

2012 Predicted water quantity and quality compared to the measured water quantity and quality
MINING YEAR 3

Water Quantity Year 3^

Pits	Predicted (m³)	Measured (m³)	% Difference between predicted vs measured
Portage	931 800	1 026 000	10
Bay Goose	1 235 100	499 000	-60

^predicted volumes from Golder 2007 - Waste and Water Management Plan - Meadowbank Gold Project

Third Portage Open Pit Sumps Water Quality Year 3

Parameters	Units	Probable Scenario Year 3*	Possible Poor end Scenario Year 3*	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile *		CCME Guidelines**	MMER Schedule 4**	Water License Discharge to 3PL**
				Mean	Lower 25th centile	Probable	Possible Poor	Probable	Possible Poor			
pH		6.30	6.10	7.80	7.77	24	28	23	27	6.5 to 9.0	6.0 to 9.5	6.0 to 9.0
Alkalinity	mg CaCO3/L	39	42	92	56	136	119	44	33	--	--	--
Ammonia (unionized)	mg NH3/L	0.00057	0.0006	0.2081	0.1000	36 413	34 588	17 444	16 567	0.016	--	--
Ammonia nitrogen	mg N/L	2.3	4	3.9	0.2	69	0	-90	-94	1.83	--	16
Dissolved Arsenic	mg/L	0.0024	0.057	0.0031	0.0025	29	-95	4	-96	0.005	0.5	0.3
Chloride	mg/L	630	630	20	7	-97	-97	-99	-99	120	--	1000
Dissolved Copper	mg/L	0.0014	0.013	0.0046	0.0025	230	-64	79	-81	0.002	0.3	0.1
Fluoride	mg/L	0.19	0.23	0.62	0.34	228	171	80	49	0.12	--	--
Hardness	mg CaCO3/L	300	310	100	78	-67	-68	-74	-75	--	--	--
Dissolved Lead	mg/L	0.0016	0.0063	0.0036	0.0025	123	-43	56	-60	0.001	0.2	0.1
Dissolved Nickel	mg/L	0.003	0.073	0.0051	0.0025	75	-93	-14	-97	0.025	0.5	0.2
Dissolved Barium	mg/L	0.040	0.057	0.0651	0.0088	63	14	-78	-85	--	--	--
Dissolved Cadmium	mg/L	0.000074	0.00023	0.0025	0.0025	3 278	987	3 278	987	0.00004	--	0.002
Dissolved Iron	mg/L	0.36	3.7	0.0328	0.0250	-91	-99	-93	-99	0.3	--	--
Dissolved Mercury	mg/L	0.0000057	0.000044	0.00025	0.00025	4 286	468	4 286	468	0.000026	--	0.0004
Dissolved Manganese	mg/L	0.19	0.55	0.0553	0.0335	-71	-90	-92	-94	0.23	--	--
Dissolved Molybdenum	mg/L	0.013	0.013	0.0238	0.0193	83	83	48	48	0.073	--	--
Dissolved Selenium	mg/L	0.0003	0.0011	0.0025	0.0025	762	127	762	127	0.001	--	--
Dissolved Thallium	mg/L	0.00003	0.0001	0.0044	0.0050	14 692	4 338	16 567	4 900	0.0008	--	--
Nitrate	mg/L	2.60	4.4	7.74	2.96	198	76	14	-33	2.94	--	20
Sulphate	mg/L	31	42	40	19	28	-6	-39	-55	128	--	--
Total dissolved solids	mg/L	960	990	240	168	-75	-76	-83	-83	--	--	--
Dissolved Zinc	mg/L	0.0074	0.068	0.0179	0.0025	142	-74	-66	-96	0.013	0.5	0.4

Goose Island Open Pit Sumps Water Quality Year 3

Parameters	Units	Probable Scenario Year 3*	Possible Poor end Scenario Year 3*	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile *		CCME Guidelines**	MMER Schedule 4**	Water License Discharge to 3PL**
				Mean	Lower 25th centile	Probable	Possible Poor	Probable	Possible Poor			
pH		6.10	6.10	7.75	7.56	27	27	24	24	6.5 to 9.0	6.0 to 9.5	6.0 to 9.0
Alkalinity	mg CaCO3/L	27	27	85	55	216	216	103	103	--	--	--
Ammonia (unionized)	mg NH3/L	0.00056	0.00056	0.2358	0.0250	42 013	42 013	4 364	4 364	0.016	--	--
Ammonia nitrogen	mg N/L	3.6	3.6	5.0	0.6	40	40	-83	-83	1.83	--	16
Dissolved Arsenic	mg/L	0.0016	0.0016	0.0158	0.0073	884	884	353	353	0.005	0.5	0.3
Chloride	mg/L	440	440	16	6	-96	-96	-99	-99	120	--	1000
Dissolved Copper	mg/L	0.00010	0.001	0.0150	0.0088	15 689	1 479	9 111	821	0.002	0.3	0.1
Fluoride	mg/L	0.13	0.13	0.43	0.24	231	231	83	83	0.12	--	--
Hardness	mg CaCO3/L	210	210	130	60	-38	-38	-72	-72	--	--	--
Dissolved Lead	mg/L	0.0011	0.0011	0.0144	0.0044	1 207	1 207	298	298	0.001	0.2	0.1
Dissolved Nickel	mg/L	0.002	0.002	0.0194	0.0194	869	869	869	869	0.025	0.5	0.2
Dissolved Barium	mg/L	0.027	0.0270	0.0618	0.0305	129	129	13	13	--	--	--
Dissolved Cadmium	mg/L	0.000051	0.000051	0.0250	0.0250	48 920	48 920	48 920	48 920	0.00004	--	0.002
Dissolved Iron	mg/L	0.25	0.25	0.0250	0.0250	-90	-90	-90	-90	0.3	--	--
Dissolved Mercury	mg/L	0.000039	0.000039	0.00644	0.00025	164 964	164 964	6 310	6 310	0.000026	--	0.0004
Dissolved Manganese	mg/L	0.13	0.13	0.1479	0.1109	14	14	-15	-15	0.23	--	--
Dissolved Molybdenum	mg/L	0.0086	0.0086	0.0240	0.0240	179	179	179	179	0.073	--	--
Dissolved Selenium	mg/L	0.0002	0.0002	0.0138	0.0025	6 775	6 775	1 150	1 150	0.001	--	--
Dissolved Thallium	mg/L	0.00002	0.00002	0.0050	0.0050	24 900	24 900	24 900	24 900	0.0008	--	--
Nitrate	mg/L	4.00	4.00	6.28	0.92	57	57	-77	-77	2.94	--	20
Sulphate	mg/L	21	21	27	17	30	30	-20	-20	128	--	--
Total dissolved solids	mg/L	670	670	258	167	-61	-61	-75	-75	--	--	--
Dissolved Zinc	mg/L	0.0051	0.0051	0.0170	0.0025	233	233	-51	-51	0.013	0.5	0.4

Footnotes:

Highlighted values represent exceedences of greater than 20% relative percent difference between predicted vs measured values.

* Used year 3 predictions for Portage and year 3 for Goose presented in Golder, 2007 - Water Quality Predictions Meadowbank Gold Project Doc No 516, Ver 0

** Discharge criteria and guidelines based on total metal concentrations. Sulphate guideline based on threshold value from BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

Highlighted values in yellow indicate a mean measured value greater than the discharge criteria or guidelines.

2013 Comparison of predicted pit water quantity and quality to the measured water quantity and quality
MINING YEAR 4

Water Quantity Year 4^

Pits**	Predicted (m³)	Measured (m³)	% Difference between predicted vs measured
Portage	931 800	676 706	-27
Bay Goose	1 235 100	344 994	-72

*predicted volumes from Golder 2007 - Waste and Water Management Plan - Meadowbank Gold Project
 **There is no year 4 in the predicted model so take year 3 for Portage and Vault and year 3 for Goose.

Third Portage Open Pit Sumps Water Quality Year 4

Parameters	Units	Probable Scenario Year 4*	Possible Poor end Scenario Year 4*	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile *		CCME Guidelines**	MMER Schedule 4**	Water License Discharge to 3PL**
				Mean	Lower 25th centile +	Probable	Possible Poor	Probable	Possible Poor			
pH		6.30	6.10	7.49	7.17	19	23	14	18	6.5 to 9.0	6.0 to 9.5	6.0 to 9.0
Alkalinity	mg CaCO3/L	40	43	72	52	81	68	30	21	--	--	--
Ammonia (unionized)	mg N/L	0.00052	0.00055	0.2000	0.0250	38 362	36 264	4 708	4 445	0.016	--	--
Ammonia nitrogen	mg N/L	2.1	3.5	3.6	0.2	70	2	-91	-95	1.83	--	16
Dissolved Arsenic	mg/L	0.0024	0.068	0.0180	-	650	-74			0.005	0.5	0.3
Chloride	mg/L	620	630	2	-	-100	-100			120	--	1000
Dissolved Copper	mg/L	0.0014	0.016	0.0124	-	788	-22			0.002	0.3	0.1
Fluoride	mg/L	0.19	0.24	0.13	-	-32	-46			0.12	--	--
Hardness	mg CaCO3/L	300	310	48	-	-84	-85			--	--	--
Dissolved Lead	mg/L	0.0016	0.0076	0.0010	-	-36	-87			0.001	0.2	0.1
Dissolved Nickel	mg/L	0.003	0.093	0.0047	-	62	-95			0.025	0.5	0.2
Dissolved Barium	mg/L	0.041	0.063	0.0076	-	-82	-88			--	--	--
Dissolved Cadmium	mg/L	0.000076	0.00027	0.0000	-	-87	-96			0.00004	--	0.002
Dissolved Iron	mg/L	0.37	4.6	0.0125	-	-97	-100			0.3	--	--
Dissolved Mercury	mg/L	0.0000059	0.000054	0.00005	-	747	-7			0.000026	--	0.0004
Dissolved Manganese	mg/L	0.19	0.66	0.0123	-	-94	-98			0.23	--	--
Dissolved Molybdenum	mg/L	0.013	0.013	0.0016	-	-88	-88			0.073	--	--
Dissolved Selenium	mg/L	0.0003	0.0012	0.0005	-	72	-58			0.001	--	--
Dissolved Thallium	mg/L	0.00003	0.00012	0.0025	-	7 965	1 983			0.0008	--	--
Nitrate	mg/N/L	2.30	4.0	1.35	-	-41	-66			2.94	--	20
Sulphate	mg/L	31	46	83	-	167	80			128	--	--
Total dissolved solids	mg/L	960	990	127	57	-87	-87	-94	-94	--	--	--
Dissolved Zinc	mg/L	0.0076	0.085	0.0028	-	-64	-87			0.013	0.5	0.4

Goose Island Open Pit Sumps Water Quality Year 4

Parameters	Units	Probable Scenario Year 3*	Possible Poor end Scenario Year 3*	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile *		CCME Guidelines**	MMER Schedule 4**	Water License Discharge to 3PL**
				Mean	Lower 25th centile +	Probable	Possible Poor	Probable	Possible Poor			
pH		6.10	6.10	7.68	7.49	26	26	23	23	6.5 to 9.0	6.0 to 9.5	6.0 to 9.0
Alkalinity	mg CaCO3/L	27	27	130	109	380	380	304	304	--	--	--
Ammonia (unionized)	mg N/L	0.00056	0.00056	0.2961	0.1400	52 777	52 777	24 900	24 900	0.016	--	--
Ammonia nitrogen	mg N/L	5.4	5	7.9	4.0	46	46	-26	-26	1.83	--	16
Dissolved Arsenic	mg/L	0.0016	0.0016	0.0046	-	188	188			0.005	0.5	0.3
Chloride	mg/L	440	440	62	-	-86	-86			120	--	1000
Dissolved Copper	mg/L	0.001	0.001	0.0712	-	7 389	7 389			0.002	0.3	0.1
Fluoride	mg/L	0.13	0.13	0.72	-	454	454			0.12	--	--
Hardness	mg CaCO3/L	210	210	214	-	2	2			--	--	--
Dissolved Lead	mg/L	0.0011	0.0011	0.0002	-	-86	-86			0.001	0.2	0.1
Dissolved Nickel	mg/L	0.002	0.002	0.0599	-	2 893	2 893			0.025	0.5	0.2
Dissolved Barium	mg/L	0.027	0.0270	0.1328	-	392	392			--	--	--
Dissolved Cadmium	mg/L	0.000051	0.000051	0.0000	-	-12	-12			0.00004	--	0.002
Dissolved Iron	mg/L	0.25	0.25	0.1025	-	-59	-59			0.3	--	--
Dissolved Mercury	mg/L	0.0000039	0.0000039	0.00008	-	1 823	1 823			0.000026	--	0.0004
Dissolved Manganese	mg/L	0.13	0.13	0.2192	-	69	69			0.23	--	--
Dissolved Molybdenum	mg/L	0.0086	0.0086	0.0207	-	140	140			0.073	--	--
Dissolved Selenium	mg/L	0.0002	0.0002	0.0015	-	650	650			0.001	--	--
Dissolved Thallium	mg/L	0.00002	0.00002	0.0025	-	12 400	12 400			0.0008	--	--
Nitrate	mg/N/L	4.00	4.00	20.80	-	420	420			2.94	--	20
Sulphate	mg/L	21	21	66	-	216	216			128	--	--
Total dissolved solids	mg/L	670	670	314	218	-53	-53	-68	-68	--	--	--
Dissolved Zinc	mg/L	0.0051	0.0051	0.0075	-	47	47			0.013	0.5	0.4

Footnotes:

Highlighted values represent exceedences of greater than 20% relative percent difference between predicted vs measured values.

* Used year 4 predictions for Portage and year 3 for Goose presented in Golder, 2007 - Water Quality Predictions Meadowbank Gold Project Doc No 516. Ver 0

+ Some have no lower 25th percentile data as only 2 or 1 samples were monitored in 2013

** Discharge criteria and guidelines based on total metal concentrations. Sulphate guideline based on threshold value from BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

Highlighted values in yellow indicate a mean measured value greater than the discharge criteria or guidelines.

2014 Comparison of predicted pit water quantity and quality to the measured water quantity and quality
MINING YEAR 5

Water Quantity Year 5^a

Pits**	Predicted (m ³)	Measured (m ³)	% Difference between predicted vs measured
Portage	715 200	165 877	-77
Bay Goose	1 235 100	307 769	-75
Vault Pit	46 100	101 617	120

^apredicted volumes from Golder 2007 - Waste and Water Management Plan - Meadowbank Gold Project, Table 12.1 and Figures 12.7
^{**}There is no year 5 in the predicted model for Bay Goose so take year 3 for Goose.

Vault Pit Sumps Water Quality Year 5

Parameters	Units	Probable Scenario Year 5 ^a	Possible Poor end Scenario Year 5 ^a	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile		CCME Guidelines**	MMER Schedule 4**	Water License Discharge to Wally Lake**
				Mean	Lower 25th centile*	Probable	Possible Poor	Probable	Possible Poor			
pH		8.00	8.00	7.13	-	-11	-11	-	-	6.5 to 9.0	6.0 to 9.5	6.0 to 9.0
Alkalinity	mg CaCO3/L	0.091	9.7	89	-	97 153	812	-	-	--	--	--
Ammonia (unionized)	mg N/L	0.78	1.30	0.1800	-	-77	-86	-	-	0.016	--	--
Ammonia nitrogen	mg N/L	64	110	14.4	-	-78	-87	-	-	1.83	--	20
Dissolved Arsenic	mg/L	0.000063	0.052	0.0127	-	20 059	-76	-	-	0.005	0.5	0.1
Chloride	mg/L	0.0031	0.033	31	-	996 674	93 536	-	-	120	--	500
Dissolved Copper	mg/L	0.0000063	0.00075	0.0116	-	184 027	1 447	-	-	0.002	0.3	0.1
Fluoride	mg/L	0.0000063	0.013	0.26	-	4 126 884	1 900	-	-	0.12	--	--
Hardness	mg CaCO3/L	0.11	19	378	-	343 536	1 889	-	-	--	--	--
Dissolved Lead	mg/L	0.00000081	0.000011	0.0002	-	18 419	1 264	-	-	0.001	0.2	0.1
Dissolved Nickel	mg/L	0.000012	0.00011	0.0254	-	211 567	22 991	-	-	0.025	0.5	0.2
Dissolved Barium	mg/L	0.000210	0.012	0.0588	-	27 900	390	-	-	--	--	--
Dissolved Cadmium	mg/L	0.00000081	0.000011	0.0003	-	370 270	2 627	-	-	0.00004	--	0.002
Dissolved Iron	mg/L	0.000063	0.002	0.2200	-	349 106	10 900	-	-	0.3	--	--
Dissolved Mercury	mg/L	0.00000081	0.000011	0.00010	-	123 357	809	-	-	0.000026	--	0.0004
Dissolved Manganese	mg/L	0.000018	0.00230	0.1328	-	737 678	5 674	-	-	0.23	--	--
Dissolved Molybdenum	mg/L	0.000160	0.03100	0.1088	-	67 963	251	-	-	0.073	--	--
Dissolved Selenium	mg/L	0.0000041	0.00055	0.0070	-	170 632	1 173	-	-	0.001	--	--
Dissolved Thallium	mg/L	0.0000021	0.000023	0.0025	-	118 948	10 770	-	-	0.0008	--	--
Nitrate	mgN/L	71	120	46.40	-	-35	-61	-	-	2.94	--	50
Sulphate	mg/L	0.01	10	148	-	1 479 900	1 380	-	-	128	--	--
Total dissolved solids	mg/L	150	300	456	-	204	52	-	-	--	--	--
Dissolved Zinc	mg/L	0.000041	0.00052	0.0020	-	4 778	285	-	-	0.013	0.5	0.2

Goose Island Pit Sumps Water Quality Year 5

Parameters	Units	Probable Scenario Year 3 ^a	Possible Poor end Scenario Year 3 ^a	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile *		CCME Guidelines**	MMER Schedule 4**	Water License Discharge to 3PL**
				Mean	Lower 25th centile*	Probable	Possible Poor	Probable	Possible Poor			
pH		6.10	6.10	7.97	7.52	31	31	23	23	6.5 to 9.0	6.0 to 9.5	6.0 to 9.0
Alkalinity	mg CaCO3/L	27	27	90	86	233	233	217	217	--	--	--
Ammonia (unionized)	mg N/L	0.00056	0.00056	0.0600	0.0100	10 614	10 614	1 686	1 686	0.016	--	--
Ammonia nitrogen	mg N/L	5.4	5	1.8	0.2	-66	-66	-96	-96	1.83	--	16
Dissolved Arsenic	mg/L	0.0016	0.0016	0.0040	-	150	150	-	-	0.005	0.5	0.3
Chloride	mg/L	440	440	53	-	-88	-88	-	-	120	--	1000
Dissolved Copper	mg/L	0.001	0.001	0.0010	-	5	5	-	-	0.002	0.3	0.1
Fluoride	mg/L	0.13	0.13	0.94	-	623	623	-	-	0.12	--	--
Hardness	mg CaCO3/L	210	210	131	-	-38	-38	-	-	--	--	--
Dissolved Lead	mg/L	0.0011	0.0011	0.0002	-	-82	-82	-	-	0.001	0.2	0.1
Dissolved Nickel	mg/L	0.002	0.002	0.0150	-	650	650	-	-	0.025	0.5	0.2
Dissolved Barium	mg/L	0.027	0.0270	0.0280	-	4	4	-	-	--	--	--
Dissolved Cadmium	mg/L	0.000051	0.000051	0.0000	-	-80	-80	-	-	0.00004	--	0.002
Dissolved Iron	mg/L	0.25	0.25	0.0050	-	-98	-98	-	-	0.3	--	--
Dissolved Mercury	mg/L	0.0000039	0.0000039	0.00010	-	2 464	2 464	-	-	0.000026	--	0.0004
Dissolved Manganese	mg/L	0.13	0.13	0.0590	-	-55	-55	-	-	0.23	--	--
Dissolved Molybdenum	mg/L	0.0086	0.0086	0.0180	-	109	109	-	-	0.073	--	--
Dissolved Selenium	mg/L	0.0002	0.0002	0.0010	-	400	400	-	-	0.001	--	--
Dissolved Thallium	mg/L	0.00002	0.00002	0.0030	-	14 900	14 900	-	-	0.0008	--	--
Nitrate	mgN/L	4.00	4.00	10.90	-	173	173	-	-	2.94	--	20
Sulphate	mg/L	21	21	61	-	190	190	-	-	128	--	--
Total dissolved solids	mg/L	670	670	530	232	-21	-21	-65	-65	--	--	--
Dissolved Zinc	mg/L	0.0051	0.0051	0.0010	-	-80	-80	-	-	0.013	0.5	0.4

Footnotes:

Highlighted values represent exceedences of greater than 20% relative percent difference between predicted vs measured values.

* Used year 5 predictions for Vault and year 3 for Goose presented in Golder, 2007 - Water Quality Predictions Meadowbank Gold Project Doc No 516. Ver 0

+ Some have no lower 25th percentile data as only 2 or 1 samples were monitored in 2014

** Discharge criteria and guidelines based on total metal concentrations. Sulphate guideline based on threshold value from BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

Highlighted values in yellow indicate a mean measured value greater than the discharge criteria or guidelines.

North Portage Pit Sumps Water Quality Year 6

Parameters	Units	Probable Scenario Year 4*	Possible Poor end Scenario Year 4*	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile *		CCME Guidelines**	MMER Schedule 4**	Water License Discharge to 3PL**
				Mean	Lower 25th centile	Probable	Possible Poor	Probable	Possible Poor			
				Long Term, Based on 3PL quality								
pH		6.30	6.10	7.87	7.45	25	29	18	22	6.5 to 9.0	6.0 to 9.5	6.0 to 9.0
Alkalinity	mg CaCO3/L	0.05	2.4	77	69	153 614	3 102	134 800	2 713	--	--	--
Ammonia (unionized)	mg N/L	0.003	0.0014	0.0557	0.0350	1 757	3 880	1 067	2 400	0.016	--	--
Ammonia nitrogen	mg N/L	12	8.9	2.9	1.8	-76	-67	-85	-80	1.83	--	16
Dissolved Arsenic	mg/L	0.00005	0.056	0.0205	-	45 344	-63	-	-	0.005	0.5	0.3
Chloride	mg/L	0.0010	0.25	17	12	1 757 553	6 790	1 247 349	4 790	120	--	1000
Dissolved Copper	mg/L	0.00001	0.007	0.0007	-	6 036	-90	-	-	0.002	0.3	0.1
Fluoride	mg/L	0.000008	0.031	0.31	0.29	3 812 400	884	3 656 150	844	0.12	--	--
Hardness	mg CaCO3/L	0.05	8	239	191	530 456	2 864	423 789	2 284	--	--	--
Dissolved Lead	mg/L	0.000002	0.0029	0.0002	-	10 127	-92	-	-	0.001	0.2	0.1
Dissolved Nickel	mg/L	0.00003	0.043	0.0071	-	20 782	-83	-	-	0.025	0.5	0.2
Dissolved Barium	mg/L	0.00002	0.013	0.0092	-	48 058	-30	-	-	--	--	--
Dissolved Cadmium	mg/L	0.0000006	0.000099	0.0000	-	1 567	-90	-	-	0.00004	--	0.002
Dissolved Iron	mg/L	0.000097	2.1	0.0075	-	7 632	-100	-	-	0.3	--	--
Dissolved Mercury	mg/L	0.000000056	0.000029	0.00001	-	8 829	-83	-	-	0.000026	--	0.0004
Dissolved Manganese	mg/L	0.0002	0.22	0.0706	-	46 967	-68	-	-	0.23	--	--
Dissolved Molybdenum	mg/L	0.000004	0.00081	0.0182	-	454 900	2 147	-	-	0.073	--	--
Dissolved Selenium	mg/L	0.000003	0.00058	0.0010	-	33 233	72	-	-	0.001	--	--
Dissolved Thallium	mg/L	0.0000014	0.000057	0.0038	-	267 757	6 479	-	-	0.0008	--	--
Nitrate	mg/L	13	10.00	11.90	9.72	-8	19	-25	-3	2.94	--	20
Sulphate	mg/L	0.011	8.8	179	135	1 630 809	1 939	1 226 264	1 433	128	--	--
Total dissolved solids	mg/L	28	41	399	309	1 326	874	1 004	654	--	--	--
Dissolved Zinc	mg/L	0.000032	0.037	0.0008	-	2 244	-98	-	-	0.013	0.5	0.4

Footnotes:

Highlighted values represent exceedences of greater than 20% relative percent difference between predicted vs measured values.

* Used year 6 predictions for Vault, year 3 for Goose and year 4 for Portage as presented in Golder, 2007 - Water Quality Predictions Meadowbank Gold Project Doc No 516, Ver 0

+ Some have no lower 25th percentile data as only 1 or 2 samples were taken in 2015.

** Discharge criteria and guidelines based on total metal concentrations. Sulphate guideline based on threshold value from BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

Highlighted values in yellow indicate a mean measured value greater than the discharge criteria or guidelines.

North Portage Pit Sumps Water Quality Year 7

Parameters	Units	Probable Scenario Year 4*	Possible Poor end Scenario Year 4*	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile*		CCME Guidelines**	MMER Schedule 4**	Water License Discharge to 3PL**
				Mean	Lower 25th centile	Probable	Possible Poor	Probable	Possible Poor			
				Long Term, Based on 3PL quality								
pH		6.30	6.10	7.91	7.92	26	30	26	30	6.5 to 9.0	6.0 to 9.5	6.0 to 9.0
Alkalinity	mg CaCO3/L	0.05	2.4	97	79	194 186	3 948	157 800	3 192	--	--	--
Ammonia (unionized)	mg N/L	0.003	0.0014	0.0914	0.0600	2 948	6 431	1 900	4 186	0.016	--	--
Ammonia nitrogen	mg N/L	12	8.9	3.7	2.8	-69	-58	-77	-69	1.83	--	16
Dissolved Arsenic	mg/L	0.00005	0.056	0.0140	0.0061	30 928	-75	13 372	-89	0.005	0.5	0.3
Chloride	mg/L	0.0010	0.25	24	19	2 415 352	9 369	1 918 267	7 420	120	--	1000
Dissolved Copper	mg/L	0.00001	0.007	0.0013	0.0007	11 264	-82	6 036	-90	0.002	0.3	0.1
Fluoride	mg/L	0.000008	0.031	0.43	0.35	5 357 043	1 282	4 312 400	1 013	0.12	--	--
Hardness	mg CaCO3/L	0.05	8	306	238	679 583	3 723	524 344	2 850	--	--	--
Dissolved Lead	mg/L	0.000002	0.0029	0.0002	0.0002	6 718	-95	6 718	-95	0.001	0.2	0.1
Dissolved Nickel	mg/L	0.00003	0.043	0.0325	0.0253	95 488	-24	74 165	-41	0.025	0.5	0.2
Dissolved Barium	mg/L	0.00002	0.013	0.0207	0.0150	108 979	59	78 847	15	--	--	--
Dissolved Cadmium	mg/L	0.0000006	0.000099	0.0004	0.0002	61 150	271	32 400	97	0.00004	--	0.002
Dissolved Iron	mg/L	0.000097	2.1	0.0063	0.0050	6 343	-100	5 055	-100	0.3	--	--
Dissolved Mercury	mg/L	0.000000056	0.000029	0.00002	0.00001	33 382	-35	8 829	-83	0.000026	--	0.0004
Dissolved Manganese	mg/L	0.0002	0.22	0.1373	0.1225	91 433	-38	81 533	-44	0.23	--	--
Dissolved Molybdenum	mg/L	0.000004	0.00081	0.1319	0.1192	3 296 775	16 181	2 979 275	14 613	0.073	--	--
Dissolved Selenium	mg/L	0.000003	0.00058	0.0020	0.0010	68 567	245	33 233	72	0.001	--	--
Dissolved Thallium	mg/L	0.0000014	0.000057	0.0004	0.0004	28 471	602	28 471	602	0.0008	--	--
Nitrate	mg/L	13	10.00	12.68	12.60	-2	27	-3	26	2.94	--	20
Sulphate	mg/L	0.011	8.8	232	195	2 107 692	2 535	1 772 627	2 116	128	--	--
Total dissolved solids	mg/L	28	41	518	455	1 752	1 164	1 523	1 009	--	--	--
Dissolved Zinc	mg/L	0.000032	0.037	0.0021	0.0009	6 541	-94	2 634	-98	0.013	0.5	0.4

Footnotes:

Highlighted values represent exceedences of greater than 20% relative percent difference between predicted vs measured values.

* Used year 7 predictions for Vault, year 3 for Goose and year 4 for Portage as presented in Golder, 2007 - Water Quality Predictions Meadowbank Gold Project Doc No 516, Ver 0

+ Some have no lower 25th percentile data as only 1 or 2 samples were taken in 2016.

** Discharge criteria and guidelines based on total metal concentrations. Sulphate guideline based on threshold value from BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

Highlighted values in yellow indicate a mean measured value greater than the discharge criteria or guidelines.

North Portage Pit Sumps Water Quality Year 8

Parameters	Units	Probable Scenario Year 4*	Possible Poor end Scenario Year 4*	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile*		CCME Guidelines**	MMER Schedule 4**	Water License Discharge to 3PL**
				Mean	Lower 25th centile	Probable	Possible Poor	Probable	Possible Poor			
				Long Term, Based on 3PL quality								
pH		6.30	6.10	7.85	7.61	25	29	21	25	6.5 to 9.0	6.0 to 9.5	6.0 to 9.0
Alkalinity	mg CaCO3/L	0.05	2.4	98	81	196 700	-4 000	161 900	3 275	--	--	--
Ammonia (unionized)	mg N/L	0.003	0.0014	0.0717	0.0100	2 289	5 019	233	614	0.016	--	--
Ammonia nitrogen	mg N/L	12	8.9	2.6	0.7	-78	-71	-94	-92	1.83	--	16
Dissolved Arsenic	mg/L	0.00005	0.056	0.0203	0.0118	44 937	-64	26 011	-79	0.005	0.5	0.3
Chloride	mg/L	0.0010	0.25	25	16	2 553 641	9 911	1 601 941	6 180	120	--	1000
Dissolved Copper	mg/L	0.00001	0.007	0.0016	0.0003	14 021	-78	2 173	-96	0.002	0.3	0.1
Fluoride	mg/L	0.000008	0.031	0.42	0.38	5 250 733	1 255	4 749 900	1 126	0.12	--	--
Hardness	mg CaCO3/L	0.05	8	214	201	476 048	2 578	446 567	2 413	--	--	--
Dissolved Lead	mg/L	0.000002	0.0029	0.0009	0.0002	40 506	-69	6 718	-95	0.001	0.2	0.1
Dissolved Nickel	mg/L	0.00003	0.043	0.0290	0.0251	85 214	-33	73 724	-42	0.025	0.5	0.2
Dissolved Barium	mg/L	0.00002	0.013	0.0159	0.0130	83 689	22	68 058	0	--	--	--
Dissolved Cadmium	mg/L	0.000006	0.000099	0.0001	0.0000	13 178	-20	1 567	-90	0.00004	--	0.002
Dissolved Iron	mg/L	0.000097	2.1	0.0200	0.0050	20 519	-99	5 055	-100	0.3	--	--
Dissolved Mercury	mg/L	0.00000056	0.000029	0.00002	0.00001	37 995	-26	8 829	-83	0.000026	--	0.0004
Dissolved Manganese	mg/L	0.0002	0.22	0.1255	0.1112	83 589	-43	74 000	-49	0.23	--	--
Dissolved Molybdenum	mg/L	0.000004	0.00081	0.0592	0.0405	1 479 567	7 207	1 011 150	4 894	0.073	--	--
Dissolved Selenium	mg/L	0.000003	0.00058	0.0009	0.0005	30 567	59	16 567	-14	0.001	--	--
Dissolved Thallium	mg/L	0.0000014	0.000057	0.0004	0.0004	28 471	602	28 471	602	0.0008	--	--
Nitrate	mgN/L	13	10.00	8.81	6.19	-32	-12	-52	-38	2.94	--	20
Sulphate	mg/L	0.011	8.8	186	159	1 690 809	2 014	1 445 355	1 707	128	--	--
Total dissolved solids	mg/L	28	41	463	396	1 555	1 030	1 314	866	--	--	--
Dissolved Zinc	mg/L	0.000032	0.037	0.0006	0.0005	1 619	-99	1 463	-99	0.013	0.5	0.4

Footnotes:

Highlighted values represent exceedences of greater than 20% relative percent difference between predicted vs measured values.

* Used year 7 predictions for Vault, year 3 for Goose and year 4 for Portage as presented in Golder, 2007 - Water Quality Predictions Meadowbank Gold Project Doc No 516, Ver 0

+ Some have no lower 25th percentile data as only 1 or 2 samples were taken in 2016.

** Discharge criteria and guidelines based on total metal concentrations. Sulphate guideline based on threshold value from BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

Highlighted values in yellow indicate a mean measured value greater than the discharge criteria or guidelines.

Third Portage Pit Sumps Water Quality Year 9

Parameters	Units	Probable Scenario Year 4*	Possible Poor end Scenario Year 4*	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile +		CCME Guidelines**	MMER Schedule 4**	Water License Discharge to 3PL**
				Mean	Lower 25th centile	Probable	Possible Poor	Probable	Possible Poor			
pH		6.30	6.10	7.67	-	22	26	-	-	6.5 to 9.0	6.0 to 9.5	6.0 to 9.0
Alkalinity	mg CaCO3/L	40	43	55	-	38	28	-	-	--	--	--
Ammonia (unionized)	mg N/L	0.00052	0.00055	0.0400	-	7 592	7 173	-	-	0.016	--	--
Ammonia nitrogen	mg N/L	2.1	4	2.1	-	-1	-41	-	-	1.83	--	16
Dissolved Arsenic	mg/L	0.0024	0.0080	0.0015	-	-38	-98	-	-	0.005	0.5	0.3
Chloride	mg/L	620	630	17	-	-97	-97	-	-	120	--	1000
Dissolved Copper	mg/L	0.0014	0.016	0.0007	-	-50	-96	-	-	0.002	0.3	0.1
Fluoride	mg/L	0.19	0.24	0.29	-	53	21	-	-	0.12	--	--
Hardness	mg CaCO3/L	300	310	193	-	-36	-38	-	-	--	--	--
Dissolved Lead	mg/L	0.0016	0.0076	0.0002	-	-91	-98	-	-	0.001	0.2	0.1
Dissolved Nickel	mg/L	0.003	0.093	0.0187	-	545	-80	-	-	0.025	0.5	0.2
Dissolved Barium	mg/L	0.041	0.0630	0.0107	-	-74	-83	-	-	--	--	--
Dissolved Cadmium	mg/L	0.000076	0.00027	0.0001	-	-21	-78	-	-	0.00004	--	0.002
Dissolved Iron	mg/L	0.37	4.60	0.0050	-	-99	-100	-	-	0.3	--	--
Dissolved Mercury	mg/L	0.0000059	0.0000540	0.00001	-	-15	-91	-	-	0.000026	--	0.0004
Dissolved Manganese	mg/L	0.19	0.66	0.1187	-	-38	-82	-	-	0.23	--	--
Dissolved Molybdenum	mg/L	0.013	0.013	0.0202	-	55	55	-	-	0.073	--	--
Dissolved Selenium	mg/L	0.0003	0.0012	0.0010	-	245	-17	-	-	0.001	--	--
Dissolved Thallium	mg/L	0.00003	0.00012	0.0004	-	1 190	233	-	-	0.0008	--	--
Nitrate	mg/L	2.30	4.00	6.88	-	199	72	-	-	2.94	--	20
Sulphate	mg/L	31	46	133	-	329	189	-	-	128	--	--
Total dissolved solids	mg/L	960	990	318	-	-67	-68	-	-	--	--	--
Dissolved Zinc	mg/L	0.0076	0.0850	0.0005	-	-93	-99	-	-	0.013	0.5	0.4

North Portage Pit Sumps Water Quality Year 9

Parameters	Units	Probable Scenario Year 4*	Possible Poor end Scenario Year 4*	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile +		CCME Guidelines**	MMER Schedule 4**	Water License Discharge to 3PL**
				Mean	Lower 25th centile	Probable	Possible Poor	Probable	Possible Poor			
pH		6.30	6.10	-	-	-	-	-	-	6.5 to 9.0	6.0 to 9.5	6.0 to 9.0
Alkalinity	mg CaCO3/L	0.05	2.4	61	-	121 900	2 442	-	-	--	--	--
Ammonia (unionized)	mg N/L	0.003	0.0014	0.0300	-	900	2 043	-	-	0.016	--	--
Ammonia nitrogen	mg N/L	12	8.9	1.8	-	-85	-80	-	-	1.83	--	16
Dissolved Arsenic	mg/L	0.00005	0.056	0.0003	-	456	-100	-	-	0.005	0.5	0.3
Chloride	mg/L	0.0010	0.25	17	-	1 683 573	6 500	-	-	120	--	1000
Dissolved Copper	mg/L	0.00001	0.007	0.0014	-	12 627	-80	-	-	0.002	0.3	0.1
Fluoride	mg/L	0.000008	0.031	0.25	-	3 124 900	706	-	-	0.12	--	--
Hardness	mg CaCO3/L	0.05	8	166	-	368 789	1 975	-	-	--	--	--
Dissolved Lead	mg/L	0.000002	0.0029	0.0002	-	6 718	-95	-	-	0.001	0.2	0.1
Dissolved Nickel	mg/L	0.00003	0.043	0.0222	-	65 194	-48	-	-	0.025	0.5	0.2
Dissolved Barium	mg/L	0.00002	0.013	0.0093	-	48 847	-28	-	-	--	--	--
Dissolved Cadmium	mg/L	0.0000006	0.000099	0.0001	-	8 233	-49	-	-	0.00004	--	0.002
Dissolved Iron	mg/L	0.000097	2.1	0.0100	-	10 209	-100	-	-	0.3	--	--
Dissolved Mercury	mg/L	0.000000056	0.000029	0.00001	-	8 829	-83	-	-	0.000026	--	0.0004
Dissolved Manganese	mg/L	0.0002	0.22	0.1250	-	83 233	-43	-	-	0.23	--	--
Dissolved Molybdenum	mg/L	0.000004	0.00081	0.0230	-	574 900	2 740	-	-	0.073	--	--
Dissolved Selenium	mg/L	0.000003	0.00058	0.0010	-	33 233	72	-	-	0.001	--	--
Dissolved Thallium	mg/L	0.0000014	0.000057	0.0008	-	57 043	1 304	-	-	0.0008	--	--
Nitrate	mg/L	13	10.00	6.03	-	-54	-40	-	-	2.94	--	20
Sulphate	mg/L	0.011	8.8	130	-	1 181 718	1 377	-	-	128	--	--
Total dissolved solids	mg/L	28	41	303	-	982	639	-	-	--	--	--
Dissolved Zinc	mg/L	0.000032	0.037	0.0010	-	3 025	-97	-	-	0.013	0.5	0.4

Footnotes:

Highlighted values represent exceedences of greater than 20% relative percent difference between predicted vs measured values.

* Used year 7 predictions for Vault, year 3 for Goose and year 4 for Portage which represent pits in operation as presented in Golder, 2007 - Water Quality Predictions Meadowbank Gold Project Doc No 516, Ver 0

+ Some have no lower 25th percentile data as only 1 or 2 samples were taken in 2018.

** Discharge criteria and guidelines based on total metal concentrations. Sulphate guideline based on threshold value from BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

Highlighted values in yellow indicate a mean measured value greater than the discharge criteria or guidelines.

North Portage Pit Sumps Water Quality Year 10 (Pit A)

Parameters	Units	Probable Scenario Year 4*	Possible Poor end Scenario Year 4*	Annual Average Water Quality Forecast Value***	Lower 25% Centile Water Quality Forecasted Value***	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile *		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower		CCME Guideline s**	MMER Schedule 4**	Water License Discharge
						Mean	Lower 25th centile	Probable	Possible Poor	Probable	Possible Poor	Annual Average	Lower 25th centile	Annual Average	Lower 25th centile			
pH		6.3	6.1			7.84	-	24	28	-	-	-	-	-	-	6.5 to 9.0	8.0 to 9.8	6.0 to 9.0
Alkalinity	mg CaCO3/L	0	2	49	41	70	-	139 900	2 817	-	-	44	73	-	-	-	-	-
Ammonia (unionized)	mg N/L	0.0	0.0			0.1050	-	3 400	7 400	-	-	-	-	-	-	0.016	-	-
Ammonia Nitrogen	mg N/L	12	9	19	17	6.7	-	-44	-24	-	-	-65	-60	-	-	1.83	-	16
Dissolved Arsenic	mg/L	0.000	0.056	0.008	0.007	0.2721	-	604 567	385	-	-	3 318	3 731	-	-	0.005	0.5	0.3
Chloride	mg/L	0	0	106	96	162	-	16 479 492	64 500	-	-	53	68	-	-	120	-	1000
Dissolved Copper	mg/L	0.000	0.007	0.530	0.434	0.0249	-	225 809	255	-	-	-95	-94	-	-	0.002	0.3	0.1
Fluoride	mg/L	0.000	0.031	0.404	0.326	0.38	-	4 687 400	1 110	-	-	-7	15	-	-	0.16	-	-
Hardness	mg CaCO3/L	0	8	351	285	531	-	1 601 911	7 781	-	-	80	121	-	-	-	-	-
Dissolved Lead	mg/L	0.0000	0.0029	0.0002	0.0002	0.0002	-	6 718	-95	-	-	-37	-28	-	-	0.001	0.2	0.1
Dissolved Nickel	mg/L	0.000	0.043	0.010	0.009	0.0640	-	188 135	49	-	-	513	627	-	-	0.025	0.5	0.2
Dissolved Barium	mg/L	0.000	0.013	0.032	0.026	0.0273	-	143 584	110	-	-	-14	4	-	-	-	-	-
Dissolved Cadmium	mg/L	0.000	0.000	0.000	0.000	0.0001	-	18 233	11	-	-	4	41	-	-	0.00004	-	0.002
Dissolved Iron	mg/L	0.000	2 100	0.245	0.199	0.0625	-	64 333	-97	-	-	-74	-69	-	-	0.3	-	-
Dissolved Mercury	mg/L	0.0000	0.0000	0.0000	0.0000	0.0001	-	8 829	-63	-	-	-71	-68	-	-	0.000026	-	0.0004
Dissolved Manganese	mg/L	0.0002	0.2200	0.0627	0.0450	0.8817	-	567 667	301	-	-	1 306	1 961	-	-	0.23	-	-
Dissolved Molybdenum	mg/L	0.0000	0.0008	0.1792	0.1464	0.1533	-	3 831 150	18 820	-	-	-14	5	-	-	0.073	-	-
Dissolved Selenium	mg/L	0.0000	0.0006	0.0325	0.0264	0.0075	-	249 900	1 193	-	-	-77	-72	-	-	0.001	-	-
Dissolved Sulfur	mg/L	0.0000	0.0001	0.0007	0.0004	0.0001	-	7 043	75	-	-	-65	-75	-	-	0.0008	-	-
Nitrate	mg/L	13.0	10.0	3.5	3.2	4.59	-	-65	-54	-	-	31	43	-	-	2.94	-	20
Sulphate	mg/L	0	9	1342	1199	916	-	8 322 627	10 303	-	-	-32	-24	-	-	128	-	-
Total dissolved solids	mg/L	29	41	1374	1240	1391	-	4 866	3 291	-	-	1	12	-	-	-	-	-
Dissolved Zinc	mg/L	0.0000	0.0370	0.0035	0.0033	0.0005	-	4 463	-98	-	-	-86	-85	-	-	0.013	0.5	0.4

Footnotes:

- Highlighted values represent exceedences of greater than 20% relative percent difference between predicted vs measured values.
- * Used year 8 predictions for Vault for 1st year of pit flooding, year 3 for Goose and year 4 for Portage which represent pits in operation as presented in Golder, 2007 - Water Quality Predictions Meadowbank Gold Project Doc No 516, Ver 0
- ** Discharge criteria and guidelines based on total metal concentrations. Sulphate guideline based on BC Environment guideline for the protection of aquatic life for very soft water (0.30 mg/L) (April 2013).
- *** Annual average water quality and 25% centile values shown in this table are based on the water quality forecast considered in the Meadowbank Interim Closure and Reclamation Plan - Update 2019, Doc. No. 662987-5000-4EER-0001, rev. 00.
- † Some have no lower 25th percentile data as only 1 or 2 samples were taken in 2019.
- Highlighted values in yellow indicate a mean measured value greater than the discharge criteria or guidelines.

North Portage Pit Sumps Water Quality Year 11 (Pit A)

Parameters	Units	Probable Scenario Year 4*	Possible Floor end Scenario Year 4*	Annual Average Water Quality Forecast Value***	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile +		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile -		CCME Guidelines**	MILCR Schedule 4**	Water License Discharge to ABU	
					Mean	Lower 25th centile	Probable	Possible Floor	Probable	Possible Floor	Annual Average	Lower 25th centile	Annual Average	Lower 25th centile				
																		#DIV/0!
pH		6.3	6.1		8.29	7.90	32	36	25	30								
Alkalinity	mg CaCO ₃ /L	0.05	2.40	67	58	61	63	162,233	3,699	126,900	2,525	36	58	-6	9	--	--	--
Ammonia (un-ionized)	mg N/L	0.003	0.001		0.3085	0.2625	10,193	21,936	8,850	18,660					0.018	--	--	
Ammonia nitrogen	mg N/L	12	9	20	18	13.1	12.9	9	47	8	45	-34	-27		1.83	--	16	
Dissolved Arsenic	mg/L	0.000	0.056	0.180	0.009	0.3454	0.3348	767,419	517	743,956	498	92	3,739	86	3,622	0.005	0.5	0.3
Chloride	mg/L	0	0	198	96	124	131	12,688,890	49,890	13,400,410	52,430	15	29	21	37	1.01	--	1000
Dissolved Copper	mg/L	0.000	0.007	0.657	0.629	0.3274	0.1324	2,976,112	4,577	1,203,309	1,791	-50	-48	-80	-79	0.002	0.3	0.1
Fluoride	mg/L	0.000	0.031	0.437	0.400	0.25	0.17	3,124,900	706	2,156,150	456	-43	-37	-61	-57	0.12	--	--
Hardness	mg CaCO ₃ /L	0	8	542	423	610	608	1,354,344	7,519	3,350,456	7,497	12	44	12	44	--	--	--
Dissolved Lead	mg/L	0.0000	0.0029	0.0005	0.0003	0.0004	0.0001	17,741	-86	3,764	-97	-25	43	-84	-69	0.001	0.2	0.1
Dissolved Nickel	mg/L	0.000	0.043	0.015	0.012	0.0919	0.0755	270,047	114	221,885	76	498	644	391	511	0.025	0.5	0.2
Dissolved Barium	mg/L	0.000	0.013	0.065	0.036	0.0483	0.0431	294,023	271	226,874	232	-26	27	-34	13	--	--	--
Dissolved Cadmium	mg/L	0.000	0.000	0.000	0.000	0.0000	0.0000	1,567	-90	1,567	-90	-91	-89	-91	-89	0.00004	--	0.002
Dissolved Iron	mg/L	0.000	2.100	0.571	0.294	0.0167	0.0050	17,082	-99	5,055	-100	-97	-94	-99	-98	0.3	--	--
Dissolved Mercury	mg/L	0.0000	0.0000	0.0000	0.0000	0.00001	0.00001	8,829	-83	8,829	-83	-74	-73	-74	-73	0.000026	--	0.0004
Dissolved Manganese	mg/L	0.0002	0.2200	0.0924	0.0627	0.2039	0.1035	138,811	-7	68,917	-53	121	147	12	25	0.23	--	--
Dissolved Molybdenum	mg/L	0.0000	0.0008	0.1863	0.1639	0.0898	0.0714	2,243,660	10,980	1,785,525	8,718	-52	-45	-62	-66	0.073	--	--
Dissolved Selenium	mg/L	0.0000	0.0006	0.0320	0.0248	0.0188	0.0140	626,289	3,140	466,567	2,314	-41	-24	-56	-44	0.001	--	--
Dissolved Thallium	mg/L	0.0000	0.0001	0.0009	0.0008	0.0003	0.0001	16,948	366	7,043	75	-69	-66	-85	-87	0.0008	--	--
Nitrate	mg/L	13.0	10.0	3.6	3.3	2.82	2.71	-78	-72	-79	-73	-21	-14	-24	-18	2.94	--	20
Sulphate	mg/L	0	9	1583	720	592	6,544,597	8,081	5,377,173	6,622	-55	-52	-63	-61	1.28	--	--	
Total dissolved solids	mg/L	28	41	1710	1542	1120	1093	3,898	2,630	3,802	2,565	-35	-27	-36	-29	--	--	--
Dissolved Zinc	mg/L	0.0000	0.0370	0.0039	0.0037	0.0005	0.0005	1,463	-99	1,463	-99	-97	-86		0.013	0.5	0.4	

Footnotes:
 Highlighted values represent exceedences of greater than 20% relative percent difference between predicted vs measured values.
 * Used year 9 predictions for Vault for 2nd year of pit flooding, year 3 for Goose and year 4 for Portage which represent pits in operation as presented in Golder, 2007 - Water Quality Predictions Meadowbank Gold Project Doc No 516, Ver 0
 ** Discharge criteria and guidelines based on total metal concentrations. Sulphate guideline based on threshold value from BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).
 *** Annual average water quality and 25th centile values shown in this table are based on the water quality forecast considered in the Meadowbank Interim Closure and Reclamation Plan - Update 2019, Doc. No. 662987-5000-4EER-0001, rev. 00.
 + Some have no lower 25th percentile data as only 1 or 2 samples were taken in 2019.
 Highlighted values in yellow indicate a mean measured value greater than the discharge criteria or guidelines.

North Portage Pit Sumps Water Quality Year 12 (Pit A)

Parameters	Units	Probable Scenario Year 4*	Possible Poor end Scenario Year 4*	Annual Average Water Quality Forecast Value**	Lower 25% Centile Water Quality Forecasted Value***	Measured		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile *		% Difference between predicted vs measured- mean		% Difference between predicted vs measured- Lower 25th percentile *		CCME Guidelines**	MOMER Schedule 4, Table 2**	Water License Discharge to SPL**	
						Mean	Lower 25th centile	Probable	Possible Poor	Probable	Possible Poor	Annual Average	Lower 25th centile	Annual Average	Lower 25th centile				
pH		6.3	6.1			7.52	7.33	19	23	16	20								
Alkalinity	mg CaCO3/L	0.05	2.40	108	99	67	55	134 493	2 704	109 335	2 180	-37	-32	-49	-45				
Ammonia (unionized)	mg N/L	0.003	0.001			0.1913	0.1488	6 275	13 561	4 858	10 525					0.016	--	--	
Ammonia nitrogen	mg N/L	12	9	21	18	18.9	13.4	41	90	12	51	-18	-8			1.33	--	18	
Dissolved Arsenic	mg/L	0.000	0.056	0.711	0.657	0.0526	0.0359	116 790	-6	79 599	-36	-93	-92	-95	-95	0.005	0.3	0.3	
Chloride	mg/L	0	128	116	71	47	7 241 928	28 289	4 770 308	18 600	-45	-39	-63	-60	120	--	1000		
Dissolved Copper	mg/L	0.000	0.007	0.895	0.810	0.4860	0.1881	4 418 247	6 843	1 710 070	2 587	-46	-40	-79	-77	0.002	0.3	0.1	
Fluoride	mg/L	0.000	0.031	0.387	0.353	0.23	0.19	2 851 463	536	2 374 900	513	-41	-35	-51	-46	0.12	--	--	
Hardness	mg CaCO3/L	0	8			393	303	872 497	4 808	873 233	3 688								
Dissolved Lead	mg/L	0.0000	0.0029	0.0013	0.0012	0.0001	0.0001	6 167	-95	2 263	-98	-80	-89	-96	-96	0.001	0.1	0.1	
Dissolved Nickel	mg/L	0.000	0.043	0.027	0.025	0.3208	0.1476	943 528	646	434 091	243	1 082	1 177	444	488	0.025	0.5	0.2	
Dissolved Barium	mg/L	0.000	0.013	0.157	0.144	0.0212	0.0169	111 540	63	88 589	30	-86	-85	-88	--	--	--	--	
Dissolved Cadmium	mg/L	0.000	0.000	0.000	0.000	0.0000	0.0000	2 948	-82	2 800	-82	-77	-74	-78	-75	0.00004	--	0.002	
Dissolved Iron	mg/L	0.000	2 100	1 494	1 378	0.0346	0.0259	35 552	-98	5 905	-100	-98	-97	-100	-100	0.3	--	--	
Dissolved Mercury	mg/L	0.0000	0.0000	0.0000	0.0000	0.00003	0.00001	48 338	-6	8 829	-83	34	40	-75	-74	0.000026	--	0.0004	
Dissolved Manganese	mg/L	0.0002	0.2200	0.1350	0.1261	0.3978	0.3023	265 068	81	201 403	37	195	215	124	140	0.23	--	--	
Dissolved Molybdenum	mg/L	0.0000	0.0008	0.1544	0.1368	0.0561	0.0425	1 401 181	6 820	1 062 150	5 146	-64	-58	-72	-69	0.073	--	--	
Dissolved Selenium	mg/L	0.0000	0.0006	0.0187	0.0161	0.0146	0.0116	489 929	2 419	394 317	1 940	-22	-10	-37	-27	0.001	--	--	
Dissolved Thallium	mg/L	0.0000	0.0001	0.0008	0.0007	0.0001	0.0000	4 251	7	952	-74	-92	-91	-98	-98	0.0008	--	--	
Nitrate	mgN/L	13.0	10.0	3.6	3.3	1.40	1.15	89	-89	91	-88	-61	-57	-68	-65	2.94	--	20	
Sulphate	mg/L	0	9	2197	1990	696	471	6 418 036	6 670	4 284 445	5 256	-73	-70	-79	-76	125	--	--	
Total dissolved solids	mg/L	28	41	2659	2422	1003	789	3 482	2 347	2 716	1 823	-62	-58	-70	-67	--	--	--	
Dissolved Zinc	mg/L	0.0000	0.0370	0.0045	0.0044	0.0042	0.0011	12 998	-89	3 345	-97	-7	-6	-75	-75	0.013	0.5	0.4	

Footnotes:

- Highlighted values represent exceedences of greater than 20% relative percent difference between predicted vs measured values.
- * Used year 10 predictions for Vault which represent 3rd year of pit flooding, year 3 for Goose and year 4 for Portage which represent active pit operations as presented in Golder, 2007 - Water Quality Predictions Meadowbank Gold Project Doc No 516, Ver 0
- ** Discharge criteria and guidelines based on total metal concentrations. Sulphate guideline based on threshold value from BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).
- *** Annual average water quality and 25% centile values shown in this table are based on the water quality forecast considered in the Meadowbank Interim Closure and Reclamation Plan - Update 2019, Doc. No. 662987-5000-4EER-0001, rev. 00.
- + Some have no lower 25th percentile data as only 1 or 2 samples were taken in 2019.
- Highlighted values in yellow indicate a mean measured value greater than the discharge criteria or guidelines.