



# **APPENDIX E**

## **TSF Deposition Plan 2013-Update 2013-10-17**





**AGNICO EAGLE**

# **TAILINGS DEPOSITION PLAN UPDATE 2013-11-17**



# North Cell TSF model guideline

## GUIDELINE

- Avoiding ice accumulation on the dike liner;
- Prevent tailings beach to reach the reclaim barge;
- Reclaim water pond maximum elevation of 148m;
- A minimum of two days per month of discharge by the by-pass of the booster pump is assumed for maintenance activities;
- Tailings beach to reach elevation 150m;
- Limit as much as possible deposition at the north end of the tailings pond during winter to reduce risk of freezing pipe;
- Raise beach on RF1 and RF2 to prevent tailings water from seeping out of the North Cell;
- Raise beaches on all external structures such as the roads around the tailings pond to prevent reclaim water from seeping towards the diversion ditches.

# South Cell TSF model guideline

## GUIDELINE

- Avoiding ice accumulation on the Central Dike liner;
- Prevent tailings beach to reach the reclaim barge;
- A minimum of two days per month of discharge by the by-pass of the booster pump is assumed for maintenance activities;
- Modelization of phase 1 of this cell, closure of this cell to be determined.

# Model Parameters and assumptions

## ASSUMPTIONS

- Deposition points will be moderately mobile in time (i.e. we can extend them on the tundra, and retract them as we deposit tailings throughout time);
- Ice formation in the reclaim pond during winter months follow the ice model table.
- Deposition points are added towards the end of life of the cell for closure purposes;

Ice Model	
Month	Ice thickness (m)
January	1.1
February	1.5
March	1.8
April	1.8
May	1.1
June	0
July	0
August	0
September	0
October	0.2
November	0.5
December	0.8

## PARAMETERS

- The water balance used in this model assumes reclaim flow changes in function of season: summer 70 m<sup>3</sup>/h fresh water (FW) & 380m<sup>3</sup>/hr reclaim water (RW), and winter 90 m<sup>3</sup>/h FW & 360 m<sup>3</sup>/h RW;
- The model assumes a tailings dry density and a water balance that incorporates ice entrapment of 1.21t/m<sup>3</sup> for both the North and South Cell;
- Sub aerial tailings slope set at 0.5% for both North and South Cell
- Sub aqueous tailings slope set at 2.3% for the North cell (obtained from summer 2013 bathymetric analysis) and 4% for the South Cell (taken from the 2012 Golder Deposition plan of the North Cell) as this value seems to better represent the start of a new cell.



# TSF deposition plan schedule

## North and South Cell deposition phases

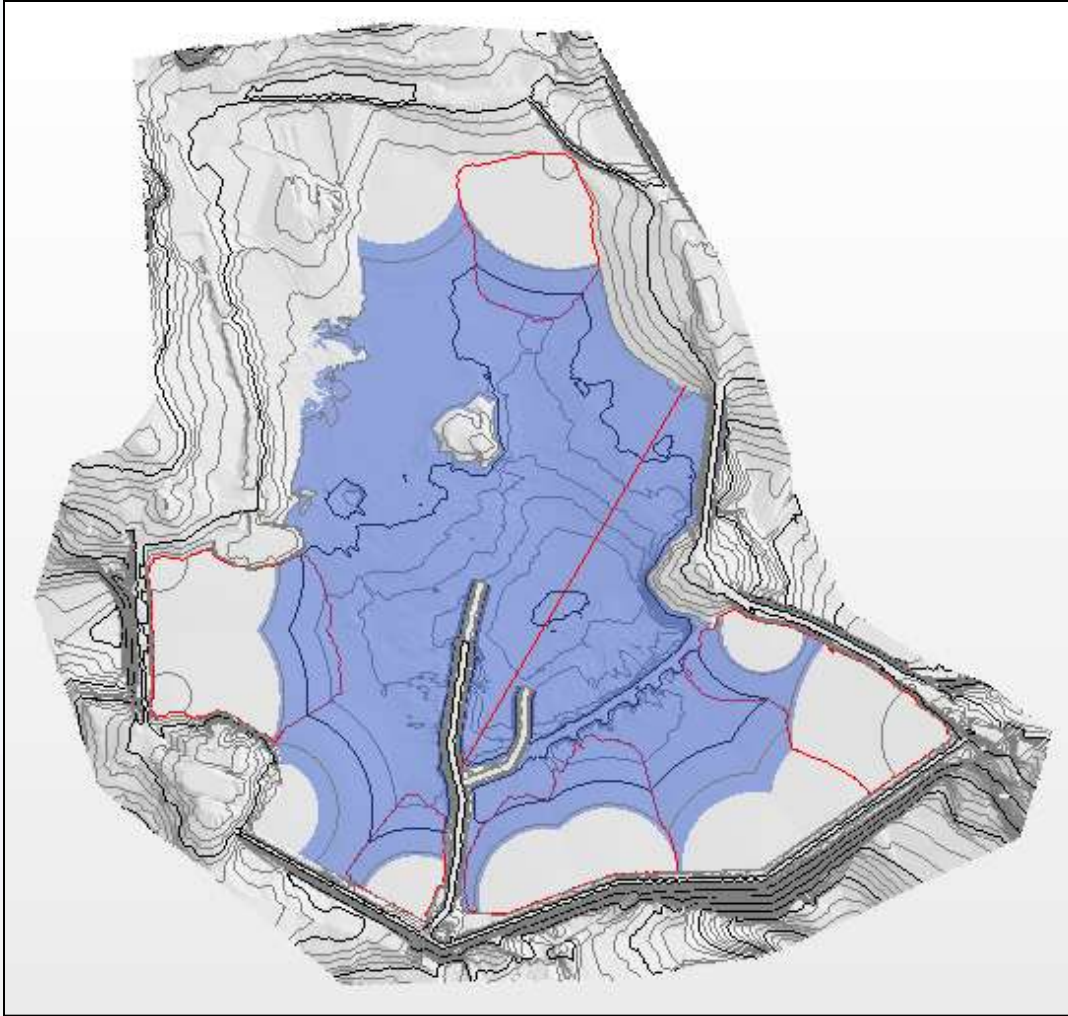
Period	Active Cell – Phase	Description
Current – September 2014	North Cell – Phase 1	<ul style="list-style-type: none"><li>- Bring the North Cell to the beginning of the winter 2014; the decreasing size and volume of the pond adversely affects the amount of free water due to ice formation, thus the North Cell cannot be closed off during the 2014/2015 winter.</li></ul>
October 2014 – June 2015	South Cell – Phase 1	<ul style="list-style-type: none"><li>- South Cell deposition during the winter months</li></ul>
July 2015 - September 2015	North Cell – Phase 2	<ul style="list-style-type: none"><li>- North Cell closure</li></ul>
September 2015 – End of mine life	South Cell - Phase 2	<ul style="list-style-type: none"><li>- South Cell deposition until end of mine life</li></ul> <p><b>*Still on-going; therefore will not be presented*</b></p>



Two gold bars are shown against a light blue background. The bar in the foreground is positioned diagonally, showing its top and side. It has a circular Agnico Eagle logo on the top surface and the serial number '16666' embossed on the side. The bar in the background is partially obscured and also shows the Agnico Eagle logo. The text 'NORTH CELL DEPOSITION PLAN PHASE 1' is overlaid on the left side of the image.

## **NORTH CELL DEPOSITION PLAN PHASE 1**

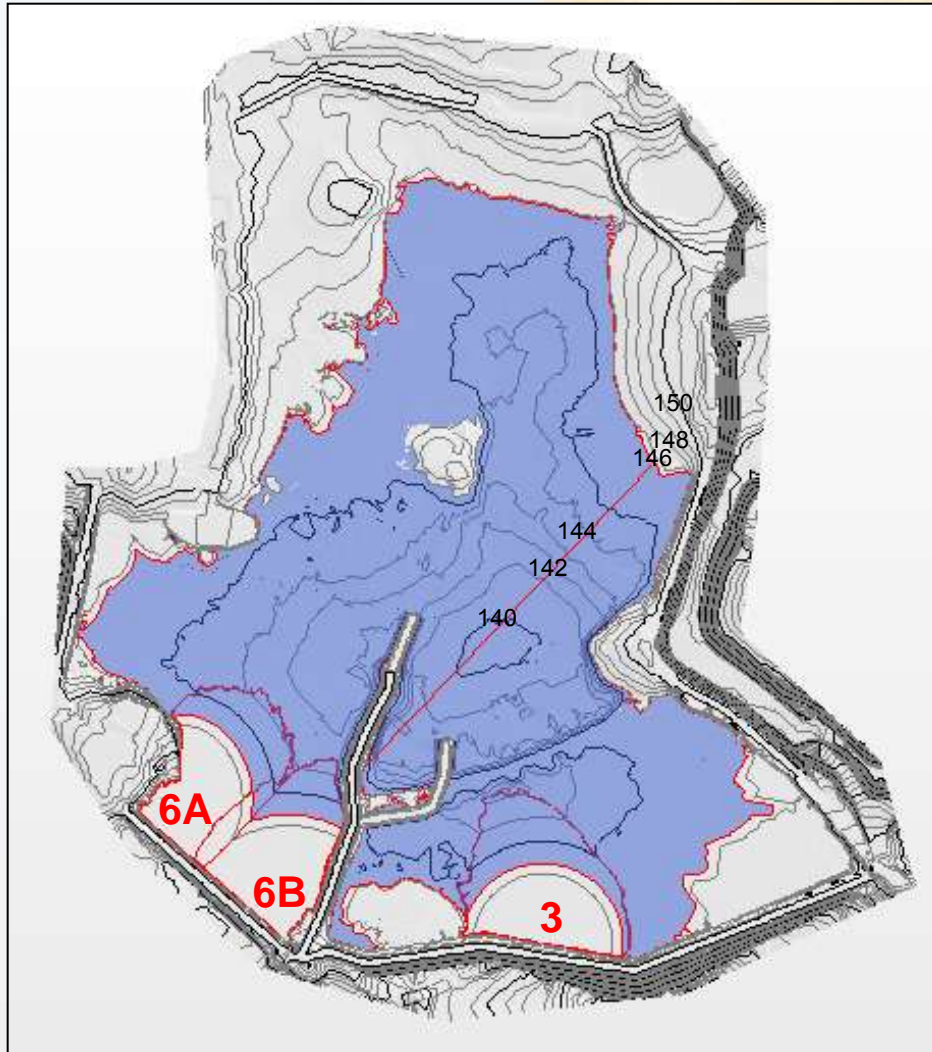
# Section View Plot



A section view along the alignment shown on the diagram will be included for each month. This will show a section view plotted on an elevation graph to show the change in pond topography across the reclaim water barge area. Left limit of the chart represents the barge area and as you look to the right on the graph you are going towards deposition point 7 (North-eastern direction).

# North Cell TSF deposition plan

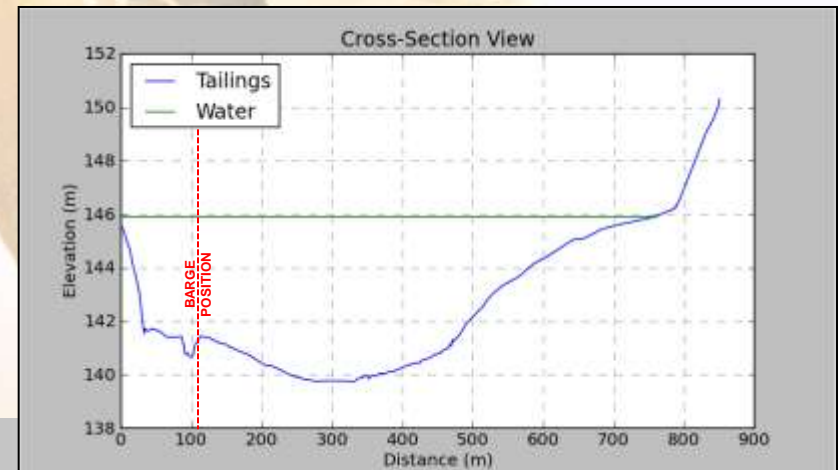
## From 09/16/2013 to 09/30/2013



Duration	Deposition Point	Tonnes
7	6B	76,120
5	3	60,725
3	6A	35,488

MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	1 455 036
Ice thickness (m)	0.00
Tonnes (t)	172 177

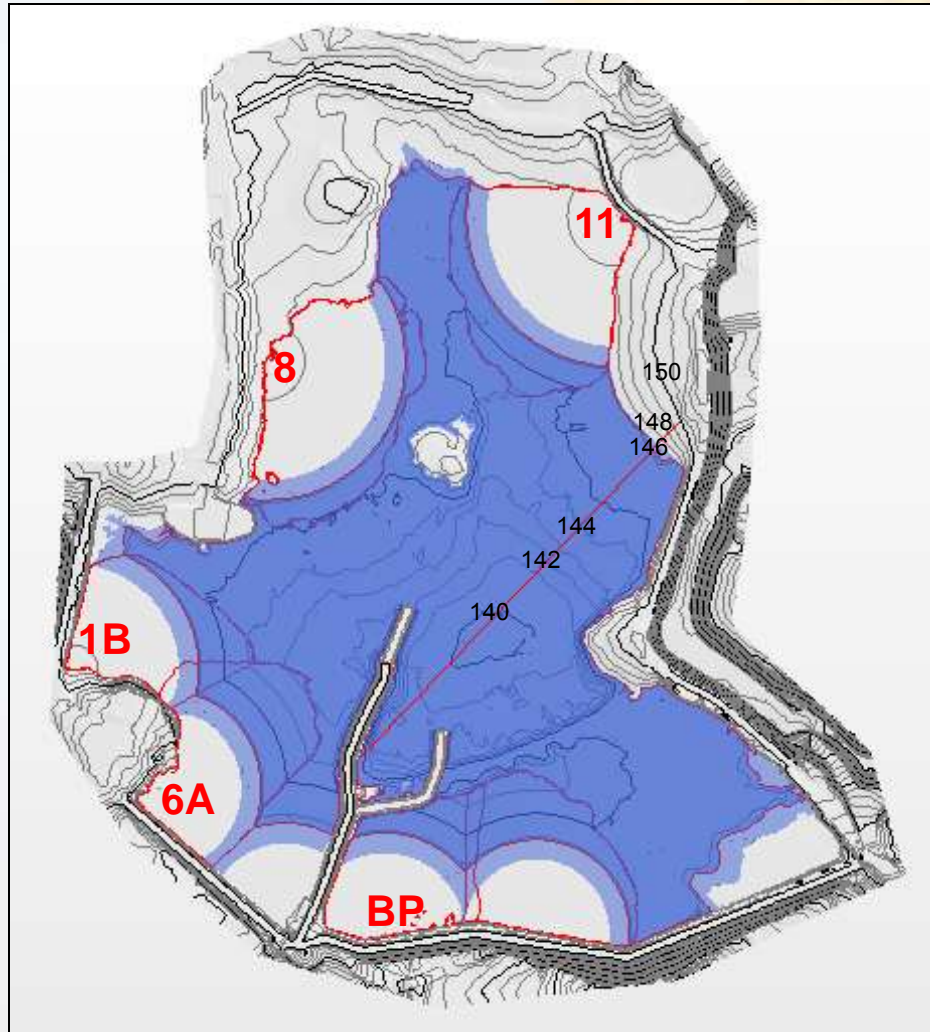
MODEL RESULTS	
Pond volume (m <sup>3</sup> )	1 416 508
Pond depth (m)	6.248
Pond elevation (m)	145.903
Min pond ele (m)	139.655
Ice thickness (m)	0
Unfrozen water elevation (m)	145.903
Ice volume (m <sup>3</sup> )	0
Ice ratio (%)	0
Transfer from South Cell (m <sup>3</sup> )	0





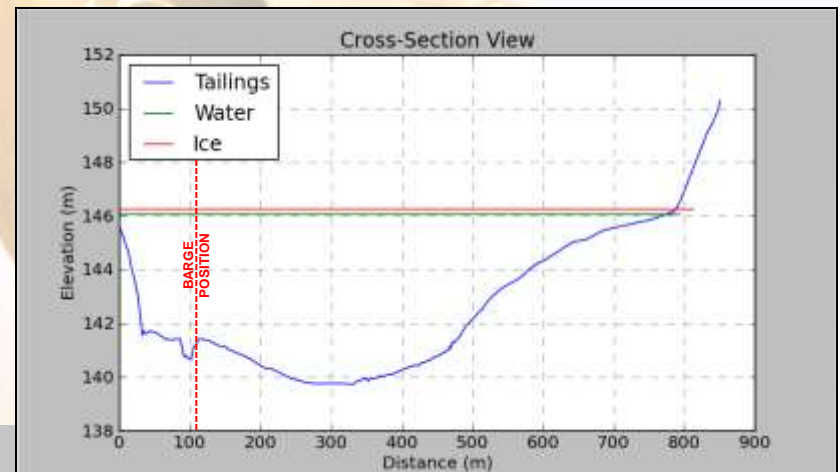
# North Cell TSF deposition plan October 2013

Duration	Deposition Point	Tonnes
3	BP	43,009
3	6A	35,470
3	3	38,009
5	1B	56,733
12	11	145,711
5	8	66,857



MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	1 503 962
Ice thickness (m)	0.20
Tonnes (t)	363,600

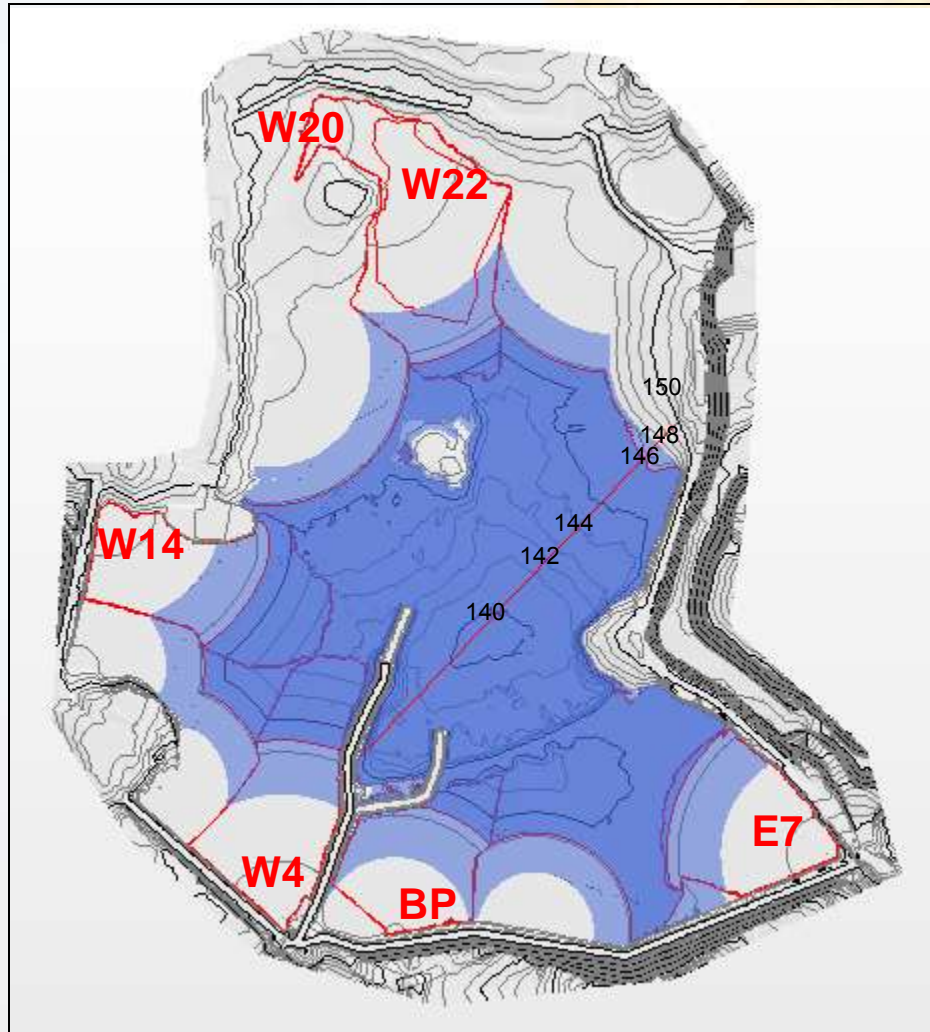
MODEL RESULTS	
Pond volume (m <sup>3</sup> )	1 362 552
Pond depth (m)	6.608
Pond elevation (m)	146.263
Min pond ele (m)	139.655
Ice thickness (m)	0.186
Unfrozen water elevation (m)	146.077
Ice volume (m <sup>3</sup> )	141 410
Ice ratio (%)	9%
Transfer from South Cell (m <sup>3</sup> )	140 000





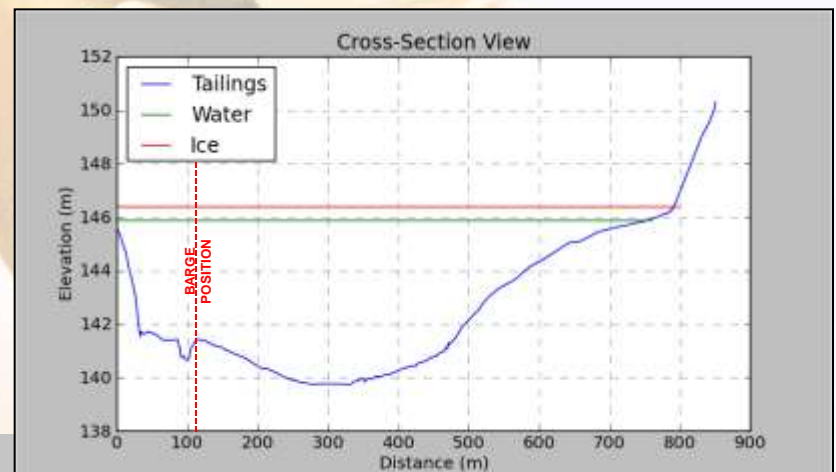
# North Cell TSF deposition plan November 2013

Duration	Deposition Point	Tonnes
2	BP	20,474
5	W22	51,004
5	W20	55,385
6	W14	71,786
6	W4	71,875
3	E7	27,937



MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	1 443 996.00
Ice thickness (m)	0.50
Tonnes (t)	321 180

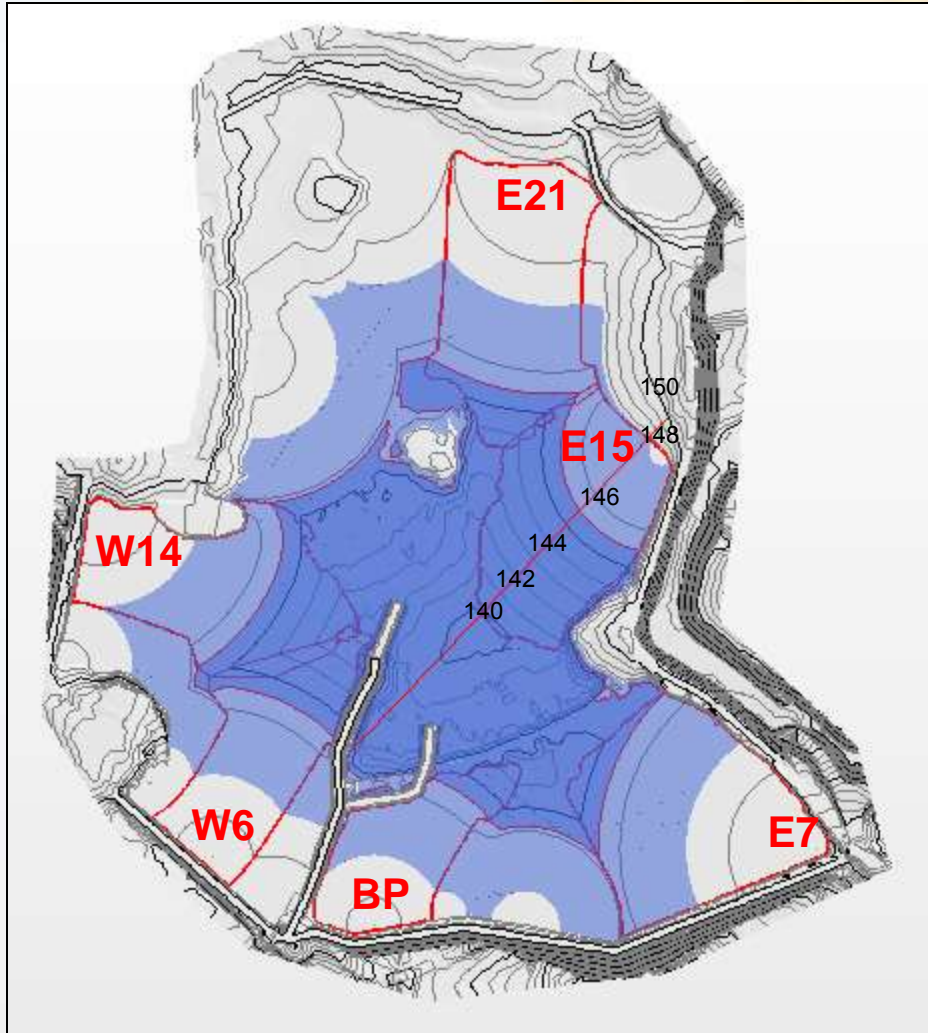
MODEL RESULTS	
Pond volume (m <sup>3</sup> )	1 122 802
Pond depth (m)	6.735
Pond elevation (m)	146.390
Min pond ele (m)	139.655
Ice thickness (m)	0.50
Unfrozen water elevation (m)	145.890
Ice volume (m <sup>3</sup> )	321 194
Ice ratio (%)	22%
Transfer to South Cell (m <sup>3</sup> )	0



# North Cell TSF deposition plan

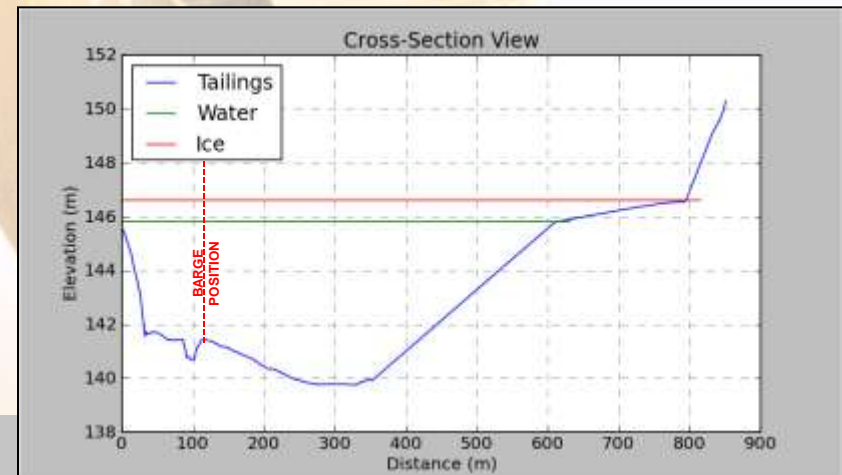
## December 2013

Duration	Deposition Point	Tonnes
2	BP	23,445
5	E7	70,165
6	W18	70,259
6	W12	70,252
6	E21	71,365
4	E15	47,694



MODEL INPUT	
Water Balance Volume (m³)	1 372 715
Ice thickness (m)	1.10
Tonnes (t)	369,660

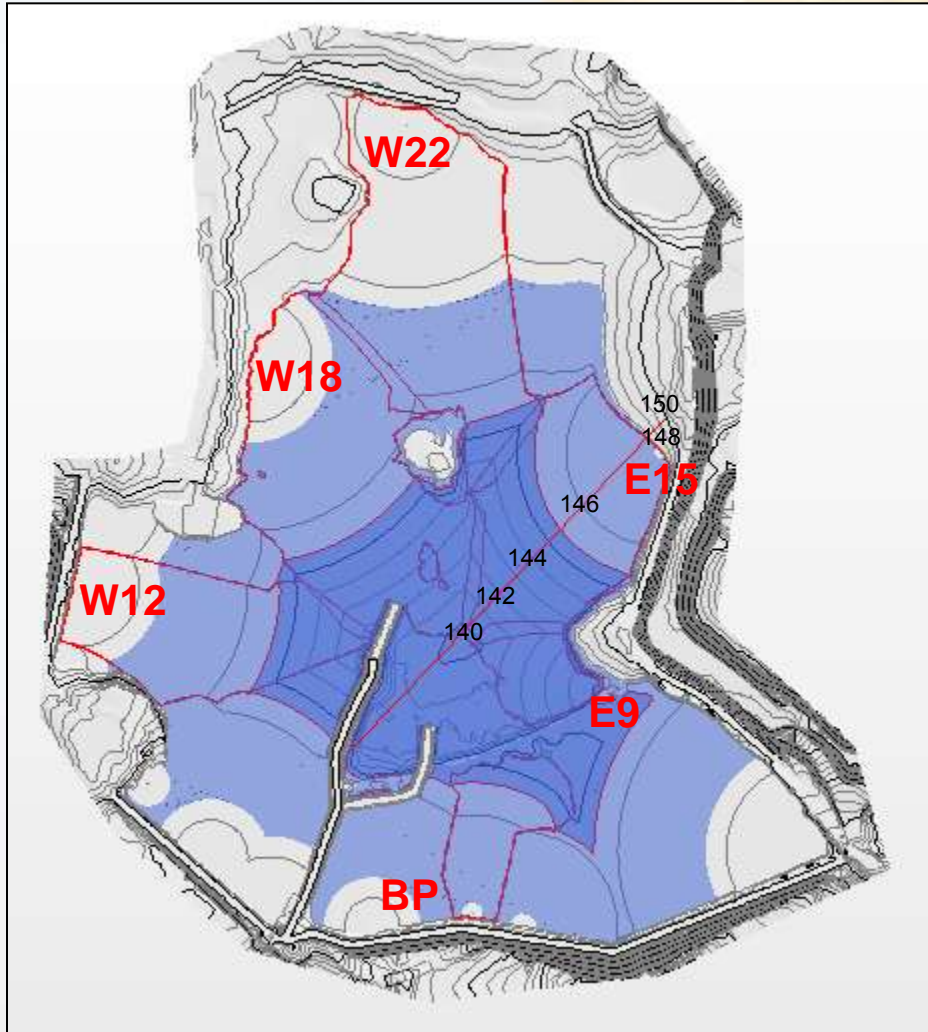
MODEL RESULTS	
Pond volume (m³)	887 636
Pond depth (m)	6.869
Pond elevation (m)	146.610
Min pond ele (m)	139.741
Ice thickness (m)	0.501
Unfrozen water elevation (m)	145.798
Ice volume (m³)	485 079
Ice ratio (%)	35%
Transfer to South Cell (m³)	0



# North Cell TSF deposition plan

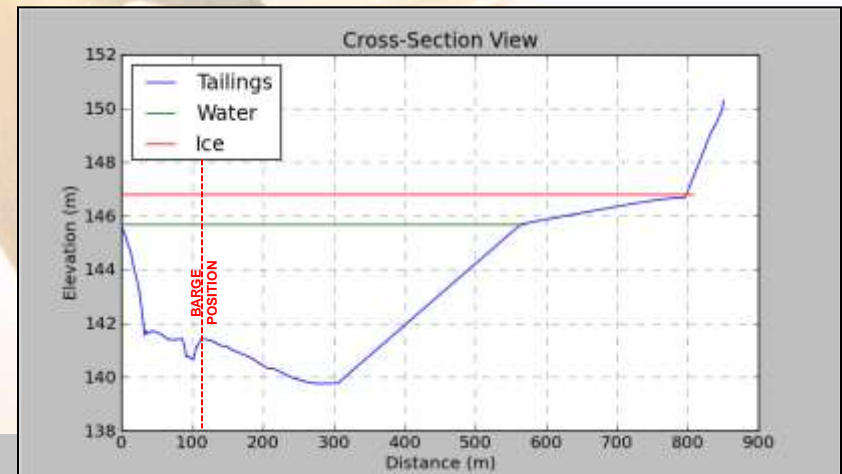
## January 2014

Duration	Deposition Point	Tonnes
2	BP	23,196
3	E9	34,873
8	W22	92,932
7	W18	81,366
4	W12	46,472
7	E15	81,419



MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	1 300 648
Ice thickness (m)	1.10
Tonnes (t)	360,995

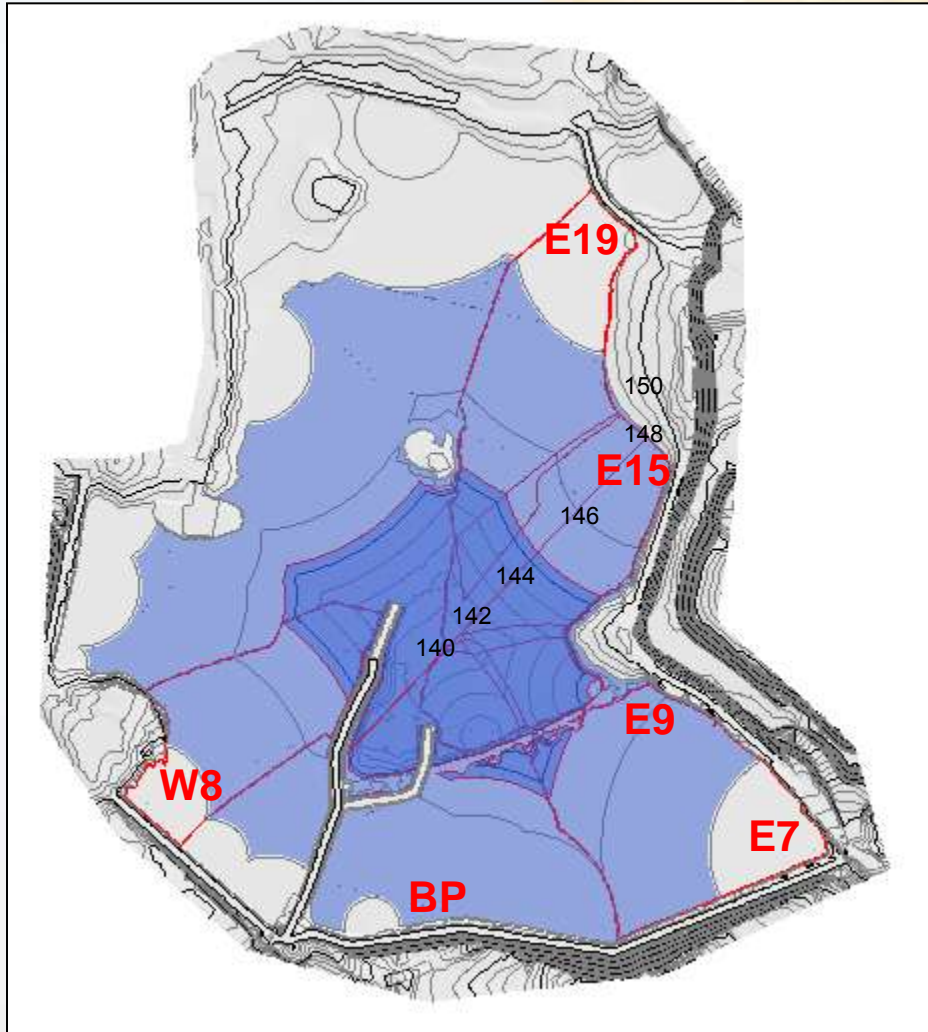
MODEL RESULTS	
Pond volume (m <sup>3</sup> )	669 758
Pond depth (m)	6.039
Pond elevation (m)	145.701
Min pond ele (m)	139.662
Ice thickness (m)	1.11
Unfrozen water elevation (m)	146.809
Ice volume (m <sup>3</sup> )	630 890
Ice ratio (%)	49%
Transfer to South Cell (m <sup>3</sup> )	0





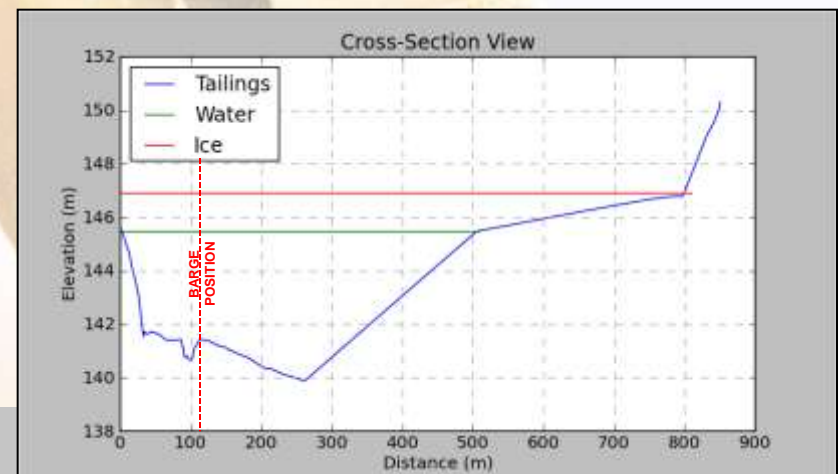
# North Cell TSF deposition plan February 2014

Duration	Deposition Point	Tonnes
2	BP	20,669
2	E9	20,665
4	E7	41,080
6	W8	62,027
8	E19	82,452
6	E15	62,077



MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	1,185,974
Ice thickness (m)	1.50
Tonnes (t)	288,988

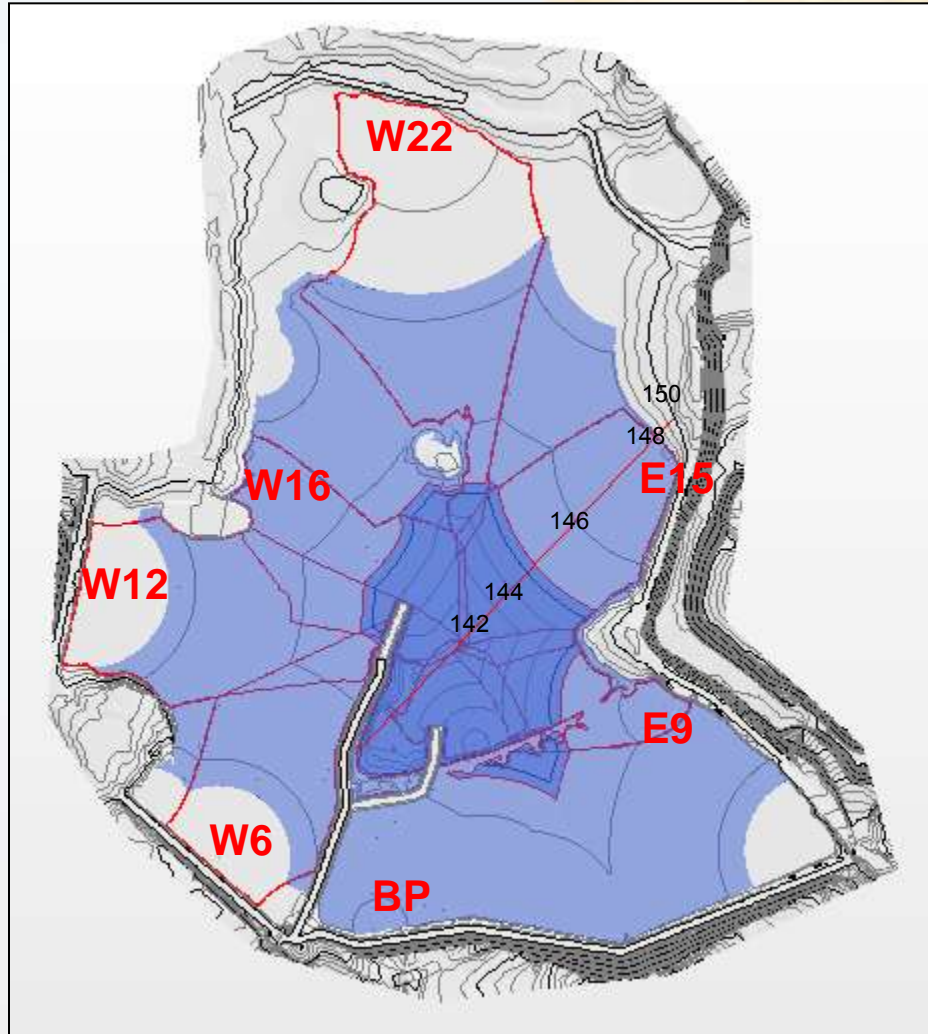
MODEL RESULTS	
Pond volume (m <sup>3</sup> )	459 343
Pond depth (m)	7.029
Pond elevation (m)	146.978
Min pond ele (m)	139.874
Ice thickness (m)	1.504
Unfrozen water elevation (m)	145.474
Ice volume (m <sup>3</sup> )	797 203
Ice ratio (%)	65%
Transfer to South Cell (m <sup>3</sup> )	0





# North Cell TSF deposition plan

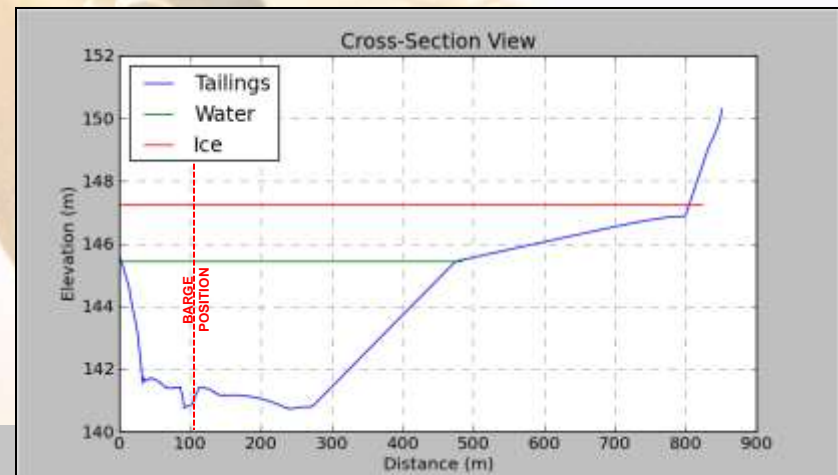
## March 2014



Duration	Deposition Point	Tonnes
2	BP	20,662
5	W22	58,960
6	W16	70,926
6	W10	70,984
4	E15	47,335
4	E9	47,188
4	W6	47,771

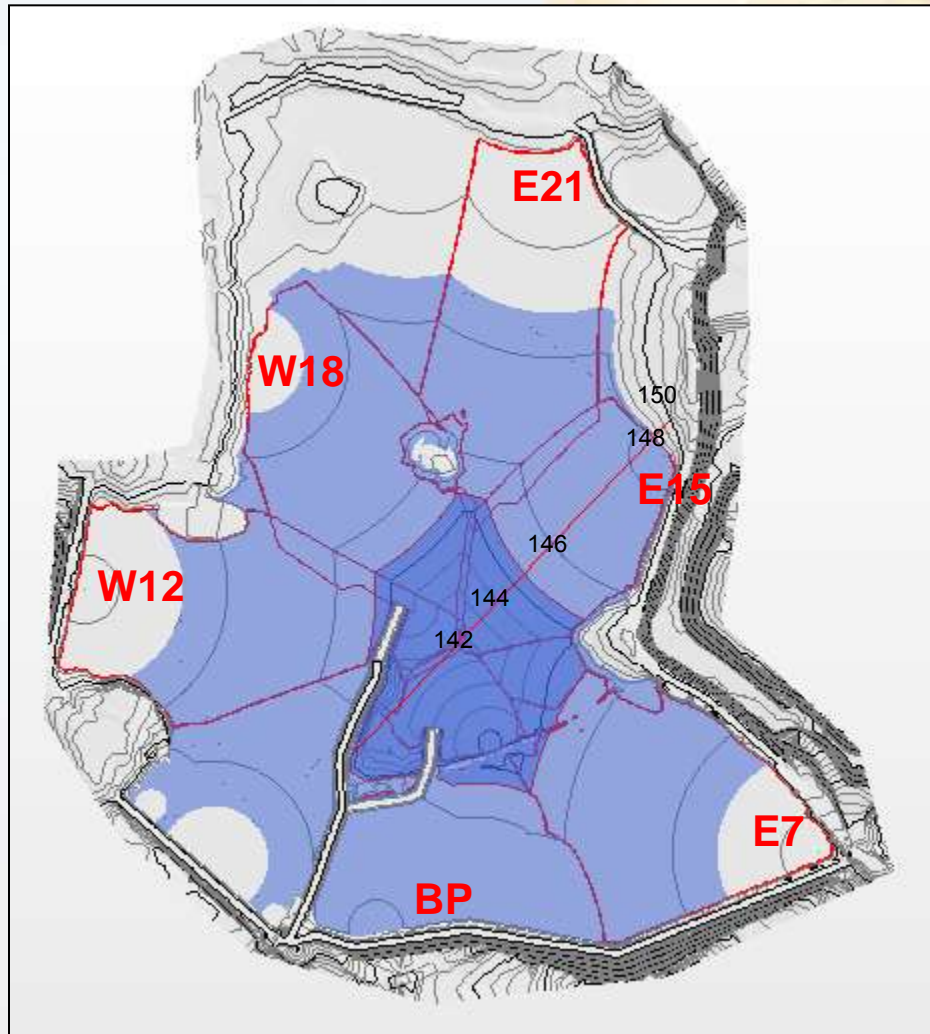
MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	1 163 247
Ice thickness (m)	1.80
Tonnes (t)	367,009

MODEL RESULTS	
Pond volume (m <sup>3</sup> )	309 900
Pond depth (m)	6.728
Pond elevation (m)	147.245
Min pond ele (m)	140.517
Ice thickness (m)	1.795
Unfrozen water elevation (m)	145.450
Ice volume (m <sup>3</sup> )	853 347
Ice ratio (%)	73%
Transfer to South Cell (m <sup>3</sup> )	0



# North Cell TSF deposition plan

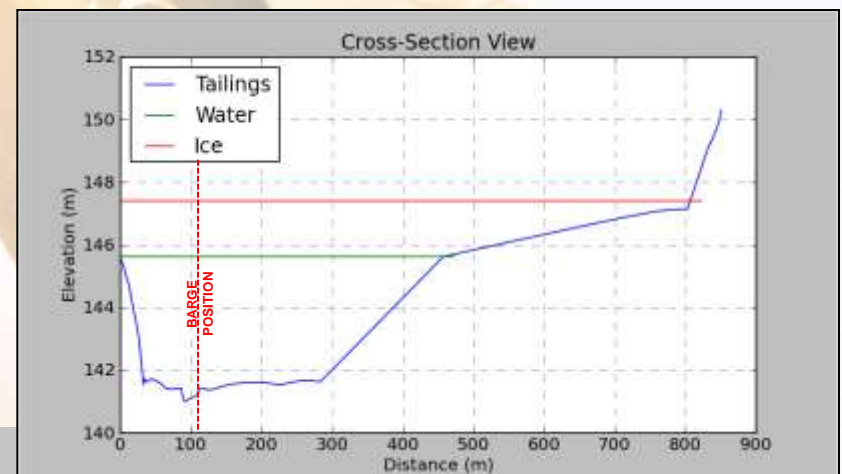
## April 2014



Duration	Deposition Point	Tonnes
2	BP	23 478
6	E7	70 435
6	W18	70 435
6	W8	70 435
6	E21	70 435
4	E15	46 956

MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	1,054,214
Ice thickness (m)	1.80
Tonnes (t)	348,990

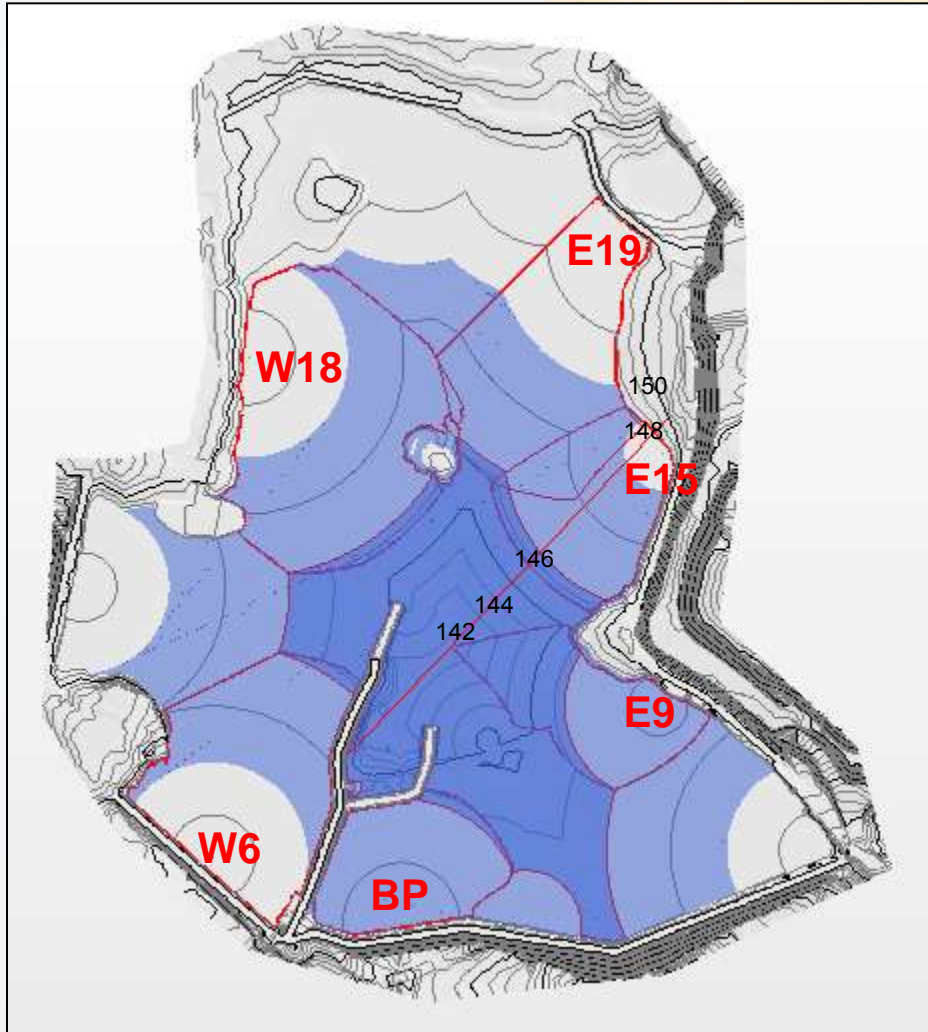
MODEL RESULTS	
Pond volume (m <sup>3</sup> )	260 298
Pond depth (m)	6.699
Pond elevation (m)	147.411
Min pond ele (m)	140.712
Ice thickness (m)	1.780
Unfrozen water elevation (m)	145.631
Ice volume (m <sup>3</sup> )	833 459
Ice ratio (%)	76%
Transfer to South Cell (m <sup>3</sup> )	0



# North Cell TSF deposition plan

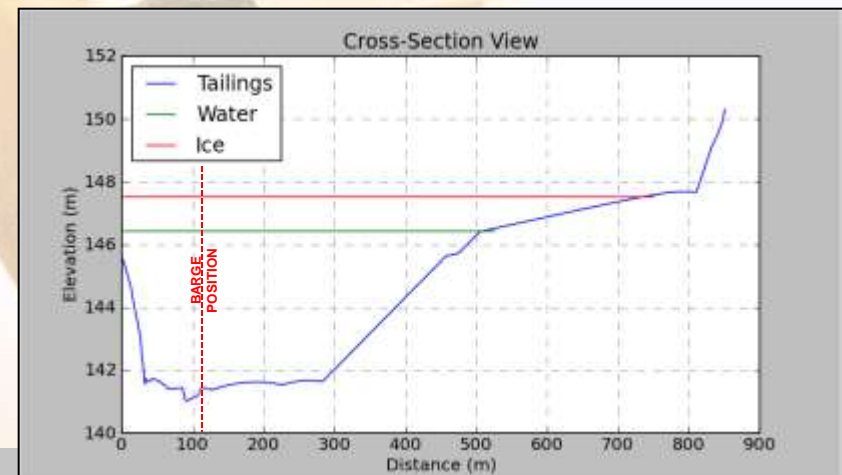
## May 2014

Duration	Deposition Point	Tonnes
2	BP	23,401
9	W18	93,536
6	W6	64,411
6	E19	64,344
4	E15	41,497
4	E9	41,577



MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	1 044 070
Ice thickness (m)	1.10
Tonnes (t)	325,004

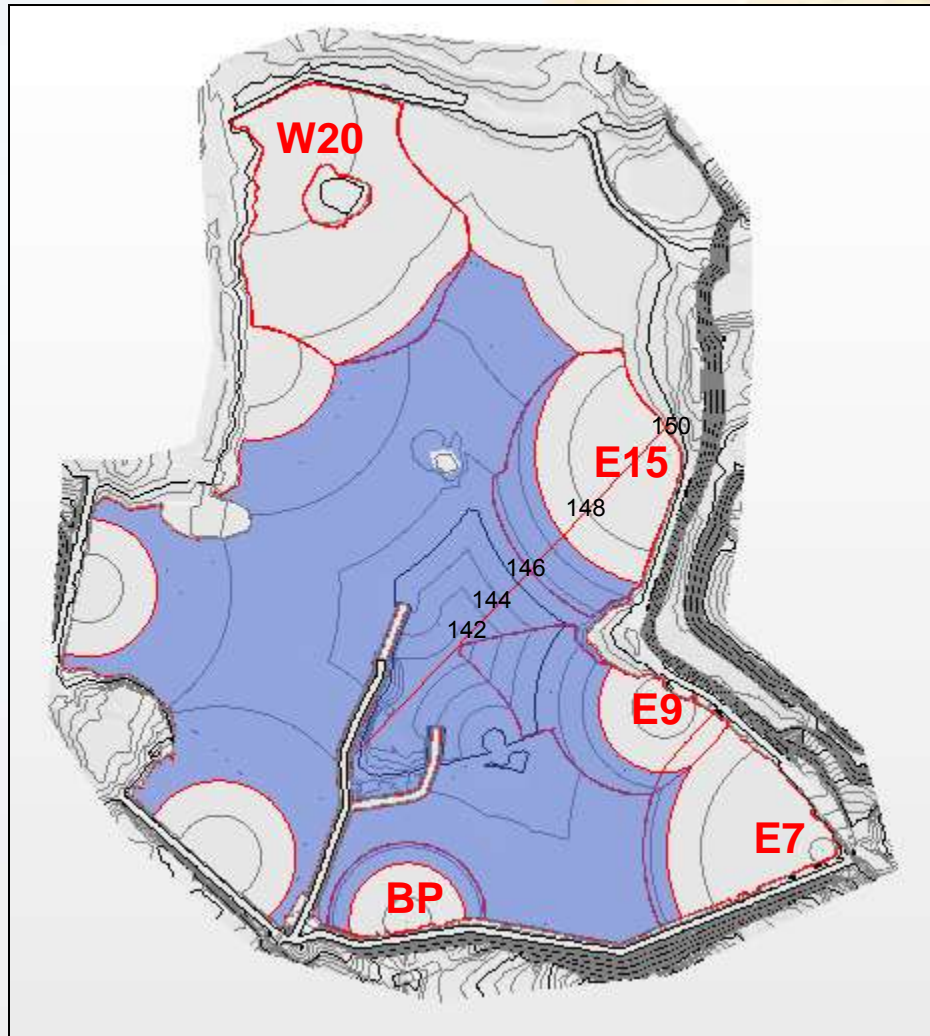
MODEL RESULTS	
Pond volume (m <sup>3</sup> )	412 777
Pond depth (m)	6.047
Pond elevation (m)	147.518
Min pond ele (m)	141.471
Ice thickness (m)	1.108
Unfrozen water elevation (m)	146.410
Ice volume (m <sup>3</sup> )	631 293
Ice ratio (%)	60%
Transfer to South Cell (m <sup>3</sup> )	0





# North Cell TSF deposition plan

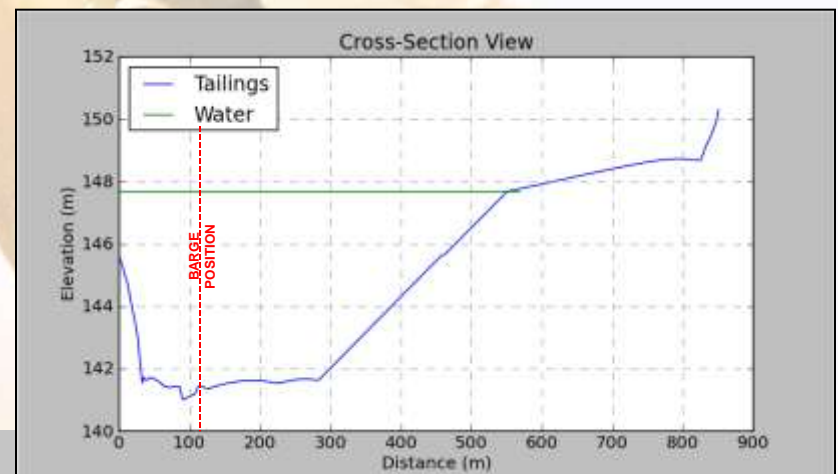
## June 2014



Duration	Deposition Point	Tonnes
2	BP	23,377
9	W20	105,309
4	E9	46,790
9	E15	70,141
6	E7	70,141

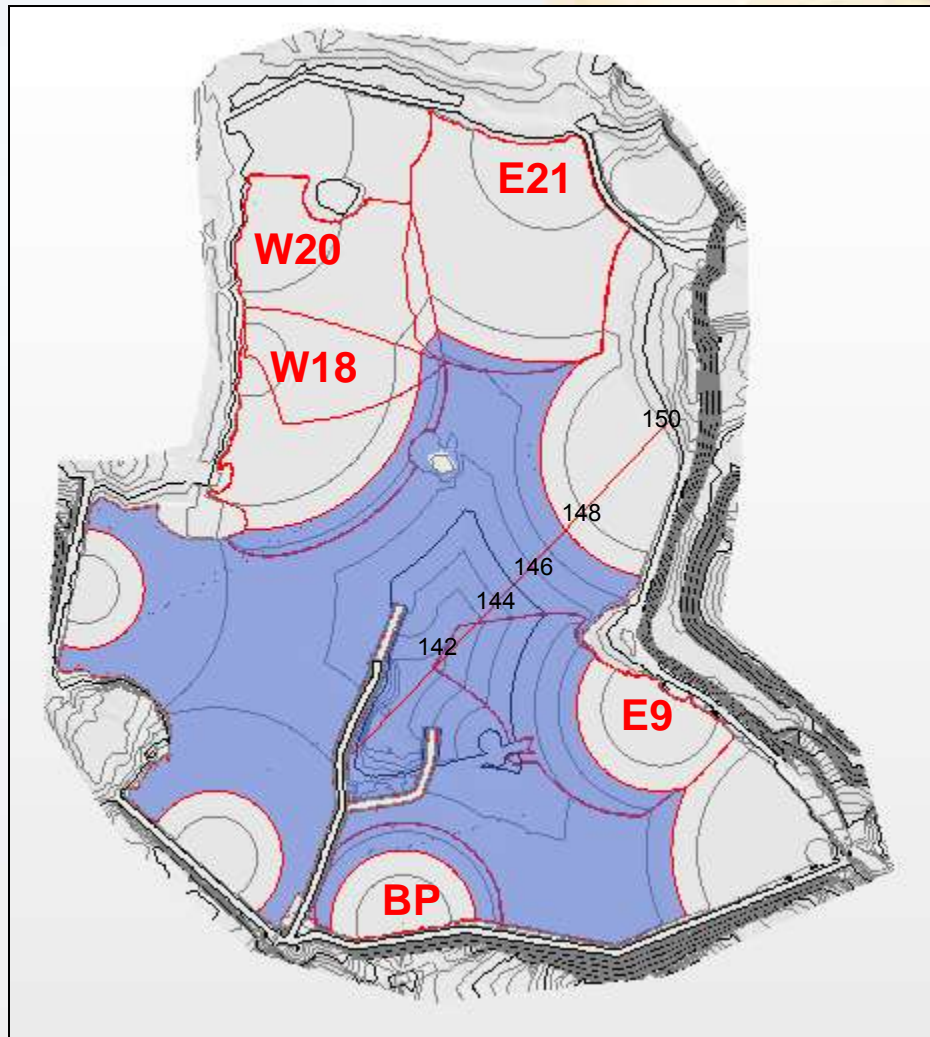
MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	1 059 689
Ice thickness (m)	0
Tonnes (t)	354 990

MODEL RESULTS	
Pond volume (m <sup>3</sup> )	1 056 178
Pond depth (m)	6.202
Pond elevation (m)	147.682
Min pond ele (m)	141.480
Ice thickness (m)	0
Unfrozen water elevation (m)	147.682
Ice volume (m <sup>3</sup> )	0
Ice ratio (%)	0
Transfer to South Cell (m <sup>3</sup> )	0





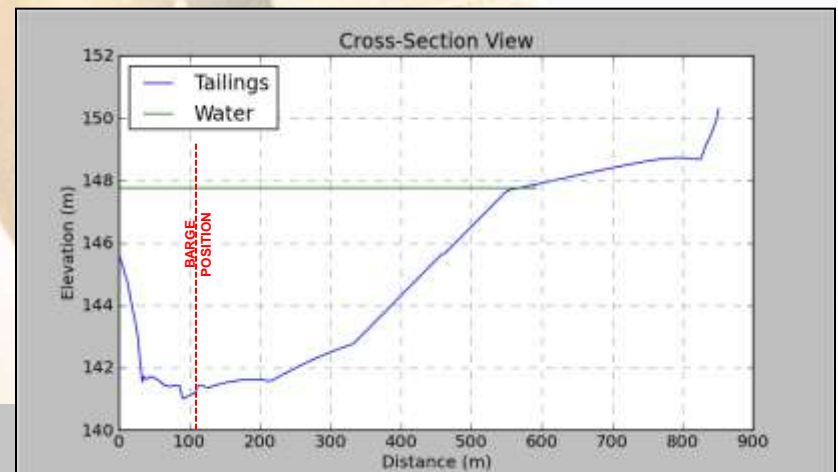
# North Cell TSF deposition plan July 2014



Duration	Deposition Point	Tonnes
2	BP	23,269
9	E21	104,342
6	E9	69,856
5	W20	58,066
9	W18	104,633

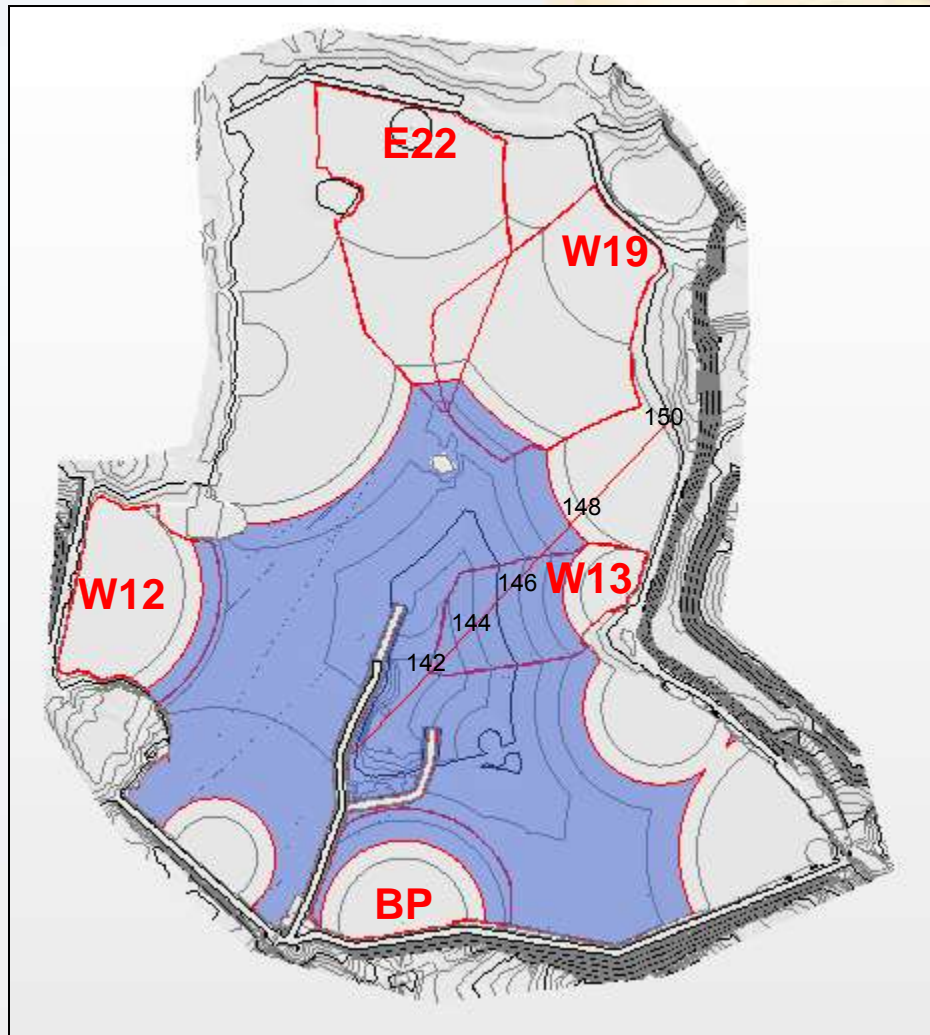
MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	999 244
Ice thickness (m)	0
Tonnes (t)	354,234

MODEL RESULTS	
Pond volume (m <sup>3</sup> )	994 558
Pond depth (m)	6.219
Pond elevation (m)	649 483
Min pond ele (m)	141.549
Ice thickness (m)	0
Unfrozen water elevation (m)	147.768
Ice volume (m <sup>3</sup> )	0
Ice ratio (%)	0
Transfer to South Cell (m <sup>3</sup> )	0



# North Cell TSF deposition plan

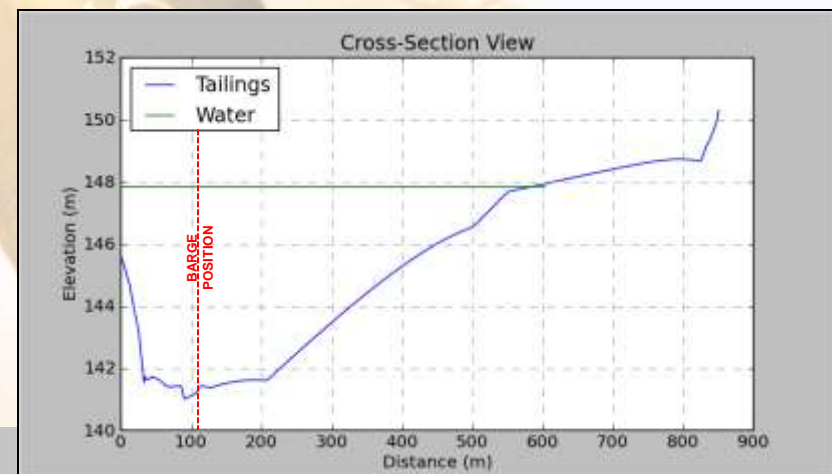
## August 2014



Duration	Deposition Point	Tonnes
2	BP	23,401
9	W18	93,536
6	W6	64,411
6	E19	64,344
4	E15	41,497
4	E9	41,577

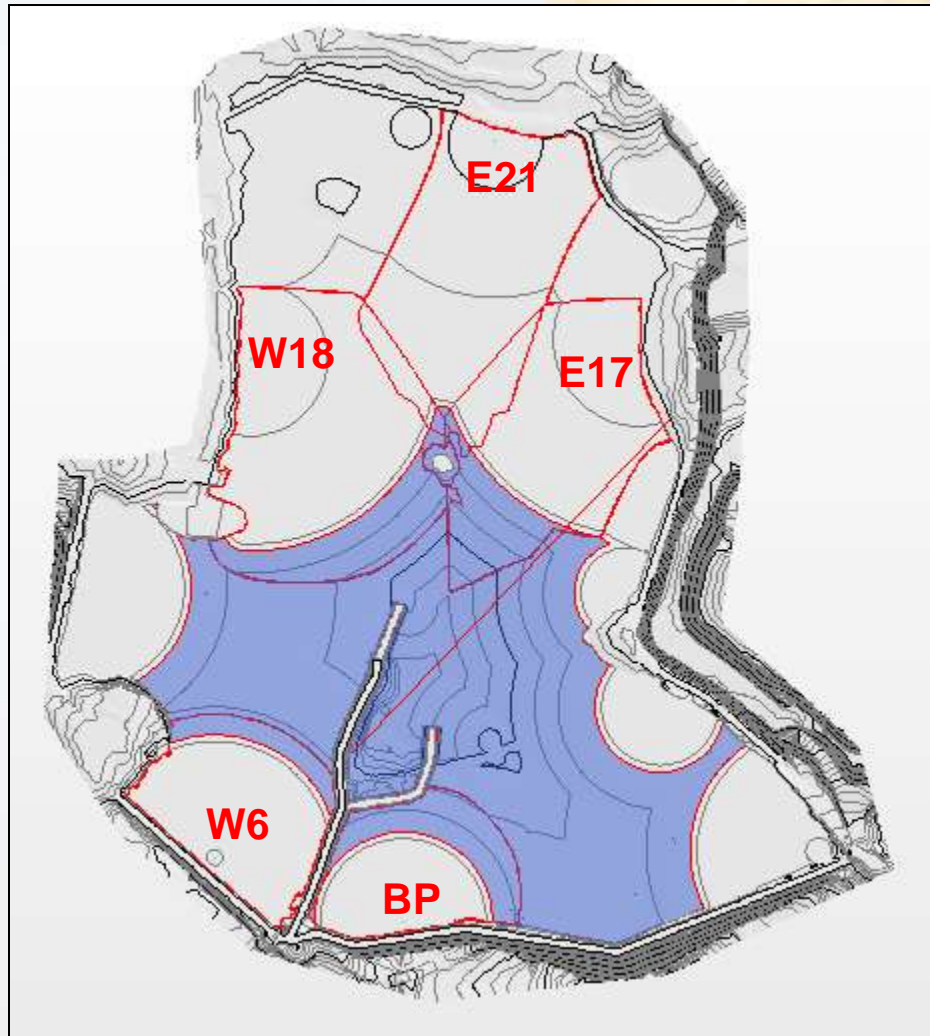
MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	1,197,430
Ice thickness (m)	0
Tonnes (t)	354,234

MODEL RESULTS	
Pond volume (m <sup>3</sup> )	911,888
Pond depth (m)	6.047
Pond elevation (m)	147.855
Min pond ele (m)	141.808
Ice thickness (m)	0
Unfrozen water elevation (m)	147.855
Ice volume (m <sup>3</sup> )	0
Ice ratio (%)	0
Transfer to South Cell (m <sup>3</sup> )	0



# North Cell TSF deposition plan

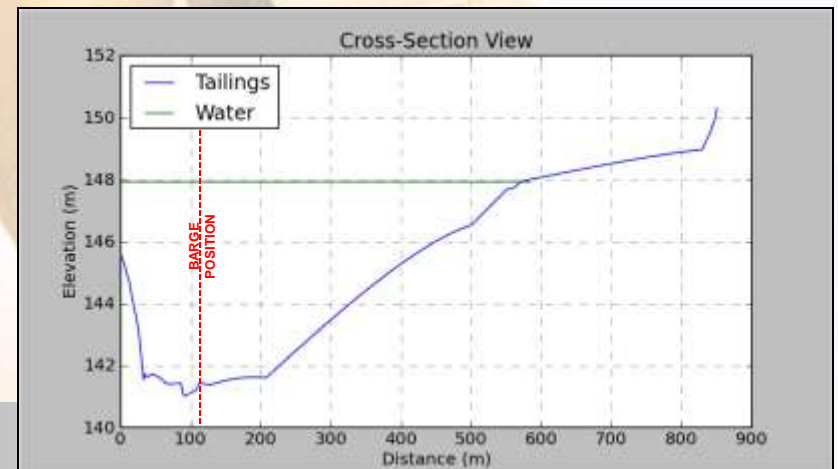
## September 2014



Duration	Deposition Point	Tonnes
2	BP	23,265
6	E21	69,639
8	W18	92,798
8	E17	92,949
6	W6	69,749

MODEL INPUT	
Water Balance Volume (m <sup>3</sup> )	892 523
Ice thickness (m)	0.00
Tonnes (t)	348,990

MODEL RESULTS	
Pond volume (m <sup>3</sup> )	889 585
Pond depth (m)	6.423
Pond elevation (m)	147.939
Min pond ele (m)	141.516
Ice thickness (m)	0
Unfrozen water elevation (m)	147.939
Ice volume (m <sup>3</sup> )	0
Ice ratio (%)	0
Transfer to South Cell (m <sup>3</sup> )	0







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