Appendix C • Whale Tail Pit Tailings Deposition Plan

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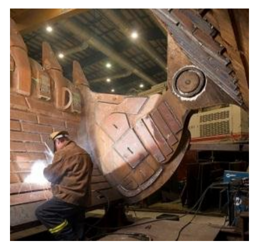


WHALE TALE PIT

TAILINGS DEPOSITION PLAN

Introduction

Following the revision of the Whale Tail Pit LOM, AEM reviewed the global tailings deposition plan required to store 8,279,144 tons of tailings in the Meadowbank TSF.

Parameters

The model inputs are to one measured with the North Cell bathymetry analysis presented during the MDRB meeting #17:

- Sub aerial tailings slope set at 0.45%;
- Sub aqueous tailings slope set at 2.36%;

Tailings dry density & ice entrapment are presented on next slide.

Assumptions

- Using *Water balance – Whale Tail Pit LOM*
- Starting surfaces:
  - North Cell: October 2015 from *"15 - October 2015 NC backward analysis"* *(actual deposition)*
  - South Cell: December 2017 from *"13 – Integrated deposition plan + August 2015"* *(actual budget)*
- NC suction location for NC to SC transfers is mobile in time to match the pond's dynamic geometry ;
- Maximum of 122days of deposition considered in the NC (summer period).

Model parameters

AEM observed an higher tailings dry density than expected in the South Cell during winter 2014-2015. Following the analysis of the parameter completed this fall, adjustment on the tailings dry density in time was done. This new model represents the evolution of this parameter in function of the tailings pond configuration.

Month	North Cell Parameters 2019-2021		
	Ice Thickness (m)	Tailings Dry Density (t/m³)	Ice entrapment (%)
January	1.1	1.08	90%
February	1.3	1.08	90%
March	1.5	1.08	90%
Q1	**1.5**	**1.08**	**90%**
April	1.7	1.08	90%
May	0	1.32	60%
June	0	1.56	30%
Q2	**0**	**1.32**	**60%**
July	0	1.56	30%
August	0	1.56	30%
September	0	1.56	30%
Q3	**0**	**1.56**	**30%**
October	0.2	1.32	75%
November	0.5	1.08	80%
December	0.8	1.08	90%
Q4	**0.8**	**1.16**	**82%**
Average	-	**1.28**	**65%**

Month	South Cell Parameters 2019-2020 & 2021		
	Ice Thickness (m)	Tailings Dry Density (t/m³)	Ice entrapment (%)
January	1.1	1.22 - 1.08	50% - 90%
February	1.3	1.22 - 1.08	50% - 90%
March	1.5	1.22 - 1.08	50% - 90%
Q1	**1.5**	**1.22 - 1.08**	**50% - 90%**
April	1.7	1.49 - 1.08	50% - 90%
May	0	1.49 - 1.32	40% - 60%
June	0	1.49 - 1.56	30%
Q2	**0**	**1.49 - 1.32**	**40% - 60%**
July	0	1.76 - 1.56	30%
August	0	1.76 - 1.56	30%
September	0	1.76 - 1.56	30%
Q3	**0**	**1.76 - 1.56**	**30%**
October	0.2	1.31 - 1.32	40% - 75%
November	0.5	1.31 - 1.08	50% - 80%
December	0.8	1.31 - 1.08	50% - 90%
Q4	**0.8**	**1.31 - 1.16**	**47% - 82%**
Average	-	**1.44 - 1.28**	**42% - 65%**

↗ 2019-2020 ↖ 2021

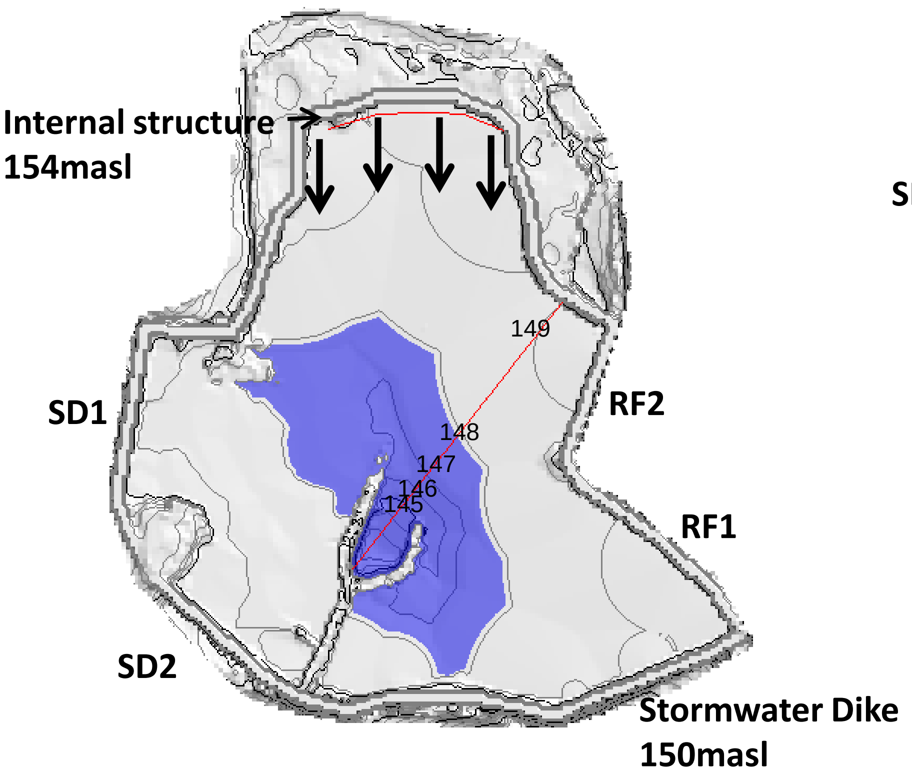
Deposition strategy

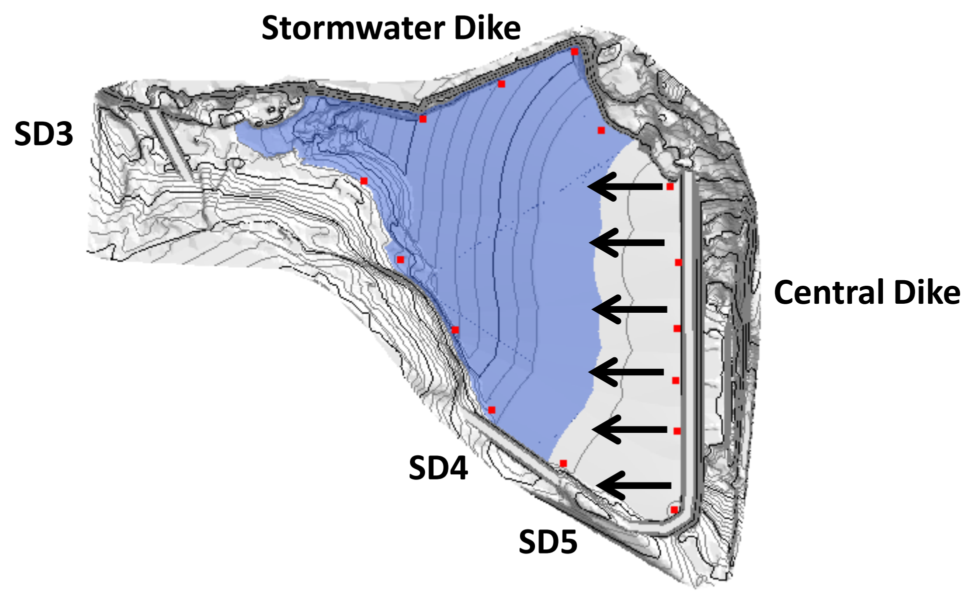
North Cell TSF

The figure below on the left depicts the geometry of the North Cell before resuming the deposition in June 2019 . An incline internal structure will surround the North Cell TSF starting at elevation 154m at the north end of the cell and will decrease in elevation until reaching the SWD at elevation 150m. Most of the deposition will occurred from the north end identified by a red line on the picture below.

South Cell TSF

The figure below on the right depicts the geometry of the North Cell before resuming the deposition in October 2019. All structure (Central Dike, SD3, 4 & 5 and Stormwater Dike) will be at elevation 150m. Most of the deposition will occurred from the Central Dike in order to reclaim water from the west end of the TSF.



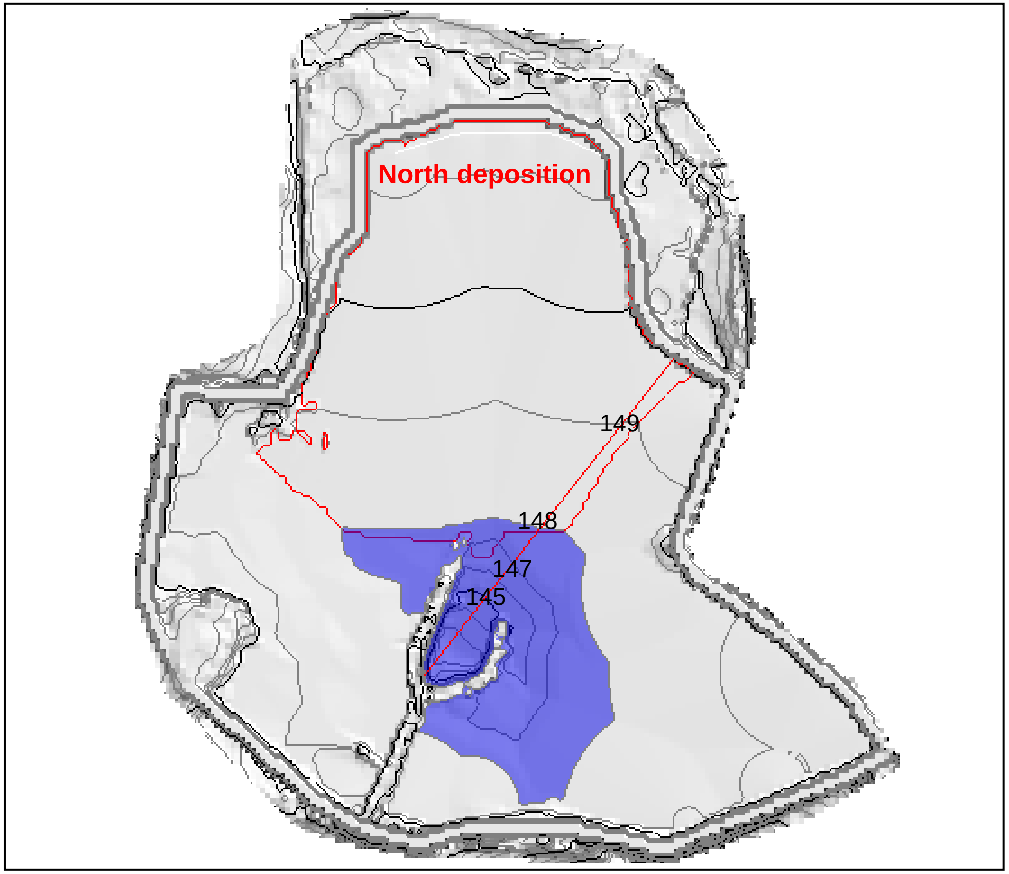


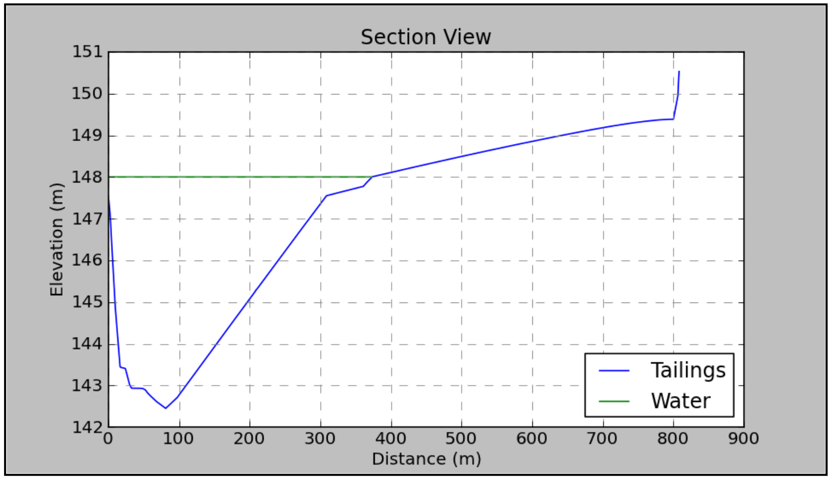
South Cell TSF deposition plan
2019 Q3

Duration	Deposition Point	Tonnes	Elevation (m)
92	North	822,454	151.4

MODEL INPUT	
Pond Volume (m)	713,948
Ice thickness (m)	0
Tonnes (t)	821,250

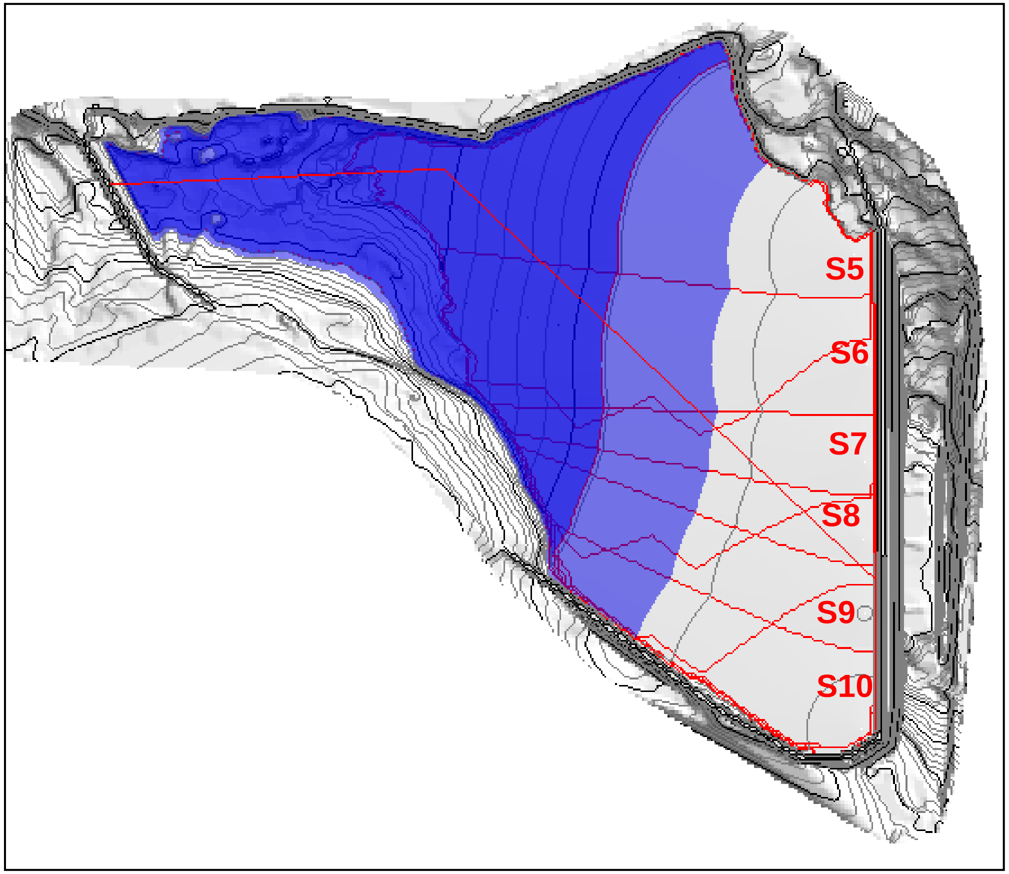
MODEL OUTPUT	
Total water volume (m³)	183,440
Free water volume (m³)	183,440
Ice volume (m³)	0
Pond elevation (m)	148.000
Free water elevation (m)	148.000
Pond bottom elevation (m)	146.422
Ice ratio (%)	0%
Ice entrampment (%)	30%
Transfer (m³)	530,508 (Monthly: 176,836)





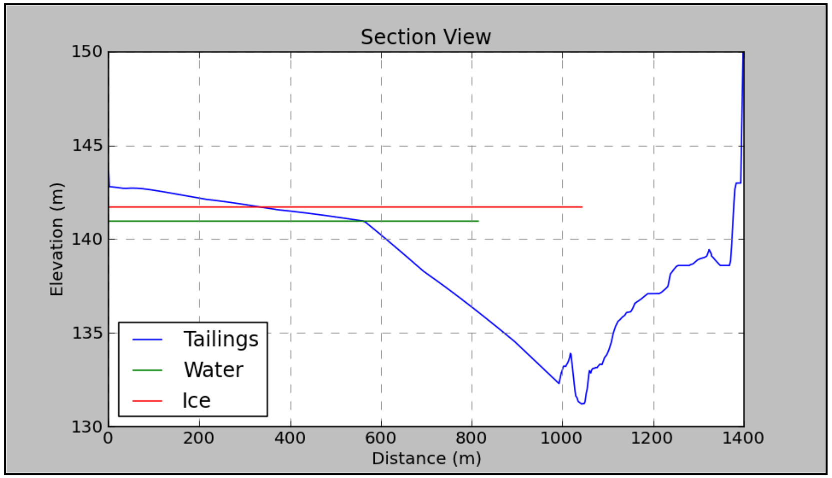
South Cell TSF deposition plan 2019 Q4

Duration	Deposition Point	Tonnes	Elevation (m)
46	S5	413,398	142.578
19	S6	170,751	142.772
10	S7	89,869	142.773
8	S8	71,895	142.866
6	S9	53,921	143.053
3	S10	26,961	143.367



MODEL INPUT	
Pond Volume (m3)	715,998
Ice thickness (m)	0.8
Tonnes (t)	821,250

MODEL OUTPUT	
Total water volume (m³)	955,072
Free water volume (m³)	715,717
Ice volume (m³)	239,355
Pond elevation (m)	141.722
Free water elevation (m)	140.964
Pond bottom elevation (m)	131.036
Ice ratio (%)	25%
Ice entrampment (%)	47%
Transfer (m³)	0



South Cell TSF deposition plan 2020 Q1

Duration	Deposition Point	Tonnes	Elevation (m)
50	S5	452,818	143.287
20	S6	181,127	143.568
10	S7	90,564	143.729
8	S8	72,451	143.945
3	S9	27,169	144.017

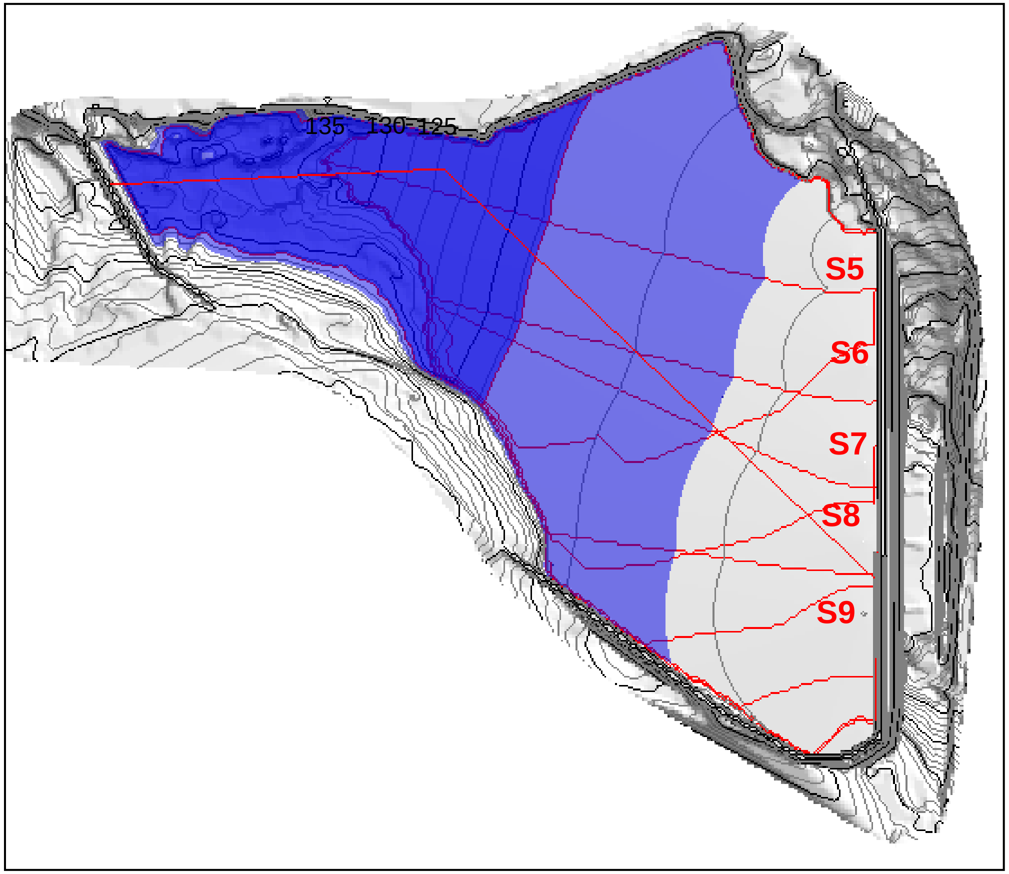
Operation risk – Effect of slurry channel

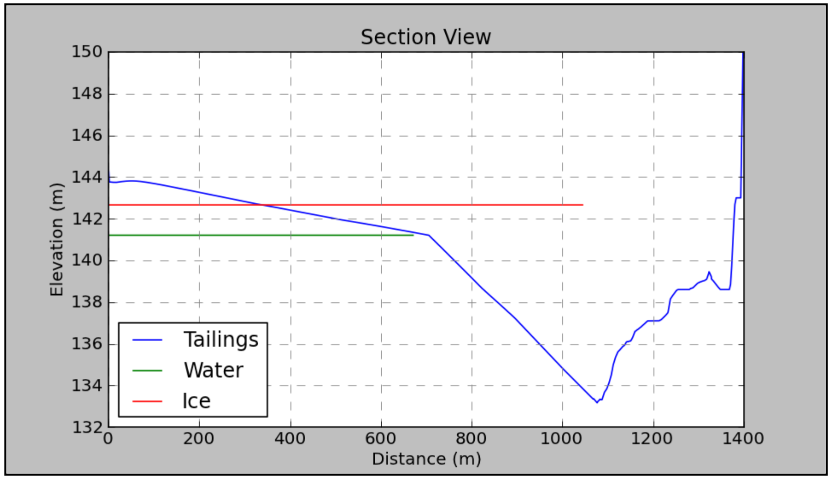
Beach length: 624m

Tailings volume above water: 315,002m³

MODEL INPUT	
Pond Volume (m3)	420,922
Ice thickness (m)	1.5
Tonnes (t)	821,250

MODEL OUTPUT	
Total water volume (m³)	829,879
Free water volume (m³)	420,672
Ice volume (m³)	409,207
Pond elevation (m)	142.672
Free water elevation (m)	141.205
Pond bottom elevation (m)	132.982
Ice ratio (%)	49%
Ice entrampment (%)	50%
Transfer (m³)	0



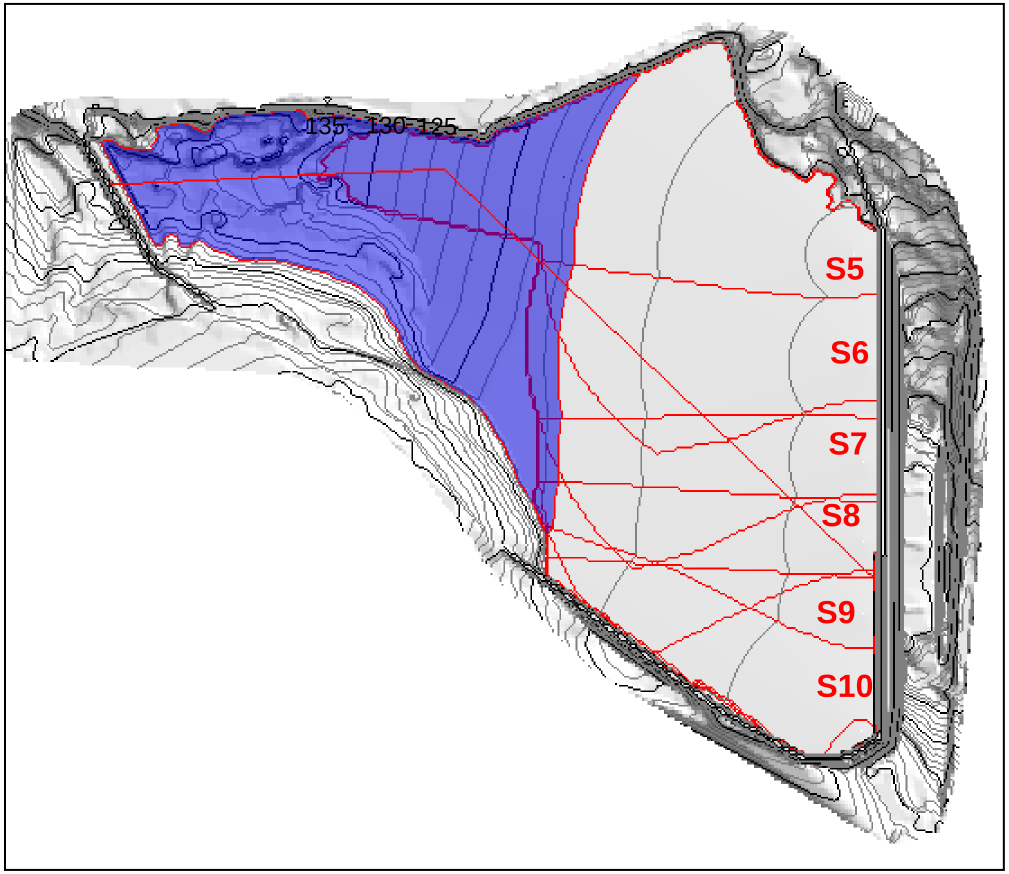


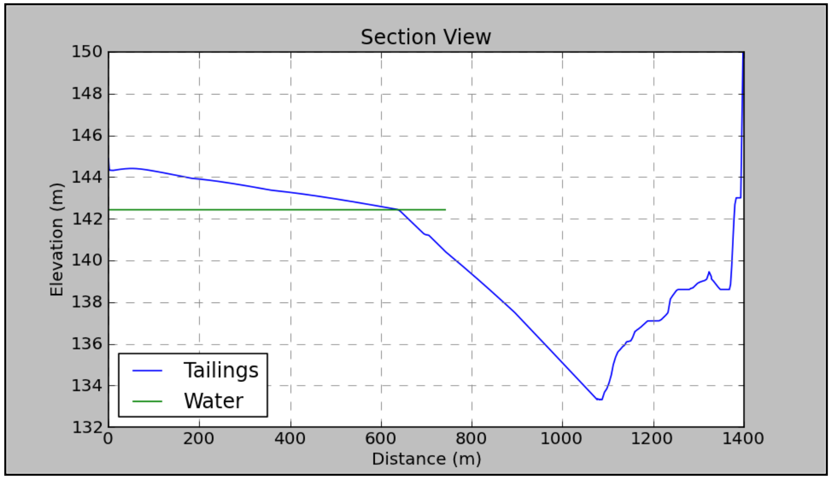
South Cell TSF deposition plan 2020 April-May

Duration	Deposition Point	Tonnes	Elevation (m)
30	S5	271,577	144.328
12	S6	108,631	144.533
6	S7	54,315	144.505
5	S8	45,263	144.544
4	S9	36,210	144.579
4	S10	36,210	144.930

MODEL INPUT	
Pond Volume (m3)	638,376
Ice thickness (m)	0
Tonnes (t)	550,508

MODEL OUTPUT	
Total water volume (m³)	637,638
Free water volume (m³)	637,638
Ice volume (m³)	0
Pond elevation (m)	142.429
Free water elevation (m)	142.429
Pond bottom elevation (m)	133.156
Ice ratio (%)	0%
Ice entrapment (%)	45%
Transfer (m³)	0



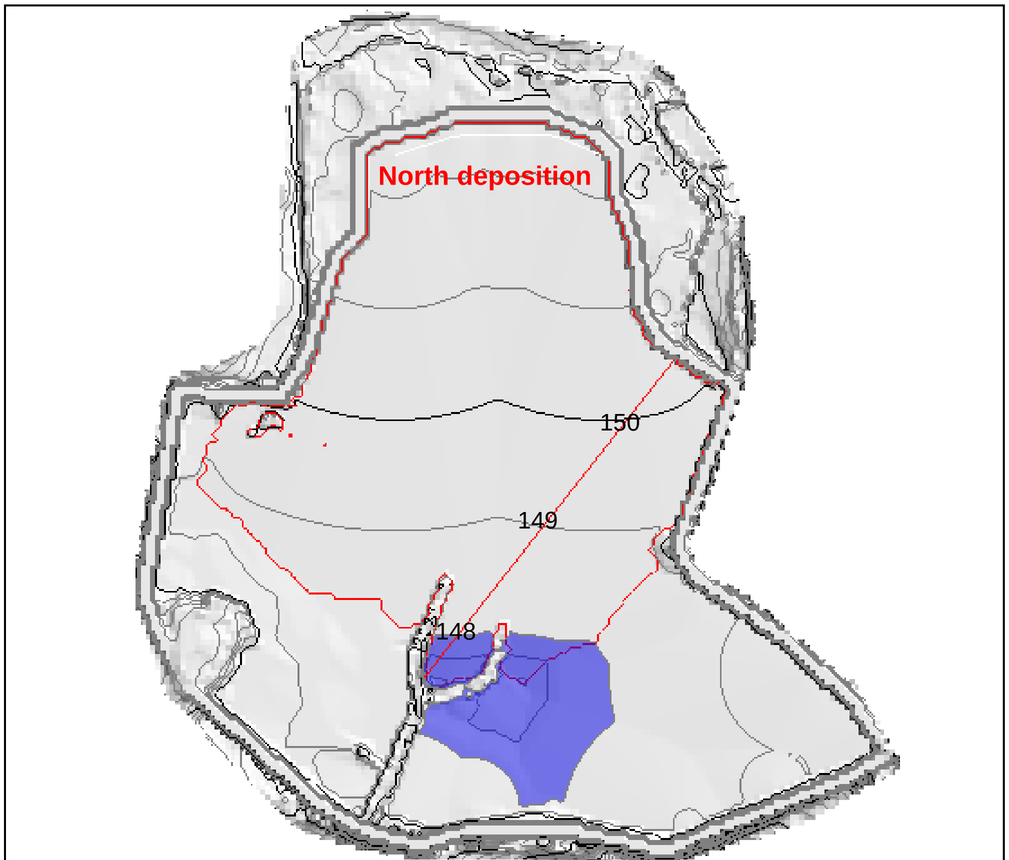


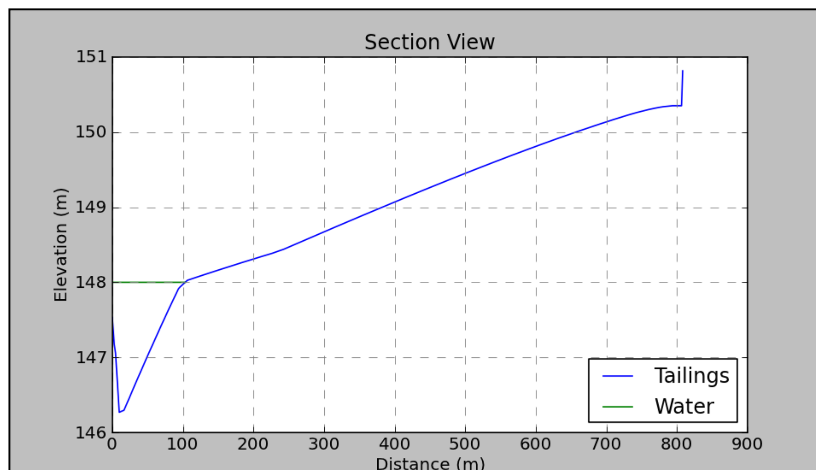
South Cell TSF deposition plan
2020 June + Q3

Duration	Deposition Point	Tonnes	Elevation (m)
122	North	1,093,897	152.165

MODEL INPUT	
Pond Volume (m)	845,127
Ice thickness (m)	0
Tonnes (t)	1,091,992

MODEL OUTPUT	
Total water volume (m³)	54,826
Free water volume (m³)	54,826
Ice volume (m³)	0
Pond elevation (m)	148.000
Free water elevation (m)	148.000
Pond bottom elevation (m)	145.685
Ice ratio (%)	0%
Ice entrampment (%)	30%
Transfer (m³)	790,301 (Monthly: 197,575)



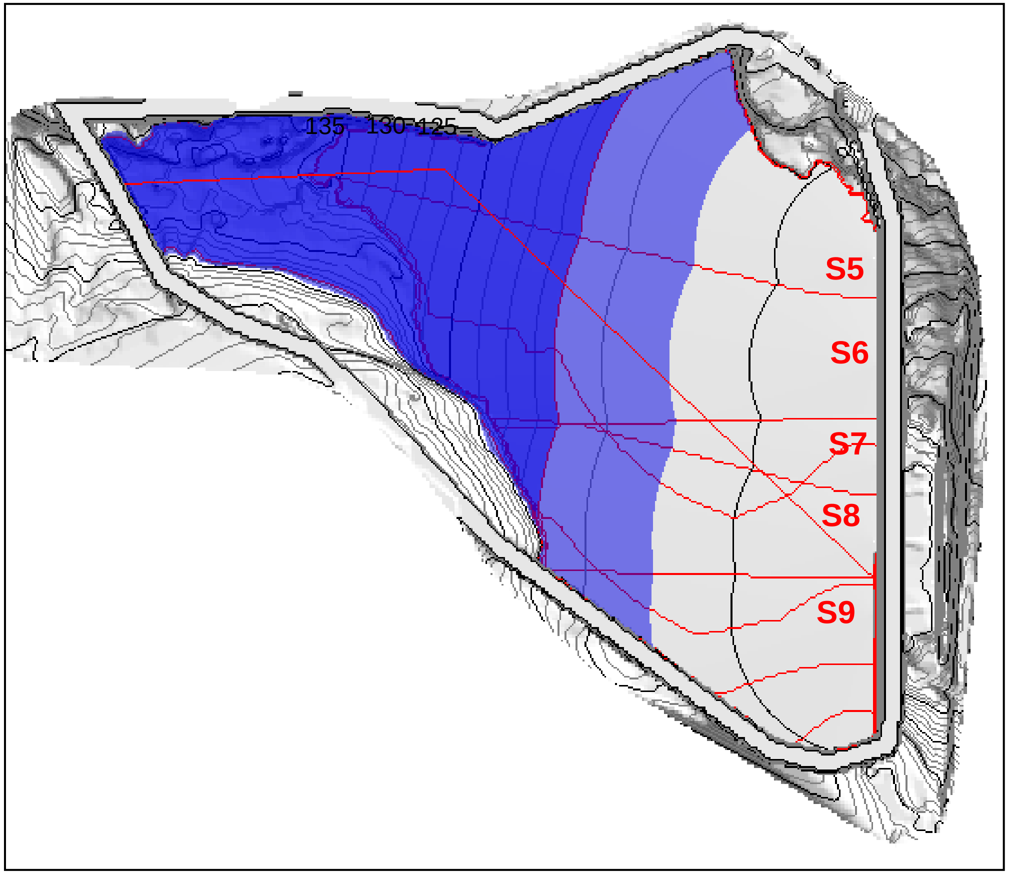


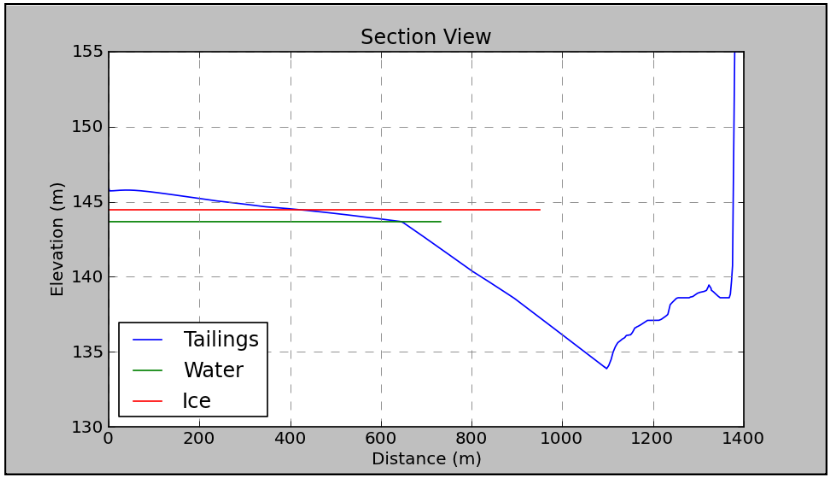
South Cell TSF deposition plan
2020 Q4

Duration	Deposition Point	Tonnes	Elevation (m)
45	S5	402,069	145.67
26	S6	232,307	145.867
10	S7	89,349	145.845
8	S8	71,479	145,958
3	S9	26,805	145,969

MODEL INPUT	
Pond Volume (m3)	981,347
Ice thickness (m)	0.8
Tonnes (t)	821,250

MODEL OUTPUT	
Total water volume (m³)	981,347
Free water volume (m³)	757,719
Ice volume (m³)	223,628
Pond elevation (m)	144,454
Free water elevation (m)	143,671
Pond bottom elevation (m)	133,875
Ice ratio (%)	23%
Ice entrampment (%)	47%
Transfer (m³)	0





South Cell TSF deposition plan 2021 Q1

Duration	Deposition Point	Tonnes	Elevation (m)
33	S4	294,584	145.446
23	S6	205,316	146.411
15	S8	133,902	146.762
15	S11	133,902	146.760
5	S5	44,634	146.341

Operation risk – Effect of slurry channel

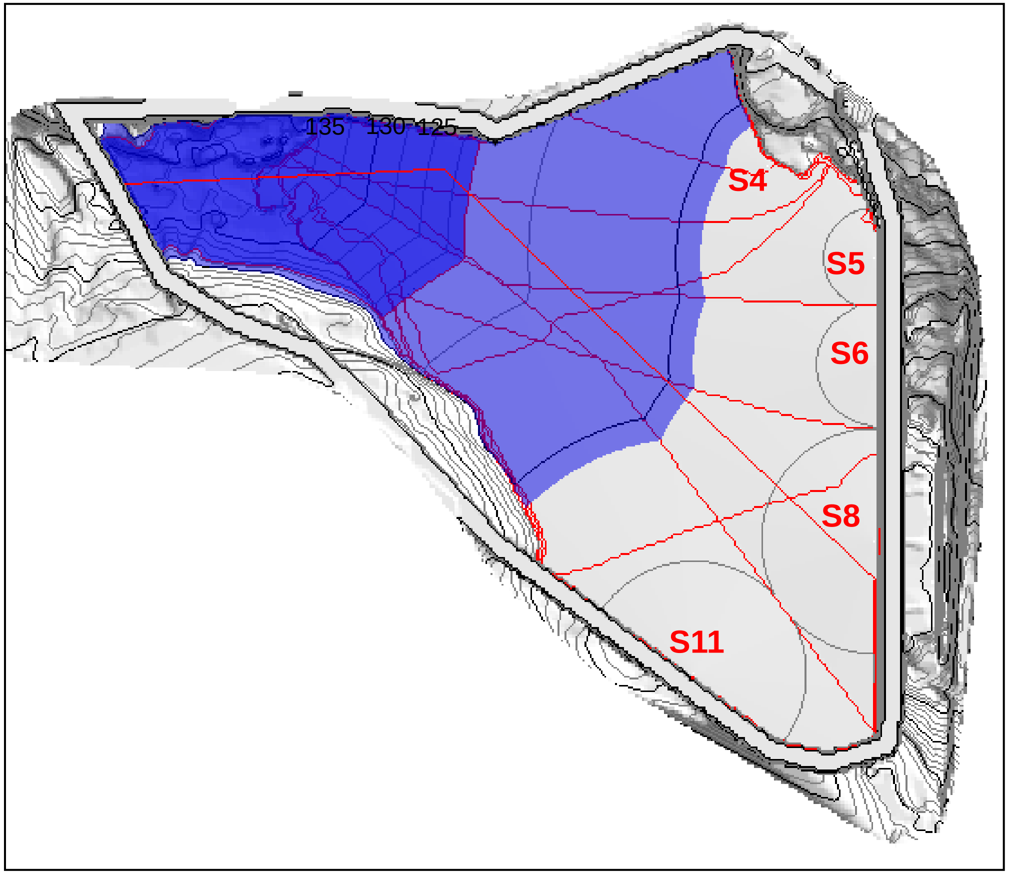
Beach length: 500m

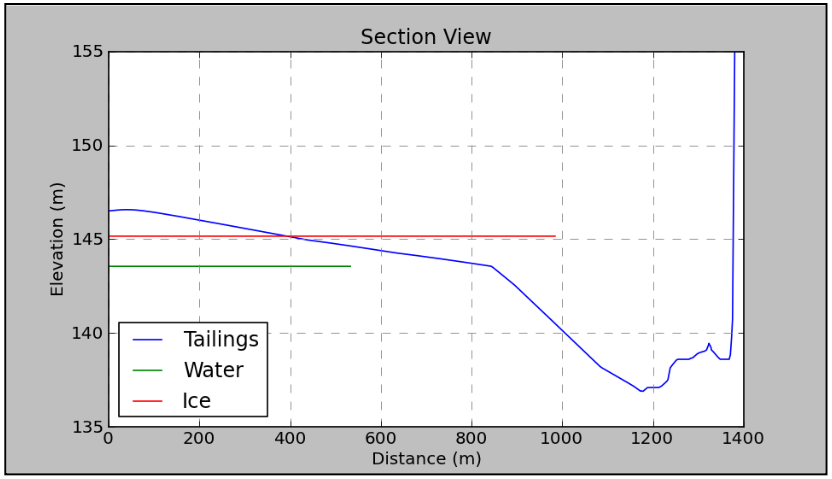
Tailings volume above water: **384,741m³**

Tailings volume may fill up the reclaim pond.

MODEL INPUT	
Pond Volume (m3)	707,990
Ice thickness (m)	1.5
Tonnes (t)	810,000

MODEL OUTPUT	
Total water volume (m³)	707,990
Free water volume (m³)	368,743
Ice volume (m³)	339,247
Pond elevation (m)	145.165
Free water elevation (m)	143.557
Pond bottom elevation (m)	136.852
Ice ratio (%)	48%
Ice entrampment (%)	90%
Transfer (m³)	0



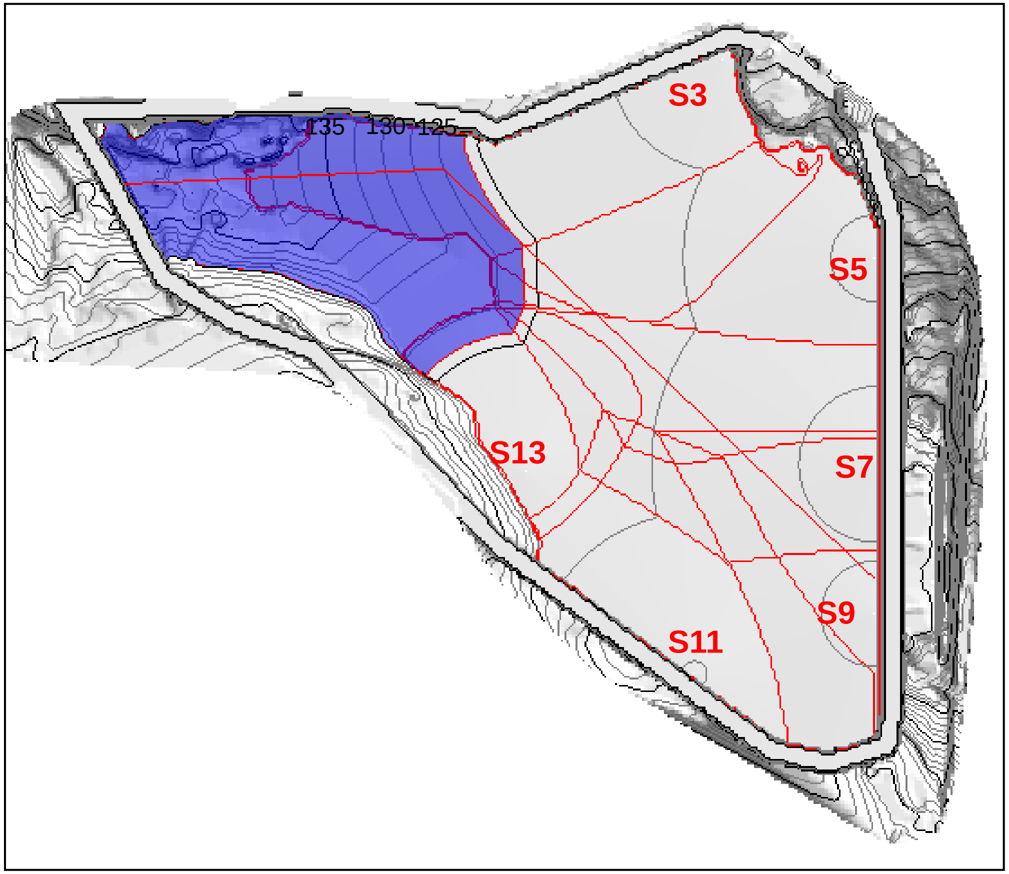


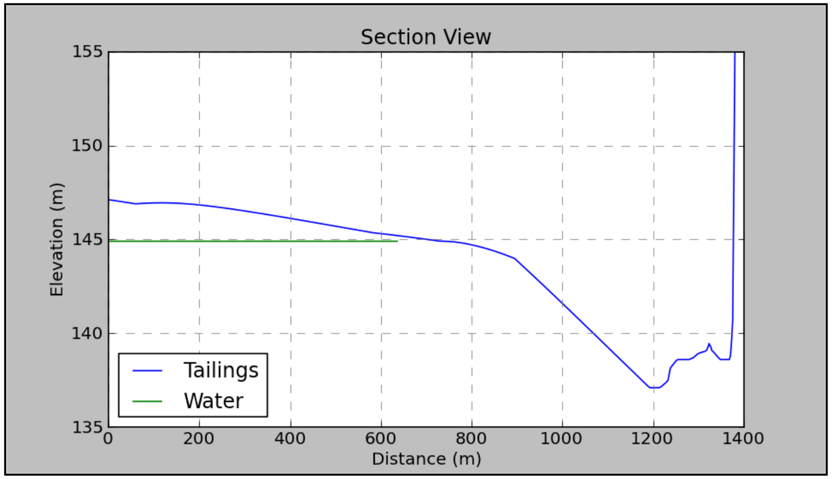
South Cell TSF deposition plan
2021 April-May

Duration	Deposition Point	Tonnes	Elevation (m)
23	S3	207,921	146.756
5	S13	45,200	145.853
15	S5	135,601	147.291
5	S11	45,200	147.087
5	S9	45,200	147.355
8	S7	72,320	147.527

MODEL INPUT	
Pond Volume (m3)	504,484
Ice thickness (m)	0
Tonnes (t)	549,000

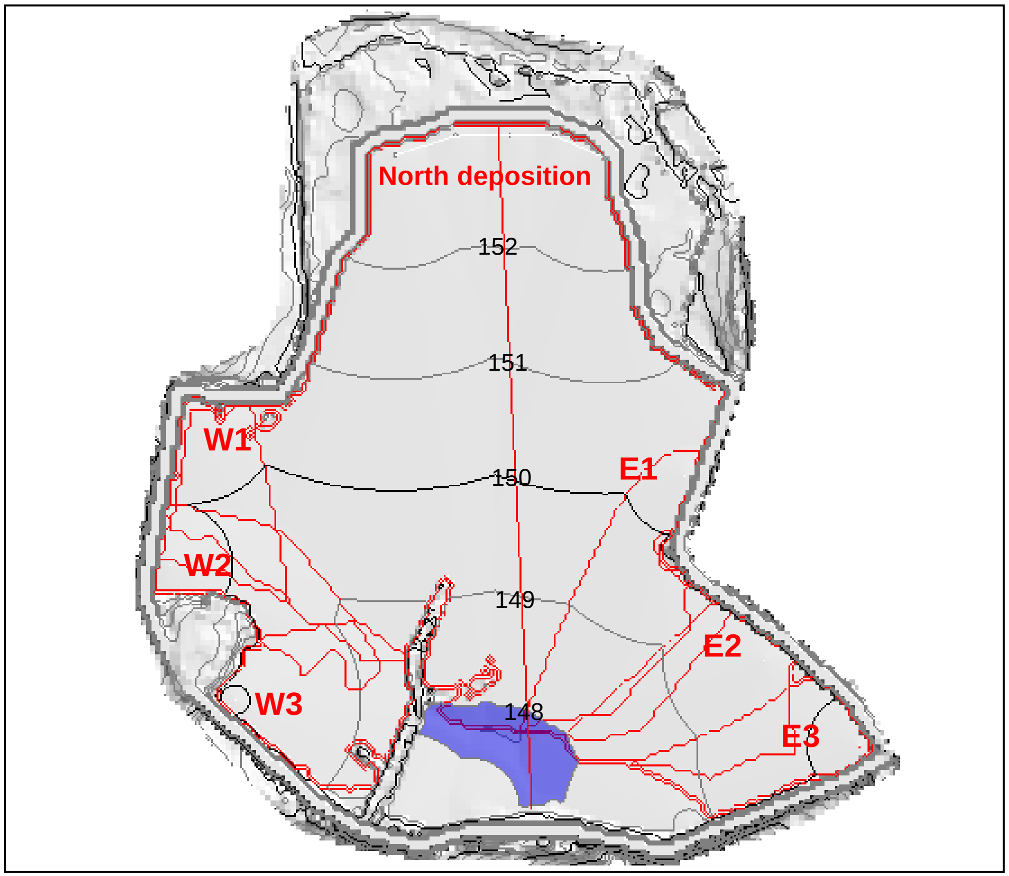
MODEL OUTPUT	
Total water volume (m³)	502,913
Free water volume (m³)	502,913
Ice volume (m³)	0
Pond elevation (m)	144.907
Free water elevation (m)	144.907
Pond bottom elevation (m)	137.108
Ice ratio (%)	0%
Ice entrampment (%)	75%
Transfer (m³)	0





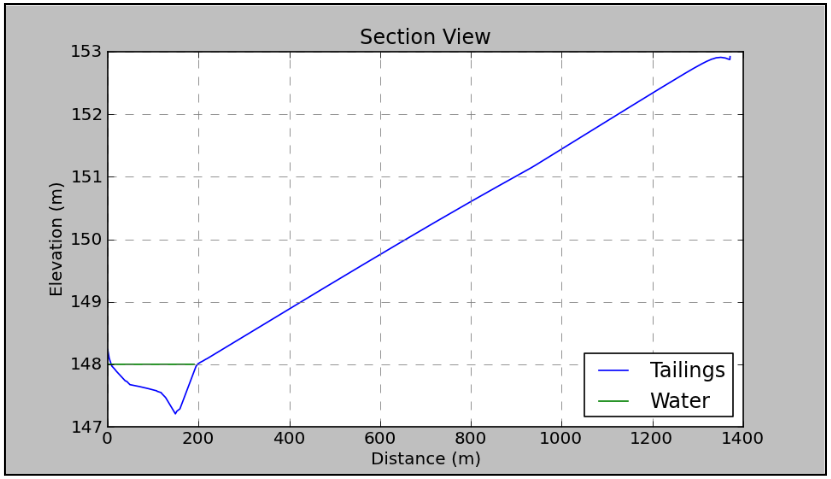
South Cell TSF deposition plan
2021 June + Q3

Duration	Deposition Point	Tonnes	Elevation (m)
92	North	829,230	153.02
5	W1	45,067	150.834
5	W2	45,067	150.562
5	W3	45,067	150.132
5	E1	45,067	150.556
5	E2	45,067	150.447
5	E3	45,067	149.915



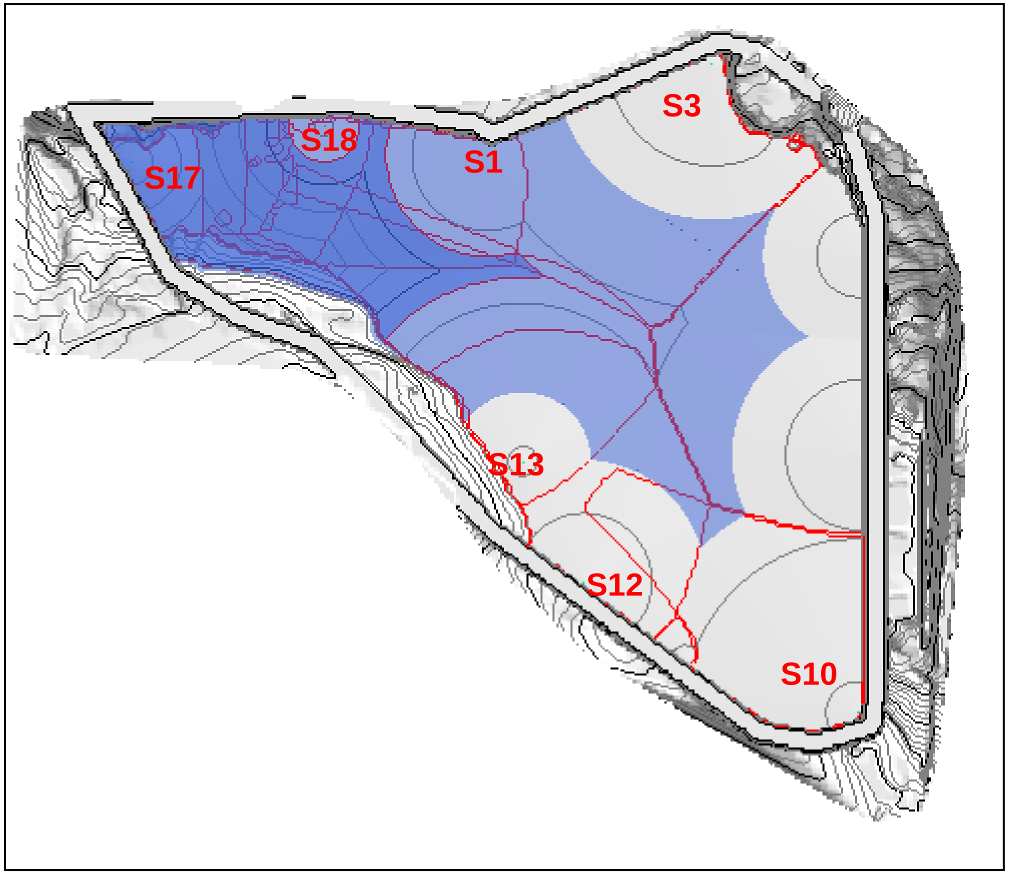
MODEL INPUT	
Pond Volume (m)	731,558
Ice thickness (m)	0
Tonnes (t)	1,098,000

MODEL OUTPUT	
Total water volume (m³)	12,735
Free water volume (m³)	12,735
Ice volume (m³)	0
Pond elevation (m)	148.000
Free water elevation (m)	148.000
Pond bottom elevation (m)	146.992
Ice ratio (%)	0%
Ice entrampment (%)	30%
Transfer (m³)	718,823



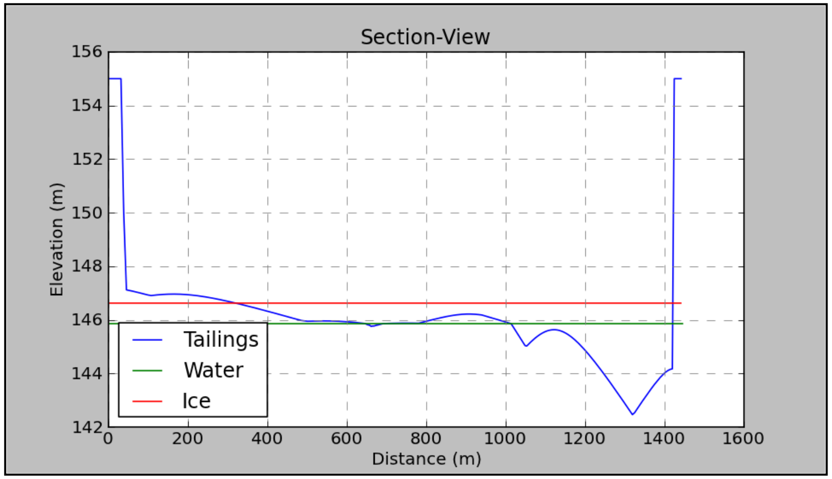
South Cell TSF deposition plan 2021 Q4

Duration	Deposition Point	Tonnes	Elevation (m)
5	S10	45,041	147.612
13	S17	117,106	147.805
11	S12	99,090	147.900
12	S13	108,098	147.676
18	S3	162,147	147.122
18	S1	162,147	147.738
15	S18	135,122	146.509



MODEL INPUT	
Pond Volume (m3)	375,815
Ice thickness (m)	0.80
Tonnes (t)	828,000

MODEL OUTPUT	
Total water volume (m³)	375,815
Free water volume (m³)	229,436
Ice volume (m³)	146,379
Pond elevation (m)	146.529
Free water elevation (m)	145.729
Pond bottom elevation (m)	138.981
Ice ratio (%)	39%
Ice entrampment (%)	82%
Transfer (m³)	0

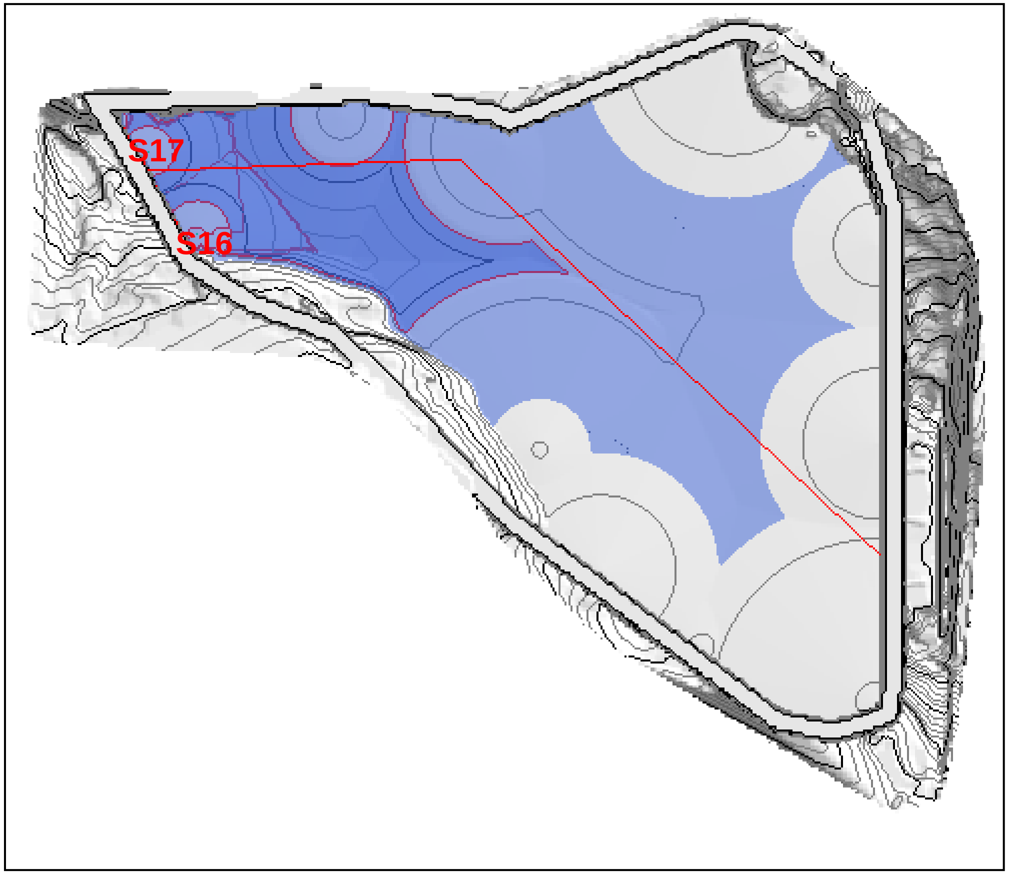


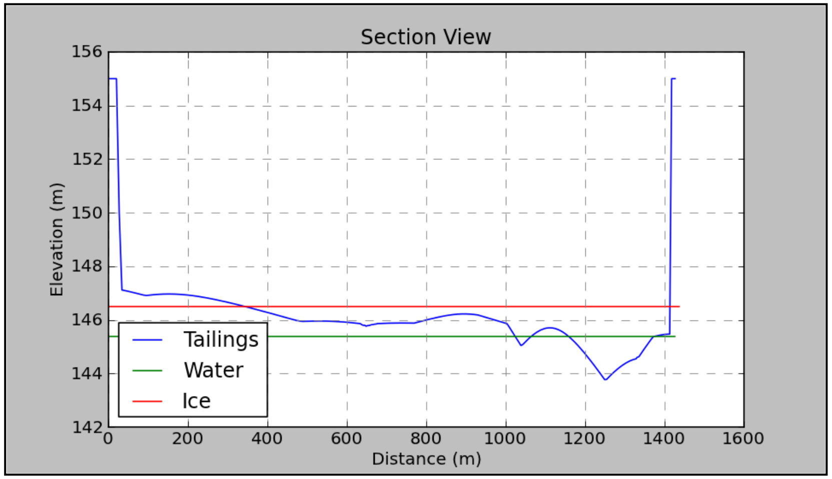
South Cell TSF deposition plan 2022 January

Duration	Deposition Point	Tonnes	Elevation (m)
15	S17	32,619	145.81
16	S16	34,793	147.76

MODEL INPUT	
Pond Volume (m3)	337,197
Ice thickness (m)	1.10
Tonnes (t)	66,644

MODEL OUTPUT	
Total water volume (m³)	337,197
Free water volume (m³)	103,979
Ice volume (m³)	233,218
Pond elevation (m)	146.702
Free water elevation (m)	145.600
Pond bottom elevation (m)	142.408
Ice ratio (%)	69%
Ice entrampment (%)	90%
Transfer (m³)	0





Results

Tonnage profile

Table below summarizes the tonnage store in each cells in time.

Time	North Cell (t)	South Cell (t)	Total (t)
2019	821,250	821,250	1,642,500
2020	1,091,992	2,193,008	3,285,000
2021	1,098,000	2,187,000	3,285,000
2022	0	66,644	66,644
Total	**3,011,242**	**5,267,902**	**8,279,144**

Remaining capacity

Assuming a tailings dry density of 1.28 t/m³, the South Cell still have a capacity of 1,9Mt. AEM consider that the North Cell is full as the final surface is ideal to minimize capping requirement for closure of the tailings pond.

Dikes elevation	Remaining capacity
North Cell (154m)	0 t
South Cell (150m)	1,900,376 t

No contingency is applied on the remaining capacity presented is this table.

Analysis

Operational risk

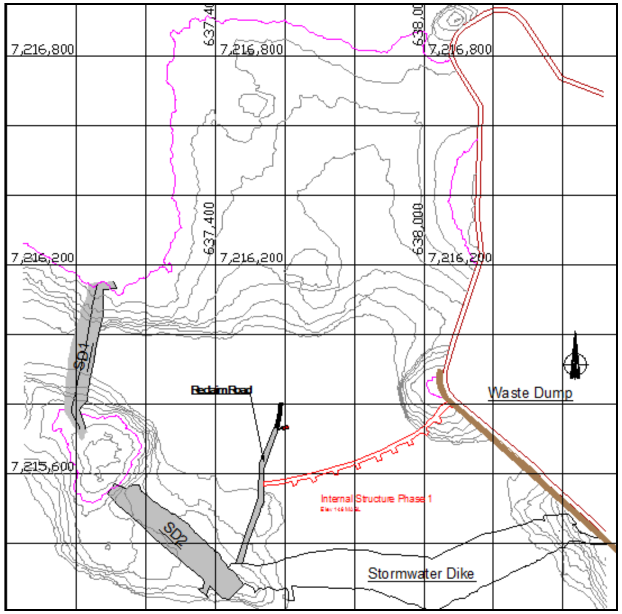
Deposition in the South Cell will only be performed during winter time as the operation of the North Cell Internal Structure concept requires summer deposition. Base on field observation, slurry discharge over frozen tailings beach habitually channel through the tailings pond instead of beaching in front of the dike. Tons discharged above reclaim water elevation may lead to the bottom of the pond and compromise reclaim water availability in the mill as observed during the winter 2013 in Meadowbank. This event caused a reduction of the storage capacity and compromise mill operation. The 2021-Q1 will be the most critical month.

Mitigation

AEM developed an in-house expertise in tailings deposition modeling to forecast these kind of events. To solve this problem in 2013, AEM built rockfill structures inside the tailings pond to prevent the slurry to reach the reclaim water pumping system and higher freshwater consumption was required to operate the mill.

Slurry channel observed in NC in Nov 2014

Rockfill structure built in NC in 2013



Trading Symbol:
AEM on TSX & NYSE

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Appendix D • Meadowbank Mine Water Balance

AGNICO EAGLE

	Year 2019												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	276,726	276,726	267,799	276,726	267,799	276,726	**1,642,500**
Cummulative Tailings (tonnes):	27,874,532	27,874,532	27,874,532	27,874,532	27,874,532	27,874,532	28,151,257	28,427,983	28,695,782	28,972,507	29,240,306	29,517,032	-
Cummulative Tailings (m3) - North Cell	14,248,693	14,248,693	14,248,693	14,248,693	14,248,693	14,248,693	14,426,082	14,603,470	14,775,136	14,775,136	14,775,136	14,775,136	-
Cummulative Tailings (m3) - South Cell	9,556,106	9,556,106	9,556,106	9,556,106	9,556,106	9,556,106	9,556,106	9,556,106	9,556,106	9,767,346	9,971,773	10,183,014	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	196,038	196,038	196,038	196,038	196,038	196,038	194,183	191,708	183,440	158,440	158,440	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	174,981	174,361	168,568	0	0	0	**517,911**
Runoff (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Total Inflow (m^3)	0	0	0	0	0	76,665	182,681	217,223	189,806	-13	0	0	**666,361**
Transfer to South Cell (m^3)	0	0	0	0	0	76,665	184,536	219,698	198,074	24,987	0	0	**703,959**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	76,665	184,536	219,698	198,074	24,987	0	0	**703,959**
Net Inflow (m^3)	0	0	0	0	0	0	-1,855	-2,475	-8,268	-25,000	0	0	**-37,597**
End-of-Month Volume (m^3)	196,038	196,038	196,038	196,038	196,038	196,038	194,183	191,708	183,440	158,440	158,440	158,440	-
South Cell (TSF)													
Pumped From Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	40,982	-10,260	8,951	5,933	-22	0	0	**45,584**
Transfer from North Cell (m^3)	0	0	0	0	0	76,665	184,536	219,698	198,074	24,987	0	0	**703,959**
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	149,469	120,178	124,475	**394,122**
Total Inflow (m^3)	0	0	0	0	0	117,646	174,276	228,648	204,007	174,434	120,178	124,475	**1,143,664**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	212,121	212,121	205,278	212,121	205,278	167,481	**1,214,399**
Transfer to Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	212,121	212,121	205,278	212,121	205,278	167,481	**1,214,399**
Net Inflow (m^3)	0	0	0	0	0	117,646	-37,845	16,527	-1,271	-37,687	-85,100	-43,006	**-70,735**
End-of-Month Volume (m^3)	1,034,718	1,034,718	1,034,718	1,034,718	1,034,718	1,152,364	1,114,519	1,131,046	1,129,775	1,092,089	1,006,989	963,982	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	3,597	2,712	2,383	2,740	1,928	2,574	**15,934**
Reclaim water (m^3)	0	0	0	0	0	0	212,121	212,121	205,278	212,121	205,278	167,481	**1,214,399**
Freshwater from Third Portage Lake (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	37,200	37,200	36,000	37,200	36,000	81,840	**282,635**
Total Inflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	252,918	252,033	243,662	252,060	243,206	251,894	**1,512,968**
Freshwater for camp purposes (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Slurry water (m^3)	0	0	0	0	0	0	249,973	249,088	240,812	249,115	240,356	248,949	**1,478,293**
Total Outflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	252,918	252,033	243,662	252,060	243,206	251,894	**1,512,968**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	285	285	285	285	285	225	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	50	50	50	50	50	110	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	249,973	249,088	240,812	249,115	240,356	248,949	**1,478,293**
Tonnage destination (1=100% SC, 0=100% NC)	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	
NC Tailings water/ice entrampment (%)	90%	90%	90%	90%	60%	30%	30%	30%	30%	75%	80%	90%	
SC Tailings water/ice entrampment (%)	50%	50%	50%	50%	40%	30%	30%	30%	30%	40%	50%	50%	
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	174,981	174,361	168,568	0	0	0	**517,911**
Slurry water returned to the SC pond (m^3)	0	0	0	0	0	0	0	0	0	149,469	120,178	124,475	**394,122**

	Year 2019												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	4,561,026	4,580,339	4,599,470	4,618,601	4,637,914	4,698,630	4,728,872	4,778,169	4,811,434	4,830,565	4,849,878	4,869,009	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	**4,520,000**
East Dike Seepage (m^3)	30,000	30,000	30,000	30,000	30,000	0	0	0	0	30,000	30,000	30,000	**240,000**
Total Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,208,539	1,150,985	1,186,628	1,168,284	30,000	30,000	30,000	**4,977,521**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,208,539	1,150,985	1,186,628	1,168,284	30,000	30,000	30,000	**4,977,521**
End-of-Month Volume (m^3)	221,074	251,074	281,074	311,074	364,159	1,572,698	2,723,683	3,910,311	5,078,595	5,108,595	5,138,595	5,168,595	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m^3)	691,172	691,172	691,172	691,172	691,172	809,880	815,933	876,600	907,272	907,272	907,272	907,272	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	**4,182,604**
Total Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
End-of-Month Volume (m^3)	0	0	0	0	0	670,309	1,694,391	3,102,695	4,337,484	4,337,484	4,337,484	4,337,484	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	0	0	0	0	0	73,652	93,331	146,436	171,469	171,469	171,469	171,469	-

	Year 2020												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**366**
Tailings (tonnes):	279,766	261,717	279,766	270,742	279,766	270,742	276,726	276,726	267,799	276,726	267,799	276,726	**3,285,000**
Cummulative Tailings (tonnes):	29,796,798	30,058,515	30,338,282	30,609,024	30,888,790	31,159,532	31,436,257	31,712,983	31,980,782	32,257,507	32,525,306	32,802,032	-
Cummulative Tailings (m3) - North Cell	14,775,136	14,775,136	14,775,136	14,775,136	14,775,136	14,948,688	15,126,076	15,303,465	15,475,130	15,475,130	15,475,130	15,475,130	-
Cummulative Tailings (m3) - South Cell	10,412,331	10,626,853	10,856,170	11,037,876	11,225,638	11,225,638	11,225,638	11,225,638	11,225,638	11,436,879	11,641,306	11,852,547	-
North Cell (TSF)													
Starting Pond Volume (m^3)	158,440	158,440	158,440	158,440	158,440	158,440	129,641	107,048	83,834	54,827	44,827	44,827	-
Water from tailings slurry (m^3)	0	0	0	0	0	168,776	174,981	174,361	168,568	0	0	0	**686,686**
Runoff (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Total Inflow (m^3)	0	0	0	0	0	245,440	182,681	217,223	189,806	-13	0	0	**835,137**
Transfer to South Cell (m^3)	0	0	0	0	0	274,240	205,275	240,437	218,813	9,987	0	0	**948,751**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	274,240	205,275	240,437	218,813	9,987	0	0	**948,751**
Net Inflow (m^3)	0	0	0	0	0	-28,799	-22,594	-23,214	-29,007	-10,000	0	0	**-113,614**
End-of-Month Volume (m^3)	158,440	158,440	158,440	158,440	158,440	129,641	107,048	83,834	54,827	44,827	44,827	44,827	-
South Cell (TSF)													
Pumped From Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	40,982	-10,260	8,951	5,933	-22	0	0	**45,584**
Transfer from North Cell (m^3)	0	0	0	0	0	274,240	205,275	240,437	218,813	9,987	0	0	**948,751**
Water from tailings slurry (m^3)	124,559	117,242	124,643	120,690	149,638	0	0	0	0	149,469	120,178	124,475	**1,030,894**
Total Inflow (m^3)	124,559	117,242	124,643	120,690	149,638	315,221	195,015	249,387	224,746	159,434	120,178	124,475	**2,025,228**
Reclaim water to the mill (m^3)	167,481	156,675	167,481	162,078	212,121	205,278	212,121	212,121	205,278	100,521	97,278	100,521	**1,998,953**
Transfer to Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	167,481	156,675	167,481	162,078	212,121	205,278	212,121	212,121	205,278	100,521	97,278	100,521	**1,998,953**
Net Inflow (m^3)	-42,922	-39,433	-42,838	-41,389	-62,482	109,943	-17,106	37,266	19,468	58,913	22,900	23,954	**26,275**
End-of-Month Volume (m^3)	921,060	881,627	838,789	797,401	734,918	844,861	827,756	865,022	884,490	943,403	966,303	990,257	-
Mill/Camp													
Ore water (m^3)	2,742	4,004	2,910	2,951	3,021	2,680	3,597	2,712	2,383	2,740	1,928	2,574	**34,242**
Reclaim water (m^3)	167,481	156,675	167,481	162,078	212,121	205,278	212,121	212,121	205,278	100,521	97,278	100,521	**1,998,953**
Freshwater from Third Portage Lake (m^3)	81,840	76,560	81,840	79,200	37,200	36,000	37,200	37,200	36,000	148,800	144,000	148,800	**944,640**
Total Inflow (m^3)	252,062	237,240	252,230	244,229	252,342	243,958	252,918	252,033	243,662	252,060	243,206	251,894	**2,977,835**
Freshwater for camp purposes (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Slurry water (m^3)	249,117	234,485	249,285	241,379	249,397	241,108	249,973	249,088	240,812	249,115	240,356	248,949	**2,943,065**
Total Outflow (m^3)	252,062	237,240	252,230	244,229	252,342	243,958	252,918	252,033	243,662	252,060	243,206	251,894	**2,977,835**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	225	225	225	225	285	285	285	285	285	135	135	135	-
Freshwater pumping rate (m^3/hr)	110	110	110	110	50	50	50	50	50	200	200	200	-
TSF Water Balance													
Slurry water (m^3)	249,117	234,485	249,285	241,379	249,397	241,108	249,973	249,088	240,812	249,115	240,356	248,949	**2,943,065**
Tonnage destination (1=100% SC, 0=100% NC)	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	1.000	1.000	1.000	
NC Tailings water/ice entrapment (%)	90%	90%	90%	90%	60%	30%	30%	30%	30%	75%	80%	90%	
SC Tailings water/ice entrapment (%)	50%	50%	50%	50%	40%	30%	30%	30%	30%	40%	50%	50%	
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	168,776	174,981	174,361	168,568	0	0	0	**686,686**
Slurry water returned to the SC pond (m^3)	124,559	117,242	124,643	120,690	149,638	0	0	0	0	149,469	120,178	124,475	**1,030,894**

	Year 2020												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	4,888,140	4,907,453	4,926,584	4,945,715	4,965,028	5,025,744	5,055,986	5,105,283	5,138,548	5,157,679	5,176,992	5,196,123	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	**4,520,000**
East Dike Seepage (m^3)	30,000	30,000	30,000	30,000	30,000	0	0	0	0	30,000	30,000	30,000	**240,000**
Total Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,208,539	1,150,985	1,186,628	1,168,284	30,000	30,000	30,000	**4,977,521**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,208,539	1,150,985	1,186,628	1,168,284	30,000	30,000	30,000	**4,977,521**
End-of-Month Volume (m^3)	5,198,595	5,228,595	5,258,595	5,288,595	5,341,680	6,550,218	7,701,203	8,887,831	10,056,115	10,086,115	10,116,115	10,146,115	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
End-of-Month Volume (m^3)	907,272	907,272	907,272	907,272	907,272	1,091,249	1,114,354	1,221,706	1,274,416	1,274,416	1,274,416	1,274,416	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	**4,182,604**
Total Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
End-of-Month Volume (m^3)	4,337,484	4,337,484	4,337,484	4,337,484	4,337,484	5,007,793	6,031,874	7,440,179	8,674,967	8,674,967	8,674,967	8,674,967	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	171,469	171,469	171,469	171,469	171,469	245,122	264,801	317,906	342,939	342,939	342,939	342,939	-

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	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2021												
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	279,000	252,000	279,000	270,000	279,000	270,000	279,000	279,000	270,000	279,000	270,000	279,000	**3,285,000**
Cummulative Tailings (tonnes):	33,081,032	33,333,032	33,612,032	33,882,032	34,161,032	34,431,032	34,710,032	34,989,032	35,259,032	35,538,032	35,808,032	36,087,032	-
Cummulative Tailings (m3) - North Cell	15,475,130	15,475,130	15,475,130	15,475,130	15,475,130	15,648,207	15,827,054	16,005,900	16,178,977	16,178,977	16,178,977	16,178,977	-
Cummulative Tailings (m3) - South Cell	12,110,880	12,344,213	12,602,547	12,852,547	13,063,910	13,063,910	13,063,910	13,063,910	13,063,910	13,275,274	13,525,274	13,783,607	-
North Cell (TSF)													
Starting Pond Volume (m^3)	44,827	44,827	44,827	44,827	44,827	44,827	33,892	29,188	23,859	12,734	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	168,771	175,002	174,377	168,582	0	0	0	**686,731**
Runoff (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Total Inflow (m^3)	0	0	0	0	0	245,435	182,702	217,238	189,819	-13	0	0	**835,182**
Transfer to South Cell (m^3)	0	0	0	0	0	256,371	187,406	222,568	200,944	12,721	0	0	**880,009**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	256,371	187,406	222,568	200,944	12,721	0	0	**880,009**
Net Inflow (m^3)	0	0	0	0	0	-10,935	-4,704	-5,329	-11,124	-12,734	0	0	**-44,827**
End-of-Month Volume (m^3)	44,827	44,827	44,827	44,827	44,827	33,892	29,188	23,859	12,734	0	0	0	-
South Cell (TSF)													
Pumped From Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	40,982	-10,260	8,951	5,933	-22	0	0	**45,584**
Transfer from North Cell (m^3)	0	0	0	0	0	256,371	187,406	222,568	200,944	12,721	0	0	**880,009**
Water from tailings slurry (m^3)	24,911	22,639	24,928	24,137	99,756	0	0	0	0	62,284	48,074	24,897	**331,626**
Total Inflow (m^3)	24,911	22,639	24,928	24,137	99,756	297,352	177,146	231,518	206,877	74,983	48,074	24,897	**1,257,218**
Reclaim water to the mill (m^3)	119,121	107,593	119,121	115,278	212,121	205,278	212,121	212,121	205,278	212,121	79,278	63,321	**1,862,750**
Transfer to Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	119,121	107,593	119,121	115,278	212,121	205,278	212,121	212,121	205,278	212,121	79,278	63,321	**1,862,750**
Net Inflow (m^3)	-94,210	-84,954	-94,193	-91,141	-112,365	92,074	-34,975	19,397	1,599	-137,137	-31,204	-38,424	**-605,532**
End-of-Month Volume (m^3)	896,047	811,093	716,900	625,759	513,394	605,468	570,494	589,891	591,490	454,352	423,149	384,725	-
Mill/Camp													
Ore water (m^3)	2,734	3,856	2,902	2,943	3,013	2,673	3,627	2,734	2,403	2,762	1,944	2,595	**34,186**
Reclaim water (m^3)	119,121	107,593	119,121	115,278	212,121	205,278	212,121	212,121	205,278	212,121	79,278	63,321	**1,862,750**
Freshwater from Third Portage Lake (m^3)	130,200	117,600	130,200	126,000	37,200	36,000	37,200	37,200	36,000	37,200	162,000	186,000	**1,072,800**
Total Inflow (m^3)	252,055	229,048	252,222	244,221	252,334	243,951	252,948	252,055	243,681	252,083	243,222	251,915	**2,969,736**
Freshwater for camp purposes (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Slurry water (m^3)	249,110	226,388	249,277	241,371	249,389	241,101	250,003	249,110	240,831	249,138	240,372	248,970	**2,935,061**
Total Outflow (m^3)	252,055	229,048	252,222	244,221	252,334	243,951	252,948	252,055	243,681	252,083	243,222	251,915	**2,969,736**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	160	160	160	160	285	285	285	285	285	285	110	85	-
Freshwater pumping rate (m^3/hr)	175	175	175	175	50	50	50	50	50	50	225	250	-
TSF Water Balance													
Slurry water (m^3)	249,110	226,388	249,277	241,371	249,389	241,101	250,003	249,110	240,831	249,138	240,372	248,970	**2,935,061**
Tonnage destination (1=100% SC, 0=100% NC)	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	1.000	1.000	1.000	
NC Tailings water/ice entrampment (%)	90%	90%	90%	90%	60%	30%	30%	30%	30%	75%	80%	90%	
SC Tailings water/ice entrampment (%)	90%	90%	90%	90%	60%	30%	30%	30%	30%	75%	80%	90%	
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	168,771	175,002	174,377	168,582	0	0	0	**686,731**
Slurry water returned to the SC pond (m^3)	24,911	22,639	24,928	24,137	99,756	0	0	0	0	62,284	48,074	24,897	**331,626**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2021												
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	5,215,254	5,234,567	5,253,698	5,272,829	5,292,142	5,352,858	5,383,100	5,432,397	5,465,662	5,484,793	5,504,106	5,523,237	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from SC (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	**4,520,000**
East Dike Seepage (m^3)	30,000	30,000	30,000	30,000	30,000	0	0	0	0	30,000	30,000	30,000	**240,000**
Total Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,208,539	1,150,985	1,186,628	1,168,284	30,000	30,000	30,000	**4,977,521**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,208,539	1,150,985	1,186,628	1,168,284	30,000	30,000	30,000	**4,977,521**
End-of-Month Volume (m^3)	10,176,115	10,206,115	10,236,115	10,266,115	10,319,200	11,527,739	12,678,724	13,865,352	15,033,636	15,063,636	15,093,636	15,123,636	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
End-of-Month Volume (m^3)	1,274,416	1,274,416	1,274,416	1,274,416	1,274,416	1,458,393	1,481,498	1,588,850	1,641,559	1,641,559	1,641,559	1,641,559	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	**4,182,604**
Total Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
End-of-Month Volume (m^3)	8,674,967	8,674,967	8,674,967	8,674,967	8,674,967	9,345,276	10,369,358	11,777,662	13,012,451	13,012,451	13,012,451	13,012,451	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	342,939	342,939	342,939	342,939	342,939	416,591	436,270	489,375	514,408	514,408	514,408	514,408	-

	Year 2022												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	66,644	0	0	0	0	0	0	0	0	0	0	0	**66,644**
Cummulative Tailings (tonnes):	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	-
Cummulative Tailings (m3) - North Cell	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	-
Cummulative Tailings (m3) - South Cell	12,110,880	12,344,213	12,602,547	12,852,547	13,063,910	13,063,910	13,063,910	13,063,910	13,063,910	13,275,274	13,525,274	13,783,607	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Total Inflow (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Transfer to South Cell (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
South Cell (TSF)													
Pumped From Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	40,982	-10,260	8,951	5,933	0	0	0	**45,605**
Transfer from North Cell (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Water from tailings slurry (m^3)	24,703	0	0	0	0	0	0	0	0	0	0	0	**24,703**
Total Inflow (m^3)	24,703	0	0	0	0	117,646	-2,560	51,812	27,171	-13	0	0	**218,759**
Reclaim water to the mill (m^3)	63,321	0	0	0	0	0	0	0	0	0	0	0	**63,321**
Transfer to Portage Pit (m^3)	0	0	0	0	0	267,646	184,637	51,812	36,068	0	0	0	**540,163**
Total Outflow (m^3)	63,321	0	0	0	0	267,646	184,637	51,812	36,068	0	0	0	**603,484**
Net Inflow (m^3)	-38,618	0	0	0	0	-150,000	-187,197	0	-8,897	-13	0	0	**-384,725**
End-of-Month Volume (m^3)	346,107	346,107	346,107	346,107	346,107	196,107	8,910	8,910	13	0	0	0	-
Mill/Camp													
Ore water (m^3)	653	0	0	0	0	0	0	0	0	0	0	0	**653**
Reclaim water (m^3)	63,321	0	0	0	0	0	0	0	0	0	0	0	**63,321**
Freshwater from Third Portage Lake (m^3)	186,000	2,688	2,976	2,880	2,976	2,880	2,976	2,976	2,880	2,976	2,880	2,976	**218,064**
Total Inflow (m^3)	249,974	2,688	2,976	2,880	2,976	2,880	2,976	2,976	2,880	2,976	2,880	2,976	**282,038**
Freshwater for camp purposes (m^3)	2,945	2,688	2,976	2,880	2,976	2,880	2,976	2,976	2,880	2,976	2,880	2,976	**35,009**
Slurry water (m^3)	247,029	0	0	0	0	0	0	0	0	0	0	0	**247,029**
Total Outflow (m^3)	249,974	2,688	2,976	2,880	2,976	2,880	2,976	2,976	2,880	2,976	2,880	2,976	**282,038**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	85	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	250	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	247,029	0	0	0	0	0	0	0	0	0	0	0	**247,029**
Tonnage destination (1=100% SC, 0=100% NC)	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
NC Tailings water/ice entrampment (%)	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
SC Tailings water/ice entrampment (%)	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the SC pond (m^3)	24,703	0	0	0	0	0	0	0	0	0	0	0	**24,703**

	Year 2022												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	5,542,368	5,561,681	5,580,812	5,599,943	5,619,256	5,679,972	5,710,214	5,759,511	5,792,776	5,811,907	5,831,220	5,850,351	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from SC (m^3)	0	0	0	0	0	267,646	184,637	51,812	36,068	0	0	0	**540,163**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	**4,520,000**
East Dike Seepage (m^3)	30,000	30,000	30,000	30,000	30,000	0	0	0	0	30,000	30,000	30,000	**240,000**
Total Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,476,185	1,335,622	1,238,440	1,204,352	30,000	30,000	30,000	**5,517,684**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,476,185	1,335,622	1,238,440	1,204,352	30,000	30,000	30,000	**5,517,684**
End-of-Month Volume (m^3)	15,153,636	15,183,636	15,213,636	15,243,636	15,296,721	16,772,905	18,108,527	19,346,967	20,551,319	20,581,319	20,611,319	20,641,319	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
End-of-Month Volume (m^3)	1,641,559	1,641,559	1,641,559	1,641,559	1,641,559	1,825,537	1,848,642	1,955,993	2,008,703	2,008,703	2,008,703	2,008,703	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	**4,182,604**
Total Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
End-of-Month Volume (m^3)	13,012,451	13,012,451	13,012,451	13,012,451	13,012,451	13,682,760	14,706,841	16,115,146	17,349,934	17,349,934	17,349,934	17,349,934	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	514,408	514,408	514,408	514,408	514,408	588,061	607,740	660,845	685,878	685,878	685,878	685,878	-

Appendix WT- TAILINGS MANAGEMENT PLAN

Whale Tail Pit

AGNICO EAGLE

	Year 2023												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	-
Cummulative Tailings (tonnes) - North Cell	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	-
Cummulative Tailings (tonnes) - South Cell	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Transfer to South Cell (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
South Cell (TSF)													
Runoff (m^3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Total Outflow (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Total Inflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Freshwater for camp purposes (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Tailings water/ice entrampment (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Year 2023												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	5,869,482	5,888,795	5,907,926	5,927,057	5,946,370	6,007,086	6,037,328	6,086,625	6,119,890	6,139,021	6,158,334	6,177,465	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from SC (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	**4,520,000**
East Dike Seepage (m^3)	30,000	30,000	30,000	30,000	30,000	0	0	0	0	30,000	30,000	30,000	**240,000**
Total Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,329,274	1,183,244	1,273,681	1,209,320	30,000	30,000	30,000	**5,258,603**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,329,274	1,183,244	1,273,681	1,209,320	30,000	30,000	30,000	**5,258,603**
End-of-Month Volume (m^3)	20,671,319	20,701,319	20,731,319	20,761,319	20,814,404	22,143,678	23,326,922	24,600,602	25,809,922	25,839,922	25,869,922	25,899,922	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
End-of-Month Volume (m^3)	2,008,703	2,008,703	2,008,703	2,008,703	2,008,703	2,192,681	2,215,786	2,323,137	2,375,847	2,375,847	2,375,847	2,375,847	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	**4,182,604**
Total Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
End-of-Month Volume (m^3)	17,349,934	17,349,934	17,349,934	17,349,934	17,349,934	18,020,243	19,044,325	20,452,629	21,687,418	21,687,418	21,687,418	21,687,418	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73652.3	19679.2	53104.9	25033.1	0	0	0	**171,470**
End-of-Month Volume (m^3)	685,878	685,878	685,878	685,878	685,878	759,530	779,209	832,314	857,347	857,347	857,347	857,347	-

AGNICO EAGLE

Appendix WT- TAILINGS MANAGEMENT PLAN

Whale Tail Pit

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2024												
No. of days	**31**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**366**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	-
Cummulative Tailings (m3) - North Cell	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	-
Cummulative Tailings (m3) - South Cell	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Transfer to South Cell (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
South Cell (TSF)													
Runoff (m^3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Total Outflow (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Total Inflow (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Freshwater for camp purposes (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Tailings water/ice entrapment (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2024												
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	6,196,596	6,215,909	6,235,040	6,254,171	6,273,484	6,334,200	6,364,442	6,413,739	6,447,004	6,466,135	6,485,448	6,504,579	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from SC (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	11,590	0	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	1,130,000	0	0	0	**4,520,000**
East Dike Seepage (m^3)	30,000	30,000	30,000	30,000	30,000	0	0	0	0	30,000	30,000	30,000	**240,000**
Total Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,329,274	1,183,244	1,285,271	1,197,730	30,000	30,000	30,000	**5,258,603**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	30,000	30,000	30,000	30,000	53,085	1,329,274	1,183,244	1,285,271	1,197,730	30,000	30,000	30,000	**5,258,603**
End-of-Month Volume (m^3)	25,929,922	25,959,922	25,989,922	26,019,922	26,073,007	27,402,280	28,585,524	29,870,795	31,068,524	31,098,524	31,128,524	31,158,524	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
End-of-Month Volume (m^3)	2,375,847	2,375,847	2,375,847	2,375,847	2,375,847	2,559,824	2,582,929	2,690,281	2,742,991	2,742,991	2,742,991	2,742,991	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	603,783	1,006,306	1,360,338	1,212,177	0	0	0	**4,182,604**
Total Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,408,305	1,234,788	0	0	0	**4,337,484**
End-of-Month Volume (m^3)	21,687,418	21,687,418	21,687,418	21,687,418	21,687,418	22,357,727	23,381,808	24,790,113	26,024,901	26,024,901	26,024,901	26,024,901	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	857,347	857,347	857,347	857,347	857,347	931,000	950,679	1,003,784	1,028,817	1,028,817	1,028,817	1,028,817	-

Appendix WT- TAILINGS MANAGEMENT PLAN

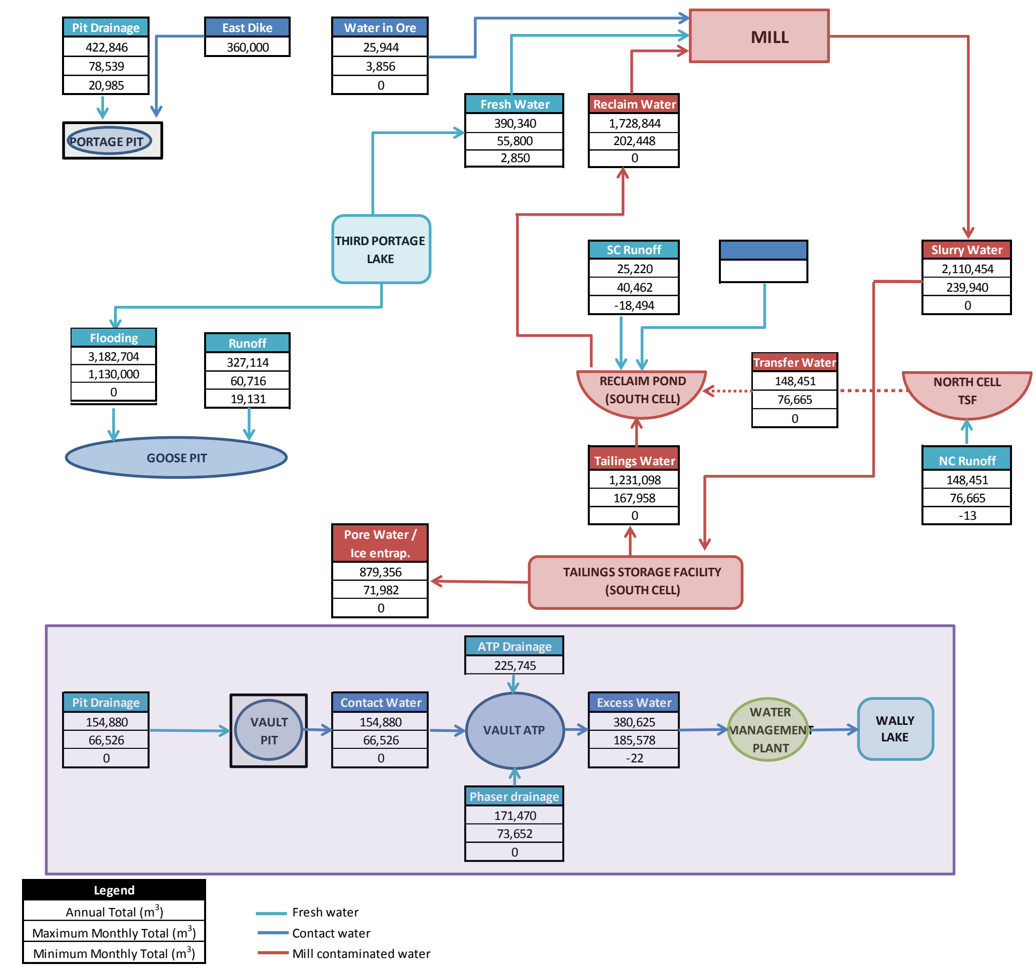
Whale Tail Pit

	Year 2025												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**366**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	36,153,676	-
Cummulative Tailings (m3) - North Cell	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	16,178,977	-
Cummulative Tailings (m3) - South Cell	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	13,845,315	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Transfer to South Cell (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
South Cell (TSF)													
Runoff (m^3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Total Outflow (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Total Inflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Freshwater for camp purposes (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Tailings water/ice entrampment (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Year 2025												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	6,523,710	6,543,023	6,562,154	6,581,285	6,600,598	6,661,314	6,691,556	6,740,853	6,774,118	6,793,249	6,812,562	6,831,693	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from SC (m^3)	0	0	0	0	0	120,735	32,259	87,052	41,036	0	0	0	**281,082**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,130,000	1,130,000	1,130,000	669,356	0	0	0	**4,059,356**
East Dike Seepage (m^3)	30,000	30,000	30,000	30,000	30,000	0	0	0	0	30,000	30,000	30,000	**240,000**
Total Inflow (m^3)	30,000	30,000	30,000	30,000	30,000	1,329,274	1,183,244	1,273,681	737,086	30,000	30,000	30,000	**4,763,284**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	30,000	30,000	30,000	30,000	30,000	1,329,274	1,183,244	1,273,681	737,086	30,000	30,000	30,000	**4,763,284**
End-of-Month Volume (m^3)	31,188,524	31,218,524	31,248,524	31,278,524	31,308,524	32,637,798	33,821,042	35,094,722	35,831,808	35,861,808	35,891,808	35,921,808	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	183,978	23,105	107,352	52,710	0	0	0	**367,144**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	314,194	0	0	0	**314,194**
Total Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	366,904	0	0	0	**681,338**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	183,978	23,105	107,352	366,904	0	0	0	**681,338**
End-of-Month Volume (m^3)	2,742,991	2,742,991	2,742,991	2,742,991	2,742,991	2,926,968	2,950,073	3,057,425	3,424,329	3,424,328	3,424,328	3,424,328	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	603,783	1,006,306	1,345,383	0	0	0	0	**2,955,472**
Total Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,393,350	22,611	0	0	0	**3,110,352**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	670,309	1,024,081	1,393,350	22,611	0	0	0	**3,110,352**
End-of-Month Volume (m^3)	26,024,901	26,024,901	26,024,901	26,024,901	26,024,901	26,695,210	27,719,292	29,112,641	29,135,253	29,135,253	29,135,253	29,135,253	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	1,028,817	1,028,817	1,028,817	1,028,817	1,028,817	1,102,469	1,122,148	1,175,253	1,200,286	1,200,286	1,200,286	1,200,286	-

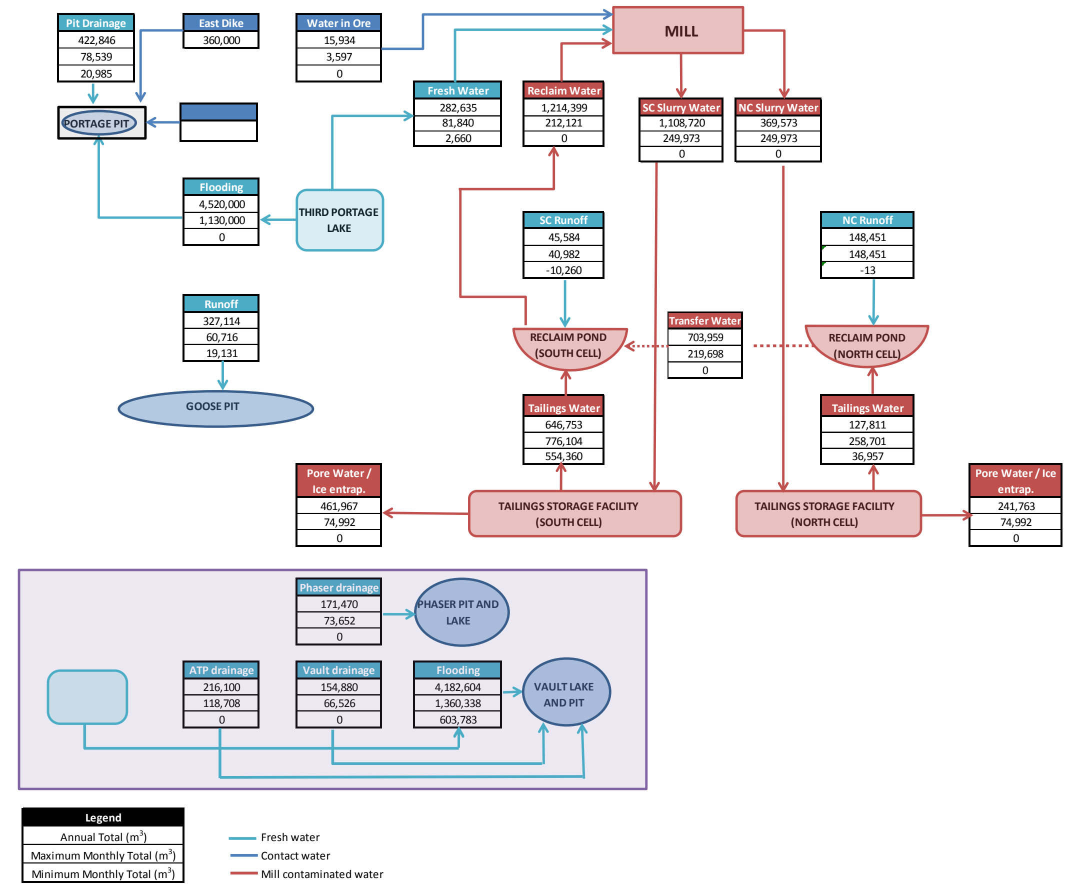
Appendix E • Flow Charts

2018



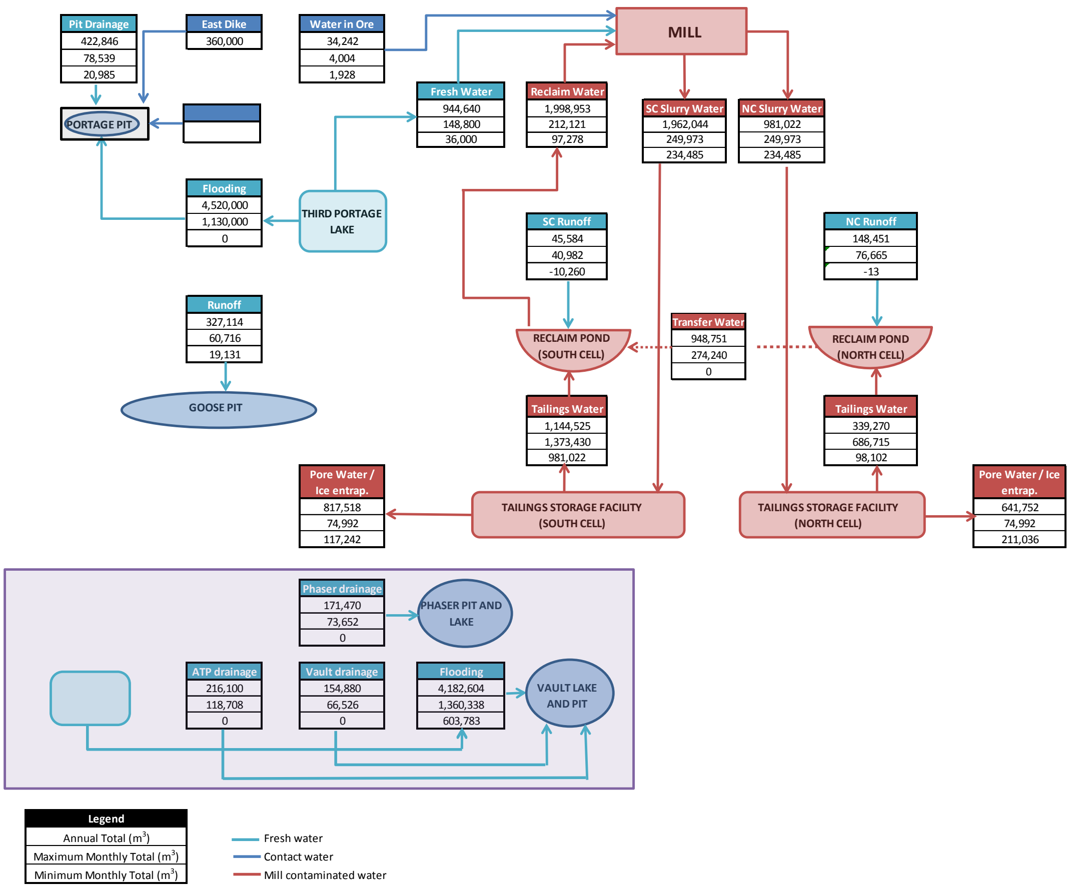
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

2019



*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

2020



*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

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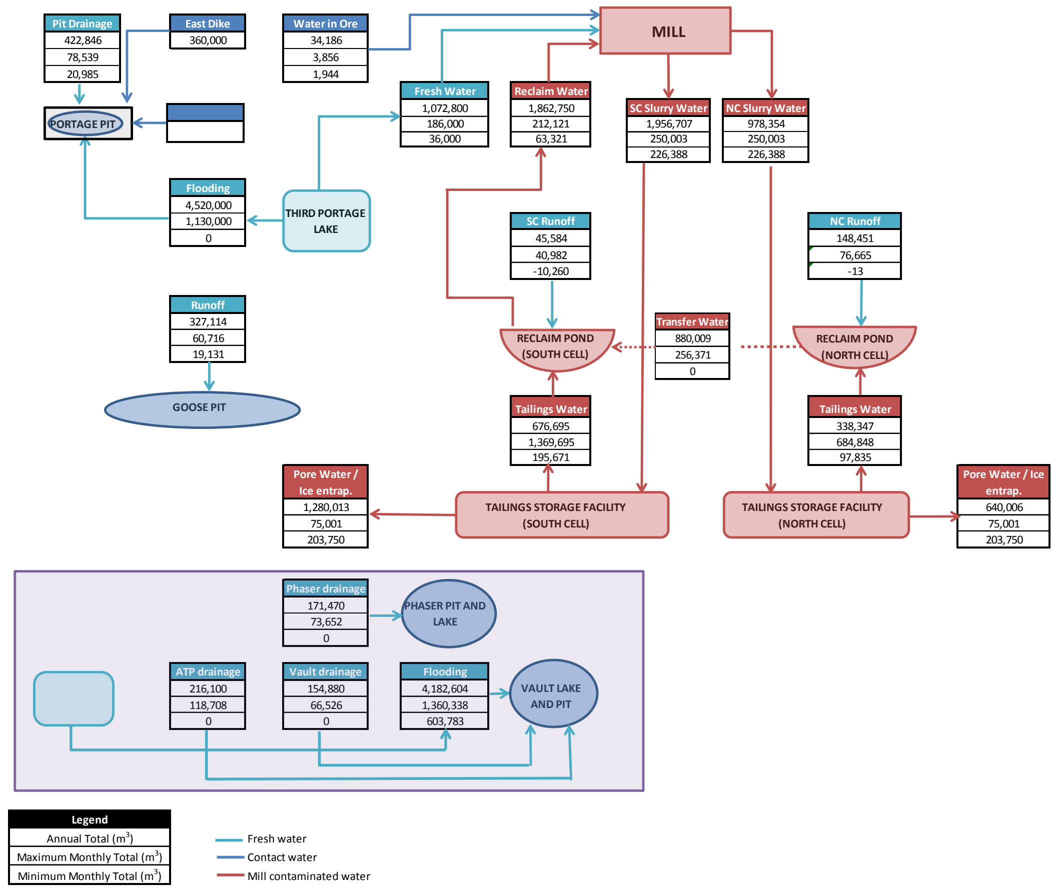
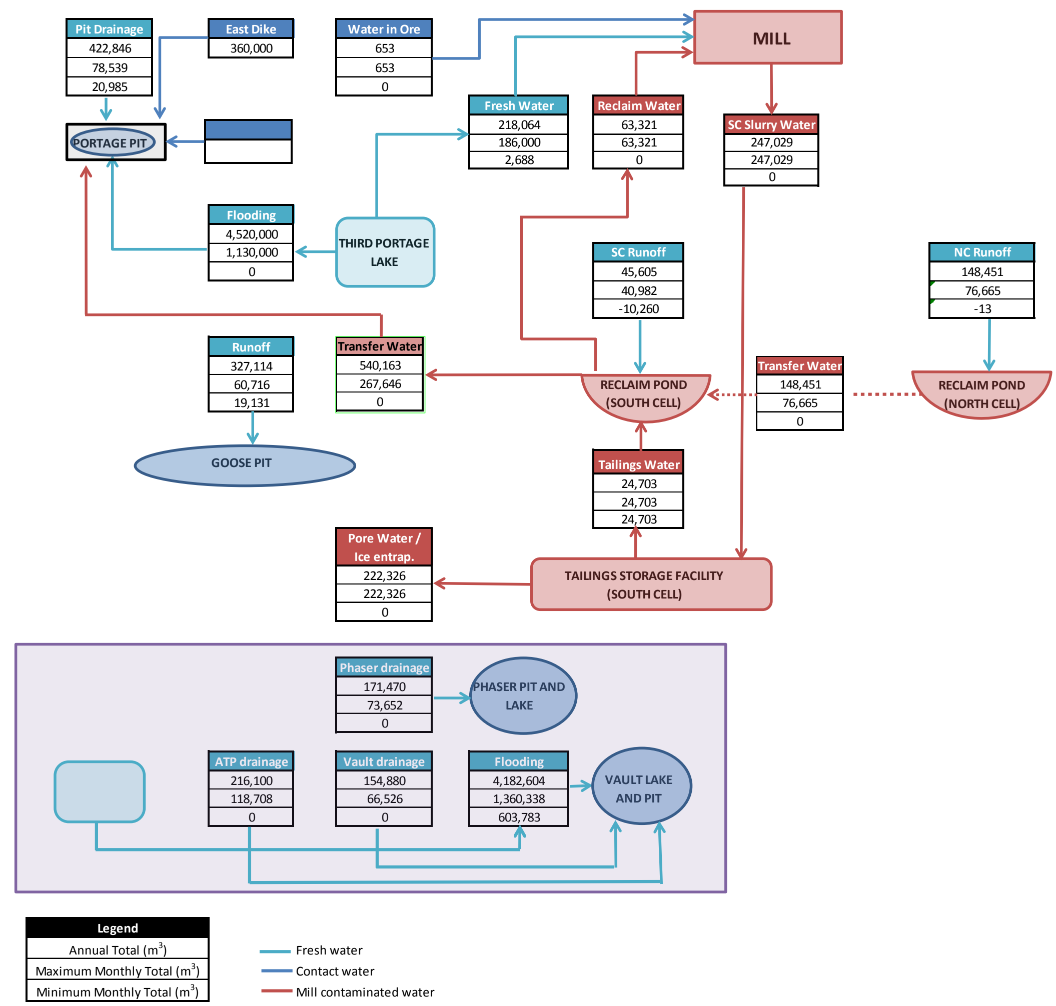
2021



*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

AGNICO EAGLE

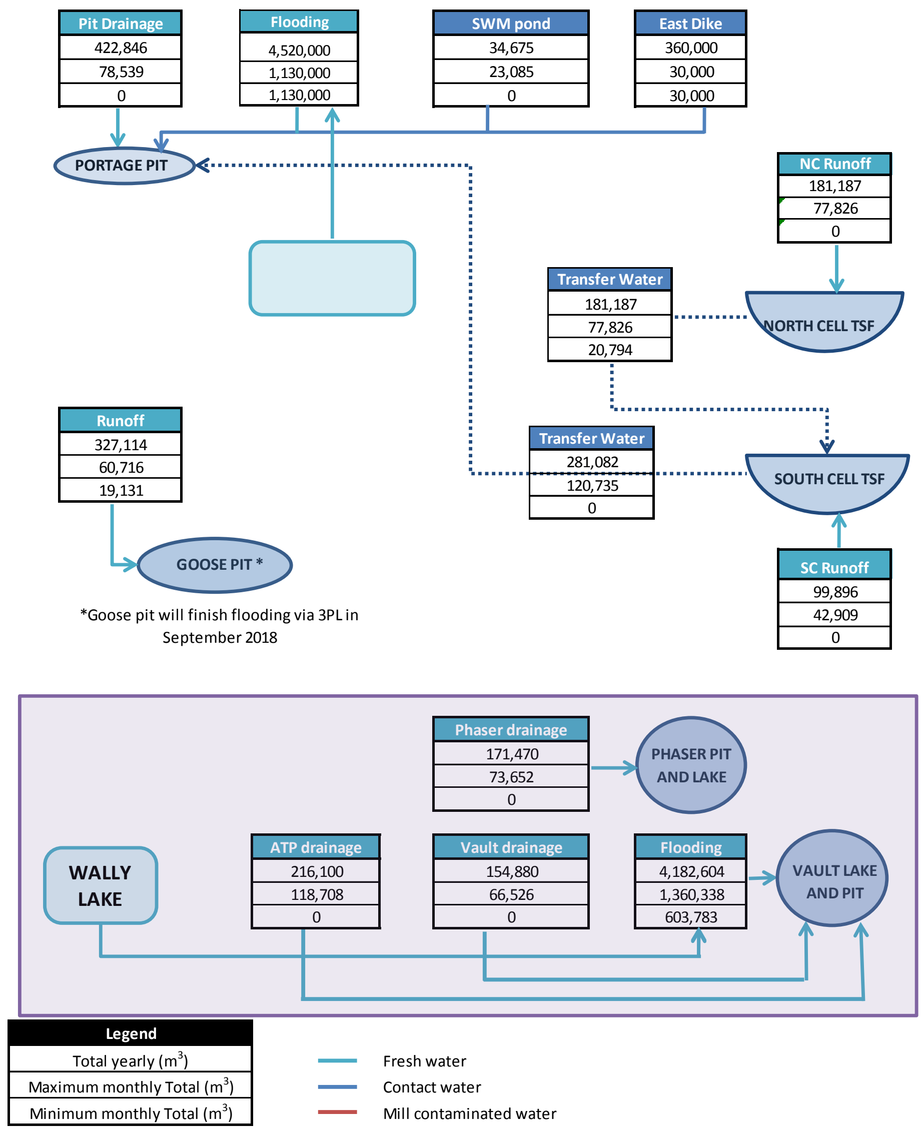
2022



*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

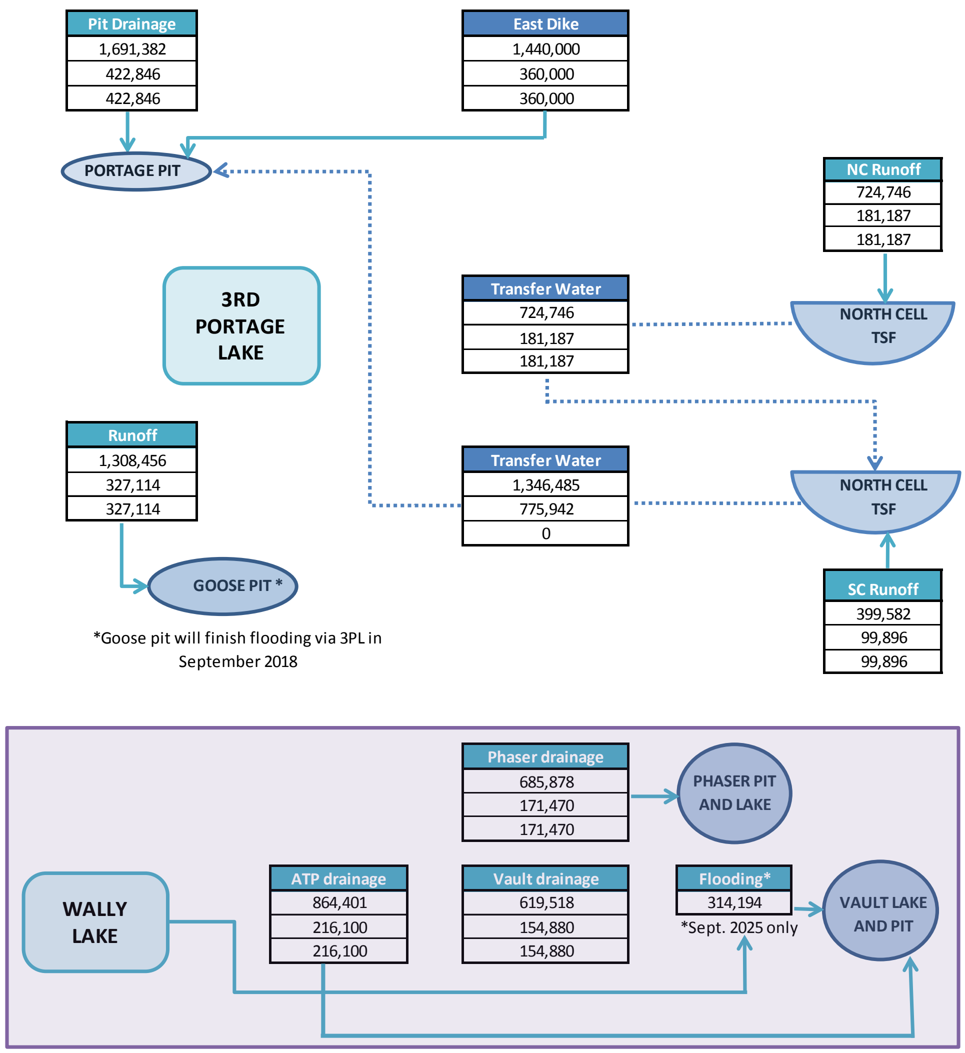
AGNICO EAGLE

2023-2024



AGNICO EAGLE

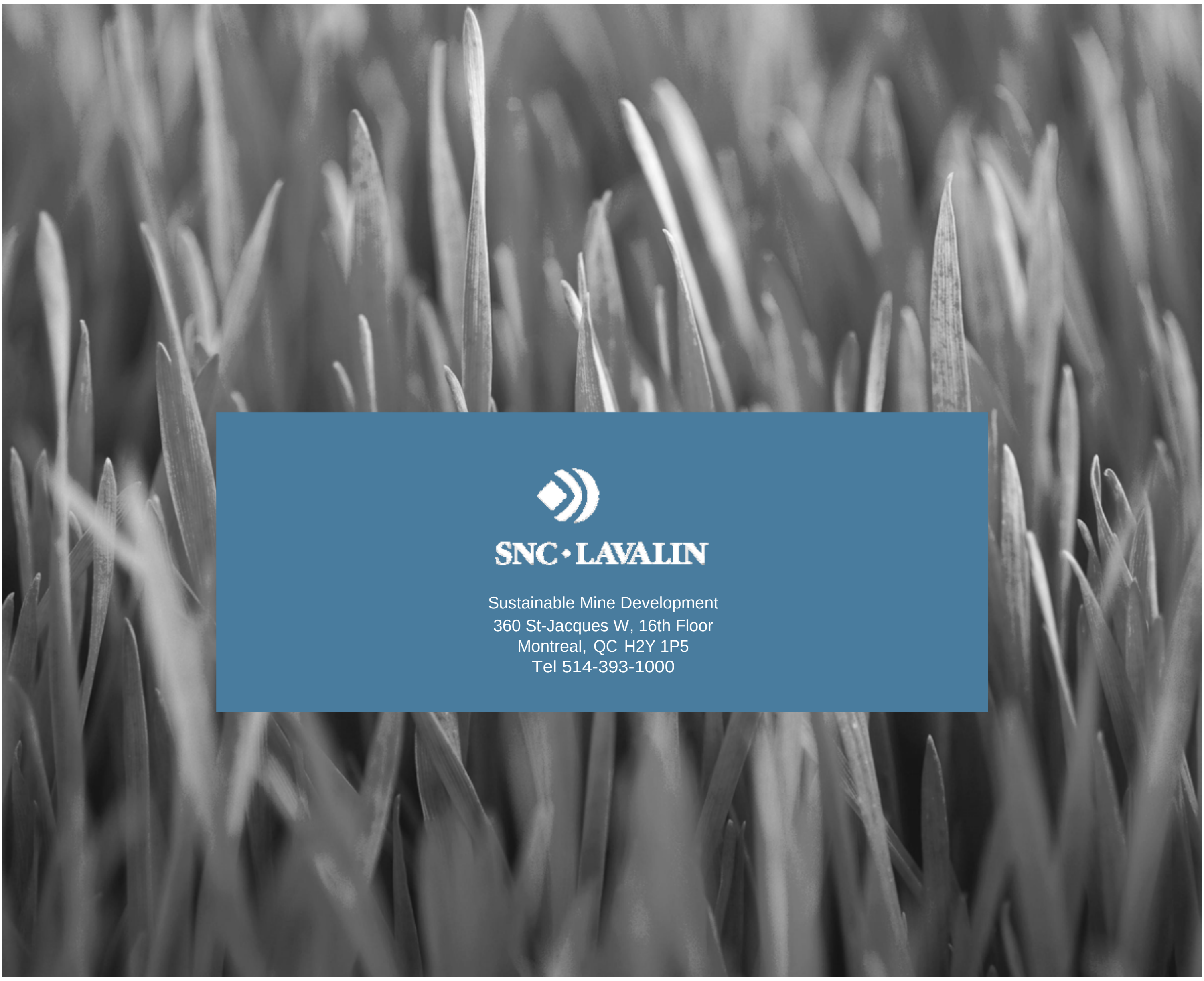
2025-2028



Legend
Total for the period (m^3)
Maximum annual Total (m^3)
Minimum annual Total (m^3)

- Fresh water
- Contact water
- Mill contaminated water

Appendix F • Tailings Storage Facility Expansion Project Phase 1- Water Quality Assessment



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Montreal, March 11th, 2016

Mr. Michel Groleau
Agnico Eagle Mines Limited
Meadowbank Division
Baker Lake, Nunavut, Canada
X0C 0A0

Subject: Tailings Storage Facility Expansion Project Phase 1 - Water Quality Assessment Technical Report
Our file: 630707-0000-40ER-0001-01

Dear Mr. Groleau,

We are pleased to submit the revision 01 of the report mentioned above.

Do not hesitate to communicate with the undersigned should you have further questions regarding the content of this report.

Regards,

SNC LAVALIN INC.

Anh-Long Nguyen, Eng.
Project Manager
Sustaining Capital Works
Mining and Metallurgy

Genevieve Beaudoin-Lebeuf, Eng.
Water Treatment Specialist
Sustaining Capital Works
Mining and Metallurgy

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LIST OF REVISIONS

Revision				Revised pages	Remarks
#	Prep.	App.	Date		
PA	GBL	ALN	2015-12-14	All	For internal review
PB	GBL	ALN	2015-12-15	All	For Client review
00	GBL	ALN	2015-12-22	All	For Client review
01	GBL	ALN	2016-03-11	All	For use

NOTICE TO READER

This document contains the expression of the professional opinion of SNC-Lavalin Inc. ("SNC-Lavalin") as to the matters set out herein, using its professional judgment and reasonable care. It is to be read in the context of the agreement dated June 19, 2015 (the "Agreement") between SNC-Lavalin and Agnico Eagle Mine (the "Client") and the methodology, procedures and techniques used, SNC-Lavalin's assumptions, and the circumstances and constraints under which its mandate was performed. This document is written solely for the purpose stated in the Agreement, and for the sole and exclusive benefit of the Client, whose remedies are limited to those set out in the Agreement. This document is meant to be read as a whole, and sections or parts thereof should thus not be read or relied upon out of context.

SNC-Lavalin has, in preparing estimates, as the case may be, followed accepted methodology and procedures, and exercised due care consistent with the intended level of accuracy, using its professional judgment and reasonable care, and is thus of the opinion that there is a high probability that actual values will be consistent with the estimate(s). Unless expressly stated otherwise, assumptions, data and information supplied by, or gathered from other sources (including the Client, other consultants, testing laboratories and equipment suppliers, etc.) upon which SNC-Lavalin's opinion as set out herein are based have not been verified by SNC-Lavalin; SNC-Lavalin makes no representation as to its accuracy and disclaims all liability with respect thereto.

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Appendix A: Water Quality Forecasting Figures

1.0 INTRODUCTION

1.1 Context

Agnico Eagle Mines Limited, Meadowbank Division (AEM) is proposing to develop Whale Tail Pit, a satellite deposit on the Amaruq property, as a continuation of mine operations and milling at the Meadowbank Mine. The Amaruq Exploration property is a 408 km² site located on Inuit Owned Land, approximately 150 km north of the Hamlet of Baker Lake and approximately 50 km northwest of the Meadowbank Mine in the Kivalliq region of Nunavut.

AEM is looking to extend the life of the mine by constructing and operating Whale Tail Pit and processing the ore at the Meadowbank Mine Site. The additional tailings generated from the Whale Tail Pit operation will be deposited in the existing TSF (North Cell and South Cell).

1.2 Mandate

SNC-Lavalin (SLI) was mandated by AEM to perform a preliminary assessment of the water quality forecast in the Goose and Portage pits at closure based on the water balance developed by AEM that incorporates the additional tailings from Whale Tail Pit deposited in the existing TSF (North and South Cells).

1.3 Study Objectives

The objectives of this report are the following:

- Review the water qualities and water balance models provided by AEM;
- Update the water quality forecasting model accordingly;
- Analyze the results for the parameters of concern supported by graphs prepared by SLI;
- Review the results at closure with the use of geochemical tools like the software program PHREEQC (USGS 2013);
- Identify different treatment options that could be implemented depending on the water quality at closure;
- Produce a Technical Report presenting findings and our interpretation.

2.0 WATER MANAGEMENT PLAN STUDIED

AEM developed a tailings deposition plan to manage the additional tailings from Whale Tail Pit within the existing North and South Cell Tailings Storage Facility (TSF). As part of this study, AEM developed a water management plan (WMP) that incorporates the Whale Tail Pit development project. Table 2-1 summarizes the preliminary schedule used for the WMP that incorporates the Whale Tail Pit development project.

Table 2-1: Schedule of Water Management Phases for the TSFE Phase 1 Project

	TSFE PHASE 1 – 9000 TPD FROM WHALE TAIL PIT (Nov. 2015 Model)	
ACTIVITY[1]	**Start Date**	**End Date**
Pits Mining and Processing at Mill		
Portage Pit	Jan.2010	Sept. 2018
Pit A (North)	Jan. 2010	Sept. 2018
Pit B, C, D (Central)	Jan. 2010	Apr. 2013
Pit E (South)	Jan. 2010	July 2016
Goose	Apr. 2012	Oct. 2015
Vault	Jan. 2014	Sept. 2018
Phaser (including potentially BB Phaser)	July 2017	Sept. 2018
Whale Tail	July 2019	Jan. 2022
Tailings Storage Facility Operations		
North Cell TSF	Jan. 2010	Oct. 2015
North Cell TSF with Whale Tail Tailings	July 2019	Sept. 2021
South Cell TSF	Dec. 2014	Sept. 2018
South Cell TSF with Whale Tail Tailings	Oct. 2019	Jan. 2022
Rock Storage Facility		
Portage RSF	Jan. 2009	March 2023
Vault RSF	Jan. 2014	Oct. 2018

[1] Periods are given from the beginning of the starting month to the end of the ending month.

	TSFE PHASE 1 – 9000 TPD FROM WHALE TAIL PIT (Nov. 2015 Model)	
ACTIVITY[1]	Start Date	End Date
Attenuation/Reclaim Ponds Water Management		
Attenuation Pond (South Cell)[2]	Jan. 2009	Nov. 2014
Attenuation Pond (Vault Lake)	July 2014	Sept. 2018
Other Activities		
Dewatering of Vault	June 2013	June 2014
Dewatering of Phaser Lake	Sept. 2016	Oct. 2016
Flooding of Portage Pit with 3PL water	Jun. 2019	Sep. 2025
Flooding of Goose Island Pit with 3PL water	Jun. 2018	Aug. 2018
Flooding of Vault Pit	Mar. 2018	Oct. 2023
Flooding of Phaser Pit	June 2018	Oct. 2023
Flooding Period Completed	NA	Dec. 2028
Breaching of dykes	2029, only if water criteria are met	

[2] After Nov. 2014, the Reclaim Pond is relocated in the South Cell TSF and the Attenuation Pond is combined with the Reclaim Pond. After this date, there is no Attenuation Pond.

3.0 WATER QUALITY ASSESSMENT

3.1 *Mass Balance Model*

3.1.1 Description

The updated water quality mass balance model used during this study was developed to help forecast trends in water quality in the Portage Area of Meadowbank for different parameters of interest from September 2014 to mine closure in 2029. The model forecasts the approximate concentrations in the North and South Cells and in the pits on a monthly time step, until 2029. This model was initially developed for the "*Water Quality Forecast for 2012-2025*" study in March 2012 based on the water balance, and is updated once a year using the updated water balance developed by AEM. It was updated for the last time in January 2015 for the following mandate: "*Meadowbank Water Quality Forecasting Update Based on the 2014 Water Management Plan*".

The water quality forecast model has the following characteristics:

- The model uses a flow and mass balance approach to forecast the concentration of different parameters in the water column;
- The model uses the monthly Reclaim Ponds surface areas defined by the deposition and closure plan;
- Dissolved concentration values are used in the model. The model assumes that the solid fraction in the water column will filter out in the tailings and/or settle out in the TSF;
- Conservation of mass is assumed for all parameters except for cyanide;
- Cyanide volatilization in the summer months is modeled;
- The main contaminant load reporting to the TSF Reclaim Ponds is from the mill effluent.

The forecasting of dissolved metals, nitrate and cyanide concentrations in the North and South Cell TSF Reclaim Ponds is based on a mass balance around the ponds performed on a monthly basis. The initial concentration in the Reclaim Ponds is based on the value forecasted in the previous month. The concentration of contaminant in the mill effluent is assumed to be constant from month to month, considering that the tailing water undergoes a cyanide destruction step that operates at an alkaline pH. Under such treatment conditions, the total cyanide concentration will be reduced and any dissolved metals present will precipitate out of solution as a metal hydroxide. For simplification purposes, the nitrate concentration in the mill effluent is assumed to be constant. Figure 3-1 schematically summarizes the mass balance approach used to forecast these parameters in the TSF Reclaim Ponds.

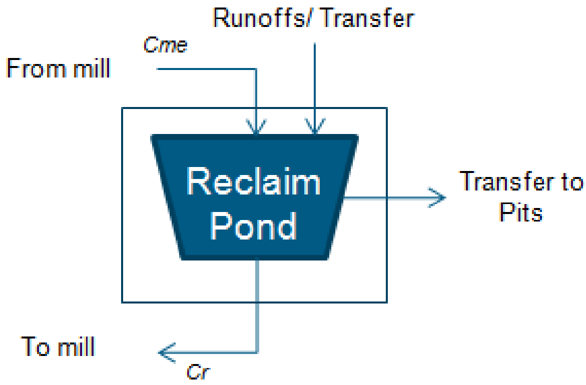


Figure 3-1: Mass balance for dissolved metals, nitrate and cyanide

For the forecasting of sulphates, chlorides and ammonia concentrations in the TSF Reclaim Ponds, the assessment considers a water/mass balance on a monthly basis around the mill and the Reclaim Ponds. Based on existing water quality data, these parameters have been shown to accumulate over time in the TSF Reclaim Ponds since they are not removed at the cyanide destruction step. Sulphate is generated from the oxidation of the sulfide present in the ore, while ammonia is generated from the hydrolysis of cyanate (i.e. end product of the cyanide destruction system). Chlorides are present in the salt added seasonally for deicing. The contaminant load for these parameters is added to the mill effluent on a monthly basis and accumulates over time. For simplification purposes, no nitrification of ammonia is assumed to occur in the TSF Reclaim Ponds during the summer months. Figure 3-2 schematically summarizes the mass balance approach used to forecast these parameters.

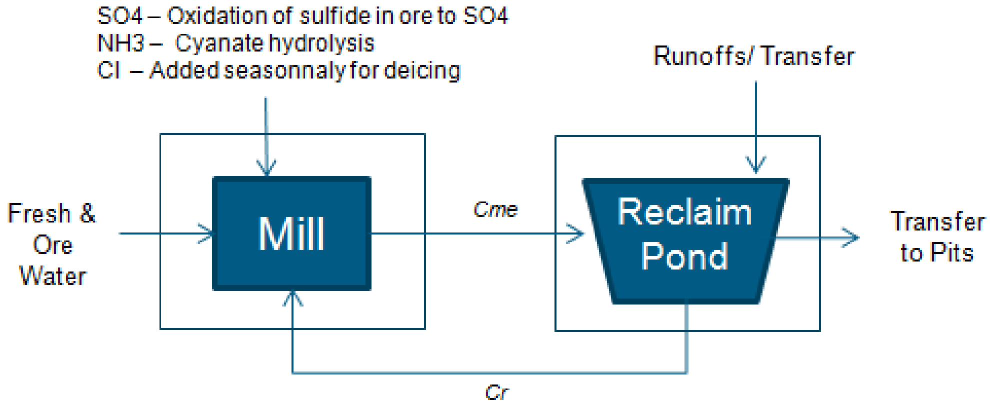


Figure 3-2: Mass balance for sulphate, chlorides and ammonia

3.1.2 Assumptions

In addition to the assumptions presented in Section 3.1.1, the following assumptions were used in the development of the mass balance model of Meadowbank:

- In order to simplify the model, the North and South Cell TSF Reclaim Ponds and the Portage and Goose pits are assumed to be **completely mixed systems**;
- The tailings in the TSF are assumed not to undergo significant amounts of sulphide oxidation. Refer to Section 3.1.4 for further discussion on this topic;
- The pH in the TSF Reclaim Ponds is, on average, 8 during the summer months, and, on average, 7.9 for the first half of the year (January to July 2014).
- In order to simplify the mass balance model, the parameters of interest are assumed to be inert: they do not degrade or react with other elements in the system, with the exception of cyanide.
- Cyanide:

  For cyanide, it is assumed that the mill effluent meets AEM's CN-WAD operational target of 16.3 mg/L at all times, based on the latest mill effluent sample.

  The total cyanide in the TSF Reclaim Ponds is comprised of free cyanide and metal-cyanide complexes (weak and strong metal cyanide complexes). As per discussions with AEM, most of the iron- and metal-cyanide complexes are precipitated in the mill. However, since the reaction is not complete or perfect, some dissolved iron- and metal-cyanide complexes are expected to remain in the mill effluent. Therefore it was assumed that 10% of the total cyanide concentration was bound as strong iron-cyanide complexes, and that another 10% of the total cyanide concentration was present as weak metal-cyanide complexes (cyanide bound with copper, zinc, and nickel). The remainder is present as free cyanide (i.e. HCN and CN^-). This agrees with values observed at other gold mine tailings sites (Simovic, 1984). These same proportions are assumed to apply to cyanide at the mill effluent.

For this model, natural cyanide degradation is only considered for the summer months.

- For this analysis, it is assumed that no treatment will take place at the North and South Cell TSF Reclaim Ponds, nor at the Portage and Goose pits.

3.1.3 Updates and Modifications to the Model

The following updates and modifications were carried out on the water quality forecast model in order to properly represent the particularities of the new closure scenario studied in this mandate:

- The water balance model dated November 2015 by AEM was entered into the water quality model. This water balance model incorporates the Whale Tail tailings deposition.
- The model was updated to forecast the following parameters in order to better evaluate and confirm if any of them could become a parameter of concern at closure. The underlined parameters are currently the parameters of concern and their forecasted trends will be presented in graphs:

  Physico-Chemical Parameters:

  - Alkalinity
  - Hardness
  - <u>Total dissolved solids</u>

  Cations:

  - Aluminium (Al)
  - Silver (Ag)
  - Arsenic (As)
  - Barium (Ba)
  - Cadmium (Cd)
  - <u>Chrome (Cr)</u>
  - Manganese (Mn)
  - Mercury (Hg)
  - Molybdenum (Mo)
  - Nickel (Ni)
  - Lead (Pb)
  - <u>Selenium (Se)</u>
  - Zinc (Zn)
  - <u>Copper (Cu)</u>
  - <u>Ammonia (NH_3)</u>
  - <u>Iron (Fe)</u>

Anions:

- Fluoride (F)
- Sulphate (SO_4)
- Cyanide (CN)
- Nitrate (NO_3)
- Chloride (Cl)

- The water balance model takes into consideration the mining of Whale Tail Pit from 2020 to 2023.
- The water balance model also reflects the Downstream Pond water transfer to Goose Pit that occurred in 2015.

3.1.4 Tailings

For Meadowbank mining and milling, the assumption that the tailings originating from the Portage, Goose and Vault pits will not undergo significant amounts of sulphide oxidation has been based on the observation that iron staining is absent from tailings materials in the North Cell TSF which suggests minimal oxidation of the sulphide content of the tailings. This may be as a result of the water saturated conditions that prevail throughout the year in the North Cell TSF. Moreover, since tailings are frozen almost all year round, this suggests that little oxidation would be expected to occur. AEM has conducted both a laboratory based SFE Leach test and SPLP1312 leach test on a representative tailings sample from the Portage/Goose/Vault pits. However, as these tests are not representative of the leachable fraction upon oxidation of the sulphide content of the tailings in field conditions, an overview of a suitable field based program has been provided in Section 6.2.

AEM has also conducted some testing on a single ore sample from the Whale Tail Pit, including an SFE Leach test. Preliminary results indicate that the tailings from Whale Tail Pit could leach slightly higher concentrations of arsenic, copper and nickel than the tailings from Portage, Goose and Vault pits, and higher concentrations of chromium.

SFE leach test results obtained from Portage/Goose/Vault tailings and Whale Tail tailings were integrated into the water quality forecast model to account for possible loading from the leaching of the tailings deposited in the TSF for that month.

3.1.5 Limitations

The limitations of the Meadowbank water quality mass balance model and ensuing results and conclusions presented in this Technical Note are listed below:

- In order to simplify the model, the mass balance model assumes that the pond and pits are completely mixed systems. However, the results from this model provide only an indication of the concentrations in the ponds and pits and these should not be considered as absolute values at this time. Future monitoring of flows and water quality would need to be undertaken to validate this assumption.
- The mass balance model is based on the water quality analysis results provided by AEM:

  Water quality data provided for ST-21 is taken from samples collected at the surface of the North Cell TSF Reclaim Pond. Therefore the concentrations provided by AEM for ST-21 may not be representative of the entire TSF Reclaim Ponds water quality.

  The water quality data used to assess the future mill effluent while processing the Whale Tail Pit ore is based on a sample from a batch SO_2/air cyanide destruction bench scale test performed on a single ore sample from the area. This water sample may not be representative of the actual future water quality when the Whale Tail Pit will be in operation.
- The model does not make allowances for the impact that changes in the TSF (surface area, volume, tailings characteristics, etc.) will have on the TSF Reclaim Ponds water quality over time.
- It should be noted that at this point, given the limitations, assumptions and limited data currently available, the model should only be used as a preliminary means to evaluate the impact of the mill effluent on the future water quality in the North and South Cell TSF Reclaim Ponds and Portage and Goose pits.

3.1.6 Input parameters

For this study, the water quality forecasting mass balance model was updated based on the following input data:

- Flows and volumes provided in the water balance developed by AEM, dated November 2015 with a production rate of 9000 tonnes of ore/day from the Whale Tail Pit;
- Assumptions presented below in Section 3.1.2;
- Water analyses for ST-21 (North Cell TSF Reclaim Pond) (sample taken on January 8th, 2015);
- Water analyses for ST-18 (South Cell TSF Attenuation Pond) (Average of 2011-2014);

- Water analyses for Third Portage Lake (Average of East Basin in Summer 2015);
- Water analyses for the mill effluent (sample taken on October 15th, 2015);
- Water analyses for the future mill effluent when Whale Tail Pit will be in operation (pilot test on March 30th, 2015);
- Water analyses for ST-19 (Portage Pit) (Average of 2015);
- Water analysis for ST-20 (Goose Pit) (sample taken on August 9th, 2015).

3.1.6.1 Input Concentrations

Table 3-1 presents the input concentrations considered for the water quality forecast model for the Mill, Third Portage Lake, South Cell, North Cell, Goose Pit and Portage Pit. The concentrations are highlighted in red when they are above the CCME guidelines highlighted in green.

Table 3-1: Input Concentrations Selected for the Mass Balance Model

Parameters	Units	MILL EFFLUENT	FUTUR MILL EFFLUENT (w/ Whale Tail)	RECLAIM ST-21 NORTH CELL	THIRD PORTAGE LAKE	RECLAIM SOUTH CELL ST-18	PORTAGE PIT ST-18	GOOSE PIT ST-20	CCME Guidelines
Basis of data used for model:		Sample taken in Oct. 15, 2015	Sample taken Mar 30, 2015 (Pilot test)	January 8, 2014	Average- East Basin Summer 2015	Avg 2011 à 2014	Average 2015	August 09, 2015	
Alkalinity	mg $CaCO_3$/L	45	135	135	9.100	115.565	67.875	75	n/a
Hardness	mg $CaCO_3$/L	2030	2030	1329	12	264.350	175.00	104.0000	n/a
Dissolved Aluminium (Al)	mg/L	0.043	0.54	0.072	0.0018	0.0097	0.0030	0.0030	0.1
Dissolved Silver (Ag)	mg/L	0.00161	0.000496	0.0001	0.000005	0.0023	0.00005	0	0.0001
Dissolved Arsenic (As)	mg/L	0.0493	0.33	0.021	0.0005	0.0035	0.0182	0.0003	0.005
Dissolved Barium (Ba)	mg/L	0.09	0.0851	0.0838	0.0037	0.0972	0.0101	0.0163	n/a
Dissolved Cadmium (Cd)	mg/L	4.59E-04	4.90E-05	1.34E-03	2.50E-06	2.13E-03	1.00E-05	1.00E-05	4.00E-05
Dissolved Chromium (VI)	mg/L	9.00E-05	1.17E-02	0	0.0001	0.0000	0	0.0003	1.00E-03
Dissolved Copper (Cu)	mg/L	5.28	5.28	9.053	0.0005	0.0042	0.0005	0.0003	0.002
Dissolved Iron (Fe)	mg/L	1.74	2.73	0.03	0.010	0.024	0.0063	0.0100	0.3
Dissolved Manganese (Mn)	mg/L	0.0116	0.186	0.0595	0.002	1.871	0.0814	0.0058	n/a
Dissolved Mercury (Hg)	mg/L	0.000005	0.000005	0.0002	0.000003	0.0002	0.00001	0.0001	0.000026
Dissolved Molybdenum (Mo)	mg/L	1.14	0.128	0.5826	0.0002	0.022	0.0405	0.0148	0.073
Dissolved Nickel (Ni)	mg/L	0.0894	0.0559	0.2525	0.001	0.018	0.020	0.009	0.025
Dissolved Lead (Pb)	mg/L	0.00061	0.0114	0.0016	0.00005	0.0023	0.00019	0.0002	0.001
Dissolved Selenium (Se)	mg/L	0.285	0.01	0.072	0.0001	0.002	0.0013	0.0005	0.001
Dissolved Zinc	mg/L	0.001	0.004	0.001	0.001	0.007	0.001	0.001	0.03
Ammonia (NH_3)	mg N/L	+ 30/mth	+ 50/mth	36.8	0.019	6.884	2.569	0.570	0.855296
Chloride	mg/L	North Cell: Winter:+2K/mth Summer: +1K/mth South Cell: Winter: +700/mth Summer: +350/mth	Winter:+2K/mth Summer: +1K/mth	1035	0.79	43.1450	12.6250	13.7000	120
Fluoride (F)	mg/L	0.39	0.17	0.180	0.079	0.547	0.2400	0.5500	0.12
Nitrate (NO_3)	mg N/L	22.8	6.05	25.500	0.033	8.293	9.0050	4.1100	2.94
Total Cyanide (CNt)	mg/L	16.3	16.3	8.330	0.0010	0.1738	0	0.0050	0.005
Sulphate (SO4)	mg SO4/L	+ 1100/mth	+ 3520/mth	2115.0000	5.1000	277.0750	120.1500	45.8000	n/a
Total dissolved solids	mg/L	North Cell: Winter:+4.4K/mth Summer: +2.8K/mth South Cell: Winter: +2.3Kmth Summer: +1.7K/mth	Winter:+6.9K/mth Summer: +5.3K/mth	1329	22.1250	739	400.875	217	n/a

A couple of items to note on the parameters used for the updated water quality forecast model in this study:

- To evaluate the concentration of ammonia that may be added to the TSF Reclaim Ponds on a monthly basis, the difference in concentration of CN-WAD before and after the cyanide destruction system was evaluated. CN-WAD was removed and converted to cyanate (CNO-). Assuming that 100% of the cyanate is hydrolyzed to ammonia (NH_3), it was evaluated that on average, approximately 30 mg N/L of ammonia was added to the mill effluent for Meadowbank exploitation, and 50 mg N/L of ammonia for the mining of Whale Tail Pit. For the purpose of the model, it is assumed that these concentrations of ammonia are added to the mill effluent every month. This additional ammonia load is added to the load already present in the reclaim water. The same concentration is added in the South Cell and North Cell.
- Based on the measured data, the chloride concentration continues to increase in the mill effluent. To account for this trend, it is assumed that 2,000 mg/L of chloride is added to the mill effluent every year during the “winter” months (October until May) and 1,000 mg/L every year during the “summer” months (June to September) in the North Cell, for operations at Meadowbank and Whale Tail Pit. For the South Cell, during Meadowbank operations, a concentration of 700 mg/L of chloride is added during the “winter” months and 350 mg/L during the “summer” months. For mining of Whale Tail Pit , the values are the same as for the North Cell. This additional chloride load is added to the load already present in the reclaim water. This value was evaluated by adjusting the model to fit with the measured chloride values in the Reclaim Ponds in 2014 and 2015.
- The sulphates are also accumulating in the mill effluent based on the measured data. After evaluating by adjusting the model to fit with the measured sulphate values, a concentration of 1,100 mg/L is assumed to be added to the mill effluent during Meadowbank exploitation and a concentration of 3,520 mg/L during mining of Whale Tail Pit. These values are the same for the North and South Cells.
- Table 3-2 summarizes the actual mill effluent water quality data and the bench scale test data obtained using Whale Tail ore. When comparing the mill effluent water quality data to the bench scale test data using Whale Tail ore, aside from sulphate concentration, the Whale Tail Pit concentrations for the different parameters are lower for the Whale Tail ore compared to the actual mill effluent values. Lower concentrations for parameters of concern in the Whale Tail mill effluent could lead to optimistic concentration values at closure. For this reason, it is assumed that the copper and cyanide concentrations are similar to the concentrations currently observed in the mill effluent.

Table 3-2: Input Concentrations Selected for the Mass Balance Model

PARAMETERS (mg/L)	Mill Effluent Sample Oct. 11, 12	Mill Effluent Sample Jan. 29, 14	Mill Effluent Sample Oct, 26, 14	Mill Effluent Sample Oct. 15, 15	Whale Tail Batch CN Detox Test March 2015
Total Cyanide	10.13	18.80	111	16.3	2.02
Dissolved Copper	7.07	7.8	6.795	5.28	0.0243
Dissolved Iron	0.83	0.8	0.14	1.74	2.73
Chloride	1375	2129	2199	1200	17
Sulphate	2683	2565	2400	2500	8000
Selenium	0.025	0.19	0.154	0.269	0.01

3.2 Water Quality Forecast Results

With the help of the water quality forecast mass balance model, the concentrations of parameters were forecasted in the Portage and Goose pits until December 2029, after the mine closure. December 2029 is the last month in the AEM water balance model.

Table 3-3 summarizes the forecasted concentrations and compares the values against the Canadian Council of Ministers of Environment (CCME) guidelines for the Protection of Aquatic Life, right before the breaching in December 2028. Any values in red indicate a concentration that is higher than the CCME recommended guideline.

Figures showing the changes in the concentrations of various parameters (cyanide, copper, iron, chromium, ammonia, nitrate, selenium, sulphate and chloride) in the North and South Cells TSF Reclaim Ponds and in the Portage and Goose pits can be found in Appendix A of this report.

The forecasted concentrations in the graphs are also compared with CCME guidelines, as well as the Water License limit and the Third Portage Lake 2015 water quality. Since there are no binding limits, the matter was discussed with AEM, and it was decided again that the CCME guidelines were the most suited guidelines for this project.

Table 3-3: Forecasted Concentration in the Portage and Goose pits at Closure (December 2028)

			Scenario A		
PARAMETERS	UNITS	CCME GUIDELINES	PORTAGE PIT	GOOSE PIT	ASSUME COMPLETE MIXING OF BOTH PITS
Alkalinity	mg $CaCO_3$/L	n/a	10.0	9.6	
Hardness	mg $CaCO_3$/L	n/a	24.3	22.5	
Total dissolved solids	mg/L	n/a	62.3	44.0	
Aluminium (Al)	mg/L	0.1	0.004	0.003	
Silver (Ag)	mg/L	0.0001	0.00001	0.00002	
Arsenic (As)	mg/L	0.005	0.002	0.001	
Barium (Ba)	mg/L	n/a	0.004	0.004	
Cadmium (Cd)	mg/L	0.00004	0.00001	0.00001	
Chromium (VI)	mg/L	0.001	0.003	0.00005	0.002
Copper (Cu)	mg/L	0.002	0.018	0.024	0.019
Iron (Fe)	mg/L	0.3	0.036	0.019	
Manganese (Mn)	mg/L	n/a	0.003	0.003	
Mercury (Hg)	mg/L	0.000026	0.000003	0.000003	
Molybdenum (Mo)	mg/L	0.073	0.002	0.006	
Nickel (Ni)	mg/L	0.025	0.0008	0.0010	
Lead (Pb)	mg/L	0.001	0.00009	0.00005	
Selenium (Se)	mg/L	0.001	0.0001	0.0014	0.0003
Zinc	mg/L	0.03	0.001	0.001	
Ammonia (NH_3) (ionized)	mg N/L	0.86	0.45	0.33	
Chloride	mg/L	120	10.5	7.4	
Fluoride (F)	mg/L	0.12	0.08	0.08	
Nitrate (NO_3)	mg N/L	2.94	0.08	0.15	
Sulphate (SO4)	mg SO4/L	n/a	47.0	19.0	
Total Cyanide (CNt)	mg/L	0.000005	0.000004	0.000	

3.3 Discussions

3.3.1 Forecasted Concentrations

The parameters with higher forecasted concentrations than the CCME guidelines are copper for both pits, chromium (VI) for Portage Pit and selenium for Goose Pit. The forecasted concentration for selenium in Goose Pit is very close to the CCME guidelines. The forecasted concentration for chromium in Portage Pit is very close to the CCME guideline. Forecasted copper concentrations however are high relative to the CCME guidelines.

The Portage and Goose pits will become hydraulically linked once the water level in both pits reaches 131 masl. Based on the lake data available and assumptions made in the original water quality modelling, the assumption is that both pits are well mixed. Complete mixing of both pits was assumed for those parameters and the model was updated to take this into account. The new concentrations are shown in a third column for each scenario. When the complete mixing of pits is considered, copper and chromium (VI) concentrations still do not meeting the guidelines, but the selenium concentration does. These values provide an indication of the possible attenuation, but this needs to be confirmed with further modeling and monitoring.

Furthermore, in 2015, water from the South Cell TSF Reclaim Pond was flowing through the Central Dike and accumulating in the downstream basin. The Downstream Dike water was pumped back to the South Cell TSF Reclaim Pond. This excess water was eventually transferred in 2015 to Goose Pit. This caused an increase in the load of most parameters in this pit, as seen in the graphs presented in the Appendix A. Given there were very few exceedances in Goose Pit, the impacts on the water quality at closure are not major for now, but they should be analyzed if other transfers are planned.

3.3.2 Actual Concentrations vs Forecasted Concentrations in the North and South Cells

In the figures in Appendix A, measured concentrations taken in the North and South Cells TSF Reclaim Ponds in 2014 and 2015 are plotted against the forecasted concentrations in order to assess the accuracy of the model.

Based on this comparison, the following observations can be made:

- In general, the forecasted concentrations follow the same trend as the actual measure concentration.
- There have been some unforecasted peak copper concentrations, which match peaks in cyanide concentrations measured in the North Cell during the summer of 2015. This could be due to an operational issue with the cyanide destruction system. The operating pH could be too low, leading to higher cyanide concentrations and lower copper hydroxide precipitation. Besides these peaks, the copper actual concentrations vary many times between 0 and 10 mg/L, but stays within the range of the forecasted concentrations. However, South Cell's actual and forecasted concentrations trends are

comparable. For cyanide, both South Cell and North Cell's forecasted trends are lower than the measured concentrations.

- For iron, both forecasted trends are slightly higher than the actual concentrations, and are more pronounced in the North Cell. This suggests that most of the iron is present as a particulate that settles out readily in the TSF.
- The nitrate measured concentrations in the North Cell vary often between 5 and 65 mg/L while the forecasted concentrations stays within the range of 10 to 55 mg/L within the same period. For the South Cell, the actual trends are a bit lower than the forecasted concentrations.
- For both the South and North Cells, the selenium measured concentration trends are slightly lower than the forecasted concentrations.
- The measured and forecasted concentrations for sulphate are similar.
- The forecasted chloride concentration in South Cell TSF Reclaim Pond matches the measured concentrations. For the North Cell, forecasted and actual concentrations are in the same range, but the actual measured values vary a lot more.
- For ammonia, forecasted and measured concentration trends for both the North and South Cells are somewhat similar.
- The total dissolved solids forecasted concentration trends are similar to the measured trends in both North Cell and South Cell.

For the 2015 Meadowbank Water Quality Forecast Update, the model will be adjusted for iron, chlorides, selenium and cyanide in order to better reflect the measured values taken in the North and South Cells.

3.3.3 General Comments

The model used to forecast these concentrations is based on performing a mass balance only around the North and South Cell TSF ponds and the Portage and Goose pits. It does not take into account any geochemical reactions that could help precipitate or co-precipitate some elements, thus further reducing the concentration of certain parameters in the water column. Consequently, the results of the forecast model presented in this section can be considered conservative, since it assumes no loss of load from month to month.

In the following section of the report, the impact of geochemical reactions on equilibrium concentrations in the water column will be evaluated and discussed.

4.0 GEOCHEMICAL MODELLING

4.1 General

The following section presents the results from the geochemical modelling done using the forecasted water quality model results presented in Section 3.0.

The purpose of this exercise is to determine resulting bio-available concentrations of contaminants in the water column once total suspended solids have settled and chemical equilibrium is reached (i.e. account for processes such as mixing, gas phase equilibrium, adsorption and mineral precipitation that are likely to affect liable concentrations of metals, metalloids and sulphate).

4.2 Methodology

The USGS geochemical modelling tool PHREEQC (USGS 2015) was used to evaluate the equilibrium concentration in the water column for two periods: (1) in the North and South Cell TSF Reclaim Ponds at the end of September 2018 and (2) at closure in the Portage and Goose pits in December 2028. The inputs to the model were the forecasted concentrations evaluated using the forecasted water quality mass balance model discussed in Section 3.

4.3 Assumptions

The following assumptions were made when developing the geochemical model using the PHREEQC modeling tool:

- The concentrations used in the model are dissolved concentrations.
- The results obtained under equilibrium conditions assume that all of the total suspended solids have settled out of the water column.
- The tailings are assumed to be non-reactive in terms of oxidation of sulphide content, which is likely as long as there is a sufficiently deep water cover that is maintained over the tailings. As previously mentioned in Section 3.1.4, anecdotal information suggests the absence of iron staining of tailings materials in the North Cell TSF which infers that current oxidation of the sulphide content of the tailings is minimal.
- The Goose and Portage pits are assumed to be **completely mixed systems.**
- Input ammonia and nitrate are considered collectively as nitrate for the purpose of tracking total nitrogen as there is insufficient information to describe nitrification and de-nitrification pathways in these water bodies.
- Adsorption processes are limited to those associated with amorphous phase ferrihydrite.
- Gas phase equilibrium is limited to oxygen and carbon dioxide.

- Precipitating minerals are limited to those that would reach a positive saturation index.

4.4 Results

Table 4-1 presents the concentrations established by the water quality forecast modeling tool used as an input to the geochemical model and the forecasted equilibrium concentrations evaluated using the PHREEQC modeling tool after the end of Meadowbank operations in September 2018 in North and South Cells, and in Goose and Portage pits at closure in December 2028. The results are compared against the following:

- CCME guidelines for the Protection of Aquatic Life for all parameters other than total nitrogen.
- Total nitrogen has been compared with the threshold concentration for classification of an Oligotrophic lake in terms of nutrient concentrations (Nurnberg 1996). The basis of the use of this threshold concentration is that the various lake systems that surround the mine are considered Oligotrophic (Azimuth. 2015).

Any values highlighted in bright red indicate an equilibrium concentration at closure that is higher than the adopted guideline value, while a pale red value indicates a concentration forecasted by the water quality mass balance model that is higher than the adopted guideline value at closure.

The light gray and red font cells highlight parameters that exceed the CCME guidelines based on the forecasted concentration evaluated at the end of September 2018 (i.e. period before the beginning of Whale Tail Pit operation), while the dark grey cells for that same period indicate parameters where the equilibrium concentrations are higher than the CCME guidelines.

Table 4-1: Forecasted Equilibrium Concentrations (Eq. Conc.) in the North and South Cells and Portage and Goose pits

PARAMETERS	UNITS	CCME GUIDELINES	3rd PORTAGE LAKE (avg. Summer 2015)	AT END SEPT. 2018						AT CLOSURE, BEFORE BREACHING DEC. 2028					
				NORTH CELL		SOUTH CELL		MIXED PITS		PORTAGE PIT		GOOSE PIT		MIXED PITS	
				Mass Balance Conc.	PHREEQC Eq. Conc.	Mass Balance Conc.	PHREEQC Eq. Conc.	Mass Balance Conc.	PHREEQC Eq. Conc.	Mass Balance Conc.	PHREEQC Eq. Conc.	Mass Balance Conc.	PHREEQC Eq. Conc.	Mass Balance Conc.	PHREEQC Eq. Conc.
pH				8.5	7.61	8.5	7.84	8.5	7.80	7.5	7.57	7.5	7.57	7.50	7.57
Alkalinity	mg $CaCO_3$/L	n/a	9.1	11	12	69	81	59.7	69.93	10	24	10	9	9.68	11.54
Hardness	mg $CaCO_3$/L	n/a	12	233	232	1546	1517	1335.8	1310.83	25	25	22	22	22.85	22.51
Total dissolved solids	mg/L	n/a	22.1	1661		4247		3832.1		64		44		47.39	
TDS equiv. calculated	mg/L			2333		6642		5950.7		100		50		58.47	
Sodium charge balance	mg/L			695		1535		1400.2		22		6		8.71	
Aluminium (Al)	mg/L	0.1	0.0018	0.0202	0.000208	0.118	0.000378	0.102343	0.0003507	0.00362	0.000166	0.00260	0.000163	0.002769	0.00016351
Silver (Ag)	mg/L	0.0001	0.000005	0.000255	0.000255	0.001615	0.001610	0.001397	0.001393	0.00000673	0.00000399	0.0000175	0.00000942	0.000016	0.00000850
Arsenic (As)	mg/L	0.005	0.0005	0.00857	0.00000440	0.0538	0.0000984	0.046510	0.0000833	0.00190	0.000000129	0.000843	0.00000004	0.001022	0.00000006
Barium (Ba)	mg/L	n/a	0.0037	0.0113	0.00794	0.0737	0.00466	0.06371	0.0051862	0.00392	0.00378	0.00419	0.00405	0.004148	0.00400427
Cadmium (Cd)	mg/L	0.00004	0.000003	0.000165	0.00004	0.000975	0.00068	0.00085	0.00058	0.00000912	0.00000021	0.0000108	0.00000023	0.000010	0.00000023
Chromium (VI)	mg/L	0.001	0.0001	0.0000208	0.00001	0.000127	0.00009	0.00011	0.00008	0.00299	0.00027	0.0000505	0.0000037	0.000549	0.00004936
Copper (Cu)	mg/L	0.002	0.0005	0.512	0.00027	3.489	0.00586	3.011	0.00497	0.0184	0.0000039	0.0236	0.0000050	0.0227	0.00000479
Iron (Fe)	mg/L	0.3	0.0100	0.196	0.000000011	1.304	0.000000008	1.126	0.00000001	0.0371	0.000000011	0.0186	0.000000011	0.021763	0.00000001
Manganese (Mn)	mg/L	n/a	0.0015	0.00313	0.00000000017	0.0188	0.0000000001	0.01631	0.0000000	0.00340	0.00000	0.00298	0.00000000007	0.003047	0.00000000
Mercury (Hg)	mg/L	0.000026	0.000003	0.00000151	0.0000012	0.00000891	0.00001	0.0000077	0.0000077	0.00000253	0.00000043	0.00000271	0.00000043	0.000003	0.00000043
Molybdenum (Mo)	mg/L	0.073	0.0002	0.119	0.11025	0.800	0.78918	0.691	0.68025	0.00159	0.00118	0.00551	0.00382	0.004841	0.00337140
Nickel (Ni)	mg/L	0.025	0.0006	0.00913	0.00139	0.062	0.0616	0.053	0.05194	0.000840	0.00002	0.000981	0.00002	0.000957	0.00002425
Lead (Pb)	mg/L	0.001	0.0001	0.0000671	0.00E+00	0.000447	0.00000019	0.000386	0.0000002	0.0000862	0.00000000037	0.0000542	0.00000000022	0.000060	0.00000000
Selenium (Se)	mg/L	0.001	0.0001	0.0300	0.0299	0.201	0.201	0.174	0.17350	0.000106	0.00011	0.00139	0.00138	0.00117	0.00116
Zinc	mg/L	0.03	0.0010	0.000298	0.00001	0.00178	0.00028	0.00154	0.0002364	0.000969	0.00001	0.00101	0.000006	0.001003	0.00000652
Chloride	mg/L	120	0.79	602.3	602.3	1131.1	1131.0	1046.259	1046.2	10.8	10.8	7.4	7.4	8.0	7.97514036
Fluoride (F)	mg/L	0.12	0.079	0.096	0.096	0.582	0.582	0.504	0.504	0.0765	0.0765	0.083	0.083	0.082	0.08190602
Sulphate (SO4)	mg SO4/L	n/a	5.1	915.5	914.1	3293	3292	2911	2911	48.2	47.8	19.0	18.8	23.9	23.67912699
Total Cyanide (CNt)	mg/L	0.005	0.001	3.97E-10	7.70E-11	2.32	0.825	1.950	0.69	0.00000411	0.00000057	0.0000019	0.00000024	0.0000023	0.00000030
Ammonia (NH_3) (ionized)	mg N/L	0.86	0.019	19.9		73.0		64.5		0.454		0.326		0.347	0.00000000
Nitrate (NO_3)	mg N/L	2.94	0.033	2.573		17.1		14.8		0.0847		0.153		0.141	0.00000000
Total N equivalent	mg N/L	0.35	0.052	22.5	22.5	90.1	90.2	79.3	79.3	0.538	0.538	0.478	0.478	0.489	0.488

Notes: [1]Assumes threshold concentration for Chromium (VI).

[2]Uses threshold concentration for classification of an Oligotrophic lake in terms of nutrient concentrations (Nurnberg 1996).

[3]Cells in "pale or bright red" indicate forecasted and equilibrium concentration respectively at closure that are higher than CCME guidelines.

[4]Cells highlighted in "light or dark grey" indicated forecasted and eq. Conc. parameters respectively in the North and South Cells that are higher than CCME guideline.

4.5 Discussion

Modeling of equilibrium conditions predicts that the following soluble constituents will be removed from solution to a significant extent as a result of the precipitation of various oxides, hydroxides, co-precipitates and adsorption to amorphous ferrihydrite: aluminum, arsenic, cadmium, chromium, copper, iron, manganese, mercury, nickel, lead, zinc and cyanide.

The following constituents are predicted not to undergo a significant lowering in soluble concentration as a result of the same geochemical processes: silver, barium, molybdenum, selenium, total nitrogen, chloride, fluoride and sulphate.

North & South Cells in 2018

From October 2018 to June 2019, no ore will be processed through the mill, as the Meadowbank Mine operations will have ended, and Whale Tail Pit operations will not have started yet. Therefore, no tailings deposition will occur in the North and South Cell TSF.

A simulation was performed with the geochemical tool PHREEQC to evaluate the dissolved fraction of the different constituents that will remain in solution at equilibrium. The results are presented in Table 4-1. It is observed that there is some decrease in the concentrations of most parameters of concern. However, for most of parameters, it is not enough to meet the CCME guidelines. It is noted that there are more parameters of concerns that do not meet the guidelines in the South Cell than in the North Cell.

Portage and Goose Pits in 2028

Another geochemical simulation was performed using the forecasted concentrations of December 2028, before the breaching of dykes begins between Goose Pit, Portage Pit and Third Portage Lake in 2029. The parameters of concern that do not meet the guidelines with the mass balance approach were presented in Section 3-2, which are copper in both pits, chromium (VI) in Portage Pit and selenium in Goose Pit. Total nitrogen was also added to the list of parameters and does not meet the CCME guidelines for both pits with the mass balance approach.

When modeling these parameters, the predicted equilibrium concentrations exceed the CCME guideline for total nitrogen in both pits, and for selenium in Goose Pit. It should be noted that the concentrations of these parameters are only slightly lower at equilibrium.

5.0 TREATMENT REQUIREMENTS

Based on the results of the water quality mass balance presented in Section 3 and the PHREEQC model presented in Section 4, treatment may be required for metal removal (primarily for selenium but potentially for other metals as well if the assumption that there is no re-suspension of solids is not accurate) and ammonia (to reduce total nitrogen). Treatment could be ideally undertaken at the South Cell and the North Cell TSF Reclaim Ponds.

If high selenium concentrations persist, different treatment methods based on the adsorption process may be considered, such as: iron co-precipitation, zero valent iron (oxidation), ion exchange, activated alumina or carbon.

If it is required to ensure that all metals are precipitated out, treatment for other metals (ie: copper) should be planned. It may be removed through pH adjustment: caustic or lime can be added to the effluent to increase the pH to 9, causing the formation of metal hydroxide precipitates, which settle out. The different treatment options that may be considered to implement the precipitation of metals other than selenium are listed below:

- The existing Attenuation Pond water treatment plant (WTP) can be modified for metal precipitation with the addition of a lime or sodium hydroxide dosing system. The water will be eventually transferred from the North Cell to the South Cell TSF Pond. Then, the water could be pumped from the South Cell TSF pond to the WTP for treatment, and be recirculated back to the pond. Note that the average pH in 2015 in the Attenuation Pond was 7.97.
- Treatment in situ at South Cell TSF Reclaim Pond or at Portage and Goose pits. Lime or sodium hydroxide would be added in the pit, and the solids would settle in the pond.
- Increase the pH of the tailings water at the cyanide destruction system to favour the precipitation of dissolved metals as metal hydroxides so that they can settle out in the TSF.

If ammonia concentrations are too high, ammonia can be removed through a variety of treatment methods:

- In-situ aeration during the summer months;
- Biological treatment;
- Chemical oxidation;
- Membrane processes such as reverse osmosis;
- Ion exchange.

These technologies should be studied and evaluated in detail to determine if they are applicable to site and effluent conditions at Meadowbank. Laboratory and/or in-situ pilot tests should also be considered to validate the treatment method selected.

6.0 CONCLUSIONS

SNC-Lavalin was mandated by AEM to perform a preliminary assessment of the water quality forecast in Goose and Portage pits at closure based on the water balance developed by AEM that incorporates the additional tailings from Whale Tail Pit deposited in the existing TSF (North and South Cells).

The results of this feasibility assessment demonstrated the following:

- With regard to the water quality forecast in the pits at closure using a mass balance approach, the results show higher concentrations than the CCME guidelines for copper in both pits, chromium (VI) in Portage Pit and selenium in Goose Pit. When both pits are completely mixed, copper and selenium are still above the CCME guidelines;
- Chromium was not identified as a parameter of concern when assessing the water quality forecast with only tailings from Meadowbank only.
- In 2018, before Whale Tail Pit operations begin, many parameters could be above the CCME guidelines in North and South Cell TSF Reclaim Ponds based on the mass balance forecast approach. When evaluating the equilibrium concentrations using the geochemical modelling tool, some concentrations decrease, but in most cases, not enough to reach concentrations below the CCME guidelines;
- At closure, when evaluating the equilibrium concentrations using the geochemical modelling tool, the parameters of concern that remain above the CCME guidelines in the Goose and Portage pits are selenium and total nitrogen. Therefore these two parameters should be closely monitored and treatment should be considered in the event that these two parameters remain elevated in the TSF Reclaim Ponds. More accurate data on the Whale Tail tailings should be collected before a treatment strategy is developed.

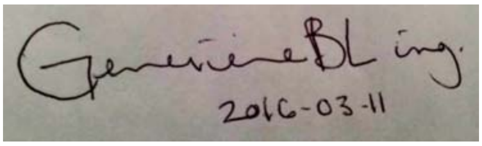
7.0 PERSONNEL

This report has been prepared by Geneviève Beaudoin-Lebeuf. We trust that this report is to your satisfaction. Should you have any questions, please do not hesitate to contact me.

Anh-Long Nguyen

SNC LAVALIN INC.
Sustainable Mine Development
Mining & Metallurgy

Prepared by:

Name	*Title*	*Signature*
Geneviève Beaudoin-Lebeuf, Eng.	Water Treatment Engineer	

Verified by:

Name	*Title*	*Signature*
Anh-Long Nguyen, Eng.	Project Manager	

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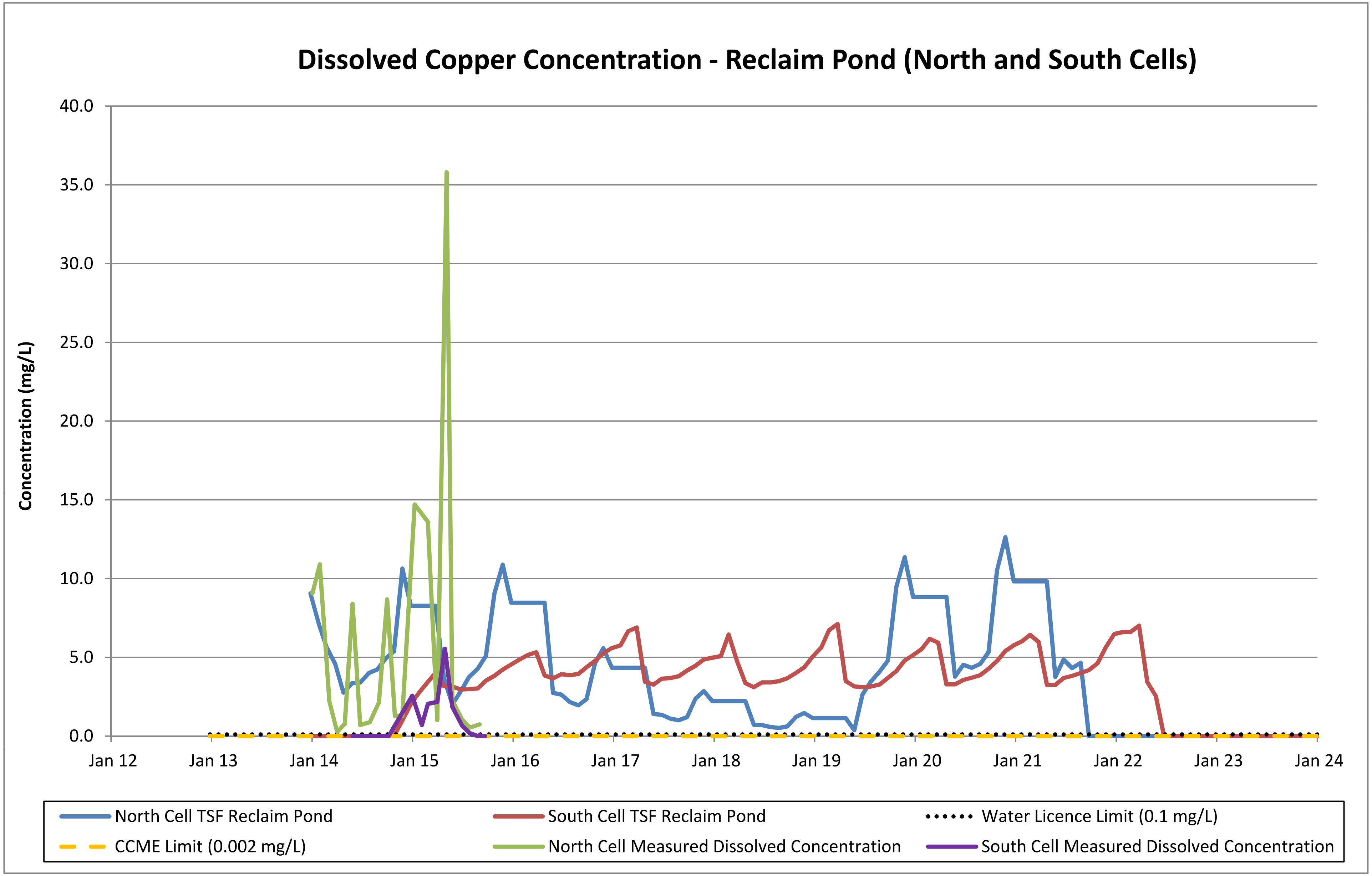
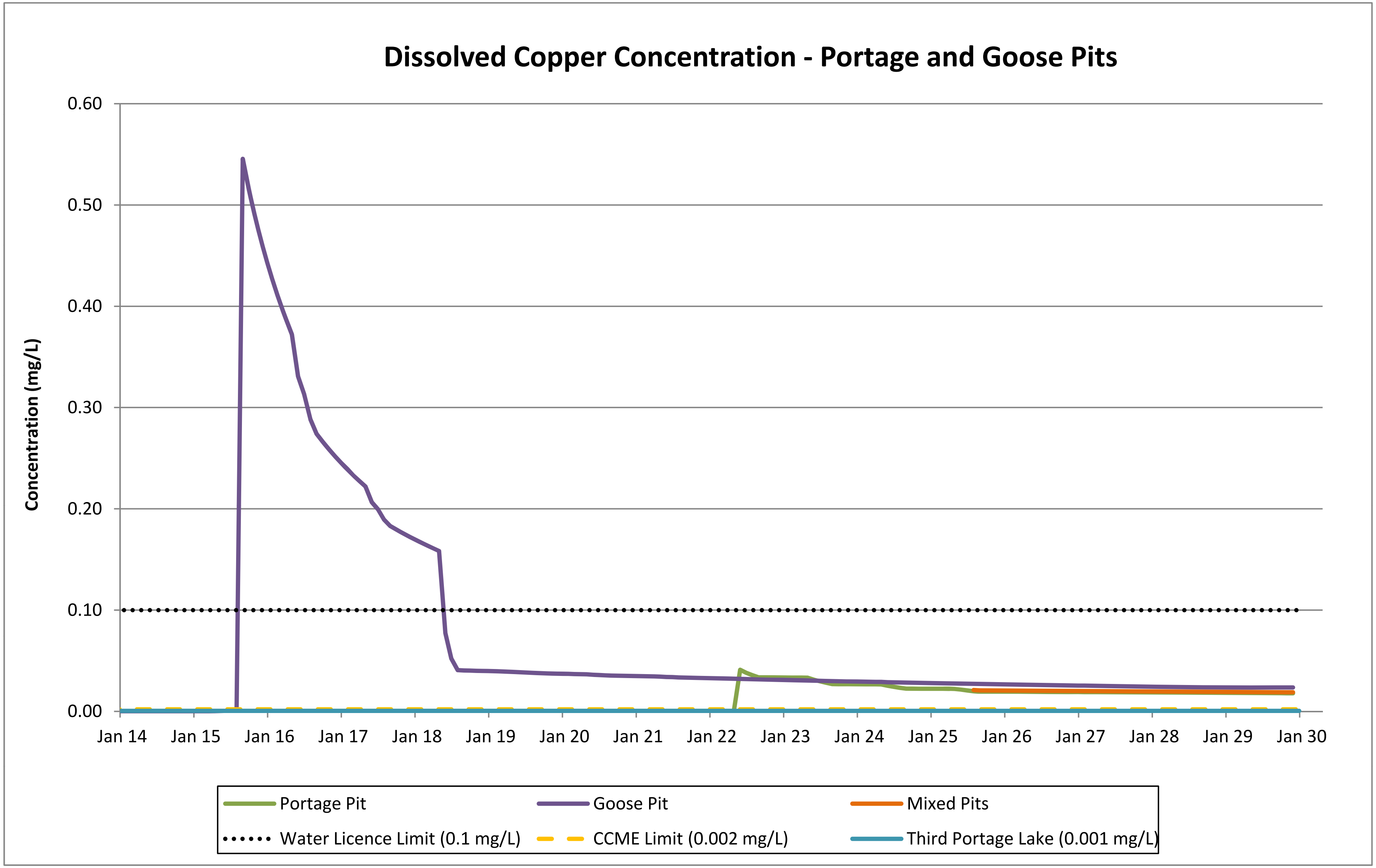
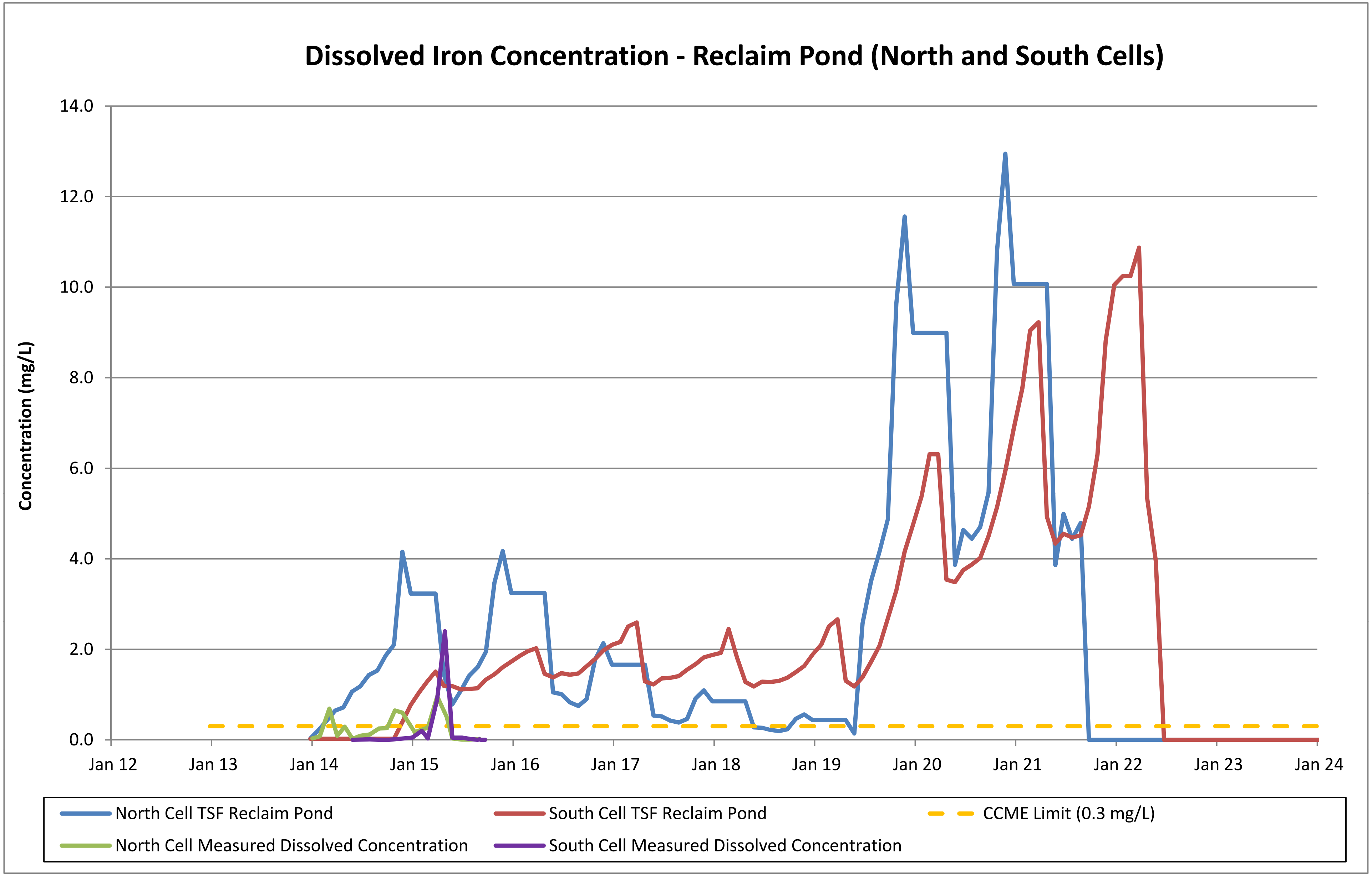
Water Quality Forecasting Figures

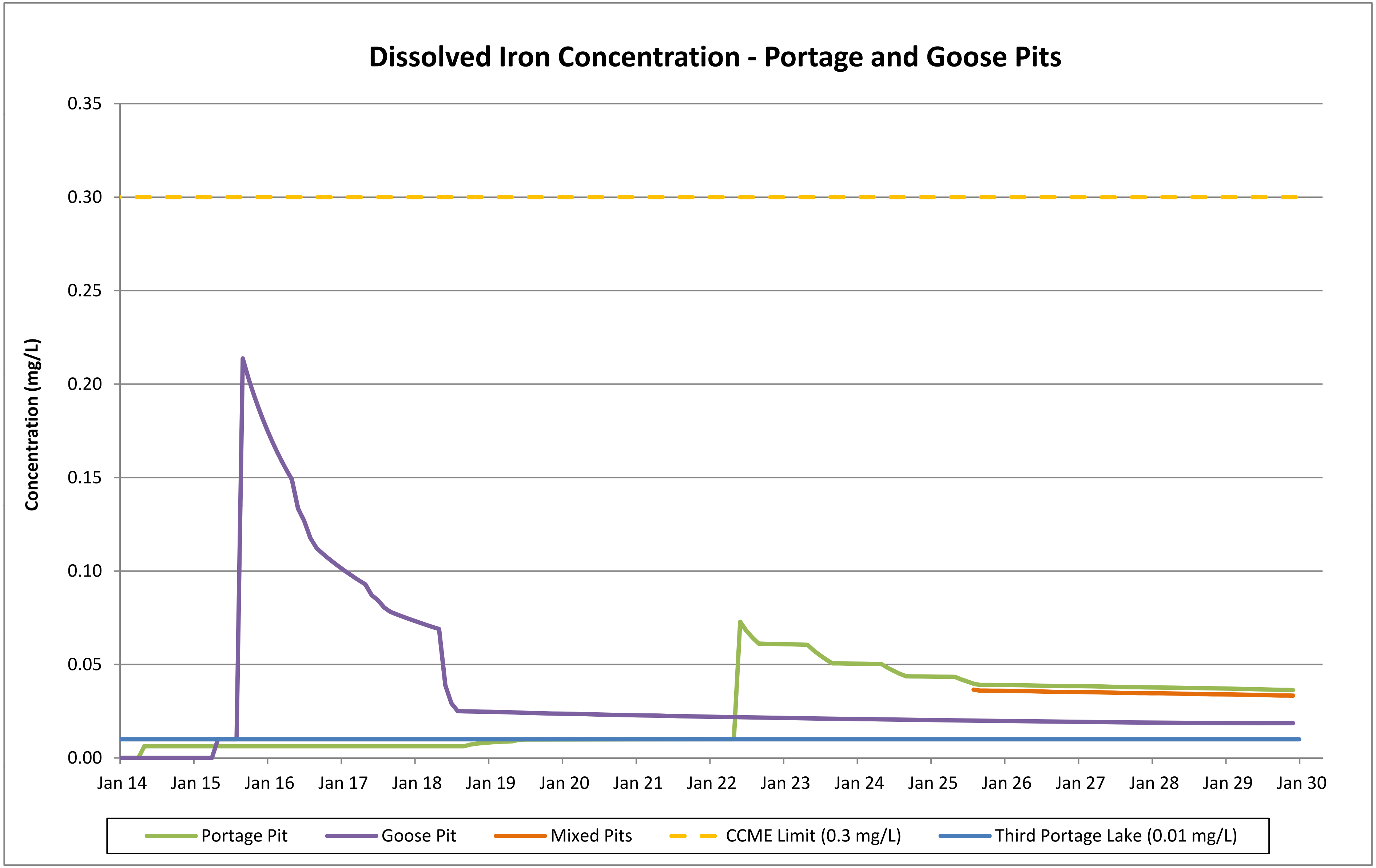
APPENDIX A

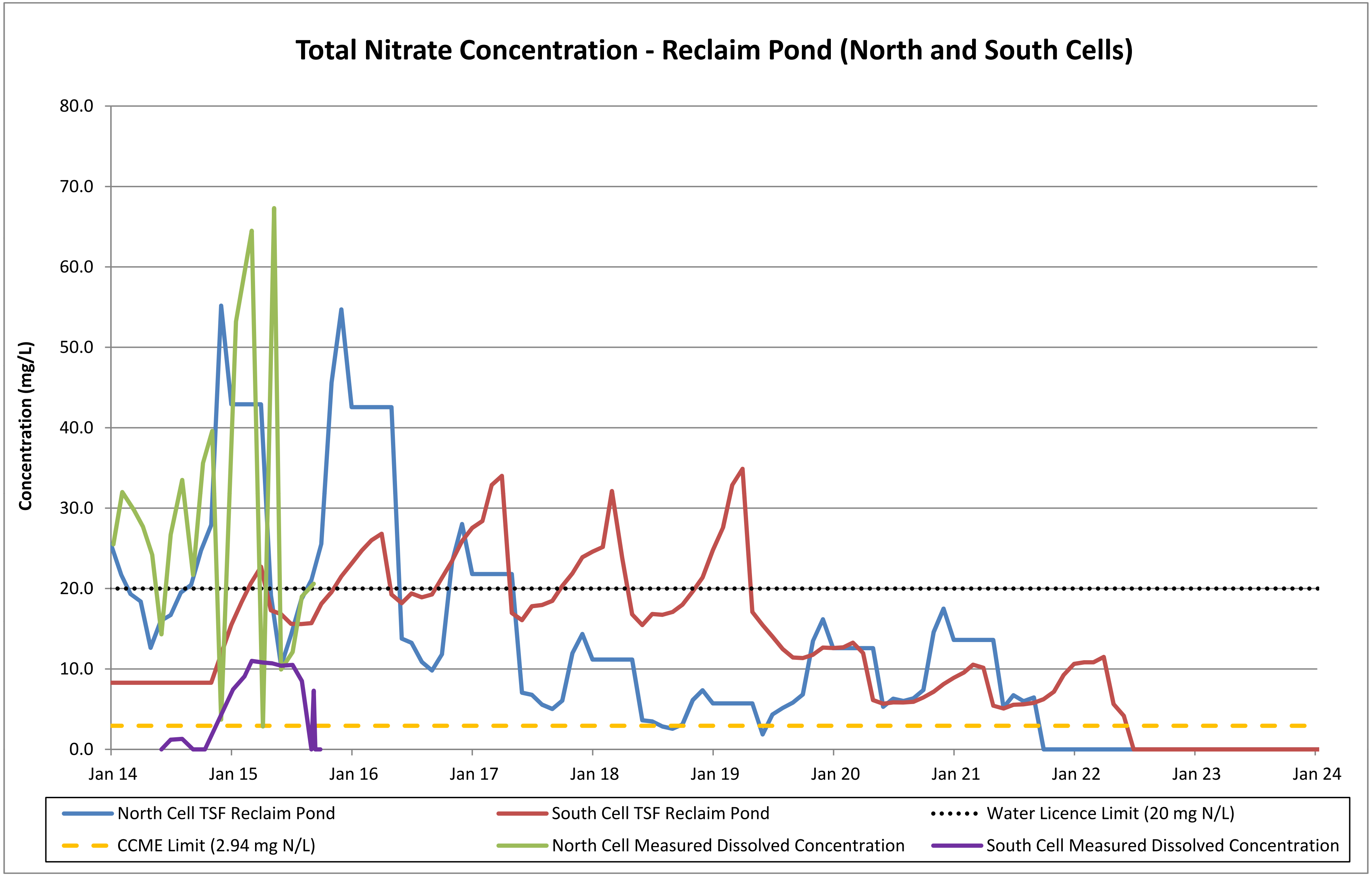


Dissolved Copper Concentration - Reclaim Pond (North and South Cells)
Concentration (mg/L)
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Jan 12
Jan 13
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
North Cell TSF Reclaim Pond
South Cell TSF Reclaim Pond
Water Licence Limit (0.1 mg/L)
CCME Limit (0.002 mg/L)
North Cell Measured Dissolved Concentration
South Cell Measured Dissolved Concentration

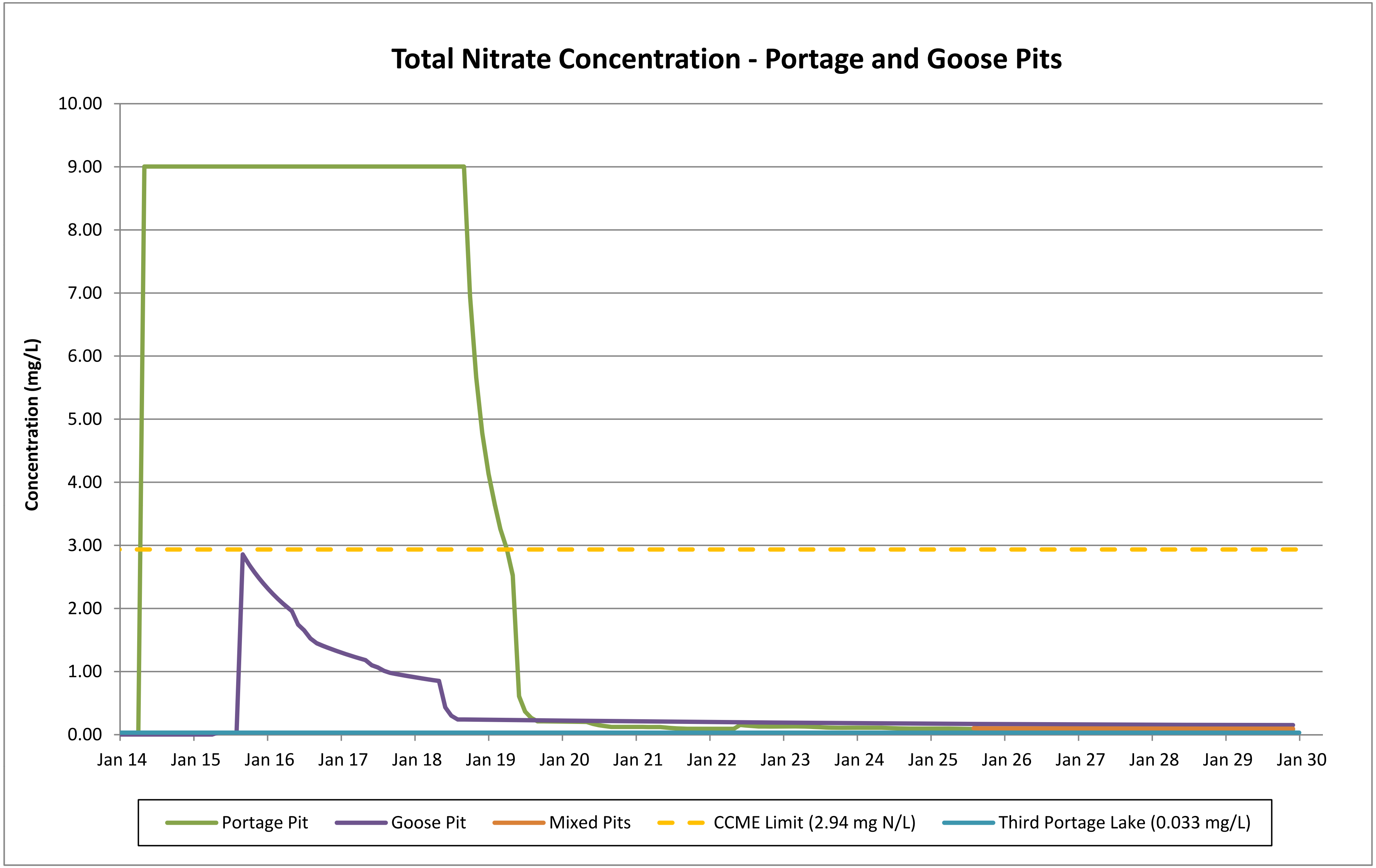

Dissolved Copper Concentration - Portage and Goose Pits
Concentration (mg/L)
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
Jan 25
Jan 26
Jan 27
Jan 28
Jan 29
Jan 30
Portage Pit
Goose Pit
Mixed Pits
Water Licence Limit (0.1 mg/L)
CCME Limit (0.002 mg/L)
Third Portage Lake (0.001 mg/L)


Dissolved Iron Concentration - Reclaim Pond (North and South Cells)
Concentration (mg/L)
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Jan 12
Jan 13
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
North Cell TSF Reclaim Pond
South Cell TSF Reclaim Pond
CCME Limit (0.3 mg/L)
North Cell Measured Dissolved Concentration
South Cell Measured Dissolved Concentration

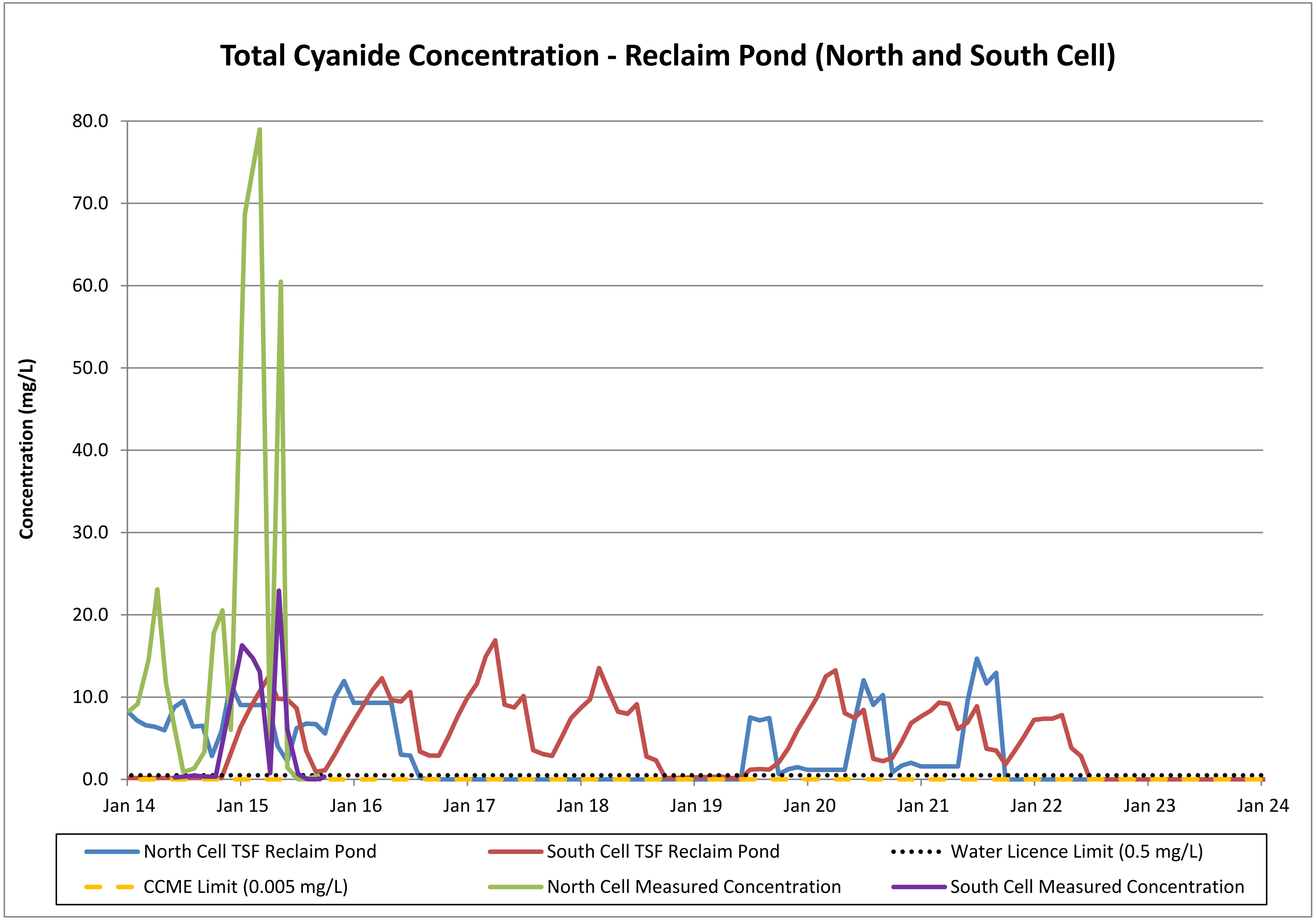

Dissolved Iron Concentration - Portage and Goose Pits
Concentration (mg/L)
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
Jan 25
Jan 26
Jan 27
Jan 28
Jan 29
Jan 30
Portage Pit
Goose Pit
Mixed Pits
CCME Limit (0.3 mg/L)
Third Portage Lake (0.01 mg/L)



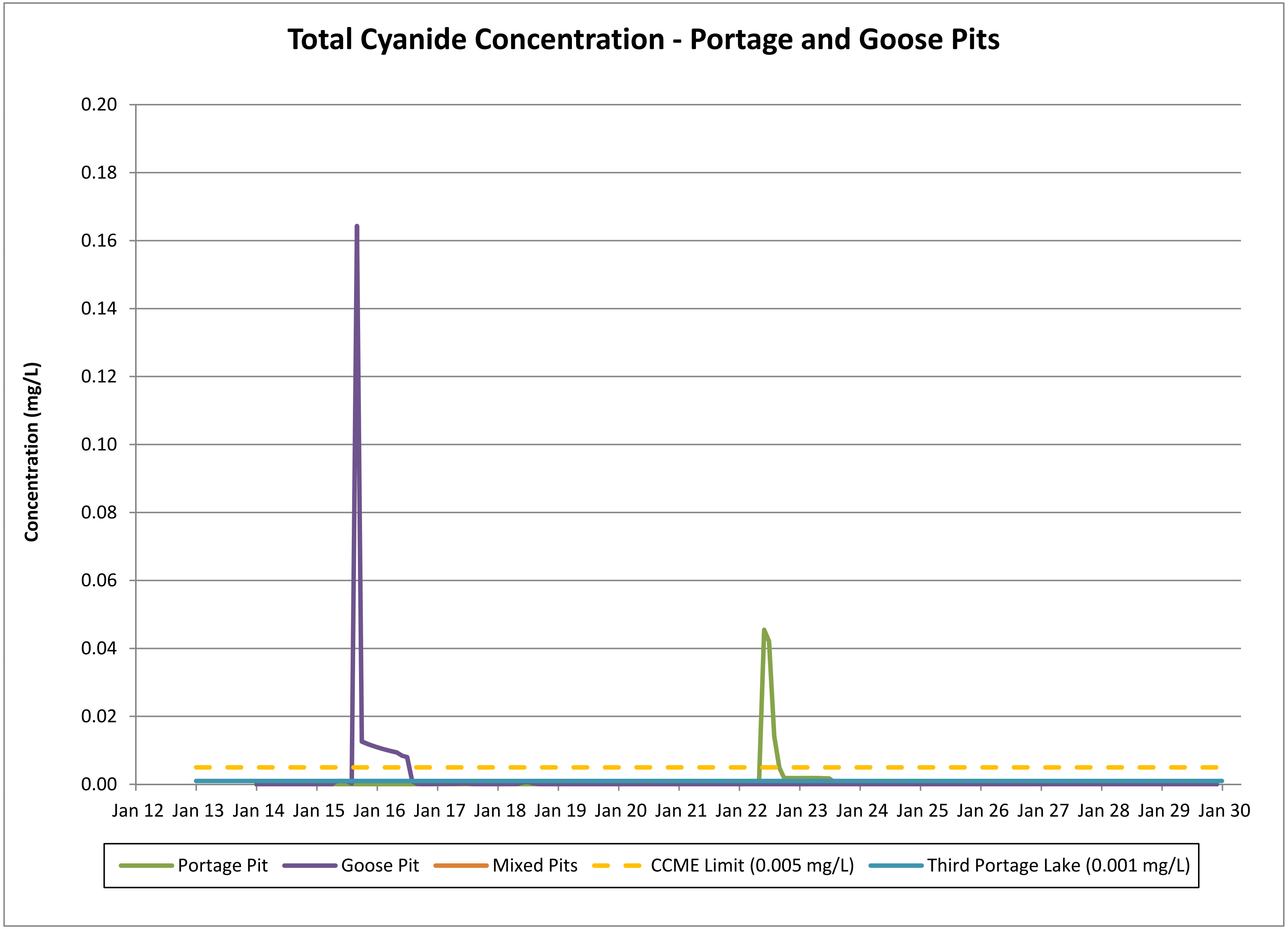
Total Nitrate Concentration - Reclaim Pond (North and South Cells)
Concentration (mg/L)
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
North Cell TSF Reclaim Pond
South Cell TSF Reclaim Pond
Water Licence Limit (20 mg N/L)
CCME Limit (2.94 mg N/L)
North Cell Measured Dissolved Concentration
South Cell Measured Dissolved Concentration



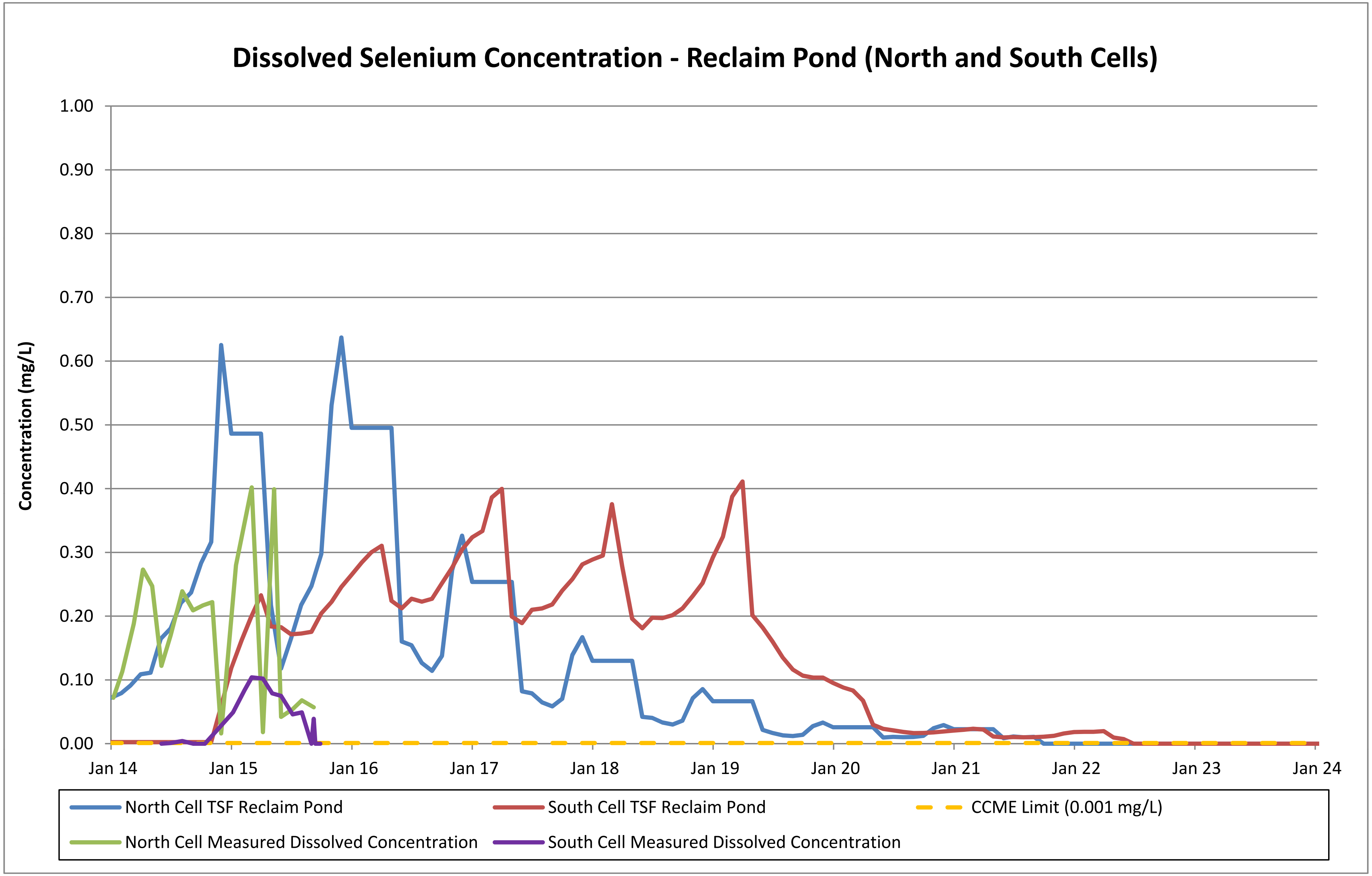
Total Nitrate Concentration - Portage and Goose Pits
Concentration (mg/L)
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
Jan 25
Jan 26
Jan 27
Jan 28
Jan 29
Jan 30
Portage Pit
Goose Pit
Mixed Pits
CCME Limit (2.94 mg N/L)
Third Portage Lake (0.033 mg/L)



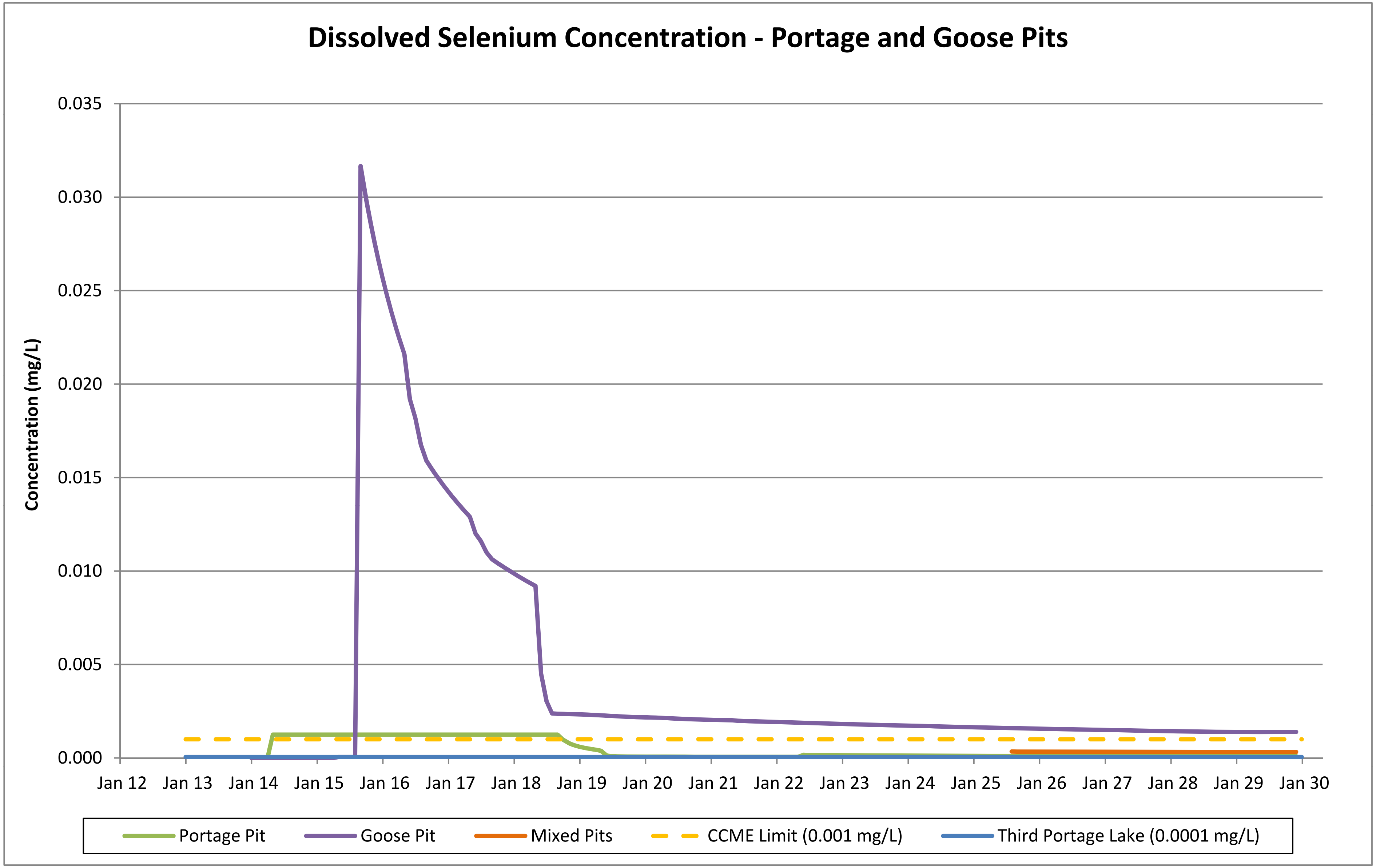
Total Cyanide Concentration - Reclaim Pond (North and South Cell)
Concentration (mg/L)
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
North Cell TSF Reclaim Pond
South Cell TSF Reclaim Pond
Water Licence Limit (0.5 mg/L)
CCME Limit (0.005 mg/L)
North Cell Measured Concentration
South Cell Measured Concentration

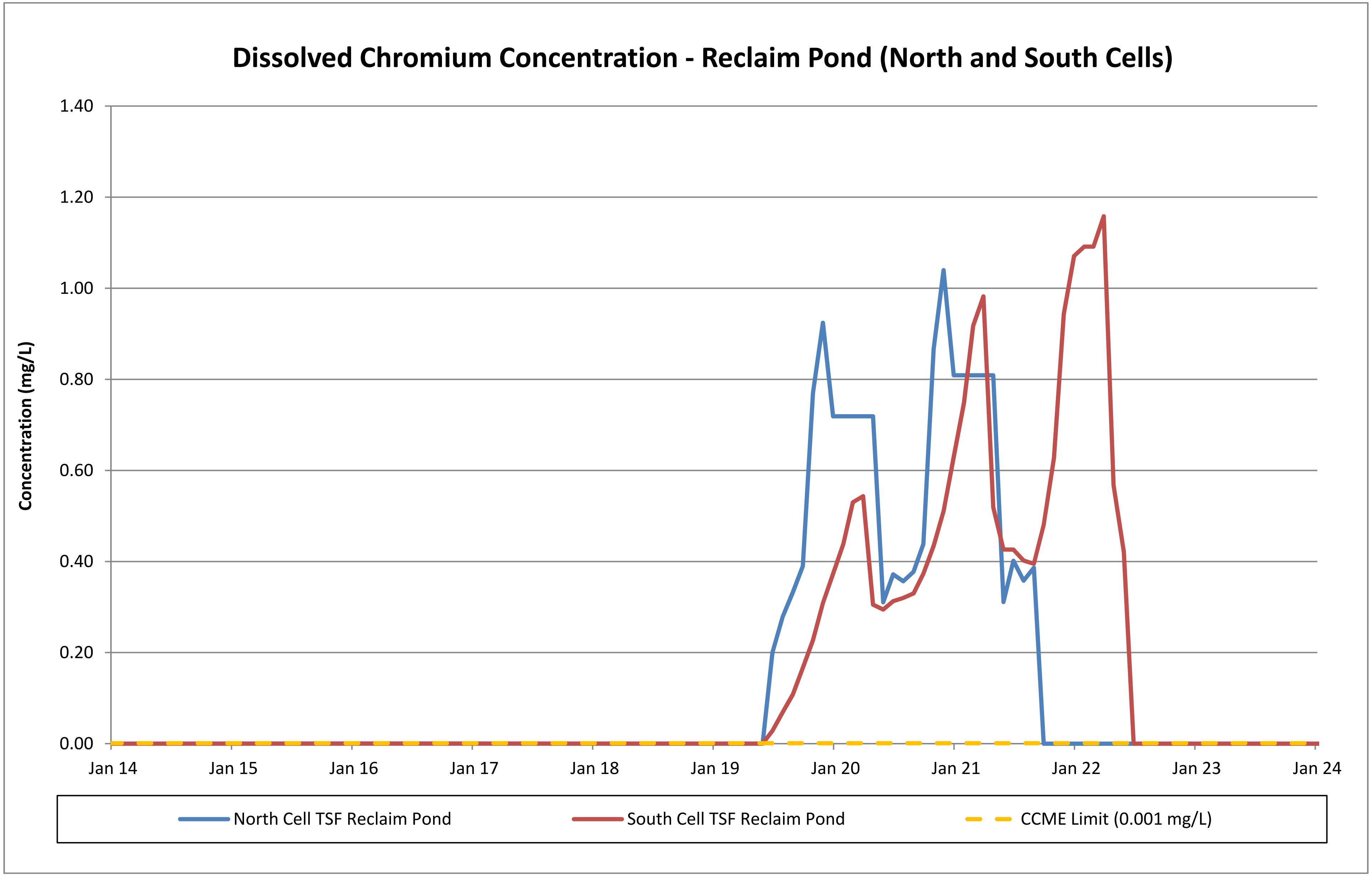


Total Cyanide Concentration - Portage and Goose Pits
Concentration (mg/L)
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
Jan 12
Jan 13
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
Jan 25
Jan 26
Jan 27
Jan 28
Jan 29
Jan 30
Portage Pit
Goose Pit
Mixed Pits
CCME Limit (0.005 mg/L)
Third Portage Lake (0.001 mg/L)

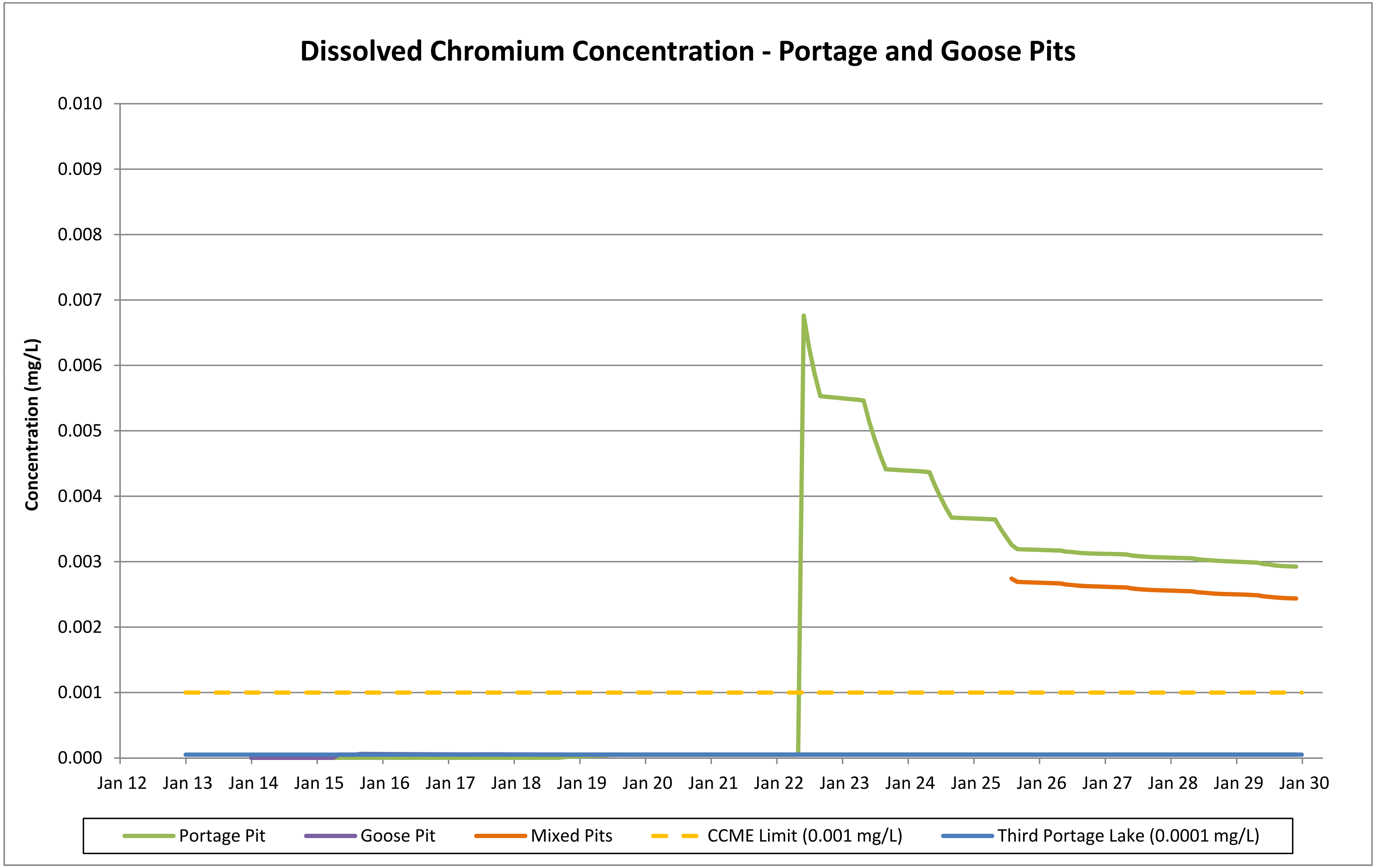


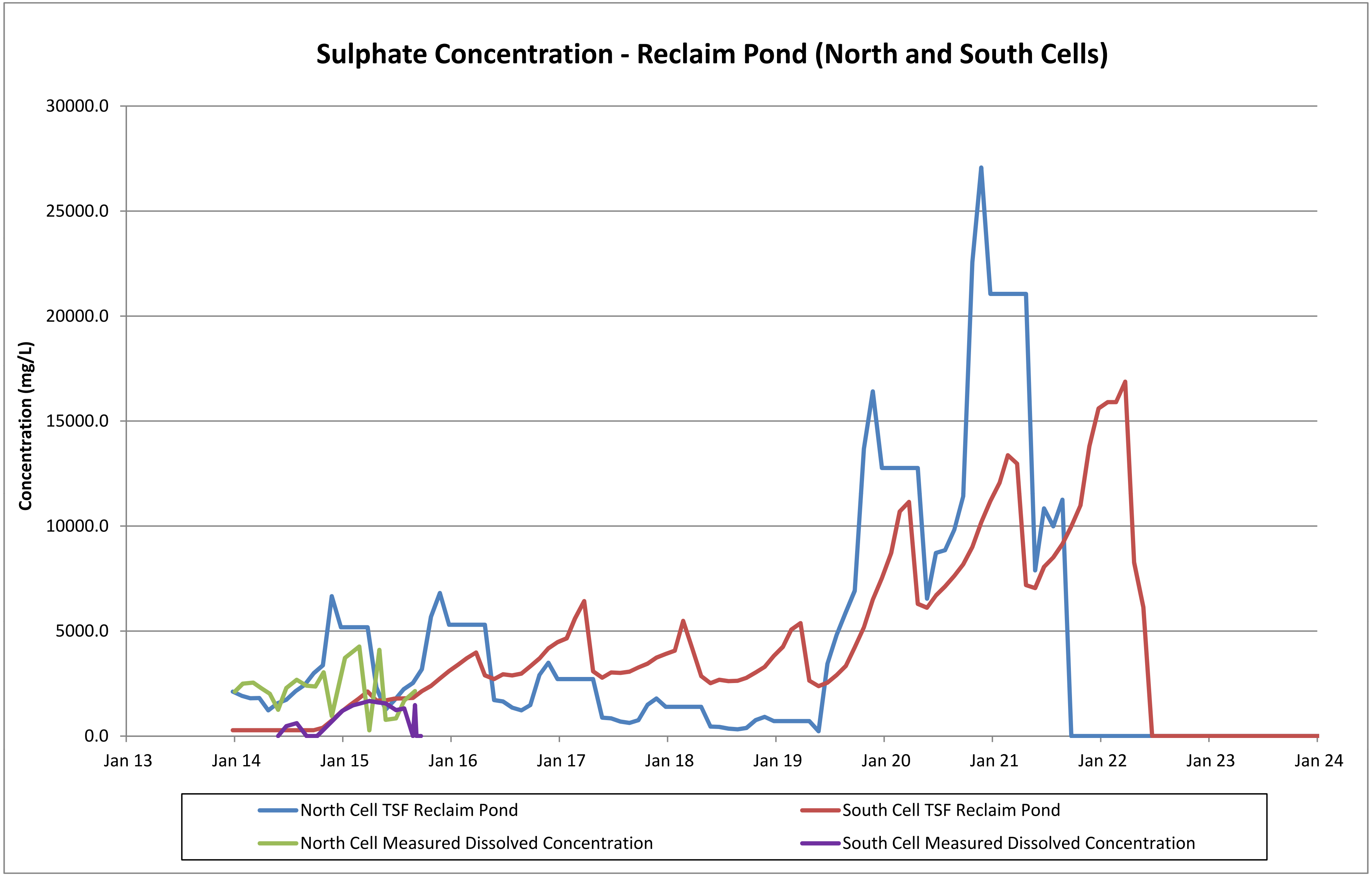
Dissolved Selenium Concentration - Reclaim Pond (North and South Cells)
Concentration (mg/L)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
North Cell TSF Reclaim Pond
South Cell TSF Reclaim Pond
CCME Limit (0.001 mg/L)
North Cell Measured Dissolved Concentration
South Cell Measured Dissolved Concentration


Dissolved Selenium Concentration - Portage and Goose Pits
Concentration (mg/L)
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
Jan 12
Jan 13
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
Jan 25
Jan 26
Jan 27
Jan 28
Jan 29
Jan 30
Portage Pit
Goose Pit
Mixed Pits
CCME Limit (0.001 mg/L)
Third Portage Lake (0.0001 mg/L)

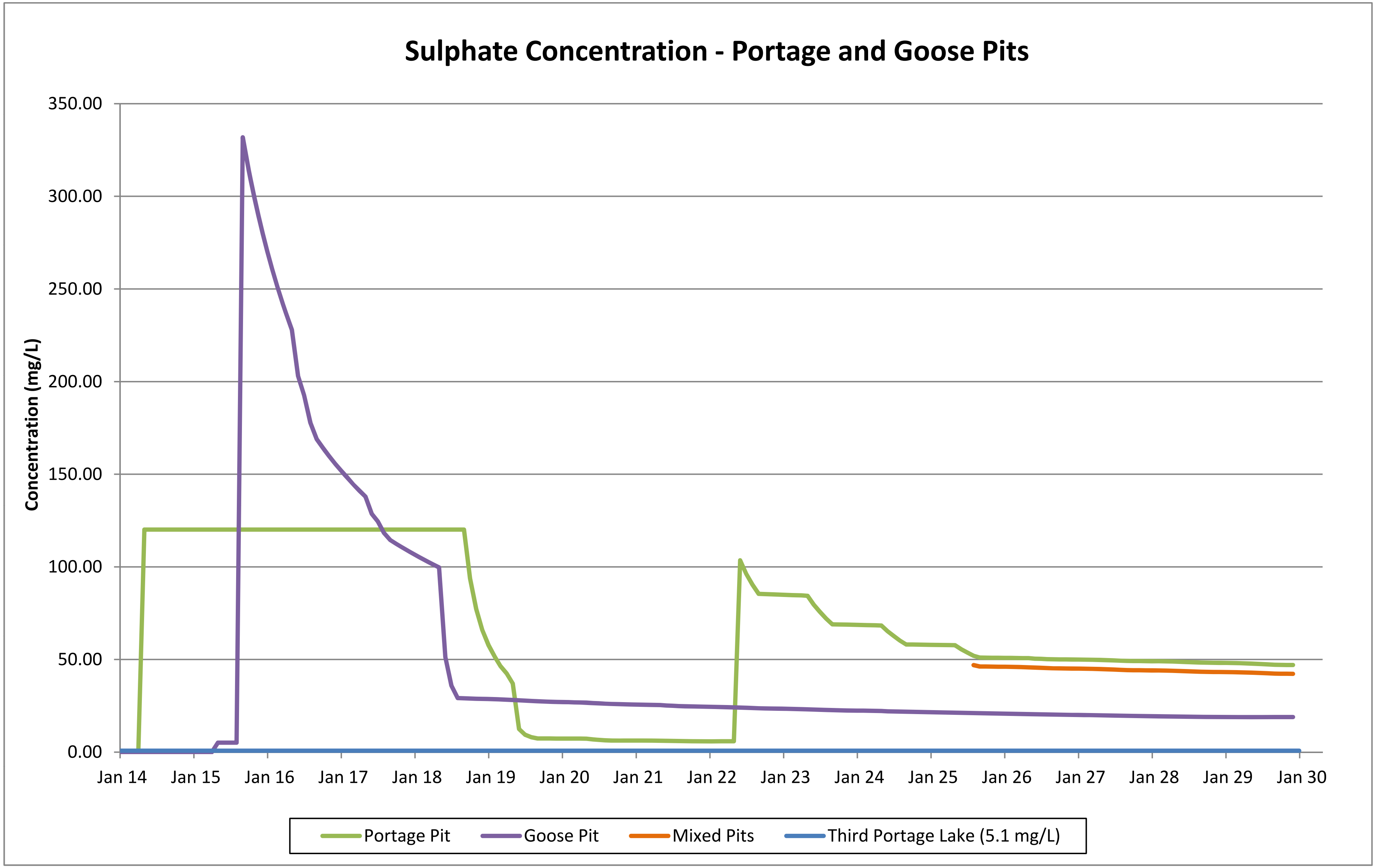


Dissolved Chromium Concentration - Reclaim Pond (North and South Cells)
Concentration (mg/L)
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
North Cell TSF Reclaim Pond
South Cell TSF Reclaim Pond
CCME Limit (0.001 mg/L)

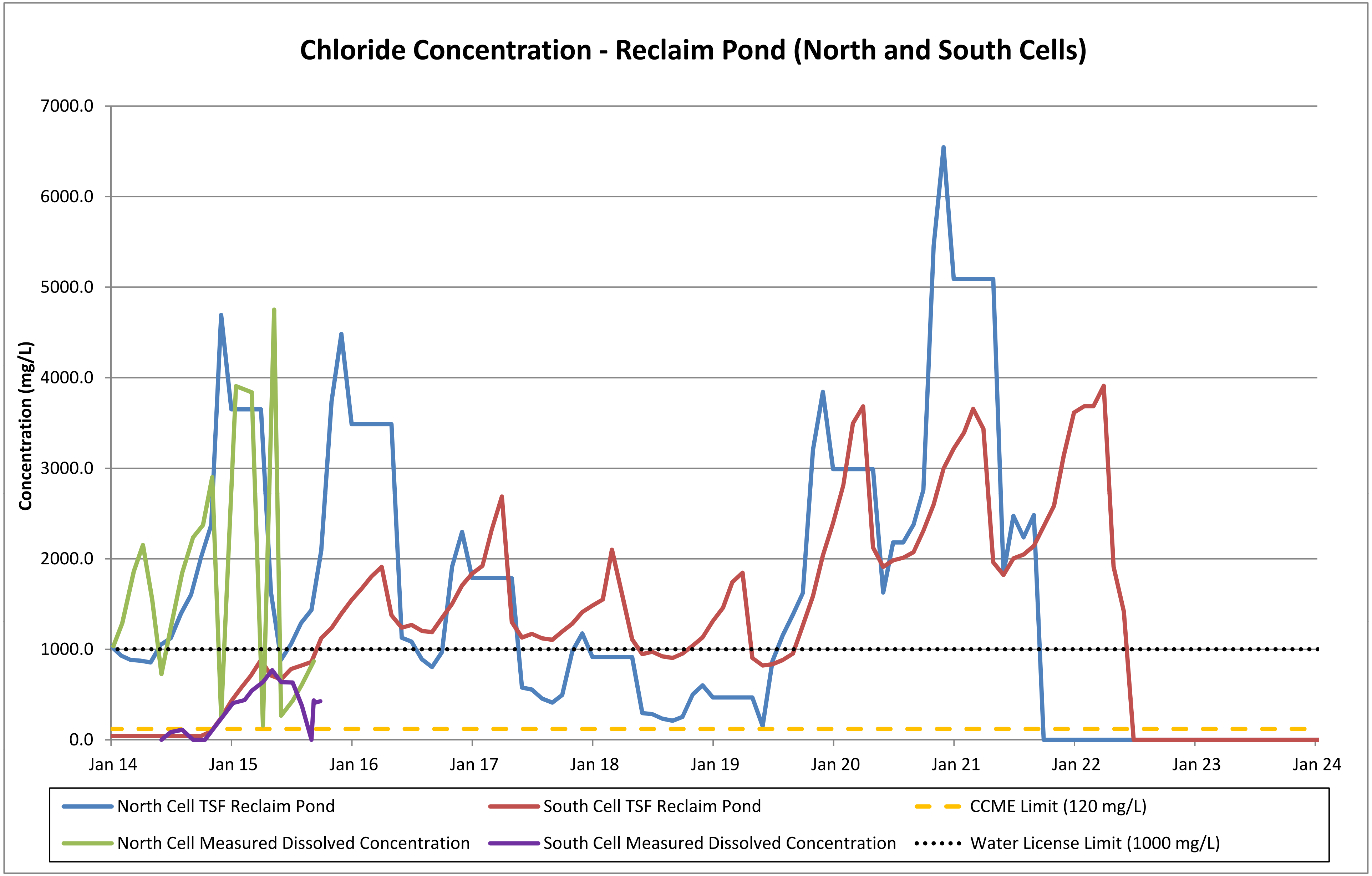

Dissolved Chromium Concentration - Portage and Goose Pits
Concentration (mg/L)
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0.000
Jan 12
Jan 13
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
Jan 25
Jan 26
Jan 27
Jan 28
Jan 29
Jan 30
Portage Pit
Goose Pit
Mixed Pits
CCME Limit (0.001 mg/L)
Third Portage Lake (0.0001 mg/L)



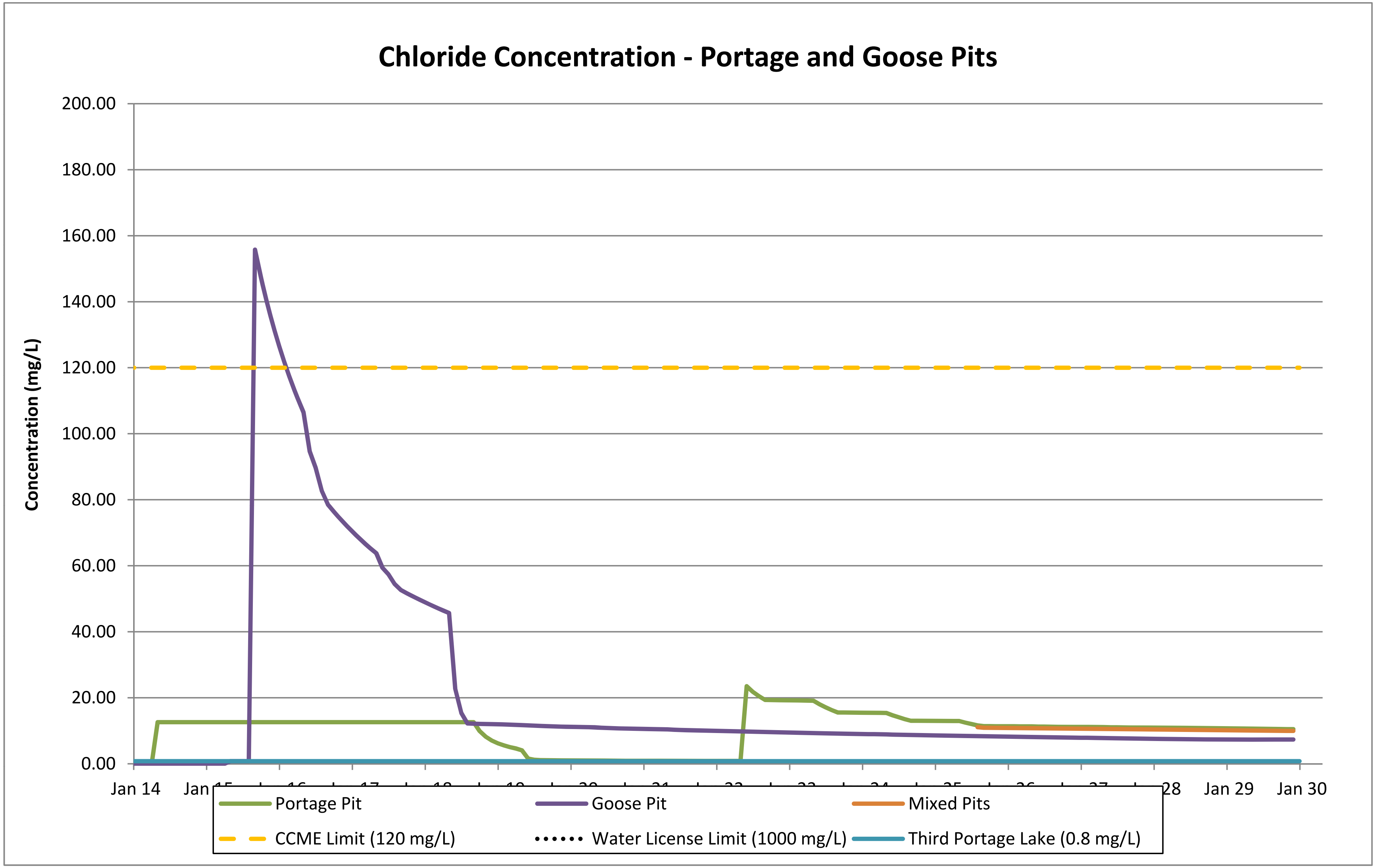
Sulphate Concentration - Reclaim Pond (North and South Cells)
Concentration (mg/L)
30000.0
25000.0
20000.0
15000.0
10000.0
5000.0
0.0
Jan 13
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
North Cell TSF Reclaim Pond
South Cell TSF Reclaim Pond
North Cell Measured Dissolved Concentration
South Cell Measured Dissolved Concentration

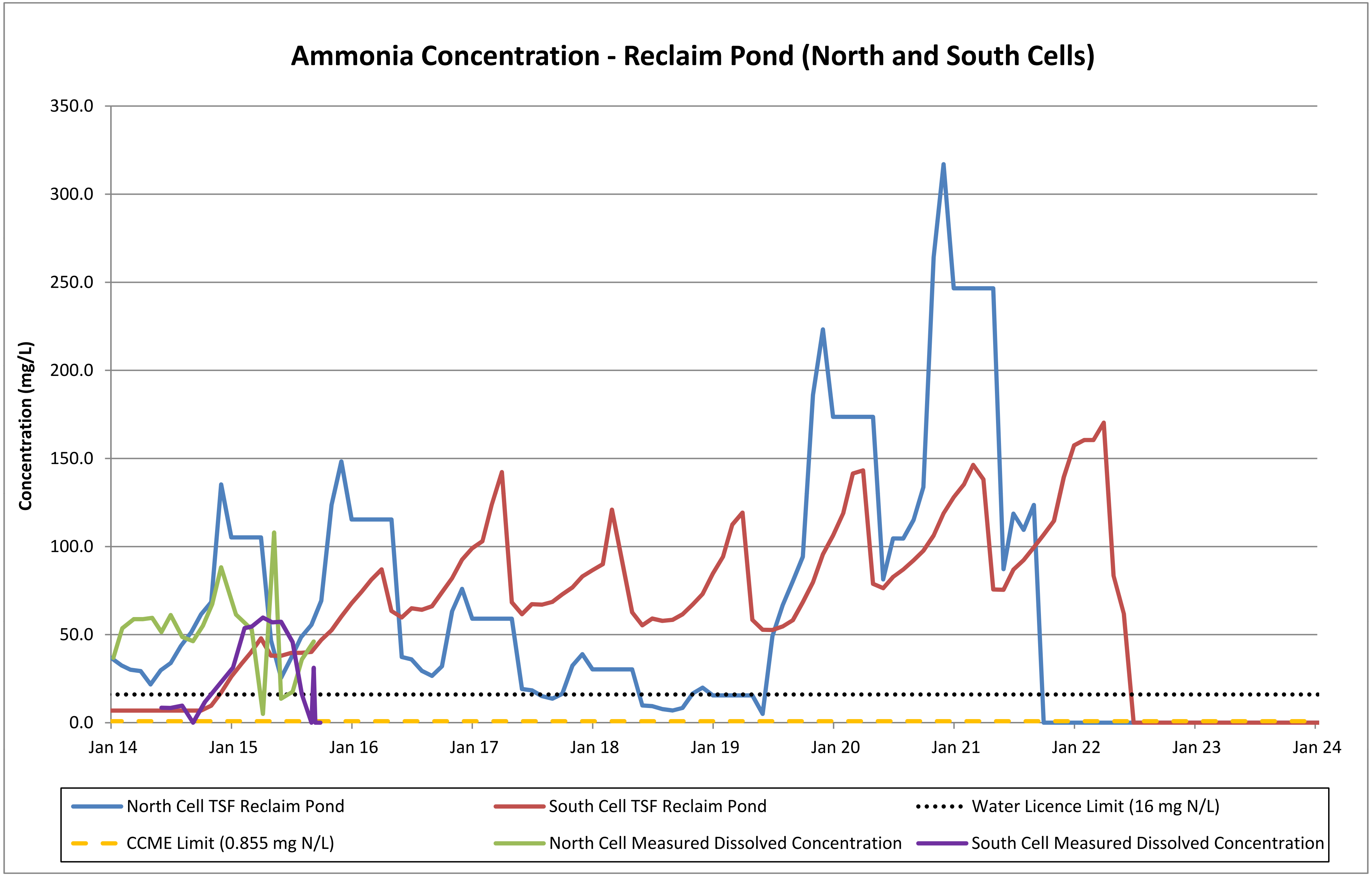


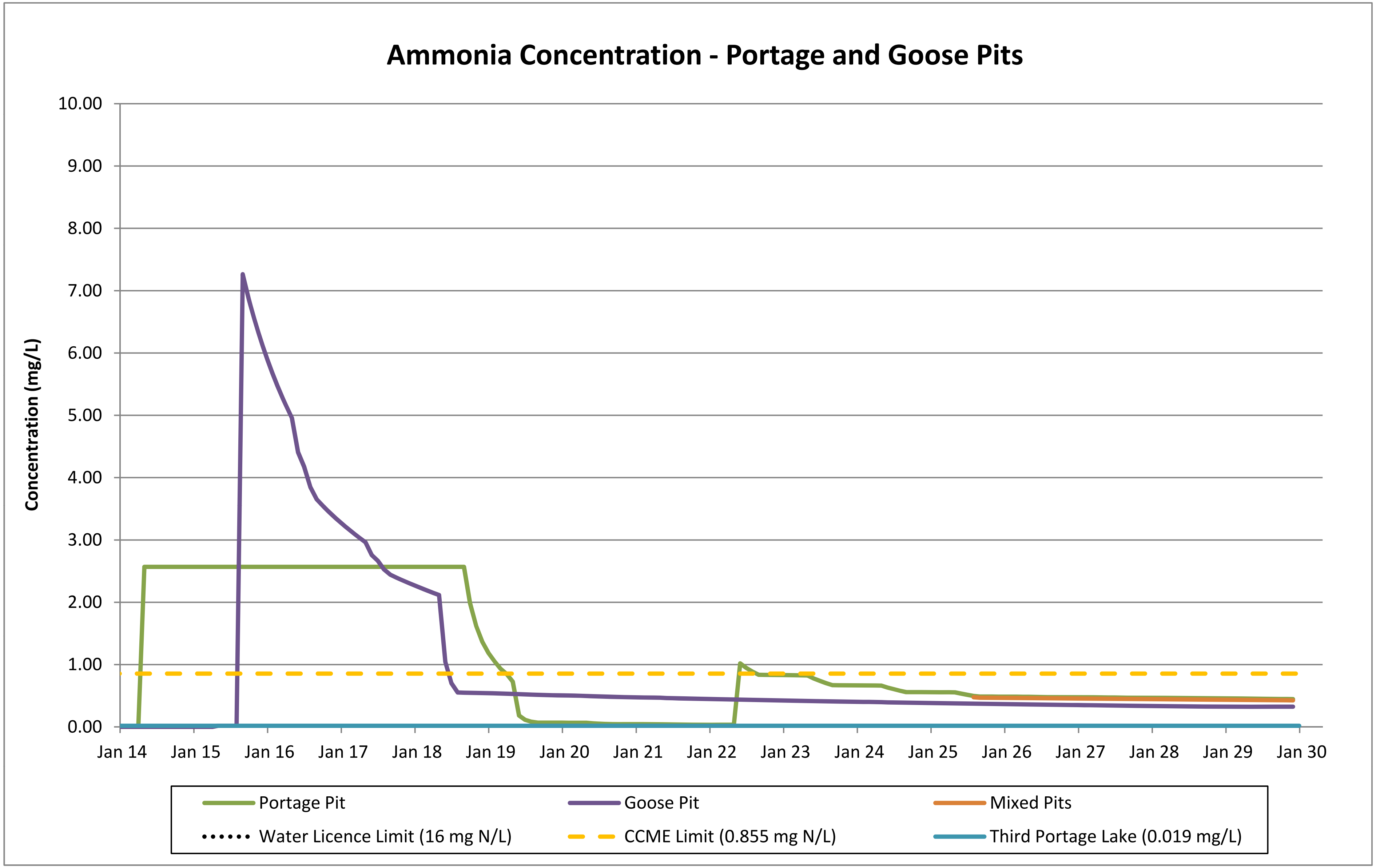
Sulphate Concentration - Portage and Goose Pits
Concentration (mg/L)
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
Jan 25
Jan 26
Jan 27
Jan 28
Jan 29
Jan 30
Portage Pit
Goose Pit
Mixed Pits
Third Portage Lake (5.1 mg/L)

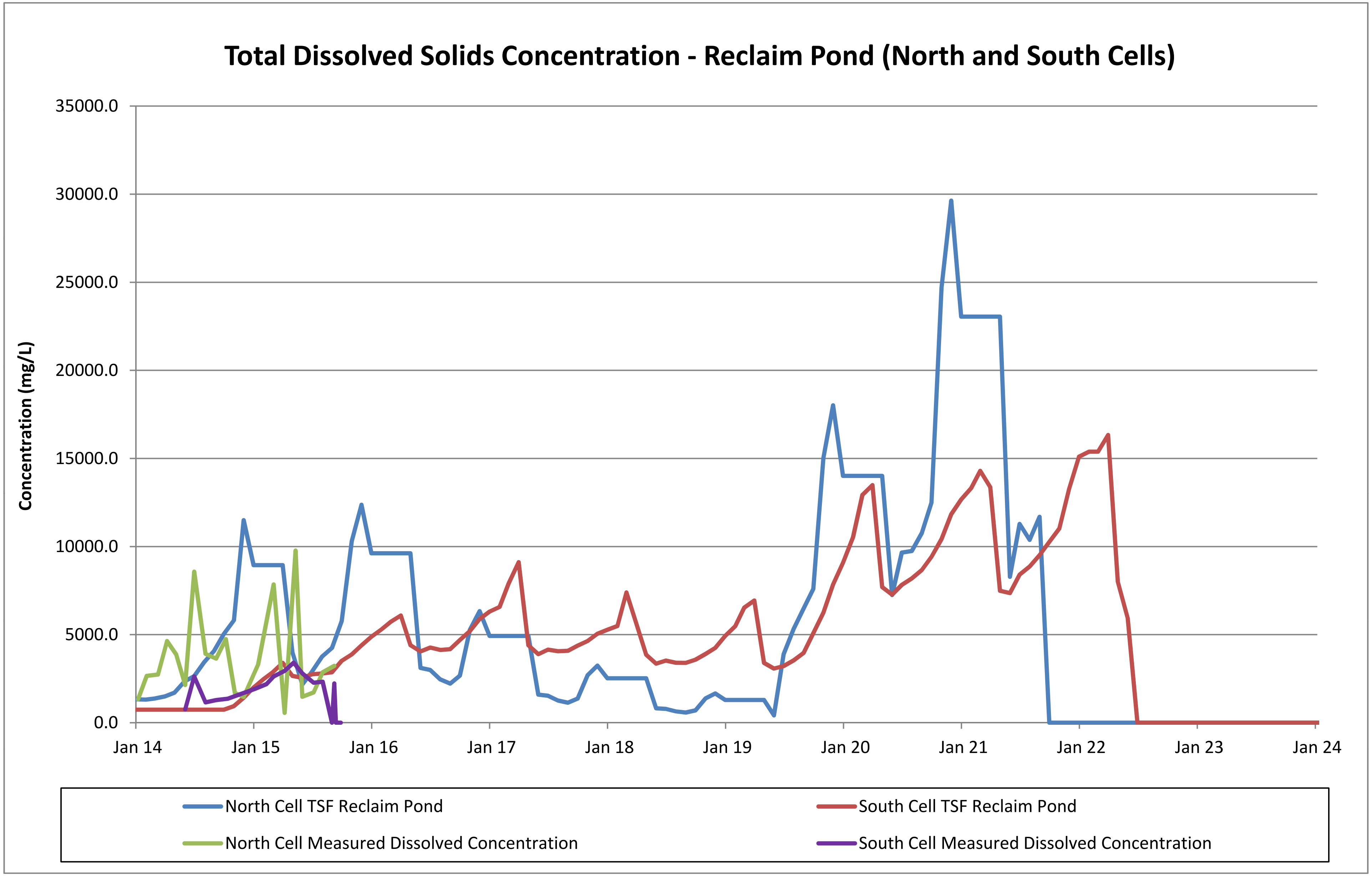


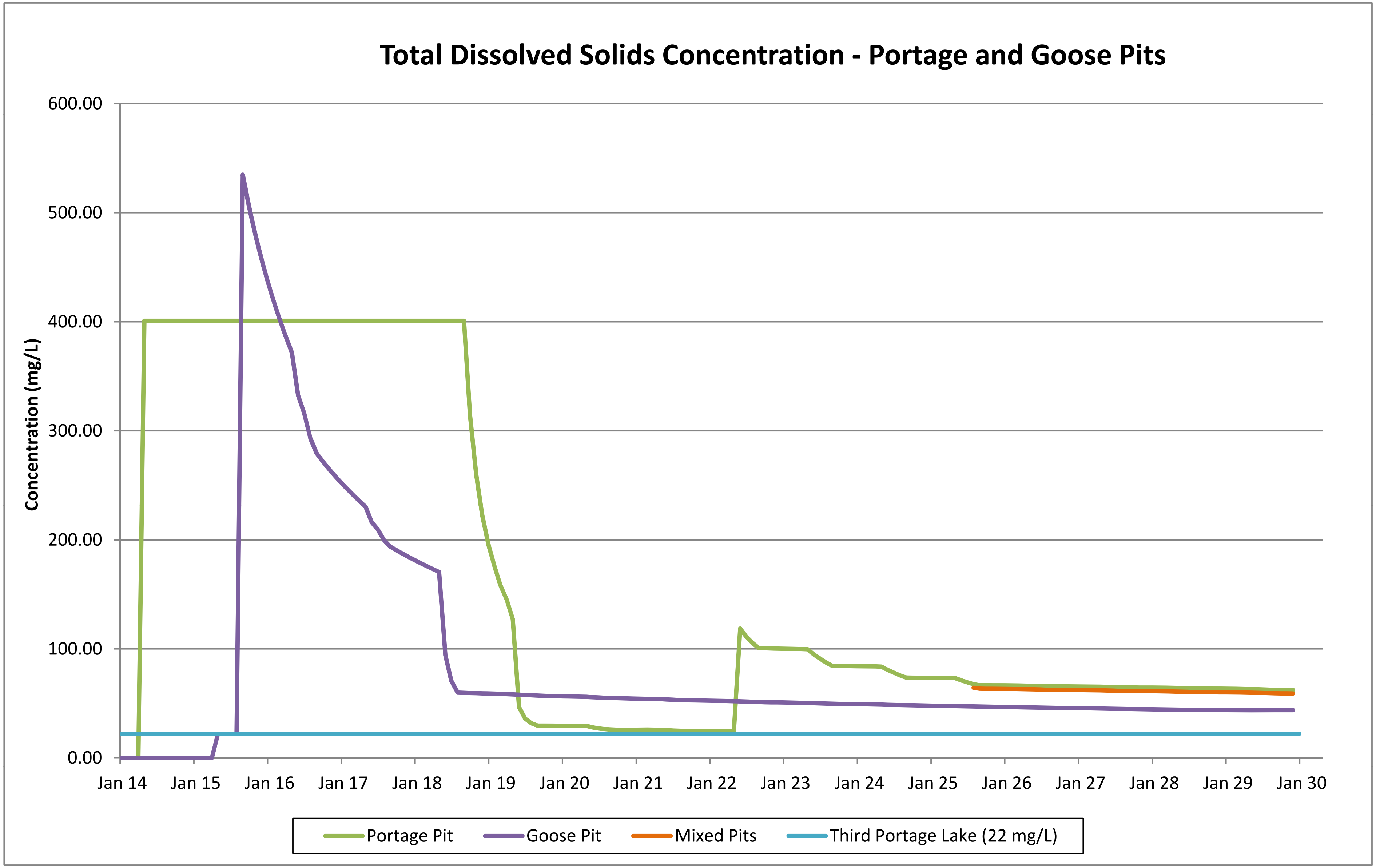
Chloride Concentration - Reclaim Pond (North and South Cells)
Concentration (mg/L)
7000.0
6000.0
5000.0
4000.0
3000.0
2000.0
1000.0
0.0
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
North Cell TSF Reclaim Pond
South Cell TSF Reclaim Pond
CCME Limit (120 mg/L)
North Cell Measured Dissolved Concentration
South Cell Measured Dissolved Concentration
Water License Limit (1000 mg/L)


Chloride Concentration - Portage and Goose Pits
Concentration (mg/L)
200.00
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Jan 14
Jan 29
Jan 30
Portage Pit
Goose Pit
Mixed Pits
CCME Limit (120 mg/L)
Water License Limit (1000 mg/L)
Third Portage Lake (0.8 mg/L)

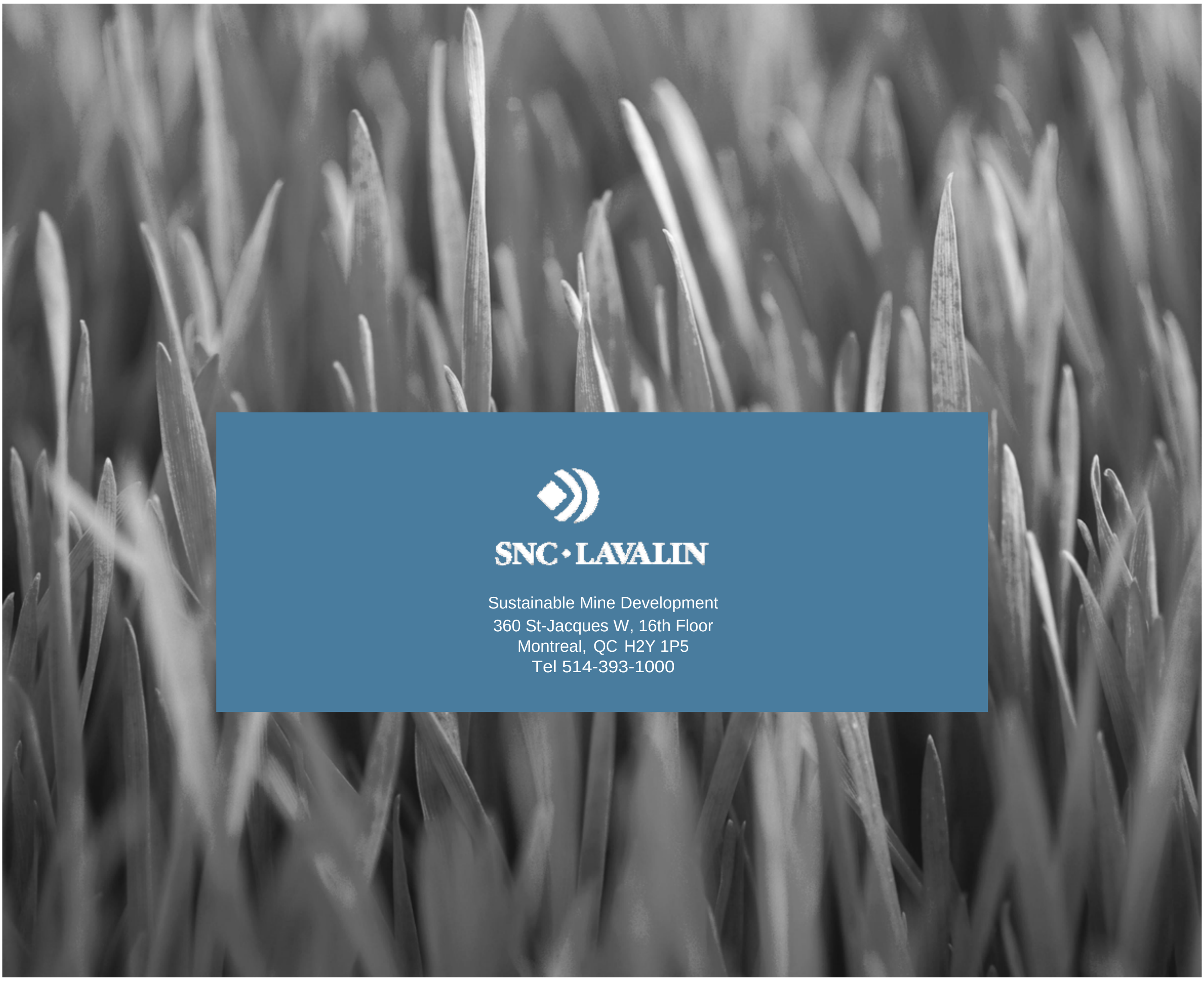

Ammonia Concentration - Reclaim Pond (North and South Cells)
Concentration (mg/L)
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
North Cell TSF Reclaim Pond
South Cell TSF Reclaim Pond
Water Licence Limit (16 mg N/L)
CCME Limit (0.855 mg N/L)
North Cell Measured Dissolved Concentration
South Cell Measured Dissolved Concentration


Ammonia Concentration - Portage and Goose Pits
Concentration (mg/L)
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
Jan 25
Jan 26
Jan 27
Jan 28
Jan 29
Jan 30
Portage Pit
Goose Pit
Mixed Pits
Water Licence Limit (16 mg N/L)
CCME Limit (0.855 mg N/L)
Third Portage Lake (0.019 mg/L)


Total Dissolved Solids Concentration - Reclaim Pond (North and South Cells)
Concentration (mg/L)
35000.0
30000.0
25000.0
20000.0
15000.0
10000.0
5000.0
0.0
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
North Cell TSF Reclaim Pond
South Cell TSF Reclaim Pond
North Cell Measured Dissolved Concentration
South Cell Measured Dissolved Concentration



Total Dissolved Solids Concentration - Portage and Goose Pits
Concentration (mg/L)
600.00
500.00
400.00
300.00
200.00
100.00
0.00
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
Jan 25
Jan 26
Jan 27
Jan 28
Jan 29
Jan 30
Portage Pit
Goose Pit
Mixed Pits
Third Portage Lake (22 mg/L)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