

Appendix B

Water Quality Data

Appendix B1. Conventional Water Chemistry Total Dissolved Metals (mg/ℓ), Meadowbank Study Lakes, July 2002.

	CCME (2001) Guideline	Third Portage Dike			Third Portage Lake Basins			Second Portage Lake		
		East	South	West	South	East	North	South	Middle	North
		TPD-ES 37458.000	TPD-SS 37458.000	TPD-WS 37458.000	TP-SS 07/21/2002	TP-ES 37458.000	TP-NS 37458.000	SP-SS 37460.000	SP-MS 37460.000	SP-NS 37460.000
CONVENTIONAL PARAMETERS										
Physical Tests										
Hardness (mg/ℓ)	6.5 - 9.0	4.700	4.700	4.600	4.900	4.800	4.700	9.300	6.100	8.300
pH		6.610	6.630	6.610	6.64	6.660	6.610	8.090	7.870	7.620
Dissolved Anions (mg/ℓ)										
Total Alkalinity		4.000	4.000	4.000	4.000	4.000	4.000	7.000	5.000	6.000
Chloride		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	0.600	0.500	0.500
Fluoride		0.060	0.060	0.060	0.060	0.060	0.060	0.060	0.060	0.060
Sulphate		1.000	1.000	1.000	1.000	1.000	1.000	3.000	2.000	2.000
Nutrients (mg/ℓ)										
Ammonia Nitrogen		0.020	0.020	0.020	0.020	0.020	0.030	0.020	0.030	0.020
Total Kjeldahl Nitrogen		0.080	0.080	0.080	0.07	0.110	0.070	0.120	0.090	0.110
Nitrate Nitrogen		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite Nitrogen		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Phosphate		0.002	0.002	0.002	0.002	<0.002	<0.002	0.004	0.002	0.003
Organic Parameters (mg/ℓ)										
Dissolved Organic Carbon		1.200	1.200	1.400	1.200	1.200	1.100	1.600	1.400	1.600
CYANIDES (mg/ℓ)										
Total Cyanide		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanate		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Thiocyanate		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
WAD Cyanide		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix B1. Conventional Water Chemistry Total Dissolved Metals (mg/ℓ), Meadowbank Study Lakes, July 2002.

TOTAL METALS (mg/ℓ)	CCME (2001) Guideline	Third Portage Dike			Third Portage Lake Basins			Second Portage Lake		
		East		West	South		North	South		North
		TPD-ES 37458.000	TPD-SS 37458.000	TPD-WS 37458.000	TP-SS 07/21/2002	TP-ES 37458.000	TP-NS 37458.000	SP-SS 37460.000	SP-MS 37460.000	SP-NS 37460.000
Aluminum	0.1	0.006	0.006	<0.005	<0.005	0.008	0.006	0.009	0.006	0.006
Antimony	N/G	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Barium	NG	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Beryllium	NG	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	NG	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Cadmium	0.00234	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Calcium	NG	1.100	1.100	1.100	1.100	1.000	1.000	2.400	1.600	2.000
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	NG	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Copper	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	0.3	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Lithium	NG	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	NG	0.500	0.500	0.500	0.500	0.500	0.500	0.800	0.600	0.700
Manganese	0.05	0.002	0.002	0.001	0.0007	0.001	0.001	0.003	0.002	0.002
Mercury	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	NG	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	NG	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Selenium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver	0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Sodium	NG	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Thallium	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	NG	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Titanium	NG	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Uranium	0.01	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium	NG	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Note: ¹ N/G = no guideline ² Cadmium guideline developed using the lowest hardness value ³ Chromium guideline is for Cr VI

⁴ Cadmium and Chromium yield the most conservative guidelines. Boxed concentrations exceed CCME guidelines

Appendix B1. Conventional Water Chemistry Total Dissolved Metals (mg/ℓ), Meadowbank Study Lakes, July 2002.

CCME (2001) Guideline	Third Portage Dike			Third Portage Lake Basins			Second Portage Lake		
	East		West	South		North	South		North
	TPD-ES 37458.000	TPD-SS 37458.000	TPD-WS 37458.000	TP-SS 07/21/2002	TP-ES 37458.000	TP-NS 37458.000	SP-SS 37460.000	SP-MS 37460.000	SP-NS 37460.000
DISSOLVED METALS (mg/ℓ)									
Aluminum	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Antimony	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Barium	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Beryllium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Cadmium	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Calcium	1.100	1.000	1.000	1.100	1.100	1.100	2.400	1.500	2.100
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Iron	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Lithium	0.500	0.500	0.500	0.5	0.500	0.500	0.800	0.600	0.700
Magnesium	0.001	0.001	0.001	0.0006	0.001	0.001	0.001	0.001	0.001
Manganese	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Mercury	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Selenium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Sodium	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Thallium	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Titanium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Note: ¹ N/G = no guideline ² Cadmium guideline developed using the lowest hardness value ³ Chromium guideline is for Cr VI

⁴ Cadmium and Chromium yield the most conservative guidelines. Boxed concentrations exceed CCME guidelines

Appendix B1. Conventional Water Chemistry Total Dissolved Metals (mg/ℓ), Meadowbank Study Lakes, July 2002.

	Tehek Lake			Tern Lake			Vault Lake System			Farside	Innugayualik
	North	South	Middle	T-1	V1	V2 (Wally)	V3	FL-1	IL-1		
CCME (2001)	TL-NS	TL-SS	TL-ES	TERN-1S	V1-S	V2-S	V3-S	FL-S	IL-S		
Guideline	37461.000	37461.000	37461.000	37461.000	37462.000	37462.000	37463.000	37463.000	37464.000		
CONVENTIONAL PARAMETERS											
Physical Tests											
Hardness (mg/ℓ)	8.400	4.700	5.800	12.300	13.800	14.500	13.200	10.000	5.300		
pH	7.440	7.330	6.580	6.860	6.930	6.900	6.970	6.940	6.820		
Dissolved Anions (mg/ℓ)											
Total Alkalinity	6.000	4.000	4.000	9.000	12.000	10.000	9.000	8.000	5.000		
Chloride	0.600	0.500	0.500	0.500	0.900	0.600	0.600	0.500	0.700		
Fluoride	0.060	0.050	0.060	0.050	0.060	0.040	0.050	0.040	0.060		
Sulphate	3.000	2.000	2.000	4.000	3.000	4.000	4.000	2.000	<1.000		
Nutrients (mg/ℓ)											
Ammonia Nitrogen	0.060	0.020	0.020	0.030	0.030	0.020	0.020	0.020	0.020		
Total Kjeldahl Nitrogen	0.110	0.060	0.130	0.150	0.170	0.220	0.130	0.130	0.210		
Nitrate Nitrogen	0.101	0.014	0.030	0.005	0.095	0.066	0.020	0.045	<0.005		
Nitrite Nitrogen	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
Total Phosphate	0.005	0.003	0.002	0.003	0.004	0.004	0.003	0.003	0.002		
Organic Parameters (mg/ℓ)											
Dissolved Organic Carbon	1.700	1.200	1.400	2.100	2.000	1.900	1.700	1.900	1.900		
CYANIDES (mg/ℓ)											
Total Cyanide	<0.005	<0.005	<0.005	<0.005	<0.007	<0.005	<0.005	<0.005	<0.005		
Cyanate	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500		
Thiocyanate	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500		
WAD Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		

Appendix B1. Conventional Water Chemistry Total Dissolved Metals (mg/l), Meadowbank Study Lakes, July 2002.

	CCME (2001) Guideline	Tehek Lake			Tern Lake		Vault Lake System			Farside		Inuggayualik
		North	South	Middle	T-1	T-1S	V1	V2 (Wally)	V3	FL-1	FL-S	IL-1
		TL-NS	TL-SS	TL-ES	TERN-1S	TERN-1S	V1-S	V2-S	V3-S	FL-S	FL-S	IL-S
		37461.000	37461.000	37461.000	37461.000	37461.000	37462.000	37462.000	37463.000	37463.000	37463.000	37464.000
TOTAL METALS (mg/l)												
Aluminum	0.1	0.014	0.005	0.008	0.010	0.010	0.007	0.009	0.010	0.011	0.011	0.010
Antimony	N/G	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Barium	NG	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Beryllium	NG	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	NG	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Cadmium	0.00234	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000	0.000	<0.00005
Calcium	NG	2.300	1.000	1.400	3.200	3.200	3.900	3.800	3.600	2.500	2.500	1.100
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	NG	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Copper	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	0.3	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead	0.001	0.004	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001	0.001	<0.0005
Lithium	NG	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	NG	0.700	0.500	0.500	1.100	1.100	1.100	1.000	1.100	0.900	0.900	0.600
Manganese	0.05	0.002	0.002	0.002	0.004	0.004	0.001	0.002	0.002	0.002	0.002	0.004
Mercury	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	NG	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	NG	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Selenium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver	0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Sodium	NG	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Thallium	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	NG	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Titanium	NG	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Uranium	0.01	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium	NG	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	0.03	0.023	<0.005	0.006	0.006	0.006	0.010	0.015	0.005	0.011	0.011	<0.005

Note: ¹ N/G = no guideline ² Cadmium guideline devel

⁴ Cadmium and Chromium yield the most conservative

Appendix B1. Conventional Water Chemistry Total Dissolved Metals (mg/ℓ), Meadowbank Study Lakes, July 2002.

	CCME (2001) Guideline	Tehek Lake			Tern Lake		Vault Lake System				Farside		Inuggayuaal					
		North		South	Middle	T-1	V1	V2 (Wally)	V3	FL-1	IL-S							
		TL-NS	37461.000	TL-SS	37461.000	TL-ES	37461.000	TERN-1S	37461.000	V1-S	37462.000	V2-S	37462.000	V3-S	37463.000	FL-S	37463.000	IL-S
DISSOLVED METALS (mg/l)																		
Aluminum	0.1	0.006	<0.005	<0.005	<0.005	0.009	0.009	0.008	<0.005	<0.005	0.007	0.019	<0.005					
Antimony	N/G	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					
Arsenic	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					
Barium	NG	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020					
Beryllium	NG	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
Boron	NG	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100					
Cadmium	0.00234	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005					
Calcium	NG	2.100	1.100	1.400	3.100	3.100	3.800	3.900	3.500	2.600	1.100	<0.001	<0.001					
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
Cobalt	NG	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003					
Copper	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001					
Iron	0.3	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030					
Lead	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					
Lithium	NG	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					
Magnesium	NG	0.700	0.500	0.600	1.100	1.100	1.000	1.100	1.100	0.900	0.600	0.002	0.002					
Manganese	0.05	0.001	0.002	0.001	0.003	0.003	0.001	0.001	0.001	0.003	0.002	<0.00005	<0.00005					
Mercury	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005					
Molybdenum	NG	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
Nickel	0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
Potassium	NG	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000					
Selenium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
Silver	0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002					
Sodium	NG	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000					
Thallium	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002					
Tin	NG	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					
Titanium	NG	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010					
Uranium	0.01	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002					
Vanadium	NG	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030					
Zinc	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	0.010	0.009	<0.005	0.018	<0.005	<0.005	<0.005					

Note: ¹ N/G = no guideline ² Cadmium guideline devel

⁴ Cadmium and Chromium yield the most conservative

Appendix B2. Conventional Water Chemistry Total Dissolved Metals (mg/ℓ), Meadowbank Study Lakes, August 2002.

	Third Portage Dike				Third Portage Lake Basins				Second Portage Lake			
	East		West		South		North		South		Middle	
	TPD-EF	TPD-SF	TPD-WF	TPD-WF	TPD-SF	TPD-SF	TP-NF	TP-EF	SP-SF	SP-SF	SP-MF	SP-NF
CCME (2001)	37491.000	37491.000	37491.000	37491.000	37491.000	37492.000	37491.000	37491.000	37493.000	37492.000	37492.000	37492.000
Guideline												
CONVENTIONAL PARAMETERS												
Physical Tests												
Total Dissolved Solids (mg/ℓ)	<10.000	11.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	16.000	<10.000	<10.000	<10.000
Total Suspended Solids (mg/ℓ)	<3.000	<3.000	<3.000	<3.000	<3.000	<3.000	<3.000	<3.000	<3.000	<3.000	<3.000	<3.000
Hardness (mg/ℓ)	4.700	4.600	4.600	4.600	4.700	4.700	4.500	4.800	9.500	8.000	8.000	8.300
pH	6.910	6.940	6.940	6.940	6.920	6.920	6.950	6.930	7.640	7.110	7.110	7.140
Dissolved Anions (mg/ℓ)												
Total Alkalinity	4.000	4.000	4.000	4.000	3.000	3.000	4.000	3.000	7.000	5.000	5.000	5.000
Bromide	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride	<0.500	<0.500	0.500	0.500	0.500	0.500	<0.500	<0.500	0.600	0.500	0.500	0.500
Fluoride	0.060	0.060	0.060	0.060	0.060	0.060	0.050	0.070	0.060	0.060	0.060	0.060
Sulphate	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	3.000	2.000	2.000	2.000
Nutrients (mg/ℓ)												
Ammonia Nitrogen	0.030	<0.02	0.030	0.030	<0.02	<0.02	<0.02	0.020	0.067	<0.02	<0.02	<0.02
Total Kjeldahl Nitrogen	0.200	0.130	0.130	0.130	0.100	0.100	0.070	0.070	0.090	0.130	0.130	0.090
Nitrate Nitrogen	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.032	<0.005	<0.005	<0.005
Nitrite Nitrogen	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Total Phosphate	0.002	0.003	0.003	0.003	0.003	0.003	0.002	0.003	<0.002	0.003	0.003	0.002
Organic Parameters (mg/ℓ)												
Dissolved Organic Carbon	1.500	1.600	1.400	1.400	1.300	1.300	1.300	1.400	1.700	1.800	1.800	1.900

Appendix B2. Conventional Water Chemistry Total Dissolved Metals (mg/ℓ), Meadowbank Study Lakes, August 2002.

TOTAL METALS (mg/ℓ)	Third Portage Dike				Third Portage Lake Basins				Second Portage Lake			
	East		West		South		North		South		Middle	
	TPD-EF	TPD-SF	TPD-WF	TPD-SF	TPD-SF	TPD-SF	TPD-SF	TPD-SF	TPD-SF	TPD-SF	SP-MF	SP-NF
CCME (2001)	37491.000	37491.000	37491.000	37491.000	37492.000	37491.000	37491.000	37491.000	37493.000	37492.000	37492.000	37492.000
Guideline	37491.000	37491.000	37491.000	37491.000	37492.000	37491.000	37491.000	37491.000	37493.000	37492.000	37492.000	37492.000
Aluminum	0.005	0.007	0.007	0.007	<0.0005	<0.0005	<0.0005	<0.0005	0.007	0.006	0.006	0.010
Antimony	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Barium	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Beryllium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Cadmium	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.006
Calcium	1.100	1.000	1.100	1.100	1.100	1.100	1.100	1.100	2.400	2.000	2.000	2.100
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Copper	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003
Lithium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.800	0.700	0.800	0.800
Manganese	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Selenium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Sodium	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Thallium	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Titanium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Note: ¹ N/G = no guideline ² Cadmium guideline developed using the lowest hardness value³ Chromium guideline is for Cr VI

⁴ Cadmium and Chromium yield the most conservative guidelines. Boxed concentrations exceed CCME guidelines

Appendix B2. Conventional Water Chemistry Total Dissolved Metals (mg/ℓ), Meadowbank Study Lakes, August 2002.

CCME (2001) Guideline	Third Portage Dike				Third Portage Lake Basins				Second Portage Lake			
	East		West		South		North		South		Middle	
	TPD-EF	TPD-SF	TPD-WF	TPD-WF	TP-SF	TP-NF	TP-EF	TP-EF	SP-SF	SP-MF	SP-NF	SP-NF
	37491.000	37491.000	37491.000	37491.000	37492.000	37491.000	37491.000	37491.000	37493.000	37492.000	37492.000	37492.000
DISSOLVED METALS (mg/ℓ)												
Aluminum	0.1	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Antimony	NG ⁴	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Barium	NG	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Beryllium	NG	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	NG	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Cadmium	0.00230	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Calcium	NG	1.100	1.100	1.100	1.100	1.100	1.100	1.100	2.400	2.000	2.000	2.100
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	NG	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Copper	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	0.3	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Lithium	NG	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	NG	0.500	0.500	0.500	0.500	0.500	0.400	0.500	0.900	0.700	0.700	0.800
Manganese	0.05	0.000	0.000	0.000	<0.0003	<0.0003	0.000	0.000	<0.0003	0.000	0.000	0.000
Mercury	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	NG	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	NG	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Selenium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver	0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Sodium	NG	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Thallium	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	NG	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Titanium	NG	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	0.01	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium	NG	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300
Zinc	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Note: ¹ N/G = no guideline ² Cadmium guideline developed using the lowest hardness value³ Chromium guideline is for Cr VI

⁴ Cadmium and Chromium yield the most conservative guidelines. Boxed concentrations exceed CCME guidelines

Appendix B2. Conventional Water Chemistry Total Dissolved Metals (mg/ℓ), Meadowbank Study Lakes, August 2002.

	Tehek Lake			Tern Lake		Vault Lake System			Farside		Inuggayuaill
	North	South	Middle	T-1		V1	V2 (Wally)	V3	FL-1	IL-1	
CCME (2001)	TL-NF	TL-SF	TL-EF	TERN-1F		V1-F	V2-1F	V3-F	FL-1F	IL-1F	
Guideline	37493.000	37493.000	37493.000	37495.000		37495.000	37495.000	37496.000	37496.000	37496.000	
CONVENTIONAL PARAMETERS											
Physical Tests											
Total Dissolved Solids (mg/ℓ)	13.000	<10.000	13.000	26.000		17.000	28.000	21.000	13.000	<10.000	
Total Suspended Solids (mg/ℓ)	4.000	<3.000	<3.000	<3.000		<3.000	<3.000	<3.000	<3.000	<3.000	
Hardness (mg/ℓ)	8.100	4.800	5.900	12.100		14.000	14.200	12.800	9.600	5.300	
pH	6.5 - 9.0	6.980	7.100	7.300		7.540	7.390	7.350	7.240	7.070	
Dissolved Anions (mg/ℓ)											
Total Alkalinity	6.000	3.000	4.000	8.000		11.000	10.000	9.000	7.000	3.000	
Bromide	<0.050	<0.050	<0.050	<0.050		<0.050	<0.050	<0.050	<0.050	<0.050	
Chloride	0.600	0.500	0.600	0.500		0.800	0.600	0.600	0.500	0.800	
Fluoride	0.070	0.050	0.060	0.050		0.060	0.040	0.050	0.040	0.060	
Sulphate	3.000	2.000	2.000	4.000		3.000	5.000	4.000	2.000	<1	
Nutrients (mg/ℓ)											
Ammonia Nitrogen	0.035	0.025	0.025	0.040		0.036	0.035	0.030	0.040	0.030	
Total Kjeldahl Nitrogen	0.070	0.090	0.070	0.070		0.090	0.100	0.120	0.120	0.200	
Nitrate Nitrogen	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	
Nitrite Nitrogen	<0.001	<0.001	<0.001	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	
Total Phosphate	<0.002	0.003	<0.002	0.003		0.004	0.003	0.005	0.003	0.003	
Organic Parameters (mg/ℓ)											
Dissolved Organic Carbon	1.400	1.200	1.300	2.000		1.900	1.800	2.000	2.300	2.200	

Appendix B2. Conventional Water Chemistry Total Dissolved Metals (mg/ℓ), Meadowbank Study Lakes, August 2002.

	CCME (2001) Guideline	Tehek Lake		Tern Lake		Vault Lake System			Farside		Inuggayuaill IL-1F
		North	South	Middle	T-1	V1-F	V2 (Wally)	V3	FL-1F	FL-1F	
		TL-NF 37493.000	TL-SF 37493.000	TL-EF 37493.000	TERN-1F 37495.000	V1-F 37495.000	V2-1F 37495.000	V3-F 37496.000	FL-1F 37496.000	FL-1F 37496.000	IL-1F 37496.000
TOTAL METALS (mg/ℓ)											
Aluminum	0.1	0.010	<0.005	0.007	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007
Antimony	NG ^A	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Barium	NG	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Beryllium	NG	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	NG	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Cadmium	0.00230	<0.00005	<0.00005	<0.00005	0.000	0.001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Calcium	NG	2.000	1.100	1.500	3.000	3.900	3.900	3.400	2.300	2.300	1.000
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	NG	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Copper	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	0.3	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead	0.001	<0.0005	<0.0005	<0.0005	<0.0005	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Lithium	NG	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	NG	0.700	0.500	0.600	1.000	1.100	1.200	1.100	0.900	0.900	0.600
Manganese	0.05	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002
Mercury	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	NG	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	NG	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Selenium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver	0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Sodium	NG	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Thallium	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	NG	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Titanium	NG	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	0.01	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium	NG	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Note: ¹ N/G = no guideline ² Cadmium guideline deve

⁴ Cadmium and Chromium yield the most conservativ

Appendix B2. Conventional Water Chemistry Total Dissolved Metals (mg/ℓ), Meadowbank Study Lakes, August 2002.

	Tehek Lake		Tern Lake		Vault Lake System			Farside		Inuggayuaali
	North	South	Middle	T-1	V1-F	V2 (Wally)	V3-F	FL-1F	IL-1F	
CCME (2001)	TL-NF	TL-SF	TL-EF	TERN-1F	V1-F	V2-1F	V3-F	FL-1F	IL-1F	
Guideline	37493.000	37493.000	37493.000	37495.000	37495.000	37495.000	37496.000	37496.000	37496.000	
DISSOLVED METALS (mg/ℓ)										
Aluminum	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	
Antimony	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Arsenic	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Barium	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Beryllium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Boron	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	
Cadmium	<0.00005	<0.00005	<0.00005	<0.00005	0.003	<0.00005	0.003	<0.00005	<0.00005	
Calcium	2.000	1.200	1.400	3.100	3.800	3.800	3.400	2.400	1.100	
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Cobalt	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Copper	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	
Iron	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	
Lead	<0.0005	<0.0005	<0.0005	<0.0005	0.001	<0.0005	0.002	<0.0005	<0.0005	
Lithium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Magnesium	0.800	0.500	0.600	1.100	1.100	1.100	1.000	0.900	0.600	
Manganese	0.000	0.000	0.000	<0.0003	0.001	0.000	0.001	<0.0003	0.000	
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Potassium	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	
Selenium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Silver	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	
Sodium	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	
Thallium	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Tin	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Titanium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Uranium	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Vanadium	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	
Zinc	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	

Note: ¹ N/G = no guideline ² Cadmium guideline deve

⁴ Cadmium and Chromium yield the most conservativ

Table 2. Conventional Water Chemistry Data Total Metals Concentration Data (mg/l), Meadowbank Study Lakes, August 1996, 1997, 1998 July (J) August (A) 2002. Means are Reported for n>1.

	CCME (2001) Guidelines	Third Portage Lake				Second Portage Lake					
		1996.000 (n=1)	1997.000 (n=3)	1998.000 (n=1)	2002(J) (n=6)	2002(A) (n=6)	1996.000 (n=1)	1997.000 (n=1)	1998.000 (n=2)	2002(J) (n=3)	2002(A) (n=4)
CONVENTIONAL PARAMETERS											
Physical Tests											
Total Dissolved Solids (mg/l)		<10.000	10.667	<10.000	-	10.143	11.000	<10.000	17.000	-	12.250
Total Suspended Solids (mg/l)		<1.000	<1.000	<1.000	-	<3.000	<1.000	<1.000	<1.000	-	3.250
Hardness (mg/l)		4.570	4.597	4.410	4.733	4.650	6.940	5.190	7.605	7.900	8.475
pH	6.5 - 9.0	6.920	6.800	6.520	6.627	6.932	7.140	6.500	6.790	7.860	7.288
Conductivity (µS/cm)		11.800	12.000	10.000	-	-	17.400	12.000	16.000	-	-
Turbidity (NTU)		0.200	1.100	1.000	-	-	0.200	0.600	0.500	-	-
Dissolved Anions (mg/l)											
Total Alkalinity		3.100	3.333	3.000	4.000	3.667	10.900	4.000	6.000	6.000	5.750
Bromide			-	-	-	<0.05		-	-	-	<0.05
Chloride		0.800	0.500	<0.500	<0.500	0.500	0.800	0.500	0.600	0.533	0.550
Fluoride		0.060	0.097	0.070	0.060	0.060	0.060	0.070	0.075	0.060	0.063
Sulphate		<1.000	1.000	1.000	1.000	1.000	1.000	1.000	2.000	2.333	2.500
Nutrients (mg/l)											
Ammonia Nitrogen		<0.005	0.030	<0.02	0.022	0.023	<0.005	0.030	<0.02	0.023	0.036
Total Kjeldahl Nitrogen			-	-	0.082	0.117		-	-	0.107	0.095
Nitrate Nitrogen		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012
Nitrite Nitrogen		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Total Phosphate		0.002	0.002	0.002	0.002	0.003	0.001	0.005	0.002	0.003	0.002
Dissolved Ortho Phosphate		<0.001	<0.001	<0.001	-	-	<0.001	<0.001	0.001	-	-
Total Dissolved Phosphate		<0.001	0.003	0.001	-	-	<0.001	0.001	0.002	-	-
Organic Parameters (mg/l)											
Chlorophyll a (mg/m³)		0.090	0.130	0.320	-	-	0.300	0.100	0.650	-	-
Chemical Oxygen Demand (mg/l)			24.667	101.000	-	-		<20.000	101.000	-	-
Dissolved Organic Carbon (mg/l)		2.300	2.067	1.800	1.217	1.417	2.100	1.900	2.150	1.533	1.700

Table 2. Conventional Water Chemistry Data Total Metals Concentration Data (mg/l), Meadowbank Study Lakes, August 1996, 1997, 1998 July (J) August (A) 2002. Means are Reported for n>1.

TOTAL METALS (mg/l)	CCME (2001) Guidelines	Third Portage Lake			Second Portage Lake						
		1996.000 (n=1)	1997.000 (n=3)	1998.000 (n=1)	2002(J) (n=6)	2002(A) (n=6)	1996.000 (n=1)	1997.000 (n=1)	1998.000 (n=2)	2002(J) (n=3)	2002(A) (n=4)
Aluminum	0.1	0.011	0.007	0.012	0.006	0.006	0.020	0.008	0.010	0.007	0.008
Antimony	N/G	<0.0001	<0.00005	<0.00005	<0.0005	<0.0005	<0.0001	<0.00005	<0.00005	<0.0005	<0.0005
Arsenic	0.005	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0001	<0.0001	0.000	<0.0005	<0.0005
Barium	N/G	<0.010	0.002	0.002	<0.020	<0.020	<0.010	0.002	0.002	<0.020	<0.020
Beryllium	N/G	<0.005	<0.0005	<0.0005	<0.001	<0.001	<0.005	<0.0005	<0.0005	<0.001	<0.001
Bismuth	N/G	<0.100	<0.0005	<0.0005	—	—	<0.100	<0.0005	<0.0005	—	—
Boron	N/G	<0.100	0.001	0.001	<0.100	<0.100	<0.100	0.001	0.001	<0.100	<0.100
Cadmium	0.00226	<0.0002	<0.00005	<0.00005	<0.0005	<0.00005	<0.0002	<0.00005	<0.00005	<0.00005	0.001
Calcium	N/G	0.990	1.000	1.030	1.067	1.083	1.780	1.300	1.880	2.000	2.125
Chromium	0.001	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.001	<0.001
Cobalt	N/G	<0.001	<0.0001	<0.0001	<0.0003	<0.0003	<0.001	<0.0001	<0.0001	<0.0003	<0.0003
Copper	0.002	<0.001	0.000	0.000	<0.001	<0.001	<0.001	<0.0005	0.001	<0.001	<0.001
Iron	0.3	<0.01	<0.03	<0.03	<0.03	<0.03	0.010	<0.03	<0.03	<0.03	<0.03
Lead	0.001	<0.001	0.000	<0.00005	<0.0005	0.001	<0.001	0.000	<0.00005	<0.0005	0.001
Lithium	N/G	<0.01	<0.001	<0.001	<0.005	<0.005	<0.01	<0.001	<0.001	<0.005	<0.005
Magnesium	N/G	0.450	0.460	0.500	0.500	0.500	0.610	0.510	0.650	0.700	0.750
Manganese	0.05	<0.005	0.001	0.001	0.001	0.001	<0.005	0.001	0.001	0.002	0.002
Mercury	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	N/G	<0.001	<0.00005	<0.00005	<0.001	<0.001	<0.001	<0.00005	<0.00005	<0.001	<0.001
Nickel	0.025	<0.001	0.000	0.000	<0.001	<0.001	<0.001	0.000	0.000	<0.001	<0.001
Phosphorus	N/G	<0.300	<0.300	<0.300	—	—	<0.300	<0.300	<0.300	—	—
Potassium	N/G	0.290	<2.000	<2.000	<2.000	<2.000	0.310	<2.000	<2.000	<2.000	<2.000
Selenium	0.001	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.001
Silicon	N/G	0.100	0.117	0.120	—	—	0.250	0.190	0.270	—	—
Silver	0.0001	<0.0001	<0.00001	<0.00001	<0.00002	<0.00002	<0.0001	<0.00001	<0.00001	<0.00002	<0.00002
Sodium	N/G	0.330	<2.000	<2.000	<2.000	<2.000	0.370	<2.000	<2.000	<2.000	<2.000
Strontium	N/G	0.007	0.005	0.005	—	—	0.012	0.007	0.009	—	—
Thallium	0.0008	<0.100	<0.00005	<0.00005	<0.0002	<0.0002	<0.100	<0.00005	<0.00005	<0.0002	<0.0002
Tin	N/G	<0.030	0.000	<0.0001	<0.0005	<0.0005	<0.030	<0.0001	<0.0001	<0.0005	<0.0005
Titanium	N/G	<0.020	<0.010	<0.010	<0.010	<0.010	<0.02	<0.010	<0.010	<0.010	<0.010
Uranium	0.01	—	0.000	0.000	<0.0002	<0.0002	—	0.000	0.000	<0.0002	<0.0002
Vanadium	N/G	<0.030	<0.001	<0.001	<0.030	<0.030	<0.030	<0.001	<0.001	<0.030	<0.030
Zinc	0.03	<0.005	0.003	0.001	<0.005	<0.005	<0.005	0.019	<0.001	<0.005	<0.005

Note: 1. N/G = no guideline 2. Cadmium guideline developed using the lowest hardness value 3. Chromium guideline is for Cr VI

4. Cadmium and Chromium yield the most conservative guidelines. Boxed concentrations exceed CCME guidelines

Table 2. Conventional Water Chemistry Data Total Metals Concentration Data (mg/l), Meadowbank Study Lakes, August 1996, 1997, 1998 July (J) August (A) 2002. Means are Reported for n>1.

	CCME (2001)		Tehek Lake			Term Lake		Farside Lake	
	Guidelines	1997.000 (n=1)	1998.000 (n=2)	2002(J) (n=3)	2002(A) (n=2)	2002(J) (n=1)	2002(A) (n=1)	2002(J) (n=1)	2002(A) (n=1)
CONVENTIONAL PARAMETERS									
Physical Tests									
Total Dissolved Solids (mg/l)		<10.000	-	-	11.500	-	26.000	-	13.000
Total Suspended Solids (mg/l)		1.000	-	-	<3.000	-	<3.000	-	<3.000
Hardness (mg/l)		7.880	4.895	6.300	5.350	12.300	12.100	10.000	9.600
pH	6.5 - 9.0	6.600	-	7.117	7.040	6.860	7.300	6.940	7.240
Conductivity (µS/cm)		24.000	-	-	-	-	-	-	-
Turbidity (NTU)		0.500	-	-	-	-	-	-	-
Dissolved Anions (mg/l)									
Total Alkalinity		6.000	5.000	4.667	3.500	9.000	8.000	8.000	7.000
Bromide		-	-	-	<0.050	-	<0.050	-	<0.050
Chloride		0.600	0.500	0.533	0.550	0.500	0.500	0.500	0.500
Fluoride		0.080	0.075	0.057	0.055	0.050	0.050	0.040	0.040
Sulphate		2.000	2.000	2.333	2.000	4.000	4.000	2.000	2.000
Nutrients (mg/l)									
Ammonia Nitrogen		0.020	<0.02	0.033	0.026	0.030	0.040	0.020	0.040
Total Kjeldahl Nitrogen		-	-	0.100	0.080	0.150	0.070	0.130	0.120
Nitrate Nitrogen		<0.005	<0.005	0.048	<0.005	0.005	<0.005	0.045	<0.005
Nitrite Nitrogen		<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
Total Phosphate		0.001	0.004	0.003	0.003	0.003	0.003	0.003	0.003
Dissolved Ortho Phosphate		<0.001	<0.001	-	-	-	-	-	-
Total Dissolved Phosphate		0.001	0.002	-	-	-	-	-	-
Organic Parameters (mg/l)									
Chlorophyll a (mg/m ³)		0.060	0.375	-	-	-	-	-	-
Chemical Oxygen Demand (mg/l)		<20.000	78.000	-	-	-	-	-	-
Dissolved Organic Carbon (mg/l)		2.400	1.750	1.433	1.250	2.100	2.000	1.900	2.300

Table 2. Conventional Water Chemistry Data Total Metals Concentration Data (mg/l), Meadowbank Study Lakes, August 1996, 1997, 1998 July (J) August (A) 2002. Means are Reported for n>1.

TOTAL METALS (mg/l)	CCME (2001) Guidelines	Tehek Lake			Tem Lake			Farside Lake		
		1997.000	1998.000	2002(J)	2002(A)	2002(J)	2002(A)	2002(J)	2002(A)	2002(J)
		(n=1)	(n=2)	(n=3)	(n=2)	(n=1)	(n=1)	(n=1)	(n=1)	(n=1)
Aluminum	0.1	0.008	0.016	0.009	0.006	0.010	0.005	0.011	<0.005	<0.005
Antimony	N/G	<0.00005	<0.00005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic	0.005	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Barium	N/G	0.002	0.002	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Beryllium	N/G	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bismuth	N/G	<0.0005	<0.0005	-	-	-	-	-	-	-
Boron	N/G	0.001	0.001	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Cadmium	0.00226	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000	0.000	<0.00005	<0.00005
Calcium	N/G	2.040	1.190	1.567	1.300	3.200	3.000	2.500	2.300	2.300
Chromium	0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	N/G	<0.0001	<0.0001	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Copper	0.002	0.001	0.000	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	0.3	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead	0.001	0.000	<0.00005	0.002	<0.0005	<0.0005	<0.0005	0.001	<0.0005	<0.0005
Lithium	N/G	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	N/G	0.670	0.450	0.567	0.550	1.100	1.000	0.900	0.900	0.900
Manganese	0.05	0.001	0.001	0.002	0.001	0.004	0.001	0.002	0.001	0.001
Mercury	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	N/G	<0.00005	<0.00005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.025	0.000	0.000	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Phosphorus	N/G	<0.300	<0.300	-	-	-	-	-	-	-
Potassium	N/G	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Selenium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silicon	N/G	0.310	0.175	-	-	-	-	-	-	-
Silver	0.0001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Sodium	N/G	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Strontium	N/G	0.009	0.006	-	-	-	-	-	-	-
Thallium	0.0008	<0.00005	<0.00005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	N/G	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Titanium	N/G	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	0.01	0.000	0.000	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium	N/G	<0.001	<0.001	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	0.03	0.003	<0.001	0.011	<0.005	0.006	<0.005	0.011	<0.005	<0.005

Note: 1. N/G = no guideline 2. Cadmium guideline developed using 4. Cadmium and Chromium yield the most conservative guidelines

Table 2. Conventional Water Chemistry Data Total Metals Concentration Data (mg/l), Meadowbank Study Lakes, August 1996, 1997, 1998 July (J) August (A) 2002. Means are Reported for n>1.

	CCME (2001) Guidelines	Vault Lake System			Inuggugayualik Lake			Amarulik Lake	
		1997.000	2002(J)	2002(A)	1998.000	2002(J)	2002(A)	1998.000	1998.000
		(n=3)	(n=3)	(n=3)	(n=1)	(n=1)	(n=1)	(n=1)	(n=1)
CONVENTIONAL PARAMETERS									
Physical Tests									
Total Dissolved Solids (mg/l)		12.000	-	22.000	12.000	-	<10	10.000	
Total Suspended Solids (mg/l)		<1.000	-	<3.000	<1.000	-	<3.000	<1.000	
Hardness (mg/l)		9.370	13.833	13.667	4.500	5.300	5.300	5.660	
pH	6.5 - 9.0	6.600	6.933	7.427	7.200	6.820	7.070	6.610	
Conductivity (µS/cm)		12.000	-	-	11.000	-	-	15.000	
Turbidity (NTU)		0.300	-	-	0.500	-	-	0.600	
Dissolved Anions (mg/l)									
Total Alkalinity		8.000	10.333	10.000	4.000	5.000	3.000	4.000	
Bromide		-	-	<0.050	-	-	<0.050	-	
Chloride		0.500	0.700	0.667	0.600	0.700	0.800	1.200	
Fluoride		0.080	0.050	0.050	0.050	0.060	0.060	0.040	
Sulphate		2.000	3.667	4.000	1.000	<1.000	<1.000	2.000	
Nutrients (mg/l)									
Ammonia Nitrogen		0.020	0.023	0.034	<0.020	<0.020	0.030	<0.020	
Total Kjeldahl Nitrogen		-	0.173	0.103	-	0.210	0.200	-	
Nitrate Nitrogen		<0.005	0.060	<0.005	<0.005	<0.005	<0.005	<0.005	
Nitrite Nitrogen		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Total Phosphate		0.002	0.004	0.004	<0.001	0.002	0.003	0.004	
Dissolved Ortho Phosphate		<0.001	-	-	<0.001	-	-	<0.001	
Total Dissolved Phosphate		0.001	-	-	<0.001	-	-	0.001	
Organic Parameters (mg/l)									
Chlorophyll a (mg/m ³)		0.460	-	-	0.350	-	-	0.710	
Chemical Oxygen Demand (mg/l)		<20.000	-	-	161.000	-	-	65.000	
Dissolved Organic Carbon (mg/l)		2.100	1.867	1.900	2.400	1.900	2.200	3.100	

Table 2. Conventional Water Chemistry Data Total Metals Concentration Data (mg/l), Meadowbank Study Lakes, August 1996, 1997, 1998 July (J) August (A) 2002. Means are Reported for n>1.

TOTAL METALS (mg/l)	CCME (2001) Guidelines	Vault Lake System			Inuggayualik Lake			Amarulik Lake	
		1997.000	2002(J)	2002(A)	1998.000	2002(J)	2002(A)	1998.000	1998.000
		(n=3)	(n=3)	(n=3)	(n=1)	(n=1)	(n=1)	(n=1)	(n=1)
Aluminum	0.1	0.014	0.009	<0.005	0.012	0.010	0.007	0.013	0.013
Antimony	N/G	<0.00005	<0.0005	<0.0005	<0.00005	<0.0005	<0.0005	<0.00005	<0.00005
Arsenic	0.005	0.000	<0.0005	<0.0005	<0.0001	<0.0005	<0.0005	<0.0001	<0.0001
Barium	N/G	<0.0005	<0.020	<0.020	0.002	<0.020	<0.020	0.002	0.002
Beryllium	N/G	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.0005
Bismuth	N/G	<0.0005	—	—	<0.0005	—	—	<0.0005	<0.0005
Boron	N/G	0.001	<0.100	<0.100	0.001	<0.100	<0.100	0.001	0.001
Cadmium	0.00226	<0.00005	<0.00005	0.000	0.000	<0.00005	<0.00005	<0.00005	<0.00005
Calcium	N/G	2.530	3.767	3.733	0.900	1.100	1.000	1.130	1.130
Chromium	0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.0005
Cobalt	N/G	<0.0001	<0.0003	<0.0003	<0.0001	<0.0003	<0.0003	<0.0001	<0.0001
Copper	0.002	0.001	<0.001	<0.001	0.000	<0.001	<0.001	0.001	0.001
Iron	0.3	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead	0.001	0.000	<0.0005	0.001	0.000	<0.0005	<0.0005	<0.00005	<0.00005
Lithium	N/G	<0.001	<0.005	<0.005	<0.001	<0.005	<0.005	<0.001	<0.001
Magnesium	N/G	0.820	1.067	1.133	0.600	0.600	0.600	0.600	0.600
Manganese	0.05	0.002	0.001	0.001	0.002	0.004	0.002	0.001	0.001
Mercury	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	N/G	<0.00005	<0.001	<0.001	<0.00005	<0.001	<0.001	<0.00005	<0.00005
Nickel	0.025	0.001	<0.001	<0.001	0.000	<0.001	<0.001	0.001	0.001
Phosphorus	N/G	<0.300	—	—	<0.300	—	—	<0.300	<0.300
Potassium	N/G	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Selenium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silicon	N/G	0.290	—	—	0.140	—	—	0.200	0.200
Silver	0.0001	<0.00001	<0.00002	<0.00002	<0.00001	<0.00002	<0.00002	<0.00001	<0.00001
Sodium	N/G	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
Strontium	N/G	0.012	—	—	0.005	—	—	0.008	0.008
Thallium	0.0008	<0.00005	<0.0002	<0.0002	<0.00005	<0.0002	<0.0002	<0.00005	<0.00005
Tin	N/G	0.000	<0.0005	<0.0005	<0.0001	<0.0005	<0.0005	<0.0001	<0.0001
Titanium	N/G	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	0.01	0.000	<0.0002	<0.0002	0.000	<0.0002	<0.0002	0.000	0.000
Vanadium	N/G	<0.001	<0.030	<0.030	<0.001	<0.030	<0.030	<0.001	<0.001
Zinc	0.03	0.006	0.010	<0.005	0.002	<0.005	<0.005	0.001	0.001

Note: 1. N/G = no guideline 2. Cadmium guideline developed using 4. Cadmium and Chromium yield the most conservative guidelines

Table 3. Conventional Sediment Chemistry Data Total (mg/kg dw) Metals Concentration Data, Meadowbank Study Lakes, August 1996, 1997, 1998 July 2002. Means are Reported for n>1.

	Sediment Quality Guidelines				Third Portage Lake			Second Portage Lake		
	ISQG	PEL (CCME, 2001)	1996 (n=1)	1997 (n=3)	1998 (n=1)	2002 (n=6)	1996 (n=1)	1997 (n=1)	1998 (n=2)	2002 (n=3)
CONVENTIONAL PARAMETERS										
Physical Tests										
Moisture (%)	NA	NA	77.2	80.2	86.6	78.6	58.9	82.1	76.85	85.4
pH	NA	NA	-	-	-	5.92	-	-	-	5.94
Organic Parameters										
Total Organic Carbon (% dw)	NA	NA	2.59	2.46	3.28	2.55	0.79	2.88	2.50	5.19
Particle Size										
Gravel (>2.00 mm) (%)	NA	NA	-	<0.1	<0.1	0.2	-	<0.1	<0.1	<0.1
Sand (2.00 mm - 0.063 mm) (%)	NA	NA	-	2.7	4.1	12.2	-	6.5	14.2	5.5
Silt (0.063 mm - 4 µm) (%)	NA	NA	-	27.7	25.9	30.1	-	26.0	34.4	35.8
Clay (<4 µm) (%)	NA	NA	-	69.6	70	57.6	-	67.5	49.9	58.7
TOTAL METALS (mg/kg dw)										
Antimony	N/G	NG	0.39	<40	<40	<10	0.21	<40	<40	<20
Arsenic	5.9	17	27	79.6	21	25.5	11.2	53.5	28	68
Barium	N/G	N/G	185	178	185	164	148	200	188	243
Beryllium	N/G	N/G	2.1	2.4	3	1.8	1.5	4	2	2.1
Cadmium	0.6	3.5	0.12	<0.2	0.35	<0.5	0.10	<0.2	1.10	0.77
Chromium	37.3	90	158	143	113	116	84	101	90	98
Cobalt	N/G	N/G	22	21	20	18	14	11	15	18
Copper	35.7	197	96.0	89.7	74.0	67.7	45.8	121	73.5	94.7
Lead	35.0	91.3	22.7	<100	24.0	30.2	16.3	<100	21.5	<30
Mercury	0.17	0.49	-	0.015	0.023	0.018	-	0.015	0.023	0.047
Molybdenum	N/G	N/G	4	<8	<8	5	<4	14	7	12
Nickel	18	36	86	81	76	83	51	66	63	93
Selenium	N/G	N/G	0.2	0.37	0.8	<2	<0.1	0.6	0.5	<4
Silver	N/G	N/G	<0.1	<4	<0.2	<2	<0.1	<4	0.2	<4
Thallium	N/G	N/G	-	-	-	<1	-	-	-	<1
Tin	N/G	N/G	<10	<20	<20	<5	<10	<20	<20	<10
Vanadium	N/G	N/G	60	57	54	51	45	60	50	50
Zinc	123	315	128	127	135	109	107	176	136	133

Note: 1. N/G = no guideline 2. Bold Concentrations exceed ISQG 3. Boxed concentrations exceed PEL.

Table 3. Conventional Sediment Chemistry Data Total (mg/kg dw) Metals Concentration Data, Meadowbank Study Lakes, August 1996, 1997, 1998 July 2002. Means are Reported for n>1.

	Sediment Quality Guidelines		Tehek Lake		Tern Lake		Vault Lake System	
	ISQG	PEL (CCME, 2001)	1997 (n=1)	1998 (n=2)	2002 (n=3)	2002 (n=2)	1997 (n=1)	2002 (n=4)
CONVENTIONAL PARAMETERS								
Physical Tests								
Moisture (%)	NA	NA	82.6	83.1	82.8	87.5	86.5	84.6
pH	NA	NA	—	—	5.75	5.92	—	5.85
Organic Parameters								
Total Organic Carbon (% dw)	NA	NA	2.64	3.56	2.74	5.75	4.47	7.40
Particle Size								
Gravel (>2.00 mm) (%)	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	0.8
Sand (2.00 mm - 0.063 mm) (%)	NA	NA	3.1	9.1	3.7	7.7	3.4	5.4
Silt (0.063 mm - 4 µm) (%)	NA	NA	24.9	40.6	31.7	38.6	36.9	34.9
Clay (<4 µm) (%)	NA	NA	72	50.35	64.6	53.8	59.7	59.0
TOTAL METALS (mg/kg dw)								
Antimony	N/G	NG	<40	<40	<20	<20	<40	<30
Arsenic	5.9	17	20.3	12.85	29	24	41.2	90
Barium	N/G	N/G	201	269	210	129	170	141
Beryllium	N/G	N/G	3	3	2.5	1.1	2	1.7
Cadmium	0.6	3.5	<0.2	1.80	<1	<1	0.40	<2
Chromium	37.3	90	80	80	75	105	129	75
Cobalt	N/G	N/G	15	21	20	11	22	15
Copper	35.7	197	77.0	98.0	80.3	93.0	106	120
Lead	35.0	91.3	<100	29.5	41.7	<60	<100	57.3
Mercury	0.17	0.49	0.017	0.029	0.024	0.048	0.055	0.052
Molybdenum	N/G	N/G	<8	9	9	<8	<8	14
Nickel	18	36	48	119	59	75	93	61
Selenium	N/G	N/G	0.3	1.2	<4	<4	0.7	<6
Silver	N/G	N/G	<4	0.4	<4	<4	<4	<6
Thallium	N/G	N/G	—	—	<1	<1	—	<1
Tin	N/G	N/G	<20	<20	<10	<10	<20	<20
Vanadium	N/G	N/G	53	57	57	38	42	46
Zinc	123	315	144	197	132	109	135	131

Note: 1. N/G = no guideline 2. Bold Concentrations exceed ISQG 3. Boxed concentrati

Table 3. Conventional Sediment Chemistry Data Total (mg/kg dw) Metals Concentration Data, Meadowbank Study Lakes, August 1996, 1997, 1998 July 2002. Means are Reported for n>1.

		Sediment Quality Guidelines		Farside Lake		Inuggugayualik Lake		Amarulik Lake	
		ISQG	PEL (CCME, 2001)	2002 (n=2)	1998 (n=1)	2002 (n=2)	1998 (n=1)	2002 (n=2)	1998 (n=1)
CONVENTIONAL PARAMETERS									
Physical Tests									
Moisture (%)	NA	NA	NA	76.6	79.5	80.5	67		
pH	NA	NA	NA	5.81	—	5.61	—		
Organic Parameters									
Total Organic Carbon (% dw)	NA	NA	NA	2.67	2.37	3.79	1.63		
Particle Size									
Gravel (>2.00 mm) (%)	NA	NA	NA	1.9	<0.1	<0.1	<0.1		
Sand (2.00 mm - 0.063 mm) (%)	NA	NA	NA	12.1	9.9	6.2	46.9		
Silt (0.063 mm - 4 µm) (%)	NA	NA	NA	48.7	50.6	36.3	27.1		
Clay (<4 µm) (%)	NA	NA	NA	38.3	39.5	57.6	26		
TOTAL METALS (mg/kg dw)									
Antimony	N/G	NG	NG	<10	<40	<10	<40		
Arsenic	5.9	17	17	14	18	24	10		
Barium	N/G	N/G	N/G	108	154	175	120		
Beryllium	N/G	N/G	N/G	1.1	2	1.6	1		
Cadmium	0.6	3.5	3.5	<0.5	0.27	<0.5	0.20		
Chromium	37.3	90	90	131	111	125	64		
Cobalt	N/G	N/G	N/G	11	14	16	15		
Copper	35.7	197	197	55.0	42.0	55.5	51.0		
Lead	35.0	91.3	91.3	<30	14.0	<30	15.0		
Mercury	0.17	0.49	0.49	0.016	0.023	0.023	0.015		
Molybdenum	N/G	N/G	N/G	<4	<8	5	<4		
Nickel	18	36	36	62	70	87	41		
Selenium	N/G	N/G	N/G	<2	0.4	<2	0.2		
Silver	N/G	N/G	N/G	<2	<0.2	<2	<0.1		
Thallium	N/G	N/G	N/G	<1	—	<1	—		
Tin	N/G	N/G	N/G	<5	<20	<5	<10		
Vanadium	N/G	N/G	N/G	49	44	49	46		
Zinc	123	315	315	86	89	99	84		

Note: 1. N/G = no guideline 2. Bold Concentrations exceed ISQG 3. Boxed concentrati