Appendix 24

Meadowbank 2020 Thermal Report

AGNICO EAGLE

MEADOWBANK PROJECT

Thermal Report

Prepared by:
Agnico Eagle Mines Limited – Meadowbank Division

Version 2
February 2021

DOCUMENT CONTROL

Version	Date (YMD)	Section	Revision
1	2020-03-31	All	All
2	2021-02-23	All	All

INTRODUCTION

To observe the freezeback of the Tailing Storage Facility (TSF) and the Rockfill Storage Facilities (RSF's) at the Meadowbank Mine Project, a series of subsurface thermistors have been installed at strategic locations.

The purposes of the TSF thermistors are to monitor the talik temperatures underneath the TSF as freezing progresses and to monitor the freezing of the tailings. The purpose of the thermistors in the RSF is to monitor the RSF temperature as freezing progresses. See Figure 1 for the locations of the thermistors installed. Appendix A of this Plan contains the updated data from each thermistor for 2020.

The thermistors are monitored periodically and as-needed, and this will continue throughout the operational period as well as during closure and post closure. The results collected are to be used to evaluate the predicted thermal response of the facilities with the actual thermal response. This will allow adjustments to the tailings deposition plan, the Waste Rock deposition plan and the final Closure Plan.

INSTRUMENT SPECIFICATIONS

Each thermistor installed as part of the thermal monitoring plan must comply with the general specifications presented in Table 1.

Table 1: Thermistor Specifications

Items	Specifications
Accuracy	1 degree Celsius
Thermistor temperature range	-40 to 40 degree Celsius
Method of cable termination	Amphenol connector and DAS direct connection
Cable termination enclosures	Weatherproof Animal resistant
Readout and data logger	Manual and DAS

THERMAL MONITORING OF THE TSF

The monitoring program objective for the TSF is to provide the data required to validate the predictions of freezeback within the tailings and support the cover design. The goals of the TSF North and South Cell cover systems and landforms are to ensure long-term landform stability, encourage TSF freeze-back into the surrounding permafrost, and maintain either subzero temperature or a high degree of saturation (>85%) in the tailings at all times. If it is determined

by monitoring during operations that the tailings are freezing at lower rates than predicted, then mitigation procedures would be implemented.

An instrumentation plan for the TSF is planned to be developed to define the required instrumentation at closure once capping of the TSF is completed. The purpose of the performance monitoring system is to ensure that the cover performs as per its design intent.

The instruments installed in the North Cell TSF were done in locations where tailings deposition was not planned to resume. No instruments are currently installed within the tailings of the South Cell but it is planned to install some in 2021.

As the TSF is reaching its final elevation, thermistors will be installed from the final tailings surface, and directly into the underlying bedrock.

THERMAL PERFORMANCE OF THE TSF

The thermistors are indicating that freezeback is occurring within the North Cell TSF.

Instruments located near the pond of water of the North Cell are showing a portion of unfrozen tailings at depth with frozen tailings in surface (with a 4-5 m active layer) and a progression of the freezing front advancing at depth. This is represented by yellow dot on Figure 1 (NC-16-1, NC-16-2, NC17-3, NC-17-2, NC-17-6). Instruments located away from the water pond show that the tailings and its foundation are entirely frozen with an active depth of 4-5 m. This is represented by red, green and orange dot on Figure 1 (NC-17-1, NC17-4, NC-17-6, NC-17-7, NCIS-01 to NCIS-04).

Instruments installed in the capping or rockfill structure above tailings show that the active layer remained confined in the waste rock showing the effectiveness of the capping concept. This is represented by green and red dot on Figure 1 (NC-17-5, SWD-16-01).

SWD-01 shows a stable unfrozen situation in the foundation below the frozen tailings and capping.

The thermal prediction of the tailings freezeback made by Golder in 2008 indicated that for the more conservative scenario the entire tailings body would be completely frozen within a period of about 40 years after the end of operations with the freezing front advancing into the foundation beneath the tailings in the long term. The results are aligned with this modelling with most data showing a quicker freezeback than anticipated.

THERMAL MONITORING PLAN OF THE RSF

Thermistors are installed within the Portage RSF. No instruments are installed within the Vault RSF.

Additional thermistors are planned to be installed within the Portage and Vault RSF at closure. An instrumentation plan will be developed to define the required instrumentation at closure.

THERMAL PERFORMANCE OF THE RSF

In 2019 AEM initiated with O'Kane a mandate to review the thermal model of the Portage RSF with the objective of evaluating the accuracy of the thermal model by comparing the simulated results with field data collected from the thermistor data.

The study done by O'Kane came to the following conclusion:

- Decreasing tends in active zone depth are recorded at most thermistor locations
- The thermal model predicted colder temperatures near surface compared to recorded near surface temperatures
- Temperature trends are becoming more consistent with simulated temperatures over time
- The observed active zone is generally thicker on the north slope compared to the south slope which is the opposite of the conceptual model.

The numerical modelling undertaken in 2016 tended to predict colder temperature than the thermistors during the observed period at all locations. However, the difference between the modelled and observed temperature is becoming less over time and the overall trend in the observed data is becoming more consistent with the model. The timing and amplitude of seasonal trends already show a good match between observed and modelled results, but the model results are shifted lower due to the predicted colder temperature. It is expected that the trend towards consistency will continue, further increasing confidence.

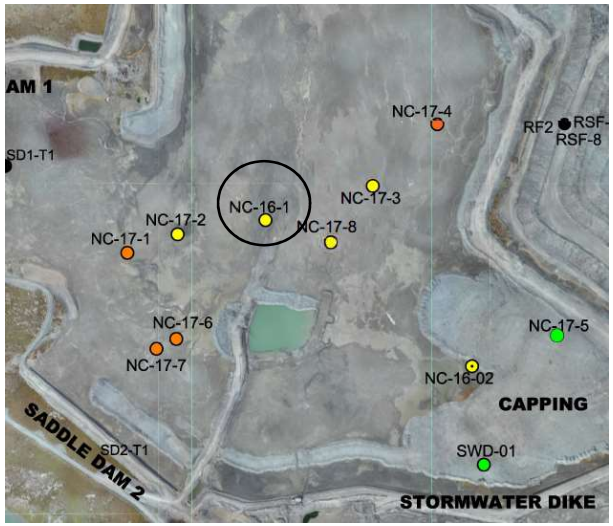
In 2020 a similar trend was observed with most of the active layer located within the upper 4 meters of material, corresponding to the NAG cover layer. A slow cooling trend is observed in most instruments, showing that permafrost is progressing in the WRSF.

As per O'Kane recommendation two new TH were installed in the Portage WRSF in 2020. The data so far seem to suggest that the waste material directly below the NAG cover layer is marginally frozen, while the NAG layer and the deeper portion of the WRSF are frozen. These instruments only have a few months of data, and the thermal trend will be confirmed over the next year.

Figure 1: Thermistor Location in Portage RSF, TSF North Cell, and TSF South Cell

Name	*Area*	*Easting (X)*	*Northing (Y)*	*Elevation (Z)*	*Azimuth*	*Dip*	*Installed*	*Active (Y) or (N)*
NC-16-01	NC	**637562.77**	**7215849.33**	**147.63**	--	-90	2016	Y
NC-16-02	NC	**637969.22**	**7215561.87**	**148.33**	--	-90	2016	Y
NC-17-1	NC	**637290.00**	**7215823.00**	**148.10**	--	-90	2018	Y
NC-17-2	NC	**637391.00**	**7215823.00**	**147.61**	--	-90	2017	Y
NC-17-3	NC	**637775.00**	**7215917.00**	**147.65**	--	-90	2015	Y
NC-17-4	NC	**637901.00**	**7216038.00**	**148.48**	--	-90	2015	Y
NC-17-5	NC	**638134.34**	**7215623.68**	**152.00**	--	-90	2015	Y
NC-17-6	NC	**637389.00**	**7215623.00**	**147.78**	--	-90	2015	Y
NC-17-7	NC	**637348.00**	**7215598.00**	**147.89**	--	-90	2015	Y
NC-17-8	NC	**637668.00**	**7215778.00**	**146.45**	--	-90	2015	Y
NCIS-01	NC	**637412.84**	**7216395.10**	**152.43**	--	-90	2018	Y
NCIS-02	NC	**637377.24**	**7216398.61**	**151.63**	--	-90	2018	Y
NCIS-03	NC	**637432.58**	**7216636.35**	**154.74**	--	-90	2018	Y
NCIS-04	NC	**637405.47**	**7216293.32**	**152.15**	--	-90	2018	Y
SWD-01	NC	**606778.00**	**7256254.00**	**162.00**	--	-90	2014	Y
SD1-1	SD1	**637030.50**	**7215957.68**	**150.00**	--	Liner	2009	Y
SD2-1	SD2	**637290.00**	**7215420.00**	**150.00**	--	Liner	2012	Y
SD4-1	SD4	**638253.95**	**7214479.72**	**144.00**	--	Liner	2017	N
CD-US 0+650	CD	**638626.00**	**7214639.00**	**126.40**	--	Liner	2015	Y
RSF-3	RSF	**607078.00**	**7256522.00**	**155.00**	--	-90	2013	Y
RSF-5	RSF	**638629.81**	**7216014.00**	**193.02**	--	-90	2013	Y
RSF-6	RSF	**638845.40**	**7215647.00**	**197.79**	--	-90	2013	Y
RSF-7	RSF	**638153.00**	**7216039.00**	**173.50**	--	-55	2015	Y
RSF-8	RSF	**638156.00**	**7216038.00**	**173.85**	--	-70	2015	Y
RSF-9	RSF	**638290.00**	**7215707.00**	**171.26**	--	-55	2015	Y
RSF-10	RSF	**638293.00**	**7215711.00**	**171.70**	--	-70	2015	Y
RSF-11	RSF	**639071.00**	**7215787.00**	**193.13**	--	-55	2015	Y
RSF-12	RSF	**639066.00**	**7215791.00**	**193.51**	--	-70	2015	Y
RSF-13	RSF	**638916.00**	**7215943.00**	**191.69**	--	-55	2015	N
RSF-14	RSF	**638917.00**	**7215939.00**	**191.81**	--	-80	2015	N
RSF-15	RSF	**638612.00**	**7216038.00**	**192.10**	--	-55	2015	Y
RSF-16	RSF	**638610.00**	**7216033.00**	**192.39**	--	-70	2015	Y
RSF-17	RSF	**638570.442**	**7215935.4**	**233.183**	----	-90	2021	Y
RSF-18	RSF	**638495.212**	**7216111.896**	**172.605**	-	-90	2021	Y

NC-16-01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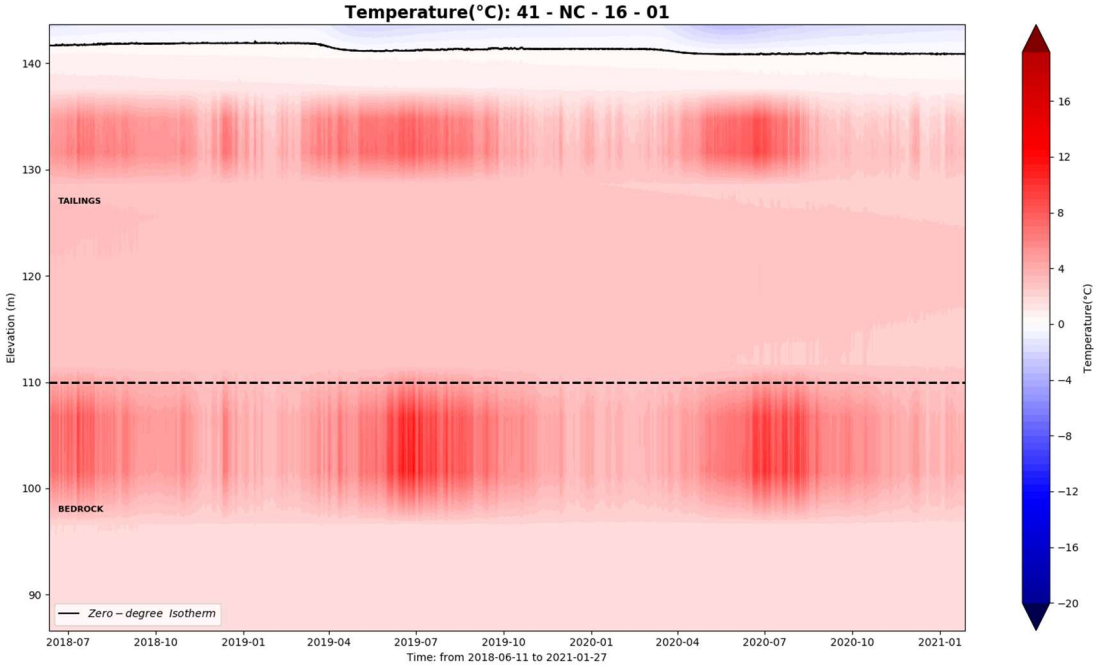
RF2
RSF-
RSF-8
NC-16-1
NC-17-3
NC-17-2
NC-17-8
NC-17-1
NC-17-6
NC-17-5
NC-17-7
NC-16-02
CAPPING
SADDLE DAM 2
SD2-T1
SWD-01
STORMWATER DIKE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Elevation (m)
TAILINGS
BEDROCK
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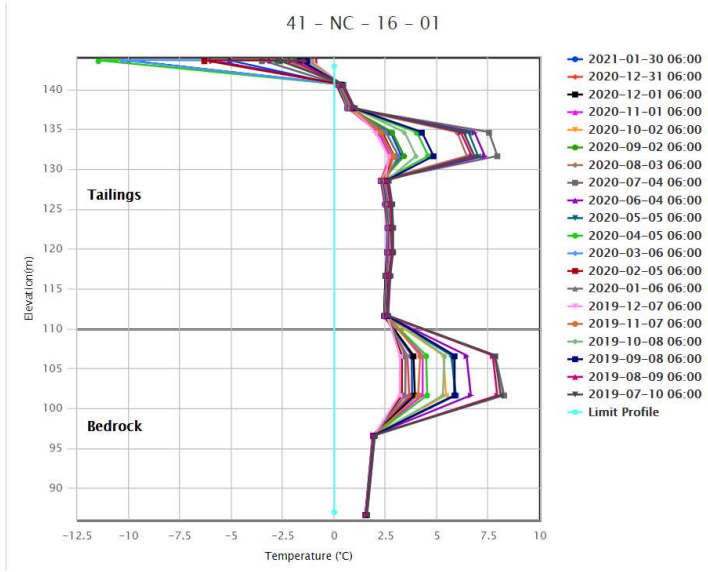
Time: from 2018-06-11 to 2021-01-27
Temperature(°C)


41 - NC - 16 - 01
Tailings
Bedrock
Elevation(m)
Temperature (°C)
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2020-12-31 06:00
2020-12-01 06:00
2020-11-01 06:00
2020-10-02 06:00
2020-09-02 06:00
2020-08-03 06:00
2020-07-04 06:00
2020-06-04 06:00
2020-05-05 06:00
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2020-01-06 06:00
2019-12-07 06:00
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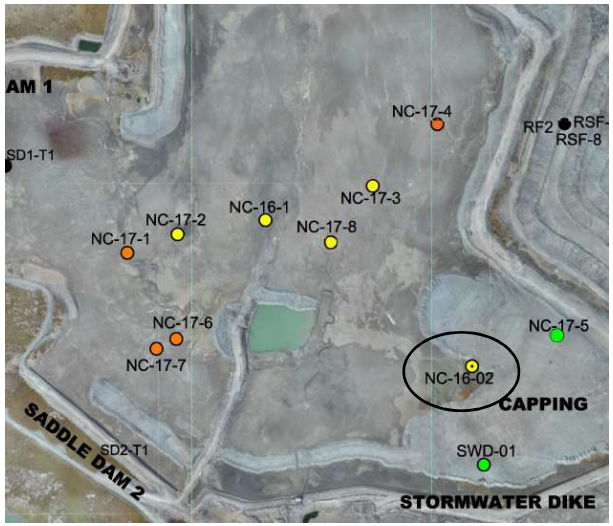
Limit Profile

NC-16-02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RF2
RSF-
RSF-8
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NC-16-1
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NC-17-6
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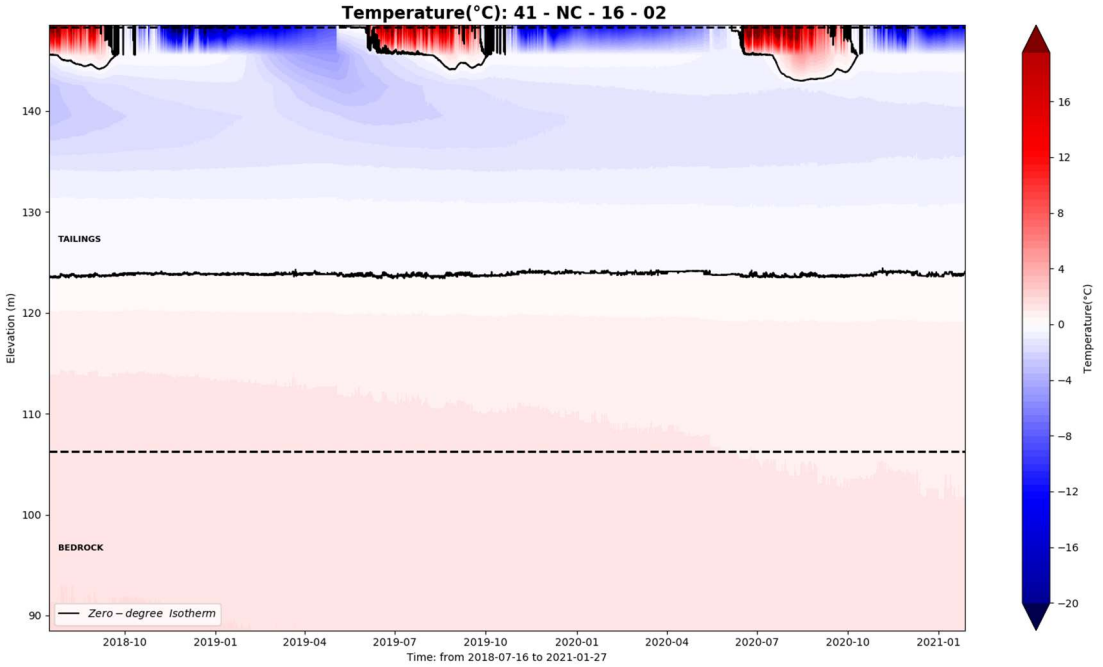
NC-17-7
NC-16-02
CAPPING
SADDLE DAM 2
SD2-T1
SWD-01
STORMWATER DIKE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Elevation (m)
TAILINGS
BEDROCK
Zero – degree Isotherm
2018-10
2019-01
2019-04
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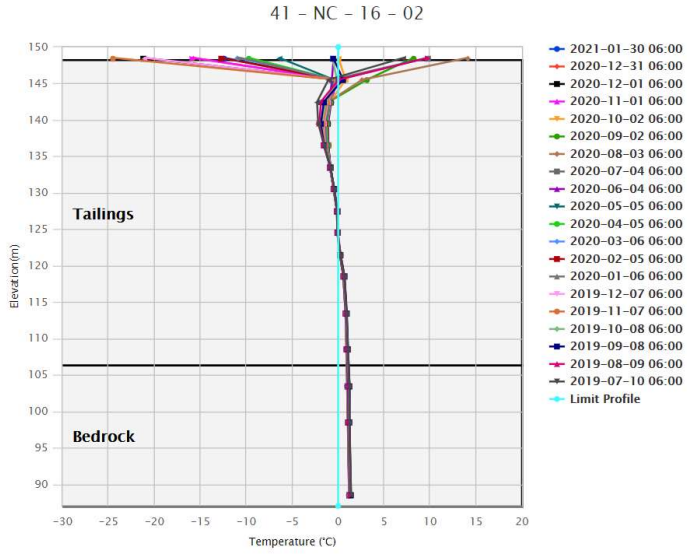
2021-01
Time: from 2018-07-16 to 2021-01-27
Temperature(°C)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Tailings
Bedrock
Elevation(m)
Temperature (°C)
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2020-12-31 06:00
2020-12-01 06:00
2020-11-01 06:00
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2020-01-06 06:00
2019-12-07 06:00
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Limit Profile

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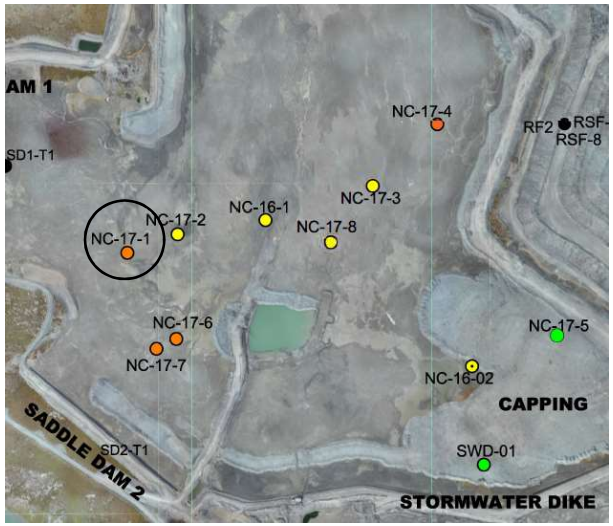
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NC-17-4
RF2
RSF-
RSF-8
NC-17-3
NC-16-1
NC-17-2
NC-17-1
NC-17-8
NC-17-6
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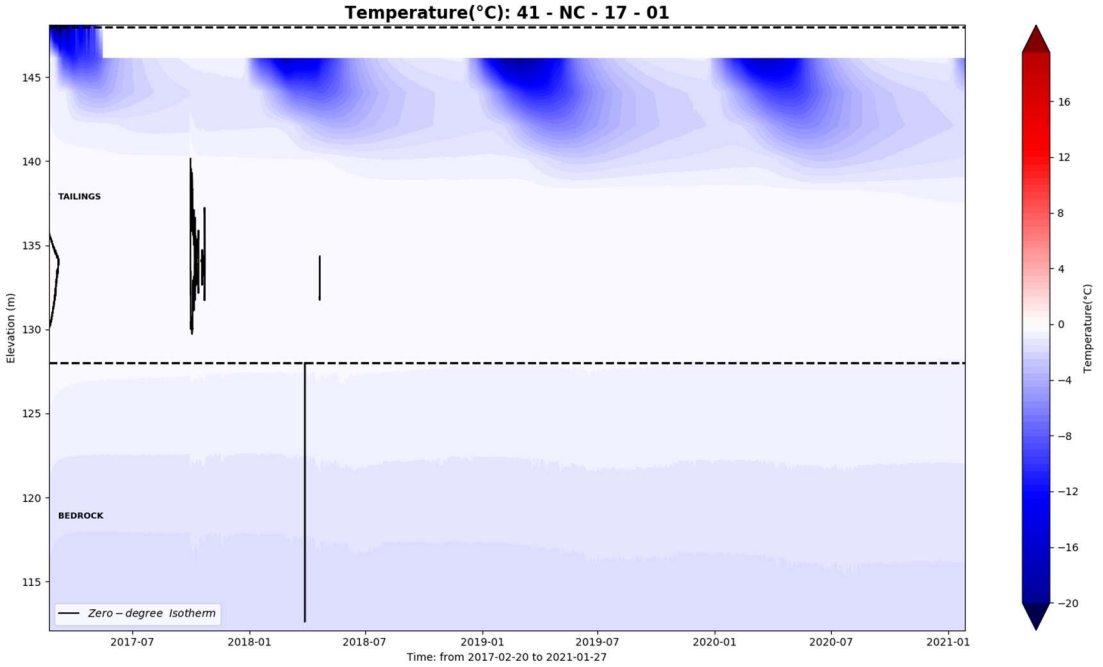
NC-17-5
NC-16-02
CAPPING
SADDLE DAM 2
SD2-T1
SWD-01
STORMWATER DIKE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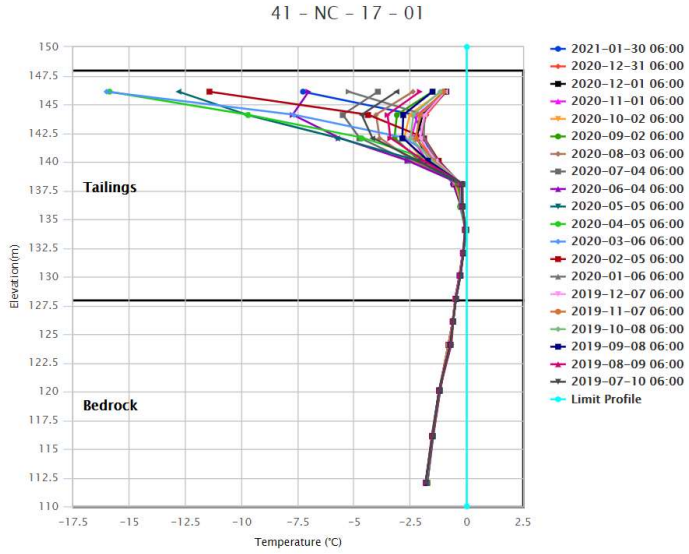
Elevation (m)
TAILINGS
BEDROCK
Zero – degree Isotherm
2017-07
2018-01
2018-07
2019-01
2019-07
2020-01
2020-07
2021-01
Time: from 2017-02-20 to 2021-01-27
Temperature(°C)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Elevation(m)
Tailings
Bedrock
Temperature (°C)
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2020-12-01 06:00
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Limit Profile

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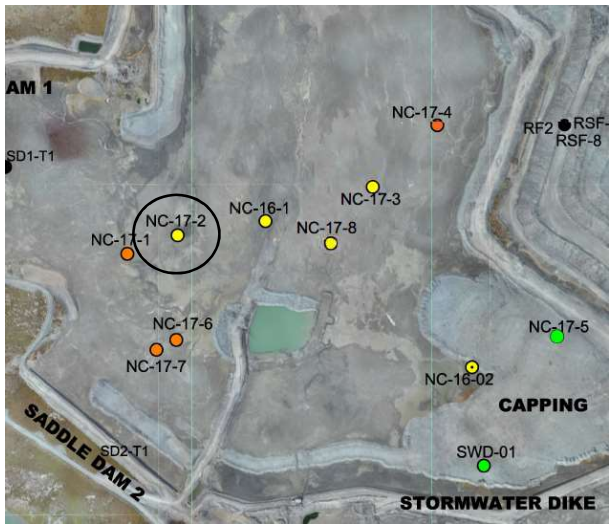
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RSF-
RSF-8
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NC-16-1
NC-17-2
NC-17-8
NC-17-1
NC-17-6
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NC-17-7
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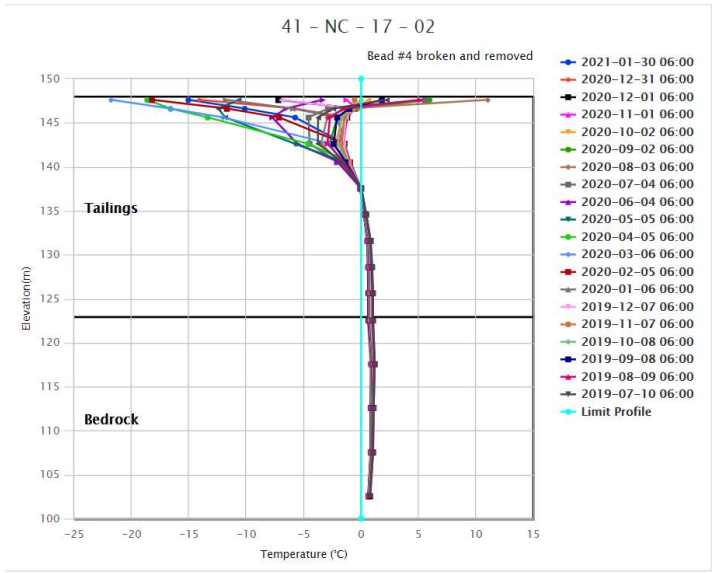
CAPPING
SADDLE DAM 2
SD2-T1
SWD-01
STORMWATER DIKE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Bead #4 broken and removed
Tailings
Bedrock
Elevation(m)
Temperature (°C)
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2020-10-02 06:00
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2020-08-03 06:00
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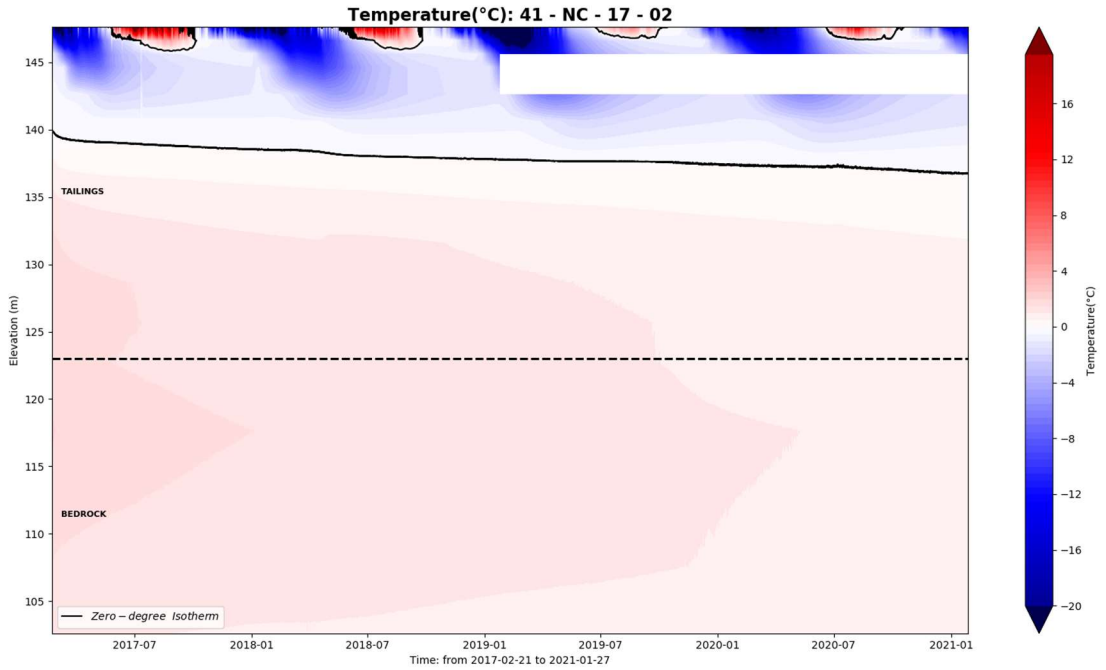
2019-07-10 06:00
Limit Profile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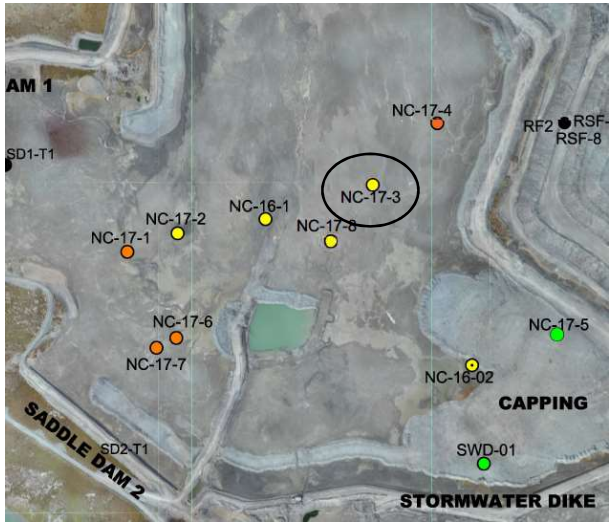
TAILINGS
BEDROCK
Zero – degree Isotherm
Elevation (m)
Time: from 2017-02-21 to 2021-01-27
Temperature(°C)

NC-17-03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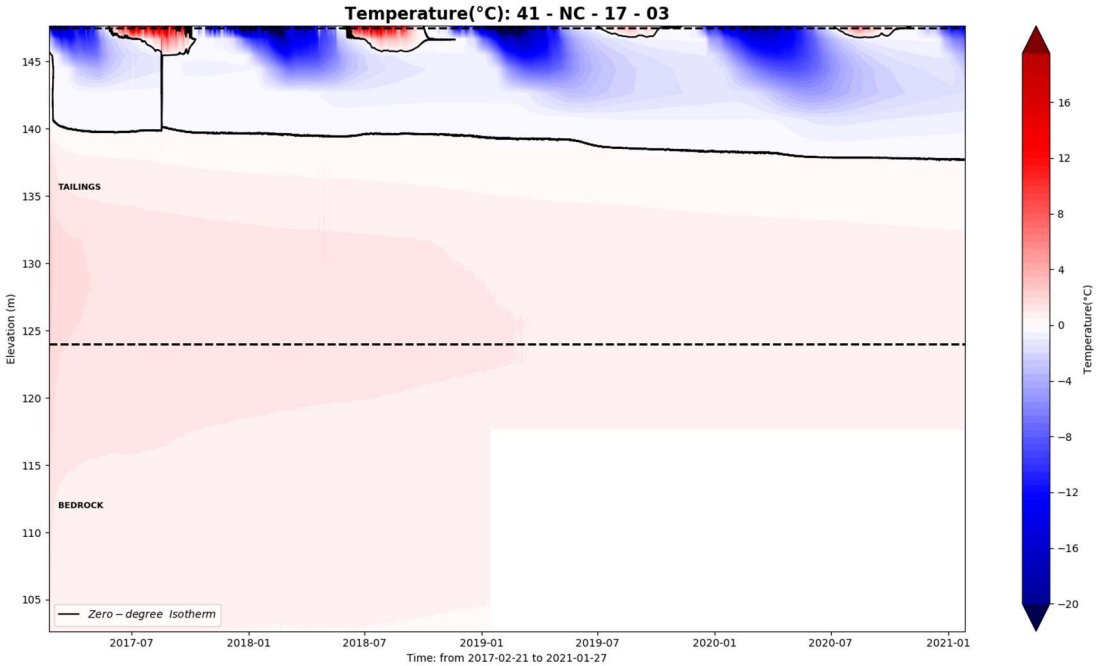
CAPPING
SADDLE DAM 2
SD2-T1
SWD-01
STORMWATER DIKE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Elevation (m)
TAILINGS
BEDROCK
Zero – degree Isotherm
2017-07
2018-01
2018-07
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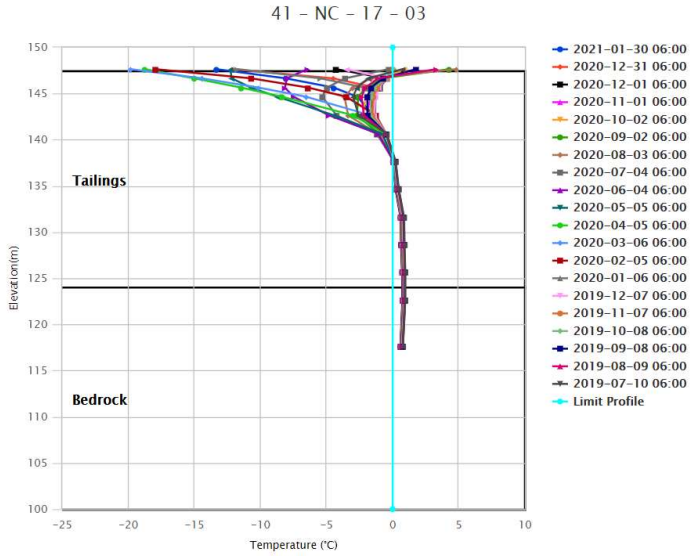
2021-01
Time: from 2017-02-21 to 2021-01-27
Temperature(°C)


41 – NC – 17 – 03
Tailings
Bedrock
Elevation(m)
Temperature (°C)
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2020-12-01 06:00
2020-11-01 06:00
2020-10-02 06:00
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2020-01-06 06:00
2019-12-07 06:00
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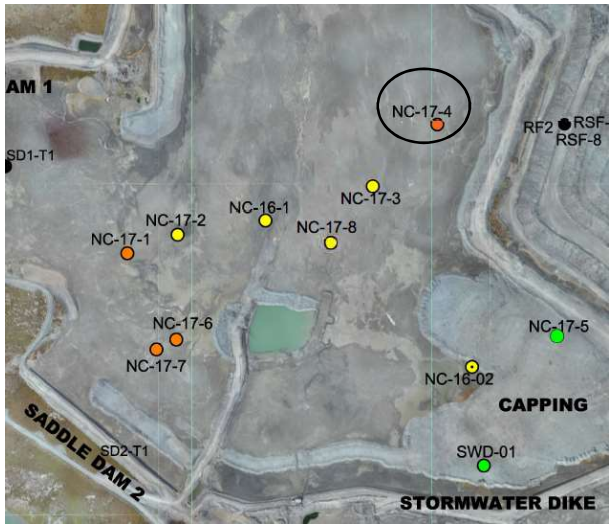
2019-07-10 06:00
Limit Profile

NC-17-04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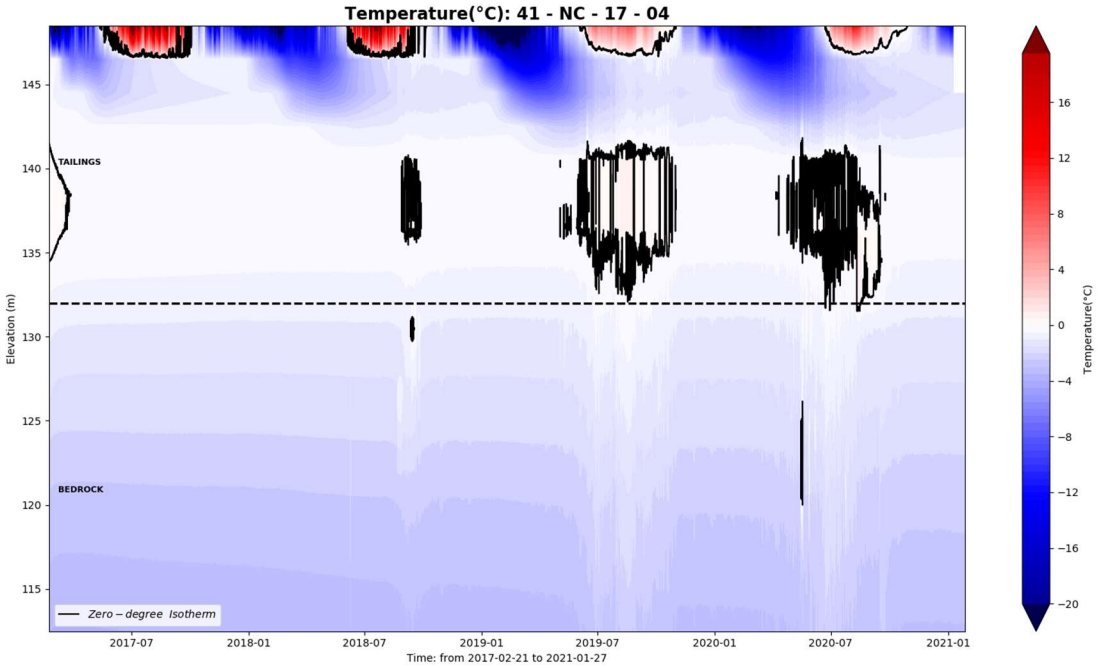
RF2
RSF-
RSF-8
SD1-T1
NC-17-3
NC-16-1
NC-17-2
NC-17-1
NC-17-8
NC-17-6
NC-17-5
NC-17-7
NC-16-02
CAPPING
SADDLE DAM 2
SD2-T1
SWD-01
STORMWATER DIKE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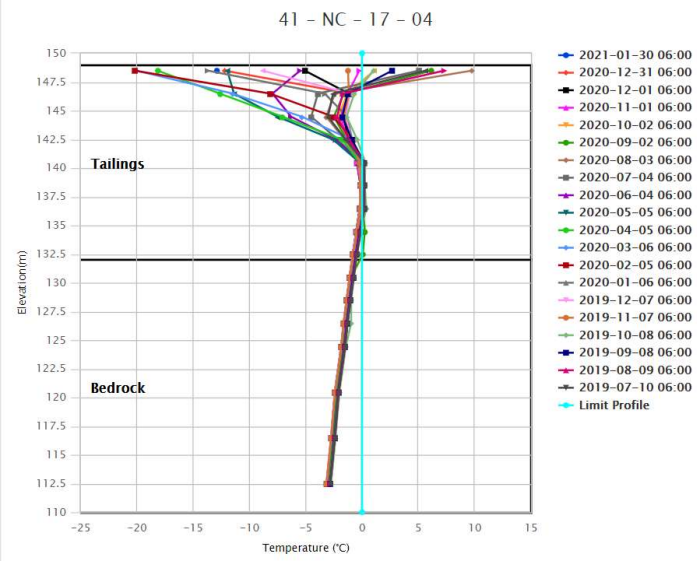
TAILINGS
BEDROCK
Zero – degree Isotherm
Elevation (m)
Temperature(°C)
Time: from 2017-02-21 to 2021-01-27


41 - NC - 17 - 04
Tailings
Bedrock
Elevation(m)
Temperature (°C)
2021-01-30 06:00
2020-12-31 06:00
2020-12-01 06:00
2020-11-01 06:00
2020-10-02 06:00
2020-09-02 06:00
2020-08-03 06:00
2020-07-04 06:00
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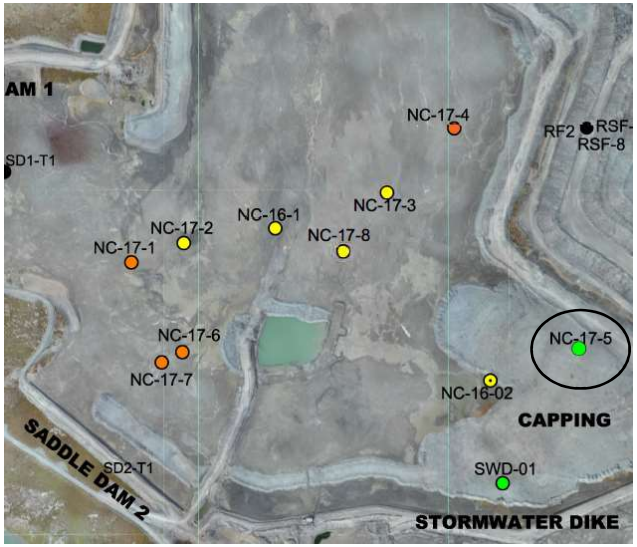
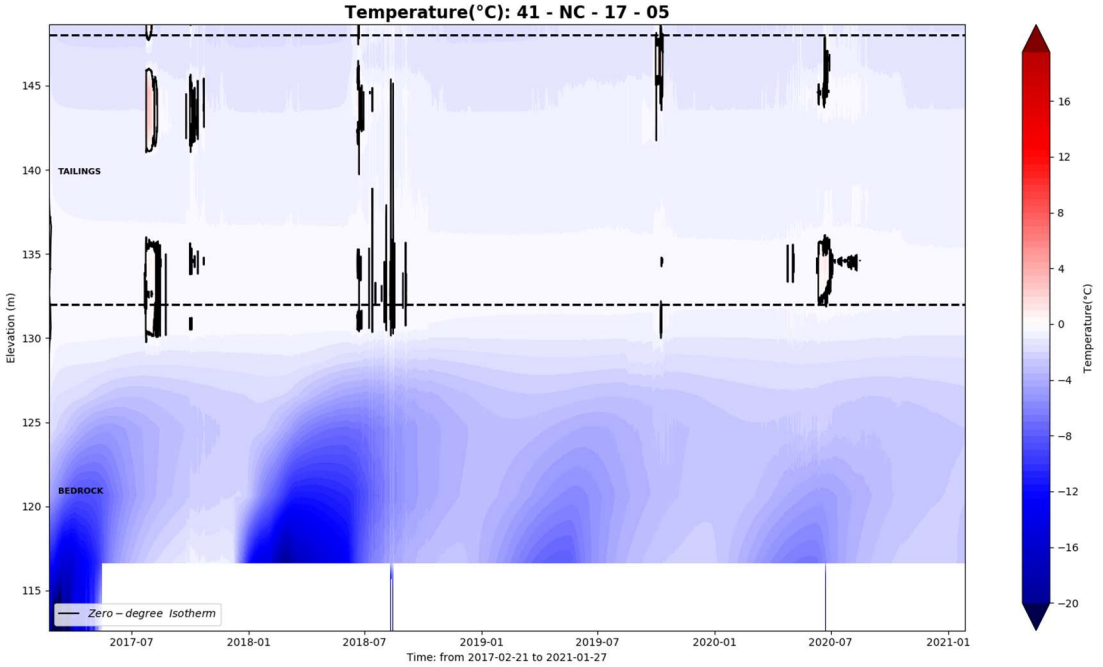
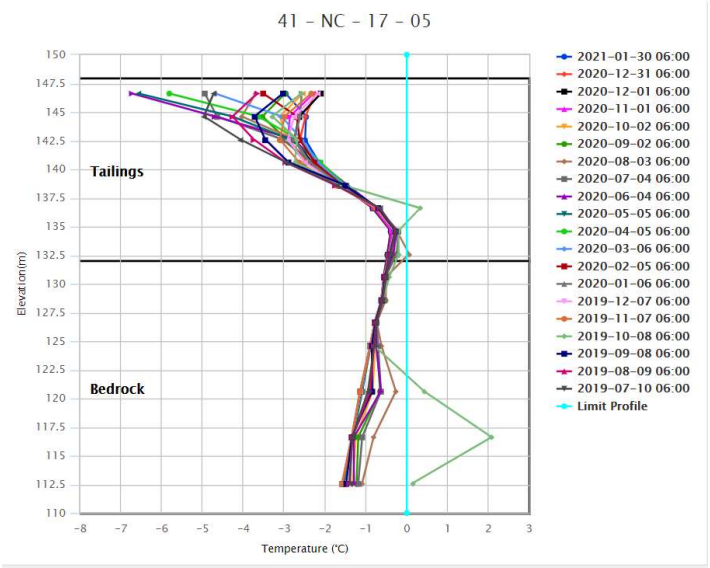
2020-03-06 06:00
2020-02-05 06:00
2020-01-06 06:00
2019-12-07 06:00
2019-11-07 06:00
2019-10-08 06:00
2019-09-08 06:00
2019-08-09 06:00
2019-07-10 06:00
Limit Profile

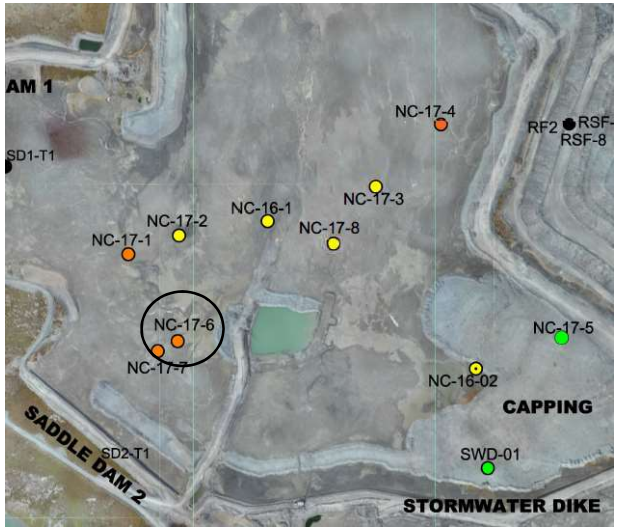
NC-17-05

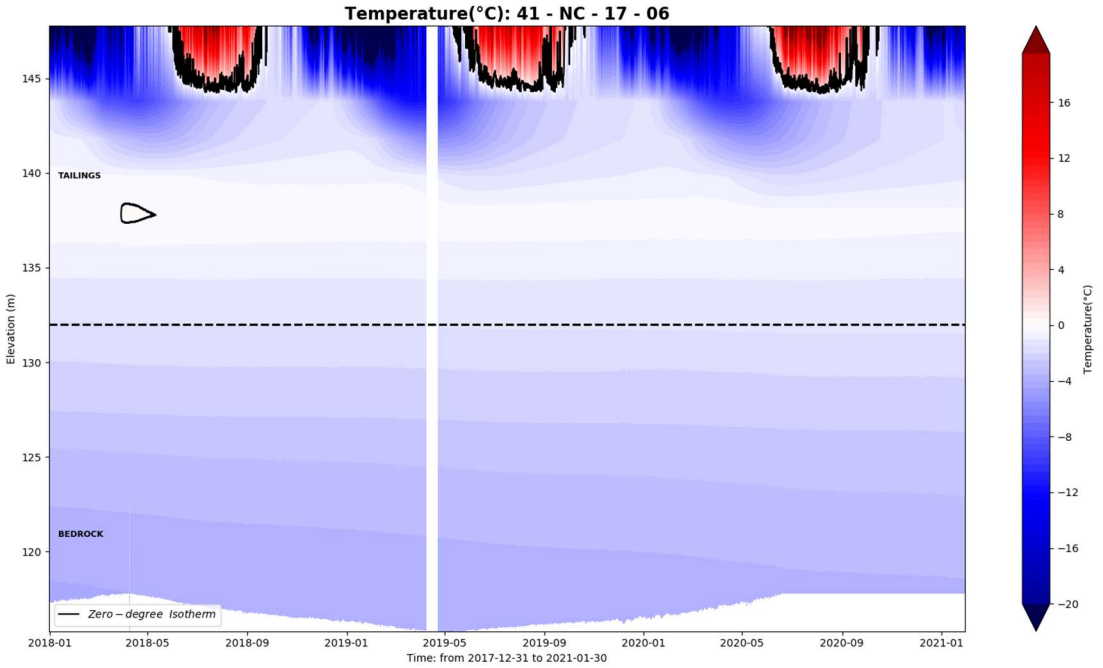

AM 1
SD1-T1
NC-17-4
RF2
RSF-
RSF-8
NC-16-1
NC-17-3
NC-17-2
NC-17-1
NC-17-8
NC-17-6
NC-17-7
NC-17-5
NC-16-02
CAPPING
SADDLE DAM 2
SD2-T1
SWD-01
STORMWATER DIKE

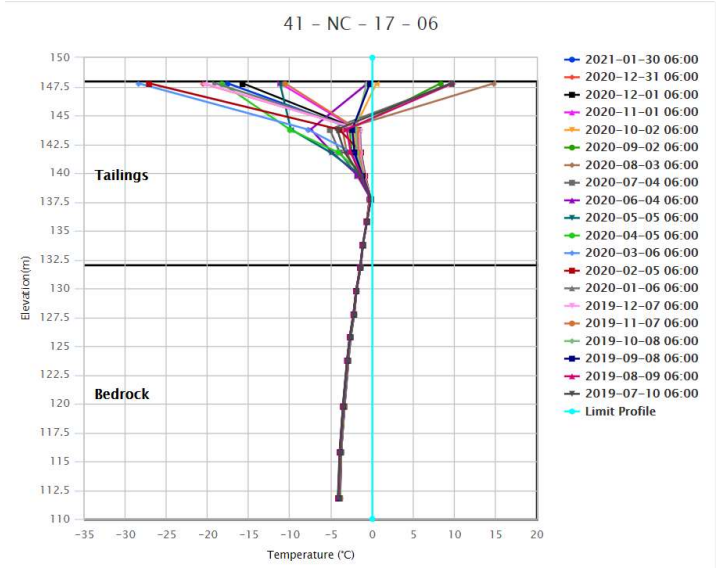

Temperature(°C): 41 - NC - 17 - 05
TAILINGS
BEDROCK
Zero – degree Isotherm
Elevation (m)
Temperature(°C)
Time: from 2017-02-21 to 2021-01-27


41 - NC - 17 - 05
Tailings
Bedrock
Elevation(m)
Temperature (°C)
2021-01-30 06:00
2020-12-31 06:00
2020-12-01 06:00
2020-11-01 06:00
2020-10-02 06:00
2020-09-02 06:00
2020-08-03 06:00
2020-07-04 06:00
2020-06-04 06:00
2020-05-05 06:00
2020-04-05 06:00
2020-03-06 06:00
2020-02-05 06:00
2020-01-06 06:00
2019-12-07 06:00
2019-11-07 06:00
2019-10-08 06:00
2019-09-08 06:00
2019-08-09 06:00
2019-07-10 06:00
Limit Profile

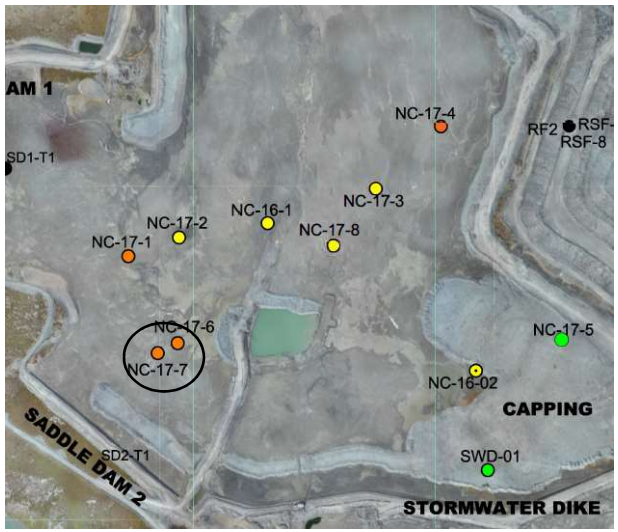
NC-17-06

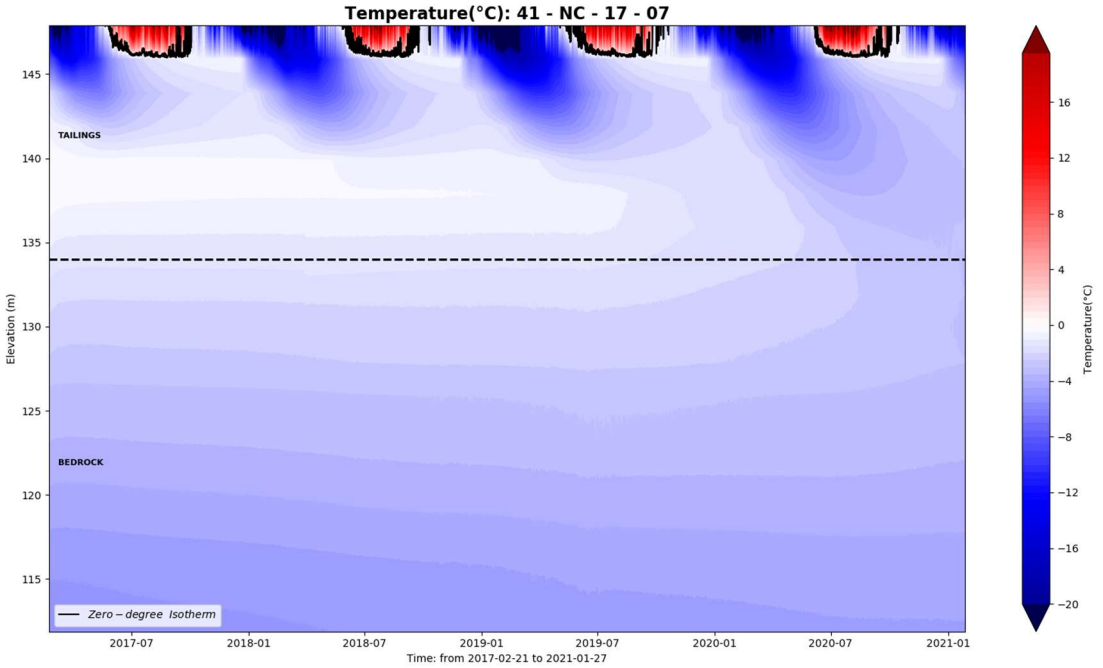

AM 1
NC-17-4
RF2
RSF-
RSF-8
SD1-T1
NC-16-1
NC-17-3
NC-17-2
NC-17-8
NC-17-1
NC-17-6
NC-17-5
NC-17-7
NC-16-02
CAPPING
SADDLE DAM 2
SD2-T1
SWD-01
STORMWATER DIKE

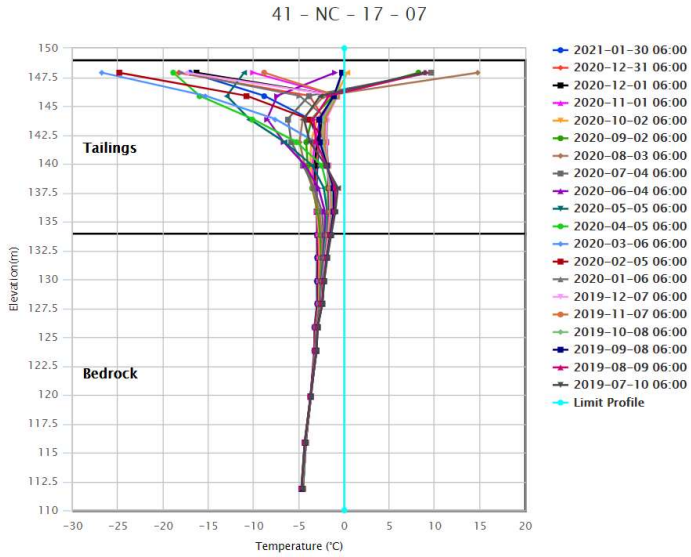

Temperature(°C): 41 - NC - 17 - 06
TAILINGS
BEDROCK
Zero – degree Isotherm
Elevation (m)
Temperature(°C)
Time: from 2017-12-31 to 2021-01-30


41 - NC - 17 - 06
Tailings
Bedrock
Elevation(m)
Temperature (°C)
2021-01-30 06:00
2020-12-31 06:00
2020-12-01 06:00
2020-11-01 06:00
2020-10-02 06:00
2020-09-02 06:00
2020-08-03 06:00
2020-07-04 06:00
2020-06-04 06:00
2020-05-05 06:00
2020-04-05 06:00
2020-03-06 06:00
2020-02-05 06:00
2020-01-06 06:00
2019-12-07 06:00
2019-11-07 06:00
2019-10-08 06:00
2019-09-08 06:00
2019-08-09 06:00
2019-07-10 06:00
Limit Profile

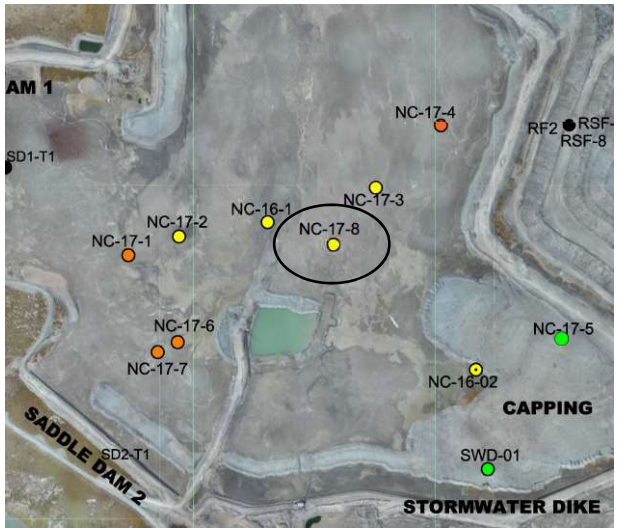
NC-17-07

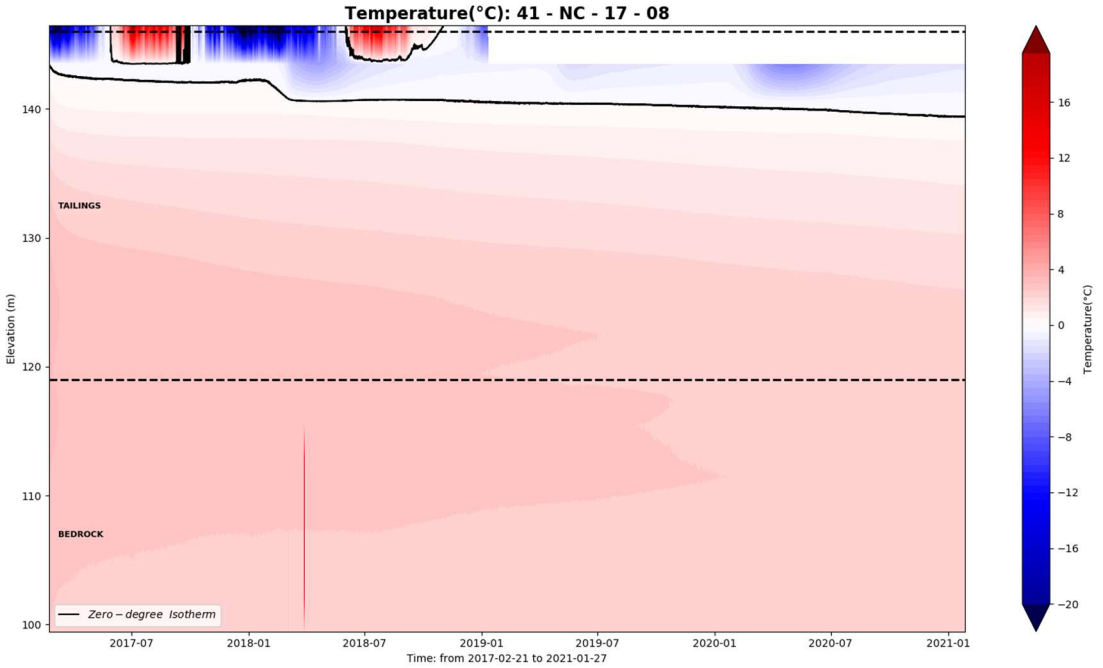

AM 1
SD1-T1
NC-17-4
RF2
RSF-
RSF-8
NC-16-1
NC-17-3
NC-17-2
NC-17-1
NC-17-8
NC-17-6
NC-17-7
NC-17-5
NC-16-02
CAPPING
SADDLE DAM 2
SD2-T1
SWD-01
STORMWATER DIKE

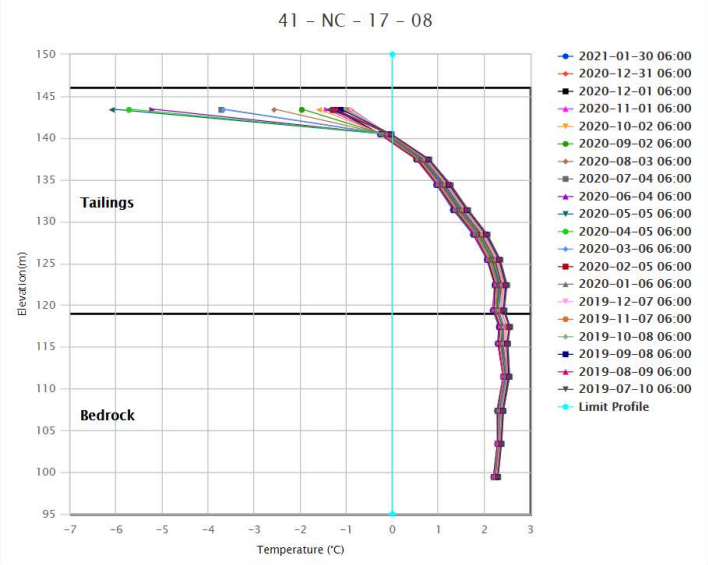

Temperature(°C): 41 - NC - 17 - 07
TAILINGS
BEDROCK
Zero – degree Isotherm
Elevation (m)
Temperature(°C)
Time: from 2017-02-21 to 2021-01-27


41 - NC - 17 - 07
Tailings
Bedrock
Elevation(m)
Temperature (°C)
2021-01-30 06:00
2020-12-31 06:00
2020-12-01 06:00
2020-11-01 06:00
2020-10-02 06:00
2020-09-02 06:00
2020-08-03 06:00
2020-07-04 06:00
2020-06-04 06:00
2020-05-05 06:00
2020-04-05 06:00
2020-03-06 06:00
2020-02-05 06:00
2020-01-06 06:00
2019-12-07 06:00
2019-11-07 06:00
2019-10-08 06:00
2019-09-08 06:00
2019-08-09 06:00
2019-07-10 06:00
Limit Profile

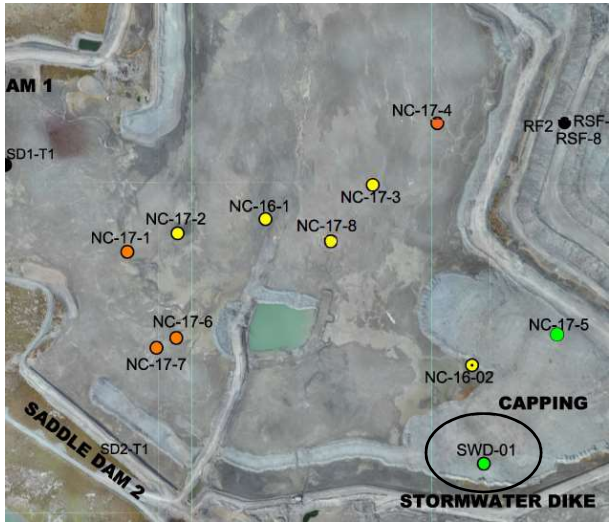
NC-17-08

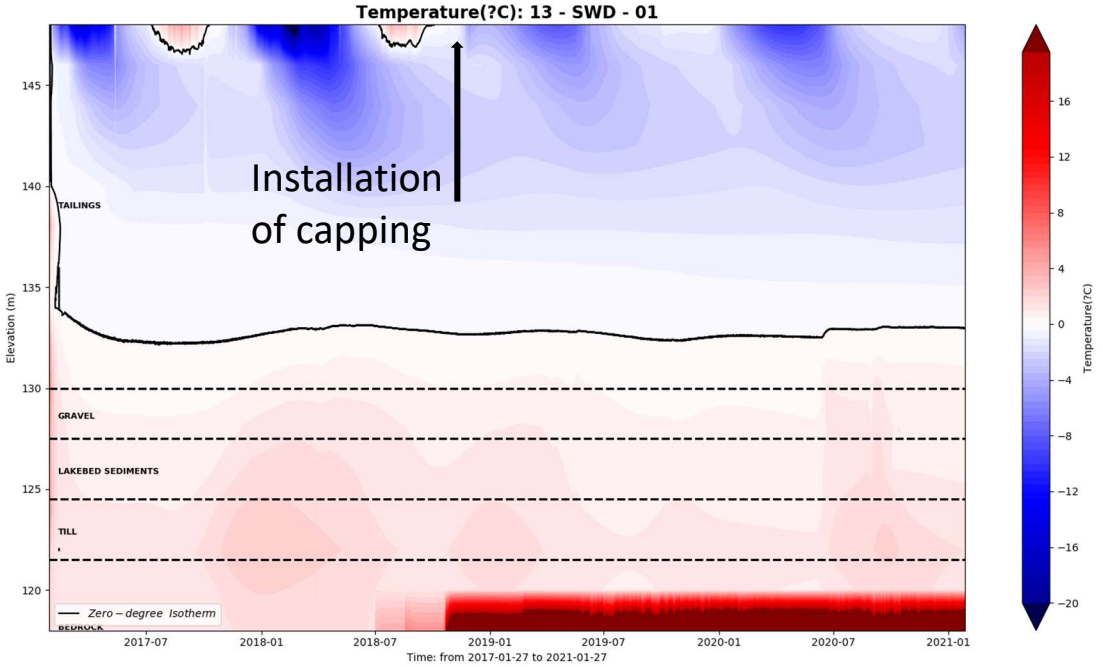

AM 1
SD1-T1
NC-17-4
RF2
RSF-
RSF-8
NC-16-1
NC-17-3
NC-17-2
NC-17-1
NC-17-8
NC-17-6
NC-17-7
NC-17-5
NC-16-02
CAPPING
SADDLE DAM 2
SD2-T1
SWD-01
STORMWATER DIKE

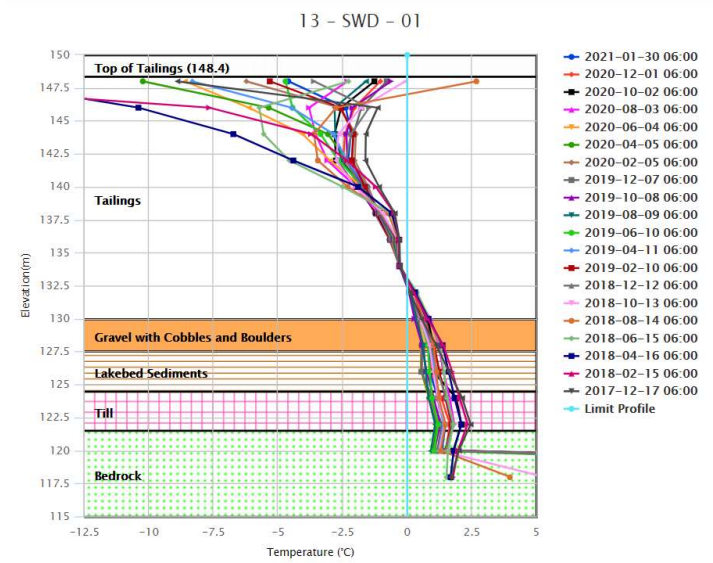

Temperature(°C): 41 - NC - 17 - 08
Elevation (m)
TAILINGS
BEDROCK
Zero – degree Isotherm
Time: from 2017-02-21 to 2021-01-27
Temperature(°C)


41 - NC - 17 - 08
Tailings
Bedrock
Elevation(m)
Temperature (°C)
2021-01-30 06:00
2020-12-31 06:00
2020-12-01 06:00
2020-11-01 06:00
2020-10-02 06:00
2020-09-02 06:00
2020-08-03 06:00
2020-07-04 06:00
2020-06-04 06:00
2020-05-05 06:00
2020-04-05 06:00
2020-03-06 06:00
2020-02-05 06:00
2020-01-06 06:00
2019-12-07 06:00
2019-11-07 06:00
2019-10-08 06:00
2019-09-08 06:00
2019-08-09 06:00
2019-07-10 06:00
Limit Profile

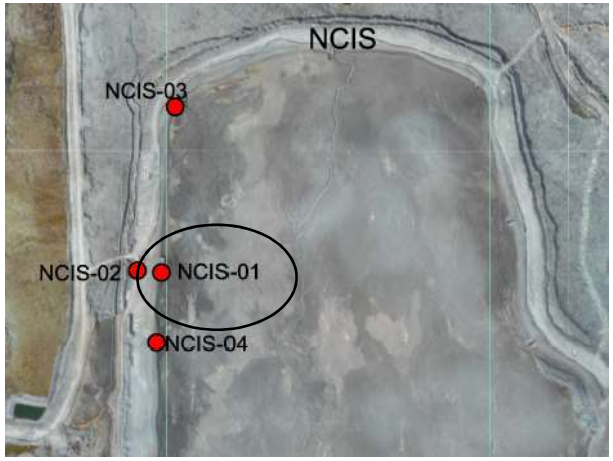
SWD-01

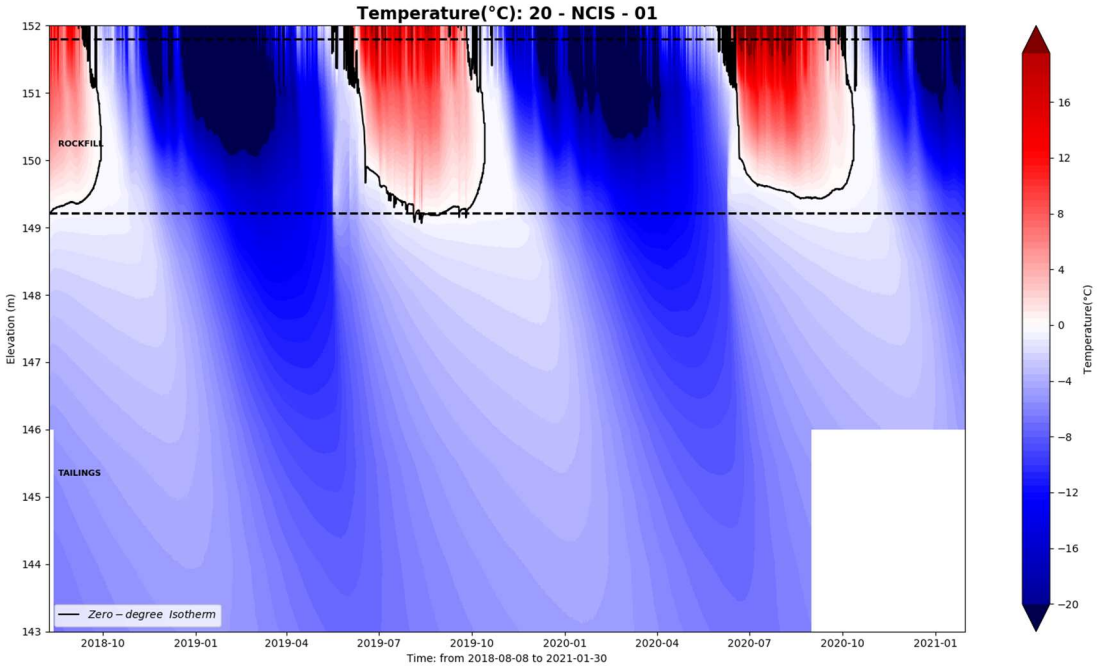

AM 1
NC-17-4
RF2
RSF-
RSF-8
SD1-T1
NC-17-3
NC-16-1
NC-17-2
NC-17-1
NC-17-8
NC-17-6
NC-17-5
NC-17-7
NC-16-02
CAPPING
SADDLE DAM 2
SD2-T1
SWD-01
STORMWATER DIKE

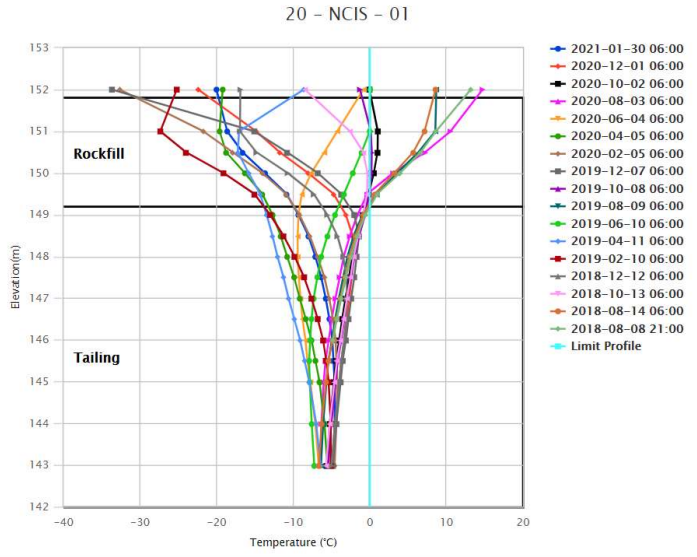

Temperature(?C): 13 - SWD - 01
Installation of capping
TAILINGS
GRAVEL
LAKEBED SEDIMENTS
TILL
BEDROCK
Zero – degree Isotherm
Elevation (m)
Time: from 2017-01-27 to 2021-01-27
Temperature(?C)


13 - SWD - 01
Top of Tailings (148.4)
Tailings
Gravel with Cobbles and Boulders
Lakebed Sediments
Till
Bedrock
Elevation(m)
Temperature (°C)
2021-01-30 06:00
2020-12-01 06:00
2020-10-02 06:00
2020-08-03 06:00
2020-06-04 06:00
2020-04-05 06:00
2020-02-05 06:00
2019-12-07 06:00
2019-10-08 06:00
2019-08-09 06:00
2019-06-10 06:00
2019-04-11 06:00
2019-02-10 06:00
2018-12-12 06:00
2018-10-13 06:00
2018-08-14 06:00
2018-06-15 06:00
2018-04-16 06:00
2018-02-15 06:00
2017-12-17 06:00
Limit Profile

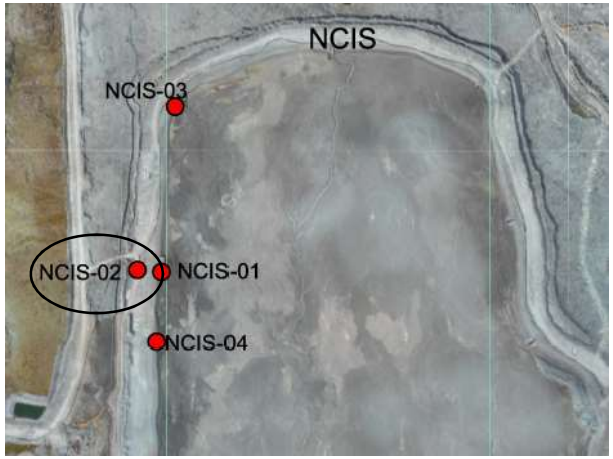
NCIS-01

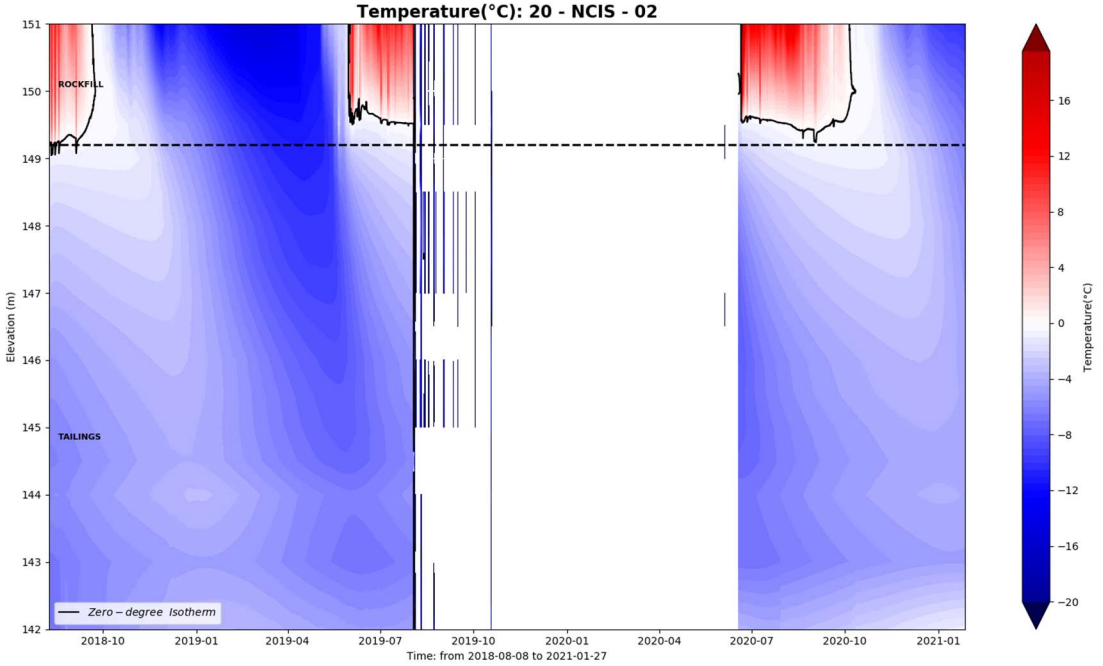

NCIS
NCIS-03
NCIS-02
NCIS-01
NCIS-04

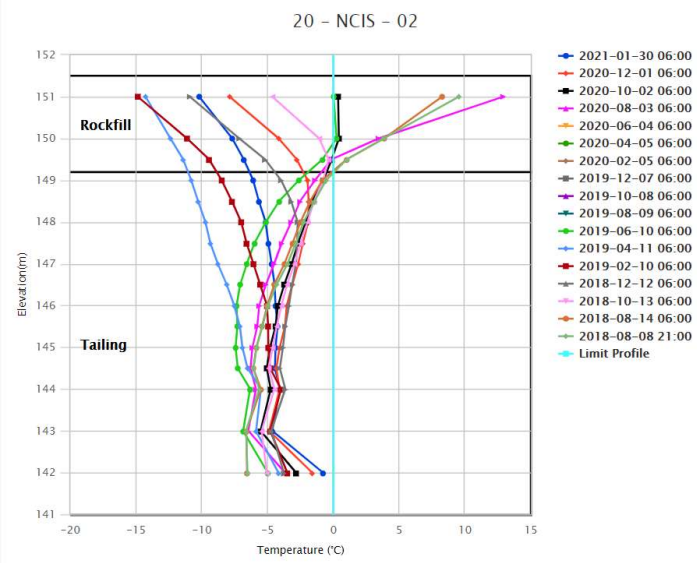

Temperature(°C): 20 - NCIS - 01
ROCKFILL
TAILINGS
Zero – degree Isotherm
Elevation (m)
Time: from 2018-08-08 to 2021-01-30
Temperature(°C)


20 – NCIS – 01
Rockfill
Tailing
Elevation(m)
Temperature (°C)
2021-01-30 06:00
2020-12-01 06:00
2020-10-02 06:00
2020-08-03 06:00
2020-06-04 06:00
2020-04-05 06:00
2020-02-05 06:00
2019-12-07 06:00
2019-10-08 06:00
2019-08-09 06:00
2019-06-10 06:00
2019-04-11 06:00
2019-02-10 06:00
2018-12-12 06:00
2018-10-13 06:00
2018-08-14 06:00
2018-08-08 21:00
Limit Profile

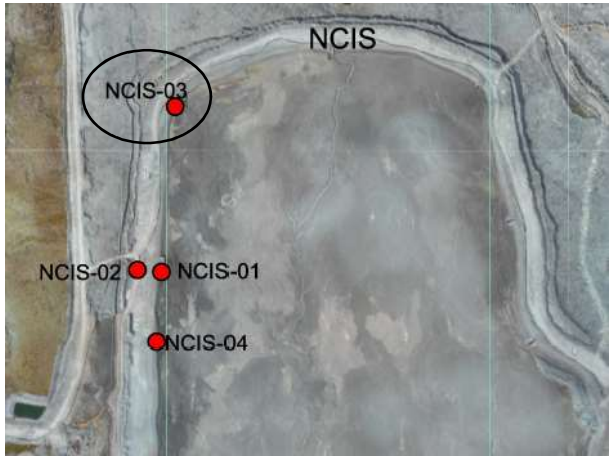
NCIS-02

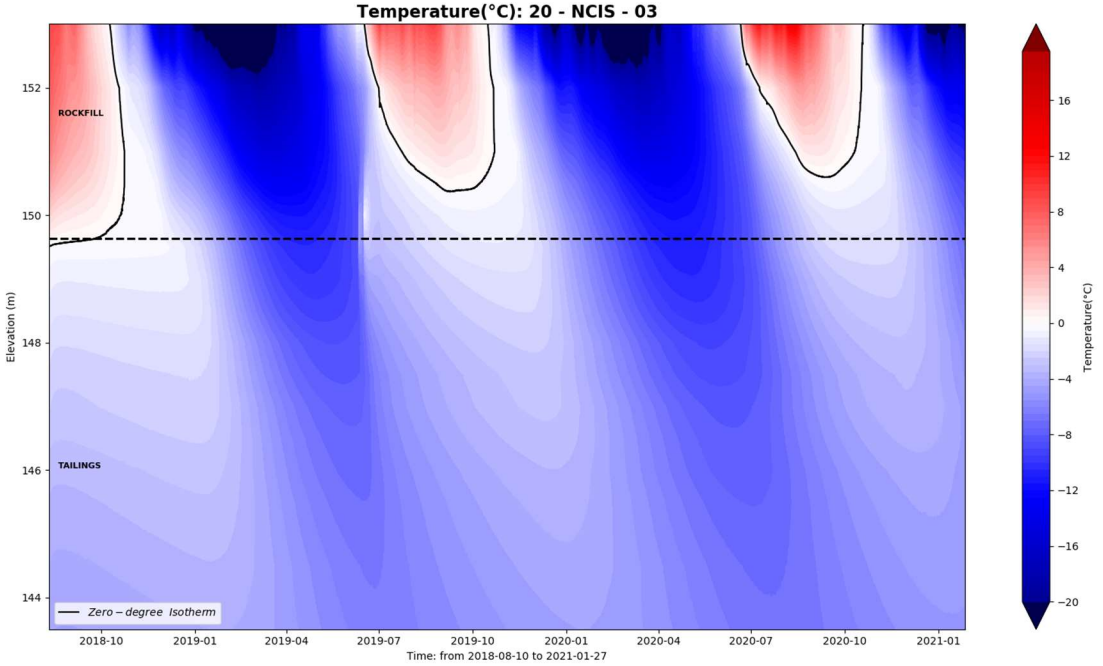

NCIS
NCIS-03
NCIS-02
NCIS-01
NCIS-04

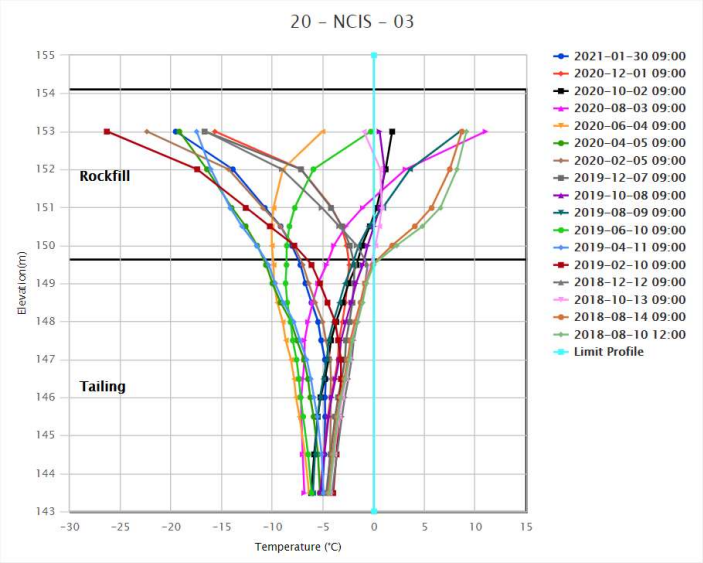

Temperature(°C): 20 - NCIS - 02
ROCKFILL
TAILINGS
Zero – degree Isotherm
Elevation (m)
Time: from 2018-08-08 to 2021-01-27
Temperature(°C)


20 - NCIS - 02
Rockfill
Tailing
Elevation(m)
Temperature (°C)
2021-01-30 06:00
2020-12-01 06:00
2020-10-02 06:00
2020-08-03 06:00
2020-06-04 06:00
2020-04-05 06:00
2020-02-05 06:00
2019-12-07 06:00
2019-10-08 06:00
2019-08-09 06:00
2019-06-10 06:00
2019-04-11 06:00
2019-02-10 06:00
2018-12-12 06:00
2018-10-13 06:00
2018-08-14 06:00
2018-08-08 21:00
Limit Profile

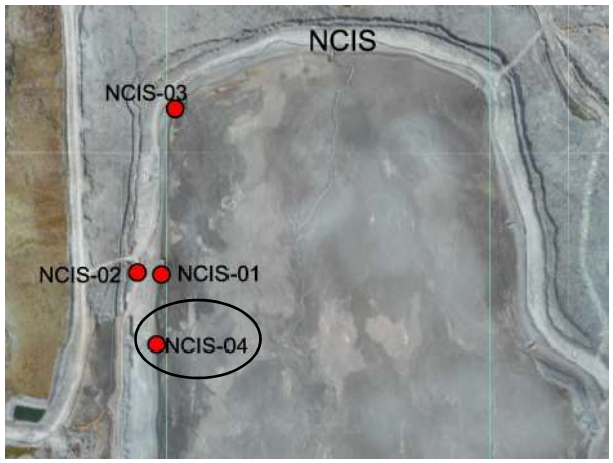
NCIS-03

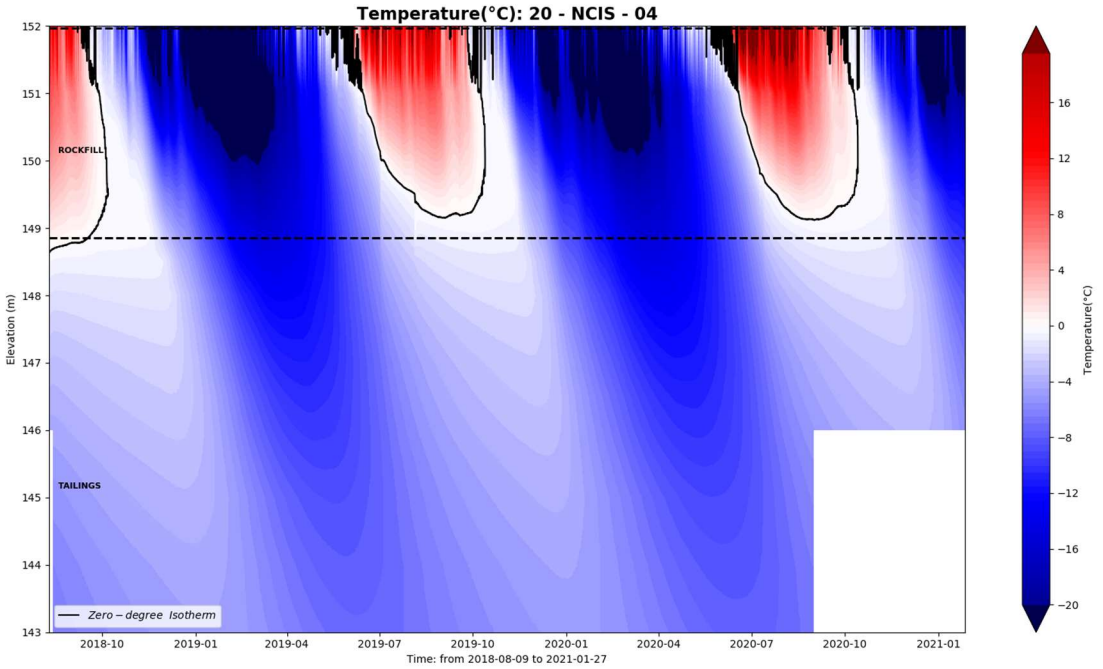

NCIS
NCIS-03
NCIS-02
NCIS-01
NCIS-04

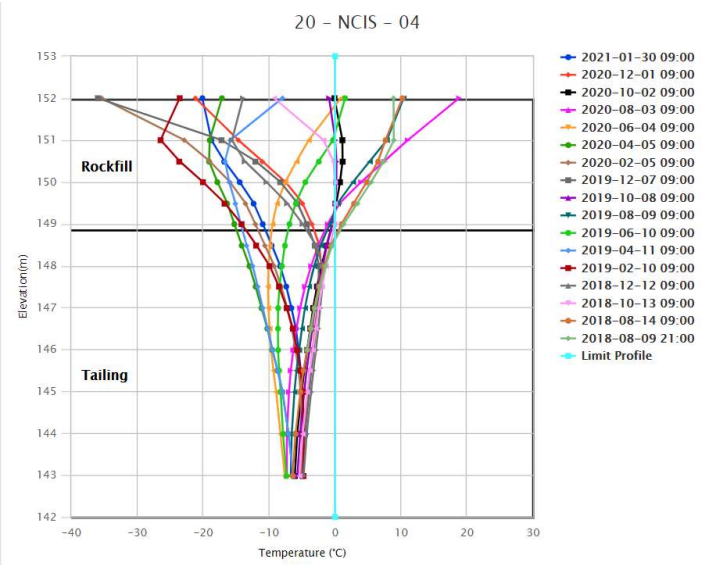

Temperature(°C): 20 - NCIS - 03
ROCKFILL
TAILINGS
Zero – degree Isotherm
Elevation (m)
Time: from 2018-08-10 to 2021-01-27
Temperature(°C)


20 – NCIS – 03
Rockfill
Tailing
Elevation(m)
Temperature (°C)
2021-01-30 09:00
2020-12-01 09:00
2020-10-02 09:00
2020-08-03 09:00
2020-06-04 09:00
2020-04-05 09:00
2020-02-05 09:00
2019-12-07 09:00
2019-10-08 09:00
2019-08-09 09:00
2019-06-10 09:00
2019-04-11 09:00
2019-02-10 09:00
2018-12-12 09:00
2018-10-13 09:00
2018-08-14 09:00
2018-08-10 12:00
Limit Profile

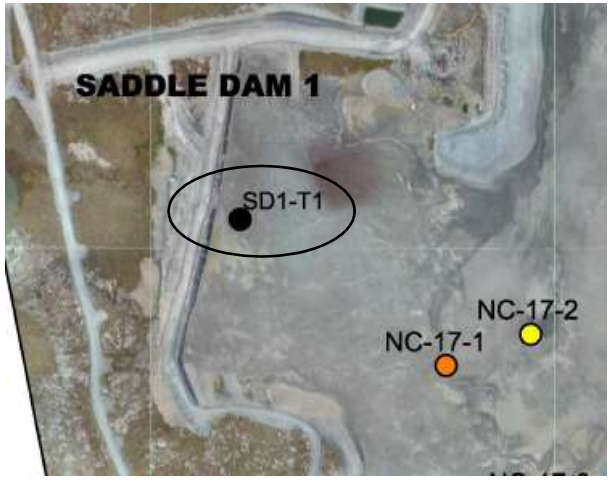
NCIS-04

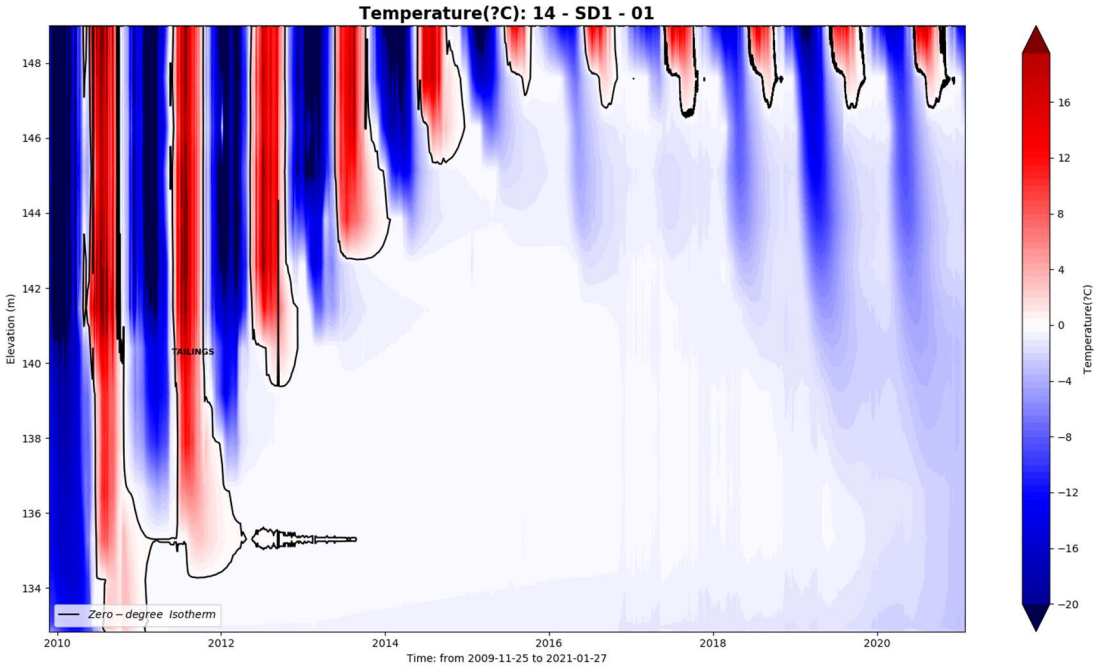

NCIS
NCIS-03
NCIS-02
NCIS-01
NCIS-04

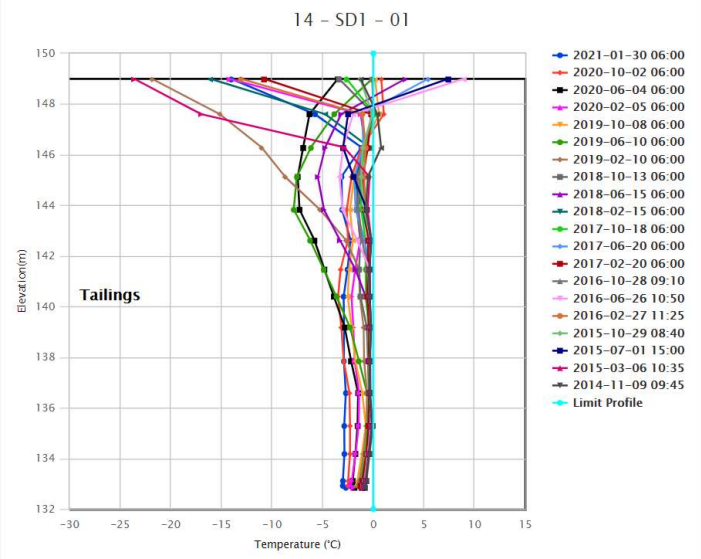

Temperature(°C): 20 - NCIS - 04
ROCKFILL
TAILINGS
Zero – degree Isotherm
Elevation (m)
Temperature(°C)
Time: from 2018-08-09 to 2021-01-27

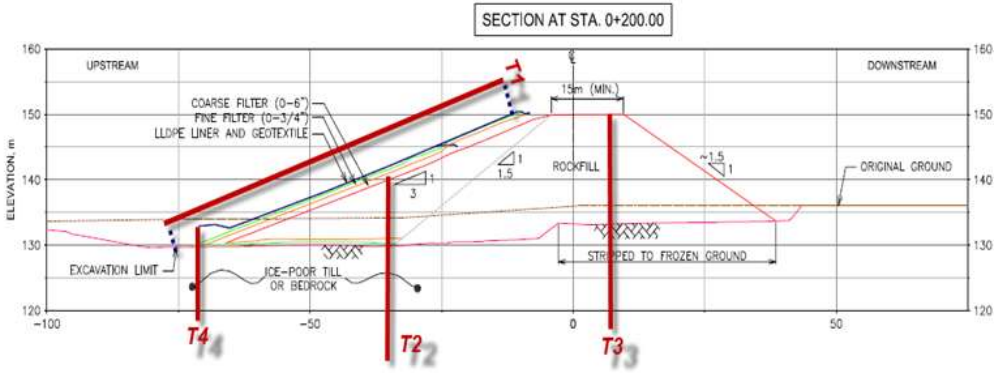

20 - NCIS - 04
Rockfill
Tailing
Elevation (m)
Temperature (°C)
2021-01-30 09:00
2020-12-01 09:00
2020-10-02 09:00
2020-08-03 09:00
2020-06-04 09:00
2020-04-05 09:00
2020-02-05 09:00
2019-12-07 09:00
2019-10-08 09:00
2019-08-09 09:00
2019-06-10 09:00
2019-04-11 09:00
2019-02-10 09:00
2018-12-12 09:00
2018-10-13 09:00
2018-08-14 09:00
2018-08-09 21:00
Limit Profile

SD1-1

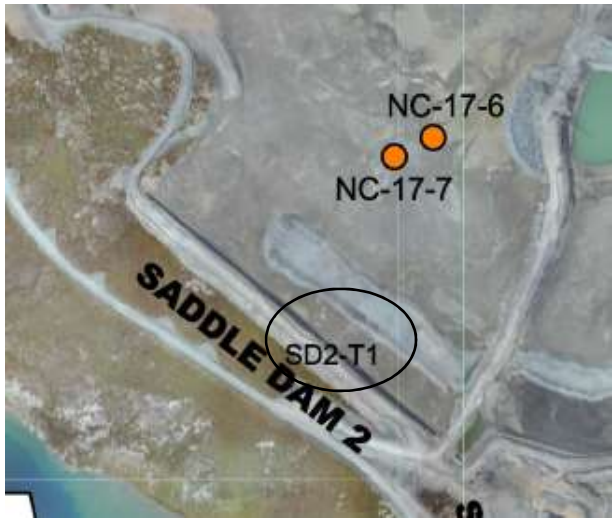

SADDLE DAM 1
SD1-T1
NC-17-2
NC-17-1

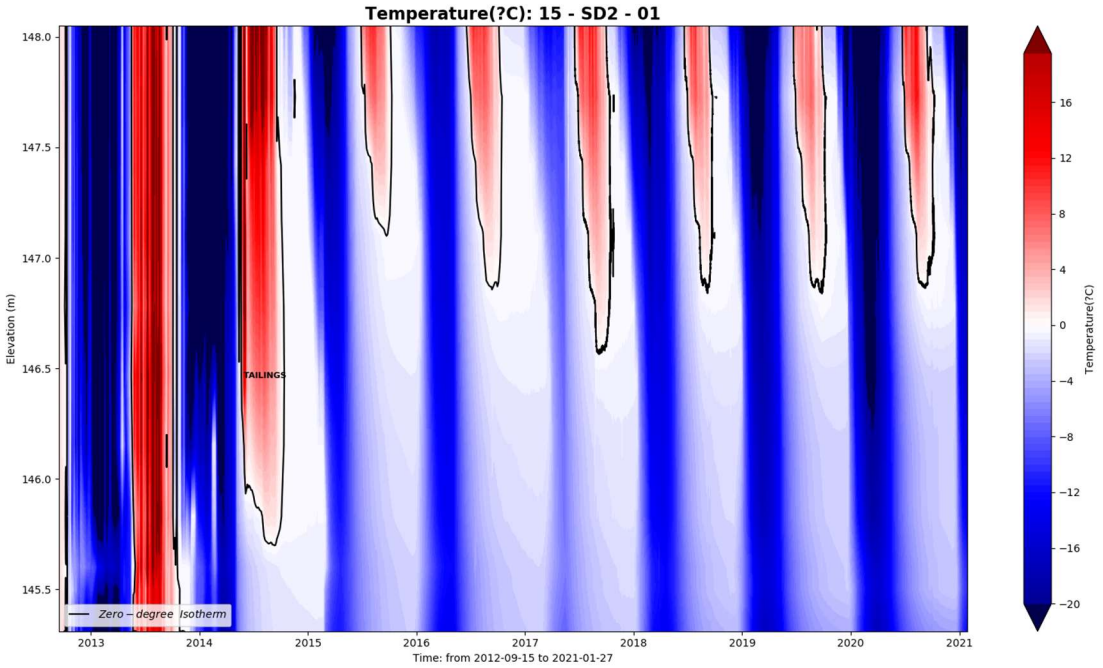

Temperature(?C): 14 - SD1 - 01
Elevation (m)
TAILINGS
Zero – degree Isotherm
Time: from 2009-11-25 to 2021-01-27
Temperature(?C)

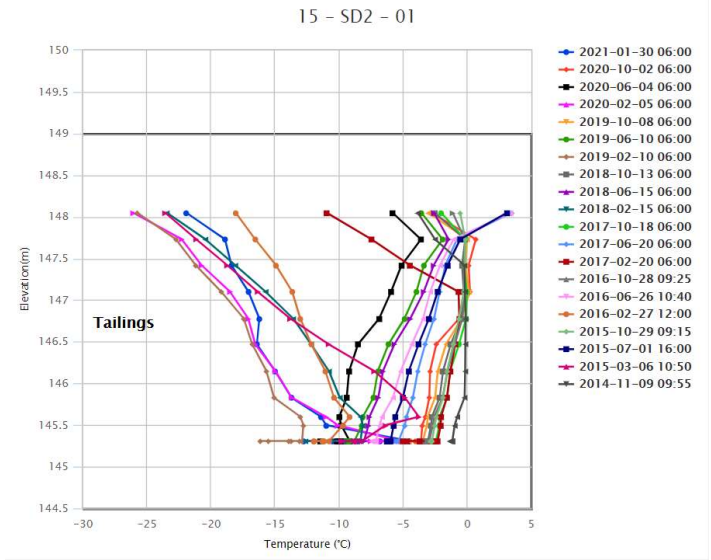

14 - SD1 - 01
Elevation(m)
Tailings
Temperature (°C)
2021-01-30 06:00
2020-10-02 06:00
2020-06-04 06:00
2020-02-05 06:00
2019-10-08 06:00
2019-06-10 06:00
2019-02-10 06:00
2018-10-13 06:00
2018-06-15 06:00
2018-02-15 06:00
2017-10-18 06:00
2017-06-20 06:00
2017-02-20 06:00
2016-10-28 09:10
2016-06-26 10:50
2016-02-27 11:25
2015-10-29 08:40
2015-07-01 15:00
2015-03-06 10:35
2014-11-09 09:45
Limit Profile

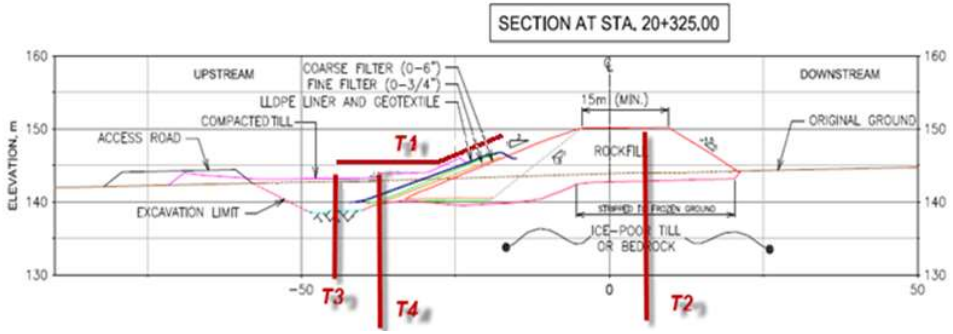

SECTION AT STA. 0+200.00
UPSTREAM
DOWNSTREAM
COARSE FILTER (0-6")
FINE FILTER (0-3/4")
LLDPE LINER AND GEOTEXTILE
15m (MIN.)
ROCKFILL
ORIGINAL GROUND
EXCAVATION LIMIT
ICE-POOR TILL OR BEDROCK
STRIPPED TO FROZEN GROUND
ELEVATION, m
T4
T2
T3

SD2-1

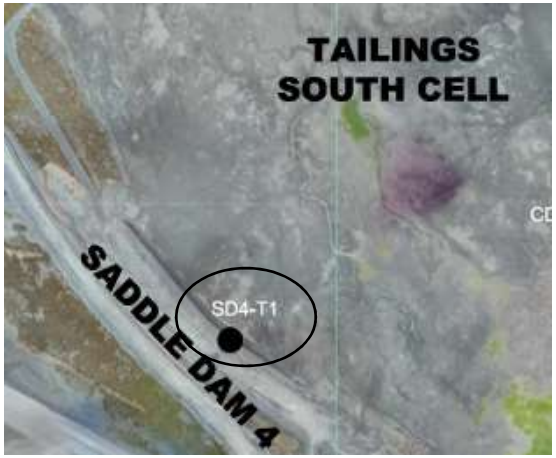

NC-17-6
NC-17-7
SADDLE DAM 2
SD2-T1

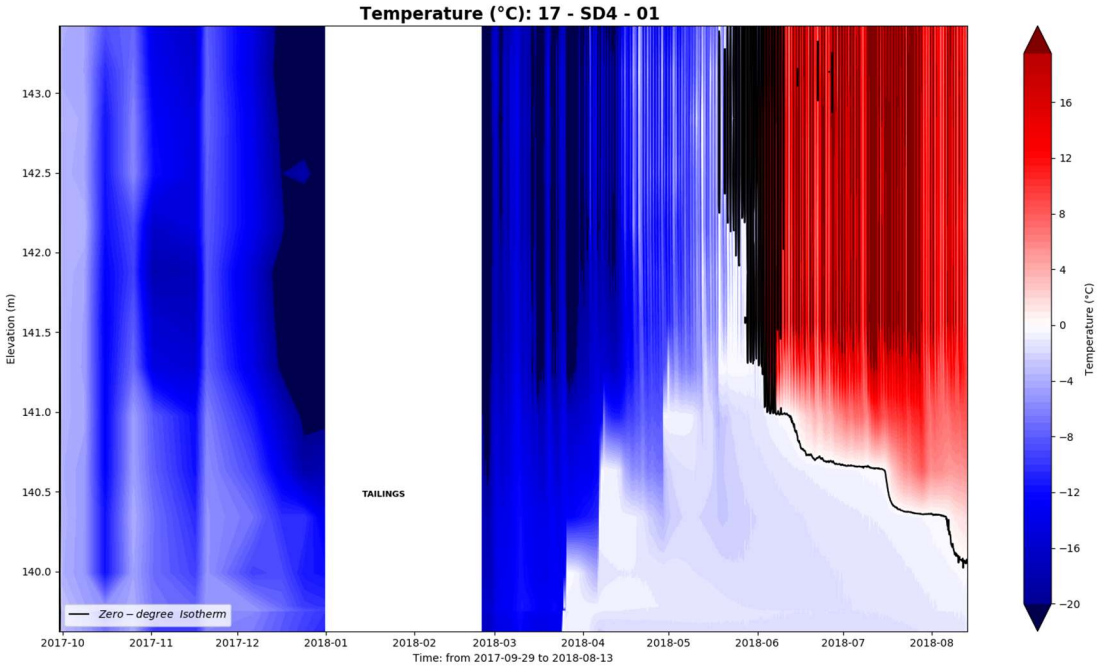

Temperature(?C): 15 - SD2 - 01
Elevation (m)
148.0
147.5
147.0
146.5
146.0
145.5
TAILINGS
Zero – degree Isotherm
2013
2014
2015
2016
2017
2018
2019
2020
2021
Time: from 2012-09-15 to 2021-01-27
Temperature(?C)
16
12
8
4
0
−4
−8
−12
−16
−20

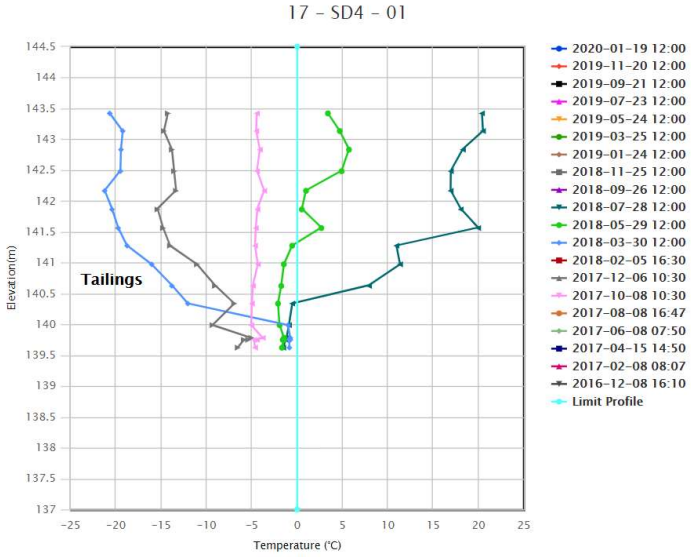

15 – SD2 – 01
Elevation(m)
150
149.5
149
148.5
148
147.5
147
146.5
146
145.5
145
144.5
Tailings
−30
−25
−20
−15
−10
−5
0
5
Temperature (°C)
2021−01−30 06:00
2020−10−02 06:00
2020−06−04 06:00
2020−02−05 06:00
2019−10−08 06:00
2019−06−10 06:00
2019−02−10 06:00
2018−10−13 06:00
2018−06−15 06:00
2018−02−15 06:00
2017−10−18 06:00
2017−06−20 06:00
2017−02−20 06:00
2016−10−28 09:25
2016−06−26 10:40
2016−02−27 12:00
2015−10−29 09:15
2015−07−01 16:00
2015−03−06 10:50
2014−11−09 09:55


SECTION AT STA. 20+325.00
ELEVATION, m
160
150
140
130
UPSTREAM
DOWNSTREAM
COARSE FILTER (0−6")
FINE FILTER (0−3/4")
LLDPE LINER AND GEOTEXTILE
COMPACTED TILL
15m (MIN.)
ACCESS ROAD
ORIGINAL GROUND
ROCKFILL
EXCAVATION LIMIT
ICE−POOR TILL OR BEDROCK
T1
T2
T3
T4
−50
0
50

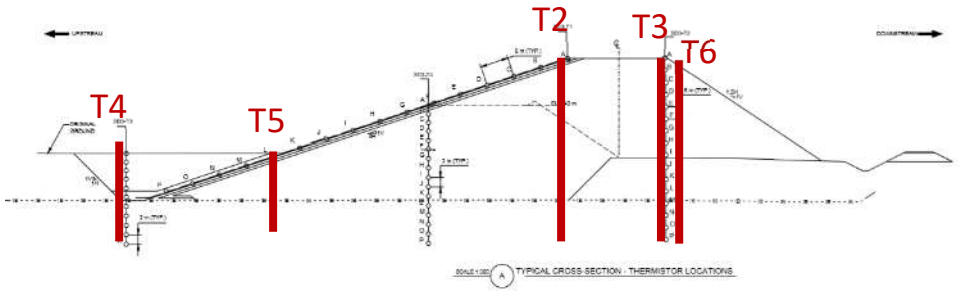
SD4-1



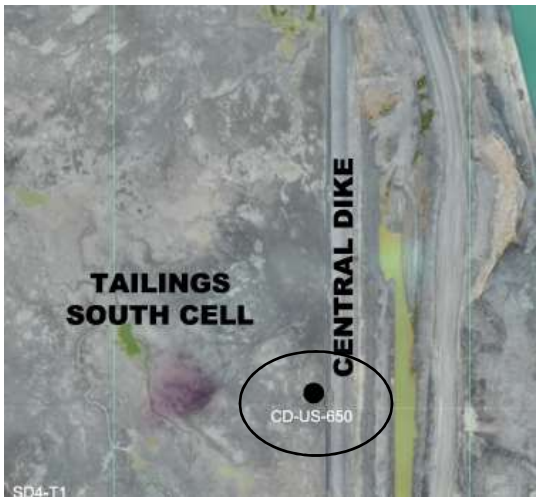


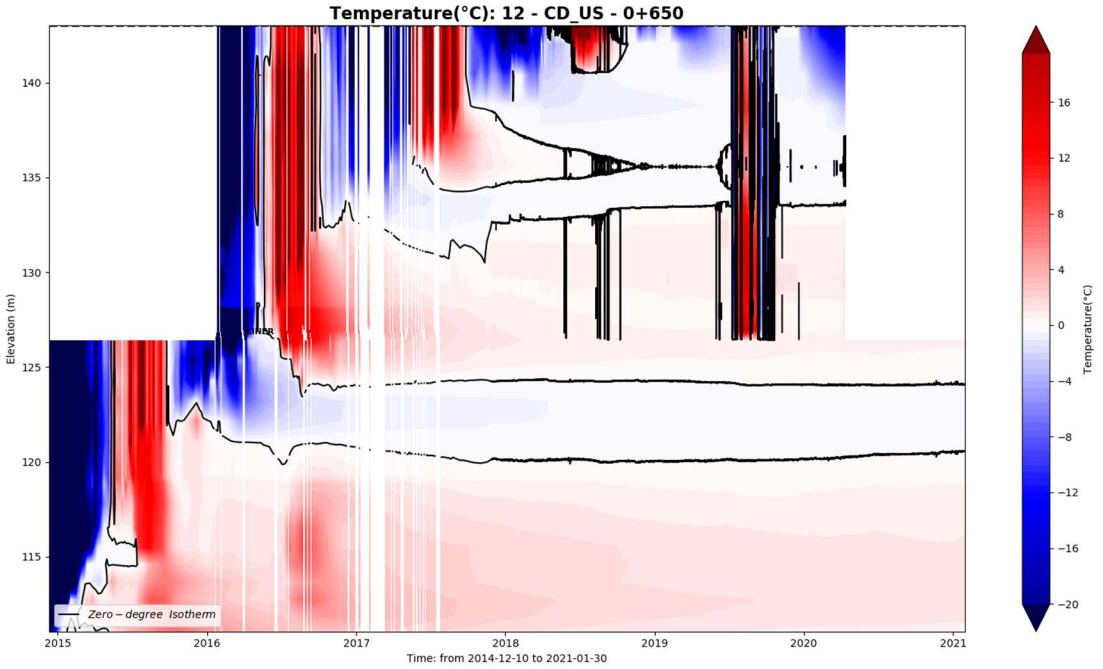


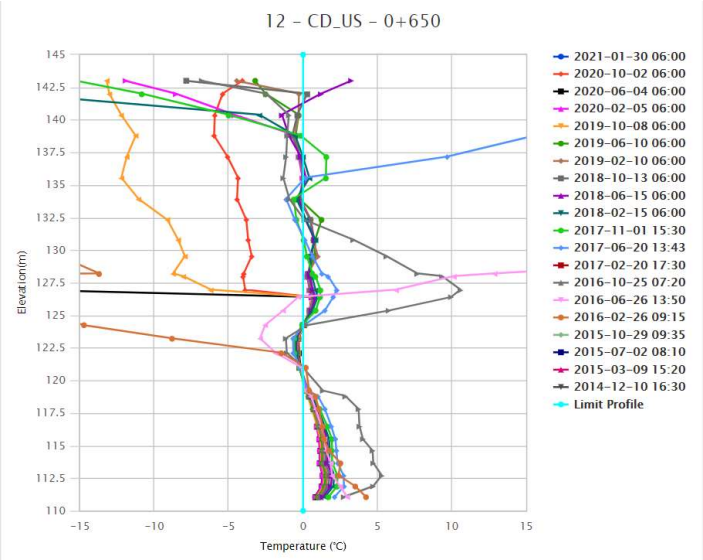
This instrument is broken and not sending anymore data.



CD-US-0+650

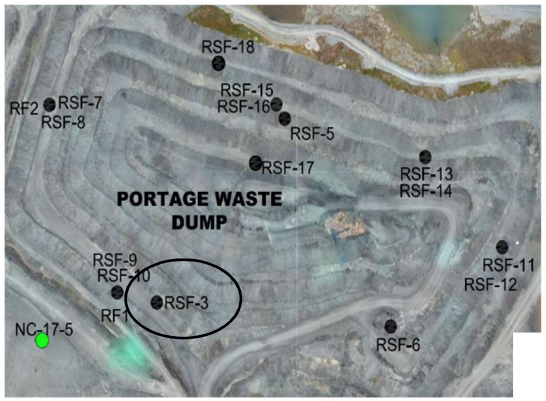


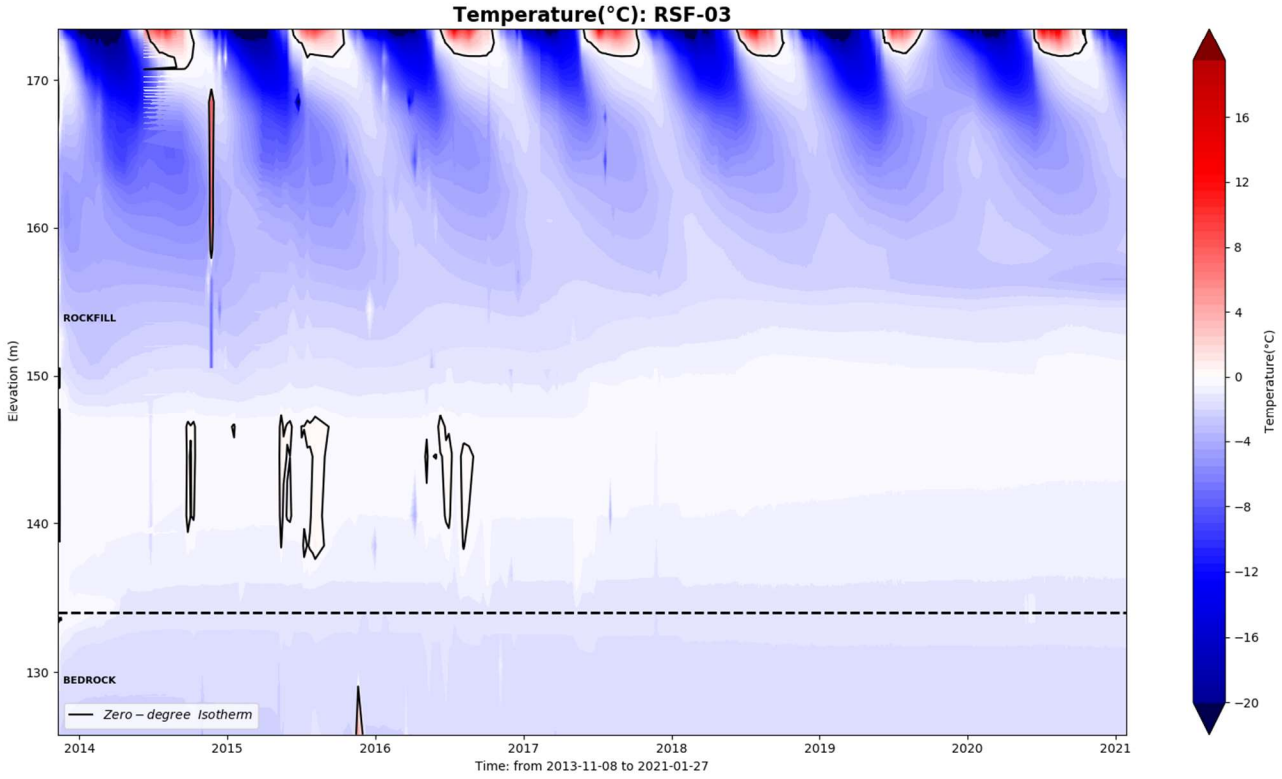




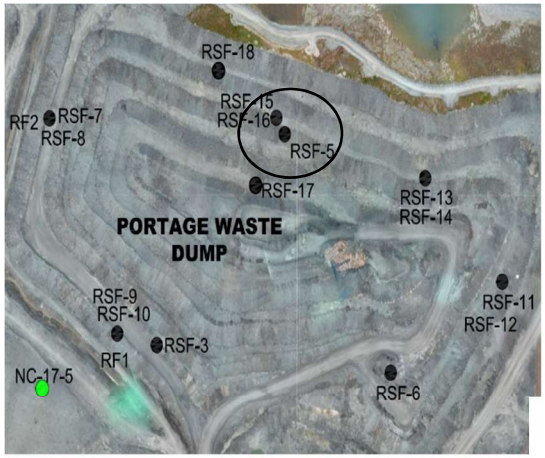
This instrument is along the liner.

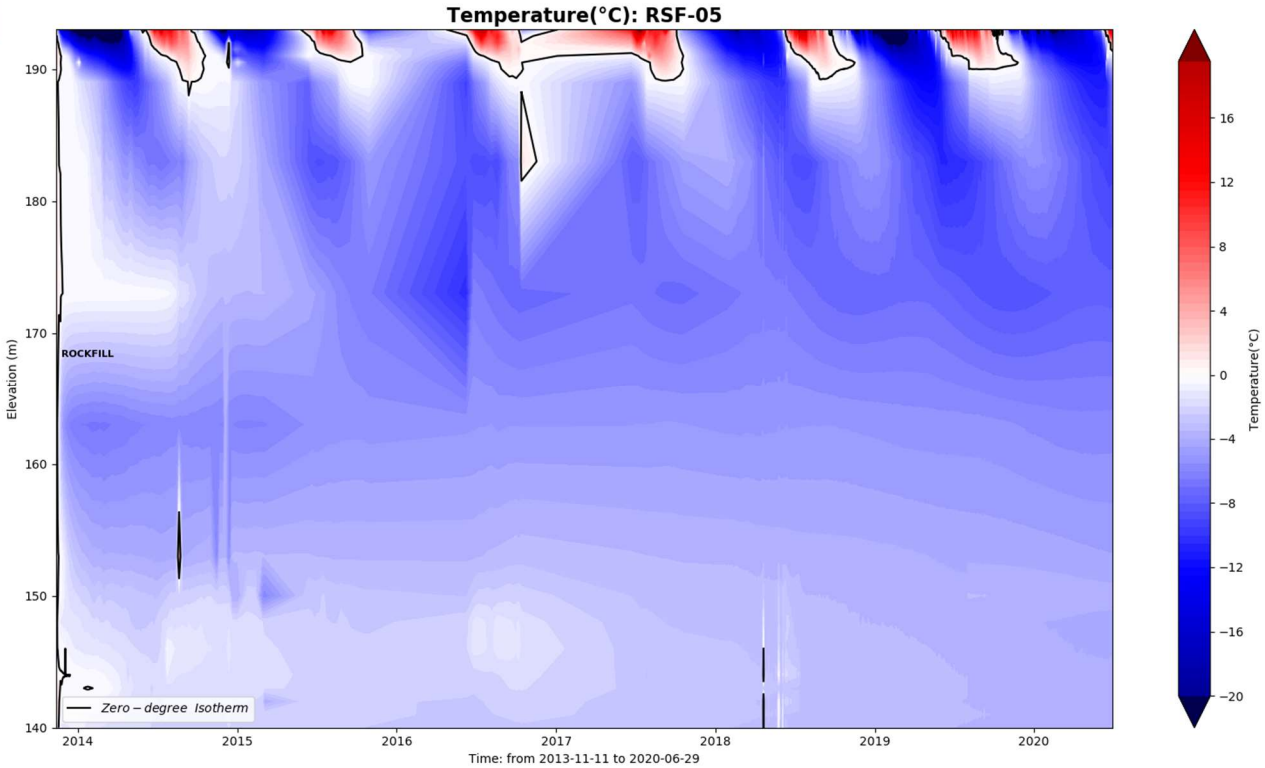
RSF-3


RSF-18
RSF-15
RSF-16
RF2
RSF-7
RSF-8
RSF-5
RSF-17
RSF-13
RSF-14
PORTAGE WASTE
DUMP
RSF-9
RSF-10
RSF-11
RSF-12
RSF-3
RF1
NC-17-5
RSF-6

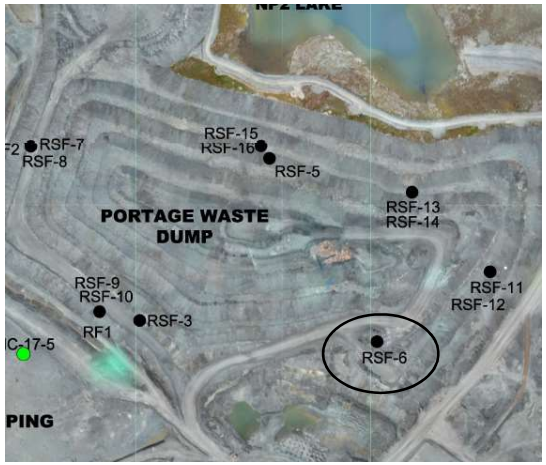

Temperature(°C): RSF-03
Elevation (m)
170
160
150
140
130
ROCKFILL
BEDROCK
Zero – degree Isotherm
2014
2015
2016
2017
2018
2019
2020
2021
Time: from 2013-11-08 to 2021-01-27
16
12
8
4
0
−4
−8
−12
−16
−20
Temperature(°C)

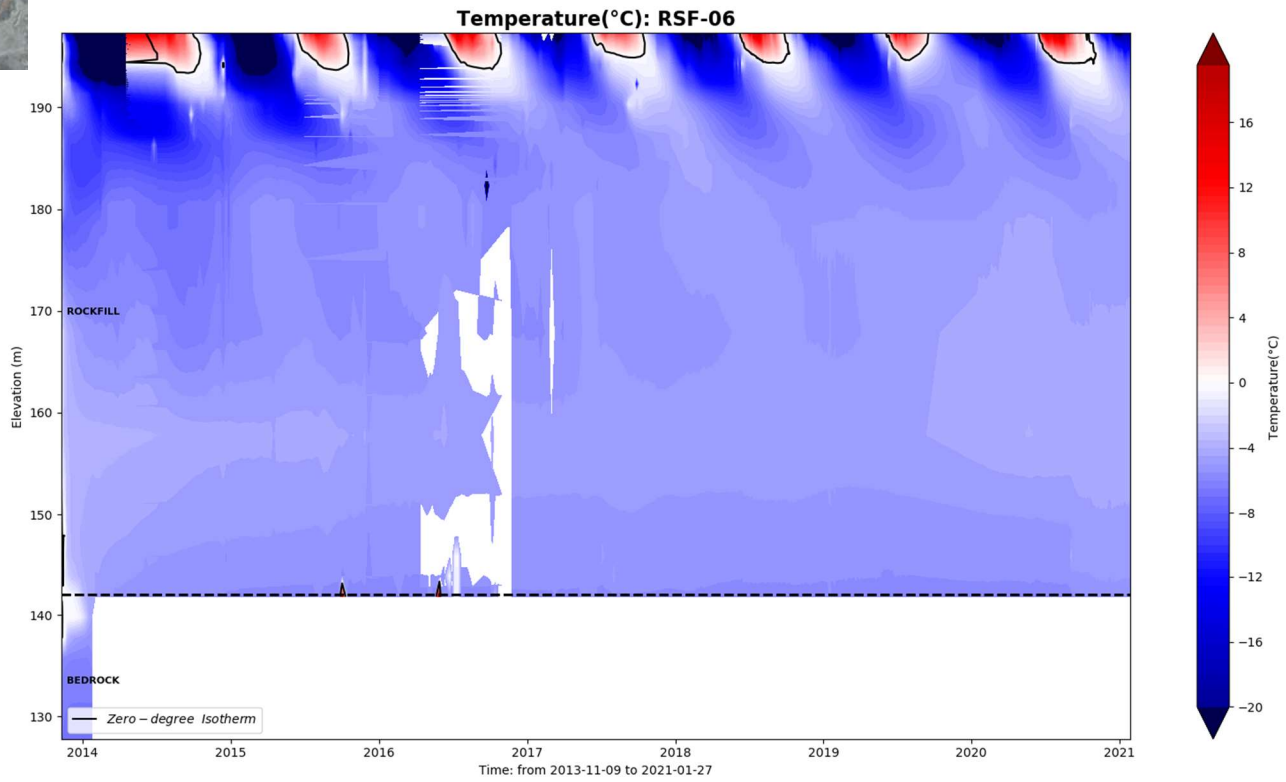
RSF-5


RSF-18
RSF-15
RSF-16
RF2
RSF-7
RSF-8
RSF-5
RSF-17
RSF-13
RSF-14
PORTAGE WASTE
DUMP
RSF-9
RSF-10
RSF-11
RSF-12
RSF-3
RF1
NC-17-5
RSF-6

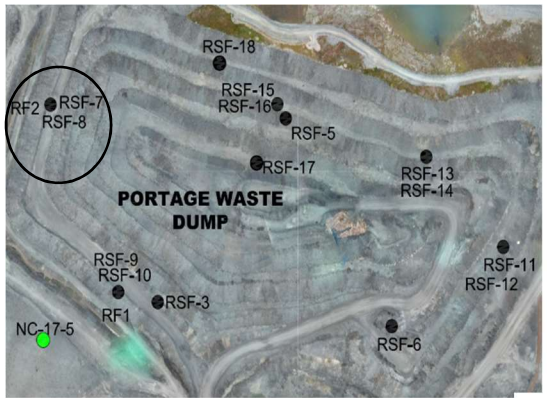

Temperature(°C): RSF-05
Elevation (m)
190
180
170
160
150
140
ROCKFILL
Zero – degree Isotherm
2014
2015
2016
2017
2018
2019
2020
Time: from 2013-11-11 to 2020-06-29
16
12
8
4
0
−4
−8
−12
−16
−20
Temperature(°C)

RSF-6

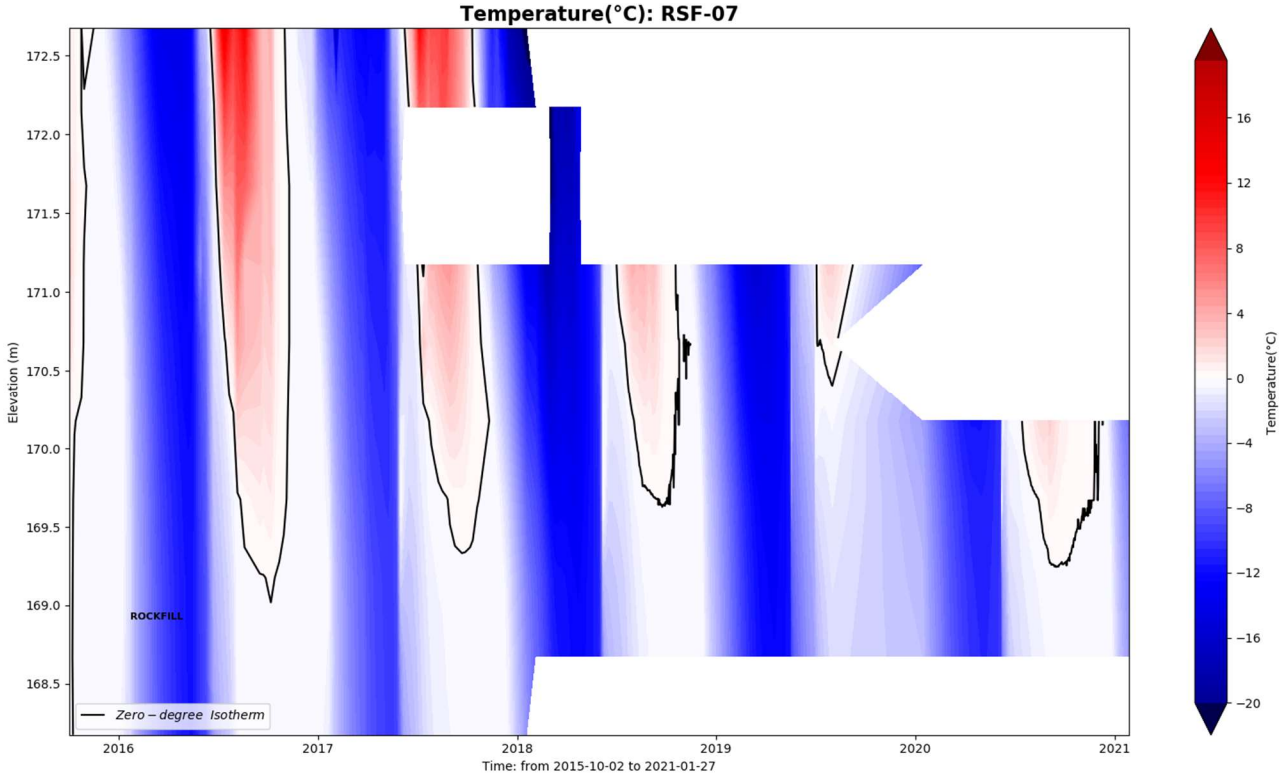

RSF-7
RSF-8
RSF-15
RSF-16
RSF-5
PORTAGE WASTE
DUMP
RSF-13
RSF-14
RSF-9
RSF-10
RSF-11
RSF-12
RSF-3
RF1
C-17-5
RSF-6
PING


Temperature(°C): RSF-06
Elevation (m)
190
180
170
160
150
140
130
ROCKFILL
BEDROCK
Zero – degree Isotherm
2014
2015
2016
2017
2018
2019
2020
2021
Time: from 2013-11-09 to 2021-01-27
16
12
8
4
0
−4
−8
−12
−16
−20
Temperature(°C)

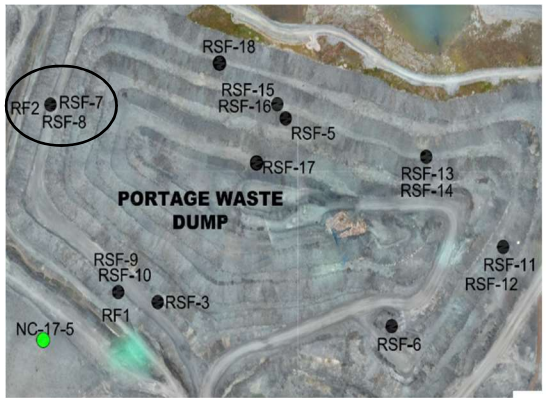
RSF-7 & RSF-8



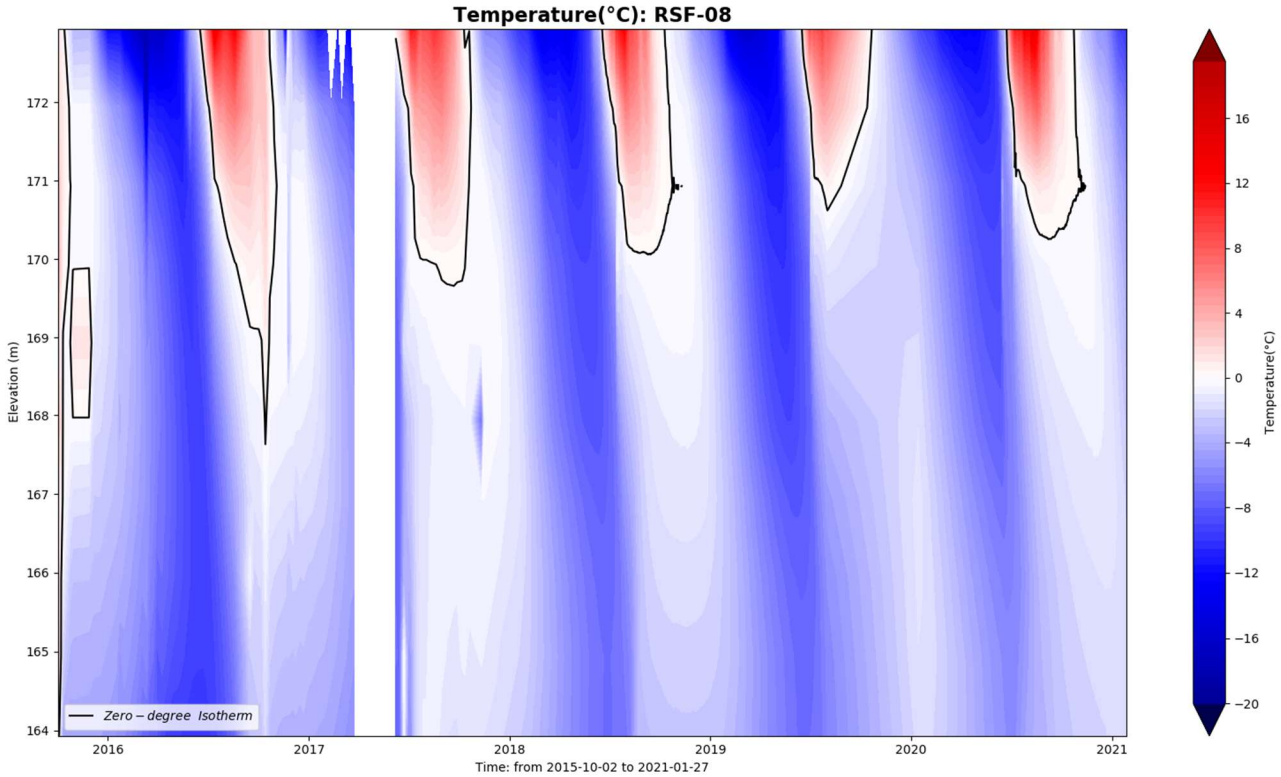
RSF-7 installed at a dip of -55°



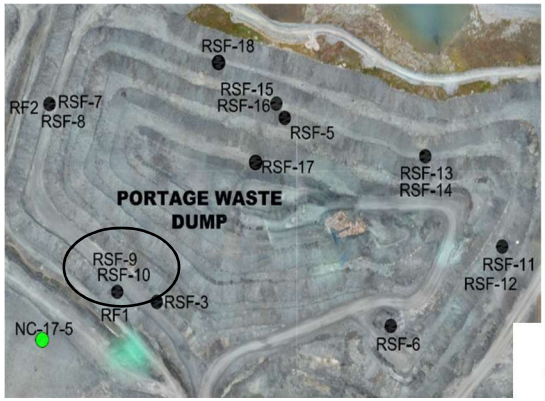
RSF-8



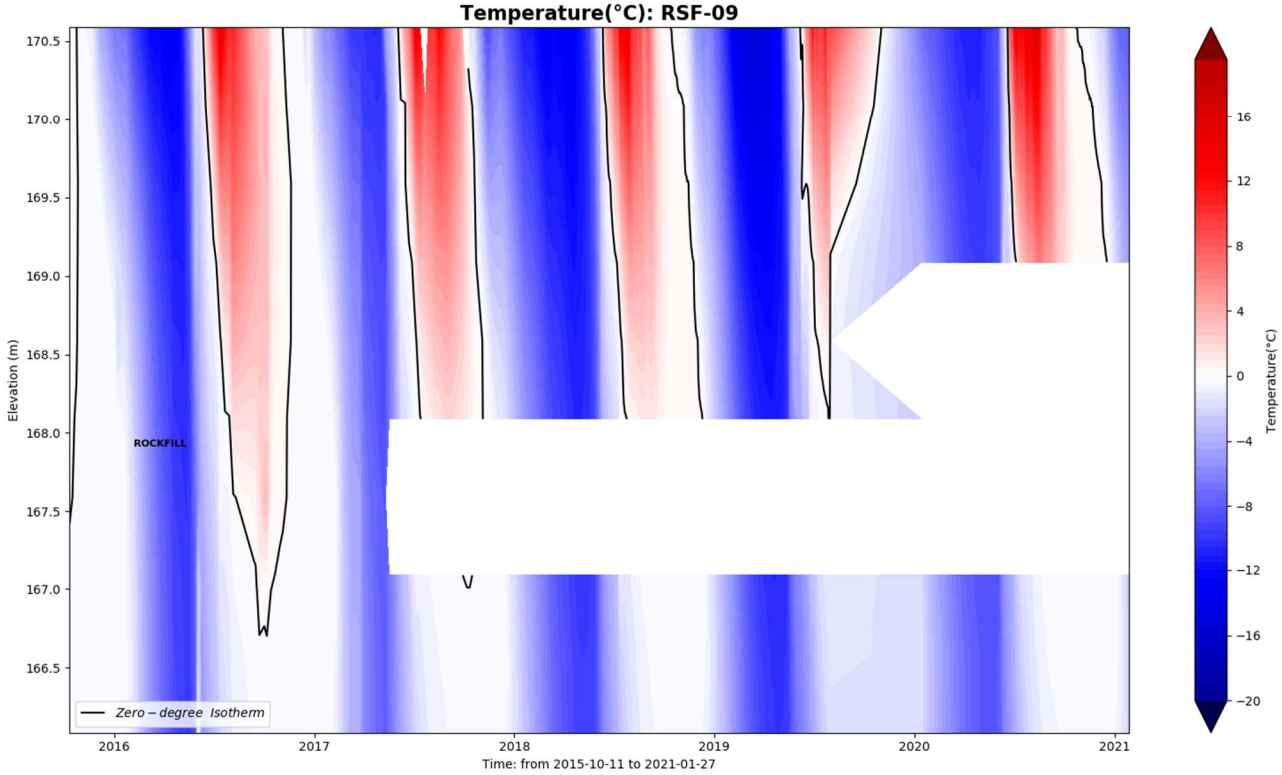
RSF-8 installed at a dip of -70°



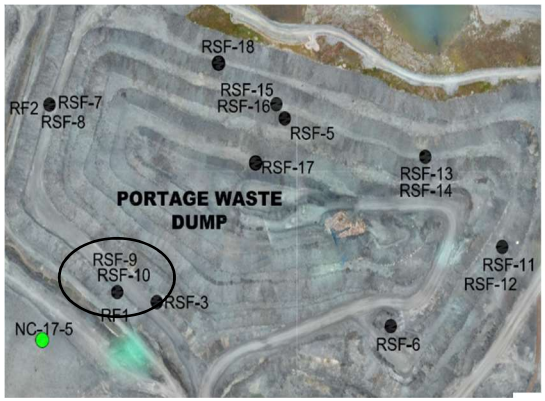
RSF-9



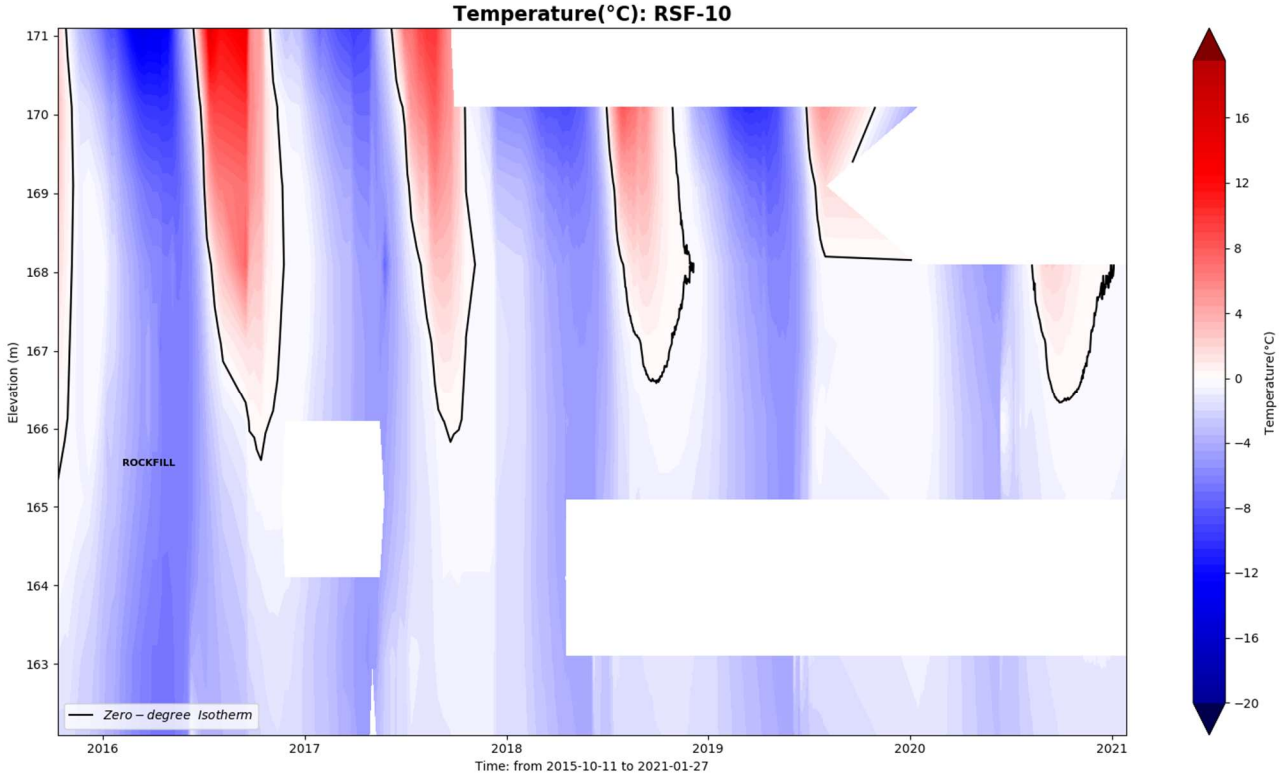
RSF-9 installed at a dip of -55°



RSF-10

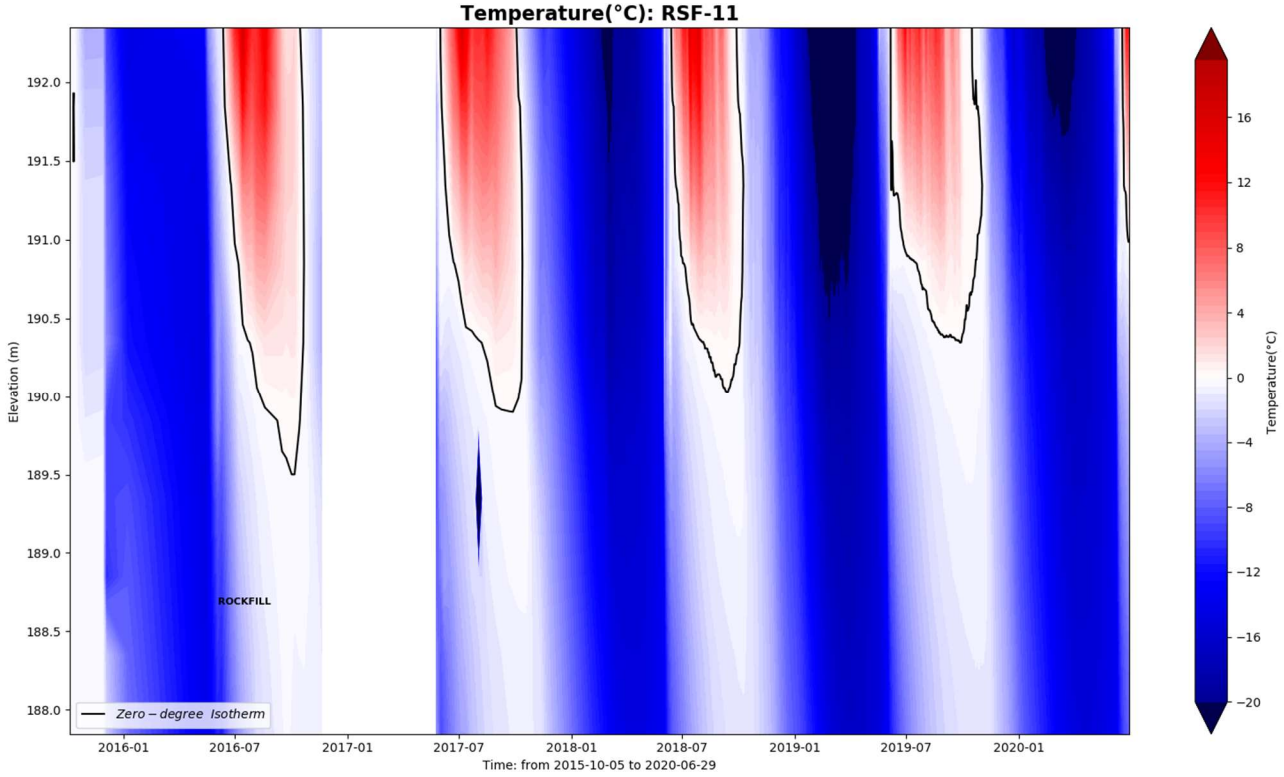


RSF-10 installed at a dip of -70°



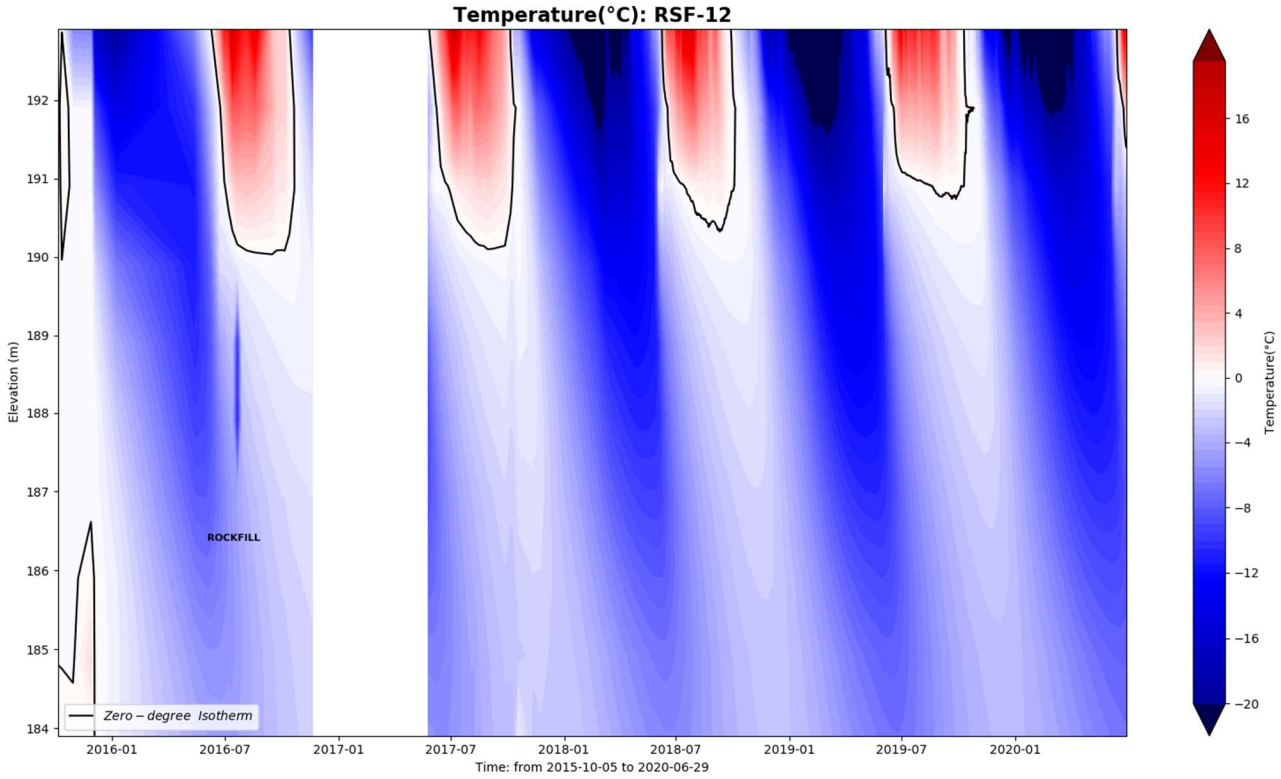
RSF-11

RSF-11 installed at a dip of -55°

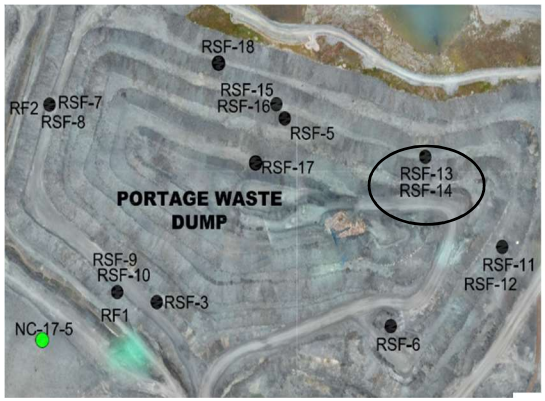


RSF-12

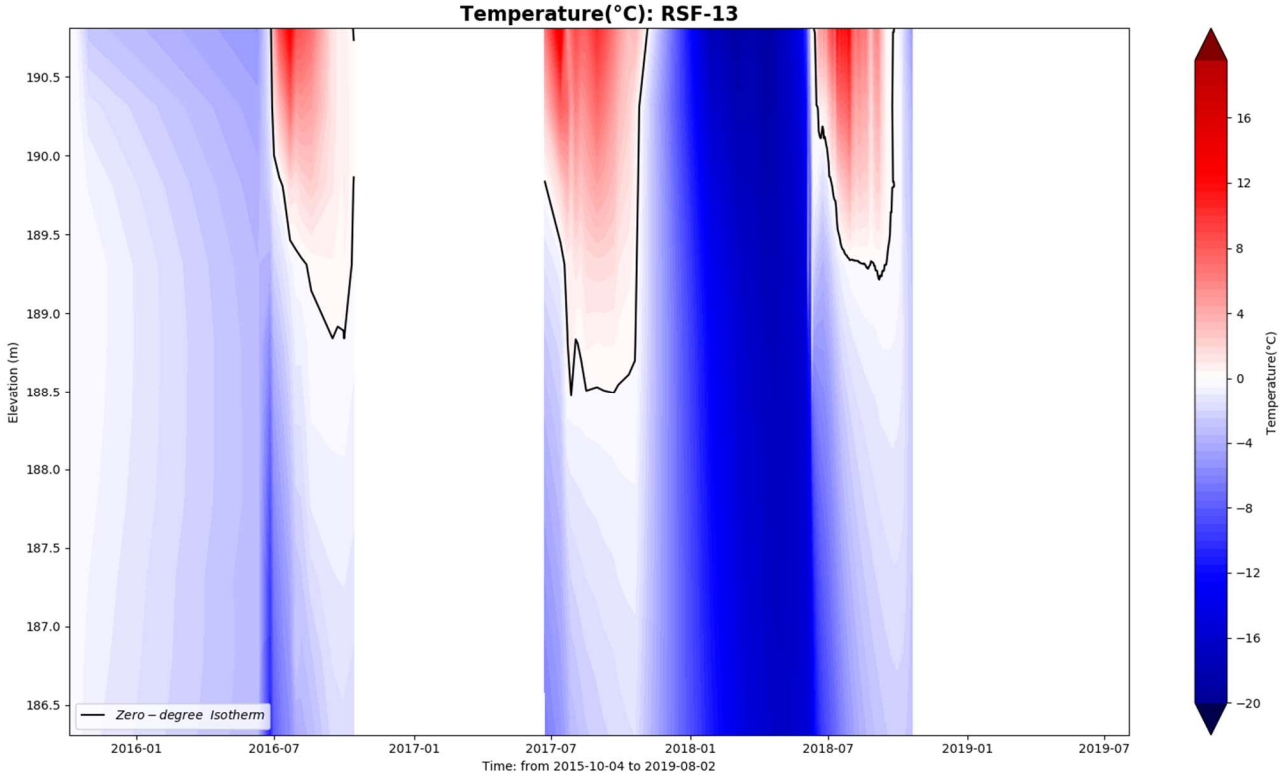
RSF-12 installed at a dip of -70°



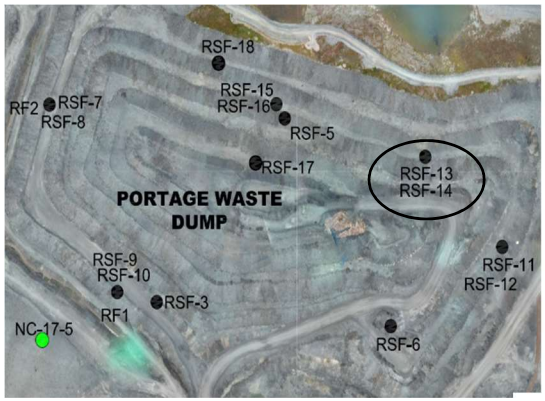
RSF-13



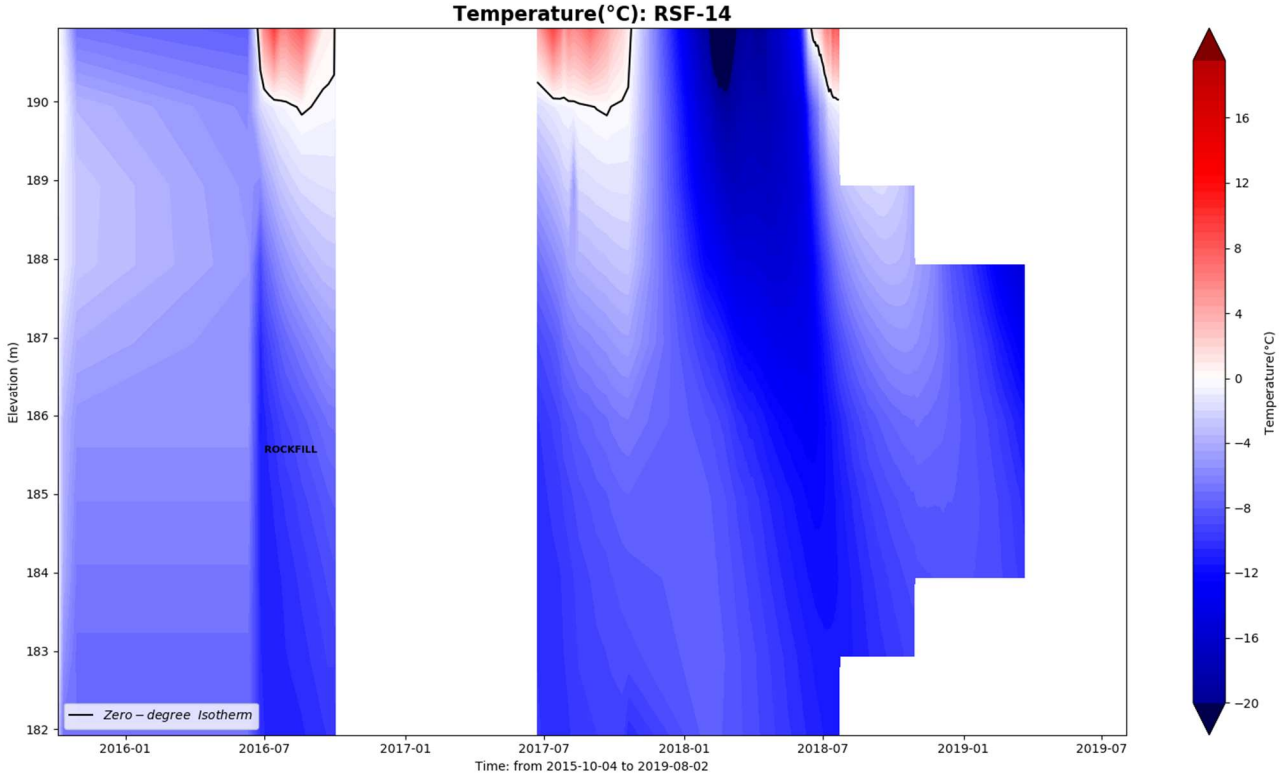
RSF-13 installed at a dip of -55°. No longer active as the cable was cut by wildlife. Planned to repair.



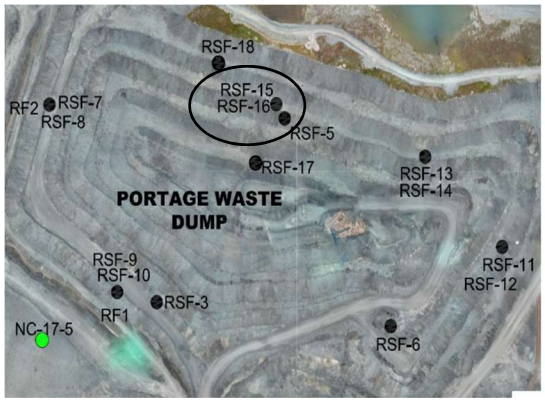
RSF-14



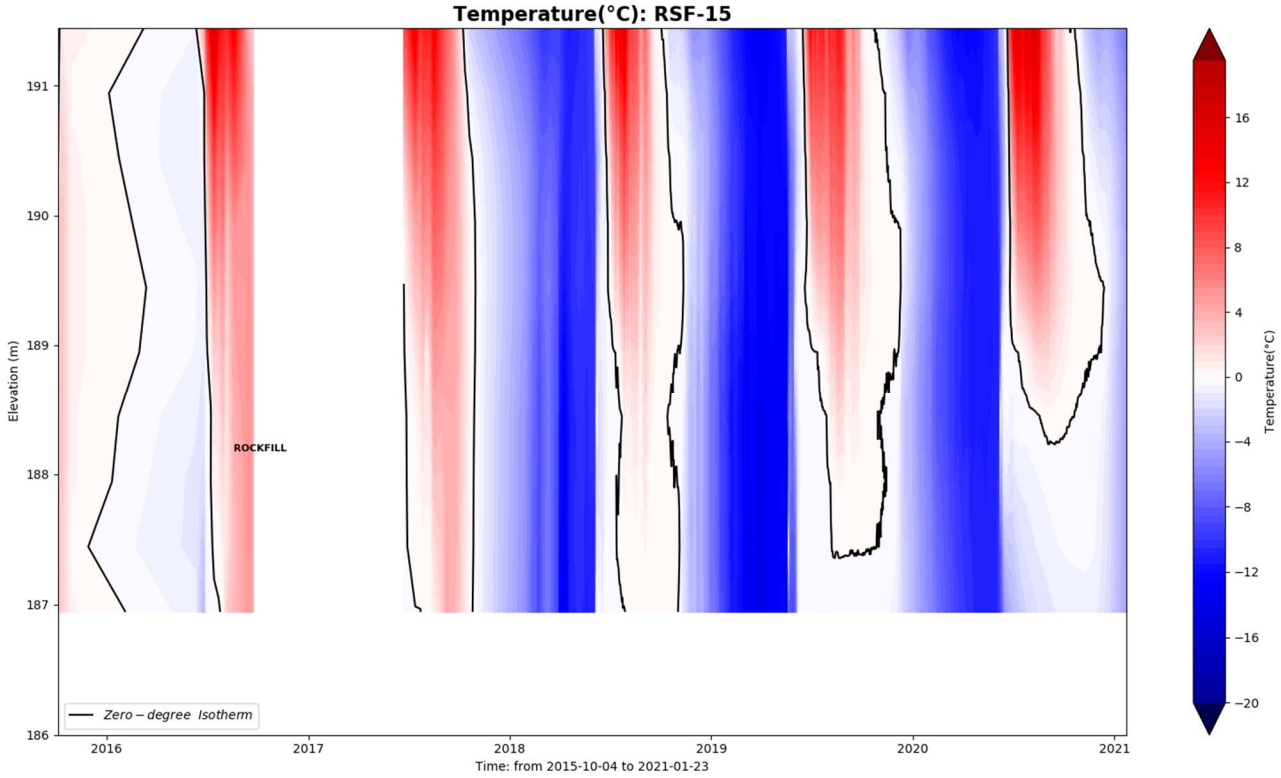
RSF-14 installed at a dip of -80°. No longer active as the cable was cut by wildlife.



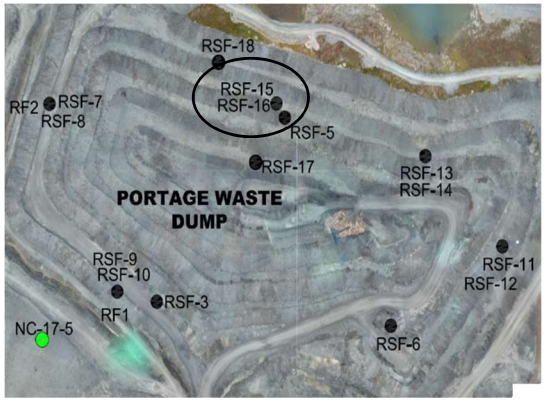
RSF-15



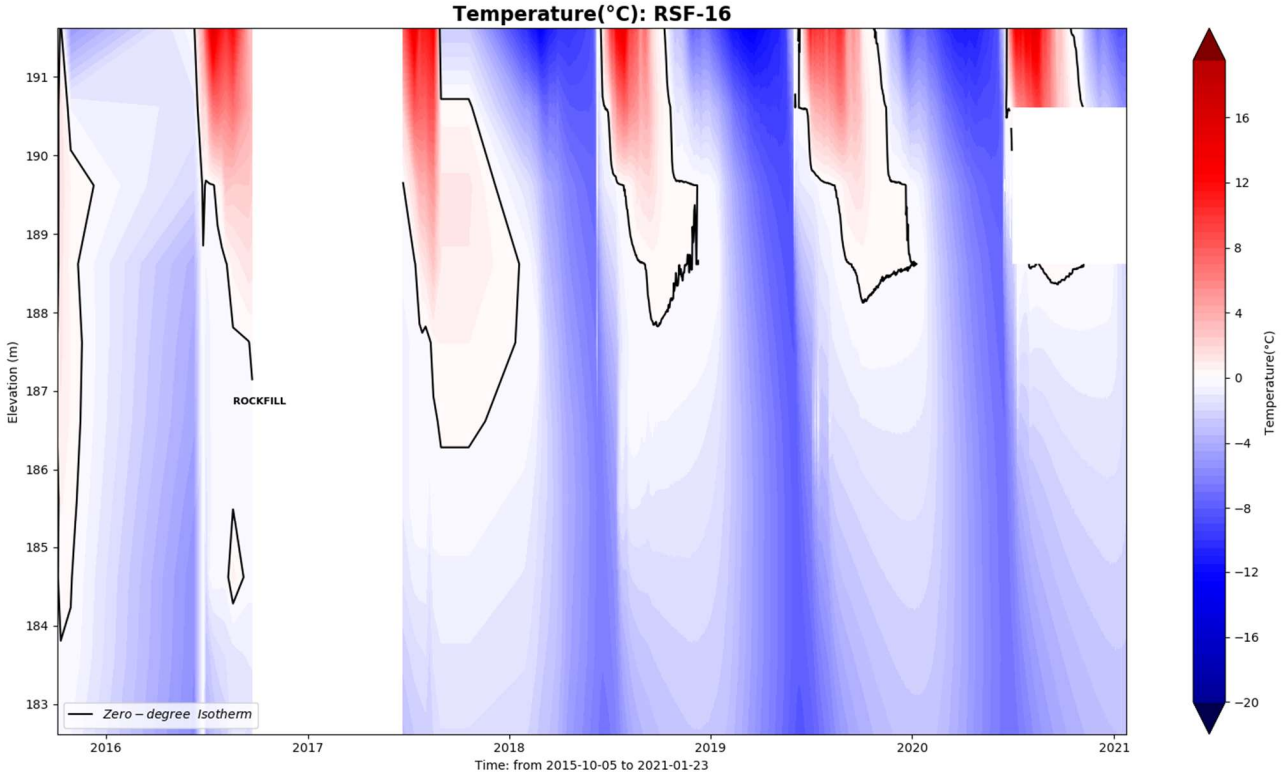
RSF-15 installed at a dip of -55°



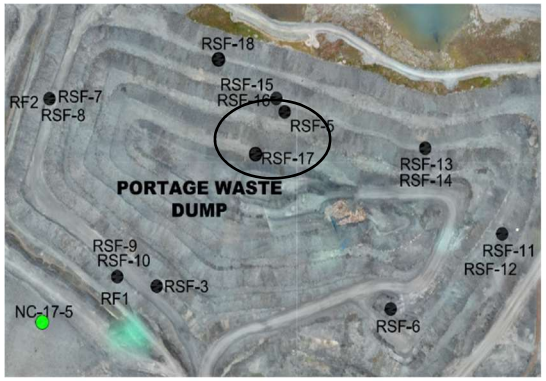
RSF-16



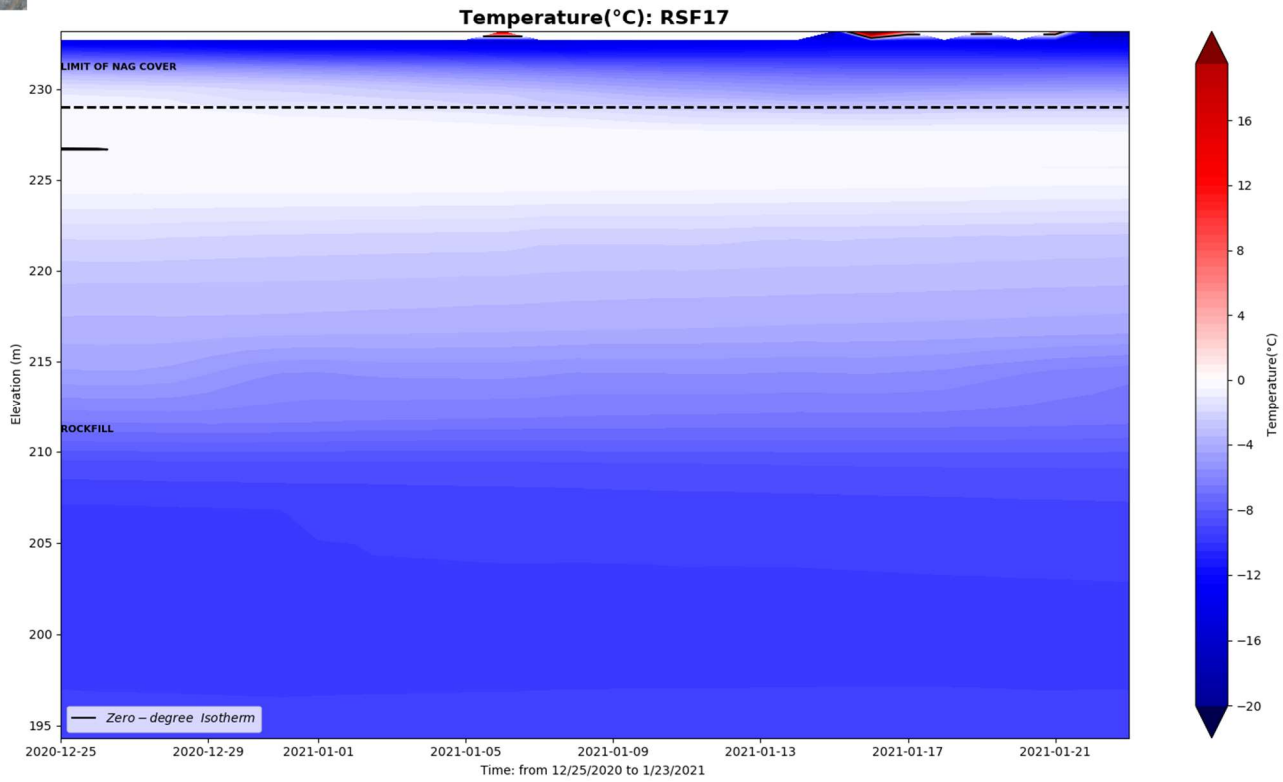
RSF-16 installed at a dip of -70°



RSF-17



RSF-17 installed at a dip of -90°



RSF-18

RSF-18 installed at a dip of -90°