Table 1
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Table 1: DBPs monitored and abbreviations used

N-DBPs			
Name	**Abbreviation**	**Name**	**Abbreviation**
Haloacetonitriles	**HANs**	**Halonitromethanes**	**HNMs**
Chloroacetonitrile	CAN	Chloronitromethane	CNM
Bromoacetonitrile	BAN	Bromonitromethane	BNM
Dichloroacetonitrile	DCAN	Dichloronitromethane	DCNM
Bromochloroacetonitrile	BCAN	Bromochloronitromethane	BCNM
Dibromoacetonitrile	DBAN	Dibromonitromethane	DBNM
Trichloroacetonitrile	TCAN	Chloropicrin (trichloronitromethane)	TCNM
Dibromochloroacetonitrile	DBCAN	Bromodichloronitromethane	BDCNM
		Dibromochloronitromethane	DBCNM
Haloacetamides	**HAcAms**	**Cyanogen chloride**	**CNCl**
2,2-Dichloroacetamide	DCAcAm		
2,2-Dibromoacetamide	DBAcAm		
2,2,2-Trichloroacetamide	TCAcAm		
Other DBPs			
Four regulated trihalomethanes: trichloro-, dichlorobromo-, bromodichloro- & tribromo-	**THM_4**	Nine chloro- and/or bromo-haloacetic acids: chloro-, bromo-, dichloro-, chlorobromo-, dibromo-, trichloro-, chlorodibromo-, dibromochloro- & tribromo-	**HAA_9**
Other selected abbreviations			
Bromine substitution factor	BSF	DCAN, BCAN, DBAN and TCAN	HAN_4
Dihaloacetonitriles	DHANs	Minimum detection limit	MDL
Dihaloacetic acids	DHAAs	N-nitrosodimethylamine	NDMA
Dihaloacetamides	DHAcAms	Pearson moment correlation coefficient	r
Drinking water treatment plant	DWTP	Total organic carbon	TOC
		Trihaloacetic acids	THAAs

Table 2

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Table 2: Summary of N-DBP concentrations (in $\mu g \cdot L^{-1}$)

	All disinfected samples				Final waters			Distribution samples			
Analyte	**n***	**Median**	**75th %ile**	**Max.**	**Median**	**75th %ile**	**Max.**	**Median**	**75th %ile**	**Max.**	**Literature concentrations**
Chloroacetonitrile	9	1.0	1.2	1.9	0.6	0.6	0.6	1.0	1.2	1.9	
Bromoacetonitrile	22	0.2	0.3	3.8	0.2	0.2	0.2	0.2	0.4	3.8	
Dichloroacetonitrile	496	0.9	1.6	4.4	0.7	1.3	3.2	0.9	1.7	4.4	Krasner (2006): median = 1 max = 12 Goslan (2014): max = 4.4
Bromochloroacetonitrile	534	0.9	1.4	3.2	1.0	1.3	2.9	0.9	1.4	3.2	Weinberg: median = 0.6, max = 3 Goslan (2014): max 3.0
Dibromoacetonitrile	513	1.0	1.8	8.1	1.0	1.7	5.8	1.0	1.9	8.1	Goslan (2014): max = 8.0
Dibromochloroacetonitrile	46	0.2	0.2	0.7	0.2	0.3	0.7	0.2	0.2	0.4	
Sum of HAN_4	573	2.8	4.1	12.1	2.6	3.8	8.7	2.8	4.2	12.1	Krasner (2006) HAN_4: median = 3, max = 14. Goslan (2009): HAN_4: median = 1, max = 4.
Sum of HANs	575	2.8	4.2	12.1	2.7	3.8	8.7	2.8	4.2	12.1	
2,2-Dichloroacetamide	402	0.6	1.1	4.5	0.5	0.7	2.1	0.7	1.2	4.5	Krasner (2006): median = 1.3, max = 5.6.
2,2-Dibromoacetamide	427	0.7	1.2	5.1	0.6	1.1	4.0	0.8	1.3	5.1	Weinberg (2002): median = 0.6, max = 2.8.
2,2,2-Trichloroacetamide	203	0.4	0.5	1.7	0.4	0.4	1.0	0.4	0.5	1.7	
Sum of HAcAms	547	1.3	2.0	7.0	1.0	1.6	4.6	1.4	2.1	7.0	Krasner (2006) sum of up to 5 HAcAms: median = 1.4, max = 7.4.
Chloronitromethane	64	0.8	1.5	3.5	1.3	1.6	3.5	0.7	1.4	3.2	
Bromonitromethane	125	0.2	0.2	3.8	0.2	0.2	0.5	0.1	0.2	3.8	
Dichloronitromethane	34	0.1	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.3	Mitch (2009) sum of three DHNMs: median = ND, max = 2
Bromochloronitromethane	8	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	
Dibromonitromethane	58	0.1	0.2	0.3	0.1	0.1	0.3	0.1	0.2	0.3	
Chloropicrin (trichloronitromethane)	146	0.1	0.2	0.5	0.1	0.2	0.4	0.1	0.2	0.5	Krasner (2006): median = 0.4, max = 2 Mitch (2009): median = 0.5, max = 7.6
Dibromochloronitromethane	2	1.3	1.4	1.4	1.3	1.4	1.4	-	-	-	Weinberg (2002): median = ND, max = 3
Sum of HNMs	324	0.2	0.3	7.0	0.2	1.0	3.6	0.2	0.3	7.0	Krasner (2002) sum of up to 9 HNMs: median = 3, max = 10.
Cyanogen Chloride	148	4.5	7.9	18.4	4.4	7.5	12.6	4.6	8.0	18.4	

* n = number of samples above method detection limit.

Table 3

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Table 3: Pearson moment correlation coefficients (r) between selected DBPs (µM)

	DCAN	BCAN	DBAN	HANs	CNM	BNM	DBNM	TCNM	HNMs	DCAcAm	DBAcAm	TCAcAm	HAcAms	CNCl	THM_4	DHAAs	THAAs
BCAN	0.47																
DBAN	-0.05	0.74															
HANs	0.66	0.92	0.69														
CNM	0.09	-0.01	0.03	0.08													
BNM	-0.07	0.14	0.24	0.13	0.39												
DBNM	0.06	0.30	0.33	0.28	-0.08	-0.01											
TCNM	0.66	0.18	-0.17	0.32	0.07	-0.09	0.09										
HNMs	0.15	0.08	0.09	0.16	0.96	0.58	0.01	0.16									
DCAcAm	0.77	0.38	-0.04	0.50	0.06	-0.06	0.05	0.60	0.13								
DBAcAm	-0.04	0.68	0.90	0.62	0.02	0.23	0.20	-0.14	0.08	0.06							
TCAcAm	0.55	0.30	0.07	0.42	0.27	0.10	0.02	0.45	0.33	0.61	0.15						
HAcAms	0.58	0.69	0.49	0.76	0.10	0.11	0.15	0.39	0.19	0.79	0.63	0.67					
CNCl	0.17	0.25	0.15	0.24	-0.11	0.03	0.08	0.12	-0.06	0.19	0.24	0.09	0.28				
THM_4	0.74	0.15	-0.06	0.36	-0.07	-0.10	-0.01	0.54	-0.03	0.74	0.00	0.39	0.49	-0.02			
DHAA	0.67	0.07	-0.11	0.26		-0.05	-0.13	0.45	0.27	0.41	-0.07	0.36	0.28	0.07	0.69		
THAA	0.41	0.65	0.63	0.78		0.56	0.41	0.10	0.43	0.23	0.64	0.12	0.64	0.27	0.44	0.49	
HAA_9	0.56	0.50	0.40	0.66		0.37	0.24	0.28	0.43	0.33	0.44	0.25	0.58	0.18	0.59	0.75	0.91

Table 4

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Table 4: Summary of bromine substitution factors (BSFs)

	Chlorinated samples				Chloraminated samples			
	Count (n)	**Mean**	**Median**	**75th %ile**	**Count (n)**	**Mean**	**Median**	**75th %ile**
	All Rounds							
DHANs	408	0.42	0.37	0.64	163	0.53	0.57	0.67
DCAN & DBAN	408	0.41	0.30	0.71	163	0.54	0.60	0.75
DCAcAm & DBAcAm	395	0.46	0.36	0.82	146	0.64	0.70	1.00
THMs	195	0.32	0.29	0.49	89	0.37	0.39	0.57
Bromide ($\mu g \cdot L^{-1}$)*	208	52	29	50	147	62	60	84
	Round 4 only							
DHANs	98	0.41	0.35	0.63	41	0.52	0.51	0.72
DCAN & DBAN	98	0.39	0.28	0.69	41	0.53	0.52	0.82
DCAcAm & DBAcAm	94	0.49	0.47	1.00	35	0.63	0.61	1.00
THMs	99	0.29	0.24	0.41	38	0.36	0.39	0.57
DHAAs	96	0.42	0.44	0.50	38	0.37	0.44	0.49
THAAs	95	0.46	0.48	0.56	34	0.50	0.53	0.61
Bromide ($\mu g \cdot L^{-1}$)*	93	30	22	42	38	43	34	60

Note: the HNMs were excluded from this table as there were insufficient samples with multiple HNMs present.
*Bromide treated in the same way as the N-DBP data, i.e. samples under the MDL not reported.

Figure 1

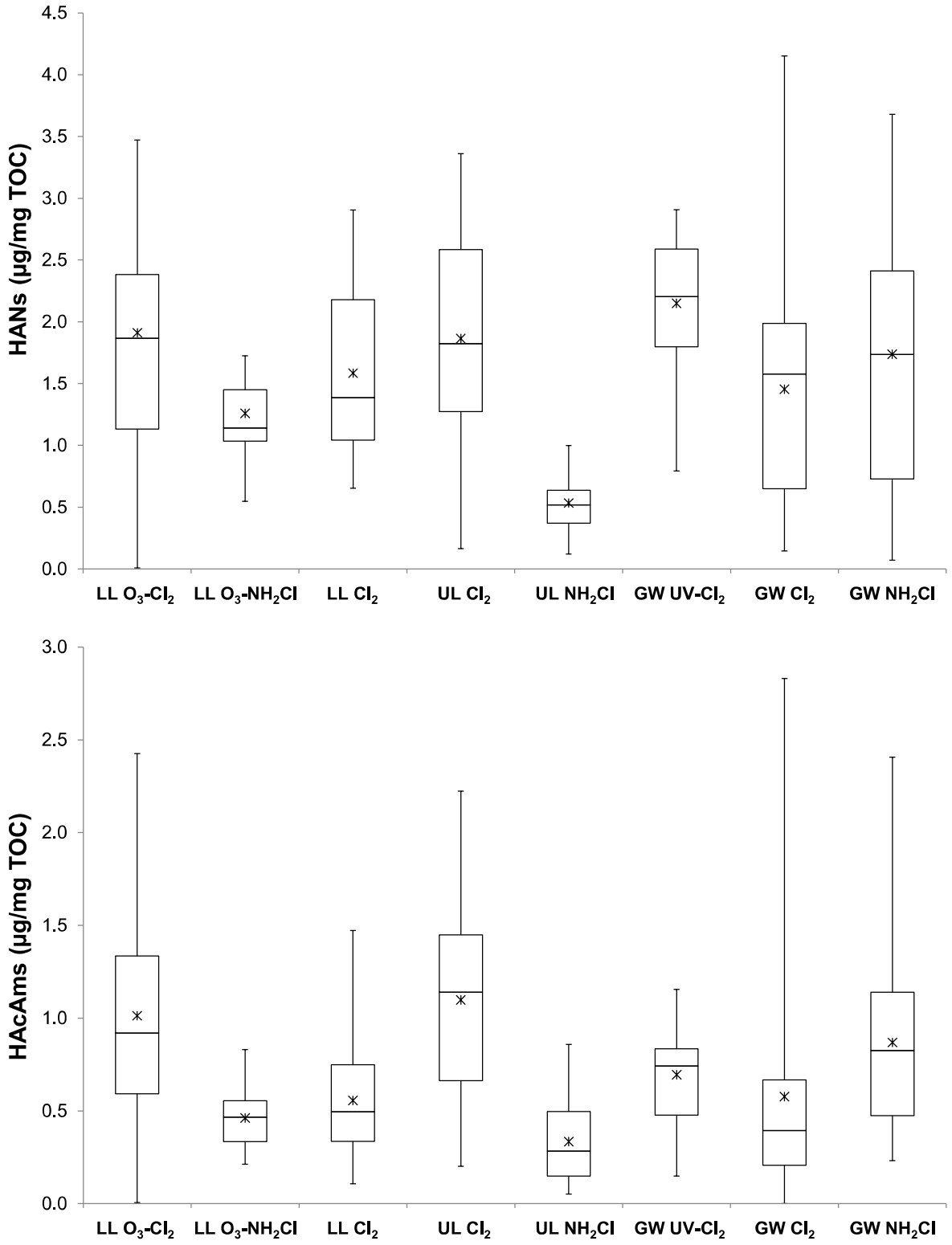

Figure 1: The concentrations of HANs (above) and HAcAms (below), showing different disinfectant and source water types. LL = lowland surface water, UL = upland surface water, GW = groundwater. In displayed box-and-whisker plots the stars are the mean values, the lines within the boxes are the median values, the tops of the boxes are the 75th percentile values, the bottoms of the boxes are the 25th percentile values, and the whiskers extend to the maximum and minimum values. See Table 1 for N-DBPs monitored.

Figure 2

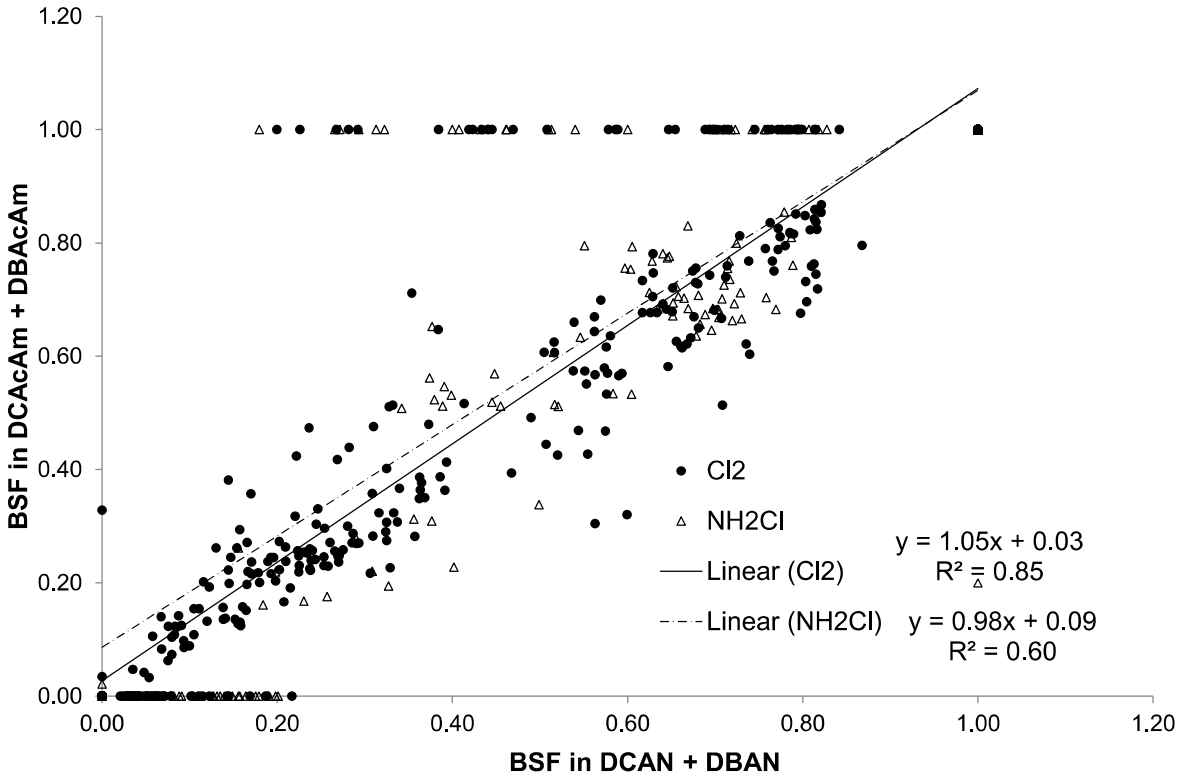

Figure 2: Relationship between bromine substitution factors in DCAN + DBAN and between DCAcAm + DBAcAm. All data points included in the regression analysis.

Figure 3

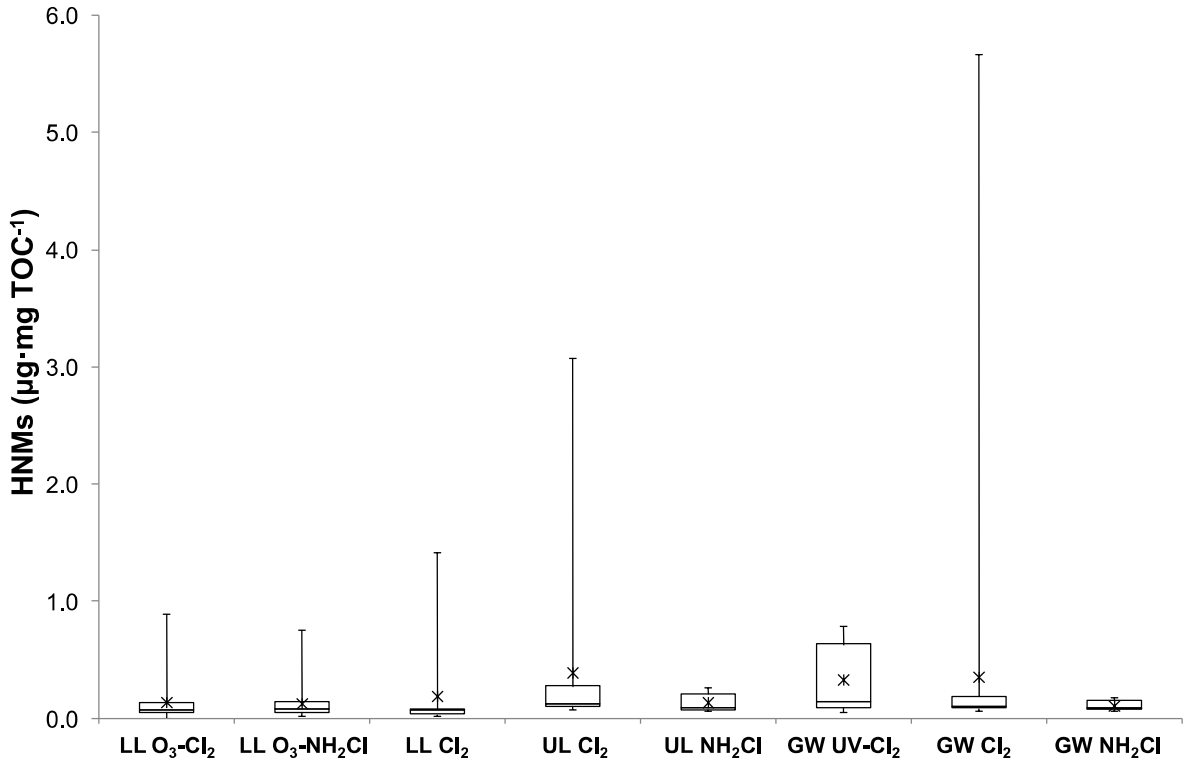

Figure 3: The concentrations of HNMs, showing different disinfectant and source water types. LL = lowland water, UL = upland water, GW = groundwater. See Table 1 for HNMs monitored.

Figure 4

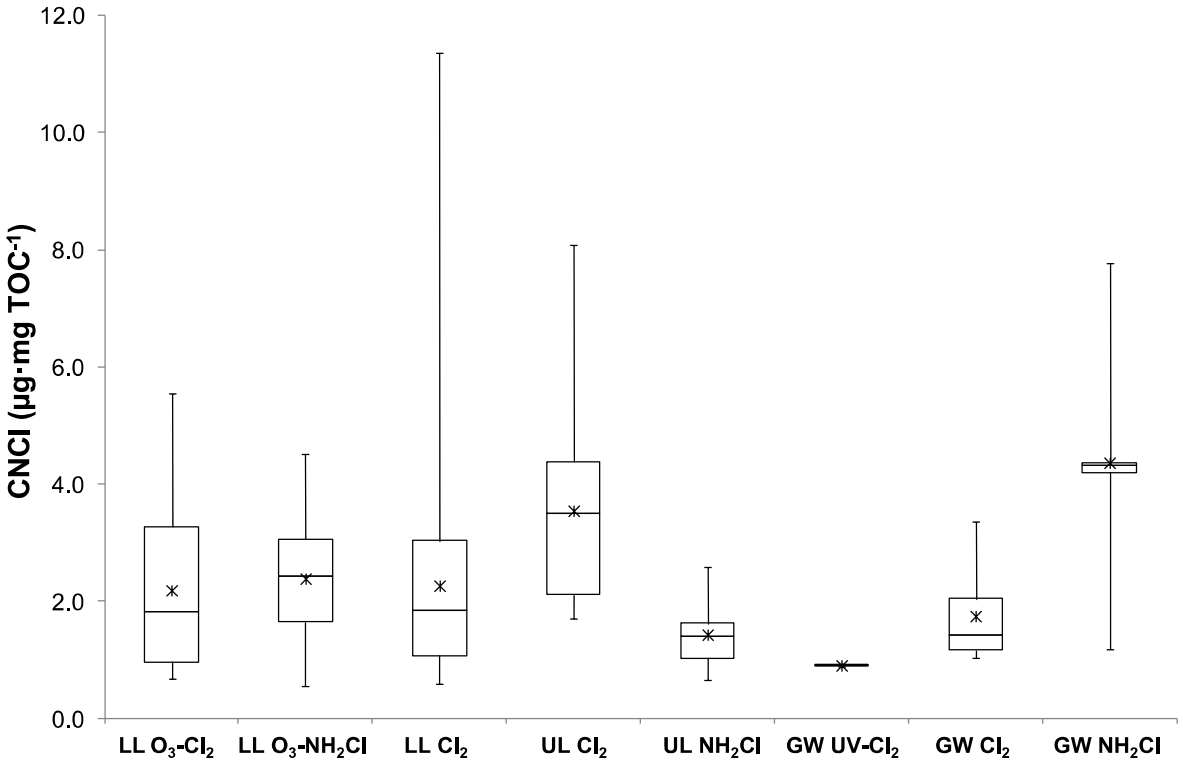

Figure 4: The concentrations of CNCl, showing different disinfectant and source water types. LL = lowland water, UL = upland water, GW = groundwater.

Electronic Supplementary Material (for online publication only)

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