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January 17, 2025

Project No. 23-01-200

Alan Pineda, PE
Professional Engineer
Bureau of Industrial Site Cleanup
Nevada Division of Environmental Protection
375 E. Warm Springs Rd., Ste. 200
Las Vegas, NV 89119

Attn: Mr. Pineda

Re: **Modification No. 5 to the Remedial Design Report/Modification No. 3 to the Leaching Analysis Report**
Increase in Thickness of Waste Rock Fill in Central Valley Area to 75 Feet
Three Kids Mine, Henderson, Nevada

Dear Mr. Pineda:

Broadbent & Associates, Inc. (Broadbent) is pleased to submit this revised modification to the *Remedial Design Report, Revision 1* and the *Leaching Analysis Report, Revision 1* for the Three Kids Mine located in Henderson, Nevada.

Please do not hesitate to contact us if you should have any questions or require additional information.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Kirk Stowers, CEM
Principal Geologist

CC: JD Dotchin, NDEP
Joe McGinley, McGinley & Associates, Inc.
Caitlin Jelle, McGinley & Associates, Inc.
Ann Verwiell, ToxStrategies
Robert Unger, Lakemoor Ventures LLC
Mindy Unger-Wadkins, Lakemoor Ventures LLC
Leo Drozdoff, Drozdoff Group, LLC
Karen Gastineau, Broadbent & Associates, Inc.
Christene Klimek, City of Henderson
Sean Robertson, City of Henderson
Stephanie Garcia-Vause, City of Henderson
Anthony Molloy, City of Henderson
Quincy Edwards, Pulte Group
Doug Adair, Pulte Group
Paul Kenner, on behalf of Pulte Group
Michael Ford, Snell & Wilmer
Brad Cahoon, Dentons
Bryan Douglass, Douglass, Inc.
Charles M. Damus, Laker Development, LLC
Darryn Padfield, River Mountain Bike Shop
David Grossheim, Laker Plaza, Inc.
Frank Sator, Laker Development, LLC
Laird Sanders, Lake Mead Boat Storage
Rhonda Sanders, Lake Mead Boat Storage
Tyler Cahoon, Dentons

**Modification No. 5 to the Remedial Design Report, Revision 1/
Modification No. 3 to the Leaching Analysis Report, Revision 1
Increase in Thickness of Waste Rock Fill in Central Valley Area to 75 Feet
Three Kids Mine
Henderson, Nevada**

JURAT: I, Karen Gastineau, certify that I am responsible for the services in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, State, and local statutes, regulations, ordinances, and the requirements of the Mine Remediation and Reclamation Agreement and Administrative Order on Consent for the Three Kids Mine Site.

Karen Gastineau

**Karen Gastineau
Senior Hydrogeologist
CEM #2468 (4/1/2025)**

January 17, 2025

Date

TECHNICAL MEMORANDUM

To: Alan Pineda, Nevada Division of Environmental Protection

From: Karen Gastineau, Broadbent & Associates, Inc.

Subject: Modification No. 5 to the Remedial Design Report/
Modification No. 3 to the Leaching Analysis Report
Increase in Thickness of Waste Rock Fill in Central Valley Area to 75 Feet
Three Kids Mine Site, Henderson, Nevada

Date: January 17, 2025

This Technical Memorandum presents Broadbent & Associates, Inc.'s recommended Modification No. 5 to the *Remedial Design Report, Revision 1* dated March 4, 2024 (Remedial Design Report)/Modification No. 3 to the *Leaching Analysis Report, Revision 1* (Leaching Analysis) dated August 17, 2022 for the Three Kids Mine Site (Site) in Henderson, Nevada. Modification No. 3 to the Remedial Design Report/Modification No. 2 to the Leaching Analysis increasing the maximum thickness of waste rock in the Central Valley Area to 60 feet was approved by the Nevada Division of Environmental Protection (NDEP) on November 21, 2024. The modification described herein further increases the waste rock thickness to 75 feet.

Increase in Thickness of Waste Rock Fill in Central Valley Area

The Central Valley Area is a portion of the Site where waste rock is permitted to be used as fill below the 10-foot native soil cover to achieve final grade. A geochemical model was completed to evaluate potential impacts of the waste rock fill on groundwater, and findings suggested that the waters of the state of Nevada would not be impacted. The Central Valley Area Scenario model (CVS) originally considered a cross section with 40 feet of waste rock fill, which was later modified to 60 feet of waste rock fill. However, as tailings remediation progresses, the maximum depth of tailings has proven to be deeper than anticipated. As a result, fills greater than 70 feet (60 feet of waste rock plus 10 feet of cover) are anticipated.

EA Engineering, Science, and Technology (EA Engineering) remodeled the CVS based on a cross section with 75 feet of waste rock fill plus 10 feet of cover. Results indicate that the increase in waste rock thickness would not have an adverse impact on groundwater. Additional details on the remodel are provided below. If approved, this modification would allow for waste rock fills up to 75 feet thick in the Central Valley Area.

Remodel of Central Valley Area Scenario

EA Engineering analyzed the effect of waste rock thickness on infiltration and drainage past the root zone and contaminant migration through supplemental numerical modeling with Hydrus software. The CVS base case model domain in the Leaching Analysis (Broadbent 2022) was modified to include 75 feet of waste rock fill beneath the alluvial 10-foot cover and on top of the Muddy Creek Formation. This represents a 15-foot increase in the thickness of the waste rock fill over the previous simulation, which had a 60-foot-thick layer of waste rock in the model domain. The change in waste rock thickness is significant because waste rock has elevated arsenic concentrations relative to the cover material and Muddy Creek Formation. Additionally, the increased waste rock thickness increased the depth of the

observation point by an additional 15 feet, or 35 feet from the original simulation (i.e., the depth at which waste rock transitions to Muddy Creek Formation). The total depth of the model domain below ground surface (top of 10-foot cover) remained the same at 508.5 feet, which is the anticipated depth to groundwater. Other input parameters were held the same as in the base case CVS as defined in Appendix H Table H-1 (Broadbent 2022).

Three waste rock fill thicknesses have now been simulated: 1) the CVS base case results with a 40-foot waste rock fill layer (Broadbent 2022); 2) a 60-foot waste rock fill layer (Broadbent 2024); and a 75-foot thick waste rock fill. The results and comparison thereof are provided in Table 17-M below. Numerical output from Hydrus is provided in the attached data tables for the three simulations (Attachments 1 through 3 for 40-foot, 60-foot, and 75-foot scenarios, respectively).

Similar to the 60-foot waste rock simulation, the 75-foot results are not significantly different than the original simulation of 40 feet of waste rock. The changes in predicted concentrations are minor, and rather than picking concentrations from the Hydrus output graphs, which are low resolution and the method of presenting results in the base case model, the numerical model output in the attached tables was compared to eliminate interpolation between model nodes in the graphical output. At the low concentrations predicted by the model, considering the numerical output provides more accurate predicted results and comparison of the scenarios which are currently being evaluated for reclamation performance.

Review of the arsenic concentration at the observation point after 72 years in each of the three models (45-foot, 60-foot, and 75-foot) suggests that varying waste rock fill thickness has little impact on predicted increases in arsenic concentration relative to the initial conditions in the Muddy Creek Formation (the unit directly below the waste rock). In each of the three model simulations, very little arsenic migrates upward into the native soil cover or downward through the waste rock contact with the Muddy Creek Formation. Detailed results are presented in the attached graphs for each model run showing arsenic concentration by depth as well as in the tabulated model results.

Estimated travel times from the base of waste rock fill to groundwater are not appreciably affected either: the calculated travel times for infiltrating water through the waste rock/Muddy Creek Formation contact to groundwater for 40, 60 and 75 feet of waste rock fill are 763, 671, and 640 years, respectively. The reduced travel times are related to reduced distance to groundwater resulting from thicker fills: the top of elevation of fill is fixed by the grading plan. The difference in travel time between 40-foot fill and 75-foot fill is 123 years, which is a 16.1 percent relative change. The results of supplemental unsaturated flow and contaminant transport modeling demonstrate that increasing waste rock thickness in the CVS reclamation design from 40 to 75 feet will not impact the waters of Nevada.

Attachments

Attachment 1	40-foot Model Numerical Output
Attachment 2	60-foot Model Numerical Output
Attachment 3	75-foot Model Numerical Output

References

- Broadbent. 2024. *Remedial Design Report, Revision 1, Three Kids Mine, Henderson, Nevada*. March 4.
- Broadbent. 2024. Modification No. 3 to the Remedial Design Report/Modification No. 2 to the Leaching Analysis Report, Increase in Thickness of Waste Rock Fill in Central Valley Area, Revision 1. November 8.
- Broadbent. 2022. *Leaching Analysis Report, Revision 1, Three Kids Mine, Henderson, Nevada*. August 17.

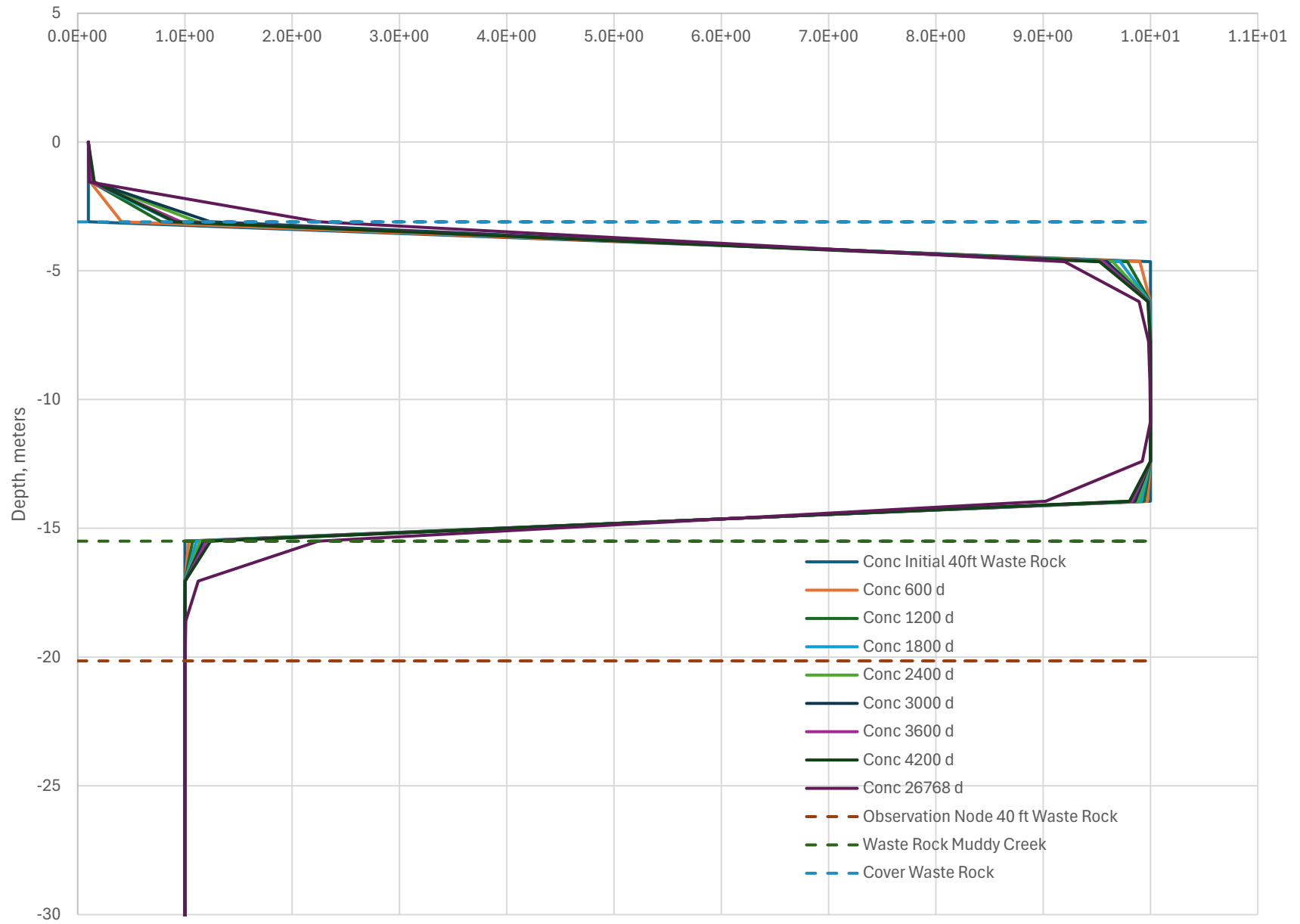
Table 17-M. Modified CVS base case simulation results with 40-, 60-, and 75-foot waste rock fill at 72 years

Central Valley Scenario, 72-year Climate Simulation	Net Infiltration (inches per year)	Net Infiltration, percent of mean precipitation	Increase in Conservative Concentration at Base of Waste Rock (millimole per cubic meter)	Increase in Conservative Concentration, As equivalent ($\mu\text{g/l}$)	Travel Time to Groundwater (years)	Notes
Root Uptake with Alluvium Borrow TP Cover, McCarran Climate #1, 40 feet of Waste Rock below Cover and above Muddy Creek Fm (Broadbent 2022)	0.8	19.3%	0.000	0.0000	763	CVS base case. Travel time calculation assumes water content of 10 percent.
Root Uptake with Alluvium Borrow TP Cover, McCarran Climate #1, 60 feet of Waste Rock below Cover and above Muddy Creek Fm	0.8	19.3%	0.000	0.0000	671	Travel time calculation assumes water content of 10 percent.
Relative change (40 feet to 60 feet)	0%	0%	0%	0%	12.1%	Difference in travel time is a result of decreased distance to groundwater from the base of the waste rock.
Root Uptake with Alluvium Borrow TP Cover, McCarran Climate #1, 75 feet of Waste Rock below Cover and above Muddy Creek Fm	0.8	19.3%	0.000	0.0000	640	Travel time calculation assumes water content of 10 percent.
Relative change (40 feet to 75 feet)	0%	0%	0%	0%	16.1%	Difference in travel time is a result of decreased distance to groundwater from the base of the waste rock.

Attachment 1
40-foot Waste Rock Model

Graph 1b: 40-foot waste rock model, waste rock-Muddy Creek Formation boundary

Concentration, mmol per m3



40 foot Waste Rock thickness simulation results from Hydrus

***** Program HYDRUS

Welcome to HYDRUS-1D
Date: 8.1.2025 Time: 16:36:30
Units: L = m , T = days , M = mmol

Time: 0.0000

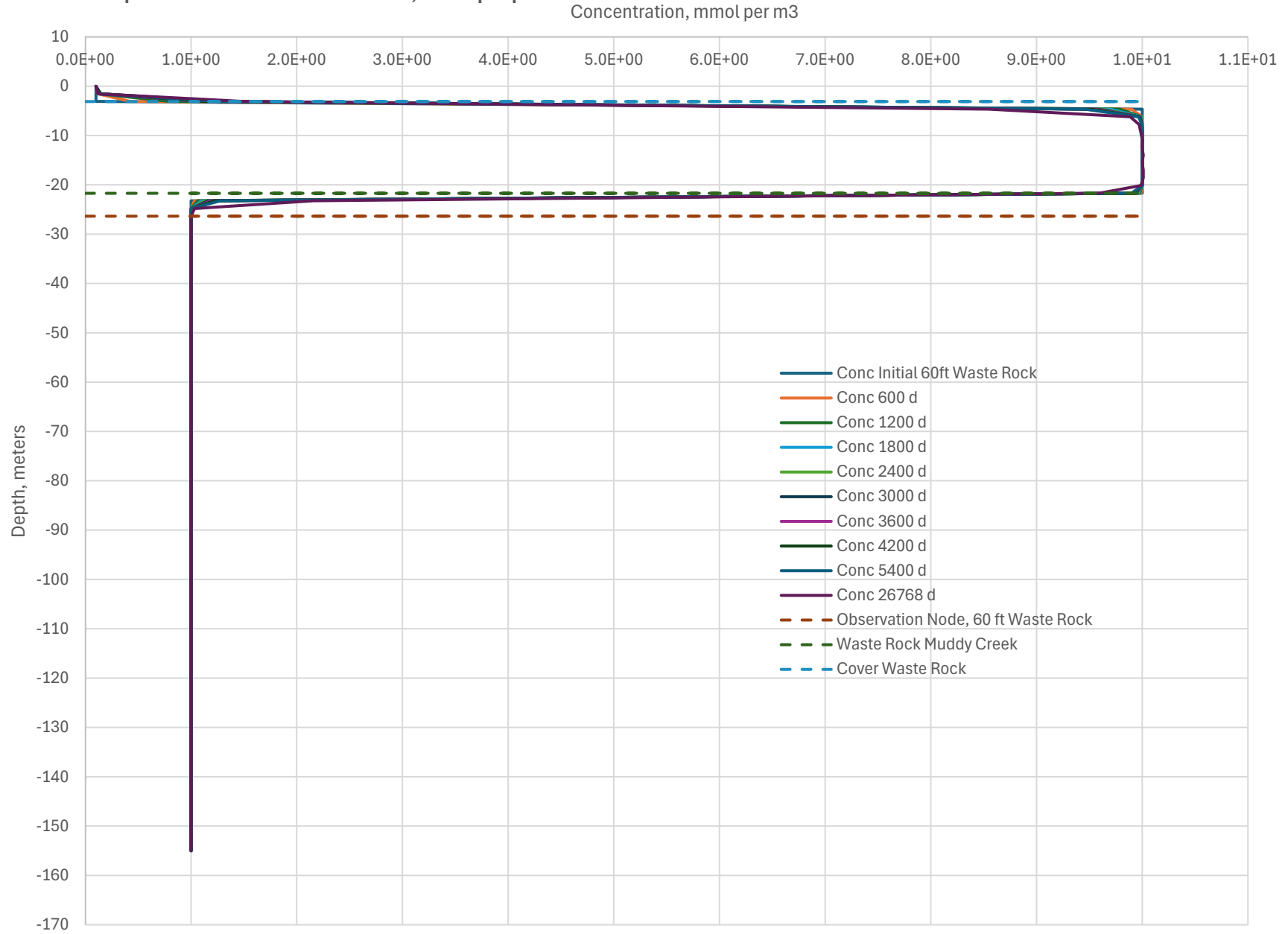
Node [L]	Conc(1..NS)		Depth		Conc(1..NS)		Depth		Observation Node																											
	Conc	Depth	Conc	Depth	Conc	Depth	Conc	Depth	40 ft Waste Rock																											
	Conc Initial 40ft Waste Rock				Conc 600 d				Conc 1200 d				Conc 1800 d				Conc 2400 d				Conc 3000 d				Conc 3600 d				Conc 4200 d				Conc 5400 d			
84	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-20.15	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65				
85	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-20.15	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2				
86	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-20.15	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75				
87	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-20.15	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3				
88	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-20.15	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85				
89	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-20.15	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4				
90	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-20.15	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95				
91	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-20.15	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5				
92	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-20.15	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05				
93	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-20.15	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6				
94	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-20.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15				
95	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-20.15	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7				
96	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-20.15	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25				
97	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-20.15	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8				
98	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-20.15	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35				
99	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-20.15	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9				
100	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-20.15	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45				
101	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-20.15	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155				

40 foot Waste Rock Results for Memo Table

Conc 26768 d		Waste Rock Muddy Creek		Cover Waste Rock	
1.00E+00	-128.65	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-130.2	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-131.75	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-133.3	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-134.85	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-136.4	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-137.95	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-139.5	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-141.05	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-142.6	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-144.15	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-145.7	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-147.25	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-148.8	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-150.35	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-151.9	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-153.45	1.00E+00	-15.5	1.00E+00	-3.1
1.00E+00	-155	1.00E+00	-15.5	1.00E+00	-3.1

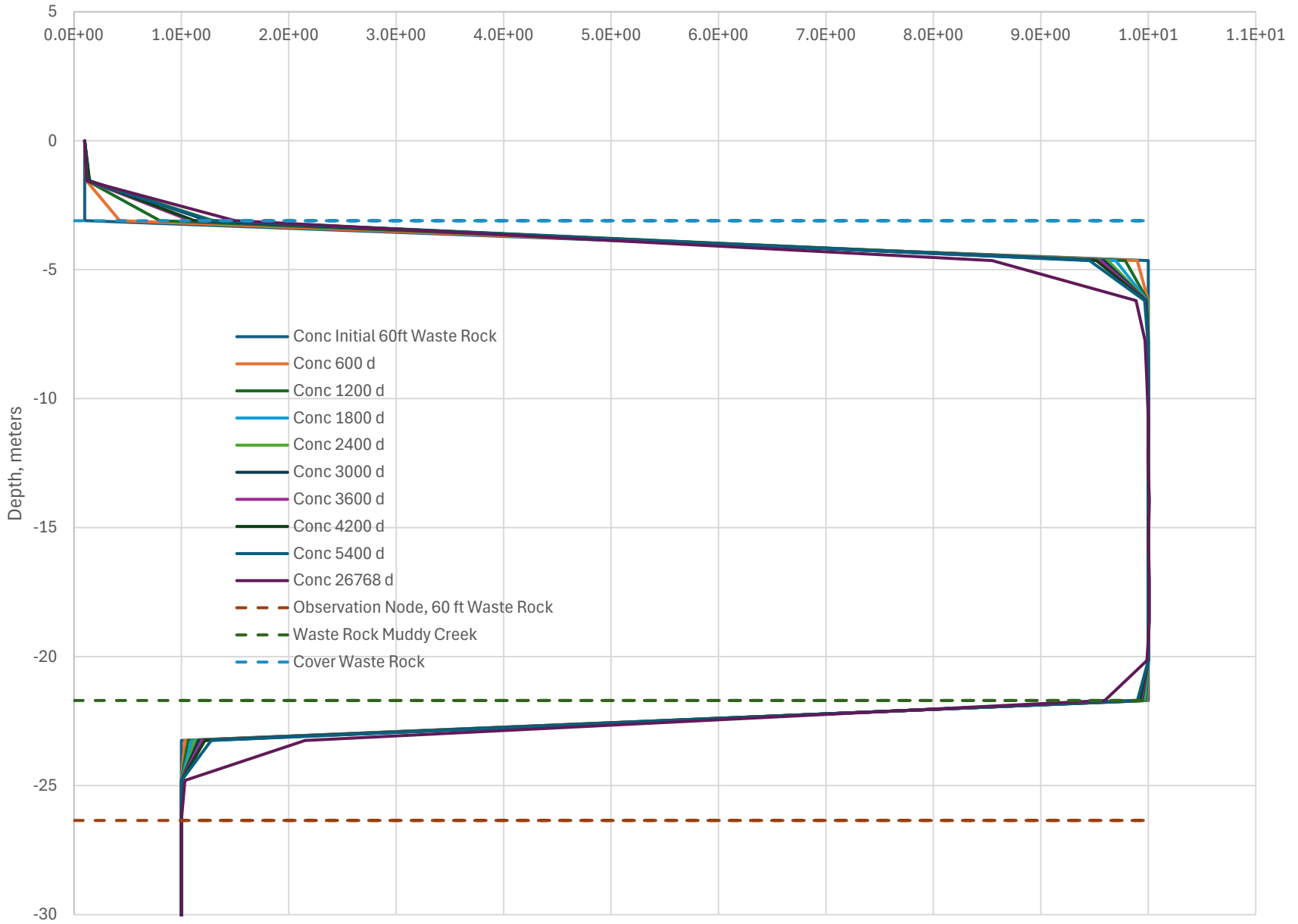
Attachment 2
60-foot Waste Rock Model

Graph 2a: 60-foot waste rock model, full depth profile



Graph 2b: 60-foot waste rock model, waste rock-Muddy Creek Formation boundary

Concentration, mmol per m3



60 foot Waste Rock thickness simulation results from Hydrus

***** Program HYDRUS

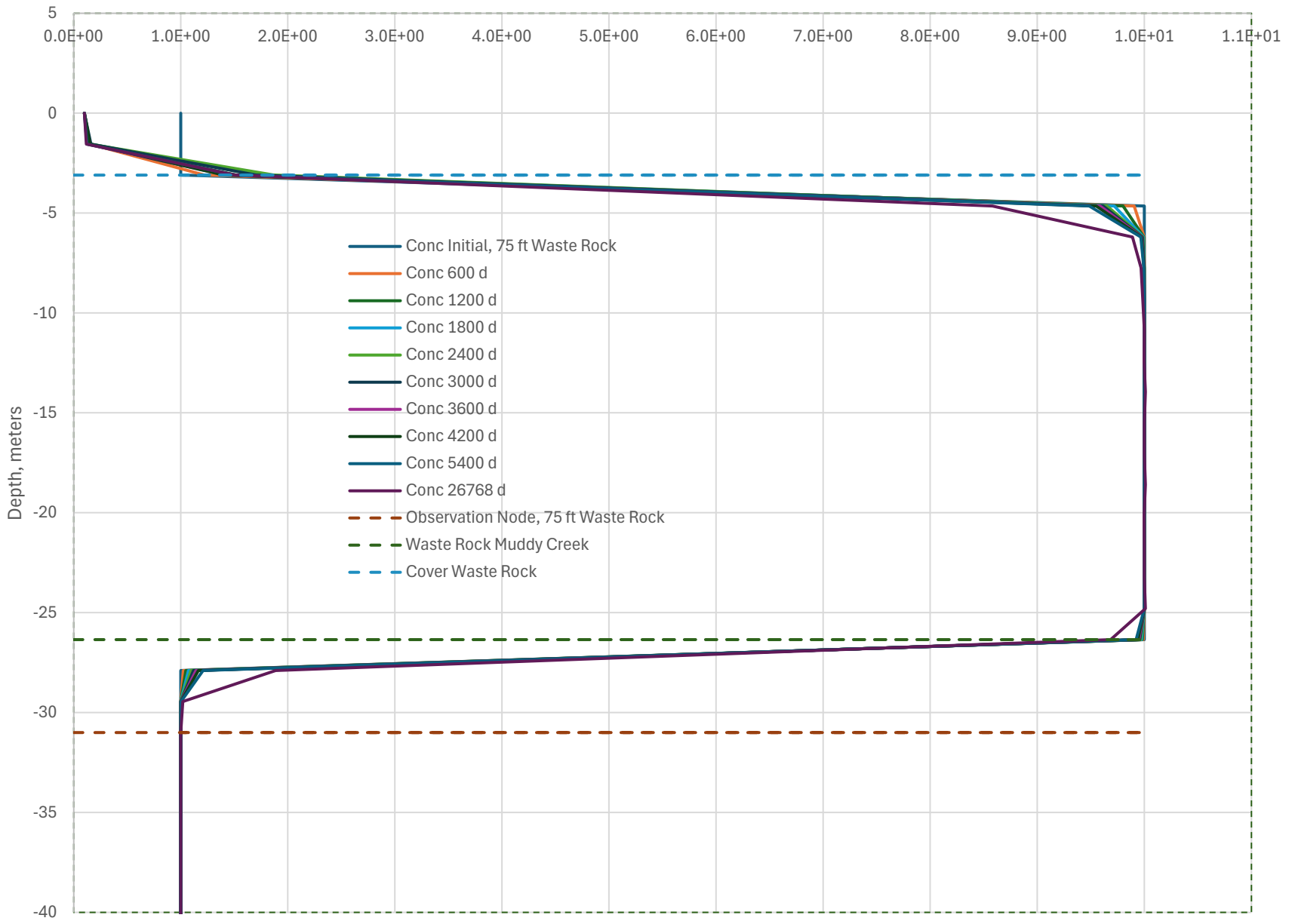
Welcome to HYDRUS-1D
Date: 8.1.2025 Time: 16:36:30
Units: L = m , T = days , M = mmol

Time: 0.0000

Node [L]	Conc(1..NS)	Depth [L]	Conc(1..NS)	Depth [L]	Observation Node, 60 ft Waste Rock										60 foot Waste Rock Results for Memo Table		Waste Rock Muddy Creek	Cover Waste Rock		
					Conc Initial 60ft Waste Rock	Conc 600 d	Conc 1200 d	Conc 1800 d	Conc 2400 d	Conc 3000 d	Conc 3600 d	Conc 4200 d	Conc 5400 d	Conc 26768 d						
84	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-21.7	1.00E+00	-3.1
85	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-21.7	1.00E+00	-3.1
86	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-21.7	1.00E+00	-3.1
87	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-21.7	1.00E+00	-3.1
88	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-21.7	1.00E+00	-3.1
89	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-21.7	1.00E+00	-3.1
90	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-21.7	1.00E+00	-3.1
91	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-21.7	1.00E+00	-3.1
92	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-21.7	1.00E+00	-3.1
93	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-21.7	1.00E+00	-3.1
94	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-21.7	1.00E+00	-3.1
95	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-21.7	1.00E+00	-3.1
96	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-21.7	1.00E+00	-3.1
97	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-21.7	1.00E+00	-3.1
98	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-21.7	1.00E+00	-3.1
99	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-21.7	1.00E+00	-3.1
100	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-21.7	1.00E+00	-3.1
101	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-21.7	1.00E+00	-3.1

Attachment 3
75-foot Waste Rock Model

Graph 3b: 75-foot waste rock model, waste rock-Muddy Creek Formation boundary
Concentration, mmol per m3



75 foot Waste Rock thickness simulation results from Hydrus

***** Program HYDRUS

Welcome to HYDRUS-1D

Date: 8.1.2025 Time: 16:36:30

Units: L = m , T = days , M = mmol

Time: 0.0000

Node [L]	Conc[1..NS] Depth [L]		Conc[1..NS] Depth [L]		Conc 600 d		Conc 1200 d		Conc 1800 d		Conc 2400 d		Observation Node, 75 ft Waste Rock	Conc 3000 d		Conc 3600 d		Conc 4200 d		Conc 5400 d		Conc 26788 d		Waste Rock Muddy Creek		Cover Waste Rock		
	Conc Initial, 75 ft Waste Rock	Depth	Conc Initial, 75 ft Waste Rock	Depth	Conc	Depth	Conc	Depth	Conc	Depth	Conc	Depth		Conc	Depth	Conc	Depth	Conc	Depth	Conc	Depth	Conc	Depth	Conc	Depth	Conc	Depth	Conc
84	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-31	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-128.65	1.00E+00	-26.35	1.00E+00	-3.1
85	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-31	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-130.2	1.00E+00	-26.35	1.00E+00	-3.1
86	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-31	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-131.75	1.00E+00	-26.35	1.00E+00	-3.1
87	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-31	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-133.3	1.00E+00	-26.35	1.00E+00	-3.1
88	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-31	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-134.85	1.00E+00	-26.35	1.00E+00	-3.1
89	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-31	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-136.4	1.00E+00	-26.35	1.00E+00	-3.1
90	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-31	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-137.95	1.00E+00	-26.35	1.00E+00	-3.1
91	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-31	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-139.5	1.00E+00	-26.35	1.00E+00	-3.1
92	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-31	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-141.05	1.00E+00	-26.35	1.00E+00	-3.1
93	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-31	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-142.6	1.00E+00	-26.35	1.00E+00	-3.1
94	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-31	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-144.15	1.00E+00	-26.35	1.00E+00	-3.1
95	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-31	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-145.7	1.00E+00	-26.35	1.00E+00	-3.1
96	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-31	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-147.25	1.00E+00	-26.35	1.00E+00	-3.1
97	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-31	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-148.8	1.00E+00	-26.35	1.00E+00	-3.1
98	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-31	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-150.35	1.00E+00	-26.35	1.00E+00	-3.1
99	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-31	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-151.9	1.00E+00	-26.35	1.00E+00	-3.1
100	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-31	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-153.45	1.00E+00	-26.35	1.00E+00	-3.1
101	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-31	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-155	1.00E+00	-26.35	1.00E+00	-3.1

75 foot Waste Rock Results for Memo Table