DE GREY MINING LTD

MEMO

TO: Sarah Thomas, Manager Environment
Jonathon Barker, Principal Environment Approvals

FROM: Shawan Dogramaci, Hydrogeology Manager

DATE: 10 March 2025

SUBJECT: Short Term Reinjection Trial

De Grey Mining Limited (De Grey) is proposing to develop the Hemi Gold Project (Hemi) located in the Pilbara Region of Western Australia, approximately 60 km south of Port Hedland in the Town of Port Hedland (Figure 2). The mine plan includes the development of 6 deposits (Aquila, Brolga, Crow, Diucon, Eagle, and Falcon).

The Proposal includes the reinjection of up to 100% of dewatering surplus to the same aquifer. The results of a short-term reinjection trial are summarised below in support of this.

1. Trial Design

Two 14-day reinjection trials were undertaken in October 2023; one trial involved pumping from HPB015 and injecting the water into reinjection bore HPB014 south of Hemi and was designed to investigate the hydraulic responses in the proposed reinjection borefield area.

The second trial involved pumping water from HPB008 (at Crow) and reinjecting into bore HPB018S at Diucon; this was done to investigate any changes to dissolved arsenic levels during pumping and reinjection, given groundwater previously pumped from HPB008 in 2021 had elevated arsenic levels (approximately 55 ug/L). Table 1 provides summary details of each trial.

The reinjection trials were restricted to a maximum volume of 50 ML, as this represents the limit to test-pumping volumes of bores under the terms of DWER-issued 26D Permits. The trials were undertaken between 29 September to 1 November 2023.

Table 1: Reinjection Trial Summary Details

Trial 1 – Supply Bore = HPB015, Reinjection Bore = HPB014. Bores 785 m apart			
Test Period	**Bore**	**Distance**	**Final Groundwater Level Change (m)[1]**
29 Sep 13:30 – 14 Oct 13:30	HPB015 (supply bore)	-	-3.75
15 days (21,600 min)	HMB073	14 m from HPB015	-1.42
Flow Rates	HMB057	11 m from HPB015	-0.60
42 – 30 L/sec	HMB007	1,457 m from HPB015	-0.03
3,629 – 2,592 kL/day	HPB014 (injection bore)	-	+17.61
Total Volume	HMB072	13 m from HPB104	+1.68
45,542 kL	HMB055	10 m from HPB014	+0.58

	HMB008	167 m from HPB014,	+0.62
	HMB028 S/D	268 m from HPB014, 535 m from HPB015	+0.36 / +0.36
	HMB027 S/D	1,930 m from HPB014	+0.08 / +0.12
	HMB036	2,070 m from HPB014	-0.03
Trial 2 – Supply Bore = HPB008, Reinjection Bore = HPB018S. Bores 1,902 m apart			
Test Period	**Bore**	**Distance**	**Final Groundwater Level Change**
18 Oct 16:05 – 1 Nov 16:05	HPB008 (supply bore)	-	-18.22
14 days (20,160 min)	HMB015	25 m from HPB008	-5.39
Flow Rates	HMB066	41 m from HPB008	-1.20
19.9 L/sec	HP018S (reinjection bore)	-	+2.49
1,723 kL/day	HMB059 S/D	25 m from HPB018S	+0.42 / +0.81
Total Volume	HPB018D	20 m from HPB018S	+0.73
24,118 kL	HMB053 S/D	306 m from HPB018S	+0.34 / +0.29

2. Results

2.1. HPB014 Reinjection Trial

Drawdown responses from the supply bore (HPB015) and adjacent monitoring bores (HMB057, HMB073) were analysed using Aqtesolv, which simulates variable pumping rates using the principle of superposition in time by treating variable discharge as a sequence of steps with a constant rate in each step. Figure 1 shows the pumping rates and drawdown responses, whilst individual solutions are included as Appendix 1. The drawdown trends in each bore show an increasing trend that commences after 1,000 minutes. In a conventional test, this trend would be interpreted as evidence of a lateral barrier boundary effect. However, for this test, such a barrier effect is not considered geologically likely and that the trend is related to an interference effect from the reinjection of water into HPB014 (located 785 m away) being most significant during the early to mid-time period when a semi-elastic response through the basal sand and gravel sequence would be more pronounced. Consequently, the Cooper-Jacob and Moench solutions using later time data are considered the most representative estimates for aquifer transmissivity (2450, 1511, 1907 m2/day).

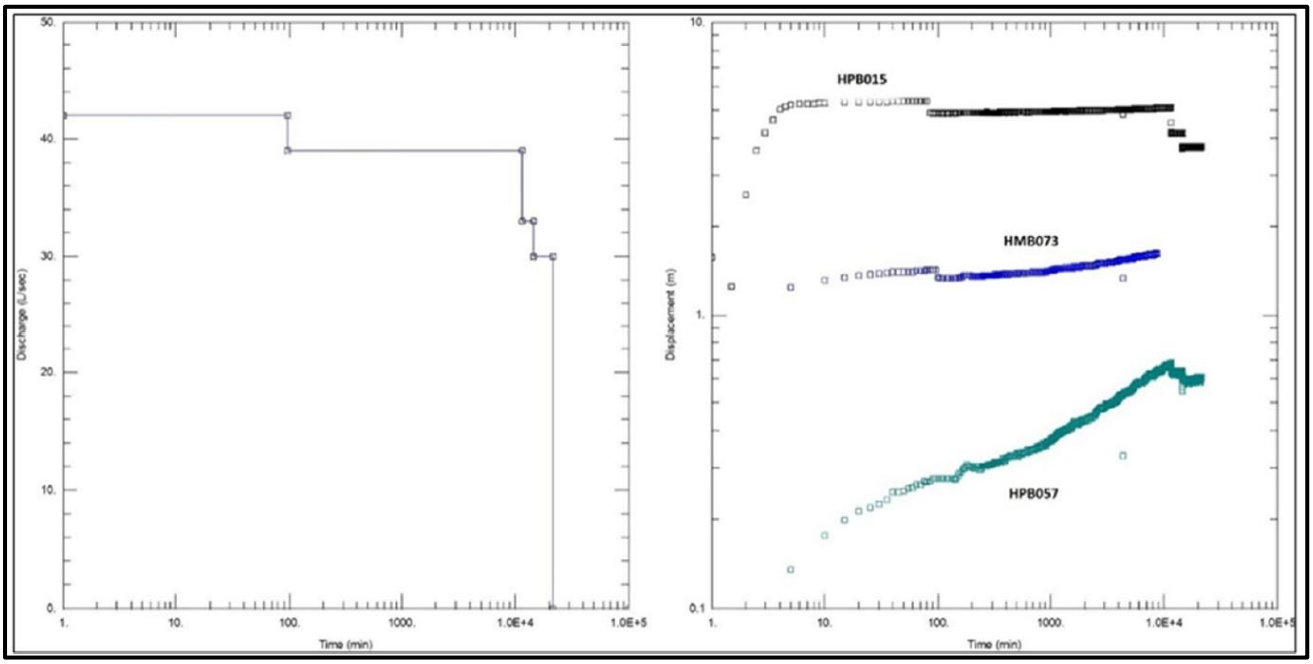


Figure 1: Drawdown Response from HPB015 (supply) and Adjacent Monitoring Bores

The MDP pump system was used to set and regulate the flow rates (the reinjection headworks also has the capacity to control flow rates using groundwater levels and water pressures). Warning and shutdown controls for the reinjection unit were set based on groundwater level rises in the nearby shallow monitoring bore HMB055 (trigger levels set between 1.5 – 2.0 m below ground). Bores listed below were used to collect various monitoring data during the reinjection trial:

- Groundwater levels in HPB015, HMB057, HMB073, HMB055, HMB072, HMB007, HMB008, HMB036, HMB027S/D, HMB028S/D.
- Flow rates recorded by MDP at HPB015 and by the reinjection unit.
- Water pressures in layflat line, reinjection headworks and within the sealed HPB014 casing (near surface).
- Groundwater temperature, EC, pH, dissolved oxygen (DO), oxidation-reduction potential (ORP) in HPB015, HMB072, HMB073.

Commissioning of the reinjection system at HPB014 was completed on the morning of 29 September and continuous reinjection for the trial commenced at 1:30 pm on the same day and ended at 1:30 pm on 14 October. The initial flow rate was set at 42 L/sec to ensure an artesian pressure head developed at the bore collar so that the integrity of the annular bore seal could be evaluated. Flow rates were decreased to 39, 33 and 30 L/sec during the 15-day trial to limit the artesian pressure build up at the bore collar to less than 10 m pressure head.

Figures 7-9 and 7-10 show the groundwater level responses measured during the reinjection trial, with the following observations made:

- The groundwater level inside HPB014 rose quickly (from 7.0 m below ground) to become an artesian pressure head at the bore collar within the first minute of reinjection, then rose relatively slowly until around 1,000 minutes. After this time, the pressure head rose at rates between 0.4 – 1.0 m/day for the remainder of the trial.
- Groundwater levels in nearby HMB072 (screened and isolated within the basal alluvial sequence) rose by 2.2 m after one week and then reduced and reached a steady state (after flow rates were lowered from 39 to 30 L/sec) of 1.7 m mounding in the second half of the trial. The limited

mounding reflects the very high permeability of the aquifer, and the steady state condition reflects the upwards leakage into the shallower aquifer zones and the consequential rise of the water table.

- Groundwater levels in nearby HMB055 (screened 2 – 9 m below the water table) rose to 0.7 m after one week and then declined and stabilised in the second week of lower flows to about 0.6 m. Despite being a similar distance from the reinjection bore as HMB072, the reduced mounding in HMB055 reflects differences in the screened intervals of the monitoring bores and the unconfined nature and response of the shallow alluvium in comparison to the slightly confined, elastic response of the basal alluvium.
- Minor but significant groundwater mounding was observed in more distant monitoring bores screened within the main palaeochannel aquifer, highlighting the high permeability of the aquifer. Groundwater levels in HMB008 (167 m from HPB014) stabilised in the second week with a 0.65 m rise. In HMB028 (268 m away), groundwater levels in both the shallow and deep alluvium piezometers stabilised in the second week at about 0.35 m rise. Groundwater levels in the deep piezometer were initially about 0.1 m higher than the shallow piezometer but gradually equalized during the trial. This most likely reflects the initial weakly elastic storage response in the deeper (reinjection zone) alluvium and the gradual vertical leakage effect of water up into the shallowest parts of the alluvial aquifer. A small rise response was observed in the HMB027 piezometers located 1,930 m from HPB014. Non-vented logger data indicates a rise of about 0.2 m, whilst manual check readings indicate a lower rise (0.08 – 0.12 m). The small rise may be at least partly due to natural fluctuations.
- No discernible mounding was observed in alluvial monitoring bore HMB036, located 2,070 m to the east. This lack of response was expected, given the distance involved and the fact the bore is outside of the main palaeochannel aquifer zone.
- The monitoring bore responses suggest that reinjection at HPB014 would have had a small overlapping interference effect near the supply bore (HPB015, located 785 m north), however, this effect would have been overshadowed by the pumping response.

The native groundwater quality at HPB014 and HPB015 is effectively identical. During the trial, there was little to no observed changes to dissolved oxygen levels or pH of the reinjected water. This was as expected, given the pump position and limited drawdown in HPB015, the direct piping of water to the reinjection unit, and the ‘release’ of injected water at 15 m below ground in HPB014, limiting the potential for introduction of dissolved oxygen into the water stream.

The groundwater level responses in HMB0055, HMB072 and HMB008 were analysed with Aqtesolv software in the same manner as a conventional pumping-drawdown. Individual solutions are included in Appendix 1The various solutions indicate transmissivities in the range of 987 – 5,350 m2/d and specific yields of the order of 0.02 – 0.04. The Hantush-Jacob leaky solution for HMB072 and the Moench unconfined solution for HMB055 are considered the most appropriate solutions for the hydrogeological settings in each bore; these produce estimates for T = 1,245 – 3,418 m2/day, S = 6.9E-5 and Sy = 0.04.

Twenty days after the reinjection trial concluded, a step-rate test was completed by MDP on 4 November using the same flow rates and pumping durations used in the pre-trial step test conducted on 18 August 2023. This was done to make a ‘before and after’ comparison of bore performance and hydraulics. Figure 7-11 shows the raw and processed data for the two tests, which indicate:

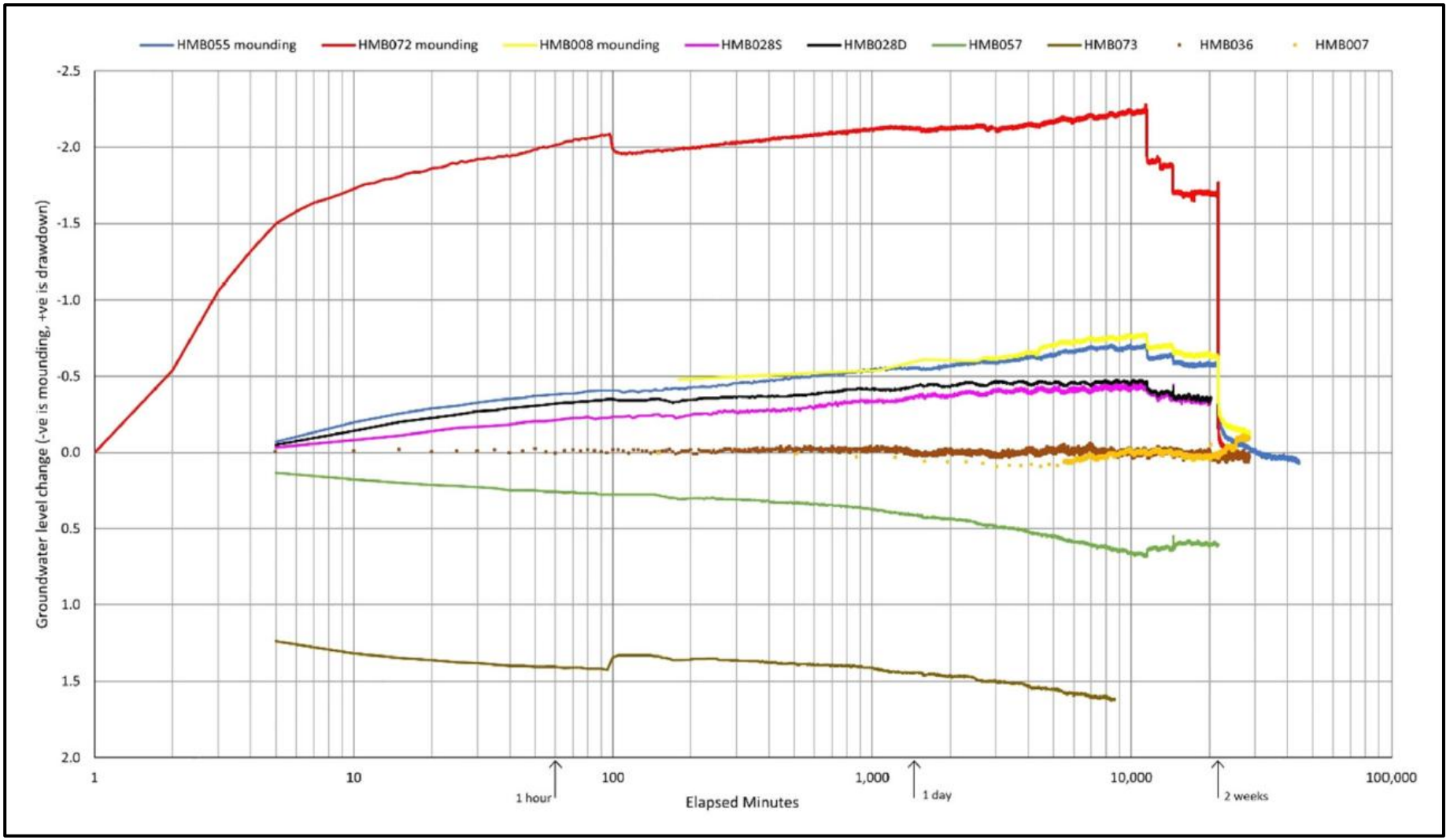


Figure 2: HPB014 Reinjection Trial – Groundwater Level Responses

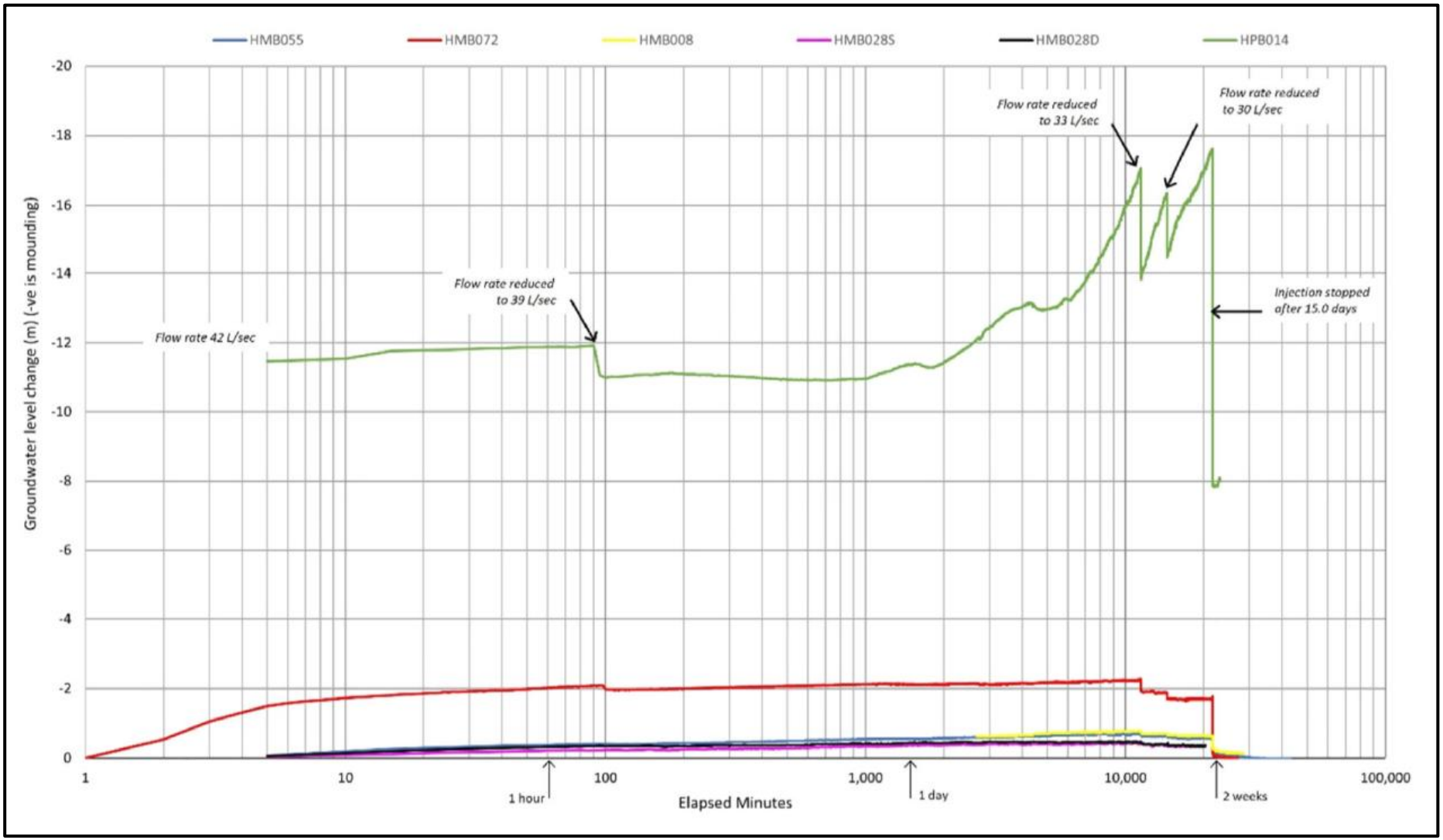


Figure 3: HPB014 Reinjection Trial – Mounding Levels

Twenty days after the reinjection trial concluded, a step-rate test was completed by MDP on 4 November using the same flow rates and pumping durations used in the pre-trial step test conducted on 18 August 2023. This was done to make a 'before and after' comparison of bore performance and hydraulics. Figure 7-11 shows the raw and processed data for the two tests, which indicate:

- Drawdown amounts in the after test increased by between 40 – 50% compared to the before test.
- The non-linear component of drawdown in the after test almost doubled compared to the before test.
- The ratio of linear to non-linear drawdown components declined only slightly in the after test.
- There is a slight recovery trend in the fourth step of the after test which is due minor mechanical movement (development) of the near aquifer material during the fourth stage of the step test.

The increasing bore pressure trend during the trial and the deterioration of hydraulic performance evidenced by the step tests suggests a form of clogging has occurred during the trial. A down-hole camera survey, and careful assessment of the available water quality data is required to determine the type and nature of any clogging. However, based on the groundwater level responses and known in-situ geology, Geowater considers it possible that the reinjection has resulted in an adverse re-development of the bore annulus and nearby aquifer material. The screened intervals include some finer grained silty interbeds within the basal sands and gravels, as only six-metre wire wound screens were available, and no extra PVC-screen couplings were available at the time of bore construction. The silty layers may have released sufficient fines to partly clog the near-bore porosity. The inside of the bore casing was tagged with a weighted line in December 2023 and there was no significant amount of fines detectable in the base of the casing in comparison to the pre-trial tagged depth. If a camera survey indicates no obvious clogging of the wire wound screens, it is recommended that the bore be re-developed, and an additional step-rate test performed when suitable providers are next on site.

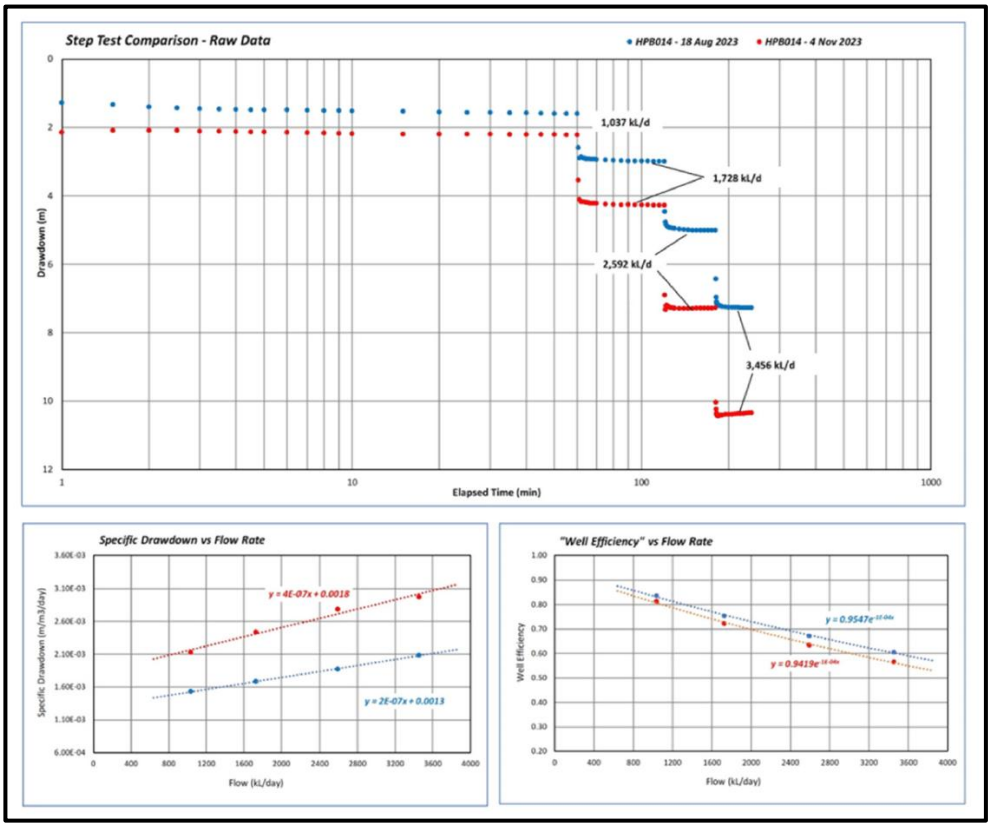


Figure 4: HPB014 Step Drawdown Test Results Before and After Reinjection Trial

2.2. HBP018S Rejection Trial

The supply bore (HPB008) is screened within alluvium and was pumped at a constant rate of 19.9 L/sec for fourteen days to provide water for reinjection into HPB018S. The bore was previously test-pumped in 2021 for 3 days at 16.0 L/sec and an aquifer transmissivity of 250 m2/day and storativity of 4.00E-4 was assigned (Geowater, 2022). Figure 5 shows the drawdown response in HPB008 and the nearest alluvial monitoring bores HMB015 and HMB024S, whilst individual solutions are included in Appendix 1.

The 2023 pumping analyses indicate Cooper-Jacob solutions for HPB008 transmissivity of about 550 m2/d, whilst a Moench unconfined aquifer solution indicates a significantly lower T of 119 m2/day. The nearby alluvial monitoring bore HMB015 response suggests a delayed yield and second Theis curve fit that an unconfined aquifer should theoretically display, with T values of 191, 331 and 370 m2/day. However, the Moench solution has a specific yield value of 0.0027, which is not considered realistic. The more distant alluvial monitoring bore HMB024S (located 337 m away) shows a delayed but significant response, recording about 0.45 m drawdown after 14 days of pumping. A Moench unconfined solution to this response indicates a T of 395 m2/day and a specific yield of 0.03.

The focus of this reinjection trial was to observe any changes in water quality between the supply and reinjection bore areas, notably regarding dissolved arsenic levels. A water sample taken from HPB008 at the end of a three-day pumping test in October 2021 recorded 59 µg/L dissolved arsenic, whilst a sample collected by Hydrasleeve bailer from the adjacent alluvial monitoring bore HMB015 in November 2022 recorded 40 µg/L. Test pumping of the main palaeochannel aquifer screened in HPB018S in September 2023 provided water samples that recorded 7.1 – 7.8 µg/L.

Continuous reinjection commenced on 18 October and continued for 14 days at a constant flow rate of 19.9 L/sec. At the conclusion of the trial, the reinjection unit and FRP riser were left installed at the HPB018S pad.

Given the supply bore was operating at its maximum likely yield, and that HPB018S was pump-tested at 41.5 L/sec for two days for a final drawdown of 3.3 m, artesian pressures were not developed in HPB018S during the reinjection trial. Twelve-hourly manual readings show that the groundwater level rose about 2.5 m inside HPB018S by the end of the trial.

The groundwater level response in the nearby alluvial bore HMB059 has been analysed in Aqtesolv to compare with hydraulic parameters estimated from the two-day pumping test done in September. The individual solutions are included in Appendix 1 The monitor bore displays a strong delayed yield and 2nd Theis curve fit characteristic of an unconfined aquifer response, with the Moench solution indicating a transmissivity = 1,025 m2/day, storativity of 5.2E-3 and specific yield = 0.031. The early time Theis solution has a lower T (782 m2/day) but is not considered representative. The corresponding Moench solution for the September two-day pumping test of HPB018S indicated a higher T (1,572 m2/day).The injection trial results are considered more accurate due to the longer pumping time and the better fit to an unconfined conceptual model.

Groundwater samples from HPB008 and HPB059S were collected every few days during the trial and analysed by ALS Laboratories. Dissolved arsenic levels in HPB008 remained very consistent (about 55 µg/L) during the trial, whilst water samples collected in HMB059S (screened in the palaeochannel aquifer 25 m to the north northeast of HPB018S) remained unchanged from their ambient, pre-test levels (7 – 8 µg/L) throughout the trial. The lack of change in arsenic levels in HMB059S is most likely related to the effects of mixing and solute flow paths. Field assessment of dissolved arsenic behaviour would require longer term trials, dedicated monitoring bore locations, and in-situ sampling methods.

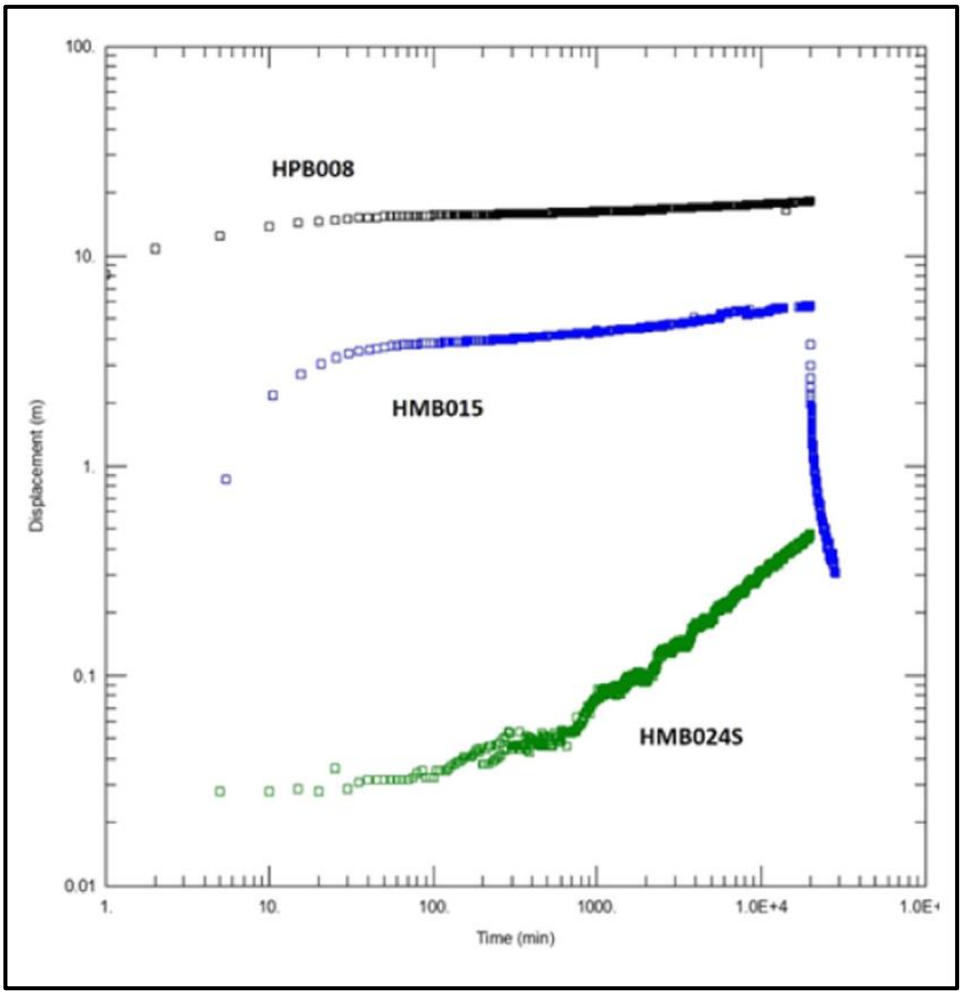
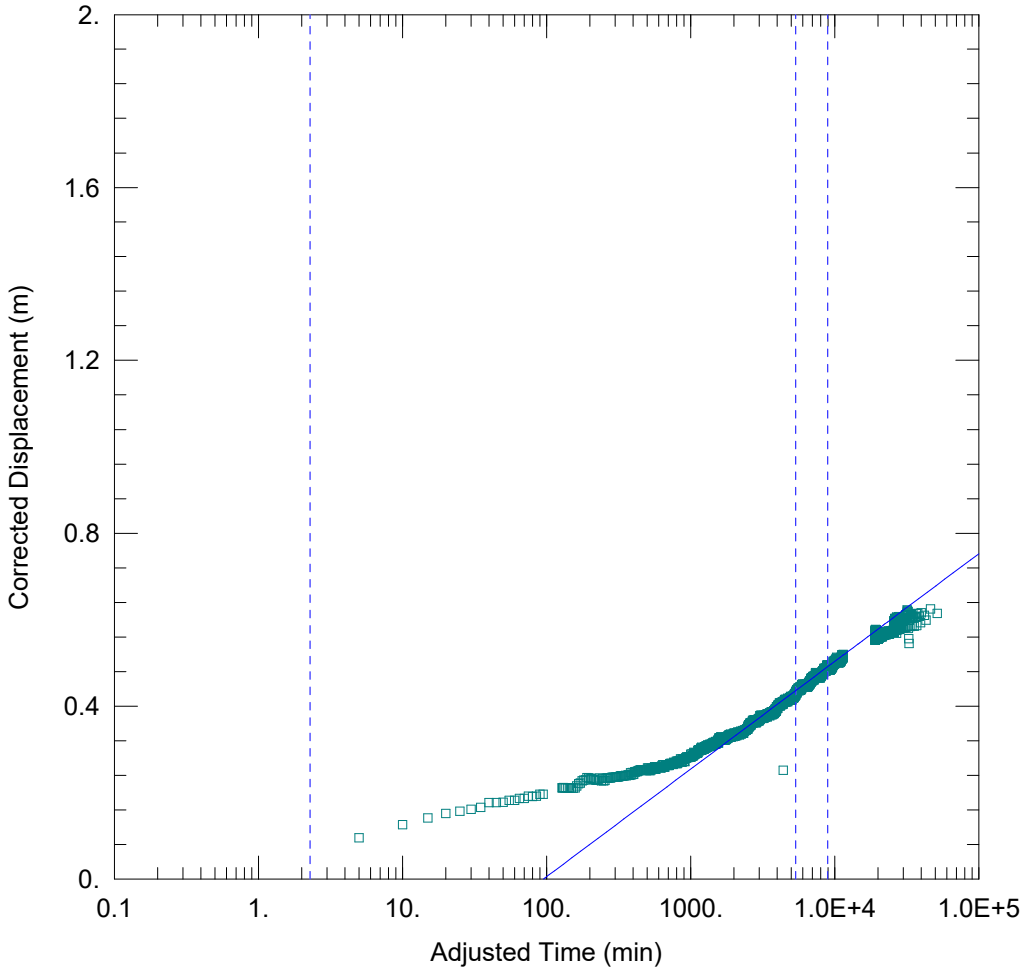


Figure 5: Drawdown Response from Supply Bore HPB008 and Alluvial Monitoring Bores

APPENDIX 1 – Aqtesolv Reinjection Trial Analysis



HPB015 VRT

Data Set: C:\...\HPB015 VRT.aqt
Date: 01/05/24 Time: 16:04:35

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

AQUIFER DATA

Saturated Thickness: 36. m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB015	648146.18	7688888.44

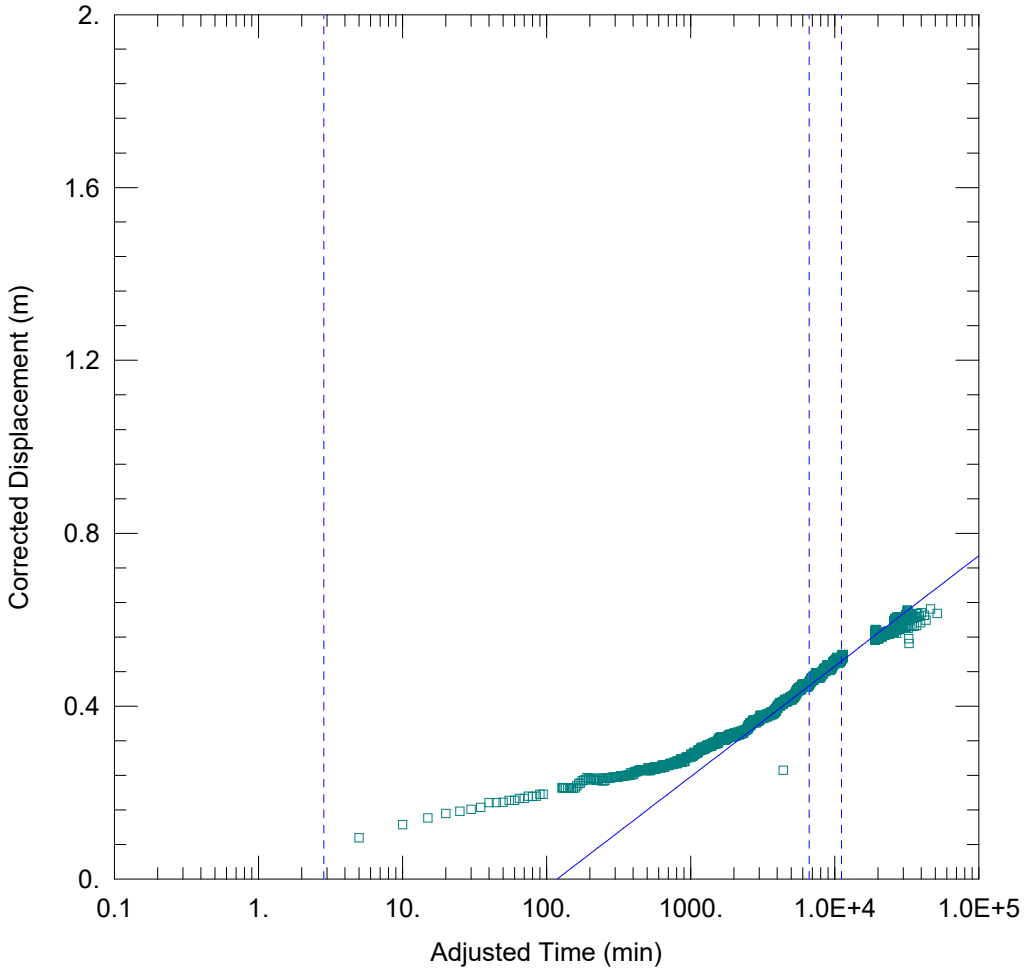
Observation Wells

Well Name	X (m)	Y (m)
HMB057	648147.93	7688898.94

SOLUTION

Aquifer Model: Unconfined Solution Method: Cooper-Jacob

T = 1907.3 m^2/day S = 2.505



HPB015 VRT

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PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

AQUIFER DATA

Saturated Thickness: 36. m Anisotropy Ratio (Kz/Kr): 0.001

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB015	648146.18	7688888.44

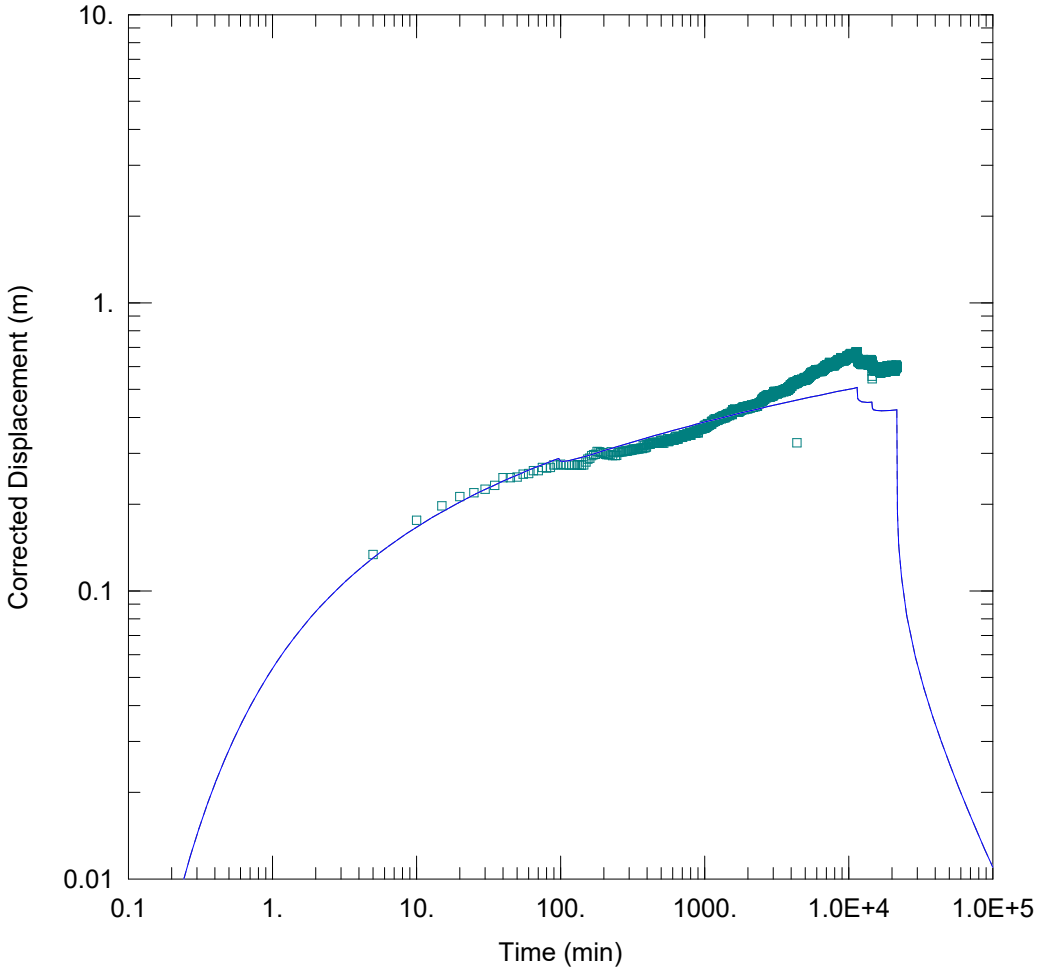
Observation Wells

Well Name	X (m)	Y (m)
HMB057	648147.93	7688898.94

SOLUTION

Aquifer Model: Unconfined Solution Method: Cooper-Jacob

T = 1858.8 m^2/day S = 3.037



HPB015 VRT

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Date: 01/05/24 Time: 16:02:08

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB015	648146.18	7688888.44

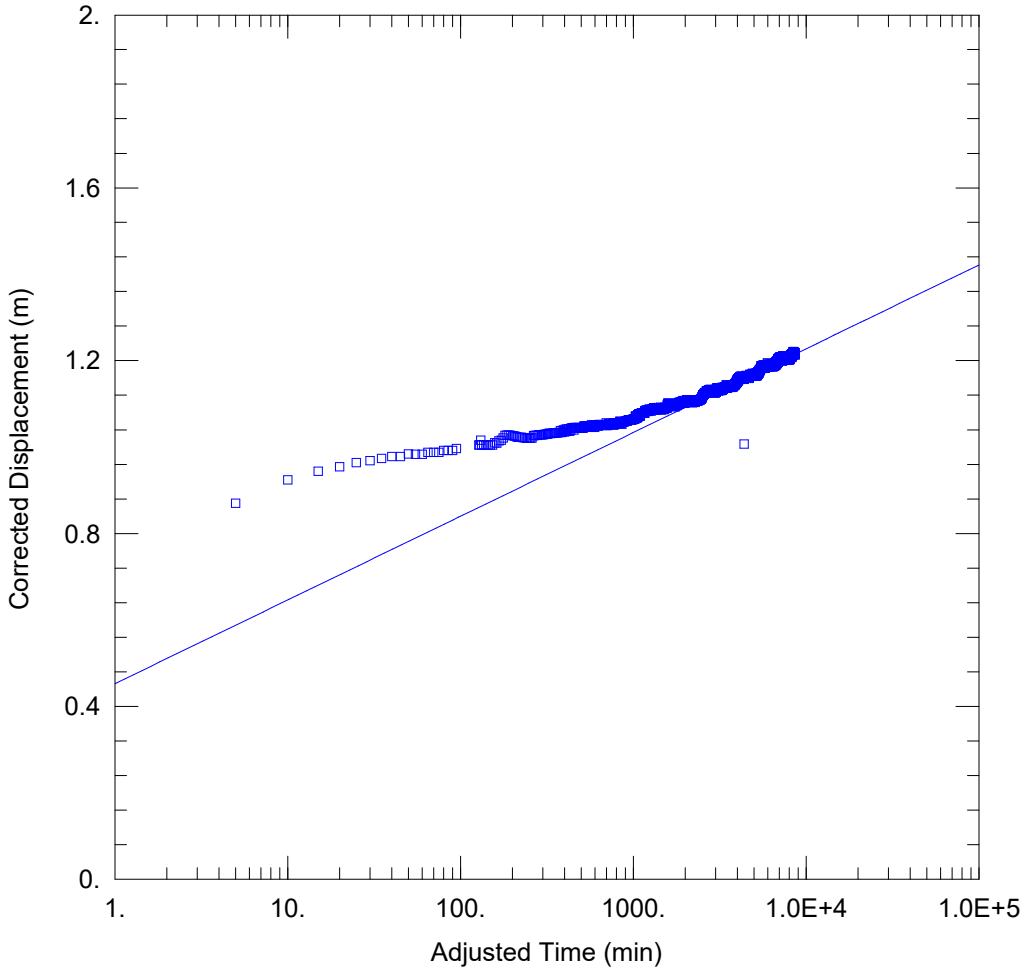
Observation Wells

Well Name	X (m)	Y (m)
HMB057	648147.93	7688898.94

SOLUTION

Aquifer Model: Unconfined
Solution Method: Theis

T = 5328.8 m^2/day
S = 0.03496
Kz/Kr = 0.1
b = 36. m



WELL TEST ANALYSIS

Data Set: C:\...\HPB015 VRT.aqt
Date: 01/05/24 Time: 15:36:29

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

AQUIFER DATA

Saturated Thickness: 36. m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB015	648146.18	7688888.44

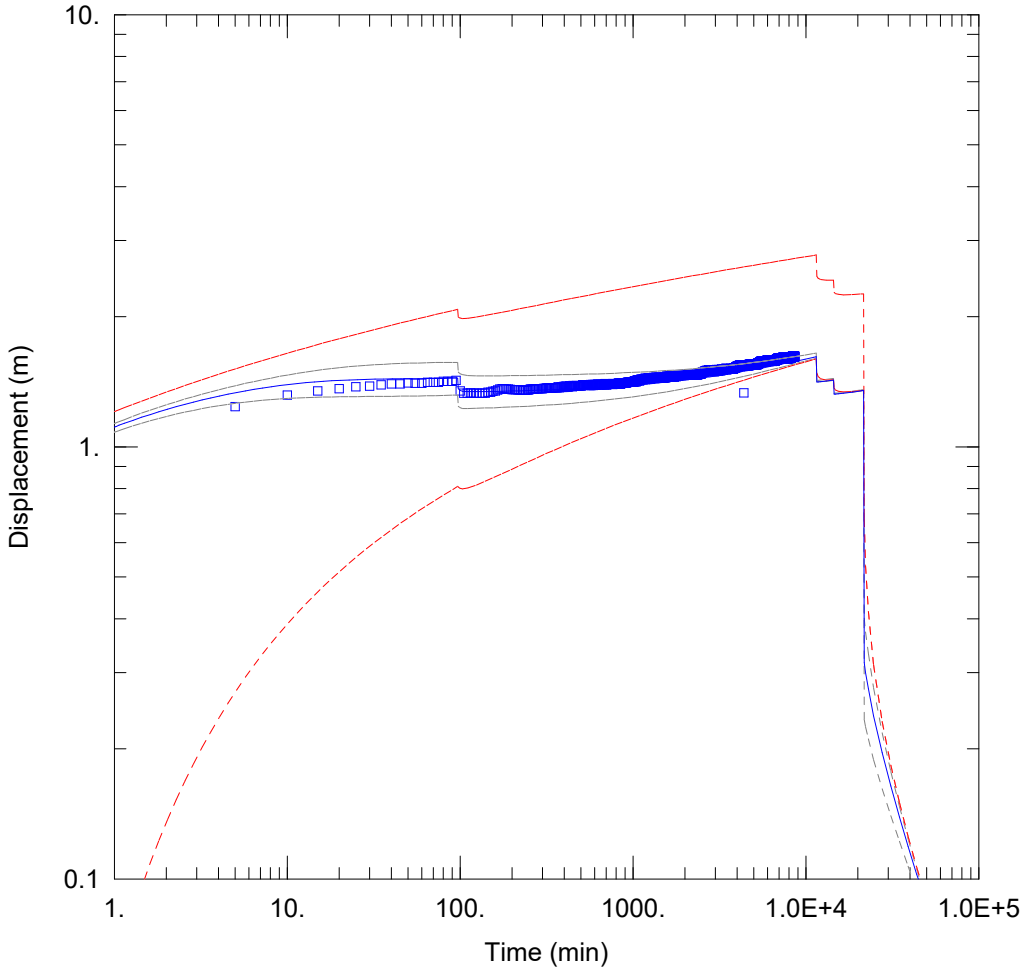
Observation Wells

Well Name	X (m)	Y (m)
HPB073	648159.39	7688892.35

SOLUTION

Aquifer Model: Unconfined Solution Method: Cooper-Jacob

T = 2450.5 m^2/day S = 9.345E-5



WELL TEST ANALYSIS

Data Set: C:\...\HPB015 VRT.aqt
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PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

AQUIFER DATA

Saturated Thickness: 36. m Anisotropy Ratio (Kz/Kr): 0.001

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB015	648146.18	7688888.44

Observation Wells

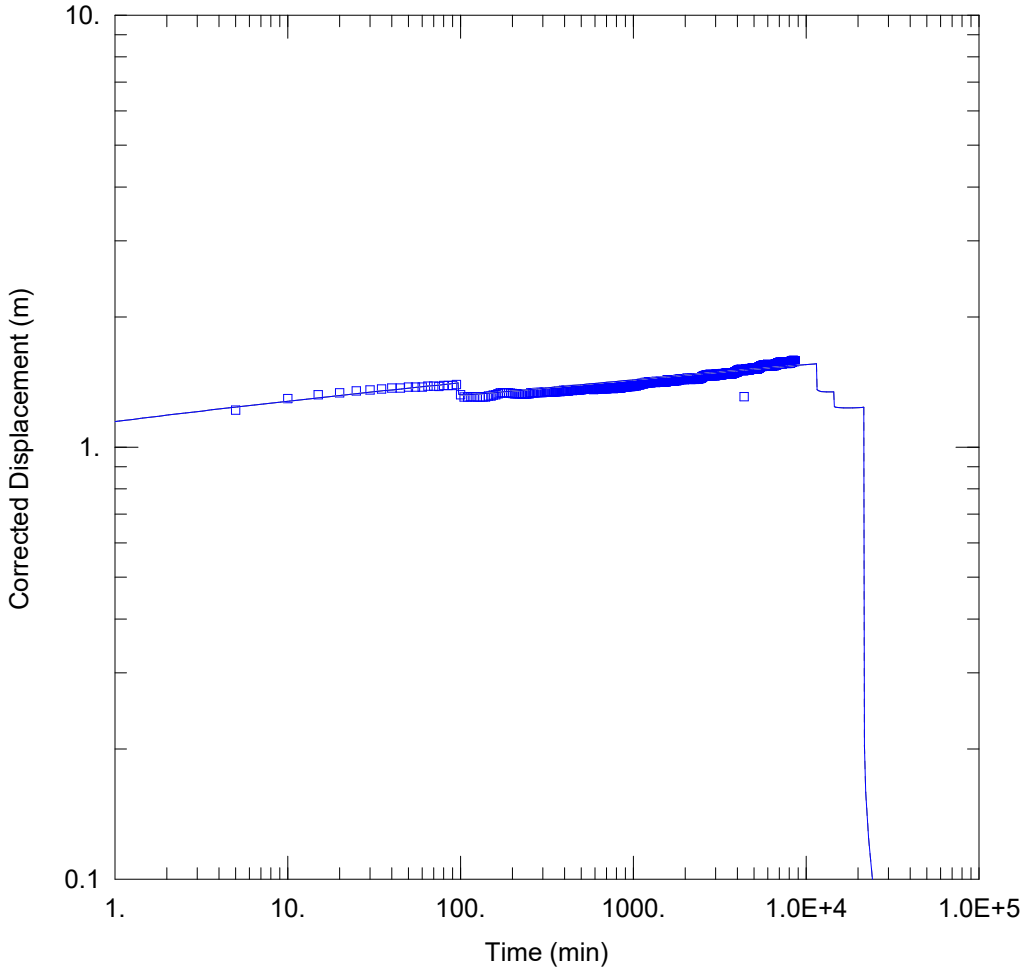
Well Name	X (m)	Y (m)
HPB073	648159.39	7688892.35

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 1511.4 m^2/day
Sy = 0.01755
Sw = 0.
r(c) = 0.15 m

S = 2.248E-5
Kz/Kr = 0.001
r(w) = 0.22 m
alpha = 100. min^{-1}



WELL TEST ANALYSIS

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PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB015	648146.18	7688888.44

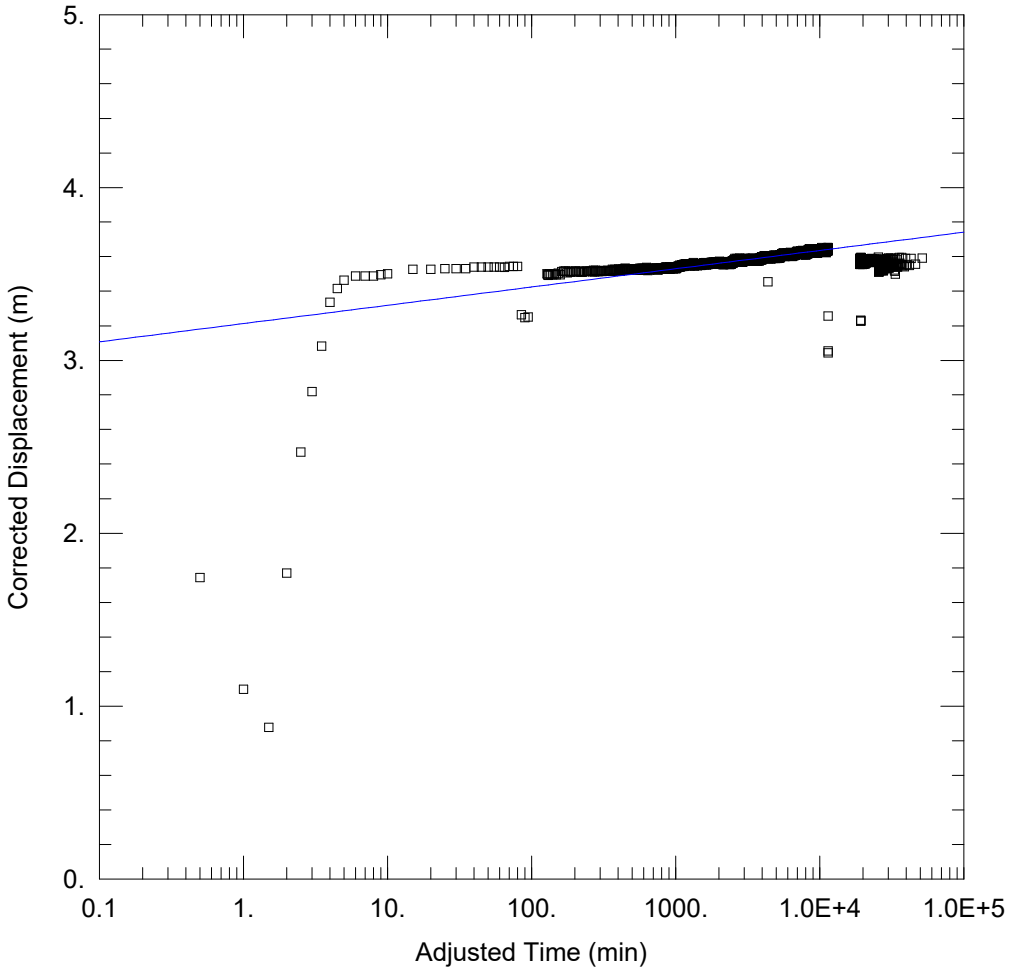
Observation Wells

Well Name	X (m)	Y (m)
HPB073	648159.39	7688892.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Theis

T = 5057.2 m^2/day
S = 8.054E-11
Kz/Kr = 0.1
b = 36. m



HPB015 VRT

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Date: 01/05/24 Time: 15:57:06

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

AQUIFER DATA

Saturated Thickness: 36. m Anisotropy Ratio (Kz/Kr): 0.001

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB015	648146.18	7688888.44

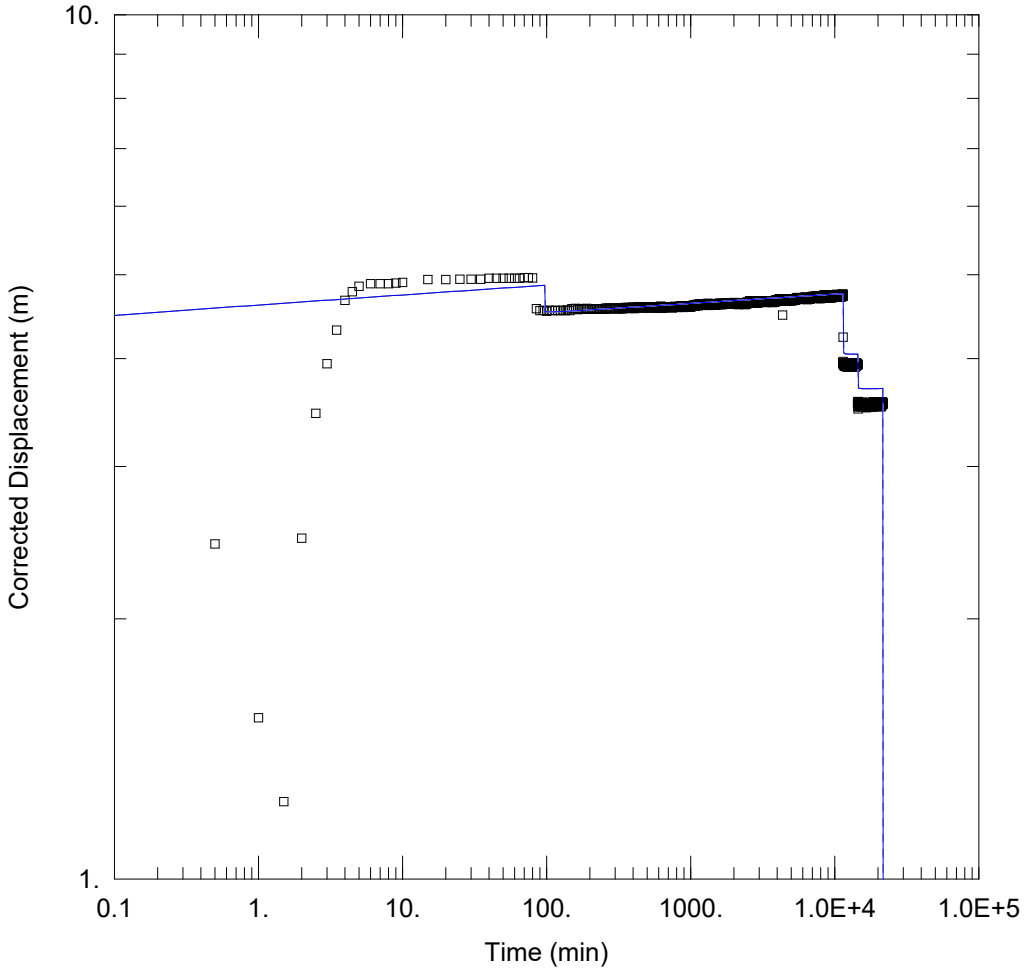
Observation Wells

Well Name	X (m)	Y (m)
HPB015	648146.18	7688888.44

SOLUTION

Aquifer Model: Unconfined Solution Method: Cooper-Jacob

T = 4493.2 m^2/day S = 5.832E-29



HPB015 VRT

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Date: 01/05/24 Time: 15:54:21

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB015	648146.18	7688888.44

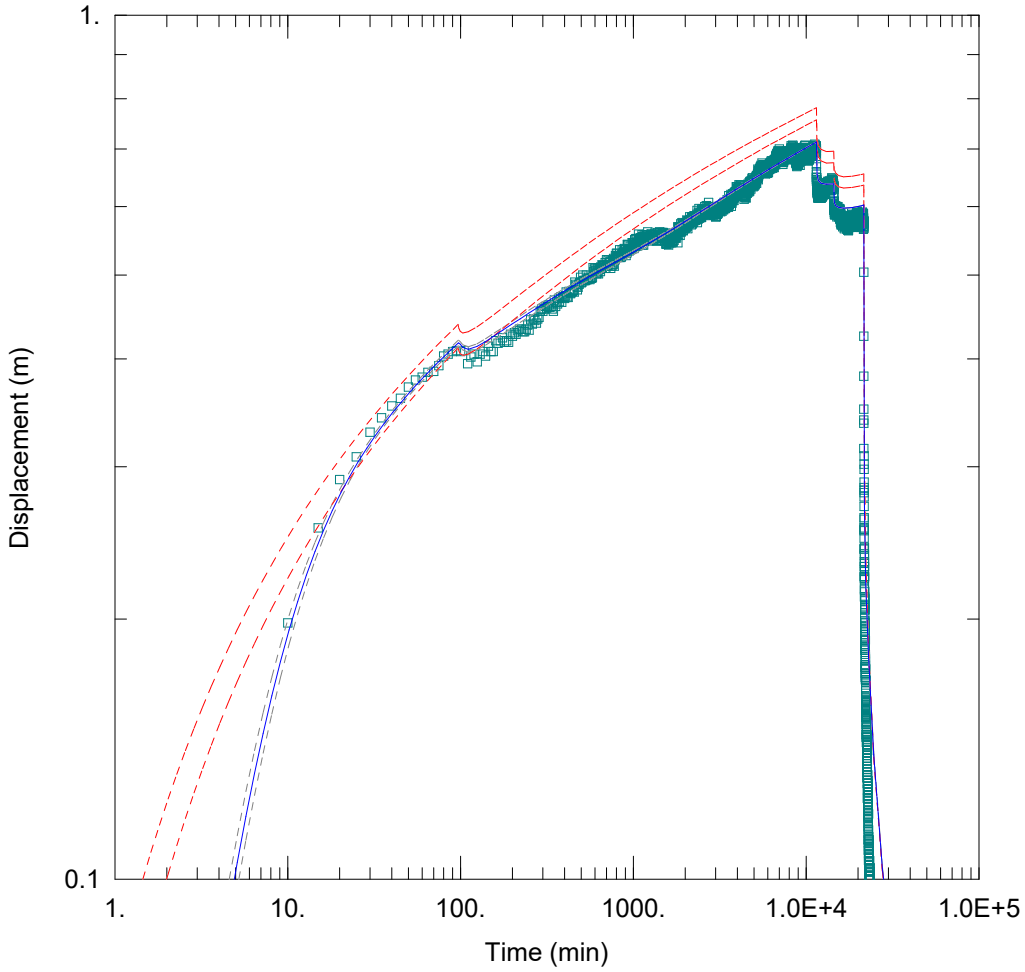
Observation Wells

Well Name	X (m)	Y (m)
HPB015	648146.18	7688888.44

SOLUTION

Aquifer Model: Unconfined
Solution Method: Theis

T = 5304.9 m^2/day
S = 2.667E-35
Kz/Kr = 0.001
b = 36. m



HPB014 REINJECTIOIN TRIAL

Data Set: C:\...\HPB014 VRRT.aqt
Date: 01/08/24 Time: 17:20:46

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

AQUIFER DATA

Saturated Thickness: 38. m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB014	648540.5	7688209.7

Observation Wells

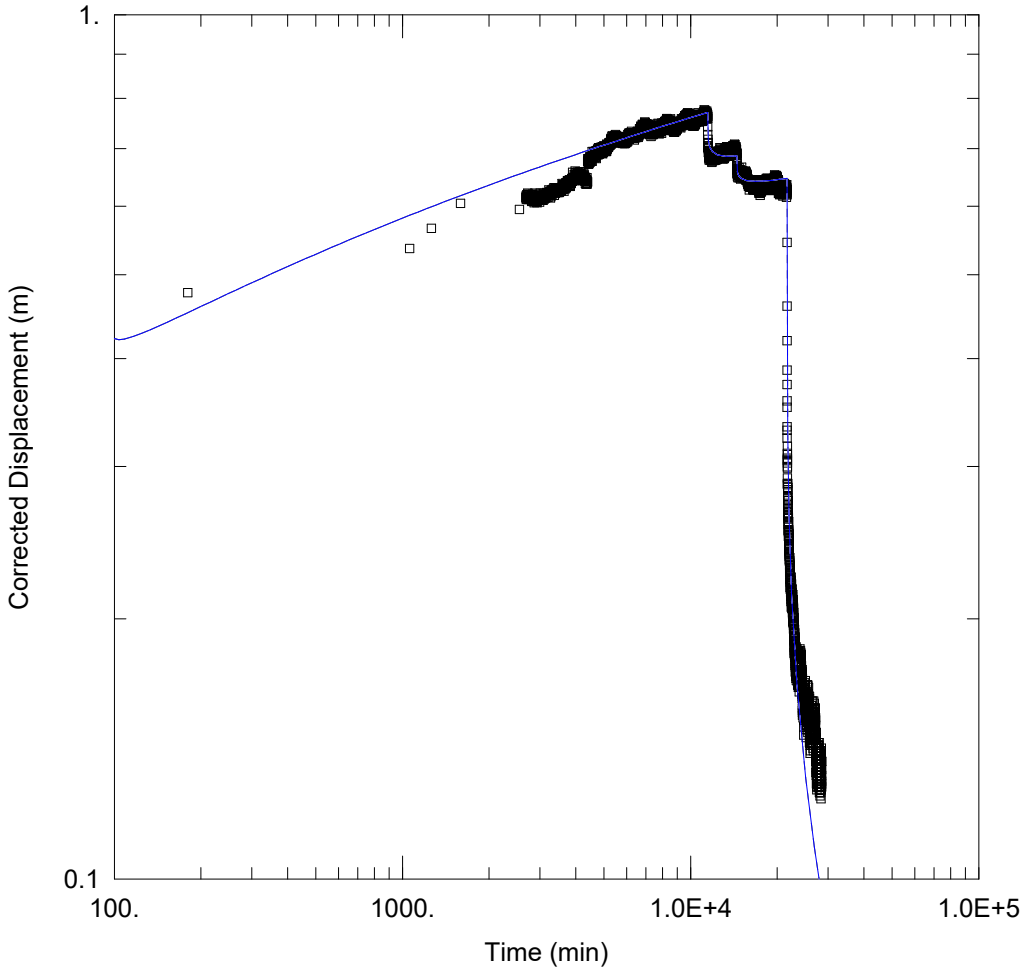
Well Name	X (m)	Y (m)
HMB055	648534.7	7688201.6

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 3418.6 m^2/day
Sy = 0.04
Sw = 0.
r(c) = 0.15 m

S = 0.02913
Kz/Kr = 0.1
r(w) = 0.22 m
alpha = 0.001 min^{-1}



HPB014 REINJECTIOIN TRIAL

Data Set: C:\...\HPB014 VRRT.aqt
Date: 01/08/24 Time: 17:28:31

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB014	648540.5	7688209.7

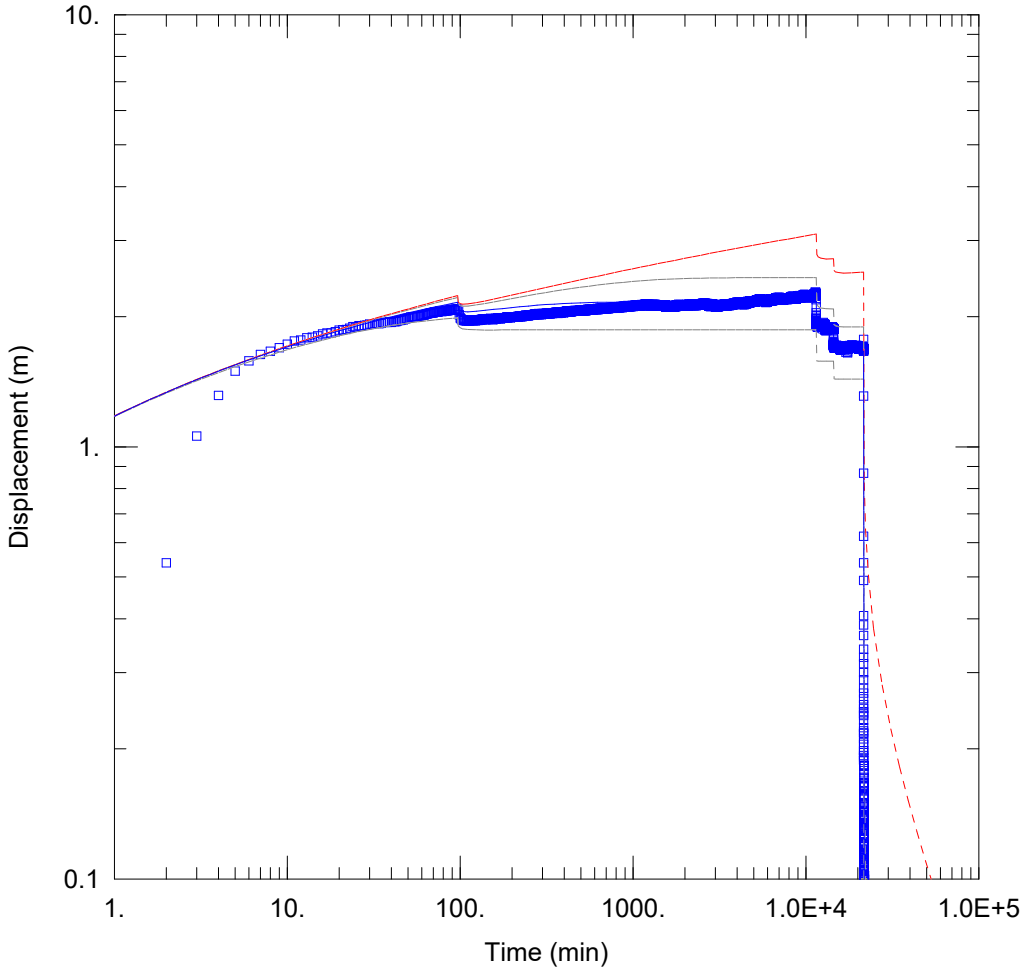
Observation Wells

Well Name	X (m)	Y (m)
HMB008	648534.8	7688043

SOLUTION

Aquifer Model: Unconfined
Solution Method: Theis

T = 3443.4 m^2/day
S = 0.0001112
Kz/Kr = 0.1
b = 38. m



HPB014 REINJECTIOIN TRIAL

Data Set: C:\...\HPB014 VRRT.aqt
Date: 01/08/24 Time: 15:58:55

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB014	648540.5	7688209.7

Observation Wells

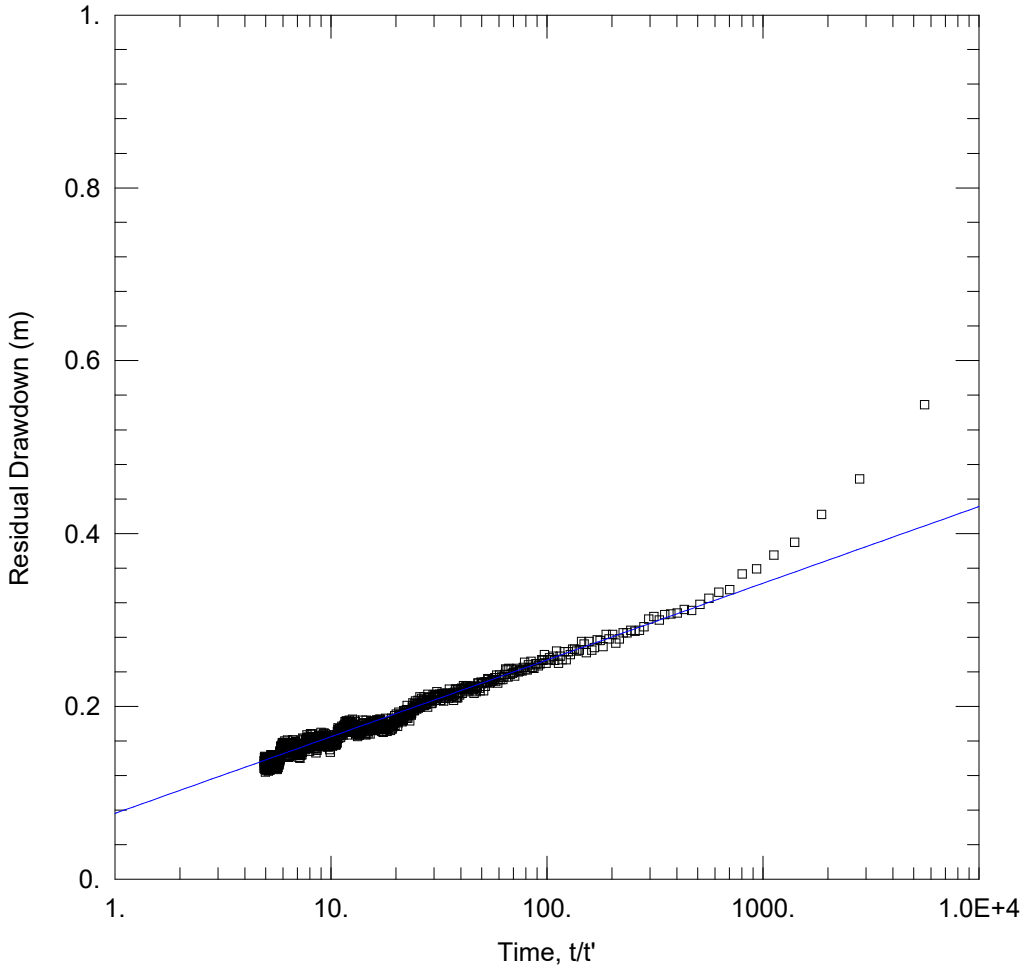
Well Name	X (m)	Y (m)
HPB072	648528.5	7688215.4

SOLUTION

Aquifer Model: Leaky
Solution Method: Hantush-Jacob

T = 1245.1 m^2/day
1/B = 0.0005559 m^{-1}
b = 38. m

S = 6.874E-5
Kz/Kr = 0.1



HPB014 REINJECTIOIN TRIAL

Data Set: C:\...\HPB014 VRRT.aqt
Date: 01/08/24 Time: 17:26:39

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

AQUIFER DATA

Saturated Thickness: 38. m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB014	648540.5	7688209.7

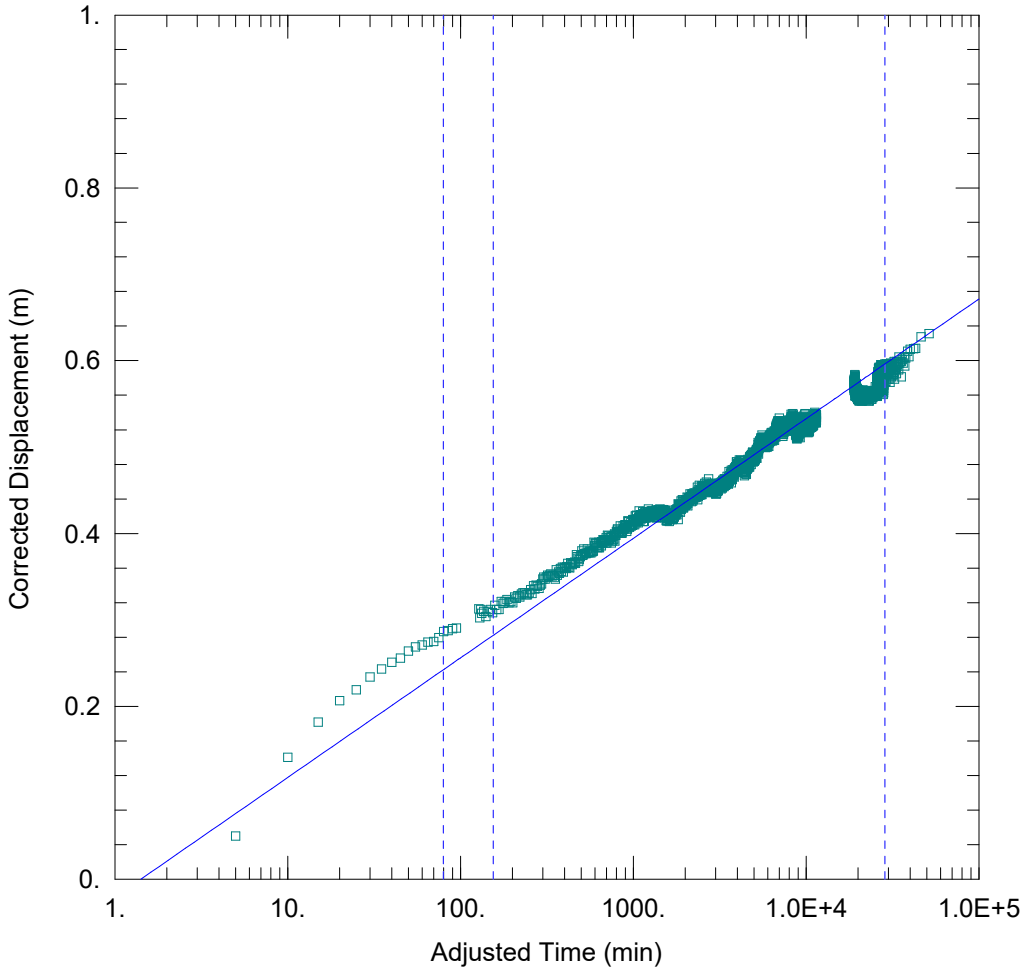
Observation Wells

Well Name	X (m)	Y (m)
HMB008	648534.8	7688043

SOLUTION

Aquifer Model: Confined Solution Method: Theis (Recovery)

T = 5349.9 m^2/day S/S' = 0.1395



HPB014 REINJECTIOIN TRIAL

Data Set: C:\...\HPB014 VRRT.aqt
Date: 01/08/24 Time: 17:07:54

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

AQUIFER DATA

Saturated Thickness: 38. m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB014	648540.5	7688209.7

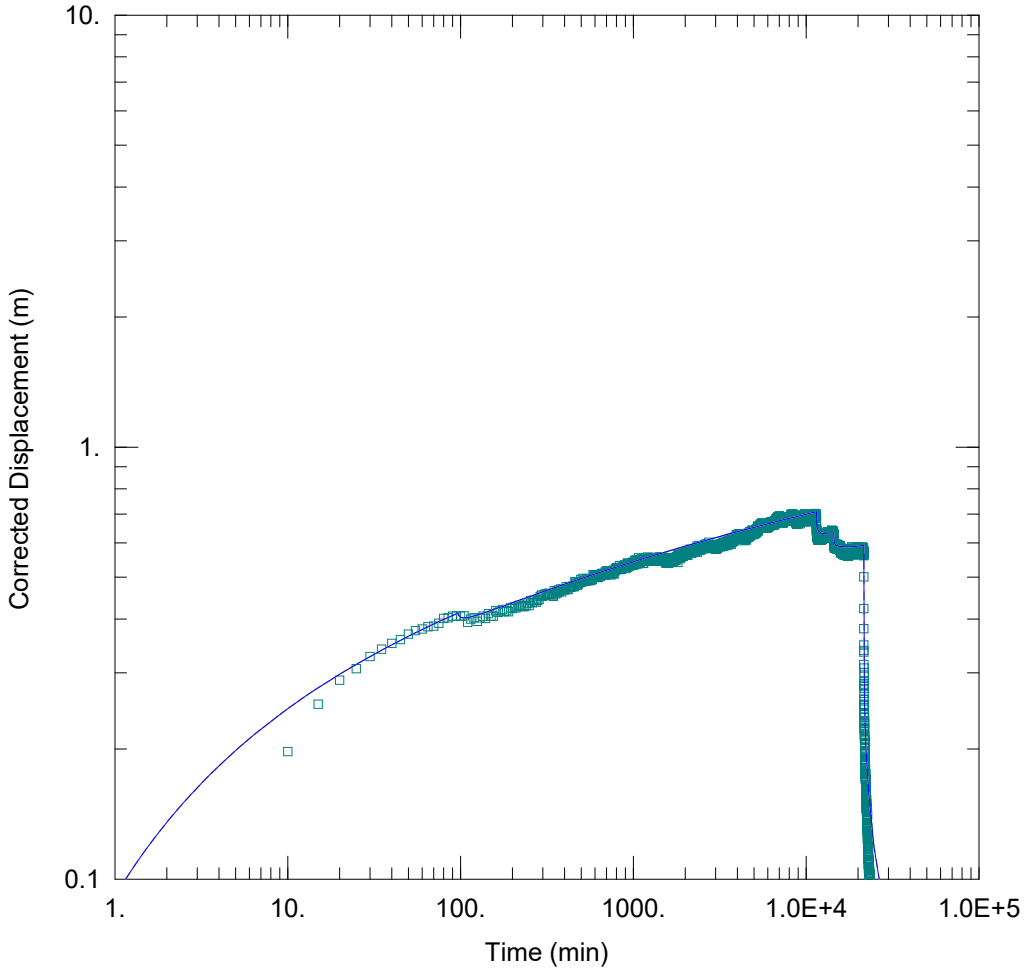
Observation Wells

Well Name	X (m)	Y (m)
HMB055	648534.7	7688201.6

SOLUTION

Aquifer Model: Unconfined Solution Method: Cooper-Jacob

T = 3430.7 m^2/day S = 0.07631



HPB014 REINJECTIOIN TRIAL

Data Set: C:\...\HPB014 VRRT.aqt
Date: 01/08/24 Time: 17:06:25

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB014	648540.5	7688209.7

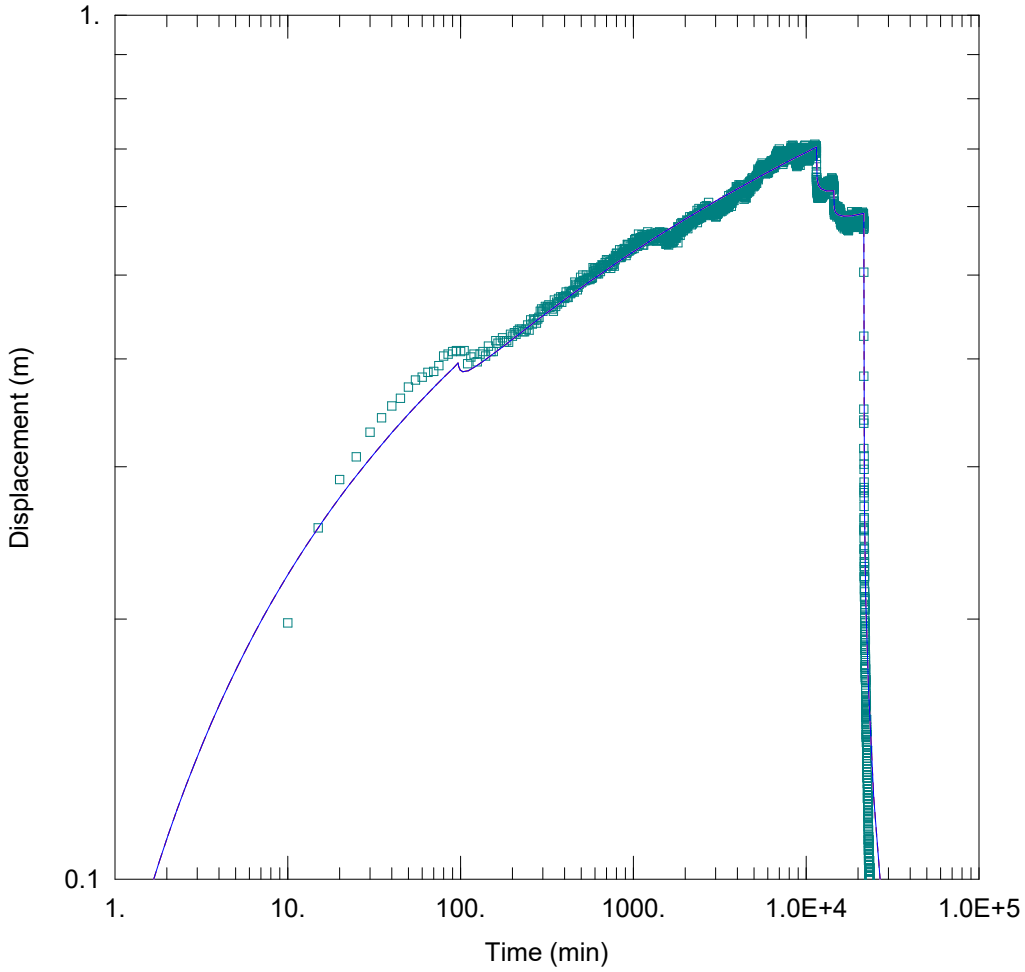
Observation Wells

Well Name	X (m)	Y (m)
HMB055	648534.7	7688201.6

SOLUTION

Aquifer Model: Unconfined
Solution Method: Theis

T = 3938.6 m^2/day
S = 0.02148
Kz/Kr = 0.1
b = 38. m



HPB014 REINJECTIOIN TRIAL

Data Set: C:\...\HPB014 VRRT.aqt
Date: 01/08/24 Time: 17:11:29

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB014	648540.5	7688209.7

Observation Wells

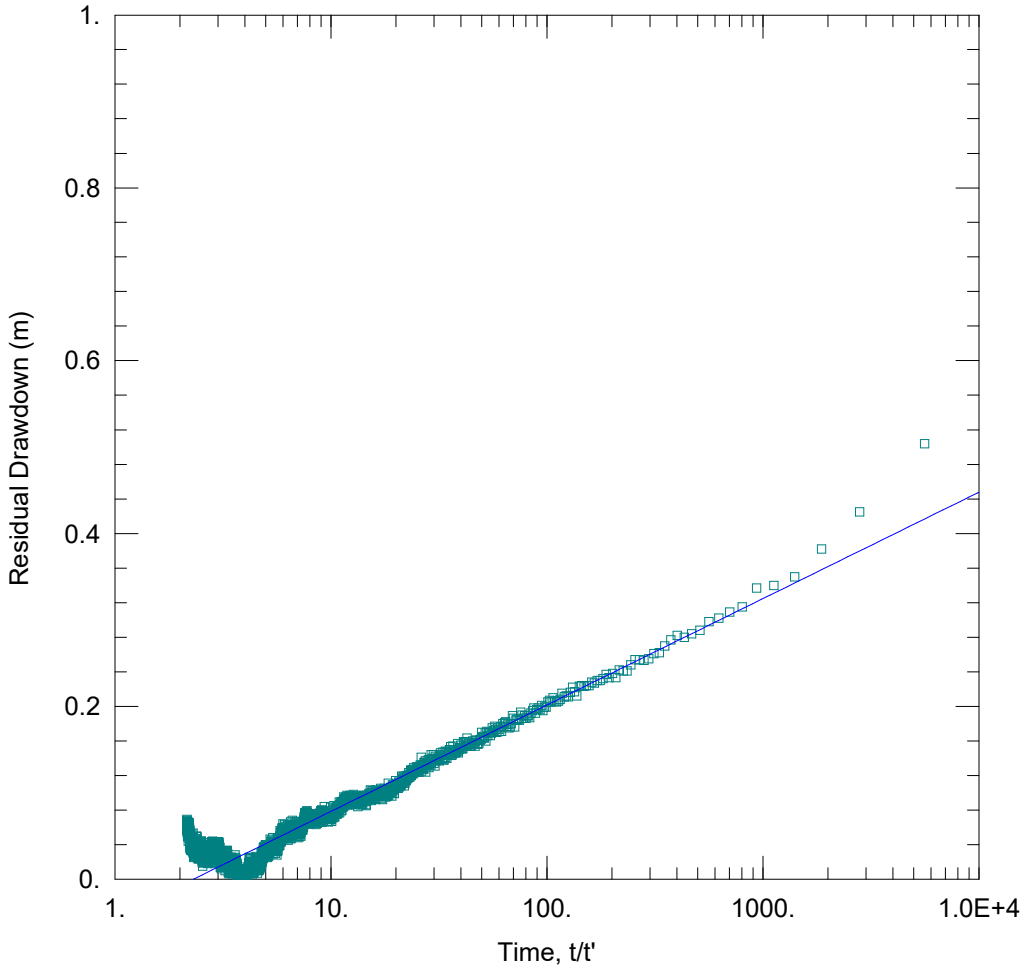
Well Name	X (m)	Y (m)
HMB055	648534.7	7688201.6

SOLUTION

Aquifer Model: Leaky
Solution Method: Hantush-Jacob

T = 3803.1 m^2/day
1/B = 3.362E-5 m^{-1}
b = 38. m

S = 0.03184
Kz/Kr = 0.1



HPB014 REINJECTIOIN TRIAL

Data Set: C:\...\HPB014 VRRT.aqt
Date: 01/08/24 Time: 17:21:42

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

AQUIFER DATA

Saturated Thickness: 38. m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB014	648540.5	7688209.7

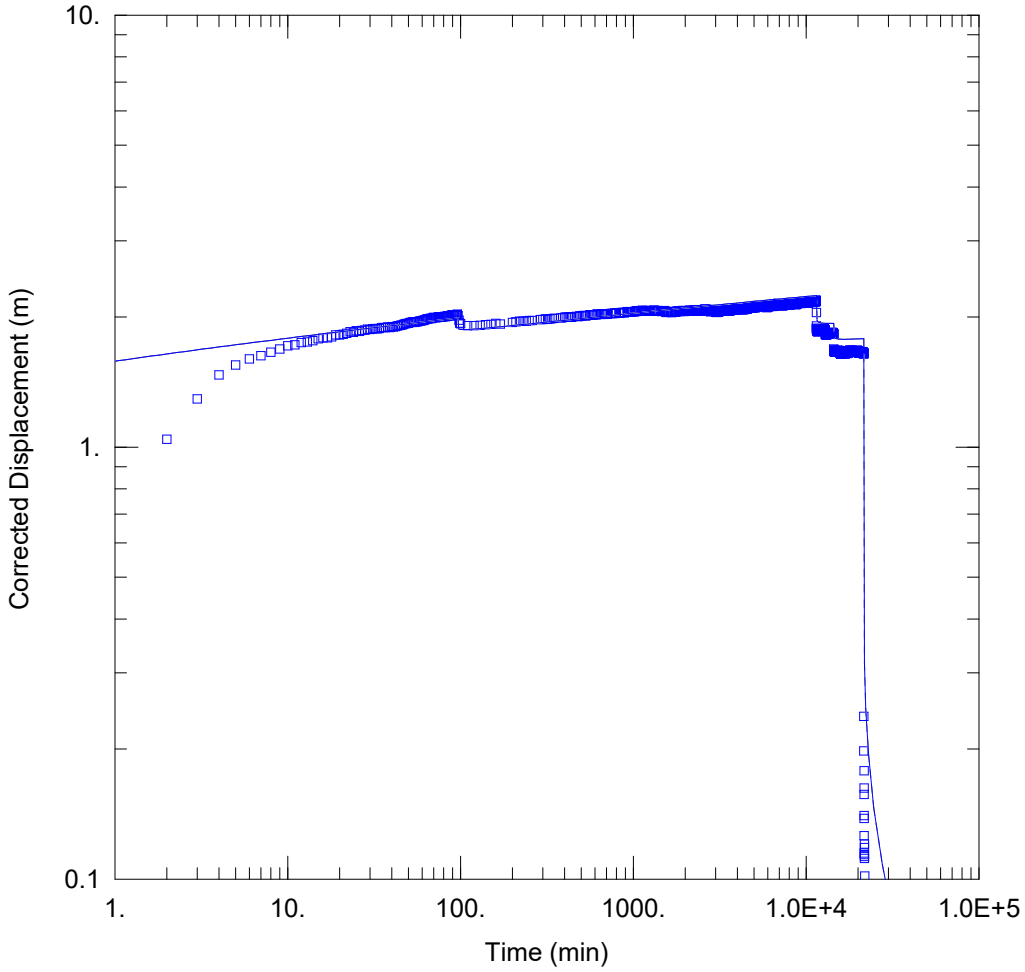
Observation Wells

Well Name	X (m)	Y (m)
HMB055	648534.7	7688201.6

SOLUTION

Aquifer Model: Confined Solution Method: Theis (Recovery)

T = 3857.2 m^2/day S/S' = 2.315



HPB014 REINJECTIOIN TRIAL

Data Set: C:\...\HPB014 VRRT.aqt
Date: 01/08/24 Time: 16:59:31

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB014	648540.5	7688209.7

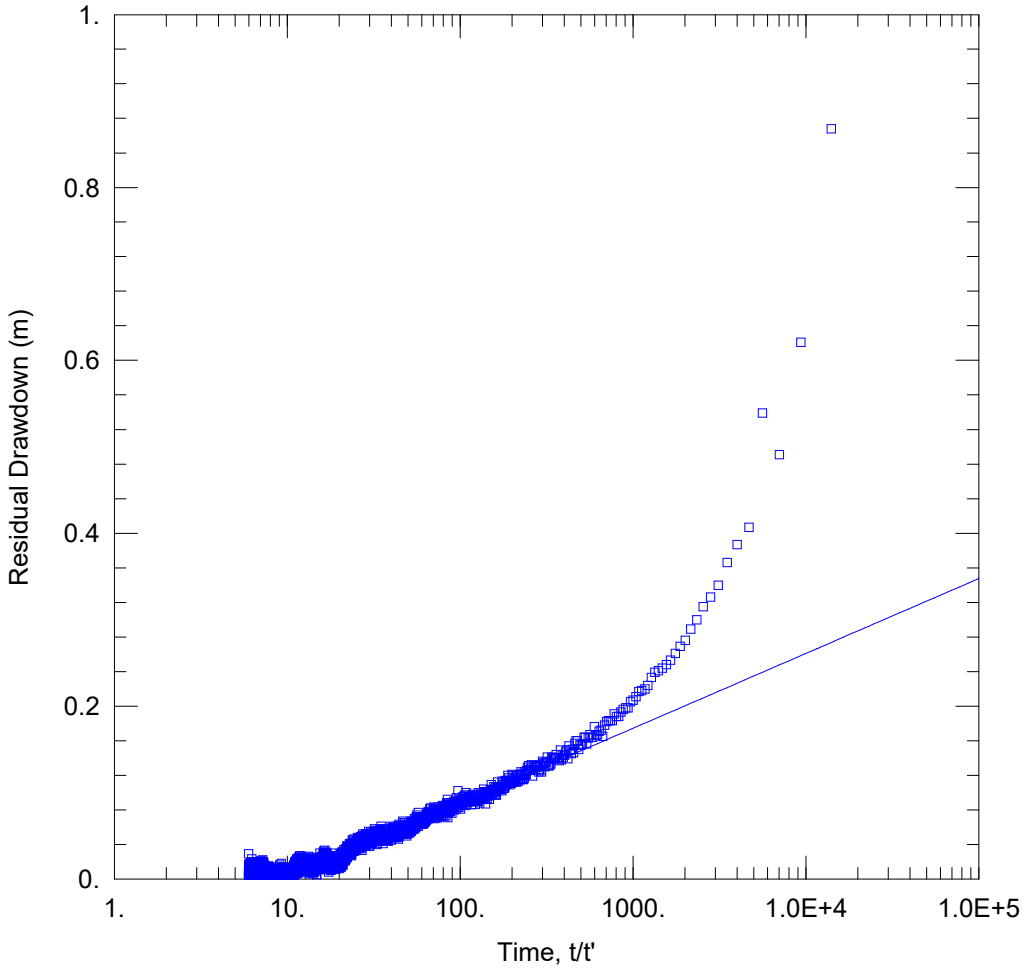
Observation Wells

Well Name	X (m)	Y (m)
HPB072	648528.5	7688215.4

SOLUTION

Aquifer Model: Unconfined
Solution Method: Theis

T = 3236.9 m^2/day
S = 5.75E-10
Kz/Kr = 0.01
b = 38. m



HPB014 REINJECTIOIN TRIAL

Data Set: C:\...\HPB014 VRRT.aqt
Date: 01/08/24 Time: 15:55:01

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB015
Test Date: 29 Sep 2023

AQUIFER DATA

Saturated Thickness: 38. m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB014	648540.5	7688209.7

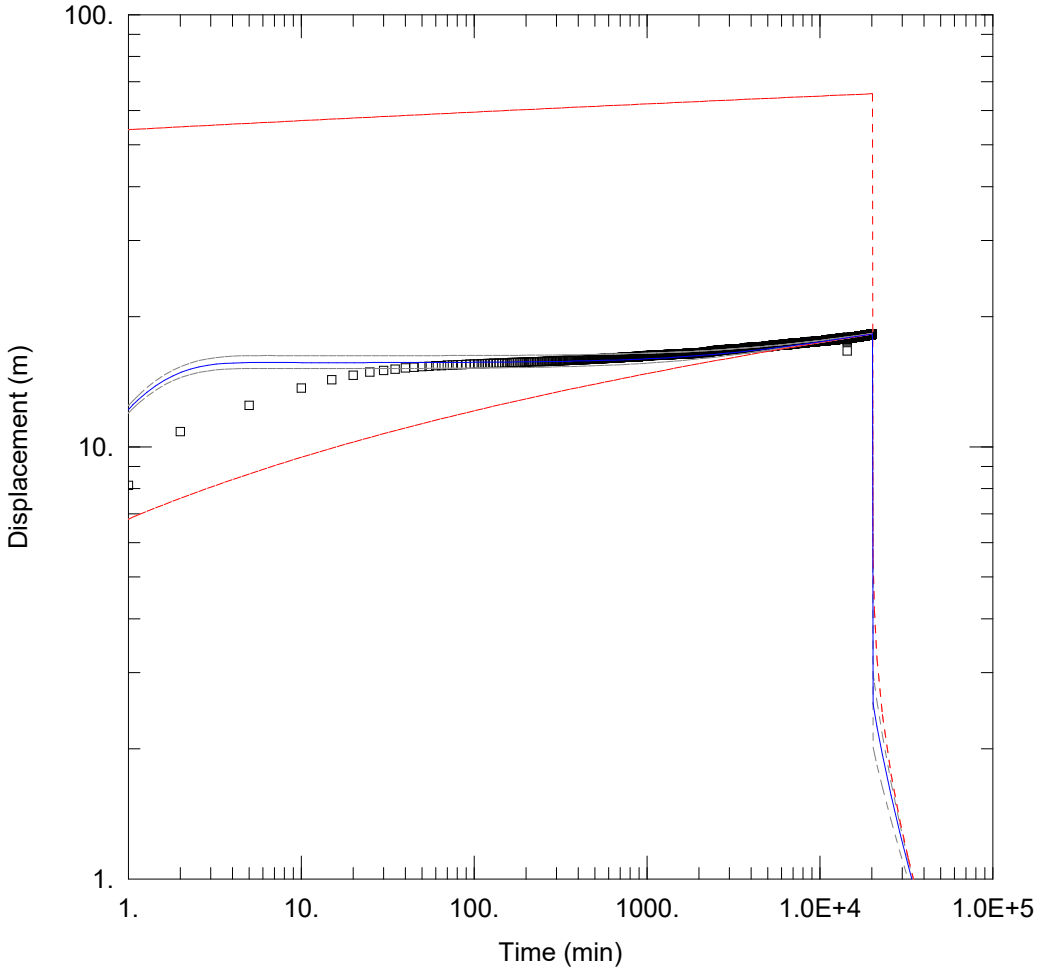
Observation Wells

Well Name	X (m)	Y (m)
HPB072	648528.5	7688215.4

SOLUTION

Aquifer Model: Confined Solution Method: Theis (Recovery)

T = 5489.2 m^2/day S/S' = 9.67



WELL TEST ANALYSIS

Data Set: C:\...\HPB008 14 day CRT.aqt
Date: 01/06/24 Time: 16:13:08

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB008
Test Date: 18 Oct 2023

AQUIFER DATA

Saturated Thickness: 26. m Anisotropy Ratio (Kz/Kr): 0.01

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB008	648869.81	7693099.93

Observation Wells

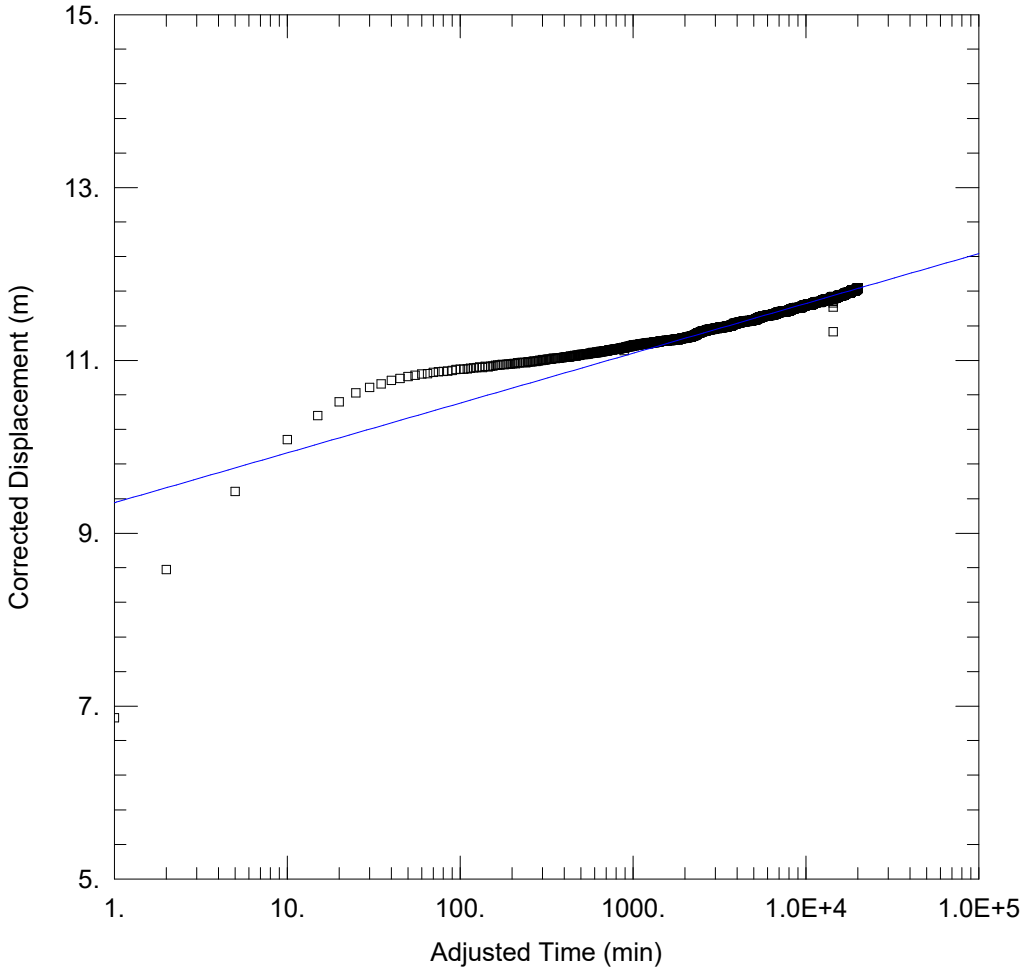
Well Name	X (m)	Y (m)
HPB008	648869.81	7693099.93

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 118.8 m^2/day
Sy = 0.01415
Sw = 0.
r(c) = 0.127 m

S = 2.036E-20
Kz/Kr = 0.01
r(w) = 0.19 m
alpha = 0.001 min^{-1}



WELL TEST ANALYSIS

Data Set: C:\...\HPB008 14 day CRT.aqt
Date: 01/06/24 Time: 16:07:05

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB008
Test Date: 18 Oct 2023

AQUIFER DATA

Saturated Thickness: 26. m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB008	648869.81	7693099.93

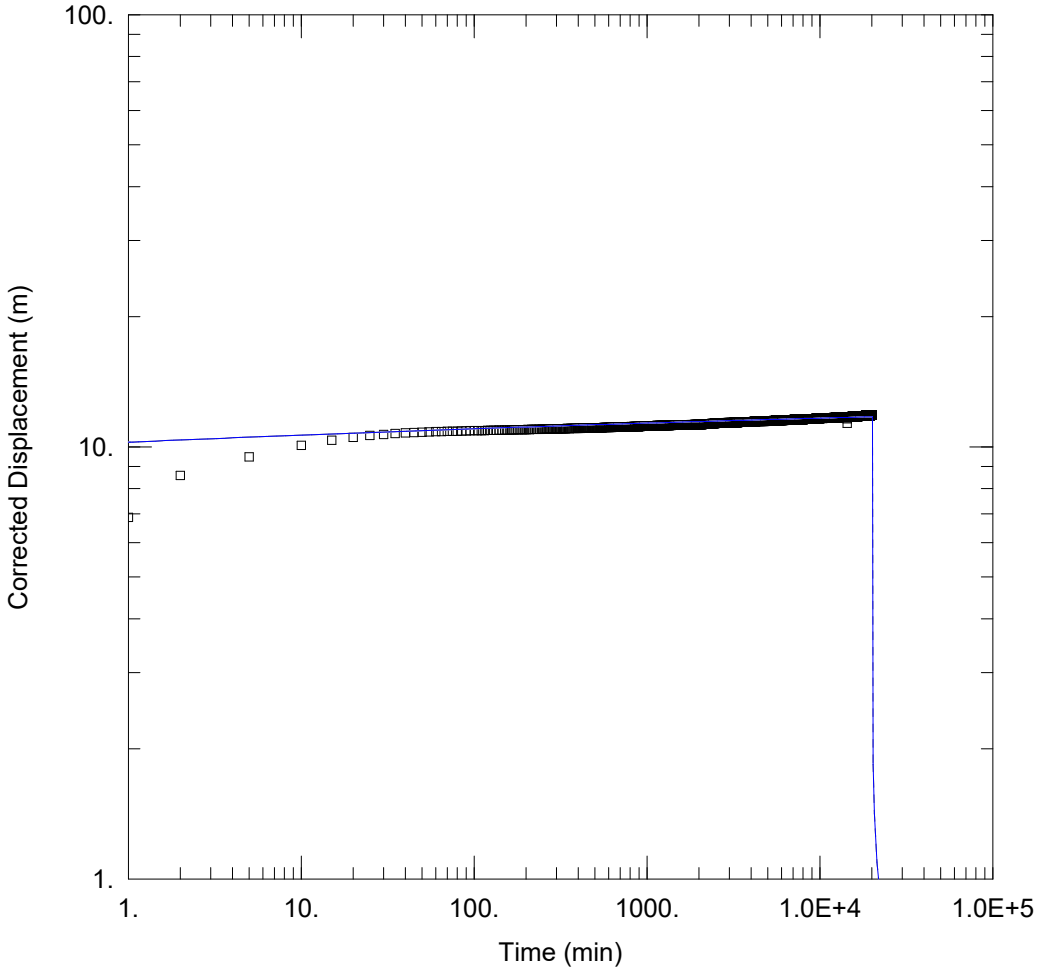
Observation Wells

Well Name	X (m)	Y (m)
HPB008	648869.81	7693099.93

SOLUTION

Aquifer Model: Unconfined Solution Method: Cooper-Jacob

T = 547.7 m^2/day S = 1.402E-15



WELL TEST ANALYSIS

Data Set: C:\...\HPB008 14 day CRT.aqt
Date: 01/06/24 Time: 16:03:18

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB008
Test Date: 18 Oct 2023

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB008	648869.81	7693099.93

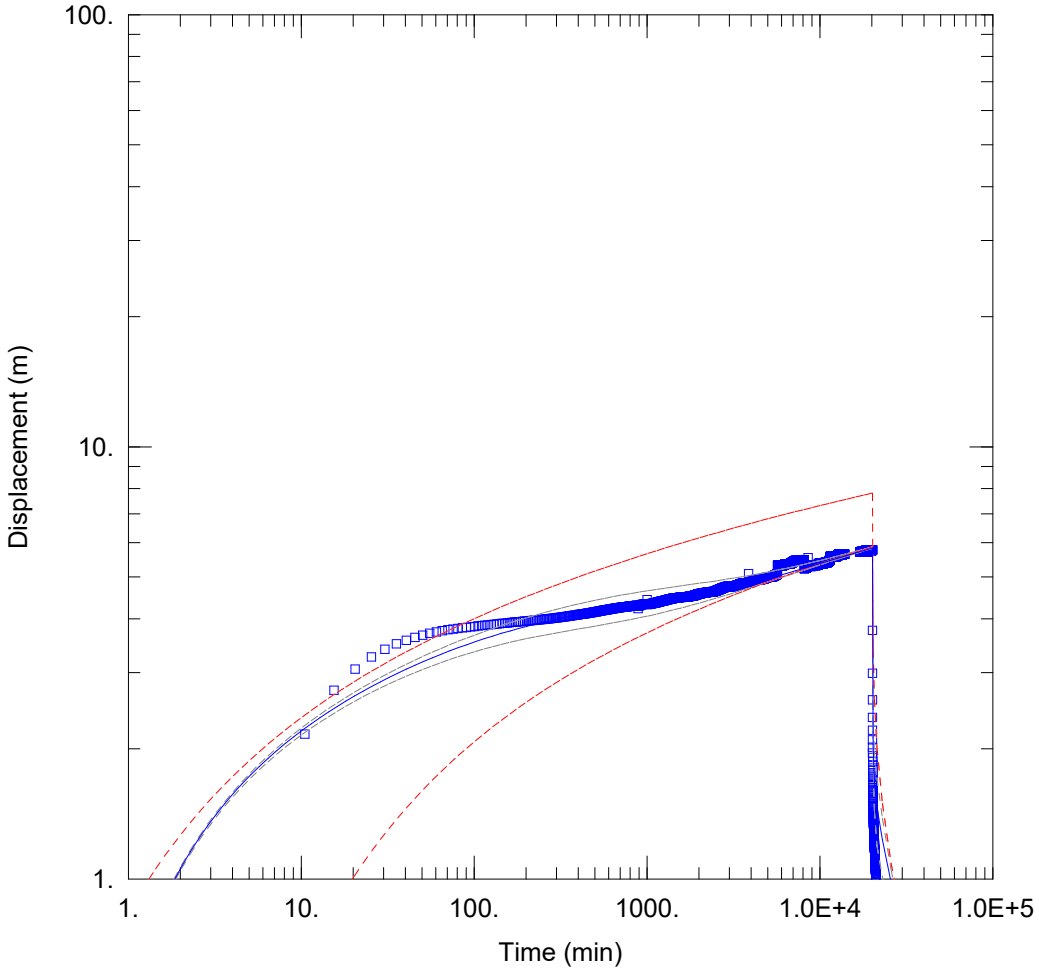
Observation Wells

Well Name	X (m)	Y (m)
▫ HPB008	648869.81	7693099.93

SOLUTION

Aquifer Model: Unconfined
Solution Method: Theis

T = 352. m^2/day
S = 3.458E-15
Kz/Kr = 0.1
b = 26. m



WELL TEST ANALYSIS

Data Set: C:\...\HPB008 14 day CRT.aqt
Date: 01/06/24 Time: 17:58:00

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB008
Test Date: 18 Oct 2023

AQUIFER DATA

Saturated Thickness: 26. m Anisotropy Ratio (Kz/Kr): 0.001

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB008	648869.81	7693099.93

Observation Wells

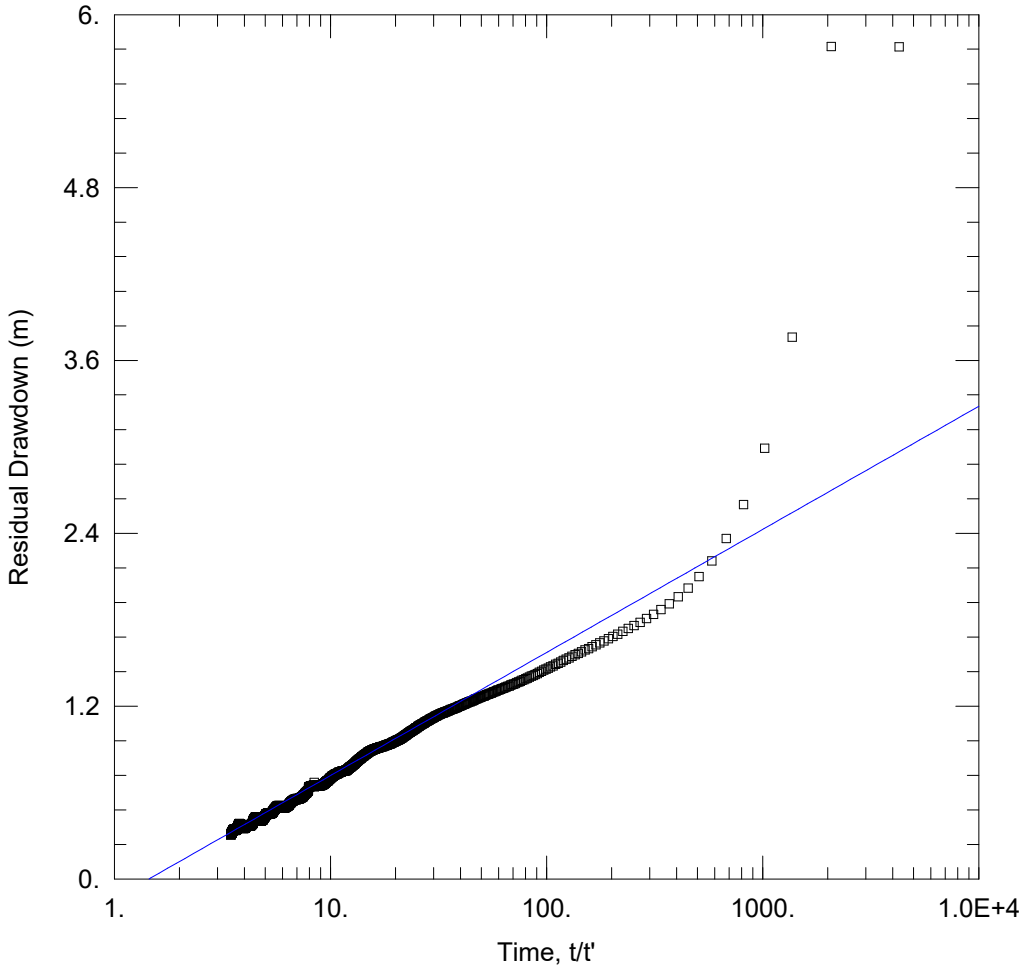
Well Name	X (m)	Y (m)
HMB015	648892.09	7693088.18

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 190.7 m^2/day
Sy = 0.002697
Sw = 1.
r(c) = 0.127 m

S = 0.0001795
Kz/Kr = 0.001
r(w) = 0.19 m
alpha = 0.0631 min^{-1}



14 DAY CRT

Data Set: C:\...\HPB008 14 day CRT.aqt
Date: 11/13/23 Time: 11:32:08

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB008
Test Date: 18 Oct 2023

AQUIFER DATA

Saturated Thickness: 26. m Anisotropy Ratio (Kz/Kr): 0.001

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB008	648869.81	7693099.93

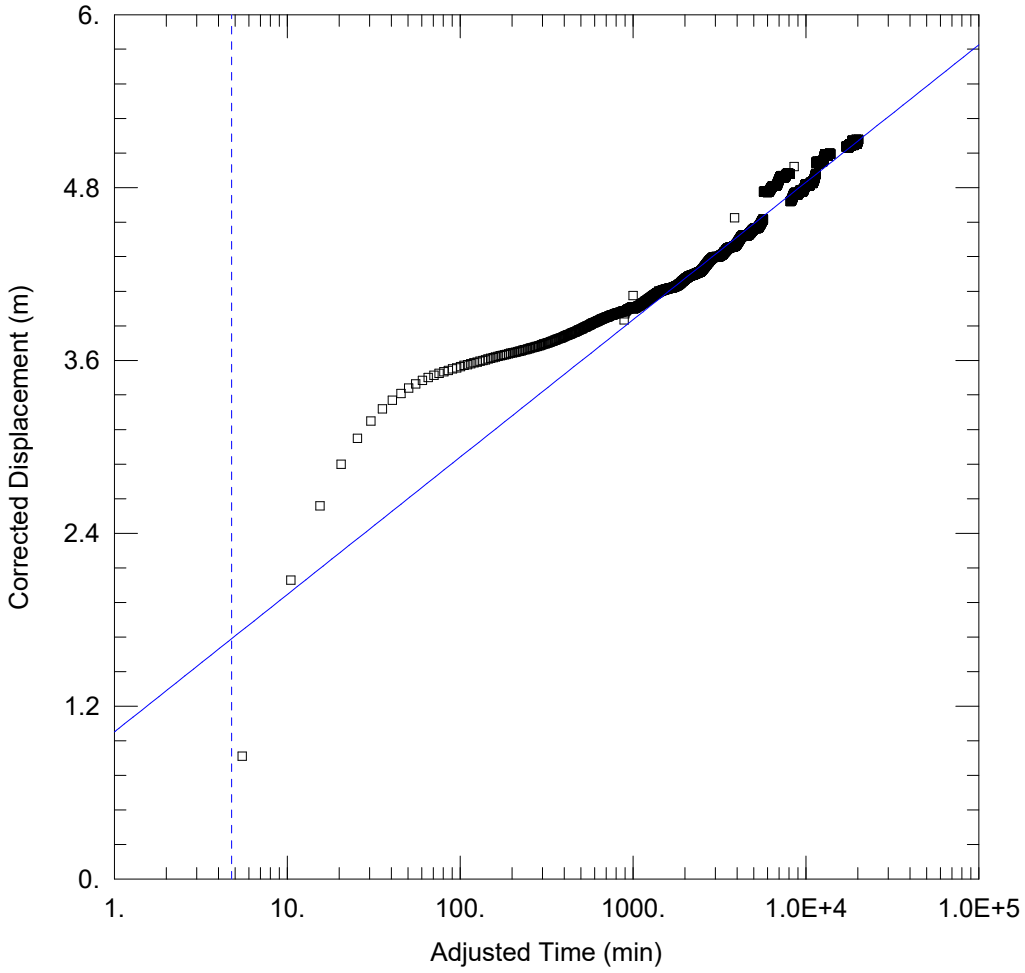
Observation Wells

Well Name	X (m)	Y (m)
□ HMB015	648892.09	7693088.18

SOLUTION

Aquifer Model: Confined Solution Method: Theis (Recovery)

T = 369.5 m^2/day S/S' = 1.446



14 DAY CRT

Data Set: C:\...\HPB008 14 day CRT.aqt
Date: 11/13/23 Time: 11:30:30

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB008
Test Date: 18 Oct 2023

AQUIFER DATA

Saturated Thickness: 26. m Anisotropy Ratio (Kz/Kr): 0.001

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB008	648869.81	7693099.93

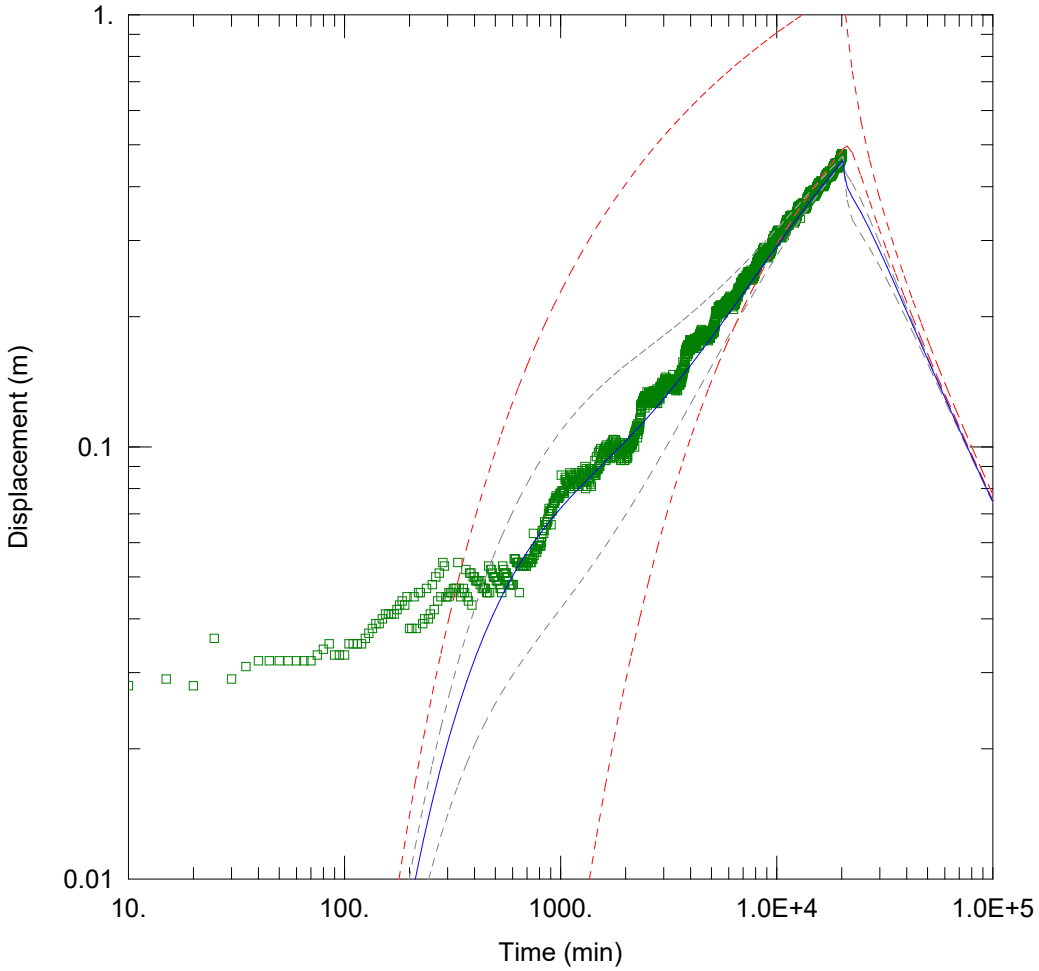
Observation Wells

Well Name	X (m)	Y (m)
HMB015	648892.09	7693088.18

SOLUTION

Aquifer Model: Unconfined Solution Method: Cooper-Jacob

T = 331. m^2/day S = 6.927E-5



WELL TEST ANALYSIS

Data Set: C:\...\HPB008 14 day CRT.aqt
Date: 01/06/24 Time: 18:12:29

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB008
Test Date: 18 Oct 2023

AQUIFER DATA

Saturated Thickness: 26. m Anisotropy Ratio (Kz/Kr): 0.009441

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB008	648869.81	7693099.93

Observation Wells

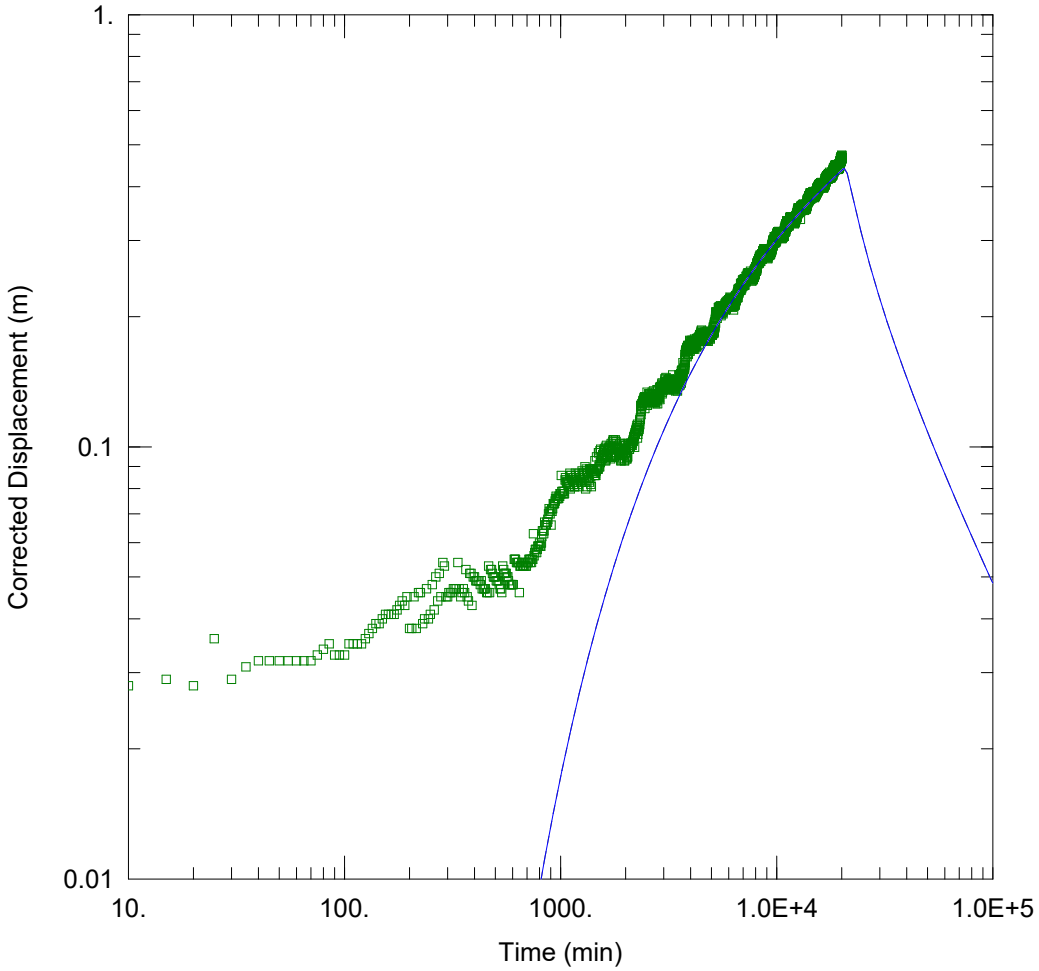
Well Name	X (m)	Y (m)
HMB024S	648611.5	7692882.15

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 395.4 m^2/day
Sy = 0.03134
Sw = 1.
r(c) = 0.127 m

S = 0.004109
Kz/Kr = 0.009441
r(w) = 0.19 m
alpha = 0.00631 min^{-1}



14 DAY CRT

Data Set: C:\...\HPB008 14 day CRT.aqt
Date: 11/13/23 Time: 15:06:53

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB008
Test Date: 18 Oct 2023

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB008	648869.81	7693099.93

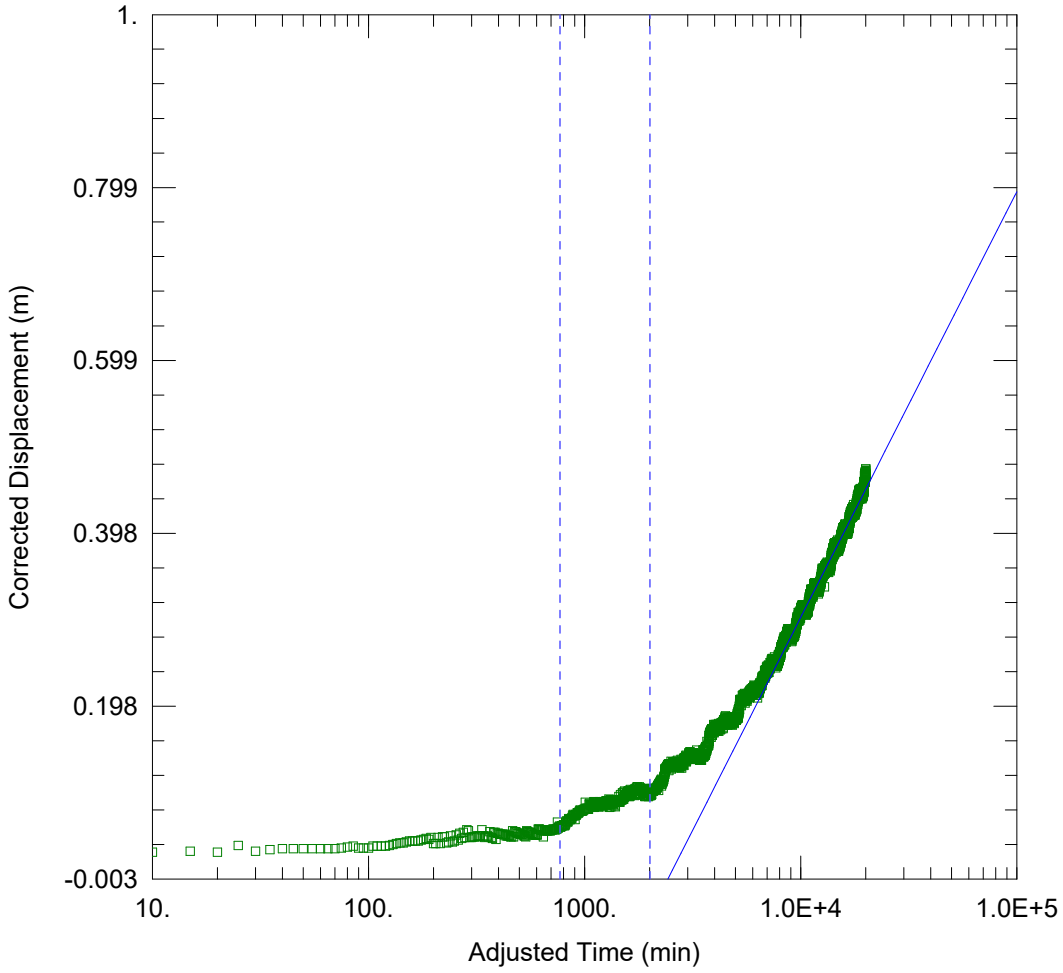
Observation Wells

Well Name	X (m)	Y (m)
HMB024S	648611.5	7692882.15

SOLUTION

Aquifer Model: Unconfined
Solution Method: Theis

T = 625.6 m^2/day
S = 0.02535
Kz/Kr = 0.742
b = 26. m



14 DAY CRT

Data Set: C:\...\HPB008 14 day CRT.aqt
Date: 11/13/23 Time: 15:06:06

PROJECT INFORMATION

Company: Geowater Consulting
Client: De Grey Mining
Project: Hemi
Test Well: HPB008
Test Date: 18 Oct 2023

AQUIFER DATA

Saturated Thickness: 26. m Anisotropy Ratio (Kz/Kr): 0.742

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
HPB008	648869.81	7693099.93

Observation Wells

Well Name	X (m)	Y (m)
HMB024S	648611.5	7692882.15

SOLUTION

Aquifer Model: Unconfined Solution Method: Cooper-Jacob

T = 639.1 m^2/day S = 0.02153