

CERTIFICATE OF ANALYSIS

REPORTED TO Newell Regional Services Corporation
P.O. Box 638
Brooks, AB T1R 1B6

ATTENTION Kole Steinley

PO NUMBER 5174

PROJECT Schedule 4

PROJECT INFO NRSC Water Analysis 2024

WORK ORDER 24A1507

RECEIVED / TEMP 2024-01-17 10:00 / 6.5°C

REPORTED 2024-01-31 11:46

COC NUMBER 144320

Introduction:

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Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

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If you have any questions or concerns, please contact me at rpsyhk@caro.ca

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TEST RESULTS

REPORTED TO PROJECT Newell Regional Services Corporation
Schedule 4

WORK ORDER REPORTED 24A1507
2024-01-31 11:46

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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WTP Header #1 (24A1507-01) | Matrix: Water | Sampled: 2024-01-16 08:55

Acid Herbicides

3,5-Dichlorobenzoic acid	< 0.08	N/A	0.08	µg/L	2024-01-18	
Dicamba	0.02	MAC = 110	0.005	µg/L	2024-01-18	
MCPP	< 0.08	N/A	0.08	µg/L	2024-01-18	
MCPA	< 0.02	MAC = 350	0.02	µg/L	2024-01-18	
Dichlorprop (2,4-DP)	< 0.08	N/A	0.08	µg/L	2024-01-18	
Bromoxynil	< 0.02	MAC = 30	0.02	µg/L	2024-01-18	
2,4-D	< 0.05	MAC = 100	0.05	µg/L	2024-01-18	
Pentachlorophenol	< 0.08	AO ≤ 30	0.08	µg/L	2024-01-18	
2,4,5-TP (silvex) methyl ester	< 0.08	N/A	0.08	µg/L	2024-01-18	
2,4,5-T	< 0.08	N/A	0.08	µg/L	2024-01-18	
Chloramben	< 1.00	N/A	1.00	µg/L	2024-01-18	
Dinoseb	< 0.02	N/A	0.02	µg/L	2024-01-18	
Bentazon	< 0.08	N/A	0.08	µg/L	2024-01-18	
2,4-DB	< 0.08	N/A	0.08	µg/L	2024-01-18	
Picloram	< 0.08	MAC = 190	0.08	µg/L	2024-01-18	
Diclofop-methyl	< 0.08	MAC = 9	0.08	µg/L	2024-01-18	

Anions

Bromate	< 0.010	MAC = 0.01	0.010	mg/L	2024-01-22	
Chlorate	< 0.50	MAC = 1	0.50	mg/L	2024-01-17	
Chloride	19.8	AO ≤ 250	0.50	mg/L	2024-01-18	
Chlorite	< 0.50	MAC = 1	0.50	mg/L	2024-01-17	
Fluoride	0.18	MAC = 1.5	0.10	mg/L	2024-01-17	
Nitrate (as N)	0.218	MAC = 10	0.050	mg/L	2024-01-17	
Nitrite (as N)	< 0.050	MAC = 1	0.050	mg/L	2024-01-17	
Sulfate	65.8	AO ≤ 500	1.0	mg/L	2024-01-17	

Calculated Parameters

Chloramines	< 0.0400	MAC = 3	0.0400	mg/L	N/A	
Total Trihalomethanes	0.0263	MAC = 0.1	0.00400	mg/L	N/A	
Ion Balance	100	N/A		%	N/A	
Hardness, Total (as CaCO3)	191	None Required	0.541	mg/L	N/A	
Nitrate+Nitrite (as N)	0.218	N/A	0.0500	mg/L	N/A	
Solids, Total Dissolved	268	AO ≤ 500	5.00	mg/L	N/A	

Chlorinated Phenols

2-Chlorophenol	< 0.10	N/A	0.10	µg/L	2024-01-19	
3 & 4-Chlorophenol	< 0.10	N/A	0.10	µg/L	2024-01-19	
4-Chloro-3-Methylphenol	< 0.50	N/A	0.50	µg/L	2024-01-19	
2,3-Dichlorophenol	< 0.20	N/A	0.20	µg/L	2024-01-19	
2,4 & 2,5-Dichlorophenol	< 0.20	AO ≤ 0.3	0.20	µg/L	2024-01-19	
2,6-Dichlorophenol	< 0.20	N/A	0.20	µg/L	2024-01-19	
3,4-Dichlorophenol	< 0.20	N/A	0.20	µg/L	2024-01-19	
3,5-Dichlorophenol	< 0.20	N/A	0.20	µg/L	2024-01-19	

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WTP Header #1 (24A1507-01) | Matrix: Water | Sampled: 2024-01-16 08:55, Continued

Chlorinated Phenols, Continued

2,3,4-Trichlorophenol	< 0.50	N/A	0.50	µg/L	2024-01-19	
2,3,5-Trichlorophenol	< 0.50	N/A	0.50	µg/L	2024-01-19	
2,3,6-Trichlorophenol	< 0.50	N/A	0.50	µg/L	2024-01-19	
2,4,5-Trichlorophenol	< 0.50	N/A	0.50	µg/L	2024-01-19	
2,4,6-Trichlorophenol	< 0.50	AO ≤ 2	0.50	µg/L	2024-01-19	
3,4,5-Trichlorophenol	< 0.50	N/A	0.50	µg/L	2024-01-19	
2,3,4,5 & 2,3,5,6-Tetrachlorophenol	< 0.50	N/A	0.50	µg/L	2024-01-19	
2,3,4,6-Tetrachlorophenol	< 0.50	AO ≤ 1	0.50	µg/L	2024-01-19	
Pentachlorophenol	< 0.50	AO ≤ 30	0.50	µg/L	2024-01-19	
Surrogate: 2,4-Dibromophenol	74		60-130	%	2024-01-19	
Surrogate: 2,4,6-Tribromophenol	85		60-130	%	2024-01-19	
Surrogate: Phenol-d6	80		70-130	%	2024-01-19	

General Parameters

Alkalinity, Total (as CaCO ₃)	148	N/A	2.0	mg/L	2024-01-22	
Bicarbonate (HCO ₃)	181	N/A	2.0	mg/L	2024-01-22	
Carbonate (CO ₃)	< 2.0	N/A	2.0	mg/L	2024-01-22	
Hydroxide (OH)	< 2.0	N/A	2.0	mg/L	2024-01-22	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2024-01-23	
Carbon, Total Organic	2.46	N/A	0.50	mg/L	2024-01-23	
Chlorine, Total	1.52	None Required	0.02	mg/L	2024-01-20	HT2
Chlorine, Free	1.50	N/A	0.02	mg/L	2024-01-20	HT2
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2024-01-19	
Conductivity (EC)	462	N/A	2.0	µS/cm	2024-01-18	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2024-01-22	
Nitritotriacetic Acid	< 0.20	MAC = 0.4	0.20	mg/L	2024-01-24	HT1
pH	8.07	7.0-10.5	0.10	pH units	2024-01-22	HT2
Sulfide, Total	< 0.020	AO ≤ 0.05	0.020	mg/L	2024-01-18	
Turbidity	< 0.10	OG < 1	0.10	NTU	2024-01-17	

Haloacetic Acids

Monochloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2024-01-21	
Monobromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2024-01-21	
Dichloroacetic Acid	0.0128	N/A	0.0020	mg/L	2024-01-21	
Trichloroacetic Acid	0.0113	N/A	0.0020	mg/L	2024-01-21	
Dibromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2024-01-21	
Total Haloacetic Acids (HAA5)	0.0242	MAC = 0.08	0.00200	mg/L	N/A	
Surrogate: 2-Bromopropionic Acid	109		70-130	%	2024-01-21	

Microbiological Parameters

Microcystin, total	< 0.05	MAC = 1.5	0.05	µg/L	2024-01-19	
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Miscellaneous Herbicides

Glyphosate	< 0.05	MAC = 0.28	0.05	mg/L	2024-01-29	
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WTP Header #1 (24A1507-01) | Matrix: Water | Sampled: 2024-01-16 08:55, Continued

Miscellaneous Organics

N-Nitrosodimethylamine	< 0.000009	MAC = 0.00004	0.000009	mg/L	2024-01-25	
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Pesticides, Herbicides, and Fungicides

Alachlor	< 0.100	N/A	0.100	µg/L	2024-01-23	
Aldrin	< 0.006	N/A	0.006	µg/L	2024-01-23	
Atrazine and metabolites	< 0.100	MAC = 5	0.100	µg/L	2024-01-23	
Azinphos-methyl	< 0.200	MAC = 20	0.200	µg/L	2024-01-23	
alpha-BHC	< 0.010	N/A	0.010	µg/L	2024-01-23	
beta-BHC	< 0.050	N/A	0.050	µg/L	2024-01-23	
delta-BHC	< 0.050	N/A	0.050	µg/L	2024-01-23	
gamma-BHC (Lindane)	< 0.050	N/A	0.050	µg/L	2024-01-23	
Bromacil	< 0.100	N/A	0.100	µg/L	2024-01-23	
Bromoxynil	< 0.200	MAC = 30	0.200	µg/L	2024-01-23	
Butachlor	< 0.020	N/A	0.020	µg/L	2024-01-23	
Captan	< 0.100	N/A	0.100	µg/L	2024-01-23	
Chlordane (cis + trans)	< 0.050	N/A	0.050	µg/L	2024-01-23	
Chlorothalonil	< 0.050	N/A	0.050	µg/L	2024-01-23	
Chlorpyrifos	< 0.010	MAC = 90	0.010	µg/L	2024-01-23	
Cyanazine	< 0.100	N/A	0.100	µg/L	2024-01-23	
DDT, Total	< 0.010	N/A	0.010	µg/L	2024-01-23	
Deltamethrin	< 0.100	N/A	0.100	µg/L	2024-01-23	
Diazinon	< 0.020	MAC = 20	0.020	µg/L	2024-01-23	
Dichlorvos	< 0.100	N/A	0.100	µg/L	2024-01-23	
Diclofop-methyl	< 0.100	MAC = 9	0.100	µg/L	2024-01-23	
Dieldrin	< 0.010	N/A	0.010	µg/L	2024-01-23	
Dimethoate	< 0.200	MAC = 20	0.200	µg/L	2024-01-23	
Disulfoton	< 0.100	N/A	0.100	µg/L	2024-01-23	
Diuron	< 0.200	MAC = 150	0.200	µg/L	2024-01-23	
Endosulfan I + II	< 0.010	N/A	0.010	µg/L	2024-01-23	
Endosulfan sulfate	< 0.050	N/A	0.050	µg/L	2024-01-23	
Endrin	< 0.020	N/A	0.020	µg/L	2024-01-23	
Endrin aldehyde	< 0.020	N/A	0.020	µg/L	2024-01-23	
Endrin ketone	< 0.020	N/A	0.020	µg/L	2024-01-23	
Fenchlorphos (Ronnell)	< 0.100	N/A	0.100	µg/L	2024-01-23	
Heptachlor	< 0.010	N/A	0.010	µg/L	2024-01-23	
Heptachlor epoxide	< 0.010	N/A	0.010	µg/L	2024-01-23	
Linuron	< 0.050	N/A	0.050	µg/L	2024-01-23	
Malathion	< 0.100	MAC = 290	0.100	µg/L	2024-01-23	
Methoxychlor	< 0.050	N/A	0.050	µg/L	2024-01-23	
Methyl parathion	< 0.100	N/A	0.100	µg/L	2024-01-23	
Metolachlor	< 0.100	MAC = 50	0.100	µg/L	2024-01-23	
Metribuzin	< 0.200	MAC = 80	0.200	µg/L	2024-01-23	
Parathion	< 0.100	N/A	0.100	µg/L	2024-01-23	

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WTP Header #1 (24A1507-01) | Matrix: Water | Sampled: 2024-01-16 08:55, Continued

Pesticides, Herbicides, and Fungicides, Continued

Pentachloronitrobenzene	< 0.100	N/A	0.100	µg/L	2024-01-23	
Permethrin	< 0.010	N/A	0.010	µg/L	2024-01-23	
Phorate	< 0.100	MAC = 2	0.100	µg/L	2024-01-23	
Prometon	< 0.300	N/A	0.300	µg/L	2024-01-23	
Prometryne	< 0.100	N/A	0.100	µg/L	2024-01-23	
Simazine	< 0.200	MAC = 10	0.200	µg/L	2024-01-23	
Sulfotep	< 0.100	N/A	0.100	µg/L	2024-01-23	
Tebuthiuron	< 0.200	N/A	0.200	µg/L	2024-01-23	
Temephos (Abate)	< 0.500	N/A	0.500	µg/L	2024-01-23	
Terbufos	< 0.100	MAC = 1	0.100	µg/L	2024-01-23	
Triallate	< 0.100	N/A	0.100	µg/L	2024-01-23	
Trifluralin	< 0.200	MAC = 45	0.200	µg/L	2024-01-23	
Surrogate: Tributyl Phosphate	91		50-140	%	2024-01-23	
Surrogate: 4-chloro-3-nitrobenzotrifluoride	78		50-140	%	2024-01-23	

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	N/A	0.050	µg/L	2024-01-19	
Acenaphthylene	< 0.200	N/A	0.200	µg/L	2024-01-19	
Anthracene	< 0.010	N/A	0.010	µg/L	2024-01-19	
Benz(a)anthracene	0.015	N/A	0.010	µg/L	2024-01-19	
Benzo(a)pyrene	< 0.024	MAC = 0.04	0.010	µg/L	2024-01-19	RA1
Benzo(b+j)fluoranthene	< 0.050	N/A	0.050	µg/L	2024-01-19	
Benzo(g,h,i)perylene	< 0.050	N/A	0.050	µg/L	2024-01-19	
Benzo(k)fluoranthene	< 0.050	N/A	0.050	µg/L	2024-01-19	
2-Chloronaphthalene	< 0.100	N/A	0.100	µg/L	2024-01-19	
Chrysene	< 0.050	N/A	0.050	µg/L	2024-01-19	
Dibenz(a,h)anthracene	< 0.010	N/A	0.010	µg/L	2024-01-19	
Fluoranthene	< 0.030	N/A	0.030	µg/L	2024-01-19	
Fluorene	< 0.050	N/A	0.050	µg/L	2024-01-19	
Indeno(1,2,3-cd)pyrene	< 0.050	N/A	0.050	µg/L	2024-01-19	
1-Methylnaphthalene	< 0.100	N/A	0.100	µg/L	2024-01-19	
2-Methylnaphthalene	< 0.100	N/A	0.100	µg/L	2024-01-19	
Naphthalene	< 0.200	N/A	0.200	µg/L	2024-01-19	
Phenanthrene	< 0.100	N/A	0.100	µg/L	2024-01-19	
Pyrene	< 0.020	N/A	0.020	µg/L	2024-01-19	
Quinoline	< 0.050	N/A	0.050	µg/L	2024-01-19	
Surrogate: Naphthalene-d8	108		50-140	%	2024-01-19	
Surrogate: Perylene-d12	108		50-140	%	2024-01-19	

Total Metals

Aluminum, total	0.0365	OG < 0.1	0.0050	mg/L	2024-01-19	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2024-01-19	
Arsenic, total	0.00096	MAC = 0.01	0.00050	mg/L	2024-01-19	
Barium, total	0.0766	MAC = 2	0.0050	mg/L	2024-01-19	

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WTP Header #1 (24A1507-01) | Matrix: Water | Sampled: 2024-01-16 08:55, Continued

Total Metals, Continued

Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2024-01-19	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2024-01-19	
Calcium, total	44.0	None Required	0.20	mg/L	2024-01-19	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2024-01-19	
Copper, total	0.00059	MAC = 2	0.00040	mg/L	2024-01-19	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2024-01-19	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2024-01-19	
Magnesium, total	19.6	None Required	0.010	mg/L	2024-01-19	
Manganese, total	0.00083	MAC = 0.12	0.00020	mg/L	2024-01-19	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2024-01-19	
Potassium, total	2.36	N/A	0.10	mg/L	2024-01-19	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2024-01-19	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2024-01-19	
Sodium, total	24.4	AO ≤ 200	0.10	mg/L	2024-01-19	
Strontium, total	0.249	MAC = 7	0.0010	mg/L	2024-01-19	
Uranium, total	0.000755	MAC = 0.02	0.000020	mg/L	2024-01-19	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2024-01-19	

Volatile Organic Compounds (VOC)

Benzene	< 0.5	MAC = 5	0.5	µg/L	2024-01-18	
Bromodichloromethane	3.9	N/A	1.0	µg/L	2024-01-18	
Bromoform	< 1.0	N/A	1.0	µg/L	2024-01-18	
Carbon tetrachloride	< 0.5	MAC = 2	0.5	µg/L	2024-01-18	
Chlorobenzene	< 1.0	AO ≤ 30	1.0	µg/L	2024-01-18	
Chloroethane	< 2.0	N/A	2.0	µg/L	2024-01-18	
Chloroform	22.4	N/A	1.0	µg/L	2024-01-18	
Dibromochloromethane	< 1.0	N/A	1.0	µg/L	2024-01-18	
1,2-Dibromoethane	< 0.3	N/A	0.3	µg/L	2024-01-18	
Dibromomethane	< 1.0	N/A	1.0	µg/L	2024-01-18	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5	µg/L	2024-01-18	
1,3-Dichlorobenzene	< 1.0	N/A	1.0	µg/L	2024-01-18	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0	µg/L	2024-01-18	
1,1-Dichloroethane	< 1.0	N/A	1.0	µg/L	2024-01-18	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0	µg/L	2024-01-18	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0	µg/L	2024-01-18	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2024-01-18	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2024-01-18	
Dichloromethane	< 3.0	MAC = 50	3.0	µg/L	2024-01-18	
1,2-Dichloropropane	< 1.0	N/A	1.0	µg/L	2024-01-18	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0	µg/L	2024-01-18	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0	µg/L	2024-01-18	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0	µg/L	2024-01-18	
Styrene	< 1.0	N/A	1.0	µg/L	2024-01-18	

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<i>Volatile Organic Compounds (VOC), Continued</i>						
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5	µg/L	2024-01-18	
Tetrachloroethylene	< 1.0	MAC = 10	1.0	µg/L	2024-01-18	
Toluene	< 0.5	MAC = 60	0.5	µg/L	2024-01-18	
1,1,1-Trichloroethane	< 1.0	N/A	1.0	µg/L	2024-01-18	
1,1,2-Trichloroethane	< 1.0	N/A	1.0	µg/L	2024-01-18	
Trichloroethylene	< 1.0	MAC = 5	1.0	µg/L	2024-01-18	
Trichlorofluoromethane	< 1.0	N/A	1.0	µg/L	2024-01-18	
Vinyl chloride	< 1.0	MAC = 2	1.0	µg/L	2024-01-18	
Xylenes (total)	< 2.0	AO ≤ 20	2.0	µg/L	2024-01-18	
Surrogate: Toluene-d8	103		70-130	%	2024-01-18	
Surrogate: 4-Bromofluorobenzene	111		70-130	%	2024-01-18	

Header #2 (24A1507-02) | Matrix: Water | Sampled: 2024-01-16 09:05

<i>Calculated Parameters</i>						
Total Trihalomethanes	0.0289	MAC = 0.1	0.00400	mg/L	N/A	
<i>Haloacetic Acids</i>						
Monochloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2024-01-21	
Monobromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2024-01-21	
Dichloroacetic Acid	0.0121	N/A	0.0020	mg/L	2024-01-21	
Trichloroacetic Acid	0.0107	N/A	0.0020	mg/L	2024-01-21	
Dibromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2024-01-21	
Total Haloacetic Acids (HAA5)	0.0229	MAC = 0.08	0.00200	mg/L	N/A	
Surrogate: 2-Bromopropionic Acid	116		70-130	%	2024-01-21	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	0.0030	N/A	0.0010	mg/L	2024-01-18	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2024-01-18	
Chloroform	0.0259	N/A	0.0010	mg/L	2024-01-18	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2024-01-18	
Surrogate: Toluene-d8	112		70-130	%	2024-01-18	
Surrogate: 4-Bromofluorobenzene	108		70-130	%	2024-01-18	

Sample Qualifiers:

HT1	The sample was prepared and/or analyzed past the recommended holding time.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
RA1	The Reporting Limit for this sample has been raised due to matrix interference.

APPENDIX 1: SUPPORTING INFORMATION

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Analysis Description	Method Ref.	Technique	Accredited	Location
Acid Herbicides in Water	In-House	N/A		Sublet
Alkalinity in Water	SM 2320 B* (2021)	Titration with H ₂ SO ₄	✓	Edmonton
Ammonia, Total in Water	SM 4500-NH ₃ D* (2021)	Ion Selective Electrode	✓	Edmonton
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Edmonton
Bromate in Water	SM 4110 B (2020)	Ion Chromatography	✓	Sublet
Carbon, Total Organic in Water	SM 5310 B (2022)	Combustion, Infrared CO ₂ Detection	✓	Kelowna
Chlorine, Free in Water	SM 4500-Cl G (2021)	Colorimetry (DPD)	✓	Edmonton
Chlorine, Total in Water	SM 4500-Cl G (2021)	Colorimetry (DPD)	✓	Edmonton
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Edmonton
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Edmonton
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Cyanobacterial Toxins in Water	EPA 546*	Adda Enzyme-Linked Immunosorbent Assay (ELISA)	✓	Sublet
Glyphosate in Water	Journal	N/A		Sublet
Haloacetic Acids in Water	EPA 552.3*	Liquid-Liquid Microextraction, Derivatization and GC-ECD	✓	Richmond
Hardness in Water	SM 2340 B (2021)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	N/A
Ion Balance in Water	SM 2340 B (2021)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	N/A
Mercury, total in Water	EPA 245.7*	BrCl ₂ Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Nitrate+Nitrite in Water	SM 2340 B (2021)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	N/A
Nitritotriacetic Acid in Water	EPA 430.1	Manual Colorimetry (Zinc-Zincon)		Kelowna
N-Nitrosodimethylamine in Water	In-House	N/A	✓	Sublet
Pesticides in Water	EPA 3510C* / EPA 8270D*	Liquid-Liquid DCM Extraction (B/N) / GC-MSD (SIM)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Edmonton
Phenols, Chlorinated in Water	EPA 3510C* / EPA 8270D	Liquid-Liquid DCM Extraction (Acidic) / GC-MSD (SIM)	✓	Richmond
Polycyclic Aromatic Hydrocarbons in Water	EPA 3511* / EPA 8270D	Hexane MicroExtraction (Base/Neutral) / GC-MSD (SIM)		Edmonton
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E	✓	N/A
Sulfide, Total in Water	SM 4500-S ₂ D* (2021)	Colorimetry (Methylene Blue)	✓	Edmonton
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO ₃ +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	Edmonton
Turbidity in Water	SM 2130 B (2020)	Nephelometry	✓	Edmonton
Volatile Organic Compounds in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)		Edmonton

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method



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Glossary of Terms:

RL	Reporting Limit (default)
%	Percent
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
AO	Aesthetic Objective
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager: rpsyhk@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

APPENDIX 2: QUALITY CONTROL RESULTS

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The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk):** A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup):** An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS):** A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS):** A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM):** A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Anions, Batch B4A2540

Blank (B4A2540-BLK1)			Prepared: 2024-01-17, Analyzed: 2024-01-17						
Chlorate	< 0.50	0.50 mg/L							
Chloride	< 0.50	0.50 mg/L							
Chlorite	< 0.50	0.50 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.050	0.050 mg/L							
Nitrite (as N)	< 0.050	0.050 mg/L							
Sulfate	< 1.0	1.0 mg/L							

LCS (B4A2540-BS1)			Prepared: 2024-01-17, Analyzed: 2024-01-17						
Chlorate	9.99	0.50 mg/L	10.0		100	89-112			
Chloride	9.69	0.50 mg/L	10.0		97	90-110			
Chlorite	9.93	0.50 mg/L	10.0		99	80-120			
Fluoride	0.96	0.10 mg/L	1.00		96	85-115			
Nitrate (as N)	0.999	0.050 mg/L	1.00		100	92-108			
Nitrite (as N)	0.505	0.050 mg/L	0.500		101	85-115			
Sulfate	52.0	1.0 mg/L	50.0		104	90-110			

Chlorinated Phenols, Batch B4A2651

Blank (B4A2651-BLK1)			Prepared: 2024-01-18, Analyzed: 2024-01-19						
2-Chlorophenol	< 0.10	0.10 µg/L							
3 & 4-Chlorophenol	< 0.10	0.10 µg/L							
4-Chloro-3-Methylphenol	< 0.50	0.50 µg/L							
2,3-Dichlorophenol	< 0.20	0.20 µg/L							
2,4 & 2,5-Dichlorophenol	< 0.20	0.20 µg/L							
2,6-Dichlorophenol	< 0.20	0.20 µg/L							
3,4-Dichlorophenol	< 0.20	0.20 µg/L							
3,5-Dichlorophenol	< 0.20	0.20 µg/L							
2,3,4-Trichlorophenol	< 0.50	0.50 µg/L							
2,3,5-Trichlorophenol	< 0.50	0.50 µg/L							
2,3,6-Trichlorophenol	< 0.50	0.50 µg/L							
2,4,5-Trichlorophenol	< 0.50	0.50 µg/L							
2,4,6-Trichlorophenol	< 0.50	0.50 µg/L							
3,4,5-Trichlorophenol	< 0.50	0.50 µg/L							
2,3,4,5 & 2,3,5,6-Tetrachlorophenol	< 0.50	0.50 µg/L							
2,3,4,6-Tetrachlorophenol	< 0.50	0.50 µg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Chlorinated Phenols, Batch B4A2651, Continued

Blank (B4A2651-BLK1), Continued			Prepared: 2024-01-18, Analyzed: 2024-01-19						
Pentachlorophenol	< 0.50	0.50 µg/L							
Surrogate: 2,4-Dibromophenol	1.63	µg/L	2.36		69	60-130			
Surrogate: 2,4,6-Tribromophenol	1.88	µg/L	2.68		70	60-130			
Surrogate: Phenol-d6	4.20	µg/L	5.05		83	70-130			

LCS (B4A2651-BS1)			Prepared: 2024-01-18, Analyzed: 2024-01-19						
2-Chlorophenol	8.98	0.10 µg/L	10.0		90	60-130			
3 & 4-Chlorophenol	18.0	0.10 µg/L	20.0		90	60-130			
4-Chloro-3-Methylphenol	12.3	0.50 µg/L	10.8		114	60-130			
2,3-Dichlorophenol	9.13	0.20 µg/L	10.0		91	60-130			
2,4 & 2,5-Dichlorophenol	19.5	0.20 µg/L	20.0		97	60-130			
2,6-Dichlorophenol	9.33	0.20 µg/L	10.0		93	60-130			
3,4-Dichlorophenol	11.0	0.20 µg/L	10.0		110	60-130			
3,5-Dichlorophenol	11.2	0.20 µg/L	10.0		112	60-130			
2,3,4-Trichlorophenol	9.83	0.50 µg/L	10.0		98	60-130			
2,3,5-Trichlorophenol	10.7	0.50 µg/L	10.0		107	60-130			
2,3,6-Trichlorophenol	9.42	0.50 µg/L	10.0		94	60-130			
2,4,5-Trichlorophenol	10.5	0.50 µg/L	10.0		105	60-130			
2,4,6-Trichlorophenol	9.87	0.50 µg/L	10.0		99	60-130			
3,4,5-Trichlorophenol	12.0	0.50 µg/L	10.0		120	60-130			
2,3,4,5 & 2,3,5,6-Tetrachlorophenol	22.5	0.50 µg/L	20.0		113	60-130			
2,3,4,6-Tetrachlorophenol	8.53	0.50 µg/L	10.0		85	60-130			
Pentachlorophenol	12.9	0.50 µg/L	10.0		129	60-130			
Surrogate: 2,4-Dibromophenol	1.97	µg/L	2.36		84	60-130			
Surrogate: 2,4,6-Tribromophenol	2.53	µg/L	2.68		94	60-130			
Surrogate: Phenol-d6	5.10	µg/L	5.05		101	70-130			

LCS Dup (B4A2651-BS1)			Prepared: 2024-01-18, Analyzed: 2024-01-19						
2-Chlorophenol	8.54	0.10 µg/L	10.0		85	60-130	5	40	
3 & 4-Chlorophenol	16.3	0.10 µg/L	20.0		81	60-130	10	40	
4-Chloro-3-Methylphenol	11.1	0.50 µg/L	10.8		104	60-130	10	40	
2,3-Dichlorophenol	9.27	0.20 µg/L	10.0		93	60-130	2	40	
2,4 & 2,5-Dichlorophenol	19.9	0.20 µg/L	20.0		99	60-130	2	40	
2,6-Dichlorophenol	9.59	0.20 µg/L	10.0		96	60-130	3	40	
3,4-Dichlorophenol	10.8	0.20 µg/L	10.0		108	60-130	2	40	
3,5-Dichlorophenol	10.4	0.20 µg/L	10.0		104	60-130	7	40	
2,3,4-Trichlorophenol	10.3	0.50 µg/L	10.0		103	60-130	5	40	
2,3,5-Trichlorophenol	11.4	0.50 µg/L	10.0		114	60-130	7	40	
2,3,6-Trichlorophenol	10.0	0.50 µg/L	10.0		100	60-130	6	40	
2,4,5-Trichlorophenol	10.5	0.50 µg/L	10.0		105	60-130	< 1	40	
2,4,6-Trichlorophenol	10.1	0.50 µg/L	10.0		101	60-130	2	40	
3,4,5-Trichlorophenol	12.6	0.50 µg/L	10.0		126	60-130	5	40	
2,3,4,5 & 2,3,5,6-Tetrachlorophenol	23.8	0.50 µg/L	20.0		119	60-130	5	40	
2,3,4,6-Tetrachlorophenol	9.22	0.50 µg/L	10.0		92	60-130	8	40	
Pentachlorophenol	13.8	0.50 µg/L	10.0		138	60-130	7	40	SPK1
Surrogate: 2,4-Dibromophenol	2.03	µg/L	2.36		86	60-130			
Surrogate: 2,4,6-Tribromophenol	2.54	µg/L	2.68		95	60-130			
Surrogate: Phenol-d6	4.50	µg/L	5.05		89	70-130			

General Parameters, Batch B4A2473

Blank (B4A2473-BLK1)			Prepared: 2024-01-17, Analyzed: 2024-01-17						
Turbidity	< 0.10	0.10 NTU							
LCS (B4A2473-BS1)			Prepared: 2024-01-17, Analyzed: 2024-01-17						
Turbidity	37.8	0.10 NTU	40.0		94	90-110			

APPENDIX 2: QUALITY CONTROL RESULTS

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B4A2587									
Blank (B4A2587-BLK1)				Prepared: 2024-01-18, Analyzed: 2024-01-18					
Conductivity (EC)	< 2.0	2.0 µS/cm							
LCS (B4A2587-BS1)				Prepared: 2024-01-18, Analyzed: 2024-01-18					
Conductivity (EC)	1010	2.0 µS/cm	1000		101	95-105			
General Parameters, Batch B4A2624									
Blank (B4A2624-BLK1)				Prepared: 2024-01-18, Analyzed: 2024-01-18					
Sulfide, Total	< 0.020	0.020 mg/L							
LCS (B4A2624-BS1)				Prepared: 2024-01-18, Analyzed: 2024-01-18					
Sulfide, Total	0.520	0.020 mg/L	0.530		98	80-120			
Matrix Spike (B4A2624-MS1)				Source: 24A1507-01		Prepared: 2024-01-18, Analyzed: 2024-01-18			
Sulfide, Total	0.222	0.020 mg/L	0.530	< 0.020	42	70-130			MS1
General Parameters, Batch B4A2683									
Blank (B4A2683-BLK1)				Prepared: 2024-01-19, Analyzed: 2024-01-19					
Colour, True	< 5.0	5.0 CU							
LCS (B4A2683-BS1)				Prepared: 2024-01-19, Analyzed: 2024-01-19					
Colour, True	24	5.0 CU	25.0		97	90-109			
Duplicate (B4A2683-DUP1)				Source: 24A1507-01		Prepared: 2024-01-19, Analyzed: 2024-01-19			
Colour, True	< 5.0	5.0 CU		< 5.0			8		
General Parameters, Batch B4A2714									
Blank (B4A2714-BLK1)				Prepared: 2024-01-19, Analyzed: 2024-01-23					
Carbon, Total Organic	< 0.50	0.50 mg/L							
Blank (B4A2714-BLK2)				Prepared: 2024-01-19, Analyzed: 2024-01-23					
Carbon, Total Organic	< 0.50	0.50 mg/L							
Blank (B4A2714-BLK3)				Prepared: 2024-01-20, Analyzed: 2024-01-23					
Carbon, Total Organic	< 0.50	0.50 mg/L							
Blank (B4A2714-BLK4)				Prepared: 2024-01-21, Analyzed: 2024-01-23					
Carbon, Total Organic	< 0.50	0.50 mg/L							
LCS (B4A2714-BS1)				Prepared: 2024-01-19, Analyzed: 2024-01-23					
Carbon, Total Organic	9.14	0.50 mg/L	10.0		91	78-116			
LCS (B4A2714-BS2)				Prepared: 2024-01-19, Analyzed: 2024-01-23					
Carbon, Total Organic	9.14	0.50 mg/L	10.0		91	78-116			
LCS (B4A2714-BS3)				Prepared: 2024-01-20, Analyzed: 2024-01-23					
Carbon, Total Organic	9.25	0.50 mg/L	10.0		92	78-116			
LCS (B4A2714-BS4)				Prepared: 2024-01-21, Analyzed: 2024-01-23					
Carbon, Total Organic	9.19	0.50 mg/L	10.0		92	78-116			

General Parameters, Batch B4A2813

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B4A2813, Continued									
Blank (B4A2813-BLK1)				Prepared: 2024-01-20, Analyzed: 2024-01-20					
Chlorine, Total	< 0.02	0.02 mg/L							
Chlorine, Free	< 0.02	0.02 mg/L							
Duplicate (B4A2813-DUP1)				Source: 24A1507-01	Prepared: 2024-01-20, Analyzed: 2024-01-20				
Chlorine, Total	1.65	0.02 mg/L		1.52			8	10	
Chlorine, Free	1.45	0.02 mg/L		1.50			3	20	
Reference (B4A2813-SRM1)				Prepared: 2024-01-20, Analyzed: 2024-01-20					
Chlorine, Total	1.59	0.02 mg/L		1.59	100	91.2-108.8			
Chlorine, Free	1.59	0.02 mg/L		1.59	100	91.2-108.8			
General Parameters, Batch B4A2835									
Blank (B4A2835-BLK1)				Prepared: 2024-01-22, Analyzed: 2024-01-22					
Alkalinity, Total (as CaCO ₃)	< 2.0	2.0 mg/L							
Bicarbonate (HCO ₃)	< 2.0	2.0 mg/L							
Carbonate (CO ₃)	< 2.0	2.0 mg/L							
Hydroxide (OH)	< 2.0	2.0 mg/L							
LCS (B4A2835-BS1)				Prepared: 2024-01-22, Analyzed: 2024-01-22					
Alkalinity, Total (as CaCO ₃)	258	2.0 mg/L		250	103	94-108			
Reference (B4A2835-SRM1)				Prepared: 2024-01-22, Analyzed: 2024-01-22					
pH	7.06	0.10 pH units		7.00	101	98-102			
General Parameters, Batch B4A2852									
Blank (B4A2852-BLK1)				Prepared: 2024-01-22, Analyzed: 2024-01-22					
Cyanide, Total	< 0.0020	0.0020 mg/L							
LCS (B4A2852-BS1)				Prepared: 2024-01-22, Analyzed: 2024-01-22					
Cyanide, Total	0.0208	0.0020 mg/L		0.0200	104	82-120			
LCS Dup (B4A2852-BSD1)				Prepared: 2024-01-22, Analyzed: 2024-01-22					
Cyanide, Total	0.0205	0.0020 mg/L		0.0200	103	82-120	1	10	
General Parameters, Batch B4A2917									
Blank (B4A2917-BLK1)				Prepared: 2024-01-23, Analyzed: 2024-01-23					
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B4A2917-BS1)				Prepared: 2024-01-23, Analyzed: 2024-01-23					
Ammonia, Total (as N)	0.188	0.050 mg/L		0.200	94	85-115			
General Parameters, Batch B4A3039									
Blank (B4A3039-BLK1)				Prepared: 2024-01-24, Analyzed: 2024-01-24					
Nitritotriacetic Acid	< 0.20	0.20 mg/L							
LCS (B4A3039-BS1)				Prepared: 2024-01-24, Analyzed: 2024-01-24					
Nitritotriacetic Acid	1.03	0.20 mg/L		1.00	103	80-120			
LCS Dup (B4A3039-BSD1)				Prepared: 2024-01-24, Analyzed: 2024-01-24					
Nitritotriacetic Acid	1.13	0.20 mg/L		1.00	113	80-120	10	20	

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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General Parameters, Batch B4A3039, Continued

Matrix Spike (B4A3039-MS1)	Source: 24A1507-01		Prepared: 2024-01-24, Analyzed: 2024-01-24						
Nitritotriacetic Acid	2.19	0.20 mg/L	2.00	< 0.20	110	70-130			

Haloacetic Acids, Batch B4A2779

Blank (B4A2779-BLK1)	Prepared: 2024-01-20, Analyzed: 2024-01-21								
Monochloroacetic Acid	< 0.0020	0.0020 mg/L							
Monobromoacetic Acid	< 0.0020	0.0020 mg/L							
Dichloroacetic Acid	< 0.0020	0.0020 mg/L							
Trichloroacetic Acid	< 0.0020	0.0020 mg/L							
Dibromoacetic Acid	< 0.0020	0.0020 mg/L							
Surrogate: 2-Bromopropionic Acid	0.0103	mg/L	0.0116		89	70-130			

LCS (B4A2779-BS1)	Prepared: 2024-01-20, Analyzed: 2024-01-21								
Monochloroacetic Acid	0.0558	0.0020 mg/L	0.0564		99	75-117			
Monobromoacetic Acid	0.0373	0.0020 mg/L	0.0374		100	83-113			
Dichloroacetic Acid	0.0547	0.0020 mg/L	0.0558		98	78-112			
Trichloroacetic Acid	0.0181	0.0020 mg/L	0.0186		97	81-110			
Dibromoacetic Acid	0.0185	0.0020 mg/L	0.0187		99	89-112			
Surrogate: 2-Bromopropionic Acid	0.0113	mg/L	0.0116		98	70-130			

LCS Dup (B4A2779-BSD1)	Prepared: 2024-01-20, Analyzed: 2024-01-21								
Monochloroacetic Acid	0.0567	0.0020 mg/L	0.0564		101	75-117	2	30	
Monobromoacetic Acid	0.0379	0.0020 mg/L	0.0374		101	83-113	2	30	
Dichloroacetic Acid	0.0575	0.0020 mg/L	0.0558		103	78-112	5	30	
Trichloroacetic Acid	0.0193	0.0020 mg/L	0.0186		104	81-110	6	30	
Dibromoacetic Acid	0.0191	0.0020 mg/L	0.0187		102	89-112	3	30	
Surrogate: 2-Bromopropionic Acid	0.0119	mg/L	0.0116		102	70-130			

Pesticides, Herbicides, and Fungicides, Batch B4A2682

Blank (B4A2682-BLK1)	Prepared: 2024-01-19, Analyzed: 2024-01-22								
Alachlor	< 0.100	0.100 µg/L							
Aldrin	< 0.006	0.006 µg/L							
Atrazine and metabolites	< 0.100	0.100 µg/L							
Azinphos-methyl	< 0.200	0.200 µg/L							
alpha-BHC	< 0.010	0.010 µg/L							
beta-BHC	< 0.050	0.050 µg/L							
delta-BHC	< 0.050	0.050 µg/L							
gamma-BHC (Lindane)	< 0.050	0.050 µg/L							
Bromacil	< 0.100	0.100 µg/L							
Bromoxynil	< 0.200	0.200 µg/L							
Butachlor	< 0.020	0.020 µg/L							
Captan	< 0.100	0.100 µg/L							
Chlordane (cis + trans)	< 0.050	0.050 µg/L							
Chlorothalonil	< 0.050	0.050 µg/L							
Chlorpyrifos	< 0.010	0.010 µg/L							
Cyanazine	< 0.100	0.100 µg/L							
DDT, Total	< 0.010	0.010 µg/L							
Deltamethrin	< 0.100	0.100 µg/L							
Diazinon	< 0.020	0.020 µg/L							
Dichlorvos	< 0.100	0.100 µg/L							
Diclofop-methyl	< 0.100	0.100 µg/L							
Dieldrin	< 0.010	0.010 µg/L							
Dimethoate	< 0.200	0.200 µg/L							
Disulfoton	< 0.100	0.100 µg/L							

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Pesticides, Herbicides, and Fungicides, Batch B4A2682, Continued

Blank (B4A2682-BLK1), Continued

Prepared: 2024-01-19, Analyzed: 2024-01-22

Diuron	< 0.200	0.200 µg/L							
Endosulfan I + II	< 0.010	0.010 µg/L							
Endosulfan sulfate	< 0.050	0.050 µg/L							
Endrin	< 0.020	0.020 µg/L							
Endrin aldehyde	< 0.020	0.020 µg/L							
Endrin ketone	< 0.020	0.020 µg/L							
Fenchlorphos (Ronnel)	< 0.100	0.100 µg/L							
Heptachlor	< 0.010	0.010 µg/L							
Heptachlor epoxide	< 0.010	0.010 µg/L							
Linuron	< 0.050	0.050 µg/L							
Malathion	< 0.100	0.100 µg/L							
Methoxychlor	< 0.050	0.050 µg/L							
Methyl parathion	< 0.100	0.100 µg/L							
Metolachlor	< 0.100	0.100 µg/L							
Metribuzin	< 0.200	0.200 µg/L							
Parathion	< 0.100	0.100 µg/L							
Pentachloronitrobenzene	< 0.100	0.100 µg/L							
Permethrin	< 0.010	0.010 µg/L							
Phorate	< 0.100	0.100 µg/L							
Prometon	< 0.300	0.300 µg/L							
Prometryne	< 0.100	0.100 µg/L							
Simazine	< 0.200	0.200 µg/L							
Sulfotep	< 0.100	0.100 µg/L							
Tebuthiuron	< 0.200	0.200 µg/L							
Temephos (Abate)	< 0.500	0.500 µg/L							
Terbufos	< 0.100	0.100 µg/L							
Triallate	< 0.100	0.100 µg/L							
Trifluralin	< 0.200	0.200 µg/L							
Surrogate: Tributyl Phosphate	0.595	µg/L	0.998		60	50-140			
Surrogate: 4-chloro-3-nitrobenzotrifluoride	0.757	µg/L	0.970		78	50-140			

LCS (B4A2682-BS1)

Prepared: 2024-01-19, Analyzed: 2024-01-22

Alachlor	0.941	0.100 µg/L	1.01		93	50-140			
Aldrin	0.933	0.006 µg/L	1.00		93	50-140			
Atrazine	1.05	0.100 µg/L	1.01		104	50-140			
Atrazine-desethyl	0.653	0.100 µg/L	1.06		62	50-140			
Azinphos-methyl	1.08	0.200 µg/L	1.04		104	50-140			
alpha-BHC	1.01	0.010 µg/L	1.00		101	50-140			
beta-BHC	0.999	0.050 µg/L	1.00		100	50-140			
delta-BHC	1.01	0.050 µg/L	1.00		101	50-140			
gamma-BHC (Lindane)	0.974	0.050 µg/L	1.00		97	50-140			
Bromacil	0.895	0.100 µg/L	1.00		90	50-140			
Bromoxynil	0.537	0.200 µg/L	1.08		50	50-140			
Butachlor	0.975	0.020 µg/L	1.00		98	50-140			
Captan	0.855	0.100 µg/L	1.08		79	50-140			
Chlordane (cis + trans)	2.06	0.050 µg/L	2.00		103	50-140			
Chlorothalonil	0.825	0.050 µg/L	0.996		83	50-140			
Chlorpyrifos	0.953	0.010 µg/L	1.00		95	50-140			
Cyanazine	0.883	0.100 µg/L	1.00		88	50-140			
DDT, Total	5.83	0.010 µg/L	6.00		97	50-140			
Deltamethrin	0.972	0.100 µg/L	1.00		97	50-140			
Diazinon	0.889	0.020 µg/L	1.01		88	50-140			
Dichlorvos	0.941	0.100 µg/L	1.06		89	50-140			
Diclofop-methyl	0.991	0.100 µg/L	1.06		93	50-140			
Dieldrin	0.922	0.010 µg/L	1.00		92	50-140			
Dimethoate	0.686	0.200 µg/L	1.01		68	50-140			

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Pesticides, Herbicides, and Fungicides, Batch B4A2682, Continued									
LCS (B4A2682-BS1), Continued					Prepared: 2024-01-19, Analyzed: 2024-01-22				
Disulfoton	0.908	0.100 µg/L	0.996		91	50-140			
Diuron	1.10	0.200 µg/L	1.05		105	50-140			
Endosulfan I + II	1.98	0.010 µg/L	2.00		99	50-140			
Endosulfan sulfate	0.826	0.050 µg/L	1.00		83	50-140			
Endrin	0.741	0.020 µg/L	1.00		74	50-140			
Endrin aldehyde	0.882	0.020 µg/L	0.999		88	50-140			
Endrin ketone	0.909	0.020 µg/L	1.00		91	50-140			
Fenchlorphos (Ronnell)	0.776	0.100 µg/L	0.990		78	50-140			
Heptachlor	0.718	0.010 µg/L	1.00		72	50-140			
Heptachlor epoxide	0.914	0.010 µg/L	1.00		91	50-140			
Linuron	0.889	0.050 µg/L	1.00		89	50-140			
Malathion	0.892	0.100 µg/L	1.00		89	50-140			
Methoxychlor	1.11	0.050 µg/L	1.00		111	50-140			
Methyl parathion	1.21	0.100 µg/L	1.04		116	50-140			
Metolachlor	0.955	0.100 µg/L	1.00		95	50-140			
Metribuzin	0.953	0.200 µg/L	1.00		95	50-140			
Parathion	1.08	0.100 µg/L	1.01		107	50-140			
Pentachloronitrobenzene	1.14	0.100 µg/L	0.989		115	50-140			
Permethrin	1.35	0.010 µg/L	1.01		134	50-140			
Phorate	0.800	0.100 µg/L	1.04		77	50-140			
Prometon	1.03	0.300 µg/L	1.00		103	50-140			
Prometryne	0.973	0.100 µg/L	1.00		97	50-140			
Simazine	0.983	0.200 µg/L	1.01		97	50-140			
Sulfotep	0.731	0.100 µg/L	1.04		70	50-140			
Tebuthiuron	0.891	0.200 µg/L	1.00		89	50-140			
Temephos (Abate)	7.25	0.500 µg/L	9.98		73	50-140			
Terbufos	0.897	0.100 µg/L	1.00		90	50-140			
Triallate	0.950	0.100 µg/L	1.04		91	50-140			
Trifluralin	0.842	0.200 µg/L	1.00		84	50-140			
Surrogate: Tributyl Phosphate	0.839	µg/L	0.998		84	50-140			
Surrogate: 4-chloro-3-nitrobenzotrifluoride	0.966	µg/L	0.970		100	50-140			
LCS Dup (B4A2682-BS1)					Prepared: 2024-01-19, Analyzed: 2024-01-22				
Alachlor	0.852	0.100 µg/L	1.01		84	50-140	10	30	
Aldrin	0.935	0.006 µg/L	1.00		94	50-140	< 1	30	
Atrazine	0.989	0.100 µg/L	1.01		98	50-140	6	30	
Atrazine-desethyl	0.641	0.100 µg/L	1.06		60	50-140	2	30	
Azinphos-methyl	0.905	0.200 µg/L	1.04		87	50-140	17	30	
alpha-BHC	0.994	0.010 µg/L	1.00		99	50-140	2	30	
beta-BHC	0.984	0.050 µg/L	1.00		98	50-140	2	30	
delta-BHC	1.04	0.050 µg/L	1.00		104	50-140	3	30	
gamma-BHC (Lindane)	0.982	0.050 µg/L	1.00		98	50-140	< 1	30	
Bromacil	0.859	0.100 µg/L	1.00		86	50-140	4	30	
Bromoxynil	0.456	0.200 µg/L	1.08		42	50-140	16	30	SPK1
Butachlor	0.857	0.020 µg/L	1.00		86	50-140	13	30	
Captan	0.751	0.100 µg/L	1.08		70	50-140	13	30	
Chlordane (cis + trans)	1.97	0.050 µg/L	2.00		99	50-140	4	30	
Chlorothalonil	0.798	0.050 µg/L	0.996		80	50-140	3	30	
Chlorpyrifos	0.867	0.010 µg/L	1.00		87	50-140	9	30	
Cyanazine	0.714	0.100 µg/L	1.00		71	50-140	21	30	
DDT, Total	5.58	0.010 µg/L	6.00		93	50-140	4	30	
Deltamethrin	0.778	0.100 µg/L	1.00		78	50-140	22	30	
Diazinon	0.831	0.020 µg/L	1.01		82	50-140	7	30	
Dichlorvos	0.798	0.100 µg/L	1.06		75	50-140	16	30	
Diclofop-methyl	0.875	0.100 µg/L	1.06		83	50-140	12	30	
Dieldrin	0.891	0.010 µg/L	1.00		89	50-140	3	30	

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Pesticides, Herbicides, and Fungicides, Batch B4A2682, Continued									
LCS Dup (B4A2682-BSD1), Continued					Prepared: 2024-01-19, Analyzed: 2024-01-22				
Dimethoate	0.549	0.200 µg/L	1.01		54	50-140	22	30	
Disulfoton	0.856	0.100 µg/L	0.996		86	50-140	6	30	
Diuron	1.08	0.200 µg/L	1.05		103	50-140	2	30	
Endosulfan I + II	1.91	0.010 µg/L	2.00		96	50-140	3	30	
Endosulfan sulfate	0.790	0.050 µg/L	1.00		79	50-140	4	30	
Endrin	0.631	0.020 µg/L	1.00		63	50-140	16	30	
Endrin aldehyde	0.764	0.020 µg/L	0.999		76	50-140	14	30	
Endrin ketone	0.939	0.020 µg/L	1.00		94	50-140	3	30	
Fenchlorphos (Ronnel)	0.733	0.100 µg/L	0.990		74	50-140	6	30	
Heptachlor	0.679	0.010 µg/L	1.00		68	50-140	6	30	
Heptachlor epoxide	0.842	0.010 µg/L	1.00		84	50-140	8	30	
Linuron	0.879	0.050 µg/L	1.00		88	50-140	1	30	
Malathion	0.711	0.100 µg/L	1.00		71	50-140	23	30	
Methoxychlor	1.06	0.050 µg/L	1.00		106	50-140	5	30	
Methyl parathion	1.09	0.100 µg/L	1.04		105	50-140	10	30	
Metolachlor	0.872	0.100 µg/L	1.00		87	50-140	9	30	
Metribuzin	0.848	0.200 µg/L	1.00		85	50-140	12	30	
Parathion	0.948	0.100 µg/L	1.01		94	50-140	13	30	
Pentachloronitrobenzene	1.08	0.100 µg/L	0.989		109	50-140	6	30	
Permethrin	1.22	0.010 µg/L	1.01		121	50-140	10	30	
Phorate	0.732	0.100 µg/L	1.04		70	50-140	9	30	
Prometon	0.945	0.300 µg/L	1.00		94	50-140	8	30	
Prometryne	0.913	0.100 µg/L	1.00		91	50-140	6	30	
Simazine	0.919	0.200 µg/L	1.01		91	50-140	7	30	
Sulfotep	0.633	0.100 µg/L	1.04		61	50-140	14	30	
Tebuthiuron	0.699	0.200 µg/L	1.00		70	50-140	24	30	
Temephos (Abate)	5.65	0.500 µg/L	9.98		57	50-140	25	30	
Terbufos	0.798	0.100 µg/L	1.00		80	50-140	12	30	
Triallate	0.915	0.100 µg/L	1.04		88	50-140	4	30	
Trifluralin	0.746	0.200 µg/L	1.00		75	50-140	12	30	
Surrogate: Tributyl Phosphate	0.686	µg/L	0.998		69	50-140			
Surrogate: 4-chloro-3-nitrobenzotrifluoride	0.927	µg/L	0.970		96	50-140			

Polycyclic Aromatic Hydrocarbons (PAH), Batch B4A2653

Blank (B4A2653-BLK1)			Prepared: 2024-01-18, Analyzed: 2024-01-19						
Acenaphthene	< 0.050	0.050 µg/L							
Acenaphthylene	< 0.200	0.200 µg/L							
Anthracene	< 0.010	0.010 µg/L							
Benz(a)anthracene	< 0.010	0.010 µg/L							
Benzo(a)pyrene	< 0.010	0.010 µg/L							
Benzo(b+j)fluoranthene	< 0.050	0.050 µg/L							
Benzo(g,h,i)perylene	< 0.050	0.050 µg/L							
Benzo(k)fluoranthene	< 0.050	0.050 µg/L							
2-Chloronaphthalene	< 0.100	0.100 µg/L							
Chrysene	< 0.050	0.050 µg/L							
Dibenz(a,h)anthracene	< 0.010	0.010 µg/L							
Fluoranthene	< 0.030	0.030 µg/L							
Fluorene	< 0.050	0.050 µg/L							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050 µg/L							
1-Methylnaphthalene	< 0.100	0.100 µg/L							
2-Methylnaphthalene	< 0.100	0.100 µg/L							
Naphthalene	< 0.200	0.200 µg/L							
Phenanthrene	< 0.100	0.100 µg/L							
Pyrene	< 0.020	0.020 µg/L							
Quinoline	< 0.050	0.050 µg/L							

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B4A2653, Continued									
Blank (B4A2653-BLK1), Continued				Prepared: 2024-01-18, Analyzed: 2024-01-19					
Surrogate: Naphthalene-d8	37.2	µg/L	44.9		83	50-140			
Surrogate: Perylene-d12	44.4	µg/L	44.9		99	50-140			
Blank (B4A2653-BLK2)				Prepared: 2024-01-18, Analyzed: 2024-01-20					
Acenaphthene	< 0.050	0.050 µg/L							
Acenaphthylene	< 0.200	0.200 µg/L							
Anthracene	< 0.010	0.010 µg/L							
Benz(a)anthracene	< 0.010	0.010 µg/L							
Benzo(a)pyrene	< 0.010	0.010 µg/L							
Benzo(b+j)fluoranthene	< 0.050	0.050 µg/L							
Benzo(g,h,i)perylene	< 0.050	0.050 µg/L							
Benzo(k)fluoranthene	< 0.050	0.050 µg/L							
2-Chloronaphthalene	< 0.100	0.100 µg/L							
Chrysene	< 0.050	0.050 µg/L							
Dibenz(a,h)anthracene	< 0.010	0.010 µg/L							
Fluoranthene	< 0.030	0.030 µg/L							
Fluorene	< 0.050	0.050 µg/L							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050 µg/L							
1-Methylnaphthalene	< 0.100	0.100 µg/L							
2-Methylnaphthalene	< 0.100	0.100 µg/L							
Naphthalene	< 0.200	0.200 µg/L							
Phenanthrene	< 0.100	0.100 µg/L							
Pyrene	< 0.020	0.020 µg/L							
Quinoline	< 0.050	0.050 µg/L							
Surrogate: Naphthalene-d8	43.6	µg/L	44.9		97	50-140			
Surrogate: Perylene-d12	47.5	µg/L	44.9		106	50-140			
LCS (B4A2653-BS3)				Prepared: 2024-01-18, Analyzed: 2024-01-19					
Acenaphthene	23.8	0.050 µg/L	20.0		119	50-140			
Acenaphthylene	24.1	0.200 µg/L	20.0		120	50-140			
Anthracene	22.0	0.010 µg/L	20.0		110	50-140			
Benz(a)anthracene	23.6	0.010 µg/L	20.0		118	50-140			
Benzo(a)pyrene	26.9	0.010 µg/L	20.0		135	50-140			
Benzo(b+j)fluoranthene	47.8	0.050 µg/L	40.0		119	50-140			
Benzo(g,h,i)perylene	25.0	0.050 µg/L	20.0		125	50-140			
Benzo(k)fluoranthene	23.7	0.050 µg/L	20.0		119	50-140			
2-Chloronaphthalene	26.9	0.100 µg/L	22.7		119	50-140			
Chrysene	23.8	0.050 µg/L	20.0		119	50-140			
Dibenz(a,h)anthracene	23.5	0.010 µg/L	20.0		117	50-140			
Fluoranthene	23.5	0.030 µg/L	20.0		117	50-140			
Fluorene	22.7	0.050 µg/L	20.0		113	50-140			
Indeno(1,2,3-cd)pyrene	24.2	0.050 µg/L	20.0		121	50-140			
1-Methylnaphthalene	22.4	0.100 µg/L	20.0		112	50-140			
2-Methylnaphthalene	22.5	0.100 µg/L	20.0		112	50-140			
Naphthalene	21.5	0.200 µg/L	20.0		107	50-140			
Phenanthrene	23.3	0.100 µg/L	20.0		117	50-140			
Pyrene	23.5	0.020 µg/L	20.0		117	50-140			
Quinoline	28.5	0.050 µg/L	28.0		102	50-140			
Surrogate: Naphthalene-d8	49.7	µg/L	44.9		111	50-140			
Surrogate: Perylene-d12	97.4	µg/L	44.9		217	50-140			S02
LCS (B4A2653-BS4)				Prepared: 2024-01-18, Analyzed: 2024-01-20					
Acenaphthene	23.4	0.050 µg/L	20.0		117	50-140			
Acenaphthylene	24.0	0.200 µg/L	20.0		120	50-140			
Anthracene	21.9	0.010 µg/L	20.0		110	50-140			
Benz(a)anthracene	24.0	0.010 µg/L	20.0		120	50-140			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Newell Regional Services Corporation
Schedule 4

WORK ORDER REPORTED 24A1507
2024-01-31 11:46

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B4A2653, Continued									
LCS (B4A2653-BS4), Continued					Prepared: 2024-01-18, Analyzed: 2024-01-20				
Benzo(a)pyrene	26.8	0.010 µg/L	20.0		134	50-140			
Benzo(b+j)fluoranthene	47.0	0.050 µg/L	40.0		118	50-140			
Benzo(g,h,i)perylene	25.8	0.050 µg/L	20.0		129	50-140			
Benzo(k)fluoranthene	24.4	0.050 µg/L	20.0		122	50-140			
2-Chloronaphthalene	26.5	0.100 µg/L	22.7		117	50-140			
Chrysene	23.8	0.050 µg/L	20.0		119	50-140			
Dibenz(a,h)anthracene	26.3	0.010 µg/L	20.0		132	50-140			
Fluoranthene	23.5	0.030 µg/L	20.0		117	50-140			
Fluorene	22.6	0.050 µg/L	20.0		113	50-140			
Indeno(1,2,3-cd)pyrene	25.0	0.050 µg/L	20.0		125	50-140			
1-Methylnaphthalene	21.9	0.100 µg/L	20.0		109	50-140			
2-Methylnaphthalene	21.9	0.100 µg/L	20.0		110	50-140			
Naphthalene	21.4	0.200 µg/L	20.0		107	50-140			
Phenanthrene	23.0	0.100 µg/L	20.0		115	50-140			
Pyrene	23.5	0.020 µg/L	20.0		118	50-140			
Quinoline	31.5	0.050 µg/L	28.0		112	50-140			
Surrogate: Naphthalene-d8	44.6	µg/L	44.9		99	50-140			
Surrogate: Perylene-d12	45.1	µg/L	44.9		100	50-140			
LCS Dup (B4A2653-BSD3)					Prepared: 2024-01-18, Analyzed: 2024-01-19				
Acenaphthene	24.4	0.050 µg/L	20.0		122	50-140	2	30	
Acenaphthylene	24.9	0.200 µg/L	20.0		124	50-140	3	30	
Anthracene	22.6	0.010 µg/L	20.0		113	50-140	3	30	
Benz(a)anthracene	24.3	0.010 µg/L	20.0		121	50-140	3	30	
Benzo(a)pyrene	27.5	0.010 µg/L	20.0		137	50-140	2	30	
Benzo(b+j)fluoranthene	49.0	0.050 µg/L	40.0		123	50-140	3	30	
Benzo(g,h,i)perylene	25.4	0.050 µg/L	20.0		127	50-140	2	30	
Benzo(k)fluoranthene	24.4	0.050 µg/L	20.0		122	50-140	3	30	
2-Chloronaphthalene	27.4	0.100 µg/L	22.7		121	50-140	2	30	
Chrysene	24.4	0.050 µg/L	20.0		122	50-140	3	30	
Dibenz(a,h)anthracene	23.9	0.010 µg/L	20.0		120	50-140	2	30	
Fluoranthene	24.1	0.030 µg/L	20.0		120	50-140	3	30	
Fluorene	23.4	0.050 µg/L	20.0		117	50-140	3	30	
Indeno(1,2,3-cd)pyrene	24.5	0.050 µg/L	20.0		123	50-140	1	30	
1-Methylnaphthalene	22.9	0.100 µg/L	20.0		115	50-140	2	30	
2-Methylnaphthalene	22.9	0.100 µg/L	20.0		114	50-140	2	30	
Naphthalene	22.1	0.200 µg/L	20.0		110	50-140	3	30	
Phenanthrene	24.0	0.100 µg/L	20.0		120	50-140	3	30	
Pyrene	23.8	0.020 µg/L	20.0		119	50-140	1	30	
Quinoline	30.0	0.050 µg/L	28.0		107	50-140	5	30	
Surrogate: Naphthalene-d8	49.6	µg/L	44.9		111	50-140			
Surrogate: Perylene-d12	60.5	µg/L	44.9		135	50-140			
LCS Dup (B4A2653-BSD4)					Prepared: 2024-01-18, Analyzed: 2024-01-20				
Acenaphthene	24.8	0.050 µg/L	20.0		124	50-140	6	30	
Acenaphthylene	25.6	0.200 µg/L	20.0		128	50-140	6	30	
Anthracene	23.2	0.010 µg/L	20.0		116	50-140	6	30	
Benz(a)anthracene	25.4	0.010 µg/L	20.0		127	50-140	6	30	
Benzo(a)pyrene	28.2	0.010 µg/L	20.0		141	50-140	5	30	MES
Benzo(b+j)fluoranthene	49.5	0.050 µg/L	40.0		124	50-140	5	30	
Benzo(g,h,i)perylene	26.8	0.050 µg/L	20.0		134	50-140	4	30	
Benzo(k)fluoranthene	25.8	0.050 µg/L	20.0		129	50-140	6	30	
2-Chloronaphthalene	28.1	0.100 µg/L	22.7		124	50-140	6	30	
Chrysene	25.0	0.050 µg/L	20.0		125	50-140	5	30	
Dibenz(a,h)anthracene	26.4	0.010 µg/L	20.0		132	50-140	< 1	30	
Fluoranthene	24.7	0.030 µg/L	20.0		124	50-140	5	30	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Newell Regional Services Corporation
Schedule 4

WORK ORDER REPORTED 24A1507
2024-01-31 11:46

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B4A2653, Continued									
LCS Dup (B4A2653-BSD4), Continued					Prepared: 2024-01-18, Analyzed: 2024-01-20				
Fluorene	24.0	0.050 µg/L	20.0		120	50-140	6	30	
Indeno(1,2,3-cd)pyrene	26.2	0.050 µg/L	20.0		131	50-140	5	30	
1-Methylnaphthalene	23.3	0.100 µg/L	20.0		117	50-140	6	30	
2-Methylnaphthalene	23.4	0.100 µg/L	20.0		117	50-140	6	30	
Naphthalene	23.1	0.200 µg/L	20.0		115	50-140	7	30	
Phenanthrene	24.3	0.100 µg/L	20.0		122	50-140	6	30	
Pyrene	24.7	0.020 µg/L	20.0		124	50-140	5	30	
Quinoline	31.4	0.050 µg/L	28.0		112	50-140	< 1	30	
Surrogate: Naphthalene-d8	47.9	µg/L	44.9		107	50-140			
Surrogate: Perylene-d12	55.1	µg/L	44.9		123	50-140			

Total Metals, Batch B4A2668

Blank (B4A2668-BLK1)			Prepared: 2024-01-18, Analyzed: 2024-01-19						
Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							
Barium, total	< 0.0050	0.0050 mg/L							
Boron, total	< 0.0500	0.0500 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							
Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Magnesium, total	< 0.010	0.010 mg/L							
Manganese, total	< 0.00020	0.00020 mg/L							
Potassium, total	< 0.10	0.10 mg/L							
Selenium, total	< 0.00050	0.00050 mg/L							
Silver, total	< 0.000050	0.000050 mg/L							
Sodium, total	< 0.10	0.10 mg/L							
Strontium, total	< 0.0010	0.0010 mg/L							
Uranium, total	< 0.000020	0.000020 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							

LCS (B4A2668-BS1)			Prepared: 2024-01-18, Analyzed: 2024-01-19						
Aluminum, total	4.00	0.0050 mg/L	4.00		100	80-120			
Antimony, total	0.0413	0.00020 mg/L	0.0400		103	80-120			
Arsenic, total	0.401	0.00050 mg/L	0.400		100	80-120			
Barium, total	0.0385	0.0050 mg/L	0.0400		96	80-120			
Boron, total	0.403	0.0500 mg/L	0.400		101	80-120			
Cadmium, total	0.0403	0.000010 mg/L	0.0400		101	80-120			
Calcium, total	3.80	0.20 mg/L	4.00		95	80-120			
Chromium, total	0.0419	0.00050 mg/L	0.0400		105	80-120			
Copper, total	0.0401	0.00040 mg/L	0.0400		100	80-120			
Iron, total	4.10	0.010 mg/L	4.00		103	80-120			
Lead, total	0.0402	0.00020 mg/L	0.0400		101	80-120			
Magnesium, total	4.06	0.010 mg/L	4.00		101	80-120			
Manganese, total	0.0413	0.00020 mg/L	0.0400		103	80-120			
Potassium, total	3.95	0.10 mg/L	4.00		99	80-120			
Selenium, total	0.391	0.00050 mg/L	0.400		98	80-120			
Silver, total	0.0405	0.000050 mg/L	0.0400		101	80-120			
Sodium, total	4.14	0.10 mg/L	4.00		104	80-120			
Strontium, total	0.0407	0.0010 mg/L	0.0400		102	80-120			
Uranium, total	0.0411	0.000020 mg/L	0.0400		103	80-120			
Zinc, total	0.401	0.0040 mg/L	0.400		100	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Newell Regional Services Corporation
Schedule 4

WORK ORDER REPORTED 24A1507
2024-01-31 11:46

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B4A2761									
Blank (B4A2761-BLK1)				Prepared: 2024-01-19, Analyzed: 2024-01-19					
Mercury, total	< 0.000010	0.000010 mg/L							
Blank (B4A2761-BLK2)				Prepared: 2024-01-19, Analyzed: 2024-01-19					
Mercury, total	< 0.000010	0.000010 mg/L							
LCS (B4A2761-BS1)				Prepared: 2024-01-19, Analyzed: 2024-01-19					
Mercury, total	0.000251	0.000010 mg/L	0.000250		101	80-120			
LCS (B4A2761-BS2)				Prepared: 2024-01-19, Analyzed: 2024-01-19					
Mercury, total	0.000256	0.000010 mg/L	0.000250		102	80-120			
Volatile Organic Compounds (VOC), Batch B4A2581									
Blank (B4A2581-BLK1)				Prepared: 2024-01-18, Analyzed: 2024-01-18					
Benzene	< 0.5	0.5 µg/L							
Bromodichloromethane	< 0.0010	0.0010 mg/L							
Bromoform	< 1.0	1.0 µg/L							
Carbon tetrachloride	< 0.5	0.5 µg/L							
Chlorobenzene	< 1.0	1.0 µg/L							
Chloroethane	< 2.0	2.0 µg/L							
Chloroform	< 1.0	1.0 µg/L							
Dibromochloromethane	< 1.0	1.0 µg/L							
1,2-Dibromoethane	< 0.3	0.3 µg/L							
Dibromomethane	< 1.0	1.0 µg/L							
1,2-Dichlorobenzene	< 0.5	0.5 µg/L							
1,3-Dichlorobenzene	< 1.0	1.0 µg/L							
1,4-Dichlorobenzene	< 1.0	1.0 µg/L							
1,1-Dichloroethane	< 1.0	1.0 µg/L							
1,2-Dichloroethane	< 1.0	1.0 µg/L							
1,1-Dichloroethylene	< 1.0	1.0 µg/L							
cis-1,2-Dichloroethylene	< 1.0	1.0 µg/L							
trans-1,2-Dichloroethylene	< 1.0	1.0 µg/L							
Dichloromethane	< 3.0	3.0 µg/L							
1,2-Dichloropropane	< 1.0	1.0 µg/L							
1,3-Dichloropropene (cis + trans)	< 1.0	1.0 µg/L							
Ethylbenzene	< 1.0	1.0 µg/L							
Methyl tert-butyl ether	< 1.0	1.0 µg/L							
Styrene	< 1.0	1.0 µg/L							
1,1,2,2-Tetrachloroethane	< 0.5	0.5 µg/L							
Tetrachloroethylene	< 1.0	1.0 µg/L							
Toluene	< 0.5	0.5 µg/L							
1,1,1-Trichloroethane	< 1.0	1.0 µg/L							
1,1,2-Trichloroethane	< 1.0	1.0 µg/L							
Trichloroethylene	< 1.0	1.0 µg/L							
Trichlorofluoromethane	< 1.0	1.0 µg/L							
Vinyl chloride	< 1.0	1.0 µg/L							
Xylenes (total)	< 2.0	2.0 µg/L							
Surrogate: Toluene-d8	21.8	µg/L	18.8		116	70-130			
Surrogate: 4-Bromofluorobenzene	0.0228	mg/L	0.0199		115	70-130			
LCS (B4A2581-BS1)				Prepared: 2024-01-18, Analyzed: 2024-01-18					
Benzene	20.8	0.5 µg/L	20.0		104	70-130			
Bromodichloromethane	20.9	1.0 µg/L	20.0		105	70-130			
Bromoform	20.9	1.0 µg/L	20.0		104	70-130			
Carbon tetrachloride	21.4	0.5 µg/L	20.0		107	70-130			
Chlorobenzene	20.4	1.0 µg/L	20.0		102	70-130			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Newell Regional Services Corporation
Schedule 4

WORK ORDER REPORTED 24A1507
2024-01-31 11:46

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B4A2581, Continued									
LCS (B4A2581-BS1), Continued					Prepared: 2024-01-18, Analyzed: 2024-01-18				
Chloroethane	22.9	2.0 µg/L	20.0		114	60-140			
Chloroform	0.0219	0.0010 mg/L	0.0200		109	70-130			
Dibromochloromethane	0.0192	0.0010 mg/L	0.0200		96	70-130			
1,2-Dibromoethane	20.3	0.3 µg/L	20.0		102	70-130			
Dibromomethane	20.2	1.0 µg/L	20.0		101	70-130			
1,2-Dichlorobenzene	20.9	0.5 µg/L	20.0		105	70-130			
1,3-Dichlorobenzene	21.0	1.0 µg/L	20.0		105	70-130			
1,4-Dichlorobenzene	20.5	1.0 µg/L	20.0		102	70-130			
1,1-Dichloroethane	20.8	1.0 µg/L	20.0		104	70-130			
1,2-Dichloroethane	21.4	1.0 µg/L	20.0		107	70-130			
1,1-Dichloroethylene	22.7	1.0 µg/L	20.0		113	70-130			
cis-1,2-Dichloroethylene	20.7	1.0 µg/L	20.0		103	70-130			
trans-1,2-Dichloroethylene	22.4	1.0 µg/L	20.0		112	70-130			
Dichloromethane	22.9	3.0 µg/L	20.0		115	70-130			
1,2-Dichloropropane	20.7	1.0 µg/L	20.0		104	70-130			
1,3-Dichloropropene (cis + trans)	42.6	1.0 µg/L	40.0		106	70-130			
Ethylbenzene	20.5	1.0 µg/L	20.0		102	70-130			
Methyl tert-butyl ether	20.6	1.0 µg/L	20.0		103	70-130			
Styrene	19.9	1.0 µg/L	20.0		100	70-130			
1,1,2,2-Tetrachloroethane	21.1	0.5 µg/L	20.0		106	70-130			
Tetrachloroethylene	19.7	1.0 µg/L	20.0		99	70-130			
Toluene	21.1	0.5 µg/L	20.0		105	70-130			
1,1,1-Trichloroethane	20.3	1.0 µg/L	20.0		101	70-130			
1,1,2-Trichloroethane	21.4	1.0 µg/L	20.0		107	70-130			
Trichloroethylene	21.1	1.0 µg/L	20.0		105	70-130			
Trichlorofluoromethane	22.0	1.0 µg/L	20.0		110	60-140			
Vinyl chloride	17.7	1.0 µg/L	20.0		88	60-140			
Xylenes (total)	61.1	2.0 µg/L	60.2		102	70-130			
Surrogate: Toluene-d8	22.9	µg/L	18.8		122	70-130			
Surrogate: 4-Bromofluorobenzene	0.0231	mg/L	0.0199		116	70-130			

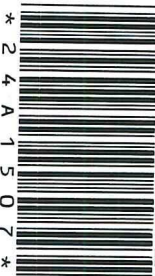
QC Qualifiers:

MES A number up to 10% (rounded down) of the analytes in a Multi-Element Scan may exceed control limits by up to 10% (absolute).

MS1 The matrix spike recovery was outside of control limits due to a matrix effect and/or interference.

S02 Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.

SPK1 The recovery of this analyte was outside of established control limits. The data was accepted based on performance of other batch QC.



* 2 4 A 1 5 0 7 *

CARO.ca 1-888-311-8846

CHAIN OF CUSTODY RECORD

CARO BC COC, Rev 2022-11

By submitting this COC you agree to CARO's Terms and Conditions outlined here: <https://www.caro.ca/terms-conditions>

COC# B144320 PAGE OF

#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7
#108-4475 Wayburne Drive, Burnaby, BC V5G 4X4

RELINQUISHED BY: KYLE ZAHN
DATE: 16-04-24
TIME: 10:00am

RECEIVED BY: N/A
DATE: 11/17
TIME: 10:00

COMPANY: Neural Regional Services Corp
ADDRESS: 330 Canal St E, T1R 1B6
P.O. Box 638 Brooks, AB

REGULATORY APPLICATION: Canadian Drinking Water Quality BC CSR Soil: WL AL PL RL-LD RL-HD CL IL BC CSR Water: AW IW LW DW Other: Show on Report

INVOICE TO: SAME AS REPORT TO
COMPANY: ADDRESS: CONTACT: TEL: DELIVERY METHOD: EMAIL MAIL OTHER*
DATA FORMAT: EXCEL WATERTRAX Esdat EQUIS BC EMS OTHER*
Copy of COC with Report
EMAIL 1: melrose@NRSC.ca
EMAIL 2: kstewart@NRSC.ca
QUOTE ID: PO #:

PROJECT NUMBER / INFO: NRSC Water Analysis 2024
ANALYSES REQUESTED:

TEL/FAX: 403-793-3177
DELIVERY METHOD: EMAIL MAIL OTHER*
DATA FORMAT: EXCEL WATERTRAX Esdat EQUIS BC EMS OTHER*
Copy of COC with Report
EMAIL 1: melrose@NRSC.ca
EMAIL 2: kstewart@NRSC.ca
QUOTE ID: PO #:

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify)

CLIENT SAMPLE ID: Header #1
Header #2
DRINKING WATER
OTHER WATER
SOIL
OTHER
CONTAINER QTY
DATE
TIME
CHLORINATED
FILTERED
PRESERVED
COMMENTS: (e.g. flow/volume, media ID, Upload ID, notes)

BTEX VPH PHC F1
VOC VPH
EPH PHC F2-F4
PAH L/HEPH
PHENOLS Chlorinated Non-Chlor.
PCB GLYCOLS HAA THM
PESTICIDES ACID HERBICIDES
METALS - WATER TOTAL Hg
METALS - WATER DISSOLVED Hg
METALS - SOIL (SALM) inc. pH
pH EC ALK ANIONS
TSS VSS TDS
BOD COD TOG MOG
TN NH3 TKN
FECAL COLIFORMS HPC
TOTAL COLIFORMS E. coli
ESSENTIAL DRINKING WATER PACKAGE
ASBESTOS
See attached Schedule 4
THM
HAA
HOLD
POSSIBLE SAMPLE HAZARD CODE(S)

SAMPLED BY: Kyle Zahn

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐

SAMPLE RETENTION: 30 Days (default) ☐ 60 Days ☐ 90 Days ☐ Other (surcharges may apply):

OTHER INSTRUCTIONS: Header #2 - Ait 17A1A-2
Water-trax asset for Header #1 - Ait 17A1A-1

SAMPLE RECEIPT CONDITION: COOLER 1 (°C): 6.5 ICE: Y ☐ N ☐ COOLER 2 (°C): ICE: Y ☐ N ☐ COOLER 3 (°C): ICE: Y ☐ N ☐ CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐

SAMPLE RETENTION: 30 Days (default) ☐ 60 Days ☐ 90 Days ☐ Other (surcharges may apply):

OTHER INSTRUCTIONS: Header #2 - Ait 17A1A-2
Water-trax asset for Header #1 - Ait 17A1A-1

SAMPLE RECEIPT CONDITION: COOLER 1 (°C): 6.5 ICE: Y ☐ N ☐ COOLER 2 (°C): ICE: Y ☐ N ☐ COOLER 3 (°C): ICE: Y ☐ N ☐ CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐

SAMPLE RETENTION: 30 Days (default) ☐ 60 Days ☐ 90 Days ☐ Other (surcharges may apply):

OTHER INSTRUCTIONS: Header #2 - Ait 17A1A-2
Water-trax asset for Header #1 - Ait 17A1A-1

SAMPLE RECEIPT CONDITION: COOLER 1 (°C): 6.5 ICE: Y ☐ N ☐ COOLER 2 (°C): ICE: Y ☐ N ☐ COOLER 3 (°C): ICE: Y ☐ N ☐ CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐

SAMPLE RETENTION: 30 Days (default) ☐ 60 Days ☐ 90 Days ☐ Other (surcharges may apply):

OTHER INSTRUCTIONS: Header #2 - Ait 17A1A-2
Water-trax asset for Header #1 - Ait 17A1A-1

SCHEDULE 4

Table of Physical, Inorganic chemicals, Organic chemicals and Pesticides

Substance	Specific Parameter	Substance	Specific Parameter
Physical Parameters (Primary and Secondary)	Colour; pH; Total Dissolved Solids	Organic Chemicals and Pesticides (Primary)	Atrazine + metabolites; Benzene; Benzo(a)pyrene; Bromoxynil; Carbon Tetrachloride; Chlorpyrifos; Cyanazine; Cyanobacterial toxins (as Total Microcystin); Diazinon; Dicamba; 1,2-Dichlorobenzene; 1,4-Dichlorobenzene; 1,2-Dichloroethane; Dichloromethane; 2,4-Dichlorophenol; 2,4-D; Diclofop-methyl; Diuron; Dimethoate; Ethylbenzene; Glyphosate; Malathion; Methoxychlor; Metolachlor; Metribuzin; Monochlorobenzene; Nitrilotriacetic Acid (NTA); Pentachlorophenol; Picloram; Simazine; Terbufos; Tetrachloroethylene; 2,3,4,6-Tetrachlorophenol; Toluene; Trichloroethylene; 2,4,6-Trichlorophenol; Trifluralin; and Vinyl Chloride.
Inorganic chemicals (Primary)	Antimony; Arsenic; Barium; Boron; Bromate; Cadmium; Chloramines; Chromium; Cyanide; Fluoride; Lead; Mercury; Nitrate; Nitrite; Selenium; and Uranium;		
Inorganic and Organic Chemicals (Secondary)	Aluminum; Ammonia; Calcium; Chloride; Copper; Total Hardness; Iron; Magnesium; Manganese; Silver; Sodium; Sulphate; Sulphide; Total Organic Carbon; Xylenes (total); and Zinc;		

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