0-356
			0.018	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt10.Eff-27d **S&H ID:** 9811-195 **Date Sampled:** 11/13/98 11:28:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1571	Cl2Dose	Chlorine Dose	3.74	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
1572	Cl2Res	Chlorine Residual	1.06	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
1573	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	105.2	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1574	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.0	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1575	HAA-ICR	Bromochloroacetic acid	10.0	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1576	HAA-ICR	Bromodichloroacetic acid	5.0	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1577	HAA-ICR	Chlorodibromoacetic acid	5.1	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/24/98	0-270-0
1578	HAA-ICR	Dibromoacetic acid	15.1	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1579	HAA-ICR	Dichloroacetic acid	4.2	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1580	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1581	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/24/98	0-270-0
1582	HAA-ICR	Tribromoacetic acid	5.6	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/24/98	0-270-0
1583	HAA-ICR	Trichloroacetic acid	1.7	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1584	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
1585	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	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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Study Title: ICR RSSCT 3,4

1586	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	11/13/98		11/13/98	n/a
1587	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
1588	TEMP	Temperature	20.2	ºC	SM 2550 B	1	n/a	11/13/98		11/13/98	n/a
1589	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
1590	TOC-ICR	TOC	3.03	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461
1591	TOC-ICR	TOC (Dupl)	3.00	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461
			3.01	**mg/L**	**1.0 % RPD**						
1592	TOX-ICR	TOX	201	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/19/98	12-0-247
1593	TOX-ICR	TOX (Dupl)	200	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/19/98	12-0-247
			201	**µg Cl-/L**	**0.5 % RPD**						
1594	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.8	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1595	THM-ICR	Bromodichloromethane	27.5	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1596	THM-ICR	Bromoform	36.0	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1597	THM-ICR	Chloroform	7.4	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1598	THM-ICR	Dibromochloromethane	55.2	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1599	UV-ICR	UV	0.042	1/cm	SM 5910 B	1	0.009	11/13/98		11/14/98	8-0-361
1600	UV-ICR	UV (Dupl)	0.042	1/cm	SM 5910 B	1	0.009	11/13/98		11/14/98	8-0-361
			0.042	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt20.Eff-1 **S&H ID:** 9811-196 **Date Sampled:** 11/6/98 7:38:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1601	Cl2Dose	Chlorine Dose	1.40	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
1602	Cl2Res	Chlorine Residual	0.76	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	n/a
1603	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	98.0	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1604	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.8	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1605	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1606	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1607	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
1608	HAA-ICR	Dibromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1609	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1610	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1611	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
1612	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/17/98	0-265-0
1613	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
1614	pH	Cl2 pH - Final	8.2	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
1615	pH	Cl2 pH - Initial	8.1	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
1616	pH	pH	7.9	Unit	SM 4500-H+ B	1	n/a	11/6/98		11/6/98	n/a
1617	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

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1618	TEMP	Temperature	21.5	ºC	SM 2550 B	1	n/a	11/6/98		11/6/98	n/a
1619	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
1620	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	11/6/98		11/7/98	7-0-455
1621	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	11/6/98		11/7/98	7-0-455
			ND	**mg/L**							
1622	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/13/98	12-0-243
1623	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/13/98	12-0-243
			ND	**µg Cl-/L**							
1624	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.0	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1625	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1626	THM-ICR	Bromoform	2.0	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1627	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1628	THM-ICR	Dibromochloromethane	ND	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
1629	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/6/98		11/7/98	8-0-350
1630	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/6/98		11/7/98	8-0-350
			ND	**1/cm**							

Sample ID: 179.Opt20.Eff-7 **S&H ID:** 9811-202 **Date Sampled:** 11/12/98 7:17:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1631	Cl2Dose	Chlorine Dose	1.68	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
1632	Cl2Res	Chlorine Residual	0.75	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
1633	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	99.6	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1634	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.8	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1635	HAA-ICR	Bromochloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1636	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1637	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/24/98	0-270-0
1638	HAA-ICR	Dibromoacetic acid	3.0	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1639	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1640	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1641	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/24/98	0-270-0
1642	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/24/98	0-270-0
1643	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1644	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
1645	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1646	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	11/12/98		11/12/98	n/a
1647	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
1648	TEMP	Temperature	20.0	ºC	SM 2550 B	1	n/a	11/12/98		11/12/98	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. Don Thomson
Sweetwater Authority

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Study Title: ICR RSSCT 3,4

1649	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
1650	TOC-ICR	TOC	ND	mg/L	SM 5310 C	1	0.50	11/12/98		11/12/98	7-0-460
1651	TOC-ICR	TOC (Dupl)	ND	mg/L	SM 5310 C	1	0.50	11/12/98		11/12/98	7-0-460
			ND	**mg/L**							
1652	TOX-ICR	TOX	ND	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/19/98	12-0-247
1653	TOX-ICR	TOX (Dupl)	ND	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/19/98	12-0-247
			ND	**µg Cl-/L**							
1654	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.8	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1655	THM-ICR	Bromodichloromethane	ND	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1656	THM-ICR	Bromoform	9.6	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1657	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1658	THM-ICR	Dibromochloromethane	3.0	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1659	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/12/98		11/12/98	8-0-359
1660	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/12/98		11/12/98	8-0-359
			ND	**1/cm**							

Sample ID: 179.Opt20.Eff-10 **S&H ID:** 9811-205 **Date Sampled:** 11/13/98 12:25:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1661	Cl2Dose	Chlorine Dose	1.89	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
1662	Cl2Res	Chlorine Residual	0.77	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
1663	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	96.4	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1664	HAA-ICR	2-Bromopropionic acid (Surrogate)	101.6	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1665	HAA-ICR	Bromochloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1666	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1667	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/24/98	0-270-0
1668	HAA-ICR	Dibromoacetic acid	4.1	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1669	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1670	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1671	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/24/98	0-270-0
1672	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/24/98	0-270-0
1673	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1674	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
1675	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1676	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	11/13/98		11/13/98	n/a
1677	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
1678	TEMP	Temperature	20.1	ºC	SM 2550 B	1	n/a	11/13/98		11/13/98	n/a
1679	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
1680	TOC-ICR	TOC	0.69	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

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Study Title: ICR RSSCT 3,4

1681	TOC-ICR	TOC (Dupl)	0.69	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461
			0.69	**mg/L**	**0.0 % RPD**						
1682	TOX-ICR	TOX	32	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/19/98	12-0-247
1683	TOX-ICR	TOX (Dupl)	29	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/19/98	12-0-247
			31	**µg Cl-/L**	**9.7 % RPD**						
1684	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.4	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1685	THM-ICR	Bromodichloromethane	1.0	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1686	THM-ICR	Bromoform	18.1	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1687	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1688	THM-ICR	Dibromochloromethane	6.3	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1689	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/13/98		11/13/98	8-0-360
1690	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/13/98		11/13/98	8-0-360
			ND	**1/cm**							

Sample ID: 179.Opt20.Eff-15 **S&H ID:** 9811-210 **Date Sampled:** 11/13/98 10:12:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1691	Cl2Dose	Chlorine Dose	2.07	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/17/98		11/17/98	n/a
1692	Cl2Res	Chlorine Residual	0.74	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/17/98		11/18/98	n/a
1693	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.4	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1694	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.2	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1695	HAA-ICR	Bromochloroacetic acid	2.1	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1696	HAA-ICR	Bromodichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1697	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1698	HAA-ICR	Dibromoacetic acid	6.7	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1699	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1700	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1701	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1702	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/18/98	11/23/98	11/24/98	0-270-0
1703	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1704	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/18/98	n/a
1705	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/17/98	n/a
1706	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	11/13/98		11/13/98	n/a
1707	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/17/98		11/18/98	n/a
1708	TEMP	Temperature	20.8	ºC	SM 2550 B	1	n/a	11/13/98		11/13/98	n/a
1709	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	11/17/98		11/18/98	n/a
1710	TOC-ICR	TOC	0.99	mg/L	SM 5310 C	1	0.50	11/13/98		11/14/98	7-0-462
1711	TOC-ICR	TOC (Dupl)	0.99	mg/L	SM 5310 C	1	0.50	11/13/98		11/14/98	7-0-462
			0.99	**mg/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. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

1712	TOX-ICR	TOX	44	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/25/98	12-0-251
1713	TOX-ICR	TOX (Dupl)	44	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/25/98	12-0-251
			44	**µg Cl-/L**	**0.0 % RPD**						
1714	THM-ICR	1,2,3-Trichloropropane (Surrogate)	99.2	%	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1715	THM-ICR	Bromodichloromethane	2.0	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1716	THM-ICR	Bromoform	20.6	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1717	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1718	THM-ICR	Dibromochloromethane	10.3	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1719	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/13/98		11/14/98	8-0-361
1720	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/13/98		11/14/98	8-0-361
			ND	**1/cm**							

Sample ID: 179.Opt20.Eff-17 **S&H ID:** 9811-212 **Date Sampled:** 11/14/98 3:40:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1721	Cl2Dose	Chlorine Dose	2.23	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/17/98		11/17/98	n/a
1722	Cl2Res	Chlorine Residual	0.80	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/17/98		11/18/98	n/a
1723	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.8	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1724	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.6	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1725	HAA-ICR	Bromochloroacetic acid	2.5	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1726	HAA-ICR	Bromodichloroacetic acid	1.3	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1727	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1728	HAA-ICR	Dibromoacetic acid	7.5	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1729	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1730	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1731	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1732	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/18/98	11/23/98	11/24/98	0-270-0
1733	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1734	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/18/98	n/a
1735	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/17/98	n/a
1736	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/14/98		11/14/98	n/a
1737	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/17/98		11/18/98	n/a
1738	TEMP	Temperature	20.7	ºC	SM 2550 B	1	n/a	11/14/98		11/14/98	n/a
1739	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	11/17/98		11/18/98	n/a
1740	TOC-ICR	TOC	1.23	mg/L	SM 5310 C	1	0.50	11/14/98		11/15/98	7-0-463
1741	TOC-ICR	TOC (Dupl)	1.23	mg/L	SM 5310 C	1	0.50	11/14/98		11/15/98	7-0-463
			1.23	**mg/L**	**0.0 % RPD**						
1742	TOX-ICR	TOX	60	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/25/98	12-0-251
1743	TOX-ICR	TOX (Dupl)	62	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/25/98	12-0-251

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

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			61	**µg Cl-/L**	**3.3 % RPD**						
1744	THM-ICR	1,2,3-Trichloropropane (Surrogate)	96.0	%	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1745	THM-ICR	Bromodichloromethane	3.0	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1746	THM-ICR	Bromoform	25.9	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1747	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1748	THM-ICR	Dibromochloromethane	13.6	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1749	UV-ICR	UV	0.011	1/cm	SM 5910 B	1	0.009	11/14/98		11/15/98	8-0-362
1750	UV-ICR	UV (Dupl)	0.011	1/cm	SM 5910 B	1	0.009	11/14/98		11/15/98	8-0-362
			0.011	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt20.Eff-21 **S&H ID:** 9811-216 **Date Sampled:** 11/15/98 1:30:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1751	Cl2Dose	Chlorine Dose	2.44	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/17/98		11/17/98	n/a
1752	Cl2Res	Chlorine Residual	0.70	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/17/98		11/18/98	n/a
1753	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.8	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1754	HAA-ICR	2-Bromopropionic acid (Surrogate)	99.2	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1755	HAA-ICR	Bromochloroacetic acid	3.1	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1756	HAA-ICR	Bromodichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1757	HAA-ICR	Chlorodibromoacetic acid	2.0	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1758	HAA-ICR	Dibromoacetic acid	7.7	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1759	HAA-ICR	Dichloroacetic acid	1.0	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1760	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1761	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1762	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/18/98	11/23/98	11/24/98	0-270-0
1763	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1764	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/18/98	n/a
1765	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/17/98	n/a
1766	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1767	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/17/98		11/18/98	n/a
1768	TEMP	Temperature	20.4	ºC	SM 2550 B	1	n/a	11/15/98		11/15/98	n/a
1769	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	11/17/98		11/18/98	n/a
1770	TOC-ICR	TOC	1.54	mg/L	SM 5310 C	1	0.50	11/15/98		11/15/98	7-0-463
1771	TOC-ICR	TOC (Dupl)	1.54	mg/L	SM 5310 C	1	0.50	11/15/98		11/15/98	7-0-463
			1.54	**mg/L**	**0.0 % RPD**						
1772	TOX-ICR	TOX	76	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
1773	TOX-ICR	TOX (Dupl)	77	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
			77	**µg Cl-/L**	**1.3 % RPD**						

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

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1774	THM-ICR	1,2,3-Trichloropropane (Surrogate)	102.0	%	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1775	THM-ICR	Bromodichloromethane	4.7	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1776	THM-ICR	Bromoform	28.8	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1777	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1778	THM-ICR	Dibromochloromethane	18.9	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1779	UV-ICR	UV	0.015	1/cm	SM 5910 B	1	0.009	11/15/98		11/16/98	8-0-363
1780	UV-ICR	UV (Dupl)	0.015	1/cm	SM 5910 B	1	0.009	11/15/98		11/16/98	8-0-363
			0.015	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt20.Eff-22 **S&H ID:** 9811-217 **Date Sampled:** 11/16/98 6:38:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1781	Cl2Dose	Chlorine Dose	2.60	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/17/98		11/17/98	n/a
1782	Cl2Res	Chlorine Residual	0.87	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/17/98		11/18/98	n/a
1783	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	101.6	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1784	HAA-ICR	2-Bromopropionic acid (Surrogate)	96.4	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1785	HAA-ICR	Bromochloroacetic acid	3.8	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1786	HAA-ICR	Bromodichloroacetic acid	1.6	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1787	HAA-ICR	Chlorodibromoacetic acid	2.2	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1788	HAA-ICR	Dibromoacetic acid	8.6	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1789	HAA-ICR	Dichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1790	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1791	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1792	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/18/98	11/23/98	11/24/98	0-270-0
1793	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1794	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/18/98	n/a
1795	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/17/98	n/a
1796	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/16/98		11/16/98	n/a
1797	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/17/98		11/18/98	n/a
1798	TEMP	Temperature	20.0	ºC	SM 2550 B	1	n/a	11/16/98		11/16/98	n/a
1799	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	11/17/98		11/18/98	n/a
1800	TOC-ICR	TOC	1.77	mg/L	SM 5310 C	1	0.50	11/16/98		11/16/98	7-0-464
1801	TOC-ICR	TOC (Dupl)	1.78	mg/L	SM 5310 C	1	0.50	11/16/98		11/16/98	7-0-464
			1.77	**mg/L**	**0.6 % RPD**						
1802	TOX-ICR	TOX	88	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
1803	TOX-ICR	TOX (Dupl)	94	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
			91	**µg Cl-/L**	**6.6 % RPD**						
1804	THM-ICR	1,2,3-Trichloropropane (Surrogate)	103.2	%	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0

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

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1805	THM-ICR	Bromodichloromethane	6.9	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1806	THM-ICR	Bromoform	32.4	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1807	THM-ICR	Chloroform	1.3	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1808	THM-ICR	Dibromochloromethane	25.7	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1809	UV-ICR	UV	0.017	1/cm	SM 5910 B	1	0.009	11/16/98		11/16/98	8-0-363
1810	UV-ICR	UV (Dupl)	0.017	1/cm	SM 5910 B	1	0.009	11/16/98		11/16/98	8-0-363
			0.017	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt20.Eff-24 **S&H ID:** 9811-219 **Date Sampled:** 11/16/98 7:39:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1811	Cl2Dose	Chlorine Dose	2.77	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/19/98		11/19/98	n/a
1812	Cl2Res	Chlorine Residual	0.83	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/19/98		11/20/98	n/a
1813	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	103.2	%	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1814	HAA-ICR	2-Bromopropionic acid (Surrogate)	104.0	%	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1815	HAA-ICR	Bromochloroacetic acid	5.3	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1816	HAA-ICR	Bromodichloroacetic acid	1.9	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1817	HAA-ICR	Chlorodibromoacetic acid	2.7	µg/L	EPA 552.2	1	2.0	11/20/98	12/1/98	12/1/98	0-273-0
1818	HAA-ICR	Dibromoacetic acid	12.6	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1819	HAA-ICR	Dichloroacetic acid	1.6	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1820	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1821	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/20/98	12/1/98	12/1/98	0-273-0
1822	HAA-ICR	Tribromoacetic acid	5.0	µg/L	EPA 552.2	1	4.0	11/20/98	12/1/98	12/1/98	0-273-0
1823	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1824	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/19/98		11/20/98	n/a
1825	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/19/98		11/19/98	n/a
1826	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	11/16/98		11/16/98	n/a
1827	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/19/98		11/20/98	n/a
1828	TEMP	Temperature	21.6	ºC	SM 2550 B	1	n/a	11/16/98		11/16/98	n/a
1829	TIME	Cl2 Incubation Time	24.1	hrs	n/a	1	n/a	11/19/98		11/20/98	n/a
1830	TOC-ICR	TOC	1.99	mg/L	SM 5310 C	1	0.50	11/16/98		11/17/98	7-0-465
1831	TOC-ICR	TOC (Dupl)	2.05	mg/L	SM 5310 C	1	0.50	11/16/98		11/17/98	7-0-465
			2.02	**mg/L**	**3.0 % RPD**						
1832	TOX-ICR	TOX	112	µg Cl-/L	SM 5320 B	1	25	11/20/98		11/30/98	12-0-252
1833	TOX-ICR	TOX (Dupl)	111	µg Cl-/L	SM 5320 B	1	25	11/20/98		11/30/98	12-0-252
			112	**µg Cl-/L**	**0.9 % RPD**						
1834	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.4	%	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1835	THM-ICR	Bromodichloromethane	9.8	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1836	THM-ICR	Bromoform	41.4	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0

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

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1837	THM-ICR	Chloroform	1.5	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1838	THM-ICR	Dibromochloromethane	33.1	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1839	UV-ICR	UV	0.021	1/cm	SM 5910 B	1	0.009	11/16/98		11/18/98	8-0-364
1840	UV-ICR	UV (Dupl)	0.021	1/cm	SM 5910 B	1	0.009	11/16/98		11/18/98	8-0-364
			0.021	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt20.Eff-28 **S&H ID:** 9811-223 **Date Sampled:** 11/18/98 11:20:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1841	Cl2Dose	Chlorine Dose	2.95	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/19/98		11/19/98	n/a
1842	Cl2Res	Chlorine Residual	0.88	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/19/98		11/20/98	n/a
1843	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.4	%	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1844	HAA-ICR	2-Bromopropionic acid (Surrogate)	100.0	%	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1845	HAA-ICR	Bromochloroacetic acid	6.0	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1846	HAA-ICR	Bromodichloroacetic acid	2.2	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1847	HAA-ICR	Chlorodibromoacetic acid	2.8	µg/L	EPA 552.2	1	2.0	11/20/98	12/1/98	12/1/98	0-273-0
1848	HAA-ICR	Dibromoacetic acid	13.0	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1849	HAA-ICR	Dichloroacetic acid	1.8	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1850	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1851	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/20/98	12/1/98	12/1/98	0-273-0
1852	HAA-ICR	Tribromoacetic acid	4.7	µg/L	EPA 552.2	1	4.0	11/20/98	12/1/98	12/1/98	0-273-0
1853	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/20/98	12/1/98	12/1/98	0-273-0
1854	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/19/98		11/20/98	n/a
1855	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/19/98		11/19/98	n/a
1856	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/18/98		11/18/98	n/a
1857	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/19/98		11/20/98	n/a
1858	TEMP	Temperature	20.1	ºC	SM 2550 B	1	n/a	11/18/98		11/18/98	n/a
1859	TIME	Cl2 Incubation Time	24.2	hrs	n/a	1	n/a	11/19/98		11/20/98	n/a
1860	TOC-ICR	TOC	2.28	mg/L	SM 5310 C	1	0.50	11/18/98		11/18/98	7-0-466
1861	TOC-ICR	TOC (Dupl)	2.28	mg/L	SM 5310 C	1	0.50	11/18/98		11/18/98	7-0-466
			2.28	**mg/L**	**0.0 % RPD**						
1862	TOX-ICR	TOX	132	µg Cl-/L	SM 5320 B	1	25	11/20/98		11/30/98	12-0-252
1863	TOX-ICR	TOX (Dupl)	130	µg Cl-/L	SM 5320 B	1	25	11/20/98		11/30/98	12-0-252
			131	**µg Cl-/L**	**1.5 % RPD**						
1864	THM-ICR	1,2,3-Trichloropropane (Surrogate)	93.2	%	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1865	THM-ICR	Bromodichloromethane	13.5	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1866	THM-ICR	Bromoform	46.1	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1867	THM-ICR	Chloroform	2.4	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0
1868	THM-ICR	Dibromochloromethane	40.5	µg/L	EPA 551.1	1	1.0	11/20/98	11/30/98	11/30/98	0-272-0

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

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1869	UV-ICR	UV	0.026	1/cm	SM 5910 B	1	0.009	11/18/98		11/19/98	8-0-365
1870	UV-ICR	UV (Dupl)	0.025	1/cm	SM 5910 B	1	0.009	11/18/98		11/19/98	8-0-365
			0.026	**1/cm**	**3.8 % RPD**						

Sample ID: 179.Opt20.Eff-29 **S&H ID:** 9811-224 **Date Sampled:** 11/19/98 10:37:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1871	Cl2Dose	Chlorine Dose	3.15	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/23/98		11/23/98	n/a
1872	Cl2Res	Chlorine Residual	0.88	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/23/98		11/24/98	n/a
1873	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	100.8	%	EPA 552.2	1	1.0	11/24/98	12/1/98	12/1/98	0-273-0
1874	HAA-ICR	2-Bromopropionic acid (Surrogate)	102.8	%	EPA 552.2	1	1.0	11/24/98	12/1/98	12/1/98	0-273-0
1875	HAA-ICR	Bromochloroacetic acid	8.2	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/1/98	0-273-0
1876	HAA-ICR	Bromodichloroacetic acid	3.5	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/1/98	0-273-0
1877	HAA-ICR	Chlorodibromoacetic acid	4.1	µg/L	EPA 552.2	1	2.0	11/24/98	12/1/98	12/1/98	0-273-0
1878	HAA-ICR	Dibromoacetic acid	15.6	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/1/98	0-273-0
1879	HAA-ICR	Dichloroacetic acid	2.7	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/1/98	0-273-0
1880	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/1/98	0-273-0
1881	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/24/98	12/1/98	12/1/98	0-273-0
1882	HAA-ICR	Tribromoacetic acid	5.8	µg/L	EPA 552.2	1	4.0	11/24/98	12/1/98	12/1/98	0-273-0
1883	HAA-ICR	Trichloroacetic acid	1.2	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/1/98	0-273-0
1884	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/23/98		11/24/98	n/a
1885	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/23/98		11/23/98	n/a
1886	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	11/19/98		11/19/98	n/a
1887	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/23/98		11/24/98	n/a
1888	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	11/19/98		11/19/98	n/a
1889	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	11/23/98		11/24/98	n/a
1890	TOC-ICR	TOC	2.66	mg/L	SM 5310 C	1	0.50	11/19/98		11/20/98	7-0-468
1891	TOC-ICR	TOC (Dupl)	2.68	mg/L	SM 5310 C	1	0.50	11/19/98		11/20/98	7-0-468
			2.67	**mg/L**	**0.7 % RPD**						
1892	TOX-ICR	TOX	151	µg Cl-/L	SM 5320 B	1	25	11/24/98		11/30/98	12-0-252
1893	TOX-ICR	TOX (Dupl)	153	µg Cl-/L	SM 5320 B	1	25	11/24/98		11/30/98	12-0-252
			152	**µg Cl-/L**	**1.3 % RPD**						
1894	THM-ICR	1,2,3-Trichloropropane (Surrogate)	97.6	%	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
1895	THM-ICR	1,2,3-Trichloropropane (Surrogate) (Lab Dupl)	95.2	%	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
			96.4	**%**	**2.5 % RPD**						
1896	THM-ICR	Bromodichloromethane	19.5	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
1897	THM-ICR	Bromodichloromethane (Lab Dupl)	19.4	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
			19.4	**µg/L**	**0.5 % RPD**						

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

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1898	THM-ICR	Bromoform	44.6	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
1899	THM-ICR	Bromoform (Lab Dupl)	41.9	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
			43.3	**µg/L**	**6.2 % RPD**						
1900	THM-ICR	Chloroform	4.2	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
1901	THM-ICR	Chloroform (Lab Dupl)	4.0	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
			4.1	**µg/L**	**4.9 % RPD**						
1902	THM-ICR	Dibromochloromethane	51.7	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
1903	THM-ICR	Dibromochloromethane (Lab Dupl)	48.9	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
			50.3	**µg/L**	**5.6 % RPD**						
1904	UV-ICR	UV	0.031	1/cm	SM 5910 B	1	0.009	11/19/98		11/20/98	8-0-366
1905	UV-ICR	UV (Dupl)	0.031	1/cm	SM 5910 B	1	0.009	11/19/98		11/20/98	8-0-366
			0.031	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt20.Eff-10d **S&H ID:** 9811-228 **Date Sampled:** 11/13/98 12:25:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1906	Cl2Dose	Chlorine Dose	1.89	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/15/98		11/15/98	n/a
1907	Cl2Res	Chlorine Residual	0.81	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/15/98		11/16/98	n/a
1908	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	104.0	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1909	HAA-ICR	2-Bromopropionic acid (Surrogate)	94.8	%	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1910	HAA-ICR	Bromochloroacetic acid	1.2	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1911	HAA-ICR	Bromodichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1912	HAA-ICR	Chlorodibromoacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/24/98	0-270-0
1913	HAA-ICR	Dibromoacetic acid	4.4	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1914	HAA-ICR	Dichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1915	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1916	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/16/98	11/23/98	11/24/98	0-270-0
1917	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/16/98	11/23/98	11/24/98	0-270-0
1918	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/16/98	11/23/98	11/24/98	0-270-0
1919	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/16/98	n/a
1920	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/15/98		11/15/98	n/a
1921	pH	pH	7.6	Unit	SM 4500-H+ B	1	n/a	11/13/98		11/13/98	n/a
1922	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/15/98		11/16/98	n/a
1923	TEMP	Temperature	20.1	ºC	SM 2550 B	1	n/a	11/13/98		11/13/98	n/a
1924	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/15/98		11/16/98	n/a
1925	TOC-ICR	TOC	0.69	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461
1926	TOC-ICR	TOC (Dupl)	0.69	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461
			0.69	**mg/L**	**0.0 % RPD**						
1927	TOX-ICR	TOX	28	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/19/98	12-0-247
1928	TOX-ICR	TOX (Dupl)	30	µg Cl-/L	SM 5320 B	1	25	11/16/98		11/19/98	12-0-247

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

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			29	**µg Cl-/L**	**6.9 % RPD**						
1929	THM-ICR	1,2,3-Trichloropropane (Surrogate)	101.2	%	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1930	THM-ICR	Bromodichloromethane	1.1	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1931	THM-ICR	Bromoform	17.5	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1932	THM-ICR	Chloroform	ND	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1933	THM-ICR	Dibromochloromethane	6.2	µg/L	EPA 551.1	1	1.0	11/16/98	11/19/98	11/19/98	0-267-0
1934	UV-ICR	UV	ND	1/cm	SM 5910 B	1	0.009	11/13/98		11/14/98	8-0-361
1935	UV-ICR	UV (Dupl)	ND	1/cm	SM 5910 B	1	0.009	11/13/98		11/14/98	8-0-361
			ND	**1/cm**							

Sample ID: 179.Opt20.Eff-22d **S&H ID:** 9811-230 **Date Sampled:** 11/16/98 6:38:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1936	Cl2Dose	Chlorine Dose	2.60	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/17/98		11/17/98	n/a
1937	Cl2Res	Chlorine Residual	0.85	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/17/98		11/18/98	n/a
1938	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	105.2	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1939	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.0	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1940	HAA-ICR	Bromochloroacetic acid	4.4	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1941	HAA-ICR	Bromodichloroacetic acid	1.9	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1942	HAA-ICR	Chlorodibromoacetic acid	2.7	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1943	HAA-ICR	Dibromoacetic acid	10.9	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1944	HAA-ICR	Dichloroacetic acid	1.3	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1945	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1946	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
1947	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/18/98	11/23/98	11/24/98	0-270-0
1948	HAA-ICR	Trichloroacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
1949	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/18/98	n/a
1950	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/17/98	n/a
1951	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/16/98		11/16/98	n/a
1952	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/17/98		11/18/98	n/a
1953	TEMP	Temperature	20.0	ºC	SM 2550 B	1	n/a	11/16/98		11/16/98	n/a
1954	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/17/98		11/18/98	n/a
1955	TOC-ICR	TOC	1.78	mg/L	SM 5310 C	1	0.50	11/16/98		11/16/98	7-0-464
1956	TOC-ICR	TOC (Dupl)	1.80	mg/L	SM 5310 C	1	0.50	11/16/98		11/16/98	7-0-464
			1.79	**mg/L**	**1.1 % RPD**						
1957	TOX-ICR	TOX	90	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
1958	TOX-ICR	TOX (Dupl)	92	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/24/98	12-0-250
			91	**µg Cl-/L**	**2.2 % RPD**						

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

1959	THM-ICR	1,2,3-Trichloropropane (Surrogate)	100.8	%	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1960	THM-ICR	Bromodichloromethane	6.7	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1961	THM-ICR	Bromoform	31.6	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1962	THM-ICR	Chloroform	1.2	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1963	THM-ICR	Dibromochloromethane	25.3	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
1964	UV-ICR	UV	0.017	1/cm	SM 5910 B	1	0.009	11/16/98		11/16/98	8-0-363
1965	UV-ICR	UV (Dupl)	0.017	1/cm	SM 5910 B	1	0.009	11/16/98		11/16/98	8-0-363
			0.017	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt20.Eff-29d **S&H ID:** 9811-232 **Date Sampled:** 11/19/98 10:37:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1966	Cl2Dose	Chlorine Dose	3.15	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/23/98		11/23/98	n/a
1967	Cl2Res	Chlorine Residual	0.92	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/23/98		11/24/98	n/a
1968	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	108.4	%	EPA 552.2	1	1.0	11/24/98	12/1/98	12/2/98	0-273-0
1969	HAA-ICR	2-Bromopropionic acid (Surrogate)	98.8	%	EPA 552.2	1	1.0	11/24/98	12/1/98	12/2/98	0-273-0
1970	HAA-ICR	Bromochloroacetic acid	7.9	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/2/98	0-273-0
1971	HAA-ICR	Bromodichloroacetic acid	3.4	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/2/98	0-273-0
1972	HAA-ICR	Chlorodibromoacetic acid	4.0	µg/L	EPA 552.2	1	2.0	11/24/98	12/1/98	12/2/98	0-273-0
1973	HAA-ICR	Dibromoacetic acid	15.3	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/2/98	0-273-0
1974	HAA-ICR	Dichloroacetic acid	2.7	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/2/98	0-273-0
1975	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/2/98	0-273-0
1976	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/24/98	12/1/98	12/2/98	0-273-0
1977	HAA-ICR	Tribromoacetic acid	5.8	µg/L	EPA 552.2	1	4.0	11/24/98	12/1/98	12/2/98	0-273-0
1978	HAA-ICR	Trichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	11/24/98	12/1/98	12/2/98	0-273-0
1979	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/23/98		11/24/98	n/a
1980	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/23/98		11/23/98	n/a
1981	pH	pH	7.5	Unit	SM 4500-H+ B	1	n/a	11/19/98		11/19/98	n/a
1982	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/23/98		11/24/98	n/a
1983	TEMP	Temperature	21.0	ºC	SM 2550 B	1	n/a	11/19/98		11/19/98	n/a
1984	TIME	Cl2 Incubation Time	24.0	hrs	n/a	1	n/a	11/23/98		11/24/98	n/a
1985	TOC-ICR	TOC	2.62	mg/L	SM 5310 C	1	0.50	11/19/98		11/20/98	7-0-468
1986	TOC-ICR	TOC (Dupl)	2.67	mg/L	SM 5310 C	1	0.50	11/19/98		11/20/98	7-0-468
			2.65	**mg/L**	**1.9 % RPD**						
1987	TOX-ICR	TOX	153	µg Cl-/L	SM 5320 B	1	25	11/24/98		11/30/98	12-0-252
1988	TOX-ICR	TOX (Dupl)	152	µg Cl-/L	SM 5320 B	1	25	11/24/98		11/30/98	12-0-252
			153	**µg Cl-/L**	**0.7 % RPD**						
1989	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.2	%	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0

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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Study Title: ICR RSSCT 3,4

1990	THM-ICR	Bromodichloromethane	18.5	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
1991	THM-ICR	Bromoform	43.2	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
1992	THM-ICR	Chloroform	3.8	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
1993	THM-ICR	Dibromochloromethane	50.2	µg/L	EPA 551.1	1	1.0	11/24/98	11/30/98	11/30/98	0-272-0
1994	UV-ICR	UV	0.030	1/cm	SM 5910 B	1	0.009	11/19/98		11/20/98	8-0-366
1995	UV-ICR	UV (Dupl)	0.031	1/cm	SM 5910 B	1	0.009	11/19/98		11/20/98	8-0-366
			0.030	**1/cm**	**3.3 % RPD**						

Sample ID: 179.Opt.Inf.A-1 **S&H ID:** 9811-236 **Date Sampled:** 11/6/98 4:30:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
1996	ALK	Alkalinity	98	mg/L	SM 2320 B	1	5	11/6/98		11/7/98	1-0-37
1997	ALK	Alkalinity (Dupl)	103	mg/L	SM 2320 B	1	5	11/6/98		11/7/98	1-0-37
			101	**mg/L**	**5.0 % RPD**						
1998	NH3	Ammonia Nitrogen	0.11	mg/L	EPA 350.1	1	0.05	11/6/98		11/23/98	MW87692
1999	BR	Bromide	0.330	mg/L	EPA 300.0 A	2	0.040	11/6/98		11/12/98	MW87324
2000	CaHardM	Calcium Hardness	121	mg/L CaCO3	EPA 200.7	1	5	11/6/98		11/13/98	MW n/a
2001	CaMW	Calcium, Total, ICAP	48	mg/L	EPA 200.7	1	1	11/6/98	11/13/98	11/13/98	MW87220
2002	MgMW	Magnesium, Total, ICAP	25	mg/L	EPA 200.7	1	0	11/6/98	11/13/98	11/13/98	MW87223
2003	TotHard	Total Hardness as CaCO3 by ICP	223	mg/L CaCO3	SM 2340B	1	7	11/6/98		11/13/98	MW n/a

Sample ID: 179.Opt.Inf.A-2 **S&H ID:** 9811-237 **Date Sampled:** 11/16/98 8:25:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
2004	ALK	Alkalinity	81	mg/L	SM 2320 B	1	5	11/16/98		11/16/98	1-0-37
2005	ALK	Alkalinity (Dupl)	80	mg/L	SM 2320 B	1	5	11/16/98		11/16/98	1-0-37
			81	**mg/L**	**1.2 % RPD**						
2006	NH3	Ammonia Nitrogen	0.08	mg/L	EPA 350.1	1	0.05	11/16/98		12/2/98	MW88168
2007	BR	Bromide	0.340	mg/L	EPA 300.0 A	2	0.040	11/16/98		11/20/98	MW87861
2008	CaHardM	Calcium Hardness	124	mg/L CaCO3	EPA 200.7	1	5	11/16/98		11/24/98	MW n/a
2009	CaMW	Calcium, Total, ICAP	50	mg/L	EPA 200.7	1	1	11/16/98	11/24/98	11/24/98	MW87798
2010	MgMW	Magnesium, Total, ICAP	24	mg/L	EPA 200.7	1	0	11/16/98	11/24/98	11/24/98	MW87801
2011	TotHard	Total Hardness as CaCO3 by ICP	223	mg/L CaCO3	SM 2340B	1	7	11/16/98		11/24/98	MW n/a

Sample ID: 179.Opt.Inf.B-1 **S&H ID:** 9811-238 **Date Sampled:** 11/6/98 4:25:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
2012	Cl2Dose	Chlorine Dose	5.31	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/10/98		11/10/98	n/a
2013	Cl2Res	Chlorine Residual	1.12	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/10/98		11/11/98	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. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

2014	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	102.8	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
2015	HAA-ICR	2-Bromopropionic acid (Surrogate)	92.4	%	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
2016	HAA-ICR	Bromochloroacetic acid	18.8	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
2017	HAA-ICR	Bromodichloroacetic acid	13.9	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
2018	HAA-ICR	Chlorodibromoacetic acid	9.2	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
2019	HAA-ICR	Dibromoacetic acid	15.5	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
2020	HAA-ICR	Dichloroacetic acid	14.6	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
2021	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
2022	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/11/98	11/16/98	11/17/98	0-265-0
2023	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/11/98	11/16/98	11/17/98	0-265-0
2024	HAA-ICR	Trichloroacetic acid	7.9	µg/L	EPA 552.2	1	1.0	11/11/98	11/16/98	11/17/98	0-265-0
2025	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/11/98	n/a
2026	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
2027	pH	pH	6.8	Unit	SM 4500-H+ B	1	n/a	11/6/98		11/6/98	n/a
2028	TEMP	Cl2 Temperature	23.6	ºC	SM 2550 B	1	n/a	11/10/98		11/11/98	n/a
2029	TEMP	Temperature	20.2	ºC	SM 2550 B	1	n/a	11/6/98		11/6/98	n/a
2030	TIME	Cl2 Incubation Time	23.9	hrs	n/a	1	n/a	11/10/98		11/11/98	n/a
2031	TOC-ICR	TOC	4.53	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
2032	TOC-ICR	TOC (Dupl)	4.58	mg/L	SM 5310 C	1	0.50	11/6/98		11/6/98	7-0-454
			4.55	**mg/L**	**1.1 % RPD**						
2033	TOX-ICR	TOX	389	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/16/98	12-0-244
2034	TOX-ICR	TOX (Dupl)	387	µg Cl-/L	SM 5320 B	1	25	11/11/98		11/16/98	12-0-244
			388	**µg Cl-/L**	**0.5 % RPD**						
2035	THM-ICR	1,2,3-Trichloropropane (Surrogate)	95.6	%	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
2036	THM-ICR	Bromodichloromethane	57.7	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
2037	THM-ICR	Bromoform	17.9	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
2038	THM-ICR	Chloroform	39.0	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
2039	THM-ICR	Dibromochloromethane	62.1	µg/L	EPA 551.1	1	1.0	11/11/98	11/17/98	11/17/98	0-266-0
2040	TURB	Turbidity	0.15	ntu	SM 2130 B	1	0.05	11/6/98		11/6/98	9-0-21
2041	UV-ICR	UV	0.090	1/cm	SM 5910 B	1	0.009	11/6/98		11/7/98	8-0-350
2042	UV-ICR	UV (Dupl)	0.090	1/cm	SM 5910 B	1	0.009	11/6/98		11/7/98	8-0-350
			0.090	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt.Inf.B-2 **S&H ID:** 9811-239 **Date Sampled:** 11/10/98 1:45:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
2043	pH	pH	6.8	Unit	SM 4500-H+ B	1	n/a	11/10/98		11/10/98	n/a
2044	TEMP	Temperature	17.8	ºC	SM 2550 B	1	n/a	11/10/98		11/10/98	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. Don Thomson
Sweetwater Authority

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Study Title: ICR RSSCT 3,4

2045	TOC-ICR	TOC	4.50	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458
2046	TOC-ICR	TOC (Dupl)	4.47	mg/L	SM 5310 C	1	0.50	11/10/98		11/10/98	7-0-458
			4.48	**mg/L**	**0.7 % RPD**						

Sample ID: 179.Opt.Inf.B-3 **S&H ID:** 9811-240 **Date Sampled:** 11/13/98 9:35:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
2047	pH	pH	6.9	Unit	SM 4500-H+ B	1	n/a	11/13/98		11/13/98	n/a
2048	TEMP	Temperature	16.0	ºC	SM 2550 B	1	n/a	11/13/98		11/13/98	n/a
2049	TOC-ICR	TOC	4.46	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461
2050	TOC-ICR	TOC (Dupl)	4.44	mg/L	SM 5310 C	1	0.50	11/13/98		11/13/98	7-0-461
			4.45	**mg/L**	**0.4 % RPD**						

Sample ID: 179.Opt.Inf.B-4 **S&H ID:** 9811-241 **Date Sampled:** 11/16/98 8:20:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
2051	Cl2Dose	Chlorine Dose	4.85	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/17/98		11/17/98	n/a
2052	Cl2Res	Chlorine Residual	0.87	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/17/98		11/18/98	n/a
2053	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	110.4	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
2054	HAA-ICR	2-Bromopropionic acid (Surrogate)	94.4	%	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
2055	HAA-ICR	Bromochloroacetic acid	17.8	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
2056	HAA-ICR	Bromodichloroacetic acid	11.2	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
2057	HAA-ICR	Chlorodibromoacetic acid	6.3	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
2058	HAA-ICR	Dibromoacetic acid	14.7	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
2059	HAA-ICR	Dichloroacetic acid	13.1	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
2060	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
2061	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/18/98	11/23/98	11/24/98	0-270-0
2062	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/18/98	11/23/98	11/24/98	0-270-0
2063	HAA-ICR	Trichloroacetic acid	6.4	µg/L	EPA 552.2	1	1.0	11/18/98	11/23/98	11/24/98	0-270-0
2064	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/18/98	n/a
2065	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/17/98		11/17/98	n/a
2066	pH	pH	6.8	Unit	SM 4500-H+ B	1	n/a	11/16/98		11/16/98	n/a
2067	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/17/98		11/18/98	n/a
2068	TEMP	Temperature	15.5	ºC	SM 2550 B	1	n/a	11/16/98		11/16/98	n/a
2069	TIME	Cl2 Incubation Time	23.8	hrs	n/a	1	n/a	11/17/98		11/18/98	n/a
2070	TOC-ICR	TOC	4.43	mg/L	SM 5310 C	1	0.50	11/16/98		11/16/98	7-0-464
2071	TOC-ICR	TOC (Dupl)	4.49	mg/L	SM 5310 C	1	0.50	11/16/98		11/16/98	7-0-464
			4.46	**mg/L**	**1.3 % RPD**						
2072	TOX-ICR	TOX	375	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/25/98	12-0-251
2073	TOX-ICR	TOX (Dupl)	361	µg Cl-/L	SM 5320 B	1	25	11/18/98		11/25/98	12-0-251

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

			368	**µg Cl-/L**	**3.8 % RPD**						
2074	THM-ICR	1,2,3-Trichloropropane (Surrogate)	98.0	%	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
2075	THM-ICR	Bromodichloromethane	53.6	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
2076	THM-ICR	Bromoform	17.0	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
2077	THM-ICR	Chloroform	34.6	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
2078	THM-ICR	Dibromochloromethane	53.8	µg/L	EPA 551.1	1	1.0	11/18/98	11/19/98	11/19/98	0-267-0
2079	TURB	Turbidity	0.10	ntu	SM 2130 B	1	0.05	11/16/98		11/16/98	9-0-21
2080	UV-ICR	UV	0.089	1/cm	SM 5910 B	1	0.009	11/16/98		11/16/98	8-0-363
2081	UV-ICR	UV (Dupl)	0.090	1/cm	SM 5910 B	1	0.009	11/16/98		11/16/98	8-0-363
			0.089	**1/cm**	**1.1 % RPD**						

Sample ID: 179.Opt.Inf.B-5 **S&H ID:** 9811-242 **Date Sampled:** 11/20/98 2:05:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
2082	pH	pH	6.8	Unit	SM 4500-H+ B	1	n/a	11/20/98		11/20/98	n/a
2083	TEMP	Temperature	19.8	ºC	SM 2550 B	1	n/a	11/20/98		11/20/98	n/a
2084	TOC-ICR	TOC	4.81	mg/L	SM 5310 C	1	0.50	11/20/98		11/20/98	7-0-468
2085	TOC-ICR	TOC (Dupl)	4.76	mg/L	SM 5310 C	1	0.50	11/20/98		11/20/98	7-0-468
			4.79	**mg/L**	**1.0 % RPD**						

Sample ID: 179.Opt.Inf.B-6 **S&H ID:** 9811-243 **Date Sampled:** 11/23/98 2:30:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
2086	Cl2Dose	Chlorine Dose	4.95	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/25/98		11/25/98	n/a
2087	Cl2Res	Chlorine Residual	0.98	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/25/98		11/26/98	n/a
2088	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	110.0	%	EPA 552.2	1	1.0	11/26/98	12/1/98	12/2/98	0-273-0
2089	HAA-ICR	2-Bromopropionic acid (Surrogate)	95.2	%	EPA 552.2	1	1.0	11/26/98	12/1/98	12/2/98	0-273-0
2090	HAA-ICR	Bromochloroacetic acid	17.2	µg/L	EPA 552.2	1	1.0	11/26/98	12/1/98	12/2/98	0-273-0
2091	HAA-ICR	Bromodichloroacetic acid	10.8	µg/L	EPA 552.2	1	1.0	11/26/98	12/1/98	12/2/98	0-273-0
2092	HAA-ICR	Chlorodibromoacetic acid	5.9	µg/L	EPA 552.2	1	2.0	11/26/98	12/1/98	12/2/98	0-273-0
2093	HAA-ICR	Dibromoacetic acid	14.0	µg/L	EPA 552.2	1	1.0	11/26/98	12/1/98	12/2/98	0-273-0
2094	HAA-ICR	Dichloroacetic acid	13.2	µg/L	EPA 552.2	1	1.0	11/26/98	12/1/98	12/2/98	0-273-0
2095	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/26/98	12/1/98	12/2/98	0-273-0
2096	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/26/98	12/1/98	12/2/98	0-273-0
2097	HAA-ICR	Tribromoacetic acid	ND	µg/L	EPA 552.2	1	4.0	11/26/98	12/1/98	12/2/98	0-273-0
2098	HAA-ICR	Trichloroacetic acid	6.3	µg/L	EPA 552.2	1	1.0	11/26/98	12/1/98	12/2/98	0-273-0
2099	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/25/98		11/26/98	n/a
2100	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/25/98		11/25/98	n/a
2101	pH	pH	6.7	Unit	SM 4500-H+ B	1	n/a	11/23/98		11/23/98	n/a

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

Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

2102	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/25/98		11/26/98	n/a
2103	TEMP	Temperature	19.1	ºC	SM 2550 B	1	n/a	11/23/98		11/23/98	n/a
2104	TIME	Cl2 Incubation Time	24.5	hrs	n/a	1	n/a	11/25/98		11/26/98	n/a
2105	TOC-ICR	TOC	4.66	mg/L	SM 5310 C	1	0.50	11/23/98		11/23/98	7-0-471
2106	TOC-ICR	TOC (Dupl)	4.67	mg/L	SM 5310 C	1	0.50	11/23/98		11/23/98	7-0-471
			4.67	**mg/L**	**0.2 % RPD**						
2107	TOX-ICR	TOX	393	µg Cl-/L	SM 5320 B	1	25	11/26/98		12/2/98	12-0-254
2108	TOX-ICR	TOX (Dupl)	377	µg Cl-/L	SM 5320 B	1	25	11/26/98		12/2/98	12-0-254
			385	**µg Cl-/L**	**4.2 % RPD**						
2109	THM-ICR	1,2,3-Trichloropropane (Surrogate)	93.2	%	EPA 551.1	1	1.0	11/26/98	11/30/98	11/30/98	0-272-0
2110	THM-ICR	Bromodichloromethane	61.3	µg/L	EPA 551.1	1	1.0	11/26/98	11/30/98	11/30/98	0-272-0
2111	THM-ICR	Bromoform	20.8	µg/L	EPA 551.1	1	1.0	11/26/98	11/30/98	11/30/98	0-272-0
2112	THM-ICR	Chloroform	41.5	µg/L	EPA 551.1	1	1.0	11/26/98	11/30/98	11/30/98	0-272-0
2113	THM-ICR	Dibromochloromethane	61.1	µg/L	EPA 551.1	1	1.0	11/26/98	11/30/98	11/30/98	0-272-0
2114	TURB	Turbidity	0.15	ntu	SM 2130 B	1	0.05	11/23/98		11/23/98	9-0-21
2115	UV-ICR	UV	0.091	1/cm	SM 5910 B	1	0.009	11/23/98		11/23/98	8-0-370
2116	UV-ICR	UV (Dupl)	0.091	1/cm	SM 5910 B	1	0.009	11/23/98		11/23/98	8-0-370
			0.091	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt20.Eff-34 **S&H ID:** 9811-356 **Date Sampled:** 11/22/98 10:42:00 AM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
2117	Cl2Dose	Chlorine Dose	3.30	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/25/98		11/25/98	n/a
2118	Cl2Res	Chlorine Residual	0.81	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/25/98		11/26/98	n/a
2119	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	108.4	%	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2120	HAA-ICR	2-Bromopropionic acid (Surrogate)	97.6	%	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2121	HAA-ICR	Bromochloroacetic acid	8.8	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2122	HAA-ICR	Bromodichloroacetic acid	4.5	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2123	HAA-ICR	Chlorodibromoacetic acid	4.1	µg/L	EPA 552.2	1	2.0	11/26/98	12/7/98	12/8/98	0-280-0
2124	HAA-ICR	Dibromoacetic acid	14.5	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2125	HAA-ICR	Dichloroacetic acid	3.2	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2126	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2127	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/26/98	12/7/98	12/8/98	0-280-0
2128	HAA-ICR	Tribromoacetic acid	5.8	µg/L	EPA 552.2	1	4.0	11/26/98	12/7/98	12/8/98	0-280-0
2129	HAA-ICR	Trichloroacetic acid	1.1	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2130	pH	Cl2 pH - Final	7.9	Unit	SM 4500-H+ B	1	n/a	11/25/98		11/26/98	n/a
2131	pH	Cl2 pH - Initial	7.9	Unit	SM 4500-H+ B	1	n/a	11/25/98		11/25/98	n/a
2132	pH	pH	7.3	Unit	SM 4500-H+ B	1	n/a	11/22/98		11/22/98	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. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

2133	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/25/98		11/26/98	n/a
2134	TEMP	Temperature	20.6	ºC	SM 2550 B	1	n/a	11/22/98		11/22/98	n/a
2135	TIME	Cl2 Incubation Time	24.4	hrs	n/a	1	n/a	11/25/98		11/26/98	n/a
2136	TOC-ICR	TOC	2.95	mg/L	SM 5310 C	1	0.50	11/22/98		11/22/98	7-0-470
2137	TOC-ICR	TOC (Dupl)	2.91	mg/L	SM 5310 C	1	0.50	11/22/98		11/22/98	7-0-470
			2.93	**mg/L**	**1.4 % RPD**						
2138	TOX-ICR	TOX	186	µg Cl-/L	SM 5320 B	1	25	11/26/98		12/2/98	12-0-254
2139	TOX-ICR	TOX (Dupl)	182	µg Cl-/L	SM 5320 B	1	25	11/26/98		12/2/98	12-0-254
			184	**µg Cl-/L**	**2.2 % RPD**						
2140	THM-ICR	1,2,3-Trichloropropane (Surrogate)	104.4	%	EPA 551.1	1	1.0	11/26/98	12/4/98	12/4/98	0-279-0
2141	THM-ICR	Bromodichloromethane	26.3	µg/L	EPA 551.1	1	1.0	11/26/98	12/4/98	12/4/98	0-279-0
2142	THM-ICR	Bromoform	39.1	µg/L	EPA 551.1	1	1.0	11/26/98	12/4/98	12/4/98	0-279-0
2143	THM-ICR	Chloroform	6.4	µg/L	EPA 551.1	1	1.0	11/26/98	12/4/98	12/4/98	0-279-0
2144	THM-ICR	Dibromochloromethane	56.2	µg/L	EPA 551.1	1	1.0	11/26/98	12/4/98	12/4/98	0-279-0
2145	UV-ICR	UV	0.039	1/cm	SM 5910 B	1	0.009	11/22/98		11/23/98	8-0-369
2146	UV-ICR	UV (Dupl)	0.039	1/cm	SM 5910 B	1	0.009	11/22/98		11/23/98	8-0-369
			0.039	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt20.Eff-35 **S&H ID:** 9811-357 **Date Sampled:** 11/23/98 12:05:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
2147	Cl2Dose	Chlorine Dose	3.47	mg/L as Cl2	SM 4500-Cl B	1	n/a	11/25/98		11/25/98	n/a
2148	Cl2Res	Chlorine Residual	0.86	mg/L as Cl2	SM 4500-Cl F	1	0.10	11/25/98		11/26/98	n/a
2149	HAA-ICR	1,2,3-Trichloropropane (IS) (Internal Standard)	105.6	%	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2150	HAA-ICR	2-Bromopropionic acid (Surrogate)	99.6	%	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2151	HAA-ICR	Bromochloroacetic acid	10.7	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2152	HAA-ICR	Bromodichloroacetic acid	5.4	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2153	HAA-ICR	Chlorodibromoacetic acid	5.7	µg/L	EPA 552.2	1	2.0	11/26/98	12/7/98	12/8/98	0-280-0
2154	HAA-ICR	Dibromoacetic acid	17.0	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2155	HAA-ICR	Dichloroacetic acid	4.3	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2156	HAA-ICR	Monobromoacetic acid	ND	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2157	HAA-ICR	Monochloroacetic acid	ND	µg/L	EPA 552.2	1	2.0	11/26/98	12/7/98	12/8/98	0-280-0
2158	HAA-ICR	Tribromoacetic acid	7.1	µg/L	EPA 552.2	1	4.0	11/26/98	12/7/98	12/8/98	0-280-0
2159	HAA-ICR	Trichloroacetic acid	1.5	µg/L	EPA 552.2	1	1.0	11/26/98	12/7/98	12/8/98	0-280-0
2160	pH	Cl2 pH - Final	8.0	Unit	SM 4500-H+ B	1	n/a	11/25/98		11/26/98	n/a
2161	pH	Cl2 pH - Initial	8.0	Unit	SM 4500-H+ B	1	n/a	11/25/98		11/25/98	n/a
2162	pH	pH	7.3	Unit	SM 4500-H+ B	1	n/a	11/23/98		11/23/98	n/a
2163	TEMP	Cl2 Temperature	23.5	ºC	SM 2550 B	1	n/a	11/25/98		11/26/98	n/a
2164	TEMP	Temperature	20.8	ºC	SM 2550 B	1	n/a	11/23/98		11/23/98	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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Laboratory Test Results

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

2165	TIME	Cl2 Incubation Time	24.5	hrs	n/a	1	n/a	11/25/98		11/26/98	n/a
2166	TOC-ICR	TOC	3.18	mg/L	SM 5310 C	1	0.50	11/23/98		11/23/98	7-0-471
2167	TOC-ICR	TOC (Dupl)	3.21	mg/L	SM 5310 C	1	0.50	11/23/98		11/23/98	7-0-471
			3.20	**mg/L**	**0.9 % RPD**						
2168	TOX-ICR	TOX	198	µg Cl-/L	SM 5320 B	1	25	11/26/98		12/2/98	12-0-254
2169	TOX-ICR	TOX (Dupl)	205	µg Cl-/L	SM 5320 B	1	25	11/26/98		12/2/98	12-0-254
			202	**µg Cl-/L**	**3.5 % RPD**						
2170	THM-ICR	1,2,3-Trichloropropane (Surrogate)	94.8	%	EPA 551.1	1	1.0	11/26/98	12/4/98	12/4/98	0-279-0
2171	THM-ICR	Bromodichloromethane	31.6	µg/L	EPA 551.1	1	1.0	11/26/98	12/4/98	12/4/98	0-279-0
2172	THM-ICR	Bromoform	40.7	µg/L	EPA 551.1	1	1.0	11/26/98	12/4/98	12/4/98	0-279-0
2173	THM-ICR	Chloroform	8.6	µg/L	EPA 551.1	1	1.0	11/26/98	12/4/98	12/4/98	0-279-0
2174	THM-ICR	Dibromochloromethane	62.7	µg/L	EPA 551.1	1	1.0	11/26/98	12/4/98	12/4/98	0-279-0
2175	UV-ICR	UV	0.043	1/cm	SM 5910 B	1	0.009	11/23/98		11/23/98	8-0-370
2176	UV-ICR	UV (Dupl)	0.043	1/cm	SM 5910 B	1	0.009	11/23/98		11/23/98	8-0-370
			0.043	**1/cm**	**0.0 % RPD**						

Sample ID: 179.Opt20.Eff-36 **S&H ID:** 9811-358 **Date Sampled:** 11/24/98 10:58:00 PM

#	Analysis	Type	Result	Units	Method	Dilution	MRL	Samp.	Prep.	Anal.	QC Batch
2177	pH	pH	7.4	Unit	SM 4500-H+ B	1	n/a	11/24/98		11/24/98	n/a
2178	TEMP	Temperature	22.4	ºC	SM 2550 B	1	n/a	11/24/98		11/24/98	n/a
2179	TOC-ICR	TOC	3.58	mg/L	SM 5310 C	1	0.50	11/24/98		11/25/98	7-0-473
2180	TOC-ICR	TOC (Dupl)	3.61	mg/L	SM 5310 C	1	0.50	11/24/98		11/25/98	7-0-473
			3.59	**mg/L**	**0.8 % RPD**						
2181	UV-ICR	UV	0.052	1/cm	SM 5910 B	1	0.009	11/24/98		11/25/98	8-0-374
2182	UV-ICR	UV (Dupl)	0.052	1/cm	SM 5910 B	1	0.009	11/24/98		11/25/98	8-0-374
			0.052	**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.

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Quality Control Report

Mr. Don Thomson
Water Quality Superintendent
Sweetwater Authority
505 Garret Avenue
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Phone: 619-475-9047 Fax: 619-479-6271

Study#: 179
Study Title: ICR RSSCT 3,4

Analysis: ALK (Alkalinity) **Method:** SM 2320 B

QC Batch ID: 1-0-36

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	100	96	mg/L	96%		10/27/98	9810-393	5		
Matrix Spike (Dupl)	Matrix Spike	100	96	mg/L	96%		10/27/98	9810-393	5		
		100	**96**	**mg/L**	**96%**	**0.0 %**					
Method Blank	Method Blank		ND*	mg/L			10/27/98	9810-490	5		
Standard	Standard	100	97	mg/L	97%		10/27/98	9810-491	5		
Standard (Dupl)	Standard	100	96	mg/L	96%		10/27/98	9810-491	5		
		100	**97**	**mg/L**	**97%**	**1.0 %**					
Matrix Spike	Matrix Spike	100	96	mg/L	96%		11/04/98	9811-120	5		
Matrix Spike (Dupl)	Matrix Spike	100	96	mg/L	96%		11/04/98	9811-120	5		
		100	**96**	**mg/L**	**96%**	**0.0 %**					
Method Blank	Method Blank		ND*	mg/L			11/04/98	9811-133	5		
Standard	Standard	100	94	mg/L	94%		11/04/98	9811-134	5		
Standard (Dupl)	Standard	100	95	mg/L	95%		11/04/98	9811-134	5		
		100	**95**	**mg/L**	**95%**	**1.1 %**					

Analysis: ALK (Alkalinity) **Method:** SM 2320 B

QC Batch ID: 1-0-37

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	100	100	mg/L	100%		11/07/98	9811-236	5		
Matrix Spike (Dupl)	Matrix Spike	100	96	mg/L	96%		11/07/98	9811-236	5		
		100	**98**	**mg/L**	**98%**	**4.1 %**					
Method Blank	Method Blank		ND*	mg/L			11/07/98	9811-247	5		
Standard	Standard	100	99	mg/L	99%		11/07/98	9811-248	5		
Standard (Dupl)	Standard	100	100	mg/L	100%		11/07/98	9811-248	5		
		100	**100**	**mg/L**	**100%**	**1.0 %**					
Matrix Spike	Matrix Spike	100	97	mg/L	97%		11/11/98	9811-121	5		
Matrix Spike (Dupl)	Matrix Spike	100	96	mg/L	96%		11/11/98	9811-121	5		
		100	**96**	**mg/L**	**96%**	**1.0 %**					
Method Blank	Method Blank		ND*	mg/L			11/11/98	9811-263	5		
Standard	Standard	100	98	mg/L	98%		11/11/98	9811-264	5		
Standard (Dupl)	Standard	100	98	mg/L	98%		11/11/98	9811-264	5		
		100	**98**	**mg/L**	**98%**	**0.0 %**					
Matrix Spike	Matrix Spike	100	96	mg/L	96%		11/16/98	9811-237	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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Cincinnati, OH 45237

Quality Control Report

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Matrix Spike (Dupl)	Matrix Spike	100	96	mg/L	96%		11/16/98	9811-237	5
		100	**96**	**mg/L**	**96%**	**0.0 %**			
Method Blank	Method Blank		ND*	mg/L			11/16/98	9811-306	5
Standard	Standard	100	97	mg/L	97%		11/16/98	9811-307	5
Standard (Dupl)	Standard	100	97	mg/L	97%		11/16/98	9811-307	5
		100	**97**	**mg/L**	**97%**	**0.0 %**			

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-451

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	10.00	9.75	mg/L	97%		9811-33	0.5		
Matrix Spike (Dupl)	Matrix Spike	10.00	9.75	mg/L	97%		9811-33	0.5		
		10.00	**9.75**	**mg/L**	**97%**	**0.0 %**				
Method Blank	Method Blank		ND*	mg/L			9811-22	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-22	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9810-241	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9810-241	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**3.8 %**			50-150%	20%
Standard	Standard	4.00	3.90	mg/L	97%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.94	mg/L	98%		9810-493	0.5	90-110%	
		4.00	**3.92**	**mg/L**	**98%**	**1.0 %**			90-110%	10%
Standard	Standard	10.00	9.43	mg/L	94%		9810-133	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.63	mg/L	96%		9810-133	0.5	90-110%	
		10.00	**9.53**	**mg/L**	**95%**	**2.1 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-452

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%		9811-40	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.96	mg/L	99%		9811-40	0.5		
		4.00	**3.94**	**mg/L**	**98%**	**1.0 %**				
Method Blank	Method Blank		ND*	mg/L			9811-128	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-128	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9810-241	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9810-241	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.97	mg/L	99%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.06	mg/L	101%		9810-493	0.5	90-110%	
		4.00	**4.01**	**mg/L**	**100%**	**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.

Summers & Hooper, Inc.
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Cincinnati, OH 45237

Quality Control Report

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-453

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	3.96	mg/L	99%		9811-44	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.04	mg/L	101%		9811-44	0.5		
		4.00	**4.00**	**mg/L**	**100%**	**2.0 %**				
Method Blank	Method Blank		ND*	mg/L			9811-150	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-150	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9810-241	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9810-241	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.95	mg/L	99%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.92	mg/L	98%		9810-493	0.5	90-110%	
		4.00	**3.94**	**mg/L**	**98%**	**0.8 %**			90-110%	10%
Standard	Standard	10.00	9.79	mg/L	98%		9811-152	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.87	mg/L	99%		9811-152	0.5	90-110%	
		10.00	**9.83**	**mg/L**	**98%**	**0.8 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-454

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.28	mg/L	107%		9811-52	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.39	mg/L	110%		9811-52	0.5		
		4.00	**4.33**	**mg/L**	**108%**	**2.5 %**				
Matrix Spike	Matrix Spike	4.00	3.88	mg/L	97%		9811-75	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.95	mg/L	99%		9811-75	0.5		
		4.00	**3.92**	**mg/L**	**98%**	**1.5 %**				
Method Blank	Method Blank		ND*	mg/L			9811-154	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-154	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9810-241	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.51	mg/L	102%		9810-241	0.5	50-150%	
		0.50	**0.51**	**mg/L**	**102%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	4.04	mg/L	101%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.05	mg/L	101%		9810-493	0.5	90-110%	
		4.00	**4.05**	**mg/L**	**101%**	**0.2 %**			90-110%	10%
Standard	Standard	4.00	3.80	mg/L	95%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.80	mg/L	95%		9810-493	0.5	90-110%	
		4.00	**3.80**	**mg/L**	**95%**	**0.0 %**			90-110%	10%
Standard	Standard	10.00	9.94	mg/L	99%		9811-152	0.5	90-110%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Quality Control Report

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Standard (Dupl)	Standard	10.00	10.28	mg/L	103%		9811-152	0.5	90-110%	
		10.00	**10.11**	**mg/L**	**101%**	**3.4 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-455

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.09	mg/L	102%		9811-84	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.13	mg/L	103%		9811-84	0.5		
		4.00	**4.11**	**mg/L**	**103%**	**1.0 %**				
Method Blank	Method Blank		ND*	mg/L			9811-246	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-246	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.58	mg/L	116%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.57	mg/L	114%		9810-462	0.5	50-150%	
		0.50	**0.58**	**mg/L**	**116%**	**1.7 %**			50-150%	20%
Standard	Standard	4.00	4.14	mg/L	103%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.18	mg/L	104%		9810-493	0.5	90-110%	
		4.00	**4.16**	**mg/L**	**104%**	**1.0 %**			90-110%	10%
Standard	Standard	10.00	9.99	mg/L	100%		9811-152	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.26	mg/L	103%		9811-152	0.5	90-110%	
		10.00	**10.12**	**mg/L**	**101%**	**2.7 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-456

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%		9811-157	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.03	mg/L	101%		9811-157	0.5		
		4.00	**4.01**	**mg/L**	**100%**	**1.2 %**				
Method Blank	Method Blank		ND*	mg/L			9811-250	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-250	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.55	mg/L	110%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.55	mg/L	110%		9810-462	0.5	50-150%	
		0.50	**0.55**	**mg/L**	**110%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.92	mg/L	98%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.99	mg/L	100%		9810-493	0.5	90-110%	
		4.00	**3.96**	**mg/L**	**99%**	**1.8 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-457

QC Type	Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	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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Cincinnati, OH 45237

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Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Matrix Spike	Matrix Spike	4.00	4.01	mg/L	100%		9811-162	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.02	mg/L	100%		9811-162	0.5		
		4.00	**4.01**	**mg/L**	**100%**	**0.2 %**				
Matrix Spike	Matrix Spike	4.00	3.88	mg/L	97%		9811-111	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.94	mg/L	98%		9811-111	0.5		
		4.00	**3.91**	**mg/L**	**98%**	**1.5 %**				
Method Blank	Method Blank		ND*	mg/L			9811-252	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-252	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9810-462	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	4.01	mg/L	100%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.03	mg/L	101%		9810-493	0.5	90-110%	
		4.00	**4.02**	**mg/L**	**100%**	**0.5 %**			90-110%	10%
Standard	Standard	4.00	3.78	mg/L	94%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.87	mg/L	97%		9810-493	0.5	90-110%	
		4.00	**3.83**	**mg/L**	**96%**	**2.3 %**			90-110%	10%
Standard	Standard	10.00	9.94	mg/L	99%		9811-152	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.03	mg/L	100%		9811-152	0.5	90-110%	
		10.00	**9.98**	**mg/L**	**100%**	**0.9 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-458

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%		9811-167	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.95	mg/L	99%		9811-167	0.5		
		4.00	**3.92**	**mg/L**	**98%**	**1.8 %**				
Method Blank	Method Blank		ND*	mg/L			9811-257	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-257	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9810-462	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.96	mg/L	99%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.02	mg/L	100%		9810-493	0.5	90-110%	
		4.00	**3.99**	**mg/L**	**100%**	**1.5 %**			90-110%	10%
Standard	Standard	10.00	9.41	mg/L	94%		9811-152	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.50	mg/L	95%		9811-152	0.5	90-110%	
		10.00	**9.46**	**mg/L**	**95%**	**1.0 %**			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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Quality Control Report

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-459

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.18	mg/L	104%		9811-172	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.21	mg/L	105%		9811-172	0.5		
		4.00	**4.19**	**mg/L**	**105%**	**0.7 %**				
Method Blank	Method Blank		ND*	mg/L			9811-269	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-269	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.55	mg/L	110%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9810-462	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**3.7 %**			50-150%	20%
Standard	Standard	4.00	3.99	mg/L	100%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.02	mg/L	100%		9810-493	0.5	90-110%	
		4.00	**4.01**	**mg/L**	**100%**	**0.7 %**			90-110%	10%
Standard	Standard	10.00	10.04	mg/L	100%		9811-152	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.14	mg/L	101%		9811-152	0.5	90-110%	
		10.00	**10.09**	**mg/L**	**101%**	**1.0 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-460

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Matrix Spike	Matrix Spike	4.00	4.06	mg/L	101%		9811-102	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.08	mg/L	102%		9811-102	0.5		
		4.00	**4.07**	**mg/L**	**102%**	**0.5 %**				
Method Blank	Method Blank		ND*	mg/L			9811-288	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-288	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9810-462	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.98	mg/L	100%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.99	mg/L	100%		9810-493	0.5	90-110%	
		4.00	**3.98**	**mg/L**	**100%**	**0.3 %**			90-110%	10%
Standard	Standard	10.00	9.87	mg/L	99%		9811-152	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.88	mg/L	99%		9811-152	0.5	90-110%	
		10.00	**9.87**	**mg/L**	**99%**	**0.1 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-461

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	3.89	mg/L	97%		9811-181	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.06	mg/L	101%		9811-181	0.5		
		4.00	**3.97**	**mg/L**	**99%**	**4.5 %**				
Method Blank	Method Blank		ND*	mg/L			9811-293	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-293	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9810-462	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.97	mg/L	99%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.95	mg/L	99%		9810-493	0.5	90-110%	
		4.00	**3.96**	**mg/L**	**99%**	**0.5 %**			90-110%	10%
Standard	Standard	10.00	9.62	mg/L	96%		9811-152	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.77	mg/L	98%		9811-152	0.5	90-110%	
		10.00	**9.69**	**mg/L**	**97%**	**1.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-462

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%		9811-210	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.96	mg/L	99%		9811-210	0.5		
		4.00	**3.96**	**mg/L**	**99%**	**0.3 %**				
Method Blank	Method Blank		ND*	mg/L			9811-302	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-302	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.51	mg/L	102%		9810-462	0.5	50-150%	
		0.50	**0.51**	**mg/L**	**102%**	**2.0 %**			50-150%	20%
Standard	Standard	4.00	3.88	mg/L	97%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.93	mg/L	98%		9810-493	0.5	90-110%	
		4.00	**3.90**	**mg/L**	**97%**	**1.3 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-463

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.04	mg/L	101%		9811-213	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.07	mg/L	102%		9811-213	0.5		
		4.00	**4.05**	**mg/L**	**101%**	**0.5 %**				
Method Blank	Method Blank		ND*	mg/L			9811-304	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-304	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.53	mg/L	106%		9810-462	0.5	50-150%	

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 (Dupl)	Standard	0.50	0.52	mg/L	104%		9810-462	0.5	50-150%	
		0.50	**0.52**	**mg/L**	**104%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.94	mg/L	98%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.01	mg/L	100%		9810-493	0.5	90-110%	
		4.00	**3.97**	**mg/L**	**99%**	**1.8 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-464

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%		9811-217	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.14	mg/L	103%		9811-217	0.5		
		4.00	**4.12**	**mg/L**	**103%**	**1.2 %**				
Method Blank	Method Blank		ND*	mg/L			9811-312	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-312	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.53	mg/L	106%		9810-462	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**1.9 %**			50-150%	20%
Standard	Standard	4.00	3.84	mg/L	96%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.87	mg/L	97%		9810-493	0.5	90-110%	
		4.00	**3.85**	**mg/L**	**96%**	**0.8 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-465

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%		9811-185	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.92	mg/L	98%		9811-185	0.5		
		4.00	**3.95**	**mg/L**	**99%**	**1.3 %**				
Method Blank	Method Blank		ND*	mg/L			9811-322	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-322	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.55	mg/L	110%		9810-462	0.5	50-150%	
		0.50	**0.55**	**mg/L**	**110%**	**1.8 %**			50-150%	20%
Standard	Standard	4.00	4.08	mg/L	102%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.10	mg/L	102%		9810-493	0.5	90-110%	
		4.00	**4.09**	**mg/L**	**102%**	**0.5 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-466

QC Type	Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	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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Study Title: ICR RSSCT 3,4

Matrix Spike	Matrix Spike	4.00	3.96	mg/L	99%		9811-222	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.05	mg/L	101%		9811-222	0.5		
		4.00	**4.00**	**mg/L**	**100%**	**2.3 %**				
Method Blank	Method Blank		ND*	mg/L			9811-332	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-332	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.55	mg/L	110%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.56	mg/L	112%		9810-462	0.5	50-150%	
		0.50	**0.56**	**mg/L**	**112%**	**1.8 %**			50-150%	20%
Standard	Standard	4.00	3.88	mg/L	97%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.93	mg/L	98%		9810-493	0.5	90-110%	
		4.00	**3.90**	**mg/L**	**97%**	**1.3 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-468

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.08	mg/L	102%		9811-413	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.10	mg/L	102%		9811-413	0.5		
		4.00	**4.09**	**mg/L**	**102%**	**0.5 %**				
Method Blank	Method Blank		ND*	mg/L			9811-645	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-645	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9810-462	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.54	mg/L	108%		9810-462	0.5	50-150%	
		0.50	**0.54**	**mg/L**	**108%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	4.04	mg/L	101%		9810-493	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.03	mg/L	101%		9810-493	0.5	90-110%	
		4.00	**4.04**	**mg/L**	**101%**	**0.2 %**			90-110%	10%
Standard	Standard	10.00	10.10	mg/L	101%		9811-152	0.5	90-110%	
Standard (Dupl)	Standard	10.00	10.22	mg/L	102%		9811-152	0.5	90-110%	
		10.00	**10.16**	**mg/L**	**102%**	**1.2 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-470

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%		9811-379	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.96	mg/L	99%		9811-379	0.5		
		4.00	**3.93**	**mg/L**	**98%**	**1.0 %**				
Method Blank	Method Blank		ND*	mg/L			9811-657	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-657	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.50	mg/L	100%		9811-301	0.5	50-150%	

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 (Dupl)	Standard	0.50	0.50	mg/L	100%		9811-301	0.5	50-150%	
		0.50	**0.50**	**mg/L**	**100%**	**0.0 %**			50-150%	20%
Standard	Standard	4.00	3.91	mg/L	98%		9811-646	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.96	mg/L	99%		9811-646	0.5	90-110%	
		4.00	**3.94**	**mg/L**	**98%**	**1.3 %**			90-110%	10%
Standard	Standard	10.00	9.73	mg/L	97%		9811-152	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.85	mg/L	98%		9811-152	0.5	90-110%	
		10.00	**9.79**	**mg/L**	**98%**	**1.2 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-471

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	4.16	mg/L	104%		9811-466	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	4.24	mg/L	106%		9811-466	0.5		
		4.00	**4.20**	**mg/L**	**105%**	**1.9 %**				
Method Blank	Method Blank		ND*	mg/L			9811-662	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-662	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.54	mg/L	108%		9811-301	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.52	mg/L	104%		9811-301	0.5	50-150%	
		0.50	**0.53**	**mg/L**	**106%**	**3.8 %**			50-150%	20%
Standard	Standard	4.00	4.04	mg/L	101%		9811-646	0.5	90-110%	
Standard (Dupl)	Standard	4.00	4.08	mg/L	102%		9811-646	0.5	90-110%	
		4.00	**4.06**	**mg/L**	**101%**	**1.0 %**			90-110%	10%
Standard	Standard	10.00	10.00	mg/L	100%		9811-152	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.98	mg/L	100%		9811-152	0.5	90-110%	
		10.00	**9.99**	**mg/L**	**100%**	**0.2 %**			90-110%	10%

Analysis: TOC-ICR (Total Organic Carbon) **Method:** SM 5310 C

QC Batch ID: 7-0-473

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	4.00	3.99	mg/L	100%		9811-389	0.5		
Matrix Spike (Dupl)	Matrix Spike	4.00	3.99	mg/L	100%		9811-389	0.5		
		4.00	**3.99**	**mg/L**	**100%**	**0.0 %**				
Method Blank	Method Blank		ND*	mg/L			9811-682	0.5		
Method Blank (Dupl)	Method Blank		ND*	mg/L			9811-682	0.5		
			ND*	**mg/L**						
Standard	Standard	0.50	0.52	mg/L	104%		9811-301	0.5	50-150%	
Standard (Dupl)	Standard	0.50	0.50	mg/L	100%		9811-301	0.5	50-150%	
		0.50	**0.51**	**mg/L**	**102%**	**3.9 %**			50-150%	20%
Standard	Standard	4.00	3.93	mg/L	98%		9811-646	0.5	90-110%	
Standard (Dupl)	Standard	4.00	3.95	mg/L	99%		9811-646	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	**3.94**	**mg/L**	**98%**	**0.5 %**			90-110%	10%
Standard	Standard	10.00	9.76	mg/L	98%		9811-152	0.5	90-110%	
Standard (Dupl)	Standard	10.00	9.86	mg/L	99%		9811-152	0.5	90-110%	
		10.00	**9.81**	**mg/L**	**98%**	**1.0 %**			90-110%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-346

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-135	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-135	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-135	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-135	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9810-461	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9810-461	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.082	1/cm	93%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
		0.088	**0.083**	**1/cm**	**94%**	**1.2 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-347

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-136	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-136	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-136	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-136	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9810-461	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9810-461	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.081	1/cm	92%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.081	1/cm	92%		9810-524	0.009	85-115%	
		0.088	**0.081**	**1/cm**	**92%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-348

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-153	0.009		

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*	1/cm			9811-153	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-153	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-153	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9811-147	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-147	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.082	1/cm	93%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.082	1/cm	93%		9810-524	0.009	85-115%	
		0.088	**0.082**	**1/cm**	**93%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-349

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-155	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-155	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-155	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-155	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9811-147	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9811-147	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**12.5 %**			75-125%	20%
Standard	Standard	0.088	0.082	1/cm	93%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
		0.088	**0.083**	**1/cm**	**94%**	**1.2 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-350

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-249	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-249	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-249	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-249	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9811-147	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-147	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.082	1/cm	93%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.082	1/cm	93%		9810-524	0.009	85-115%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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		0.088	**0.082**	**1/cm**	**93%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-351

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-251	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-251	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-251	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-251	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9811-147	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-147	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.082	1/cm	93%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.082	1/cm	93%		9810-524	0.009	85-115%	
		0.088	**0.082**	**1/cm**	**93%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-352

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-253	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-253	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-253	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-253	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9811-147	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9811-147	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
		0.088	**0.083**	**1/cm**	**94%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-354

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-254	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-254	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-254	0.009		

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*	1/cm			9811-254	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9811-147	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9811-147	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
		0.088	**0.083**	**1/cm**	**94%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-355

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9811-256	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-256	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-256	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-256	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9811-147	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9811-147	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**14.3 %**			75-125%	20%
Standard	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
		0.088	**0.083**	**1/cm**	**94%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-356

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9811-262	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-262	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-262	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-262	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9811-147	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-147	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**14.3 %**			75-125%	20%
Standard	Standard	0.088	0.082	1/cm	93%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.082	1/cm	93%		9810-524	0.009	85-115%	
		0.088	**0.082**	**1/cm**	**93%**	**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: 8-0-357

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9811-274	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-274	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-274	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-274	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9811-147	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9811-147	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.084	1/cm	95%		9810-524	0.009	85-115%	
		0.088	**0.084**	**1/cm**	**95%**	**1.2 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-358

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9811-283	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-283	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-283	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-283	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9811-147	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-147	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.082	1/cm	93%		9810-524	0.009	85-115%	
		0.088	**0.083**	**1/cm**	**94%**	**1.2 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-359

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9811-283	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-283	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-283	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-283	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%		9811-147	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9811-147	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.083	1/cm	94%		9810-524	0.009	85-115%	
		0.088	**0.083**	**1/cm**	**94%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-360

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9811-294	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-294	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-294	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-294	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9811-299	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-299	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.084	1/cm	95%		9811-300	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.084	1/cm	95%		9811-300	0.009	85-115%	
		0.088	**0.084**	**1/cm**	**95%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-361

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9811-303	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-303	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-303	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-303	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9811-299	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-299	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**14.3 %**			75-125%	20%
Standard	Standard	0.088	0.084	1/cm	95%		9811-300	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.084	1/cm	95%		9811-300	0.009	85-115%	
		0.088	**0.084**	**1/cm**	**95%**	**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.

Summers & Hooper, Inc.
6 Knollcrest Drive
Cincinnati, OH 45237

Quality Control Report

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-362

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-305	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-305	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-305	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-305	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9811-299	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9811-299	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.085	1/cm	97%		9811-300	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.085	1/cm	97%		9811-300	0.009	85-115%	
		0.088	**0.085**	**1/cm**	**97%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-363

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-317	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-317	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-317	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-317	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9811-299	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-299	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%		9811-300	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.085	1/cm	97%		9811-300	0.009	85-115%	
		0.088	**0.085**	**1/cm**	**97%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-364

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-331	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-331	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-331	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-331	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%		9811-299	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-299	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**14.3 %**			75-125%	20%
Standard	Standard	0.088	0.084	1/cm	95%		9811-300	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.084	1/cm	95%		9811-300	0.009	85-115%	
		0.088	**0.084**	**1/cm**	**95%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-365

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-491	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-491	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-491	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-491	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9811-299	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-299	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.084	1/cm	95%		9811-300	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.084	1/cm	95%		9811-300	0.009	85-115%	
		0.088	**0.084**	**1/cm**	**95%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-366

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Method Blank	Method Blank		ND*	1/cm			9811-644	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-644	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-644	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-644	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.007	1/cm	78%		9811-299	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-299	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%		9811-300	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.085	1/cm	97%		9811-300	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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Study#: 179
Study Title: ICR RSSCT 3,4

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-369

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9811-671	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-671	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-671	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-671	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9811-299	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9811-299	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.085	1/cm	97%		9811-300	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.085	1/cm	97%		9811-300	0.009	85-115%	
		0.088	**0.085**	**1/cm**	**97%**	**0.0 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-370

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9811-671	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-671	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-671	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-671	0.009		
			ND*	**1/cm**						
Standard	Standard	0.009	0.008	1/cm	89%		9811-299	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.008	1/cm	89%		9811-299	0.009	75-125%	
		0.009	**0.008**	**1/cm**	**89%**	**0.0 %**			75-125%	20%
Standard	Standard	0.088	0.084	1/cm	95%		9811-300	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.085	1/cm	97%		9811-300	0.009	85-115%	
		0.088	**0.085**	**1/cm**	**97%**	**1.2 %**			85-115%	10%

Analysis: UV-ICR (UV-254) **Method:** SM 5910 B

QC Batch ID: 8-0-374

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Method Blank	Method Blank		ND*	1/cm			9811-688	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-688	0.009		
			ND*	**1/cm**						
Method Blank	Method Blank		ND*	1/cm			9811-688	0.009		
Method Blank (Dupl)	Method Blank		ND*	1/cm			9811-688	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%		9811-299	0.009	75-125%	
Standard (Dupl)	Standard	0.009	0.007	1/cm	78%		9811-299	0.009	75-125%	
		0.009	**0.007**	**1/cm**	**78%**	**14.3 %**			75-125%	20%
Standard	Standard	0.088	0.084	1/cm	95%		9811-300	0.009	85-115%	
Standard (Dupl)	Standard	0.088	0.084	1/cm	95%		9811-300	0.009	85-115%	
		0.088	**0.084**	**1/cm**	**95%**	**0.0 %**			85-115%	10%

Analysis: TURB (Turbidity) **Method:** SM 2130 B

QC Batch ID: 9-0-20

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Standard	Standard	5.41	5.48	ntu	101%		11/03/98	9807-108	0.05		
Standard	Standard	5.41	5.55	ntu	103%		11/03/98	9807-108	0.05		
Standard	Standard	5.41	5.58	ntu	103%		11/05/98	9807-108	0.05		
Standard	Standard	5.41	5.52	ntu	102%		11/05/98	9807-108	0.05		

Analysis: TURB (Turbidity) **Method:** SM 2130 B

QC Batch ID: 9-0-21

QC Type		Spike	Recovery	Unit	Yield	RPD	Date Run	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Standard	Standard	5.41	5.55	ntu	103%		11/06/98	9807-108	0.05		
Standard	Standard	5.41	5.55	ntu	103%		11/06/98	9807-108	0.05		
Standard	Standard	5.41	5.58	ntu	103%		11/10/98	9807-108	0.05		
Standard	Standard	5.41	5.51	ntu	102%		11/16/98	9807-108	0.05		
Standard	Standard	5.41	5.55	ntu	103%		11/17/98	9807-108	0.05		
Standard	Standard	5.41	5.60	ntu	104%		11/19/98	9807-108	0.05		
Standard	Standard	5.41	5.57	ntu	103%		11/20/98	9807-108	0.05		
Standard	Standard	5.41	5.59	ntu	103%		11/23/98	9807-108	0.05		
Standard	Standard	5.41	5.58	ntu	103%		11/28/98	9807-108	0.05		
Standard	Standard	5.41	5.56	ntu	103%		11/30/98	9807-108	0.05		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-240

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%		9811-260	25	75-125%	
Standard - TCP Aqueous	Standard	200	202	µg Cl-/L	101%		9811-259	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-261	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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Quality Control Report

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Study#: 179
Study Title: ICR RSSCT 3,4

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-241

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%		9811-267	25	75-125%	
Standard - TCP Aqueous	Standard	200	196	µg Cl-/L	98%		9811-266	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-268	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-242

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	202	µg Cl-/L	101%		9811-72	25		
Matrix Spike (Dupl)	Matrix Spike	200	198	µg Cl-/L	99%		9811-72	25		
		200	**200**	**µg Cl-/L**	**100%**	**2.0 %**				
Standard - TCP Aqueous	Standard	25	25	µg Cl-/L	100%		9811-286	25	75-125%	
Standard - TCP Aqueous	Standard	200	199	µg Cl-/L	100%		9811-285	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-287	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-243

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%		9811-297	25	75-125%	
Standard - TCP Aqueous	Standard	200	194	µg Cl-/L	97%		9811-296	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-298	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-244

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%		9811-310	25	75-125%	
Standard - TCP Aqueous	Standard	200	192	µg Cl-/L	96%		9811-309	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-311	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-245

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	25	µg Cl-/L	100%		9811-329	25	75-125%	
Standard - TCP Aqueous	Standard	200	198	µg Cl-/L	99%		9811-328	25	85-115%	

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

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System Blank	Blank		ND*	µg Cl-/L			9811-330	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-246

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	182	µg Cl-/L	91%		9811-98	25		
Matrix Spike (Dupl)	Matrix Spike	200	192	µg Cl-/L	96%		9811-98	25		
		200	**187**	**µg Cl-/L**	**94%**	**5.3 %**				
Standard - TCP Aqueous	Standard	25	23	µg Cl-/L	92%		9811-335	25	75-125%	
Standard - TCP Aqueous	Standard	200	198	µg Cl-/L	99%		9811-334	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-336	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-247

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	22	µg Cl-/L	88%		9811-351	25	75-125%	
Standard - TCP Aqueous	Standard	200	197	µg Cl-/L	98%		9811-350	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-352	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-248

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%		9811-651	25	75-125%	
Standard - TCP Aqueous	Standard	200	198	µg Cl-/L	99%		9811-650	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-652	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-249

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	197	µg Cl-/L	98%		9811-168	25		
Matrix Spike (Dupl)	Matrix Spike	200	198	µg Cl-/L	99%		9811-168	25		
		200	**197**	**µg Cl-/L**	**98%**	**0.5 %**				
Standard - TCP Aqueous	Standard	25	24	µg Cl-/L	96%		9811-669	25	75-125%	
Standard - TCP Aqueous	Standard	200	193	µg Cl-/L	96%		9811-668	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-670	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: 12-0-250

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%		9811-679	25	75-125%	
Standard - TCP Aqueous	Standard	200	193	µg Cl-/L	96%		9811-678	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-680	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-251

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Standard - TCP Aqueous	Standard	25	22	µg Cl-/L	88%		9811-685	25	75-125%	
Standard - TCP Aqueous	Standard	200	199	µg Cl-/L	100%		9811-684	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-686	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-252

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	194	µg Cl-/L	97%		9811-219	25		
Matrix Spike (Dupl)	Matrix Spike	200	192	µg Cl-/L	96%		9811-219	25		
		200	**193**	**µg Cl-/L**	**96%**	**0.5 %**				
Standard - TCP Aqueous	Standard	25	23	µg Cl-/L	92%		9811-710	25	75-125%	
Standard - TCP Aqueous	Standard	200	194	µg Cl-/L	97%		9811-709	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9811-711	25		

Analysis: TOX-ICR (Total Organic Halide) **Method:** SM 5320 B

QC Batch ID: 12-0-254

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Matrix Spike	Matrix Spike	200	206	µg Cl-/L	103%		9811-379	25		
Matrix Spike (Dupl)	Matrix Spike	200	206	µg Cl-/L	103%		9811-379	25		
		200	**206**	**µg Cl-/L**	**103%**	**0.0 %**				
Standard - TCP Aqueous	Standard	25	23	µg Cl-/L	92%		9812-46	25	75-125%	
Standard - TCP Aqueous	Standard	200	206	µg Cl-/L	103%		9812-45	25	85-115%	
System Blank	Blank		ND*	µg Cl-/L			9812-47	25		

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-263-0

QC Type	Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	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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Study Title: ICR RSSCT 3,4

Bromodichloromethane	Duplicate	2.1	2.2	µg/L		4.7%	9811-48	1	
Bromodichloromethane	Matrix Spike	40.0	40.9	µg/L	102%		9811-83	1	
Bromodichloromethane	Method Blank		ND*	µg/L			9811-289	1	
Bromodichloromethane	Secondary Source Std	20.0	22.1	µg/L	111%		9811-290	1	70-130%
Bromodichloromethane	Standard	20.0	21.9	µg/L	110%		9811-291	1	80-120%
Bromodichloromethane	Standard	20.0	21.6	µg/L	108%		9811-291	1	80-120%
Bromodichloromethane	Standard	40.0	39.1	µg/L	98%		9811-292	1	80-120%
Bromoform	Duplicate	18.9	20.2	µg/L		6.6%	9811-48	1	
Bromoform	Matrix Spike	40.0	37.7	µg/L	94%		9811-83	1	
Bromoform	Method Blank		ND*	µg/L			9811-289	1	
Bromoform	Secondary Source Std	20.0	19.8	µg/L	99%		9811-290	1	70-130%
Bromoform	Standard	20.0	21.8	µg/L	109%		9811-291	1	80-120%
Bromoform	Standard	20.0	18.8	µg/L	94%		9811-291	1	80-120%
Bromoform	Standard	40.0	38.4	µg/L	96%		9811-292	1	80-120%
Chloroform	Duplicate	ND	ND	µg/L		NA	9811-48	1	
Chloroform	Matrix Spike	40.0	42.6	µg/L	106%		9811-83	1	
Chloroform	Method Blank		ND*	µg/L			9811-289	1	
Chloroform	Secondary Source Std	20.0	22.2	µg/L	111%		9811-290	1	70-130%
Chloroform	Standard	20.0	21.1	µg/L	106%		9811-291	1	80-120%
Chloroform	Standard	20.0	21.6	µg/L	108%		9811-291	1	80-120%
Chloroform	Standard	40.0	39.8	µg/L	99%		9811-292	1	80-120%
Dibromochloromethane	Duplicate	10.5	11.0	µg/L		4.7%	9811-48	1	
Dibromochloromethane	Matrix Spike	40.0	39.2	µg/L	98%		9811-83	1	
Dibromochloromethane	Method Blank		ND*	µg/L			9811-289	1	
Dibromochloromethane	Secondary Source Std	20.0	21.4	µg/L	107%		9811-290	1	70-130%
Dibromochloromethane	Standard	20.0	22.3	µg/L	112%		9811-291	1	80-120%
Dibromochloromethane	Standard	20.0	21.4	µg/L	107%		9811-291	1	80-120%
Dibromochloromethane	Standard	40.0	39.9	µg/L	100%		9811-292	1	80-120%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-266-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Bromodichloromethane	Duplicate	13.7	13.7	µg/L		0.0%	9811-111	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	Matrix Spike	40.0	38.4	µg/L	96%		9810-480	1	
Bromodichloromethane	Method Blank		ND*	µg/L			9811-323	1	
Bromodichloromethane	Secondary Source Std	20.0	22.2	µg/L	111%		9811-324	1	70-130%
Bromodichloromethane	Standard	20.0	22.1	µg/L	111%		9811-325	1	80-120%
Bromodichloromethane	Standard	20.0	22.0	µg/L	110%		9811-325	1	80-120%
Bromodichloromethane	Standard	40.0	39.3	µg/L	98%		9811-326	1	80-120%
Bromoform	Duplicate	38.8	40.8	µg/L		5.0%	9811-111	1	
Bromoform	Matrix Spike	40.0	42.5	µg/L	106%		9810-480	1	
Bromoform	Method Blank		ND*	µg/L			9811-323	1	
Bromoform	Secondary Source Std	20.0	20.2	µg/L	101%		9811-324	1	70-130%
Bromoform	Standard	20.0	21.9	µg/L	110%		9811-325	1	80-120%
Bromoform	Standard	20.0	20.9	µg/L	104%		9811-325	1	80-120%
Bromoform	Standard	40.0	38.3	µg/L	96%		9811-326	1	80-120%
Chloroform	Duplicate	2.3	2.3	µg/L		0.0%	9811-111	1	
Chloroform	Matrix Spike	40.0	39.8	µg/L	99%		9810-480	1	
Chloroform	Method Blank		ND*	µg/L			9811-323	1	
Chloroform	Secondary Source Std	20.0	22.6	µg/L	113%		9811-324	1	70-130%
Chloroform	Standard	20.0	21.5	µg/L	108%		9811-325	1	80-120%
Chloroform	Standard	20.0	21.8	µg/L	109%		9811-325	1	80-120%
Chloroform	Standard	40.0	40.1	µg/L	100%		9811-326	1	80-120%
Dibromochloromethane	Duplicate	40.7	40.6	µg/L		0.2%	9811-111	1	
Dibromochloromethane	Matrix Spike	40.0	37.5	µg/L	94%		9810-480	1	
Dibromochloromethane	Method Blank		ND*	µg/L			9811-323	1	
Dibromochloromethane	Secondary Source Std	20.0	21.4	µg/L	107%		9811-324	1	70-130%
Dibromochloromethane	Standard	20.0	22.3	µg/L	112%		9811-325	1	80-120%
Dibromochloromethane	Standard	20.0	22.2	µg/L	111%		9811-325	1	80-120%
Dibromochloromethane	Standard	40.0	39.7	µg/L	99%		9811-326	1	80-120%

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-267-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromodichloromethane	Duplicate	7.7	7.5	µg/L		2.6%	9811-190	1		
Bromodichloromethane	Matrix Spike	40.0	41.6	µg/L	104%		9811-277	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			9811-343	1		
Bromodichloromethane	Secondary Source Std	20.0	21.4	µg/L	107%		9811-344	1	70-130%	
Bromodichloromethane	Standard	20.0	21.6	µg/L	108%		9811-345	1	80-120%	
Bromodichloromethane	Standard	20.0	22.5	µg/L	113%		9811-345	1	80-120%	
Bromodichloromethane	Standard	40.0	37.5	µg/L	94%		9811-346	1	80-120%	
Bromoform	Duplicate	37.6	36.2	µg/L		3.8%	9811-190	1		
Bromoform	Matrix Spike	40.0	42.5	µg/L	106%		9811-277	1		
Bromoform	Method Blank		ND*	µg/L			9811-343	1		
Bromoform	Secondary Source Std	20.0	19.5	µg/L	97%		9811-344	1	70-130%	
Bromoform	Standard	20.0	22.4	µg/L	112%		9811-345	1	80-120%	
Bromoform	Standard	20.0	21.3	µg/L	106%		9811-345	1	80-120%	
Bromoform	Standard	40.0	39.1	µg/L	98%		9811-346	1	80-120%	
Chloroform	Duplicate	1.4	1.3	µg/L		7.4%	9811-190	1		
Chloroform	Matrix Spike	40.0	46.6	µg/L	117%		9811-277	1		
Chloroform	Method Blank		ND*	µg/L			9811-343	1		
Chloroform	Secondary Source Std	20.0	22.4	µg/L	112%		9811-344	1	70-130%	
Chloroform	Standard	20.0	20.4	µg/L	102%		9811-345	1	80-120%	
Chloroform	Standard	20.0	20.9	µg/L	104%		9811-345	1	80-120%	
Chloroform	Standard	40.0	38.3	µg/L	96%		9811-346	1	80-120%	
Dibromochloromethane	Duplicate	27.3	26.8	µg/L		1.8%	9811-190	1		
Dibromochloromethane	Matrix Spike	40.0	43.9	µg/L	110%		9811-277	1		
Dibromochloromethane	Method Blank		ND*	µg/L			9811-343	1		
Dibromochloromethane	Secondary Source Std	20.0	20.4	µg/L	102%		9811-344	1	70-130%	
Dibromochloromethane	Standard	20.0	22.1	µg/L	111%		9811-345	1	80-120%	
Dibromochloromethane	Standard	20.0	22.5	µg/L	113%		9811-345	1	80-120%	
Dibromochloromethane	Standard	40.0	37.8	µg/L	94%		9811-346	1	80-120%	

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-272-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Bromodichloromethane	Duplicate	19.5	19.4	µg/L		0.5%	9811-224	1		
Bromodichloromethane	Matrix Spike	40.0	43.7	µg/L	109%		9811-455	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9811-703	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	Secondary Source Std	20.0	21.5	µg/L	108%		9811-704	1	70-130%	
Bromodichloromethane	Standard	20.0	20.3	µg/L	102%		9811-705	1	80-120%	
Bromodichloromethane	Standard	20.0	21.0	µg/L	105%		9811-705	1	80-120%	
Bromodichloromethane	Standard	40.0	40.1	µg/L	100%		9811-706	1	80-120%	
Bromoform	Duplicate	44.6	41.9	µg/L		6.2%	9811-224	1		
Bromoform	Matrix Spike	40.0	46.9	µg/L	117%		9811-455	1		
Bromoform	Method Blank		ND*	µg/L			9811-703	1		
Bromoform	Secondary Source Std	20.0	19.8	µg/L	99%		9811-704	1	70-130%	
Bromoform	Standard	20.0	19.5	µg/L	97%		9811-705	1	80-120%	
Bromoform	Standard	20.0	21.9	µg/L	110%		9811-705	1	80-120%	
Bromoform	Standard	40.0	41.7	µg/L	104%		9811-706	1	80-120%	
Chloroform	Duplicate	4.2	4.0	µg/L		4.9%	9811-224	1		
Chloroform	Matrix Spike	40.0	35.3	µg/L	88%		9811-455	1		
Chloroform	Method Blank		ND*	µg/L			9811-703	1		
Chloroform	Secondary Source Std	20.0	22.2	µg/L	111%		9811-704	1	70-130%	
Chloroform	Standard	20.0	19.8	µg/L	99%		9811-705	1	80-120%	
Chloroform	Standard	20.0	20.4	µg/L	102%		9811-705	1	80-120%	
Chloroform	Standard	40.0	41.1	µg/L	103%		9811-706	1	80-120%	
Dibromochloromethane	Duplicate	51.7	48.9	µg/L		5.6%	9811-224	1		
Dibromochloromethane	Matrix Spike	40.0	45.9	µg/L	115%		9811-455	1		
Dibromochloromethane	Method Blank		ND*	µg/L			9811-703	1		
Dibromochloromethane	Secondary Source Std	20.0	20.7	µg/L	103%		9811-704	1	70-130%	
Dibromochloromethane	Standard	20.0	20.6	µg/L	103%		9811-705	1	80-120%	
Dibromochloromethane	Standard	20.0	21.4	µg/L	107%		9811-705	1	80-120%	
Dibromochloromethane	Standard	40.0	40.8	µg/L	102%		9811-706	1	80-120%	

Analysis: THM-ICR (Trihalomethanes (ICR)) **Method:** EPA 551.1

QC Batch ID: 0-279-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromodichloromethane	Duplicate	1.0	1.2	µg/L		18.2%	9811-492	1		
Bromodichloromethane	Matrix Spike	40.0	42.3	µg/L	106%		9811-505	1		
Bromodichloromethane	Method Blank		ND*	µg/L			9812-56	1		
Bromodichloromethane	Secondary Source Std	20.0	23.6	µg/L	118%		9812-57	1	70-130%	

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	20.0	21.8	µg/L	109%		9812-58	1	80-120%
Bromodichloromethane	Standard	20.0	23.2	µg/L	116%		9812-58	1	80-120%
Bromodichloromethane	Standard	40.0	39.8	µg/L	99%		9812-59	1	80-120%
Bromoform	Duplicate	ND	ND	µg/L		NA	9811-492	1	
Bromoform	Matrix Spike	40.0	42.8	µg/L	107%		9811-505	1	
Bromoform	Method Blank		ND*	µg/L			9812-56	1	
Bromoform	Secondary Source Std	20.0	20.5	µg/L	102%		9812-57	1	70-130%
Bromoform	Standard	20.0	20.0	µg/L	100%		9812-58	1	80-120%
Bromoform	Standard	20.0	22.0	µg/L	110%		9812-58	1	80-120%
Bromoform	Standard	40.0	41.3	µg/L	103%		9812-59	1	80-120%
Chloroform	Duplicate	ND	ND	µg/L		NA	9811-492	1	
Chloroform	Matrix Spike	40.0	43.2	µg/L	108%		9811-505	1	
Chloroform	Method Blank		ND*	µg/L			9812-56	1	
Chloroform	Secondary Source Std	20.0	22.8	µg/L	114%		9812-57	1	70-130%
Chloroform	Standard	20.0	21.2	µg/L	106%		9812-58	1	80-120%
Chloroform	Standard	20.0	23.1	µg/L	116%		9812-58	1	80-120%
Chloroform	Standard	40.0	40.4	µg/L	101%		9812-59	1	80-120%
Dibromochloromethane	Duplicate	1.2	1.2	µg/L		0.0%	9811-492	1	
Dibromochloromethane	Matrix Spike	40.0	42.5	µg/L	106%		9811-505	1	
Dibromochloromethane	Method Blank		ND*	µg/L			9812-56	1	
Dibromochloromethane	Secondary Source Std	20.0	22.7	µg/L	114%		9812-57	1	70-130%
Dibromochloromethane	Standard	20.0	22.2	µg/L	111%		9812-58	1	80-120%
Dibromochloromethane	Standard	20.0	23.7	µg/L	119%		9812-58	1	80-120%
Dibromochloromethane	Standard	40.0	40.3	µg/L	101%		9812-59	1	80-120%

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-262-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromochloroacetic acid	Duplicate	3.9	3.4	µg/L		13.7%	9811-50	1		
Bromochloroacetic acid	Matrix Spike	40.0	39.9	µg/L	100%		9811-85	1		
Bromochloroacetic acid	Method Blank		ND*	µg/L			9811-270	1		
Bromochloroacetic acid	Secondary Source Std	20.0	22.2	µg/L	111%		9811-271	1	70-130%	
Bromochloroacetic acid	Standard	20.0	19.8	µg/L	99%		9811-272	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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Bromochloroacetic acid	Standard	20.0	20.1	µg/L	101%		9811-272	1	80-120%
Bromochloroacetic acid	Standard	40.0	39.5	µg/L	99%		9811-273	1	80-120%
Bromodichloroacetic acid	Duplicate	1.6	1.5	µg/L		6.5%	9811-50	1	
Bromodichloroacetic acid	Matrix Spike	40.0	44.5	µg/L	111%		9811-85	1	
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9811-270	1	
Bromodichloroacetic acid	Secondary Source Std		ND	µg/L			9811-271	1	70-130%
Bromodichloroacetic acid	Standard	20.0	21.7	µg/L	109%		9811-272	1	80-120%
Bromodichloroacetic acid	Standard	20.0	22.0	µg/L	110%		9811-272	1	80-120%
Bromodichloroacetic acid	Standard	40.0	42.4	µg/L	106%		9811-273	1	80-120%
Chlorodibromoacetic acid	Duplicate	2.6	2.1	µg/L		21.3%	9811-50	2	
Chlorodibromoacetic acid	Matrix Spike	40.0	45.1	µg/L	113%		9811-85	2	
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9811-270	2	
Chlorodibromoacetic acid	Secondary Source Std		ND	µg/L			9811-271	2	70-130%
Chlorodibromoacetic acid	Standard	20.0	22.9	µg/L	115%		9811-272	2	80-120%
Chlorodibromoacetic acid	Standard	20.0	22.8	µg/L	114%		9811-272	2	80-120%
Chlorodibromoacetic acid	Standard	40.0	44.3	µg/L	111%		9811-273	2	80-120%
Dibromoacetic acid	Duplicate	9.2	7.6	µg/L		19.0%	9811-50	1	
Dibromoacetic acid	Matrix Spike	40.0	40.3	µg/L	101%		9811-85	1	
Dibromoacetic acid	Method Blank		ND*	µg/L			9811-270	1	
Dibromoacetic acid	Secondary Source Std	20.0	22.8	µg/L	114%		9811-271	1	70-130%
Dibromoacetic acid	Standard	20.0	20.0	µg/L	100%		9811-272	1	80-120%
Dibromoacetic acid	Standard	20.0	20.5	µg/L	102%		9811-272	1	80-120%
Dibromoacetic acid	Standard	40.0	40.8	µg/L	102%		9811-273	1	80-120%
Dichloroacetic acid	Duplicate	2.4	2.3	µg/L		4.3%	9811-50	1	
Dichloroacetic acid	Matrix Spike	40.0	40.0	µg/L	100%		9811-85	1	
Dichloroacetic acid	Method Blank		ND*	µg/L			9811-270	1	
Dichloroacetic acid	Secondary Source Std	20.0	23.0	µg/L	115%		9811-271	1	70-130%
Dichloroacetic acid	Standard	20.0	19.6	µg/L	98%		9811-272	1	80-120%
Dichloroacetic acid	Standard	20.0	20.2	µg/L	101%		9811-272	1	80-120%
Dichloroacetic acid	Standard	40.0	38.4	µg/L	96%		9811-273	1	80-120%
Monobromoacetic acid	Duplicate	ND	ND	µg/L		NA	9811-50	1	
Monobromoacetic acid	Matrix Spike	40.0	38.2	µg/L	96%		9811-85	1	
Monobromoacetic acid	Method Blank		ND*	µg/L			9811-270	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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Monobromoacetic acid	Secondary Source Std	20.0	23.1	µg/L	116%		9811-271	1	70-130%	
Monobromoacetic acid	Standard	20.0	21.2	µg/L	106%		9811-272	1	80-120%	
Monobromoacetic acid	Standard	20.0	21.7	µg/L	109%		9811-272	1	80-120%	
Monobromoacetic acid	Standard	40.0	37.6	µg/L	94%		9811-273	1	80-120%	
Monochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-50	2		
Monochloroacetic acid	Matrix Spike	40.0	40.7	µg/L	102%		9811-85	2		
Monochloroacetic acid	Method Blank		ND*	µg/L			9811-270	2		
Monochloroacetic acid	Secondary Source Std	20.0	22.8	µg/L	114%		9811-271	2	70-130%	
Monochloroacetic acid	Standard	20.0	22.0	µg/L	110%		9811-272	2	80-120%	
Monochloroacetic acid	Standard	20.0	21.7	µg/L	109%		9811-272	2	80-120%	
Monochloroacetic acid	Standard	40.0	39.2	µg/L	98%		9811-273	2	80-120%	
Tribromoacetic acid	Duplicate	4.8	4.6	µg/L		4.3%	9811-50	4		
Tribromoacetic acid	Matrix Spike	40.0	45.2	µg/L	113%		9811-85	4		
Tribromoacetic acid	Method Blank		ND*	µg/L			9811-270	4		
Tribromoacetic acid	Secondary Source Std		ND	µg/L			9811-271	4	70-130%	
Tribromoacetic acid	Standard	20.0	22.6	µg/L	113%		9811-272	4	80-120%	
Tribromoacetic acid	Standard	20.0	23.2	µg/L	116%		9811-272	4	80-120%	
Tribromoacetic acid	Standard	40.0	43.9	µg/L	110%		9811-273	4	80-120%	
Trichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-50	1		
Trichloroacetic acid	Matrix Spike	40.0	39.7	µg/L	99%		9811-85	1		
Trichloroacetic acid	Method Blank		ND*	µg/L			9811-270	1		
Trichloroacetic acid	Secondary Source Std	20.0	21.3	µg/L	106%		9811-271	1	70-130%	
Trichloroacetic acid	Standard	20.0	20.0	µg/L	100%		9811-272	1	80-120%	
Trichloroacetic acid	Standard	20.0	20.0	µg/L	100%		9811-272	1	80-120%	
Trichloroacetic acid	Standard	40.0	39.9	µg/L	100%		9811-273	1	80-120%	

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-265-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-161	1		
Bromochloroacetic acid	Matrix Spike	40.0	46.9	µg/L	117%		9810-481	1		
Bromochloroacetic acid	Method Blank		ND*	µg/L			9811-313	1		
Bromochloroacetic acid	Standard	20.0	20.0	µg/L	100%		9811-315	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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Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Bromochloroacetic acid	Standard	20.0	20.2	µg/L	101%		9811-315	1	80-120%
Bromochloroacetic acid	Standard	40.0	41.3	µg/L	103%		9811-316	1	80-120%
Bromochloroacetic acid	Standard	40.0	45.6	µg/L	114%		9811-316	1	80-120%
Bromodichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-161	1	
Bromodichloroacetic acid	Matrix Spike	40.0	43.1	µg/L	108%		9810-481	1	
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9811-313	1	
Bromodichloroacetic acid	Standard	20.0	21.6	µg/L	108%		9811-315	1	80-120%
Bromodichloroacetic acid	Standard	20.0	21.3	µg/L	106%		9811-315	1	80-120%
Bromodichloroacetic acid	Standard	40.0	43.1	µg/L	108%		9811-316	1	80-120%
Bromodichloroacetic acid	Standard	40.0	42.9	µg/L	107%		9811-316	1	80-120%
Chlorodibromoacetic acid	Duplicate	ND	ND	µg/L		NA	9811-161	2	
Chlorodibromoacetic acid	Matrix Spike	40.0	43.7	µg/L	109%		9810-481	2	
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9811-313	2	
Chlorodibromoacetic acid	Standard	20.0	22.9	µg/L	115%		9811-315	2	80-120%
Chlorodibromoacetic acid	Standard	20.0	22.5	µg/L	113%		9811-315	2	80-120%
Chlorodibromoacetic acid	Standard	40.0	44.3	µg/L	111%		9811-316	2	80-120%
Chlorodibromoacetic acid	Standard	40.0	45.1	µg/L	113%		9811-316	2	80-120%
Dibromoacetic acid	Duplicate	2.5	2.8	µg/L		11.3%	9811-161	1	
Dibromoacetic acid	Matrix Spike	40.0	47.4	µg/L	119%		9810-481	1	
Dibromoacetic acid	Method Blank		ND*	µg/L			9811-313	1	
Dibromoacetic acid	Standard	20.0	20.2	µg/L	101%		9811-315	1	80-120%
Dibromoacetic acid	Standard	20.0	20.6	µg/L	103%		9811-315	1	80-120%
Dibromoacetic acid	Standard	40.0	43.0	µg/L	108%		9811-316	1	80-120%
Dibromoacetic acid	Standard	40.0	46.3	µg/L	116%		9811-316	1	80-120%
Dichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-161	1	
Dichloroacetic acid	Matrix Spike	40.0	45.7	µg/L	114%		9810-481	1	
Dichloroacetic acid	Method Blank		ND*	µg/L			9811-313	1	
Dichloroacetic acid	Standard	20.0	20.2	µg/L	101%		9811-315	1	80-120%
Dichloroacetic acid	Standard	20.0	20.3	µg/L	102%		9811-315	1	80-120%
Dichloroacetic acid	Standard	40.0	43.0	µg/L	108%		9811-316	1	80-120%
Dichloroacetic acid	Standard	40.0	42.1	µg/L	105%		9811-316	1	80-120%
Monobromoacetic acid	Duplicate	ND	ND	µg/L		NA	9811-161	1	
Monobromoacetic acid	Matrix Spike	40.0	45.8	µg/L	115%		9810-481	1	
Monobromoacetic acid	Method Blank		ND*	µg/L			9811-313	1	
Monobromoacetic acid	Standard	20.0	19.9	µg/L	99%		9811-315	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

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Monobromoacetic acid	Standard	20.0	19.7	µg/L	98%		9811-315	1	80-120%
Monobromoacetic acid	Standard	40.0	40.5	µg/L	101%		9811-316	1	80-120%
Monobromoacetic acid	Standard	40.0	40.0	µg/L	100%		9811-316	1	80-120%
Monochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-161	2	
Monochloroacetic acid	Matrix Spike	40.0	45.6	µg/L	114%		9810-481	2	
Monochloroacetic acid	Method Blank		ND*	µg/L			9811-313	2	
Monochloroacetic acid	Standard	20.0	20.0	µg/L	100%		9811-315	2	80-120%
Monochloroacetic acid	Standard	20.0	19.5	µg/L	97%		9811-315	2	80-120%
Monochloroacetic acid	Standard	40.0	38.6	µg/L	97%		9811-316	2	80-120%
Monochloroacetic acid	Standard	40.0	37.8	µg/L	94%		9811-316	2	80-120%
Tribromoacetic acid	Duplicate	ND	ND	µg/L		NA	9811-161	4	
Tribromoacetic acid	Matrix Spike	40.0	42.4	µg/L	106%		9810-481	4	
Tribromoacetic acid	Method Blank		ND*	µg/L			9811-313	4	
Tribromoacetic acid	Standard	20.0	22.6	µg/L	113%		9811-315	4	80-120%
Tribromoacetic acid	Standard	20.0	22.0	µg/L	110%		9811-315	4	80-120%
Tribromoacetic acid	Standard	40.0	43.7	µg/L	109%		9811-316	4	80-120%
Tribromoacetic acid	Standard	40.0	44.9	µg/L	112%		9811-316	4	80-120%
Trichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-161	1	
Trichloroacetic acid	Matrix Spike	40.0	47.1	µg/L	118%		9810-481	1	
Trichloroacetic acid	Method Blank		ND*	µg/L			9811-313	1	
Trichloroacetic acid	Standard	20.0	20.6	µg/L	103%		9811-315	1	80-120%
Trichloroacetic acid	Standard	20.0	20.4	µg/L	102%		9811-315	1	80-120%
Trichloroacetic acid	Standard	40.0	42.3	µg/L	106%		9811-316	1	80-120%
Trichloroacetic acid	Standard	40.0	44.4	µg/L	111%		9811-316	1	80-120%

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-270-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Bromochloroacetic acid	Duplicate	9.1	8.6	µg/L		5.6%	9811-178	1		
Bromochloroacetic acid	Matrix Spike	40.0	41.2	µg/L	103%		9811-276	1		
Bromochloroacetic acid	Method Blank		ND*	µg/L			9811-663	1		
Bromochloroacetic acid	Secondary Source Std	20.0	21.1	µg/L	106%		9811-664	1	70-130%	
Bromochloroacetic acid	Standard	20.0	18.8	µg/L	94%		9811-665	1	80-120%	
Bromochloroacetic acid	Standard	20.0	19.2	µg/L	96%		9811-665	1	80-120%	
Bromochloroacetic acid	Standard	40.0	40.4	µg/L	101%		9811-666	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

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Bromochloroacetic acid	Standard	40.0	41.1	µg/L	103%		9811-666	1	80-120%
Bromodichloroacetic acid	Duplicate	4.5	3.9	µg/L		14.3%	9811-178	1	
Bromodichloroacetic acid	Matrix Spike	40.0	41.6	µg/L	104%		9811-276	1	
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9811-663	1	
Bromodichloroacetic acid	Secondary Source Std		ND	µg/L			9811-664	1	70-130%
Bromodichloroacetic acid	Standard	20.0	18.3	µg/L	92%		9811-665	1	80-120%
Bromodichloroacetic acid	Standard	20.0	18.2	µg/L	91%		9811-665	1	80-120%
Bromodichloroacetic acid	Standard	40.0	42.6	µg/L	106%		9811-666	1	80-120%
Bromodichloroacetic acid	Standard	40.0	44.0	µg/L	110%		9811-666	1	80-120%
Chlorodibromoacetic acid	Duplicate	5.0	4.4	µg/L		12.8%	9811-178	2	
Chlorodibromoacetic acid	Matrix Spike	40.0	41.2	µg/L	103%		9811-276	2	
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9811-663	2	
Chlorodibromoacetic acid	Secondary Source Std		ND	µg/L			9811-664	2	70-130%
Chlorodibromoacetic acid	Standard	20.0	18.1	µg/L	91%		9811-665	2	80-120%
Chlorodibromoacetic acid	Standard	20.0	17.7	µg/L	89%		9811-665	2	80-120%
Chlorodibromoacetic acid	Standard	40.0	43.0	µg/L	108%		9811-666	2	80-120%
Chlorodibromoacetic acid	Standard	40.0	44.3	µg/L	111%		9811-666	2	80-120%
Dibromoacetic acid	Duplicate	16.0	14.2	µg/L		11.9%	9811-178	1	
Dibromoacetic acid	Matrix Spike	40.0	41.5	µg/L	104%		9811-276	1	
Dibromoacetic acid	Method Blank		ND*	µg/L			9811-663	1	
Dibromoacetic acid	Secondary Source Std	20.0	22.3	µg/L	112%		9811-664	1	70-130%
Dibromoacetic acid	Standard	20.0	18.6	µg/L	93%		9811-665	1	80-120%
Dibromoacetic acid	Standard	20.0	18.8	µg/L	94%		9811-665	1	80-120%
Dibromoacetic acid	Standard	40.0	40.7	µg/L	102%		9811-666	1	80-120%
Dibromoacetic acid	Standard	40.0	41.8	µg/L	104%		9811-666	1	80-120%
Dichloroacetic acid	Duplicate	3.4	3.3	µg/L		3.0%	9811-178	1	
Dichloroacetic acid	Matrix Spike	40.0	41.1	µg/L	103%		9811-276	1	
Dichloroacetic acid	Method Blank		ND*	µg/L			9811-663	1	
Dichloroacetic acid	Secondary Source Std	20.0	22.0	µg/L	110%		9811-664	1	70-130%
Dichloroacetic acid	Standard	20.0	18.8	µg/L	94%		9811-665	1	80-120%
Dichloroacetic acid	Standard	20.0	19.7	µg/L	98%		9811-665	1	80-120%
Dichloroacetic acid	Standard	40.0	40.4	µg/L	101%		9811-666	1	80-120%
Dichloroacetic acid	Standard	40.0	39.9	µg/L	100%		9811-666	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

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Monobromoacetic acid	Duplicate	ND	ND	µg/L		NA	9811-178	1	
Monobromoacetic acid	Matrix Spike	40.0	42.7	µg/L	107%		9811-276	1	
Monobromoacetic acid	Method Blank		ND*	µg/L			9811-663	1	
Monobromoacetic acid	Secondary Source Std	20.0	22.9	µg/L	115%		9811-664	1	70-130%
Monobromoacetic acid	Standard	20.0	18.3	µg/L	92%		9811-665	1	80-120%
Monobromoacetic acid	Standard	20.0	19.0	µg/L	95%		9811-665	1	80-120%
Monobromoacetic acid	Standard	40.0	39.7	µg/L	99%		9811-666	1	80-120%
Monobromoacetic acid	Standard	40.0	40.2	µg/L	101%		9811-666	1	80-120%
Monochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-178	2	
Monochloroacetic acid	Matrix Spike	40.0	42.8	µg/L	107%		9811-276	2	
Monochloroacetic acid	Method Blank		ND*	µg/L			9811-663	2	
Monochloroacetic acid	Secondary Source Std	20.0	20.7	µg/L	103%		9811-664	2	70-130%
Monochloroacetic acid	Standard	20.0	20.2	µg/L	101%		9811-665	2	80-120%
Monochloroacetic acid	Standard	20.0	19.4	µg/L	97%		9811-665	2	80-120%
Monochloroacetic acid	Standard	40.0	39.8	µg/L	99%		9811-666	2	80-120%
Monochloroacetic acid	Standard	40.0	38.9	µg/L	97%		9811-666	2	80-120%
Tribromoacetic acid	Duplicate	6.1	5.2	µg/L		15.9%	9811-178	4	
Tribromoacetic acid	Matrix Spike	40.0	43.3	µg/L	108%		9811-276	4	
Tribromoacetic acid	Method Blank		ND*	µg/L			9811-663	4	
Tribromoacetic acid	Secondary Source Std		ND	µg/L			9811-664	4	70-130%
Tribromoacetic acid	Standard	20.0	18.4	µg/L	92%		9811-665	4	80-120%
Tribromoacetic acid	Standard	20.0	17.1	µg/L	86%		9811-665	4	80-120%
Tribromoacetic acid	Standard	40.0	43.5	µg/L	109%		9811-666	4	80-120%
Tribromoacetic acid	Standard	40.0	43.8	µg/L	110%		9811-666	4	80-120%
Trichloroacetic acid	Duplicate	1.5	1.4	µg/L		6.9%	9811-178	1	
Trichloroacetic acid	Matrix Spike	40.0	40.0	µg/L	100%		9811-276	1	
Trichloroacetic acid	Method Blank		ND*	µg/L			9811-663	1	
Trichloroacetic acid	Secondary Source Std	20.0	22.9	µg/L	115%		9811-664	1	70-130%
Trichloroacetic acid	Standard	20.0	18.6	µg/L	93%		9811-665	1	80-120%
Trichloroacetic acid	Standard	20.0	18.6	µg/L	93%		9811-665	1	80-120%
Trichloroacetic acid	Standard	40.0	41.2	µg/L	103%		9811-666	1	80-120%
Trichloroacetic acid	Standard	40.0	41.5	µg/L	104%		9811-666	1	80-120%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Summers & Hooper, Inc.
6 Knollcrest Drive
Cincinnati, OH 45237

Quality Control Report

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-273-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	RPD
Bromochloroacetic acid	Duplicate	5.9	5.2	µg/L		12.6%	9811-282	1		
Bromochloroacetic acid	Matrix Spike	40.0	40.0	µg/L	100%		9811-379	1		
Bromochloroacetic acid	Method Blank		ND*	µg/L			9812-2	1		
Bromochloroacetic acid	Secondary Source Std	20.0	20.6	µg/L	103%		9812-3	1	70-130%	
Bromochloroacetic acid	Standard	20.0	20.2	µg/L	101%		9812-4	1	80-120%	
Bromochloroacetic acid	Standard	20.0	20.2	µg/L	101%		9812-4	1	80-120%	
Bromochloroacetic acid	Standard	40.0	39.5	µg/L	99%		9812-5	1	80-120%	
Bromodichloroacetic acid	Duplicate	2.7	2.2	µg/L		20.4%	9811-282	1		
Bromodichloroacetic acid	Matrix Spike	40.0	38.3	µg/L	96%		9811-379	1		
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9812-2	1		
Bromodichloroacetic acid	Secondary Source Std		ND	µg/L			9812-3	1	70-130%	
Bromodichloroacetic acid	Standard	20.0	19.8	µg/L	99%		9812-4	1	80-120%	
Bromodichloroacetic acid	Standard	20.0	19.4	µg/L	97%		9812-4	1	80-120%	
Bromodichloroacetic acid	Standard	40.0	39.5	µg/L	99%		9812-5	1	80-120%	
Chlorodibromoacetic acid	Duplicate	3.2	2.6	µg/L		20.7%	9811-282	2		
Chlorodibromoacetic acid	Matrix Spike	40.0	35.9	µg/L	90%		9811-379	2		
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9812-2	2		
Chlorodibromoacetic acid	Secondary Source Std		ND	µg/L			9812-3	2	70-130%	
Chlorodibromoacetic acid	Standard	20.0	19.2	µg/L	96%		9812-4	2	80-120%	
Chlorodibromoacetic acid	Standard	20.0	18.2	µg/L	91%		9812-4	2	80-120%	
Chlorodibromoacetic acid	Standard	40.0	39.6	µg/L	99%		9812-5	2	80-120%	
Dibromoacetic acid	Duplicate	13.3	11.1	µg/L		18.0%	9811-282	1		
Dibromoacetic acid	Matrix Spike	40.0	39.9	µg/L	100%		9811-379	1		
Dibromoacetic acid	Method Blank		ND*	µg/L			9812-2	1		
Dibromoacetic acid	Secondary Source Std	20.0	20.6	µg/L	103%		9812-3	1	70-130%	
Dibromoacetic acid	Standard	20.0	20.4	µg/L	102%		9812-4	1	80-120%	
Dibromoacetic acid	Standard	20.0	19.4	µg/L	97%		9812-4	1	80-120%	
Dibromoacetic acid	Standard	40.0	39.3	µg/L	98%		9812-5	1	80-120%	
Dichloroacetic acid	Duplicate	2.6	2.3	µg/L		12.2%	9811-282	1		
Dichloroacetic acid	Matrix Spike	40.0	39.5	µg/L	99%		9811-379	1		

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Quality Control Report

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Dichloroacetic acid	Method Blank		ND*	µg/L			9812-2	1	
Dichloroacetic acid	Secondary Source Std	20.0	21.8	µg/L	109%		9812-3	1	70-130%
Dichloroacetic acid	Standard	20.0	19.8	µg/L	99%		9812-4	1	80-120%
Dichloroacetic acid	Standard	20.0	19.5	µg/L	97%		9812-4	1	80-120%
Dichloroacetic acid	Standard	40.0	39.0	µg/L	97%		9812-5	1	80-120%
Monobromoacetic acid	Duplicate	ND	ND	µg/L		NA	9811-282	1	
Monobromoacetic acid	Matrix Spike	40.0	38.1	µg/L	95%		9811-379	1	
Monobromoacetic acid	Method Blank		ND*	µg/L			9812-2	1	
Monobromoacetic acid	Secondary Source Std	20.0	22.6	µg/L	113%		9812-3	1	70-130%
Monobromoacetic acid	Standard	20.0	18.6	µg/L	93%		9812-4	1	80-120%
Monobromoacetic acid	Standard	20.0	18.5	µg/L	93%		9812-4	1	80-120%
Monobromoacetic acid	Standard	40.0	40.9	µg/L	102%		9812-5	1	80-120%
Monochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-282	2	
Monochloroacetic acid	Matrix Spike	40.0	39.9	µg/L	100%		9811-379	2	
Monochloroacetic acid	Method Blank		ND*	µg/L			9812-2	2	
Monochloroacetic acid	Secondary Source Std	20.0	19.3	µg/L	97%		9812-3	2	70-130%
Monochloroacetic acid	Standard	20.0	19.0	µg/L	95%		9812-4	2	80-120%
Monochloroacetic acid	Standard	20.0	19.6	µg/L	98%		9812-4	2	80-120%
Monochloroacetic acid	Standard	40.0	39.3	µg/L	98%		9812-5	2	80-120%
Tribromoacetic acid	Duplicate	5.6	4.6	µg/L		19.6%	9811-282	4	
Tribromoacetic acid	Matrix Spike	40.0	34.4	µg/L	86%		9811-379	4	
Tribromoacetic acid	Method Blank		ND*	µg/L			9812-2	4	
Tribromoacetic acid	Secondary Source Std		ND	µg/L			9812-3	4	70-130%
Tribromoacetic acid	Standard	20.0	18.4	µg/L	92%		9812-4	4	80-120%
Tribromoacetic acid	Standard	20.0	17.7	µg/L	89%		9812-4	4	80-120%
Tribromoacetic acid	Standard	40.0	39.1	µg/L	98%		9812-5	4	80-120%
Trichloroacetic acid	Duplicate	2.3	2.0	µg/L		14.0%	9811-282	1	
Trichloroacetic acid	Matrix Spike	40.0	39.2	µg/L	98%		9811-379	1	
Trichloroacetic acid	Method Blank		ND*	µg/L			9812-2	1	
Trichloroacetic acid	Secondary Source Std	20.0	20.0	µg/L	100%		9812-3	1	70-130%
Trichloroacetic acid	Standard	20.0	20.5	µg/L	102%		9812-4	1	80-120%
Trichloroacetic acid	Standard	20.0	20.3	µg/L	102%		9812-4	1	80-120%

ND: non-detect. *Recovery is below 1/2 minimum reporting level (MRL). NA (not applicable): RPD calculation is not applicable.

Summers & Hooper, Inc.
6 Knollcrest Drive
Cincinnati, OH 45237

Quality Control Report

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Trichloroacetic acid	Standard	40.0	39.2	µg/L	98%		9812-5	1	80-120%

Analysis: HAA-ICR (Haloacetic Acids) **Method:** EPA 552.2

QC Batch ID: 0-280-0

QC Type		Spike	Recovery	Unit	Yield	RPD	S&H ID	MRL	Acceptance Criteria Range	Acceptance Criteria RPD
Bromochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-466	1		
Bromochloroacetic acid	Matrix Spike	40.0	42.7	µg/L	107%		9811-473	1		
Bromochloroacetic acid	Method Blank		ND*	µg/L			9812-76	1		
Bromochloroacetic acid	Secondary Source Std	20.0	21.5	µg/L	108%		9812-77	1	70-130%	
Bromochloroacetic acid	Standard	20.0	21.0	µg/L	105%		9812-78	1	80-120%	
Bromochloroacetic acid	Standard	20.0	21.3	µg/L	106%		9812-78	1	80-120%	
Bromochloroacetic acid	Standard	40.0	38.3	µg/L	96%		9812-79	1	80-120%	
Bromodichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-466	1		
Bromodichloroacetic acid	Matrix Spike	40.0	45.9	µg/L	115%		9811-473	1		
Bromodichloroacetic acid	Method Blank		ND*	µg/L			9812-76	1		
Bromodichloroacetic acid	Secondary Source Std		ND	µg/L			9812-77	1	70-130%	
Bromodichloroacetic acid	Standard	20.0	23.0	µg/L	115%		9812-78	1	80-120%	
Bromodichloroacetic acid	Standard	20.0	21.5	µg/L	108%		9812-78	1	80-120%	
Bromodichloroacetic acid	Standard	40.0	41.4	µg/L	103%		9812-79	1	80-120%	
Chlorodibromoacetic acid	Duplicate	ND	ND	µg/L		NA	9811-466	2		
Chlorodibromoacetic acid	Matrix Spike	40.0	45.1	µg/L	113%		9811-473	2		
Chlorodibromoacetic acid	Method Blank		ND*	µg/L			9812-76	2		
Chlorodibromoacetic acid	Secondary Source Std		ND	µg/L			9812-77	2	70-130%	
Chlorodibromoacetic acid	Standard	20.0	23.6	µg/L	118%		9812-78	2	80-120%	
Chlorodibromoacetic acid	Standard	20.0	22.3	µg/L	112%		9812-78	2	80-120%	
Chlorodibromoacetic acid	Standard	40.0	42.9	µg/L	107%		9812-79	2	80-120%	
Dibromoacetic acid	Duplicate	ND	ND	µg/L		NA	9811-466	1		
Dibromoacetic acid	Matrix Spike	40.0	43.6	µg/L	109%		9811-473	1		
Dibromoacetic acid	Method Blank		ND*	µg/L			9812-76	1		
Dibromoacetic acid	Secondary Source Std	20.0	22.5	µg/L	113%		9812-77	1	70-130%	
Dibromoacetic acid	Standard	20.0	22.2	µg/L	111%		9812-78	1	80-120%	
Dibromoacetic acid	Standard	20.0	22.3	µg/L	112%		9812-78	1	80-120%	
Dibromoacetic acid	Standard	40.0	39.1	µg/L	98%		9812-79	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

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

Dichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-466	1	
Dichloroacetic acid	Matrix Spike	40.0	40.1	µg/L	100%		9811-473	1	
Dichloroacetic acid	Method Blank		ND*	µg/L			9812-76	1	
Dichloroacetic acid	Secondary Source Std	20.0	21.3	µg/L	106%		9812-77	1	70-130%
Dichloroacetic acid	Standard	20.0	20.1	µg/L	101%		9812-78	1	80-120%
Dichloroacetic acid	Standard	20.0	20.4	µg/L	102%		9812-78	1	80-120%
Dichloroacetic acid	Standard	40.0	37.6	µg/L	94%		9812-79	1	80-120%
Monobromoacetic acid	Duplicate	ND	ND	µg/L		NA	9811-466	1	
Monobromoacetic acid	Matrix Spike	40.0	37.7	µg/L	94%		9811-473	1	
Monobromoacetic acid	Method Blank		ND*	µg/L			9812-76	1	
Monobromoacetic acid	Secondary Source Std	20.0	19.7	µg/L	98%		9812-77	1	70-130%
Monobromoacetic acid	Standard	20.0	19.9	µg/L	99%		9812-78	1	80-120%
Monobromoacetic acid	Standard	20.0	19.9	µg/L	99%		9812-78	1	80-120%
Monobromoacetic acid	Standard	40.0	38.0	µg/L	95%		9812-79	1	80-120%
Monochloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-466	2	
Monochloroacetic acid	Matrix Spike	40.0	39.3	µg/L	98%		9811-473	2	
Monochloroacetic acid	Method Blank		ND*	µg/L			9812-76	2	
Monochloroacetic acid	Secondary Source Std	20.0	20.2	µg/L	101%		9812-77	2	70-130%
Monochloroacetic acid	Standard	20.0	20.3	µg/L	102%		9812-78	2	80-120%
Monochloroacetic acid	Standard	20.0	21.2	µg/L	106%		9812-78	2	80-120%
Monochloroacetic acid	Standard	40.0	38.5	µg/L	96%		9812-79	2	80-120%
Tribromoacetic acid	Duplicate	ND	ND	µg/L		NA	9811-466	4	
Tribromoacetic acid	Matrix Spike	40.0	44.6	µg/L	112%		9811-473	4	
Tribromoacetic acid	Method Blank		ND*	µg/L			9812-76	4	
Tribromoacetic acid	Secondary Source Std		ND	µg/L			9812-77	4	70-130%
Tribromoacetic acid	Standard	20.0	22.3	µg/L	112%		9812-78	4	80-120%
Tribromoacetic acid	Standard	20.0	20.9	µg/L	104%		9812-78	4	80-120%
Tribromoacetic acid	Standard	40.0	42.4	µg/L	106%		9812-79	4	80-120%
Trichloroacetic acid	Duplicate	ND	ND	µg/L		NA	9811-466	1	
Trichloroacetic acid	Matrix Spike	40.0	45.1	µg/L	113%		9811-473	1	
Trichloroacetic acid	Method Blank		ND*	µg/L			9812-76	1	
Trichloroacetic acid	Secondary Source Std	20.0	21.9	µg/L	110%		9812-77	1	70-130%

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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Cincinnati, OH 45237

Quality Control Report

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Study#: 179
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Trichloroacetic acid	Standard	20.0	21.5	µg/L	108%	9812-78	1	80-120%
Trichloroacetic acid	Standard	20.0	21.8	µg/L	109%	9812-78	1	80-120%
Trichloroacetic acid	Standard	40.0	37.1	µg/L	93%	9812-79	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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Phone: 619-475-9047 Fax: 619-479-6271

Study#: 179
Study Title: ICR RSSCT 3,4

QC Batch ID: 87220 **Report #:** 49122

Analysis: CA **Method:** EPA/ML 200.7

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Calcium, Total, ICAP	50	51.5	103.0%		(85 - 115)
LCS2	Calcium, Total, ICAP	50	52.1	104.0%		(85 - 115)
MS	Calcium, Total, ICAP	50	48.5	97.0%		(70 - 130)

QC Batch ID: 87223 **Report #:** 49122

Analysis: MG **Method:** ML/EPA 200.7

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Magnesium, Total, ICAP	20	21.1	106.0%		(85 - 115)
LCS2	Magnesium, Total, ICAP	20	21.1	106.0%		(85 - 115)
MS	Magnesium, Total, ICAP	20	19.8	99.0%		(70 - 130)

QC Batch ID: 87324 **Report #:** 49122

Analysis: BR **Method:** ML/EPA 300

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Bromide	0.02	0.02	100.0%		(50 - 150)
LCS2	Bromide	0.1	0.104	104.0%		(90 - 110)
MS	Bromide	0.1	0.098	98.0%		(80 - 120)
MSD	Bromide	0.1	0.099	99.0%		(80 - 120)

QC Batch ID: 87590 **Report #:** 49404

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	0.098	98.0%		(90 - 110)
MS	Bromide	0.02	0.017	85.0%		(80 - 120)

QC Batch ID: 87692 **Report #:** 49122

Analysis: NH3 **Method:** ML/EPA 350.1

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Ammonia Nitrogen	1	0.85	85.0%		(80 - 120)
LCS2	Ammonia Nitrogen	1	1.11	111.0%		(80 - 120)

ND (non-detect): Result is below 1/2 minimum reporting level (MRL).

QC Results from Montgomery Watson Laboratories

Mr. Don Thomson
Sweetwater Authority

Study#: 179
Study Title: ICR RSSCT 3,4

MS	Ammonia Nitrogen	1	0.93	93.0%	(80 - 120)
MSD	Ammonia Nitrogen	1	0.93	93.0%	(80 - 120)

QC Batch ID: 87798 **Report #:** 49404

Analysis: CA **Method:** EPA/ML 200.7

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Calcium, Total, ICAP	50	50.7	101.0%		(85 - 115)
LCS2	Calcium, Total, ICAP	50	50.6	101.0%		(85 - 115)
MS	Calcium, Total, ICAP	50	53.6	107.0%		(70 - 130)

QC Batch ID: 87801 **Report #:** 49404

Analysis: MG **Method:** ML/EPA 200.7

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Magnesium, Total, ICAP	20	19.8	99.0%		(85 - 115)
LCS2	Magnesium, Total, ICAP	20	19.9	100.0%		(85 - 115)
MS	Magnesium, Total, ICAP	20	20.7	104.0%		(70 - 130)

QC Batch ID: 87861 **Report #:** 49404

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)
MS	Bromide	0.1	0.11	110.0%		(80 - 120)
MSD	Bromide	0.1	0.11	110.0%		(80 - 120)

QC Batch ID: 88168 **Report #:** 49404

Analysis: NH3 **Method:** ML/EPA 350.1

QC	Analyte	Spike	Recovery	Yield	RPD	Acceptance Criteria Range
LCS1	Ammonia Nitrogen	1	1.05	105.0%		(80 - 120)
LCS2	Ammonia Nitrogen	1	0.983	98.0%		(80 - 120)
MS	Ammonia Nitrogen	1	0.957	96.0%		(80 - 120)
MSD	Ammonia Nitrogen	1	0.962	96.0%		(80 - 120)

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#: 179
Study Title: ICR RSSCT 3,4

Study comments

The sample bottle containing the first effluent sample for the optimized 10 minute column broke prior to SDS chlorination. A demand study had been done, so the SDS residual was obtained. However, there were no DBP samples taken. The second effluent sample was chlorinated to obtain initial DBP samples.

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

End of comments