Genesis Minerals Ltd

Addendum to Gwalia TSF 4 Groundwater Management Plan

Prescribed Premises Licence L8337/2009/2

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1. BACKGROUND

On 19 June 2024, Genesis Minerals (Leonora) Limited (**Genesis**) submitted a Groundwater Management Plan (**GWMP**), prepared by WSP, to the Department of Water and Environmental Regulation (**DWER**) in support of the ongoing operation of tailings storage facility (**TSF**) cells TSF 3 and TSF 4 under Prescribed Premises Licence L8337/2009/2 (**Licence**) (WSP, 2024).

In response to observed groundwater mounding and the concurrent evaluation of a recently constructed toe drain along the southern and western boundaries of TSF 4, the GWMP recommended an expansion of the site's groundwater monitoring network as shown in **Figure 1-1**. Specifically, the following additional infrastructure was proposed:

- Six (6) 150 mm ID seepage recovery bores adjacent to the TSF 4 toe drain, to assist in depressurisation and mitigate groundwater mounding in the immediate vicinity;
- Four (4) shallow vegetation monitoring piezometers (installed to 6 mBGL), located at least 300 m from the TSF wall, to assess potential impacts on terrestrial vegetation;
- Five (5) Zone of Influence (ZOI) monitoring bores, to evaluate the extent and lateral spread of water table mounding beyond TSF 4.

Following its review of the GWMP, DWER (2024) concluded that the requirements of Licence Conditions 3.4.3 and 3.4.4 had been met. While the proposed locations for additional infrastructure were considered generally appropriate, DWER recommended that an electromagnetic (EM) geophysical survey be conducted to confirm their suitability prior to bore construction. This recommendation suggests that DWER may not have been aware that an EM geophysical survey had already been completed by Golder (2021).

DWER also noted that the evaporation rates used in the WSP (2024) water balance model were based on assumptions appropriate for fresh water, and may therefore underestimate seepage recovery rates under hypersaline conditions.

DWER recommended that, following installation of the additional monitoring infrastructure, the Licence be amended to incorporate the updated monitoring network, along with bore-specific water level trigger values and corresponding management responses.

To support implementation of these recommendations, Genesis engaged Pennington Scott (Groundwater Consultants) to:

- Interpret EM geophysical surveys to validate bore locations as requested by DWER;
- Supervise the construction of all bores in accordance with the GWMP;
- Undertake hydraulic testing of the seepage recovery bores in accordance with Australian Standard AS 2368-1990; and
- Recommend bore equipping requirements and prepare an operational plan detailing trigger levels and associated management responses.

Installation and hydraulic testing of the monitoring and seepage recovery bores were completed in October 2024.

This report represents an Addendum to the Genesis's Groundwater Monitoring Plan for Gwalia TSF 4 and includes a summary of the bore construction program together with recommendations for bore-specific water level trigger values and management actions

for incorporation into an amended version of Prescribed Premises Licence L8337/2009/2.

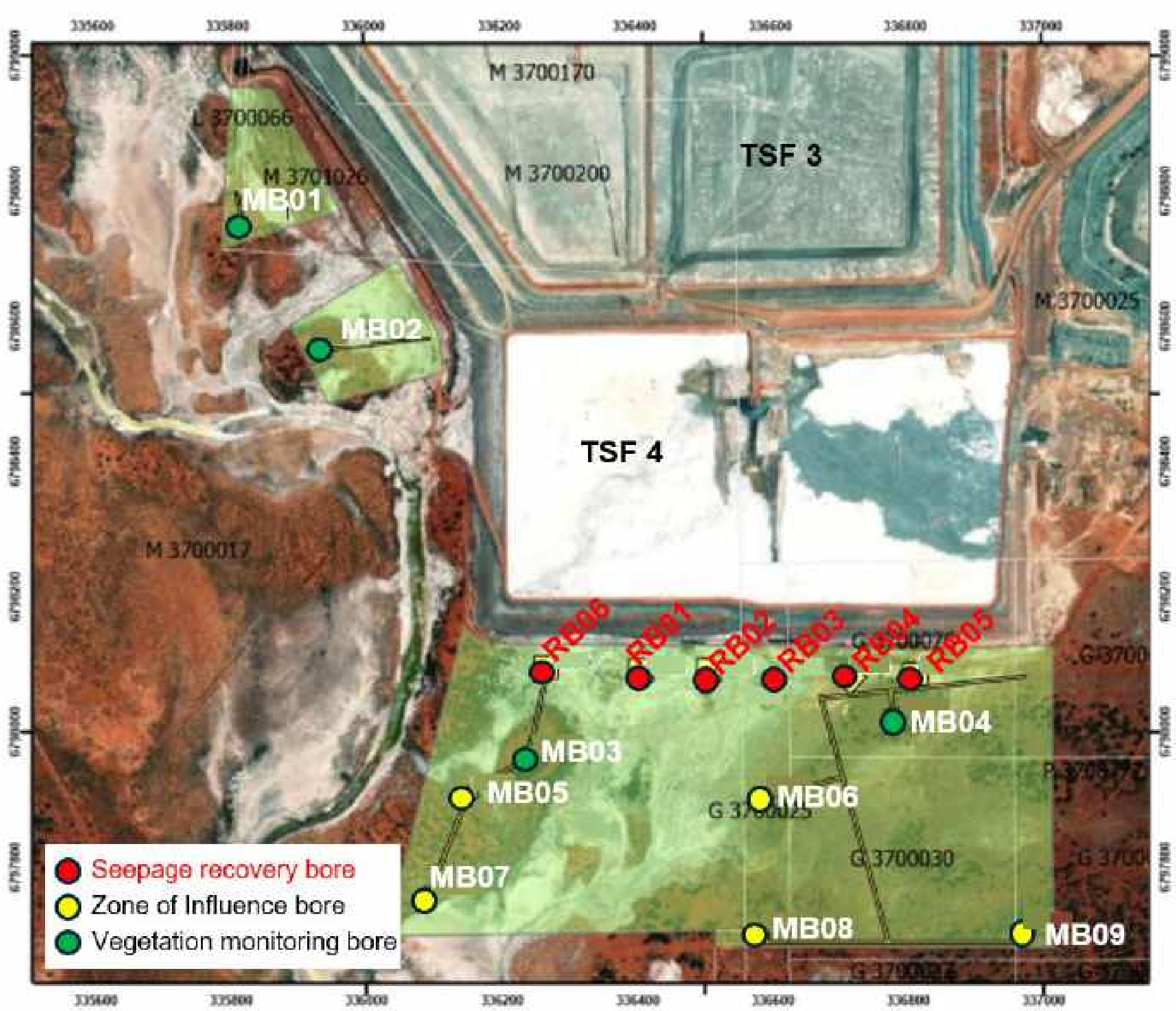

Figure 1-1 TSF 4 bore locations.

2. USE OF GEOPHYSICS TO VALIDATE BORE SITING

Frequency domain electromagnetic (**FDEM**) surveys measure shallow (less than several metres depth) ground conductance, which is primarily influenced by the presence of high cation-exchange capacity clays and/or saline groundwater. FDEM is particularly effective for assessing shallow seepage around TSFs as it can delineate zones of elevated conductivity associated with deep clay-rich weathering profiles along faults or shallow alluvial deposits aligned with structural features. These conductive features contrast strongly with the surrounding resistive fresh crystalline bedrock, with the contrast further enhanced in the presence of hypersaline groundwater within more permeable fault zones or alluvial aquifers.

Two FDEM surveys have been conducted in the vicinity of the Gwalia TSF3 and TSF4:

- The first survey, conducted by GHD in 2012, focused on the western boundary of TSF3 and TSF4 (**Figure 2-1**).
- The second survey, completed by Draig Geoscience in 2021 using a DualEM 42-2 frequency domain system, covered the southern side of TSF4 and overlaps significantly with the 2012 GHD survey (**Figure 2-2**).

Both FDEM surveys identified regularly spaced, northeast-trending high-conductivity lineaments beneath TSF4, spaced approximately 200 m to 400 m apart. These lineaments are represented by warmer colours (reds and yellows) on the EM conductivity maps and stand out against a cooler background (blues and greens), indicative of electrically resistive crystalline bedrock.

The locations of seepage recovery bores are marked as RB01 through to RB06. Notably, two of the recovery bores (RB03 and RB06) intersect two distinct conductive EM lineaments. RB03, in particular, is situated in an area of known artesian seepage and sand boil development within the TSF4 toe drain (**Figure 2-3**).

Vegetation monitoring bores (MB01 to MB04) have been sited to target remnant vegetation occurring on low sand islands surrounded by salt playa. This is reflected in the FDEM response, with unsaturated sandy substrates appearing as cooler (less conductive) zones, surrounded by warmer, more conductive playa lake deposits.

The regional zone-of-influence bores (MB05 to MB09) were not designed to target specific structural features. Instead, their placement provides a representative spatial distribution while avoiding the need to traverse boggy or unstable playa surfaces with the drilling rig.

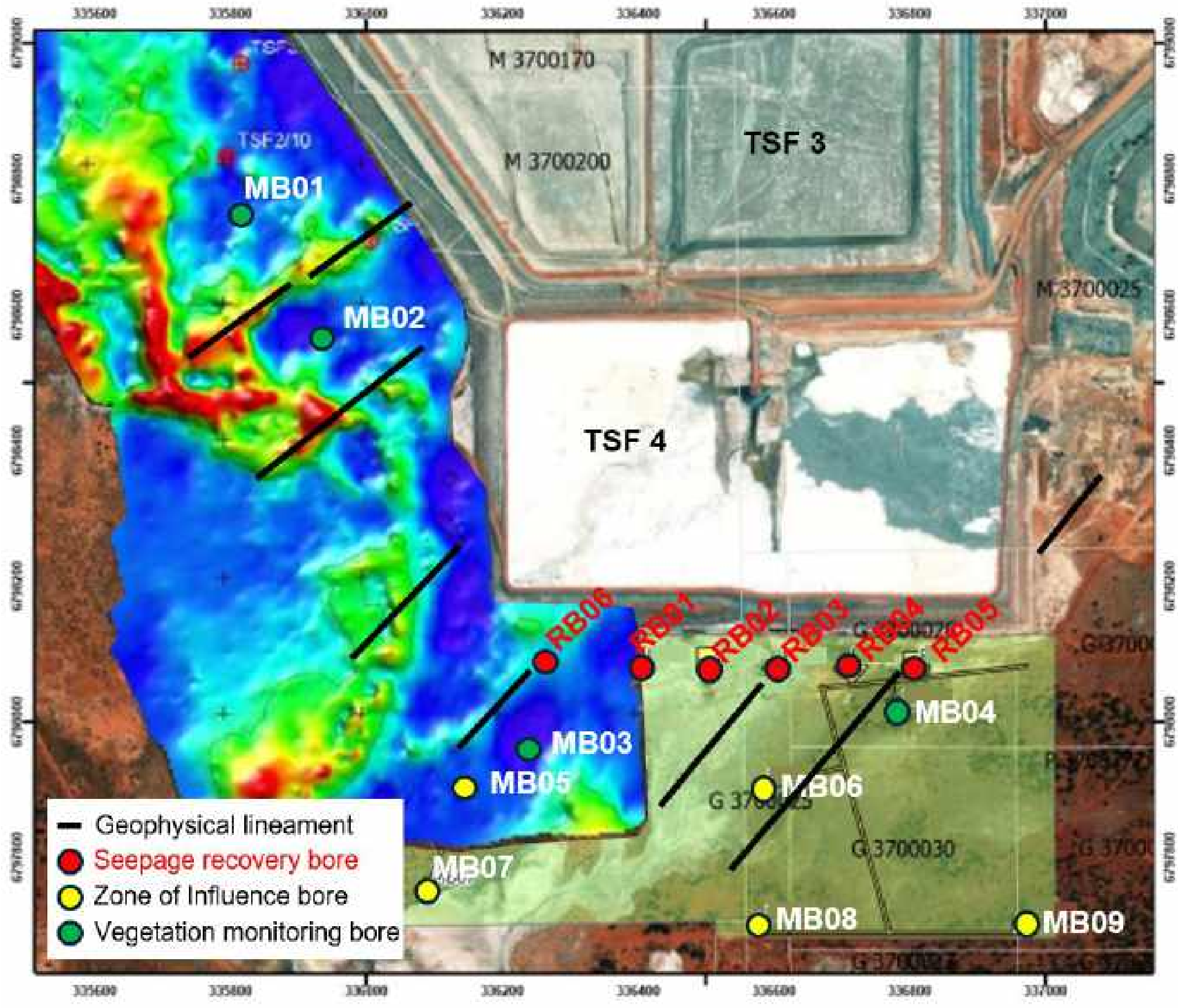

Figure 2-1 Preliminary FDEM Survey by GHD 2012 showing interpreted structural lineaments in the basement

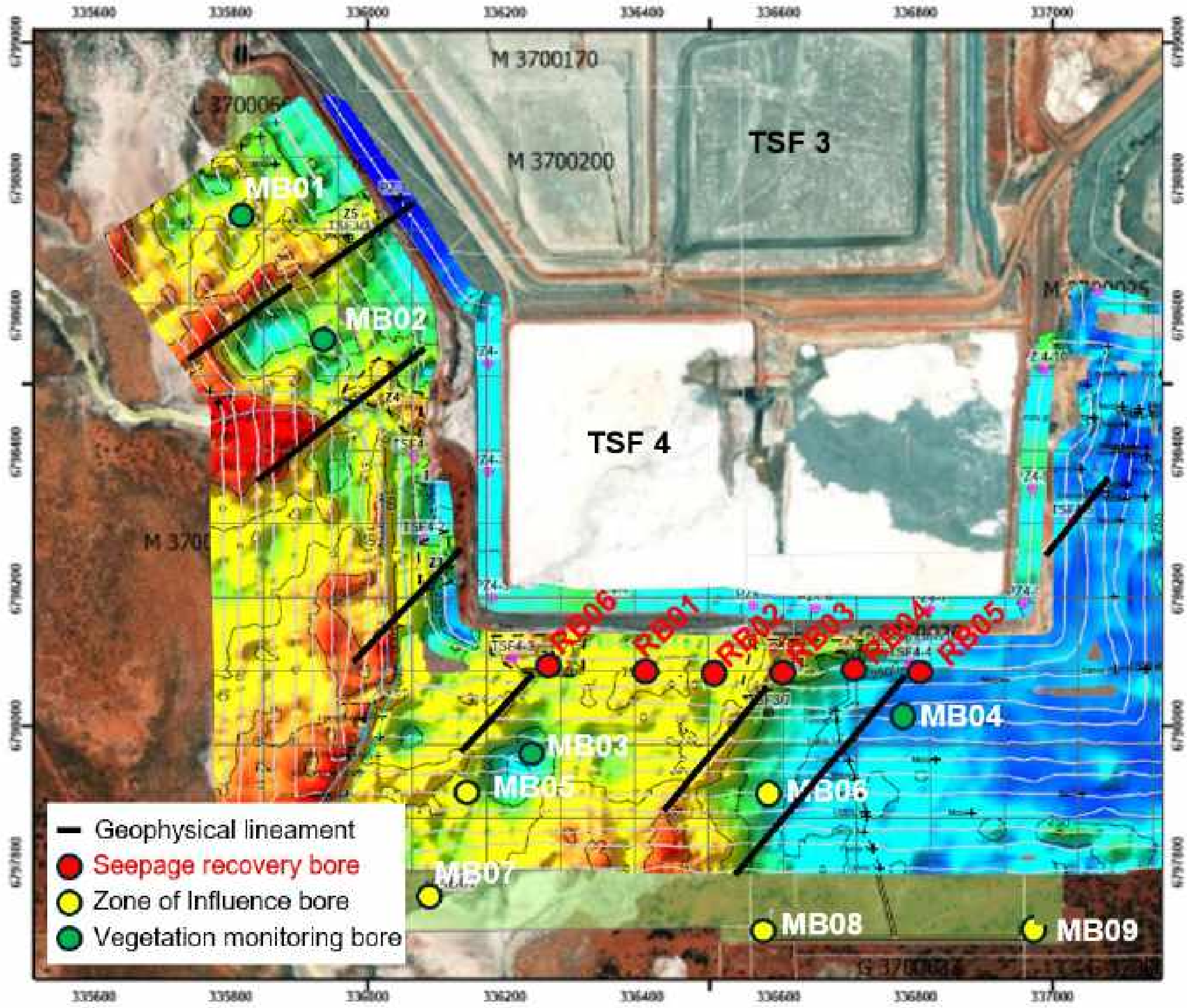

Figure 2-2 Final FDEM Survey by Draig Geoscience 2021 showing interpreted structural lineaments in the basement

Figure 2-3 Sand boil in the toe drain near RB03 on 27 Jan 2021 (Golders 2021)

3. HYDROGEOLOGICAL SITE INVESTIGATIONS

The hydrogeological drilling program was undertaken in three stages at The Project between November 2024 to January 2025 and included the following:

- **Vegetation and zone of interest (ZOI) piezometers**: Construction of nine (9) standpipe piezometers to depths of 6 and 10 m respectively and cased with 100 mm N.D. PN9 uPVC;
- **Seepage Recovery / Depressurisation bores** – Construction of six (6) Construction of six (6) water bores targeting water bearing intervals within the transported sediments and lower saprolite aquifer at depths of between 15 and 50 m and cased with machine slotted 155 mm N.D. PN12 uPVC;
- **Hydraulic testing of the six seepage recovery bores** – including calibration tests, step tests, 24-hour constant rate tests, and recovery tests, with observation bore measurements in surrounding bores; and
- **Groundwater chemistry survey:** Water samples were collected from standpipe piezometers at the end of bore development, and from seepage recovery bores at the end of pump testing. All samples were submitted to a National Association of Testing Authorities (NATA) accredited laboratory for analysis of key laboratory parameters, major ions and trace metals.

The following sections provide further details of the hydrogeological program. **Table 2:1** and **Appendix A** summarises the construction specifications of the bores. **Figure 3-1** shows the drill rig set up for both the piezometers and seepage bore drilling, respectively.

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Table 3-1 Summary of bore completion and survey levels

Type	Bore	GDA '94 East	GDA '94 North	Completion Date	Casing Type	Casing I.D. (mm)	Drilled Depth (mBGL)	Casing Stickup (mAGL)	TOC RL (mAHD)	Ground Level RL (mAHD)	Blank casing (mBGL)	Slotted casing (mBGL)	Airlift Yield (L/s)	TDS (mg/L)	SWL (mBTOC)	SWL (mBGL)
Seepage / Depressurisation	**RB01**	336,602	6,798,088	10/12/2024	PN12 uPVC	155	50	1.58	359.68	358.1	0 to 6	6 to 33	5	N/A	1.56 – 1.68	-0.02 – 0.1
	RB02	336,504	6,798,089	12/12/2024	PN12 uPVC	155	50	1.6	359.5	357.9	0 to 6	6 t0 37	1	N/A	2.1	0.5
	RB03	336,404	6,798,087	14/12/2024	PN12 uPVC	155	15	1.57	359.64	358.07	0 to 6	6 to 15	1	N/A	1.86 – 1.98	0.29 – 0.41
	RB04	336,705	6,798,082	13/12/2024	PN12 uPVC	155	15	0.88	359.54	358.66	0 to 6	6 to 15	2	N/A	1.78 – 1.87	0.8 – 0.88
	RB05	336,806	6,798,085	13/12/2024	PN12 uPVC	155	15	1.01	360.23	359.22	0 to 6	6 to 15	0.1	N/A	2.83 – 2.97	1.82 – 1.96
	RB06	336,260	6,798,091	9/12/2024	PN12 uPVC	155	52	1.4	359.21	357.81	0 to 6	6 to 52	14	N/A	1.31 – 1.47	-0.09 – 0.07
Vegetation Piezometers	**MB01**	335,817	6,798,750	30/11/2024	PN9 uPVC	100	6	0.77	358.69	357.91	0 to 2	4 to 6	N/A	90,000	1.56 – 1.78	0.79 – 1.01
	MB02	335,931	6,798,566	29/11/2024	PN9 uPVC	100	6	0.72	359.08	358.36	0 to 2	4 to 6	N/A	44,000	1.5 – 1.86	0.78 – 1.14
	MB03	336,241	6,797,963	28/11/2024	PN9 uPVC	100	6	0.69	359.48	358.79	0 to 2	4 to 6	N/A	59,000	2.43 – 2.71	1.79 – 2.2
	MB04	336,780	6,798,019	23/11/2024	PN9 uPVC	100	6	0.62	359.91	359.28	0 to 2	4 to 6	N/A	88,000	2.72 – 2.9	2.1 – 2.28
Zone of Influence Piezometers	**MB05**	336,145	6,797,907	27/11/2024	PN9 uPVC	100	10	0.75	358.06	357.31	0 to 6	6 to 10	N/A	89,000	1.09 – 1.31	0.35 – 0.57
	MB06	336,582	6,797,903	24/11/2024	PN9 uPVC	100	10	0.69	358.47	357.79	0 to 6	6 to 10	N/A	81,000	1.39 – 1.55	0.7 – 0.86
	MB07	336,088	6,797,752	26/11/2024	PN9 uPVC	100	10	0.74	358.05	357.32	0 to 6	6 to 10	N/A	120,000	1.4 – 1.63	0.66 – 0.89
	MB08	336,579	6,797,702	24/11/2024	PN9 uPVC	100	10	0.7	358.75	358.06	0 to 6	6 to 10	N/A	120,000	2.06 – 2.18	1.36 – 1.48
	MB09	336,968	6,797,705	25/11/2024	PN9 uPVC	100	10	0.62	360.55	359.93	0 to 6	6 to 10	N/A	88,000	3.82 – 4.04	3.2 -3.42

The ranges specified in the "SWL (mBTOC)" and "SWL (mBGL)" columns were recored between December 2024 and June 2025.

Figure 3-1 Seepage / depressurisation drilling at the Project (Left) and the piezometer drilling using the Hanjin D8 rig at the project (Right).

3.1 Drilling and construction of standpipe piezometers

Drilling contractor Soil Mechanics were engaged to undertake the drilling and casing of the vegetation and ZOI piezometers. Construction procedure was in accordance with the Minimum Construction Requirements for Water Bores in Australia, Version 4 (NUDLC, 2020), with all field operations being under the direct supervision of a Pennington Scott Hydrogeologist.

The bore collars were planned primarily based on their vicinity to the TSF 4. The construction specifications are as follows:

- The pilot hole was drilled using a minimum N.D. 135 mm drill bit to the target depth of 6 m (vegetation holes) or 10 m (zone of influence holes).
- After completion of the pilot hole, the hole will be cased to full depth with N.D. 100 mm PN 9 uPVC machine slotted casing, with 2 m of blank casing below ground and 0.4 m stickup above ground;
- The annulus of the hole is to be backfilled with 3.2 to 6.4 mm gravel to one metre below ground level, then with 0.3 m of bentonite pellets, and then the remainder of the annulus is to be cement grouted to surface.
- The top of the hole is to be completed with a 200 mm thick concrete plinth and lockable monument over the piezometer.

3.2 Drilling and construction of TSF Recovery bores

Drilling contractor Caswell Drilling were engaged to undertake the drilling and casing of the seepage recovery/depressurisation bores. Construction procedure was in accordance with the Minimum Construction Requirements for Water Bores in Australia, Version 4 (NUDLC, 2020), with all field operations being under the direct supervision of a Pennington Scott Hydrogeologist.

The bore collars were planned primarily based on their vicinity to the TSF 4. The construction specifications are as follows:

- A 16" (406 mm N.D.) diameter hole should be drilled to minimum depth of 3 m or until a competent soil horizon and then cased to full depth with 10" (250 mm O.D.) schedule 10 steel surface casing, cement grouted in place.
- A pilot hole is then to be drilled with an 8 1/2" (ND 200 mm) drill bit to the target depth of 50 m or 6 m into recognisable fresh rock, whichever occurs first.
- After completion of the pilot hole, the hole will be cased to full depth with ND 155 mm PN 12 uPVC machine slotted casing, with 6 m of blank casing at the surface;
- The annulus of the hole is to be backfilled with 3.2 to 6.4 mm gravel to six (6) mBGL, then with 0.3 m of bentonite pellets, and then the remainder of the annulus is to be cement grouted to surface.
- The hole is to be airlift developed until the discharge runs clear, being a minimum of 2 hours of development.
- After completion of the hole, the bore is to be hydraulically tested at five step rates, and 24 hrs of constant rate test (CRT) and 2 hrs of recover measurements.
- A water sample is to be collected at the end of testing and provided to Genesis (Leonora) environmental staff.

3.3 Hydraulic testing of seepage recovery bores

Figure 3-2 shows hydraulic pumping testing conducted on each of the of the seepage recovery bores according to Australian Standard AS 2368-1990, using the following protocols:

- a 5.5 kW Lowarra 16GS55 or 11 kW Lowarra Z6-31/9 electrical submersible pump was installed in the bore;
- Pennington Scott's 'SmartPump' automated pumping test control system was used which features water level and flow rate sensors, an actuated flow control valve, remote generator relays and a remote telemetry system;
- 4 x 40-minute step tests were performed at step rates ranging from 0.1 to 15 L/s;
- a sustainable pump rate was determined for the constant rate test based on the step tests. Bores RB03, RB04, and RB05 were pumped for a 24-hour constant rate test, while RB01 was pumped for a 48-hour constant rate test; and
- recovery measurements were completed for a 2-hour period at the end of the constant rate test.

Figure 3-2 Pump testing of the depressurisation / seepage recovery bores.

4. INTERPRETIVE ANALYSIS

4.1 Theoretical analysis of hydraulic pumping tests

All analytical pumping test equations are derived from the Theis formula (Theis 1935), which is an equation that was originally adapted from thermodynamics. The Theis equation can be used to estimate the theoretical drawdown inside the pumping well, which is a function of a parameter known as the aquifer Transmissivity (**T**). The geometry of the cone of depressurisation radiating out away from the well is in turn a function of another parameter known as aquifer storage (i.e. specific yield **Sy** and elastic storage **Ss**). In theory, these two parameters are key to being able to predict the cumulative behaviour of a borefield during operation.

The applicability of the Theis equation to determine Transmissivity and Storage parameters is predicated on a restrictive set of preconditions, known as the Dupuit assumptions (Dupuit 1863), which are:

1. The aquifer must be confined;
2. The aquifer must have apparent infinite extent;
3. The aquifer must be homogeneous, isotropic, and of uniform thickness over the area influenced by pumping;
4. The piezometric surface must be horizontal prior to pumping;
5. The aquifer must be pumped at constant rate;
6. The well must be fully penetrating;
7. The flow to the well is in an unsteady state; and
8. the bore has infinitesimal well radius (i.e. the equation has no ability to account for well storage).

In practice, there are few pumping tests that meet all of the Dupuit assumptions (especially the last) and therefore most pumping test analyses are to some degree a compromise. Furthermore, the Theis equation is a curve-matching approach that many people find cumbersome to apply. For this reason, Cooper and Jacob (1946) provide a simpler solution which replaces the asymptotic well function (Wu) in the Theis equation with straight line approximation, thus removing the need for curve matching. The downside of using the Cooper-Jacob method is the approximation cannot simulate the real world “early time” or “near well” drawdown response to pumping.

Another key limitation of both the Theis and Cooper-Jacob methods is that neither method accounts for the effects of non-linear head losses that occur in the well due to the turbulent flow of water through the bore screens, thus the equations tend to under-estimate the drawdown in the pumped bore at the start of the test. Hantush-Biershenk and Eden-Hazel methods both calculate transmissivity using the same straight-line approximation as the Cooper-Jacob method, but also determine well loss coefficients from the analysis of step rate pumping tests. These coefficients are then used to add a head loss to the drawdown to account for non-linear well losses at different pumping rates and allow the predicted drawdown based on the well efficiency at different pumping rates.

Instead of the restrictive analytical equations, Pennington Scott uses the Rushton (2003) finite difference radial flow well model, coupled with automated PEST parameter estimation, to evaluate aquifer parameters from pumping tests. The use of computer-based radial flow models provides a powerful alternative to the analytical approach in complex situations because modelling allows for the rationalisation of spatial and temporal variability of aquifer conditions and stresses (i.e. incorporating the ability to model multi-layered aquifers, vertical leakage, well loss factors, time varying pump discharge, etc).

4.2 Efficiency of the bore

All bores can theoretically be pumped at any rate; however, the ability to sustain a given rate over time (from milliseconds to years) depends on both the productivity of the aquifer and the efficiency of the bore construction. Bore efficiency varies with flow rate. At low pumping rates, flow through the aquifer and bore screen remains laminar. As the rate increases, turbulence develops at the screen interface, resulting in a differential head loss between the outside and inside of the screen known as the well loss (Sw).

Bore efficiency at different pumping rates is typically assessed using step-rate tests, where the bore is pumped at incrementally increasing rates. The results are analysed using the Hantush-Biershenk and Eden-Hazel methods (**Attachment B**), with outcomes summarised in **Table 4-1.** The constructed seepage recovery bores exhibited well efficiencies ranging from 34% to 100%, with end-of-test drawdowns between 8 and 36.5 mBTOC.

For optimal performance, seepage recovery bores should be operated at rates high enough to induce sufficient drawdown, but low enough to limit initial well losses each time pumping commences. Table 3-1 identifies the pumping rates (based on the Hantush-Biershenk method) that correspond to a design initial well loss of 5 m.

Table 4-1 Summary of step test / well efficiency

Bore ID	Pump Setting (mbtoc)	SWL start of steps (mtoc)	SWL end of steps (mtoc)	Step Test Rates (kL/day)	Well Efficiency (%)	Recommended rate @ 5 m Sw (kL/day)
RB01	30.0	1.6	27.2	135, 233, 337,423	62, 50, 40, 34	330
RB02	36.8	2.1	36.5	13, 45, 129, 171	100, 100, 100, 100	50
RB03	14.1	2.0	7.9	42, 64, 86, 110, 133, 148	100, 100,100,100,100,100	105
RB04	14.3	1.7	14.3	24, 54, 81, 113, 142, 199	100, 100,100,100,100,100	120
RB05	13.5	3.6	11.9	36, 90.5	100, 100	56
RB06	51.3	1.5	13.4	515, 739,1024	99, 98, 97	780

4.3 Transmissivity of the aquifer

Hydraulic response curves for the CRT test is presented in **Attachment B**. Reference to the drawdown response curve shows an initial high rate of drawdown in the first several minutes due to well loss effects, usually followed by a period of straight-line logarithmic drawdown. The slope of the straight-line response is a function of the abstraction rate and the near well aquifer transmissivity, which can be readily calculated using known empirical equations.

The transmissivity (**T**) of an aquifer is defined as the product of the aquifer hydraulic conductivity (**K**) and the aquifer thickness (**d**) according to the formula below.

$$T = K \times d$$

For the purposes of this pump test analysis, the saturated aquifer thickness is approximated as the base of screened interval in each bore, less the unsaturated portion of the well above the static water level. Given that this definition may intersect several saprolite weathering zones having very disparate hydraulic properties, the calculated hydraulic conductivities should be regarded as an approximation of the bulk properties of the upper and lower saprolite weathering zones.

Table 4-2 summarises Transmissivity values derived through analysis of the pumping and step rate tests using Eden-Hazel analytical methods. This method is prone to error because it assumes a single homogeneous confined aquifer and that the bore screen fully penetrates the aquifer. Reference to the table shows that the transmissivity of the bore, using the Eden-Hazel analytical method was between 4.1 m^2/day and 167.5 m^2/day.

Table 4-2 Summary of CRT data & analytical results using radial flow model

Bore ID	CRT rate (L/s)	Saturated Thickness (m)	Transmissivity (m^2/day) Eden Hazel	Hydraulic Conductivity (m/day)
RB01	5	47.2	23.6	0.5
RB02	1.5	41.0	4.1	0.1
RB03	1.6	13.3	18.6	1.4
RB04	2.0	13.6	21.8	1.6
RB05	0.6	12.4	N/A	N/A
RB06	15.0	50.8	167.5	3.3

Boundary effects can also be observed from pumping test data when the hydraulic response curve deviates from the theoretical curve. A boundary effect occurs when there is a change in flow towards a pumped well which can be caused by different hydraulic properties spatially throughout the aquifer, or a change in physical properties such as thinning of an aquifer or flow barriers. Barrier boundary effects are evident in the tests from RB01, RB03 and RB04.

4.4 Water Quality Analyses

A water sample was collected from each of the monitor bores at the end of the hydraulic testing and submitted to the Chem Centre Bentley, a National Association of Testing Authorities (**NATA**) certified laboratory for chemical analysis of total dissolved solids (**TDS**), pH and electrical conductivity (**EC**), as well as selected major ions and metals.

Table 4-3 summarises the Laboratory EC, TDS, pH for each of the production bores. The full analytical suite is exhibited in **Attachment C**.

Table 4-3 Summary of water quality results for the 2024 production bore drilling

Bore ID	Submitted to lab	pH	EC (µS/cm)	TDS (mg/L)
MB01	22/01/2025	7.3	110,000	90,000
MB02	22/01/2025	7	61,100	44,000
MB03	22/01/2025	7.4	76,700	59,000
MB04	22/01/2025	7.5	106,000	88,000
MB05	22/01/2025	7.2	108,000	89,000
MB06	22/01/2025	7.3	99,400	81,000
MB07	22/01/2025	7.2	137,000	120,000
MB08	22/01/2025	7.3	132,000	120,000
MB09	22/01/2025	7.3	106,000	88,000

4.5 Surficial aquifer seepage

In the RB boreholes located adjacent to the TSF 4 wall, Upper Deposits comprising transported aeolian, alluvial-fluvial, and playa sediments were encountered to depths generally around 12 m. However, RB04 contained only 7 m of these deposits, while they extended to 19 m in RB01. The Upper Deposits consist predominantly of dark reddish-brown, coarse-grained sand and fine gravel, with trace to occasionally common amounts of clay or silt. Pisolite gravel is frequently present.

These deposits overlie the Upper Saprolite, which is commonly capped by a 1–2 m thick layer of ferruginous gravel and clay.

The Upper Deposits form an unconfined, moderately permeable aquifer, referred to as the Surficial Aquifer. This aquifer extends from the lower slope, including the TSF area, to the valley flats. It may provide a potential pathway for fluid migration from the TSF where the membrane lining beneath the TSF and dam wall does not fully hydraulically isolate the aquifer from the tailings. Raising the TSF wall increases the hydraulic head in this area, which led to the formation of sand volcanoes observed by WSP (2009).

4.6 Discussion of artesian head in recovery bore RB06

Seepage recovery bores RB03 and RB06 are sited on apparent structural features in the bedrock, interpreted to be deeply weathered NE trending fault or shear zones beneath TSF 4. (**Section 2**). The high yields obtained from RB06 suggests that a permeable fault or shear was intersected, while RB03 did not extend sufficiently deep to confirm the presence of these features.

Figure 4-1 illustrates how the potentiometric water table in the Lower Saprolite horizon around TSF4 is hinged at the elevation of the open water within the decant pond on the TSF surface and by ground level around the lake perimeter.

A 5 to 12 m thick layer of Upper Saprolite clay was encountered in the TSF recovery bores and is inferred to extend beneath TSF 4. This unit acts as a semi-confining layer separating the decant pond from the underlying Lower Saprolite aquifer, which corresponds to the zone of partially decomposed bedrock and joint oxidation. The presence of this semi-confining unit permits the development of artesian potentiometric heads within the Saprolite aquifer adjacent to the TSF walls.

It is important to note, however, that the presence of artesian heads does not necessarily indicate that fluids from the TSF are infiltrating into the Saprolite aquifer. The observed increase in potentiometric head may result from hydraulic loading imposed by the weight of the overlying TSF materials, rather than direct fluid migration.

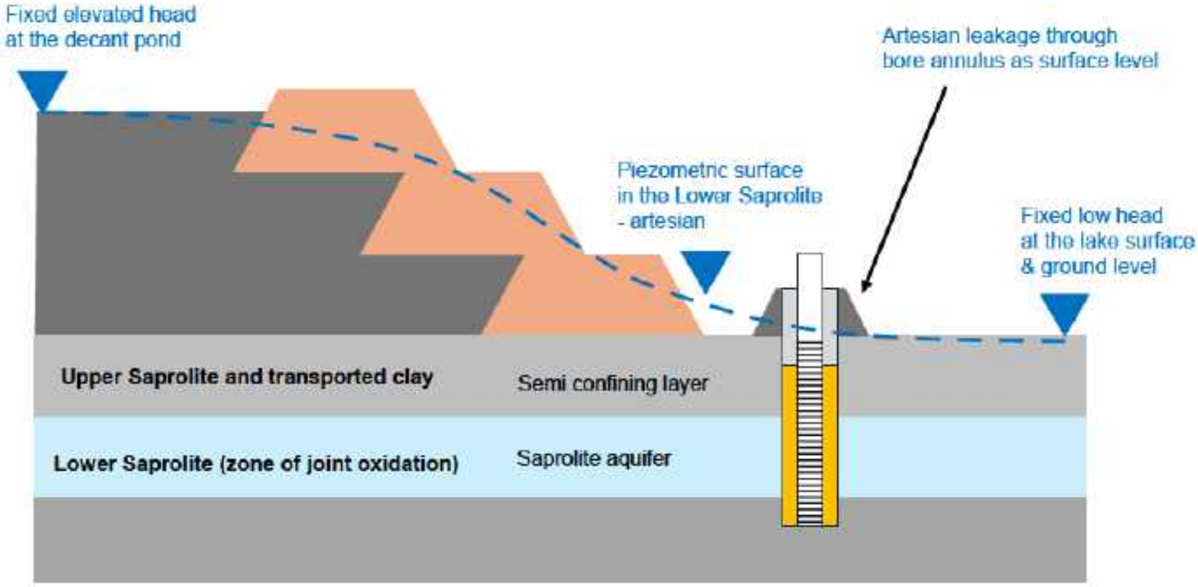

Figure 4-1 Interpreted artesian potentiometric conditions in RB06, driven by elevated water levels in the TSF4 decant pond.

Bore RB06 was drilled to intersect the permeable lower saprolite horizon near the TSF wall and recorded a relatively high permeability of 170 m²/day, substantially greater than the 20 m²/day values measured in other recovery bores. Consequently, RB06 achieved a constant rate test (CRT) yield of 15 L/s, compared to less than 2 L/s in other bores, except for RB01 (5 L/s).

The bore was installed on a permeable rock causeway, with the top of casing positioned 1.4 m above natural ground level (mAGL). Water level monitoring between December 2024 and June 2025 indicates fluctuations from 7 mm below ground level to 9 mm above, confirming a slight artesian condition. **Figure 4-2** shows evidence of leakage through the RB06 bore annulus, with seepage discharge emerging at the base of the causeway.

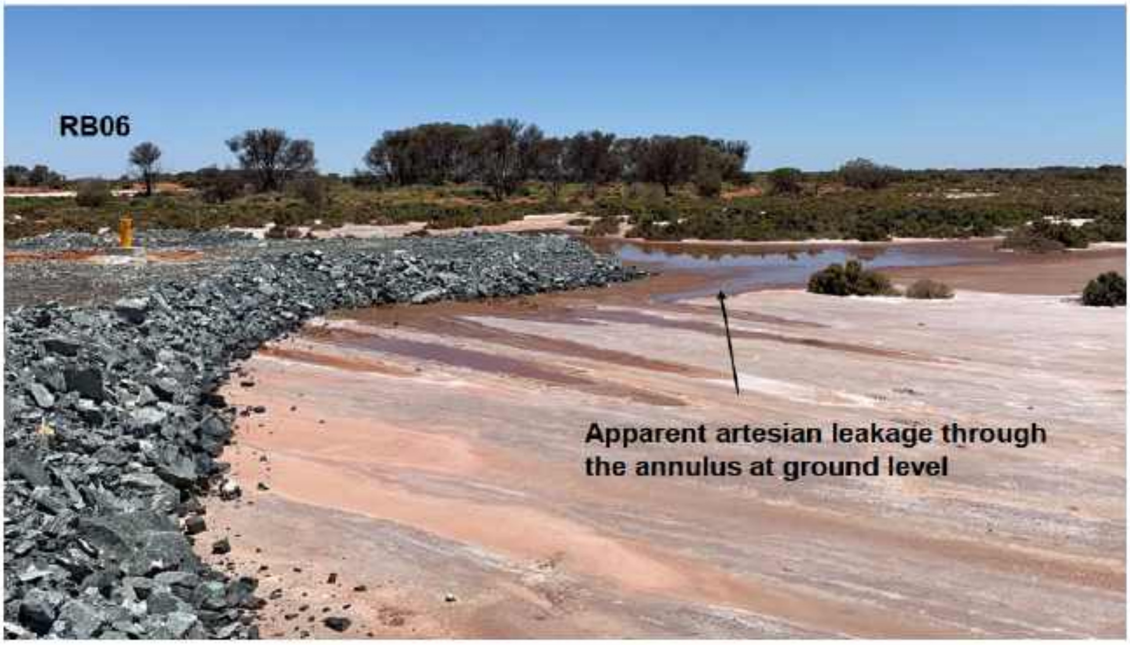

Figure 4-2 Picture of leakage at the base of the causeway at RB06.

5. ADDENDUM TO GROUNDWATER MANAGEMENT PLAN

DWER recommended that, following installation of the additional monitoring infrastructure, the Licence be amended to incorporate the updated monitoring network, along with bore-specific water level trigger values and corresponding management responses.

Based on the natural groundwater fluctuation ranges observed in all seepage recovery bores, vegetation monitoring bores, and zone-of-influence monitoring bores (as shown in Table 3-1), Pennington Scott recommends a groundwater level trigger of 0.5 m below natural ground level (mBGL) for all bores, except MB03, MB04, MB08, and MB09, where a trigger of 1.0 mBGL is more appropriate due to their deeper observed natural water level fluctuation.

5.1 Management response plan

Current measurements indicate that groundwater levels in all six TSF seepage recovery bores along the southern wall of TSF 4 (RB01 to RB06) are at or exceed the recommended 0.5 mBGL trigger, confirming the need for active water table management response.

Thus, the primary objective of the seepage recovery program is to reduce and maintain the water table in all seepage recovery bores at a management target of least 0.5 mBGL (**Figure 5-1**). To achieve this, each recovery bore is to be equipped with an automated pump system that activates when the water level rises to within 0.6 mBGL (cut-on) and shuts off once the water level is drawn down to 7 mBGL (cut-off).

Table 5-1 provides the specific cut-on and cut-off switch levels (expressed in metres below top of casing), along with the recommended pump specifications, pump installation depths, and valve yield settings, based on bore-specific properties detailed in Table 3.1. The target bore yields and pump sizing have been optimised to achieve an initial well loss of 5 m (+/- 1 m) and a pump duty cycle of about 75%.

Recovered seepage from Borefield abstraction will be conveyed via pipeline to the Gwalia plant process water pond for reuse in mineral processing operations. Pump cooling shrouds are not required for any of the bores, given the selected pump settings and installation depths.

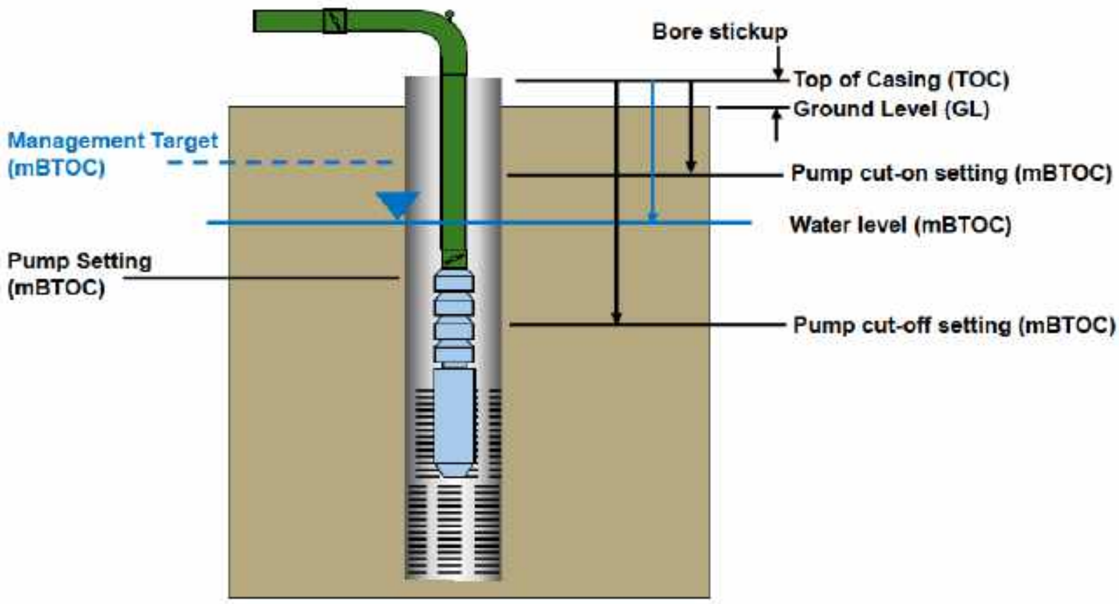

Figure 5-1 Borefield management Levels

Table 5-1 Trigger level values, pump triggers and pump specifications expressed in mBTOC

Type	Bore	TLV mBTOC	Target pump yield L/s	Pump setting mBTOC	Installed pump recommendation	Target pump cut-on mBTOC	Target pump cut-off mBTOC
Seepage / Depressurisation	**RB01**	2.08	3.8	18	5.5 KW Lowarra 16GS55 (98 mm O.D.)	2.18	8.58
	RB02	2.10	0.6	12	1.5 KW Lowarra 8GS15 or Grundfos SP8A-10 (98 mm - 101 mm O.D.)	2.2	8.6
	RB03	2.07	1.2	12	1.5 KW Lowarra 8GS15 or Grundfos SP8A-10 (98 mm - 101 mm O.D.)	2.17	8.57
	RB04	1.38	1.4	12	1.5 KW Lowarra 8GS15 or Grundfos SP8A-10 (98 mm - 101 mm O.D.)	1.48	7.88
	RB05	1.51	0.6	12	1.5 KW Lowarra 8GS15 or Grundfos SP8A-10 (98 mm - 101 mm O.D.)	1.61	8.01
	RB06	1.9	9	24	11 KW Lowarra Z6-31/9 (146 mm O.D.)	2	8.4
Vegetation Piezometers	**MB01**	1.27					
	MB02	1.22					
	MB03	1.69					
	MB04	1.62					
Zone of Influence Piezometers	**MB05**	1.25					
	MB06	1.19					
	MB07	1.24					
	MB08	1.70					
	MB09	1.62					

REFERENCES

DEPARTMENT OF WATER (2009) Operational policy no. 5.12 – Hydrogeological reporting associated with a groundwater well licence. Department of Water, Perth, November 2009.

DEPARMENT OF WATER AND ENVIRONMENTAL REGULATION 2024. Gwalia TSF3 and TSF4 groundwater management plan – Compliance demonstrated, 13 August 2024. DWER Ref L8337/2009/2

GOLDER July 2021. Gwalia Seepage trench model – Leapfrog model. Powerpoint presentation

GOLDER May 2021a. Gwalia TSF4 Geophysical Survey – preliminary discussion. Powerpoint presentation

GOLDER July 2021b. Gwalia Gold mine TSF 4 – Electromagnetic conductivity survey – key findings. Tech Memo Ref 21458772-002-M-RevA

PENNINGTON SCOTT 2024

STANDARDS AUSTRALIA 1990. Australian Standard AS 2368-1990, "Test Pumping of Water Wells". DR 89112.

WSP 2024. Gwalia TSF3 and TSF4 groundwater management plan on behalf of Genesis Minerals (Leonora) Limited, May 2024. WSP Ref: PS210829-WSP-PER-MNG-REP-001 Rev1

Attachment A

Bore Completion Logs

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Borehole: RB01

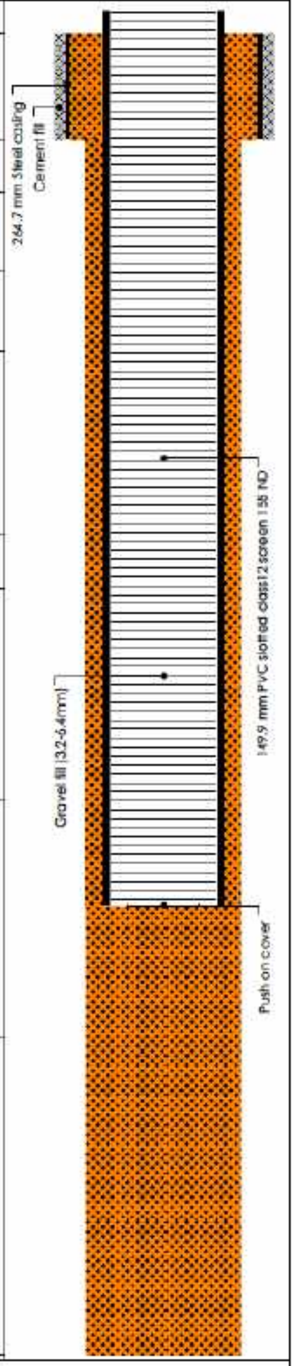
Project: Gwalia Operations - TSF Drilling Stage 2	Zone: 51 (GDA 94)	Elevation: 358 (mAHD)	Total Depth: 50 m
Client: Genesis Minerals Ltd.	Easting: 336404	SWL: N/A	Logged By [redacted]
Location: RB01	Northing: 6798081	Salinity: N/A	Checked

SUBSURFACE PROFILE

Ground Surface

Depth (m)	Formation	Lithology
0	Upper Deposits	SW coarse SAND, angular, dry pale brown speckled pale grey with dark grey. Ferrous duricrust.
	Upper Deposits	SW coarse SAND, angular, dry, qtz pale brown speckled pale grey with dark grey. Ferrous duricrust.
	Upper Deposits	GW fine GRAVEL with trace clay, SA, moist, qtz dark grey speckled dark reddish brown with pale grey.
10	Upper Deposits	SC clayey coarse SAND, SR dark reddish brown speckled pale grey with dark grey. Multiple fe oxide pisolites observable
	Upper Deposits	SC clayey coarse SAND gap graded, SA, moist dark reddish brown speckled pale grey with dark grey.
20	Upper Deposits	GC clayey coarse GRAVEL gap graded, medium dense, SA, qtz lithic dark reddish brown pale grey with dark grey. Ferrous oxide and claystone
	Lower Saprolite	Microgranite pale grey mottled reddish brown with pale yellow low strength extremely weathered. Cheifly serecile clay with heamatitic and limonite mottling. Iron pisolites and rounded gravelly quartz grains observable.
30	Lower Saprolite	Microgranite crystalline very pale reddish brown speckled dark grey with pale grey medium strength extremely weathered. Transition to more dominantly quartz. Kaolinite clay still a typifying feature of the interval.
40	Saprock	Microdiorite crystalline white speckled pale brown with dark grey high strength slightly weathered. Heavily fractured with quartz infill. Minor mafic and claystone components observable

Bore Construction



Drilling Company: Caswell Drilling
Drilling Equipment: FLASH drill rig
Drilling Method: RAB

Started: 10/12/2024
Completed: 11/12/2024
Compiled: 26/02/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

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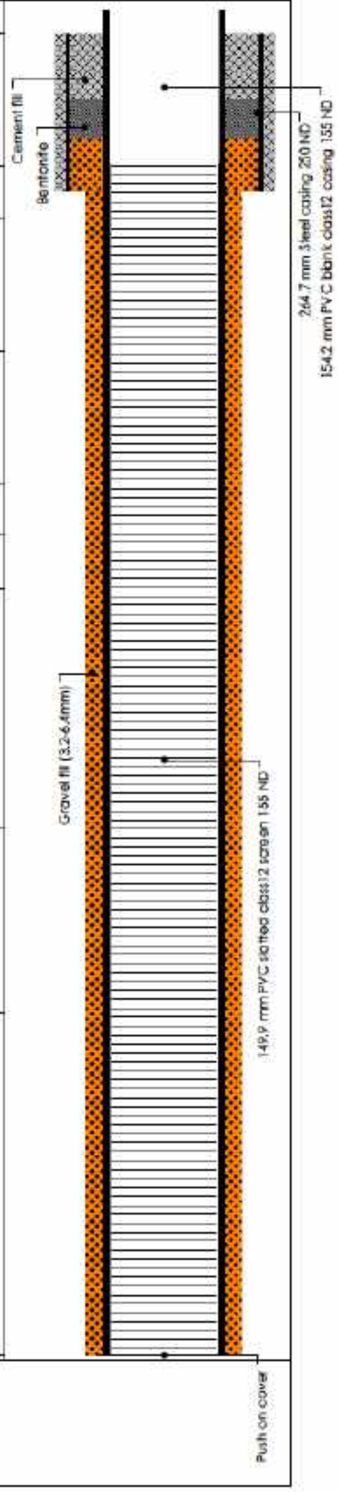
Borehole: RB02

Project: Gwalia Operations - TSF Drilling Stage 2	Zone: 51 (GDA 94)	Elevation: 358 (mAHD)	Total Depth: 50 m
Client: Genesis Minerals Ltd.	Easting: 336504	SWL: N/A	Logged By: [redacted]
Location: RB02	Northing: 6798081	Salinity: N/A	Checked B[redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology
0		Ground Surface
	Upper Deposits	SP coarse SAND gap graded, loose, angular, dry, qtz lithic dark grey speckled brown with pale grey. Cemented aeolian sand with tabular black iron oxides
	Upper Deposits	SM silty coarse SAND gap graded, medium dense, angular, dry, qtz lithic dark grey mottled brown.
10	Upper Deposits	SP coarse SAND with trace silt poorly graded, medium dense, SA, dry, qtz lithic dark grey speckled reddish brown.
	Upper Saprolite	BASALT pale grey mottled yellowish green with dark grey extremely low strength residual soil. Cheifly serecite and minor montmorillonite clay with tabular iron oxide/mafic chips
	Lower Saprolite	BASALT grey mottled pale brown with dark grey extremely weathered. Cheifly serecite clay with frequent quartz chips observable.
20	Lower Saprolite	BASALT crystalline CHERT dark dusky red speckled pale grey with dark greyish black medium strength distinctly weathered. Minor siliceous cementation and ferrous component observable.
	Lower Saprolite	BASALT crystalline dark greyish black speckled pale grey with reddish brown medium strength distinctly weathered. highly fractured and quartz rich with iron oxide and tabular mafic chips
30	Saprock	BASALT crystalline dark dusky red speckled pale grey with dark grey high strength slightly weathered. Iron stained angular quartz grains and minor mafic chips
40	Saprock	Microgranite crystalline white dark grey with pale yellow very high strength slightly weathered. Introduction of micaceous material, minor mafic chips can be observed.

Bore Construction



Drilling Company: Caswell Drilling
Drilling Equipment: FLASH drill rig
Drilling Method: RAB

Started: 12/12/2024
Completed: 13/12/2024
Compiled: 26/02/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

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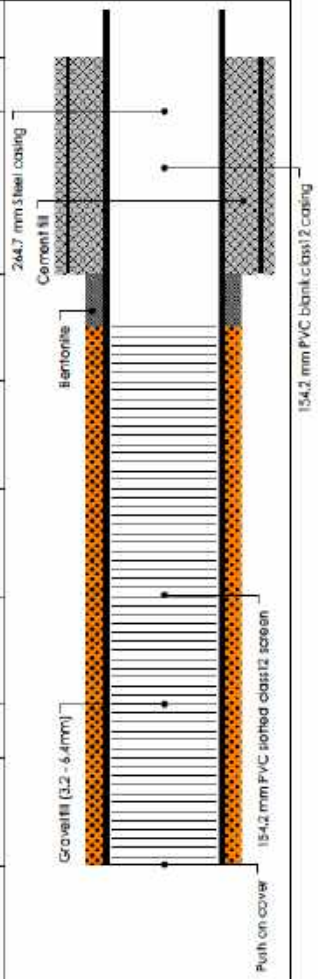
Borehole: RB03

Project: Gwalia Operations - TSF Drilling Stage 2	Zone: 51 (GDA 94)	Elevation: 364 (mAHD)	Total Depth: 15 m
Client: Genesis Minerals Ltd.	Easting: 336604	SWL: N/A	Logged By: [redacted]
Location: RB03	Northing: 6798081	Salinity: N/A	Checked B [redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology
0			Ground Surface
	Upper Deposits		SW gravelly med SAND well graded, loose, SA, qtz pale brown speckled dark grey. Aolian sand and minor ferrous oxide gravel
	Upper Deposits		SW med SAND with trace silt well graded, loose, SA, dry, qtz pale reddish brown speckled pale brown with white. Very small percentage of claystone (1-2%)
	Upper Deposits		SW-SM coarse SAND with silt well graded, loose, SR, qtz dark reddish brown speckled dark grey with pale grey. Rich in iron oxide with iron pisoliths observable.
	Upper Deposits		SW coarse SAND with trace clay well graded, loose, SA, qtz dark reddish brown speckled dark grey with pale grey.
	Upper Deposits		SC clayey coarse SAND well graded, loose, SR, qtz dark reddish brown mottled dark grey with pale grey.
10	Upper Deposits		SW coarse SAND well graded, loose, SR, qtz dark reddish brown speckled dark grey with pale grey. Cheifly ferrous
	Upper Deposits		GW fine GRAVEL with trace clay well graded, medium dense, SR, qtz dark reddish brown speckled dark grey with pale grey.
	Upper Saprolite		Microgranite crystalline pale grey mottled dark reddish brown with pale brown medium strength extremely weathered. Cheifly grey/white claystone with some gravelly ferrous oxide.
20			

Bore Construction



Drilling Company: Caswell Drilling
Drilling Equipment: FLASH drill rig
Drilling Method: RAB

Started: 14/12/2024
Completed: 14/12/2024
Compiled: 26/02/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

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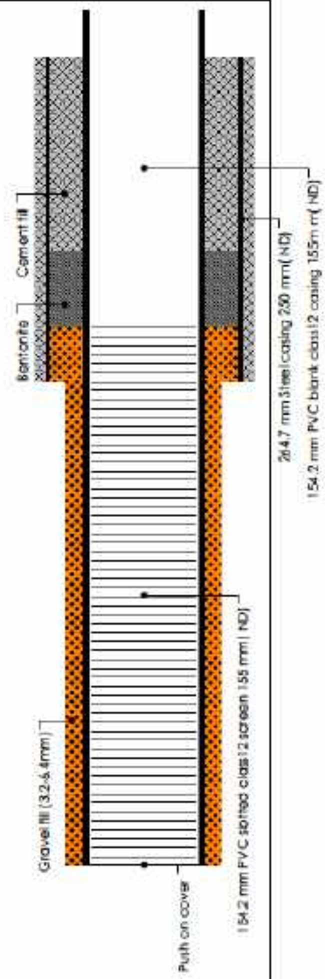
Borehole: RB04

Project: Gwalia Operations - TSF Drilling Stage 2	Zone: 51 (GDA 94)	Elevation: 361 (mAHD)	Total Depth: 15 m
Client: Genesis Minerals Ltd.	Easting: 336705	SWL:	Logged By: [redacted]
Location: RB04	Northing: 6798081	Salinity:	Checked By [redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology
0			Ground Surface
	Upper Deposits		GW sandy fine GRAVEL, angular brown speckled dark grey. Duricrust with aeolian sand.
	Upper Deposits		SW coarse SAND with trace silt, medium dense, angular dark reddish brown speckled dark grey with white. Duricrust with minor pisoliths observable.
	Upper Deposits		Shale silicified CLAYSTONE white mottled dark grey with dark reddish brown low strength distinctly weathered.
10	Upper Saprolite		Microgranite crystalline silicified CLAYSTONE pale grey mottled dark grey with dark reddish brown low strength extremely weathered. Mixture of gravelly ferrous oxides from the Upper Deposits and serecific clay.
20			

Bore Construction



Drilling Company: Caswell Drilling
Drilling Equipment: FLASH drill rig
Drilling Method: RAB

Started: 13/12/2024
Completed: 1/01/2000
Compiled: 26/02/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

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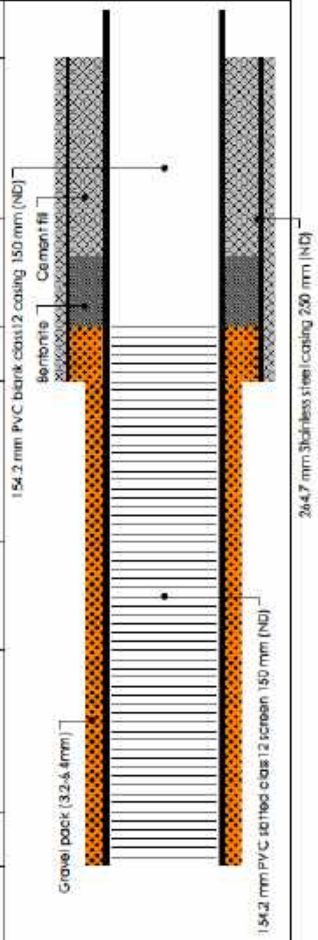
Borehole: RB05

Project: Gwalia Operations - TSF Drilling Stage 2	Zone: Z51 (GDA94)	Elevation: 361 (mAHD)	Total Depth: 15 m
Client: Genesis Minerals Ltd.	Easting: 336805	SWL: 3.62 (mbtoc)	Logged By: [redacted]
Location: RB05	Northing: 6798081	Salinity: N/A	Checked B[redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology
			Ground Surface
0			GP fine GRAVEL with trace med sand poorly graded, medium dense, angular, dry dark grey speckled pale brown with pale grey. Cheifly iron oxide with secondary aeolian sand.
			SW-SM coarse SAND with silt well graded, loose, SA, dry dark brown speckled dark grey.
			SW-SM coarse SAND with silt well graded, loose, SA, dry dark brown speckled dark grey.
			GP fine GRAVEL with trace silt gap graded, loose, SA, moist dark grey speckled dark brown. Silt primarly coats the iron oxide grains.
10			SW-SC coarse SAND with clay well graded, loose, SA, wet dark brown specked dark grey with pale grey. Clay component creates clumps.
			Siltstone silicified CLAYSTONE pale grey mottled dark reddish brown with dark grey high strength distinctly weathered.
			Microgranite pale grey mottled dark grey with dark reddish brown medium strength extremely weathered. Serecite clay with minor gravelly ferrous oxide.
20			

Bore Construction



Drilling Company: Caswell Drilling	Started: 13/12/2024
Drilling Equipment: FLASH drill rig	Completed: 14/12/2024
Drilling Method: RAB	Compiled: 26/02/2025

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Borehole: RB06

Project: Gwalia Operations - TSF Drilling Stage 2	Zone: 51 (GDA 94)	Elevation: 359 (mAHD)	Total Depth: 52 m
Client: Genesis Minerals Ltd.	Easting: 336291	SWL: 1.52 (mbtoc)	Logged By: [redacted]
Location: RB06	Northing: 6798091	Salinity: N/A	Checked B [redacted]

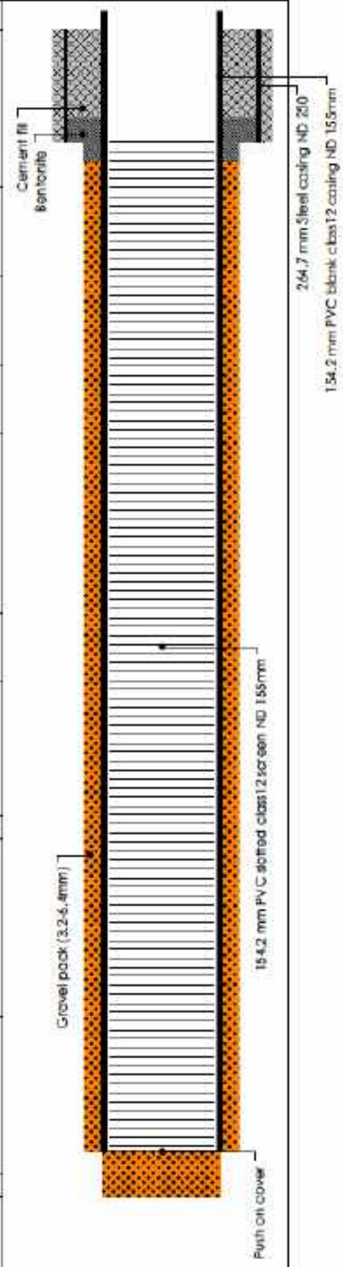
SUBSURFACE PROFILE

Depth (m): 0, 10, 20, 30, 40, 50

Formation	Lithology
	Ground Surface
Upper Deposits	GP coarse GRAVEL with trace silt poorly graded, medium dense, SA, qtz lithic dark grey speckled reddish brown with white. Occasional vugs observable in the ferrous matrix
Upper Deposits	SP coarse SAND with trace clay poorly graded, medium dense, SA, qtz lithic dark grey reddish brown. appear as strongly cemented clusters
Upper Deposits	iron cemented SHALE white mottled pale reddish brown with dark grey. Claystone with ferrous cementation and iron oxide.
Upper Saprolite	iron cemented SHALE white mottled pale reddish brown with dark grey. Claystone and gravelly ferrous oxide. Limote and haematitic mottling
Upper Saprolite	Microgranite grey mottled pale reddish brown with white low strength extremely weathered. Mixture of very stiff serecitic clay with limonite mottling and white vuggy claystone with haematitic staining. Minor gravelly ferrous oxides present.
Lower Saprolite	GRANITE crystalline pale cream speckled pale grey with dark greyish black high strength distinctly weathered. Quartz + feldspar chips observable with minor ferrous oxide grains. Minor claystone also observable.
Lower Saprolite	Microgranite crystalline pale cream speckled pale grey with dark greyish black high strength distinctly weathered. Quartz + feldspar chips observable with minor ferrous oxide grains.
Lower Saprolite	iron cemented SILTSTONE dark greyish black speckled dark reddish brown with white high strength distinctly weathered. Ferrous oxide and iron stained claystone
Saprock	BASALT white speckled dark greyish green with pale reddish brown very high strength slightly weathered. iron stained quartz veining and mafic chips with very minor claystone
Saprock	BASALT crystalline white dark greyish green very high strength slightly weathered. Basalt with minor felsic material present with the assemblage quartz-feldspar-mica-tourmaline.
Fresh Rock	Dolerite crystalline cream dark greyish green extremely high strength fresh rock.

Lithology Graphic

Bore Construction



Drilling Company: Caswell Drilling	Started: 9/12/2024
Drilling Equipment: FLASH drill rig	Completed: 9/12/2024
Drilling Method: RAB	Compiled: 27/02/2025

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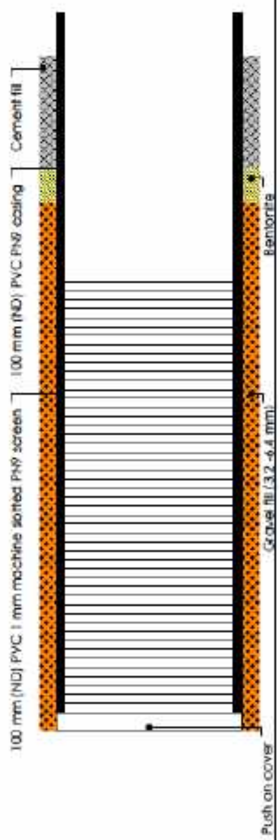
Borehole: MB01

Project: Gwalia Operations	Zone: 51 (GDA 94)	Elevation: 361 (mAHD)	Total Depth: 6 m
Client: Genesis Minerals Ltd.	Easting: 335817	SWL: N/A	Logged By: [redacted]
Location: Gwalia Tailings Storage Facility	Northing: 335931	Salinity: 90000 mg/L (21/01/2025)	Checked B[redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology
			Ground Surface
0	Upper Deposits		SW fine SAND with trace clay, SA reddish brown.
	Upper Deposits		SW-SC fine SAND with clay, SA red speckled pale yellow.
	Upper Deposits		GW-GS fine GRAVEL with med sand, SA reddish brown.
10			

Bore Construction



Drilling Company: Soil Mechanics	Started: 30/11/2024
Drilling Equipment: Hanjin D8	Completed: 30/11/2024
Drilling Method: Mud rotary	Compiled: 31/01/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

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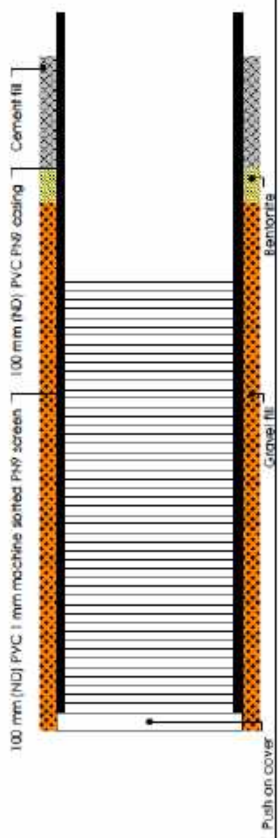
Borehole: MB02

Project: Gwalia Operations	Zone: 51 (GDA 94)	Elevation: 360 (mAHD)	Total Depth: 6 m
Client: Genesis Minerals Ltd.	Easting: 335931	SWL: N/A	Logged By: [redacted]
Location: Gwalia Tailings Storage Facility	Northing: 6798566	Salinity: 44000 mg/L (21/01/2025)	Checked B [redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology	Bore Construction
			Ground Surface	
0	Upper Deposits		SW fine SAND with trace clay. SA reddish brown.	
	Upper Deposits		SW-SC fine SAND with clay. SA reddish brown.	
10				



Drilling Company: Soil Mechanics	Started: 29/11/2024
Drilling Equipment: Hanjin D8	Completed: 29/11/2024
Drilling Method: Mud rotary	Compiled: 31/01/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

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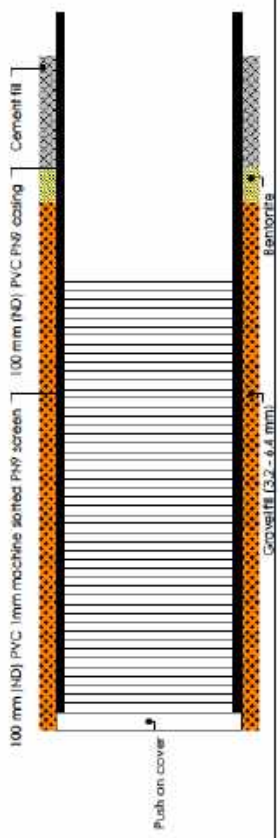
Borehole: MB03

Project: Gwalia Operations	Zone: 51 (GDA 94)	Elevation: 361 (mAHD)	Total Depth: 6 m
Client: Genesis Minerals Ltd.	Easting: 336242	SWL: N/A	Logged By [redacted]
Location: Gwalia Tailings Storage Facility	Northing: 6797963	Salinity: 59000 mg/L (21/01/2025)	Checked B[redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology
			Ground Surface
0	Upper Deposits		SW fine SAND with trace clay. SA reddish brown.
	Upper Deposits		SC clayey fine SAND. SA reddish brown speckled very pale yellow.
	Upper Deposits		SC clayey fine SAND. SA reddish brown speckled very pale yellow. Increase in clay content.
	Upper Deposits		GW sandy fine GRAVEL. SA reddish brown.
10			

Bore Construction



Drilling Company: Soil Mechanics	Started: 28/11/2024
Drilling Equipment: Hanjin D8	Completed: 28/11/2024
Drilling Method: Mud rotary	Compiled: 31/01/2025

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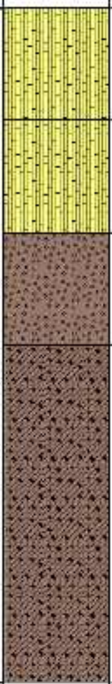
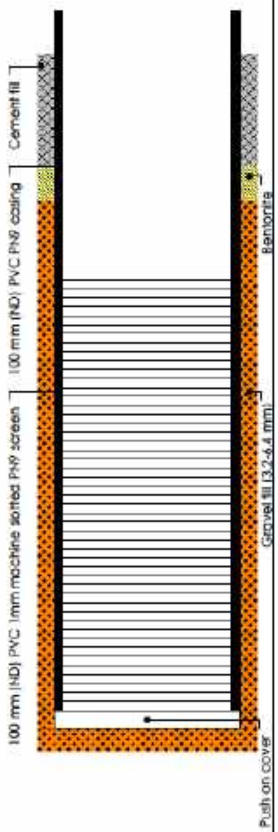
Borehole: MB04

Project: Gwalia Operations	Zone: 51 (GDA94)	Elevation: 364 (mAHD)	Total Depth: 6.2 m
Client: Genesis Minerals Ltd.	Easting: 336780	SWL: N/A	Logged By [redacted]
Location: Gwalia Tailings Storage Facility	Northing: 6798019	Salinity: 88000 mg/L (21/01/2025)	Checked B[redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology
			Ground Surface
0	Upper Deposits		SM silty coarse SAND well graded, loose, SA, qtz reddish brown, Aeolian Deposits
	Upper Deposits		SM silty coarse SAND well graded, medium dense, SA, qtz reddish brown.
	Upper Deposits		GW-GS fine GRAVEL with med sand well graded, medium dense, SA reddish brown speckled black.
	Upper Deposits		GC clayey fine GRAVEL well graded, medium dense, SA reddish brown.
10			

Bore Construction



Drilling Company: Soil Mechanics	Started: 22/11/2024
Drilling Equipment: Hanjin DB-8	Completed: 23/11/2024
Drilling Method: Mud rotary	Compiled: 31/01/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

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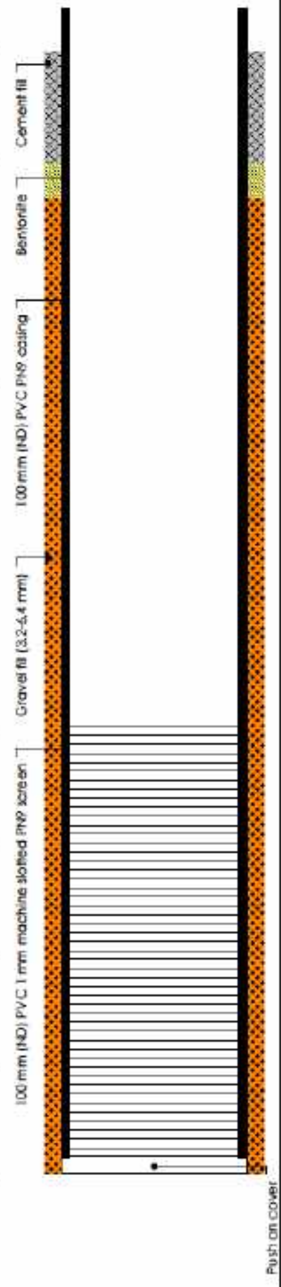
Borehole: MB05

Project: Gwalia Operations	Zone: 51 (GDA94)	Elevation: 360 (mAHD)	Total Depth: 10 m
Client: Genesis Minerals Ltd.	Easting: 336145	SWL: N/A	Logged By: [redacted]
Location: Gwalia Tailings Storage Facility	Northing: 6797907	Salinity: 89000 mg/L (21/01/2025)	Checked B [redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology
			Ground Surface
0	Upper Deposits		SM silty coarse SAND well graded, loose, SA, qtz reddish brown, Aeolian Deposits
	Upper Deposits		SM silty coarse SAND well graded, medium dense, SA, qtz reddish brown.
	Upper Deposits		GC clayey fine GRAVEL well graded, medium dense, SA reddish brown.
	Upper Deposits		GC clayey fine GRAVEL well graded, medium dense, SA reddish brown speckled dark brown.
	Upper Deposits		GC clayey fine GRAVEL well graded, medium dense, SA reddish brown speckled white.
	Upper Deposits		GC clayey fine GRAVEL well graded, medium dense, SA reddish brown.
	Upper Deposits		GC clayey fine GRAVEL well graded, medium dense, SA reddish brown speckled white.
10			

Bore Construction



Drilling Company: Soil Mechanics	Started: 27/11/2024
Drilling Equipment: Hanjin DB-8	Completed: 27/11/2024
Drilling Method: Mud rotary	Compiled: 31/01/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

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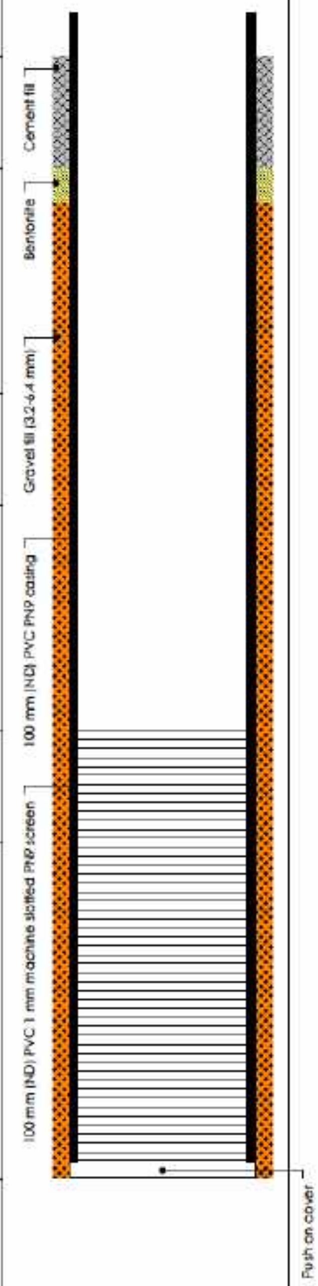
Borehole: MB06

Project: Gwalia Operations	Zone: 51 (GDA94)	Elevation: 361 (mAHD)	Total Depth: 10 m
Client: Genesis Minerals Ltd.	Easting: 336582	SWL: N/A	Logged By: [redacted]
Location: Gwalia Tailings Storage Facility	Northing: 6797903	Salinity: 81000 mg/L (21/01/2025)	Checked B[redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology
			Ground Surface
0	Upper Deposits		GW-GM fine GRAVEL with silt well graded, loose, SA reddish brown speckled black, Aeolian Deposits.
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA, qtz reddish brown
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA, qtz reddish brown speckled black.
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA reddish brown.
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA reddish brown speckled black.
10	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA reddish brown.

Bore Construction



Drilling Company: Soil Mechanics	Started: 23/11/2024
Drilling Equipment: Hanjin DB-8	Completed: 24/11/2024
Drilling Method: Mud rotary	Compiled: 31/01/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

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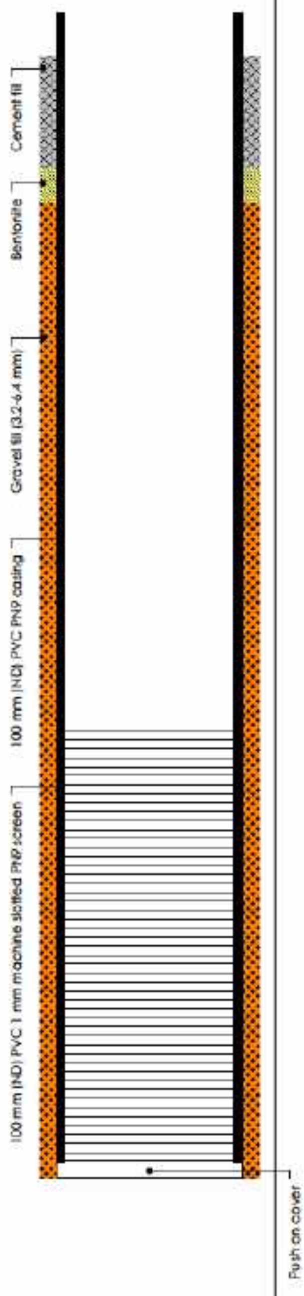
Borehole: MB07

Project: Gwalia Operations	Zone: 51 (GDA 94)	Elevation: 361 (mAHD)	Total Depth: 10 m
Client: Genesis Minerals Ltd.	Easting: 336089	SWL: N/A	Logged By: [redacted]
Location: Gwalia Tailings Storage Facility	Northing: 6797755	Salinity: 120000 mg/L (21/01/2025)	Checked B[redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology
			Ground Surface
0	Upper Deposits		GC clayey fine GRAVEL well graded, loose, SA pale reddish brown speckled white. Aeolian Deposits.
			GC clayey fine GRAVEL well graded, medium dense, SA pale reddish brown speckled white.
			GC clayey fine GRAVEL well graded, medium dense, SA reddish brown speckled white.
			GC clayey fine GRAVEL well graded, medium dense, SA reddish brown.
			GC clayey fine GRAVEL well graded, medium dense, SA reddish brown speckled white.
			GC clayey fine GRAVEL well graded, medium dense, SA reddish brown.
10			

Bore Construction



Drilling Company: Soil Mechanics	Started: 26/11/2024
Drilling Equipment: Hanjin DB-8	Completed: 26/11/2024
Drilling Method: Mud rotary	Compiled: 31/01/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

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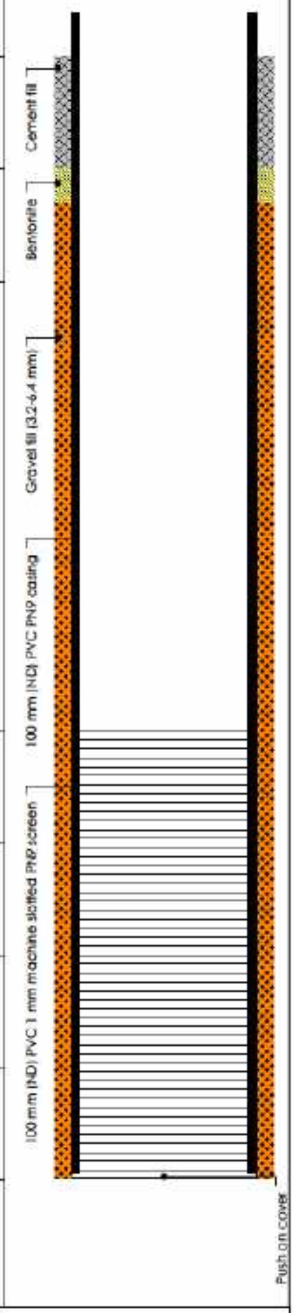
Borehole: MB08

Project: Gwalia Operations	Zone: 51 (GDA 94)	Elevation: 361 (mAHD)	Total Depth: 10 m
Client: Genesis Minerals Ltd.	Easting: 336579	SWL: N/A	Logged By [redacted]
Location: Gwalia Tailings Storage Facility	Northing: 6797702	Salinity: 120000 mg/L (21/01/2025)	Checked B[redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology
			Ground Surface
0	Upper Deposits		GW-GM fine GRAVEL with silt well graded, loose, SA reddish brown.
	Upper Deposits		GW-GM fine GRAVEL with silt well graded, medium dense, SA reddish brown.
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA reddish brown.
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA reddish brown mottled black.
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA reddish brown.
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA reddish brown mottled black.
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA reddish brown.
10			

Bore Construction



Drilling Company: Soil Mechanics	Started: 24/11/2024
Drilling Equipment: Hanjin DB-8	Completed: 24/11/2024
Drilling Method: Mud rotary	Compiled: 31/01/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

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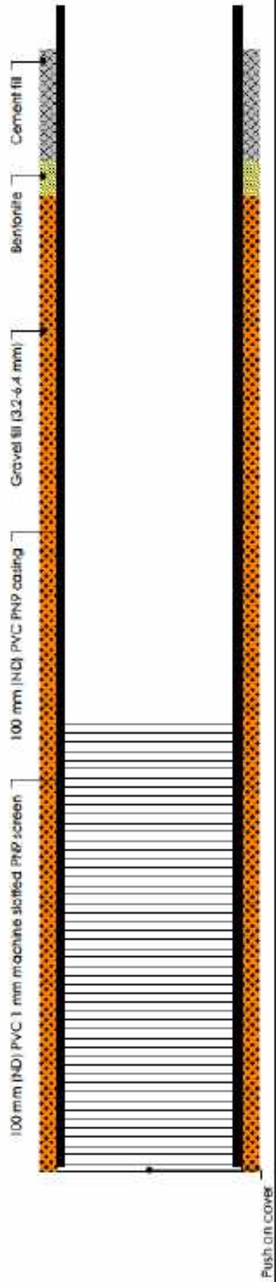
Borehole: MB09

Project: Gwalia Operations	Zone: 51 (GDA 94)	Elevation: 363 (mAHD)	Total Depth: 10 m
Client: Genesis Minerals Ltd.	Easting: 336968	SWL: N/A	Logged By: [redacted]
Location: Gwalia Tailings Storage Facility	Northing: 6797705	Salinity: 88000 mg/L (21/01/2025)	Checked B [redacted]

SUBSURFACE PROFILE

Depth (m)	Formation	Lithology Graphic	Lithology
			Ground Surface
0	Upper Deposits		GC clayey fine GRAVEL well graded, loose, SA reddish brown, Aeolian Deposits.
	Upper Deposits		GC clayey fine GRAVEL well graded, medium dense, SA reddish brown, Aeolian Deposits.
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA reddish brown.
	Upper Deposits		GW-GC fine GRAVEL with clay well graded, medium dense, SA reddish brown.
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA reddish brown mottled yellow.
	Upper Deposits		GM silty fine GRAVEL well graded, medium dense, SA, qtz reddish brown mottled yellow.
	Upper Deposits		GC clayey fine GRAVEL well graded, medium dense, SA, qtz reddish brown mottled yellow.
10			

Bore Construction



Drilling Company: Soil Mechanics	Started: 25/11/2024
Drilling Equipment: Hanjin DB-8	Completed: 25/11/2024
Drilling Method: Mud rotary	Compiled: 31/01/2025

Logged to Australian Standard: Geotechnical Site Investigations AS 1726-1993/Amdt 2-1994.

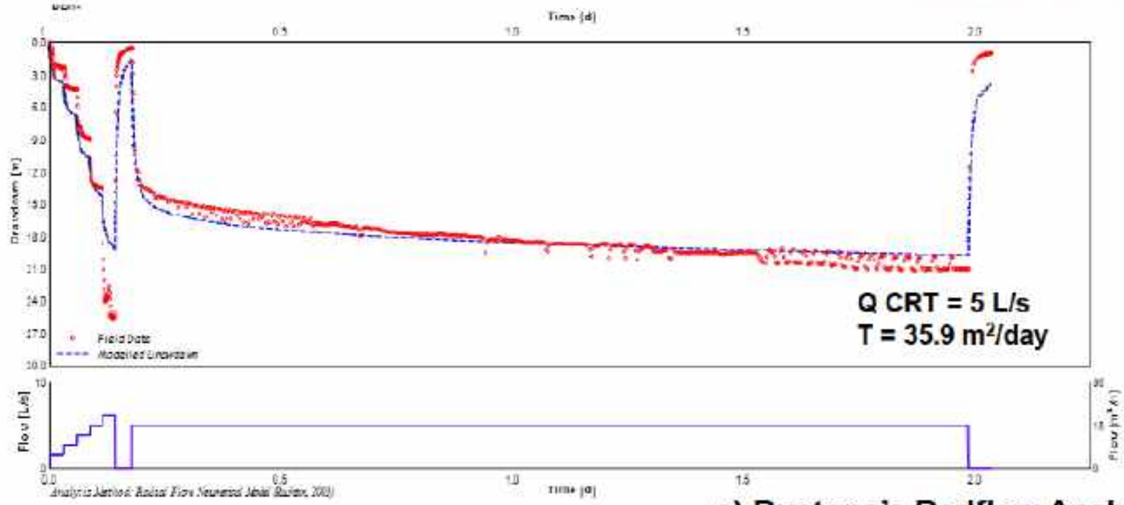
Attachment B

Hydraulic Test Results

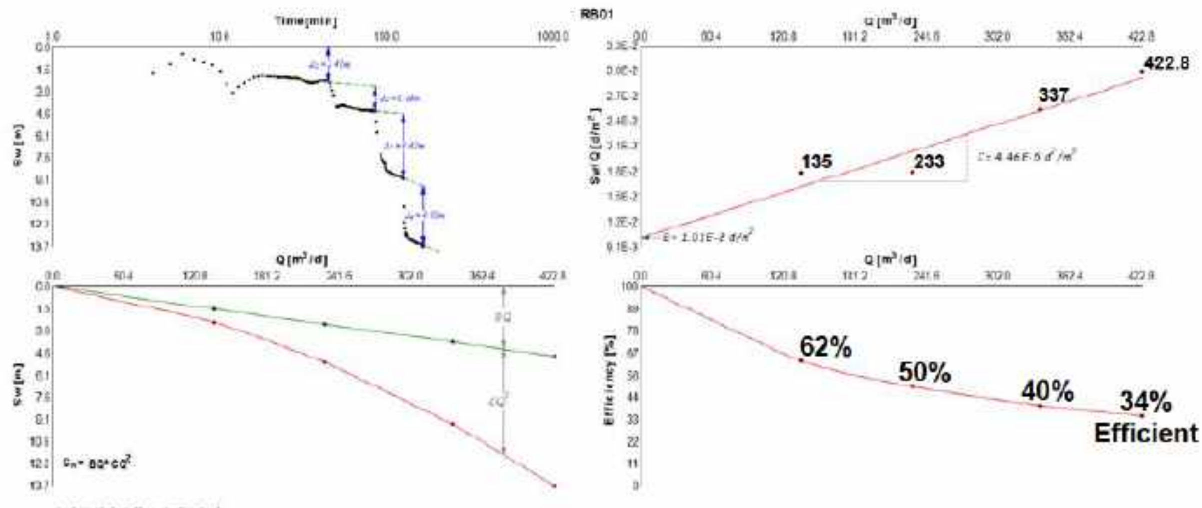
HYDRAULIC TEST ANALYSIS

Project: Gwalia TSF Program

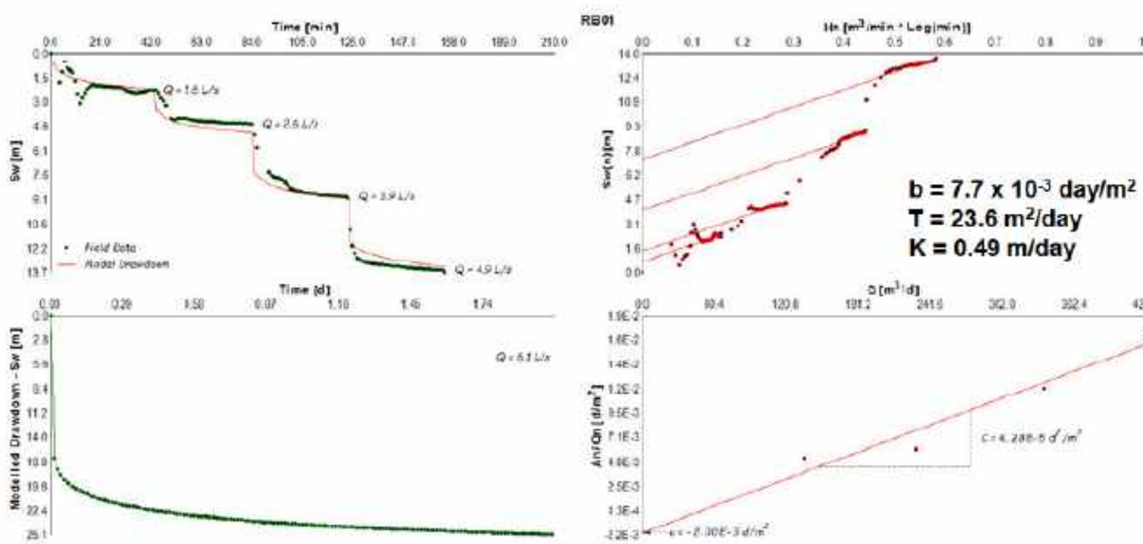
Bore: RB01



a) Rustons's Radflow Analysis



b) Hantush –Biershenk Analysis

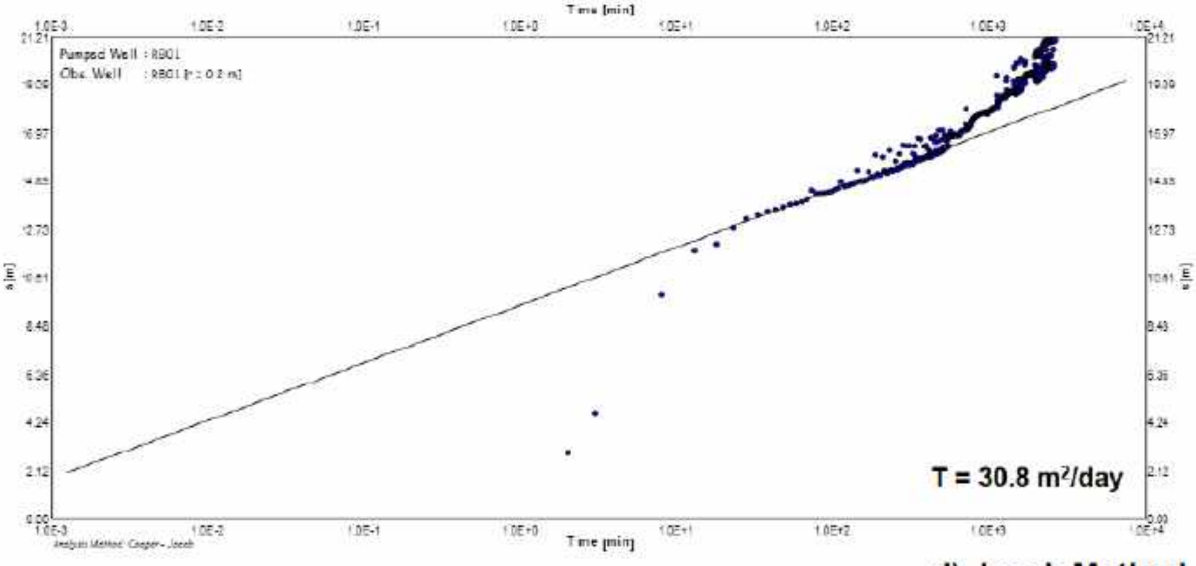


c) Eden Hazel Analysis

HYDRAULIC TEST ANALYSIS

Project: Gwalia TSF Program

Bore: RB01

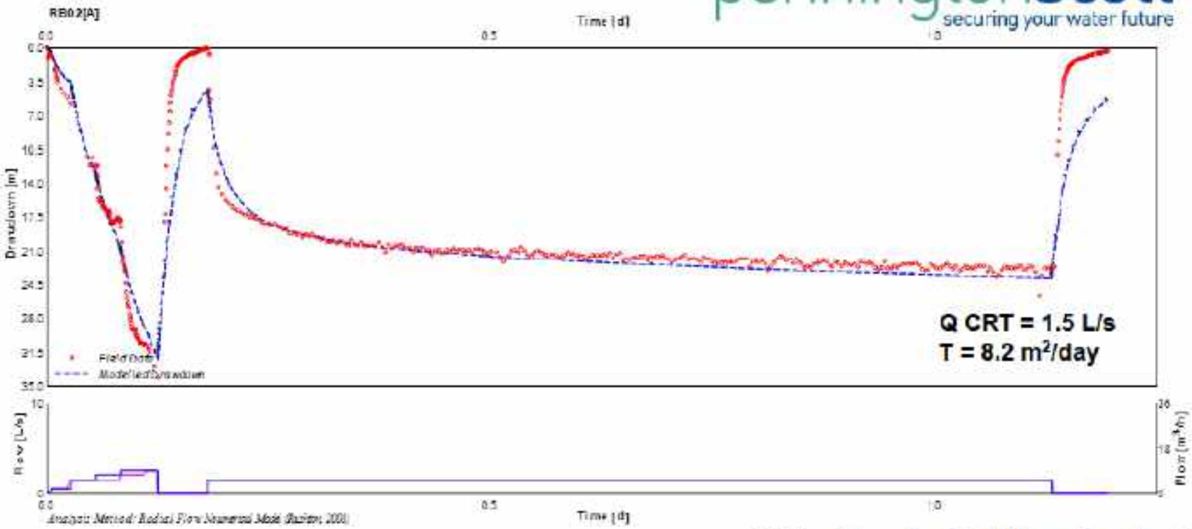


d) Jacob Method

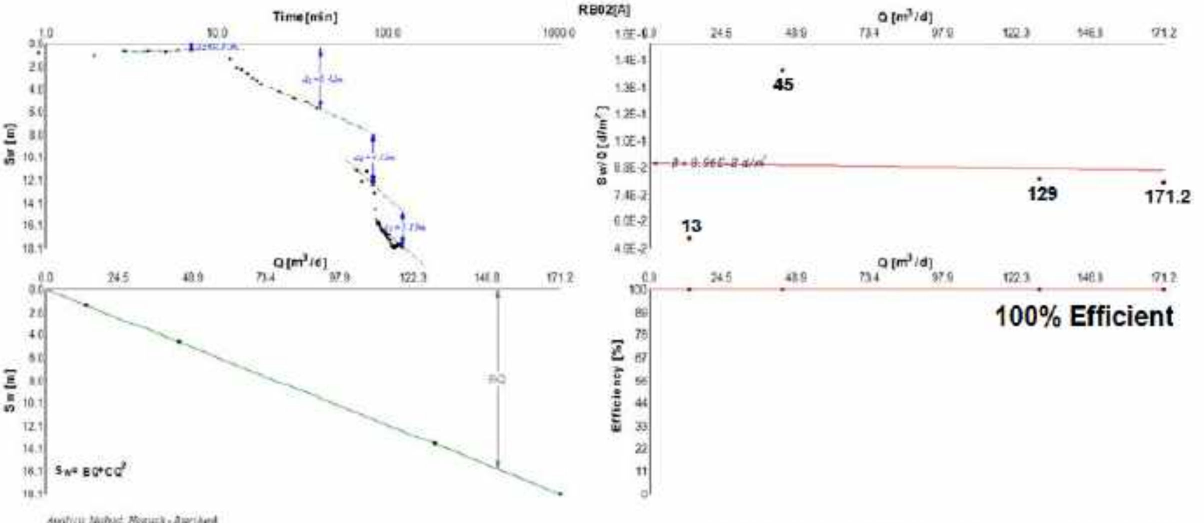
HYDRAULIC TEST ANALYSIS

Project: Gwalia TSF Program

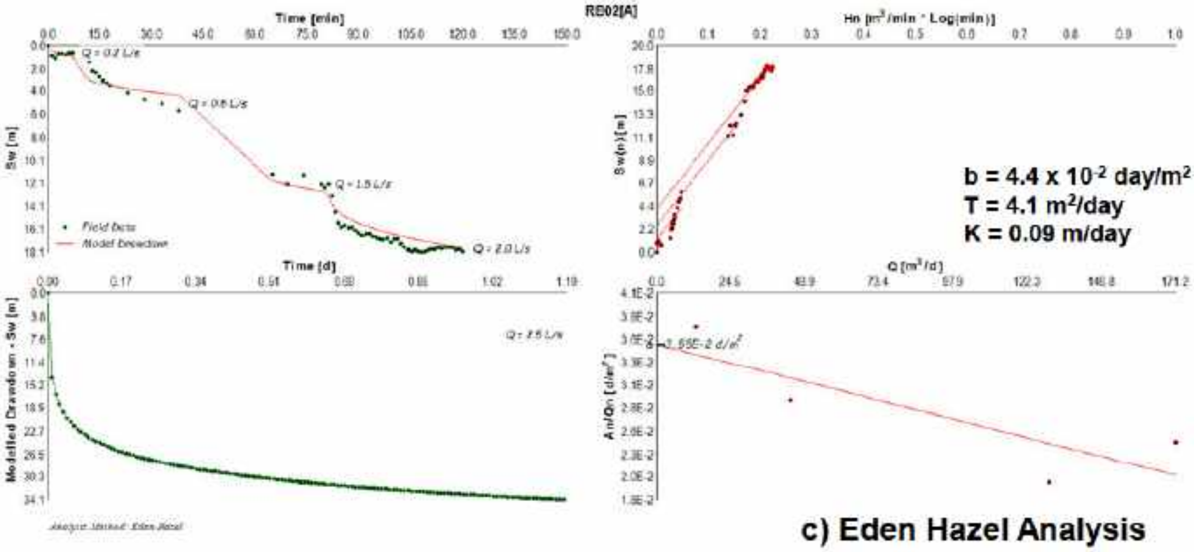
Bore: RB02



a) Rustons's Radflow Analysis

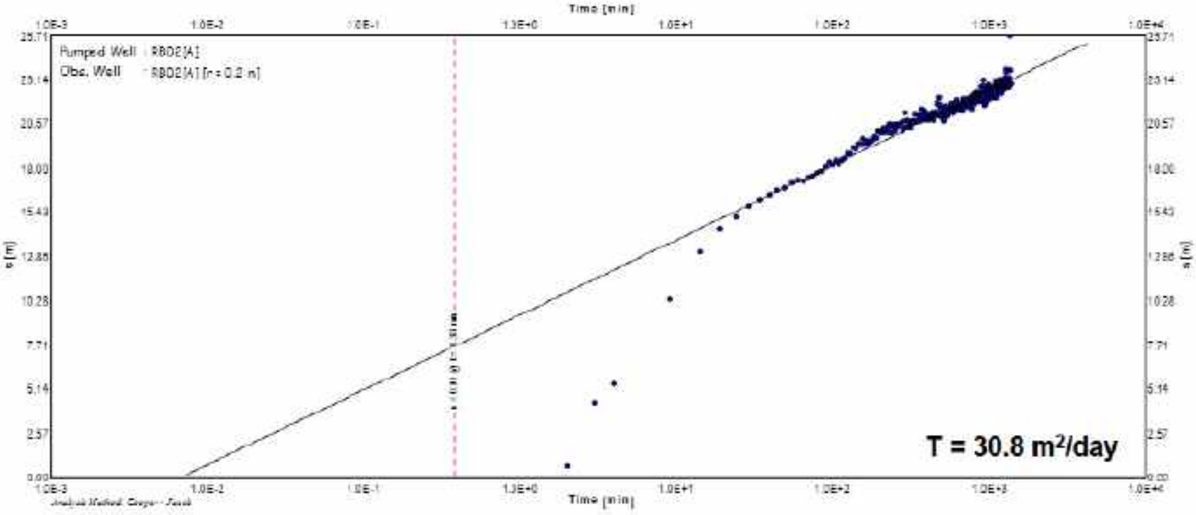


b) Hantush –Biershenk Analysis



c) Eden Hazel Analysis

HYDRAULIC TEST ANALYSIS
Project: Gwalia TSF Program
Bore: RB02



d) Jacob Method

HYDRAULIC TEST ANALYSIS

Project: Gwalia TSF Program

Bore: RB03

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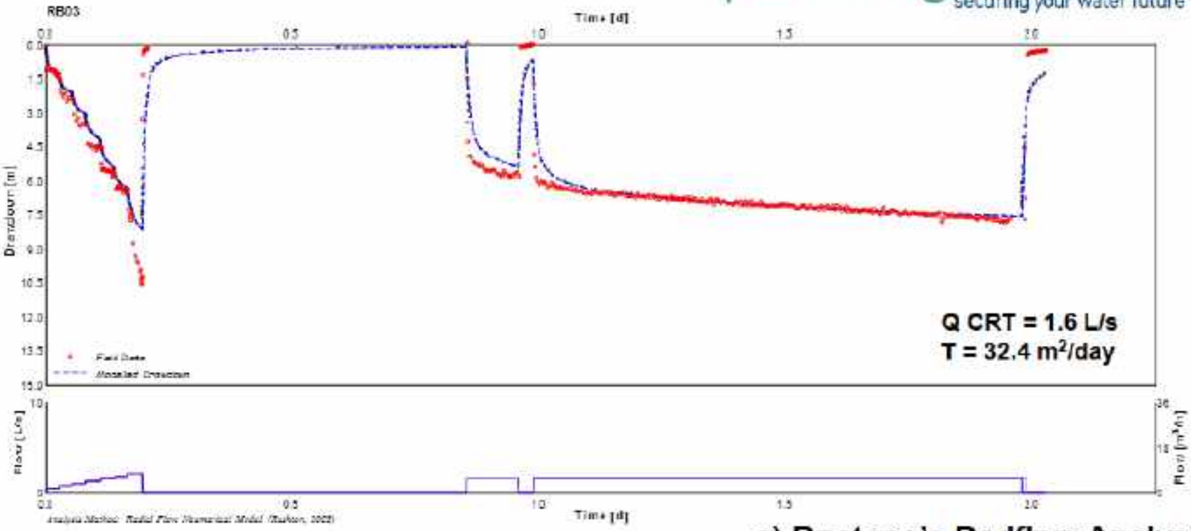
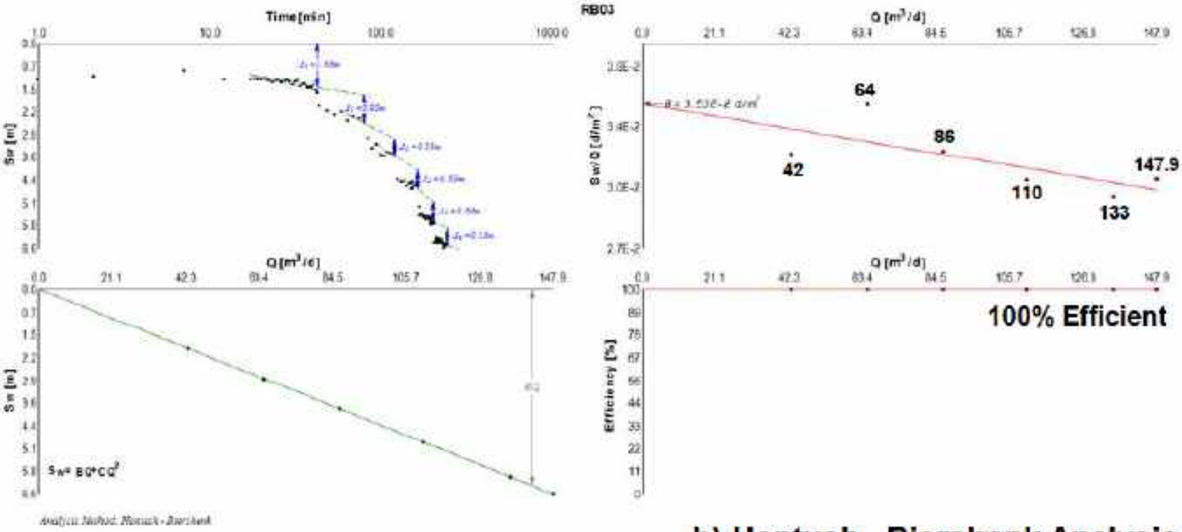
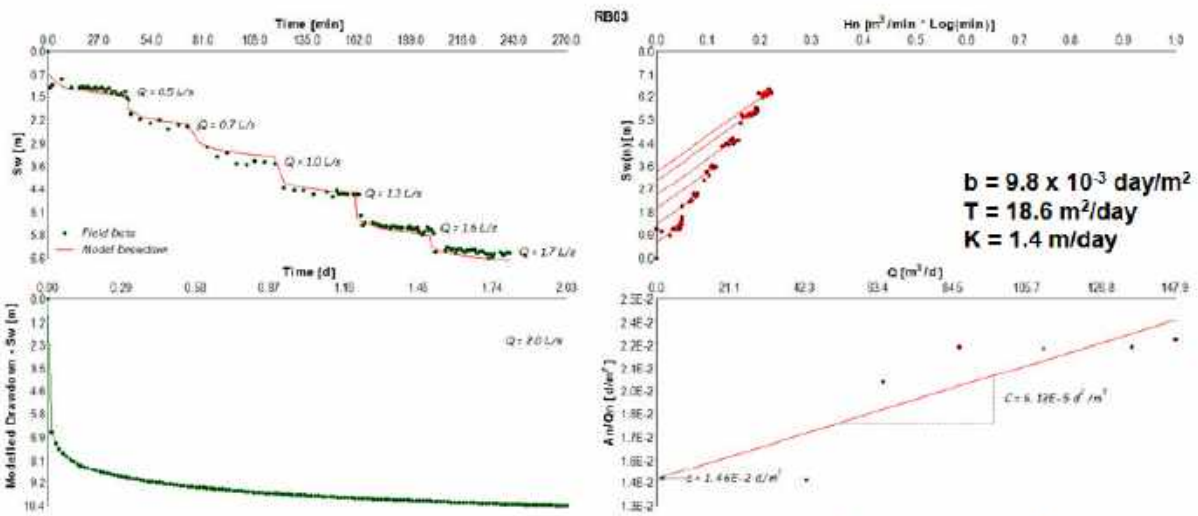


a) Rustons's Radflow Analysis

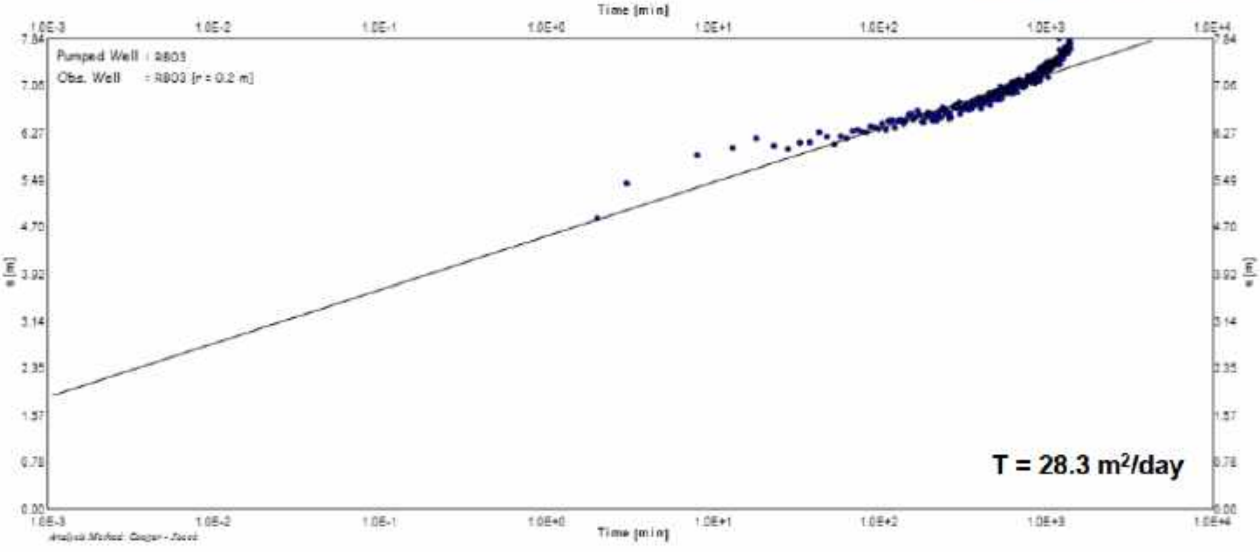


b) Hantush –Biershenk Analysis



c) Eden Hazel Analysis

HYDRAULIC TEST ANALYSIS
Project: Gwalia TSF Program
Bore: RB03

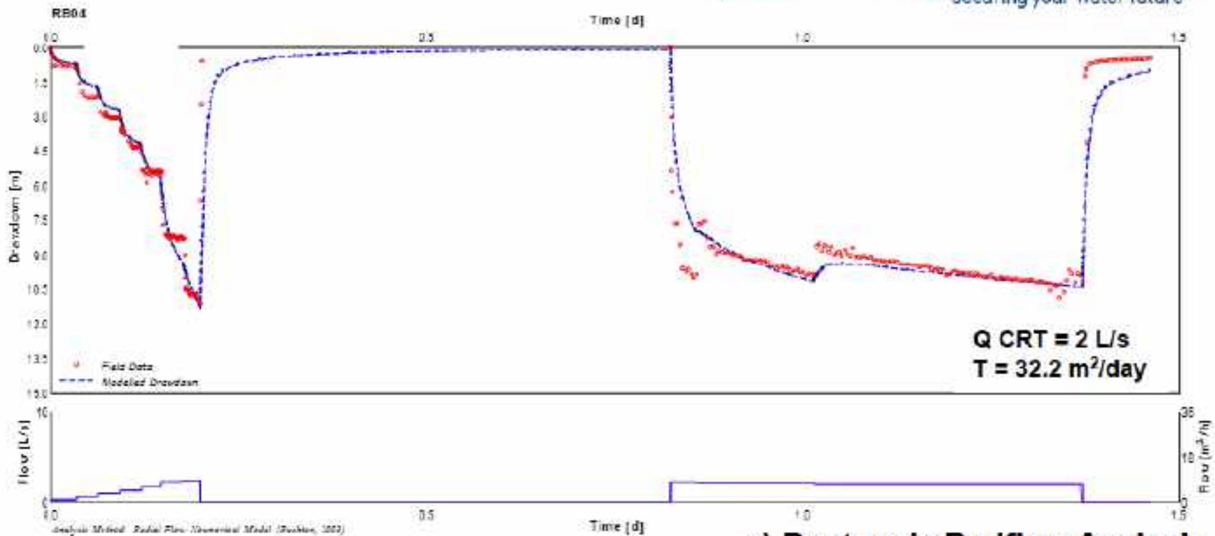


d) Jacob Method

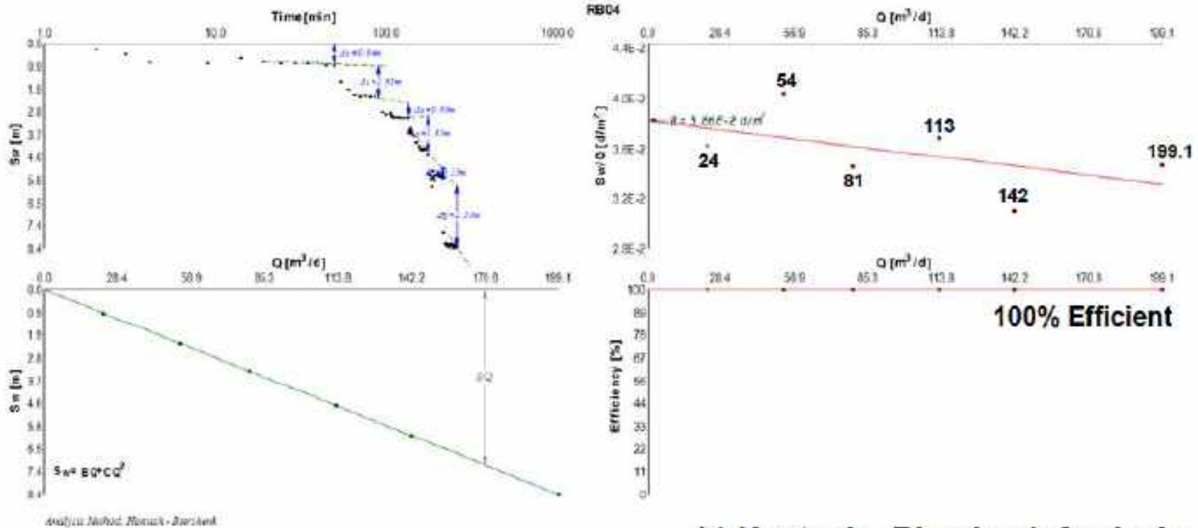
HYDRAULIC TEST ANALYSIS

Project: Gwalia TSF Program

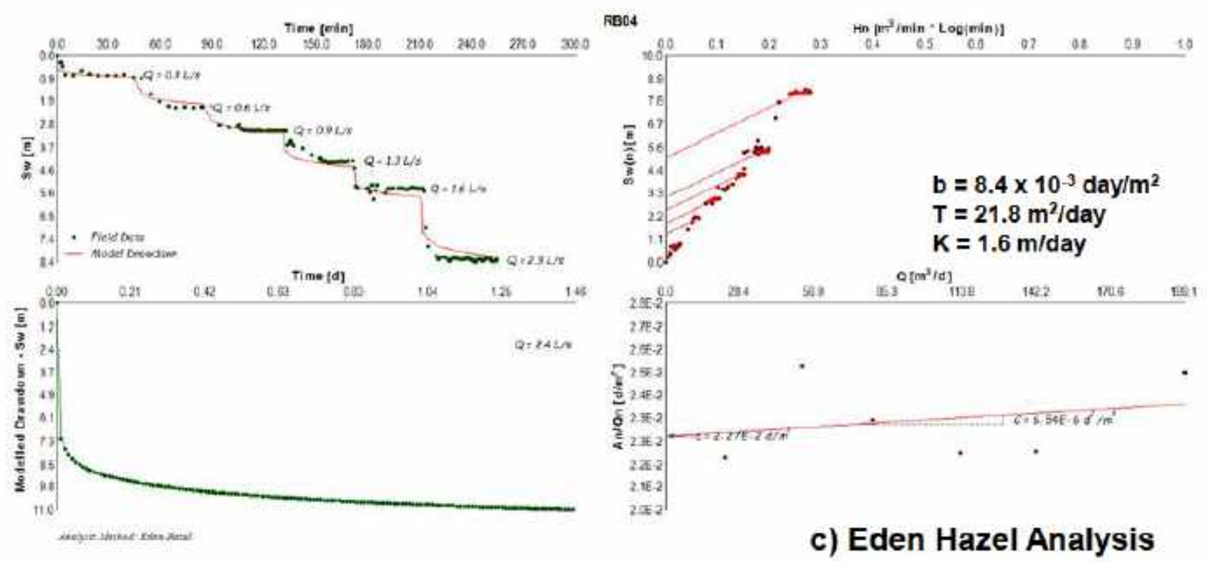
Bore: RB04



a) Rustons's Radflow Analysis



b) Hantush –Biershenk Analysis

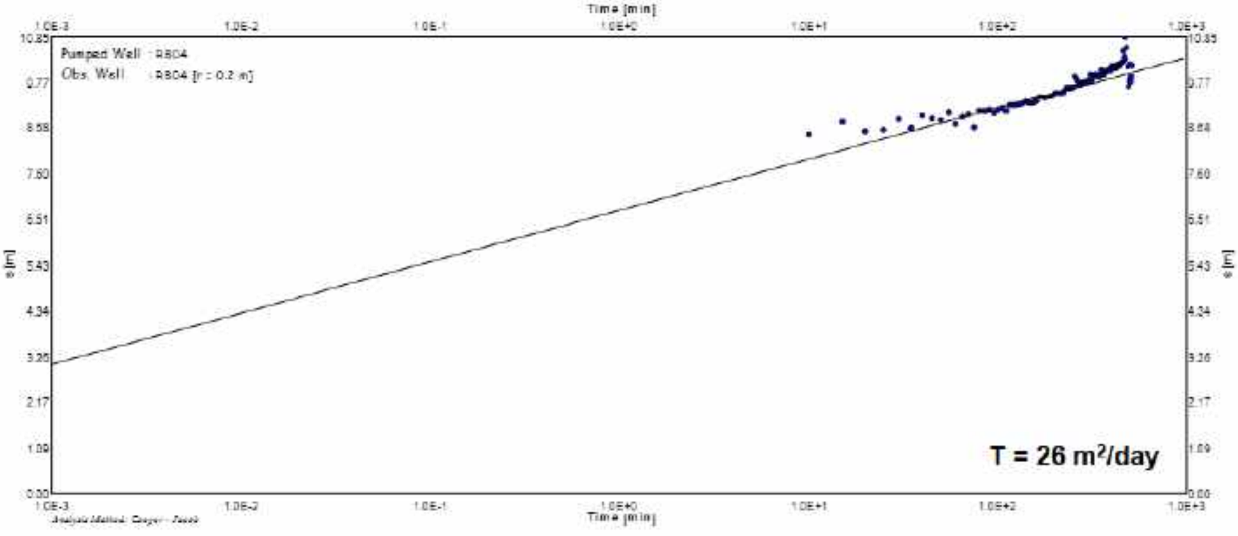


c) Eden Hazel Analysis

HYDRAULIC TEST ANALYSIS

Project: Gwalia TSF Program

Bore: RB04

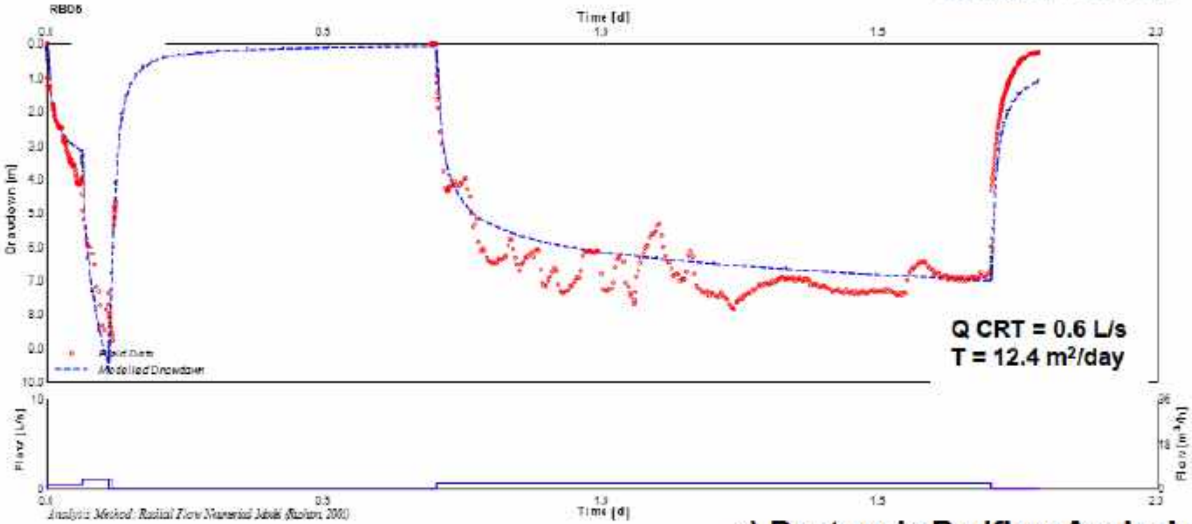


d) Jacob Method

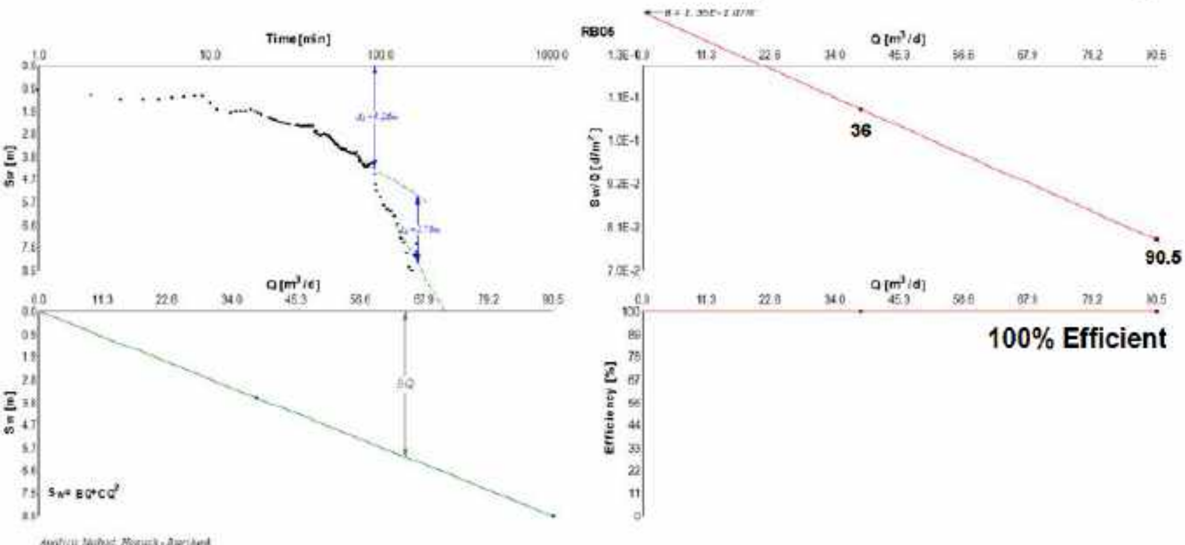
HYDRAULIC TEST ANALYSIS

Project: Gwalia TSF Program

Bore: RB05



a) Rustons's Radflow Analysis



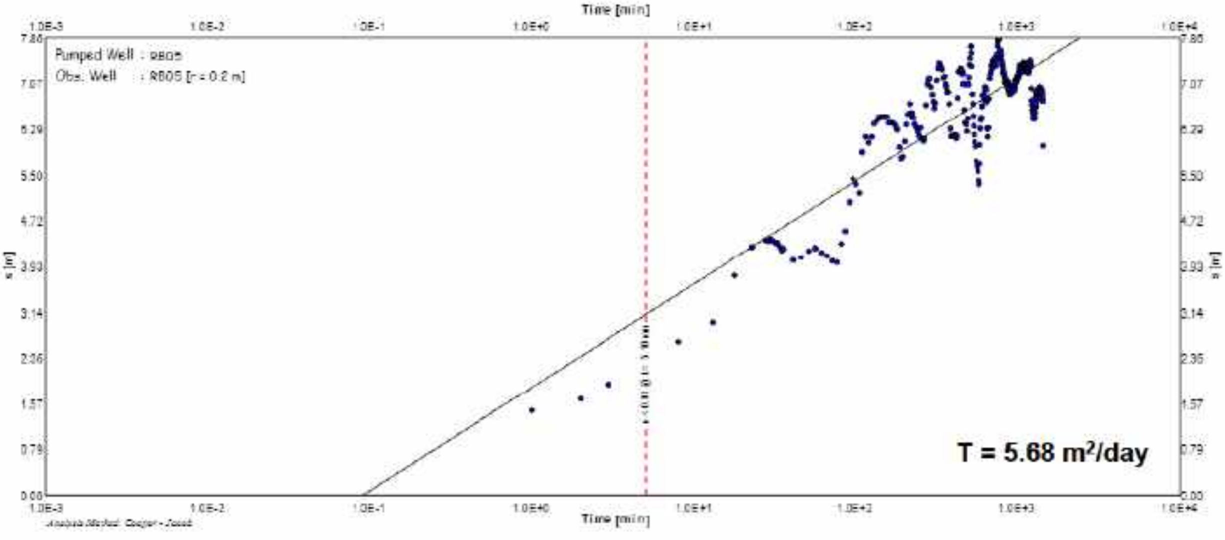
b) Hantush –Biershenk Analysis

c) Theis Analysis

HYDRAULIC TEST ANALYSIS

Project: Gwalia TSF Program

Bore: RB05



d) Jacob Method

HYDRAULIC TEST ANALYSIS

Project: Gwalia TSF Program

Bore: RB06

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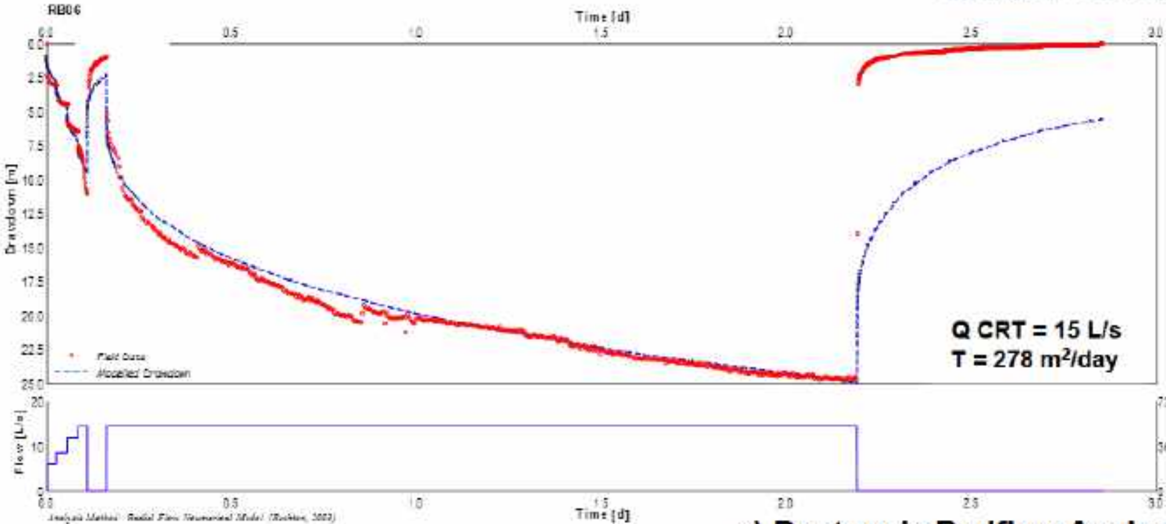
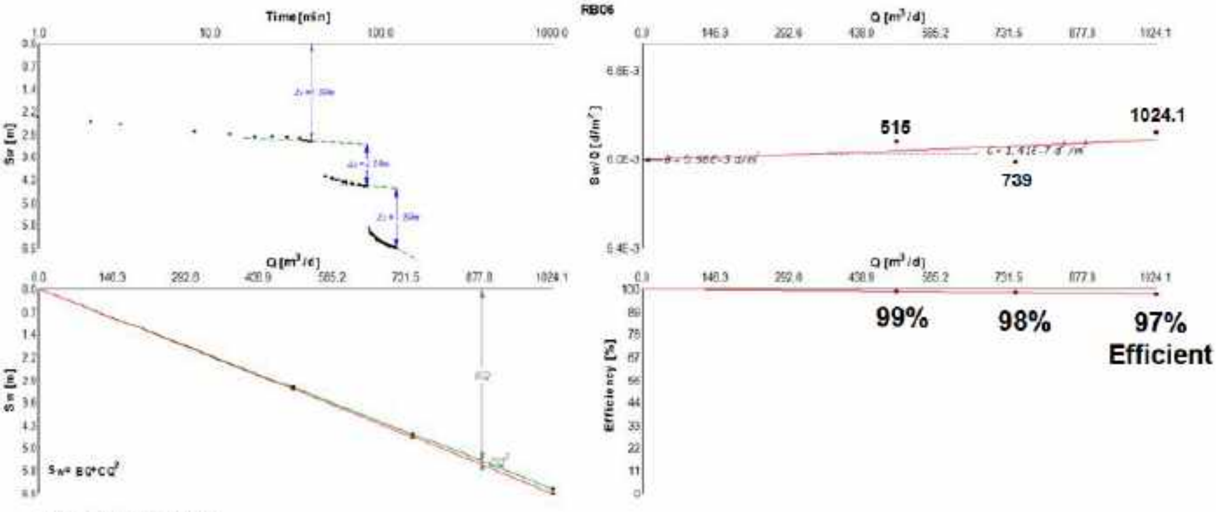
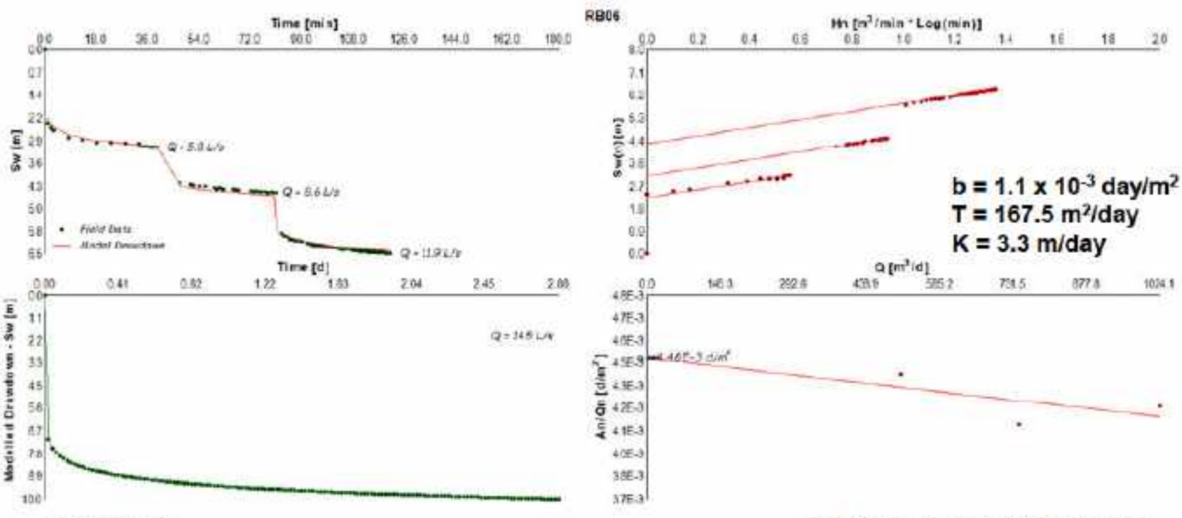


a) Rustons's Radflow Analysis

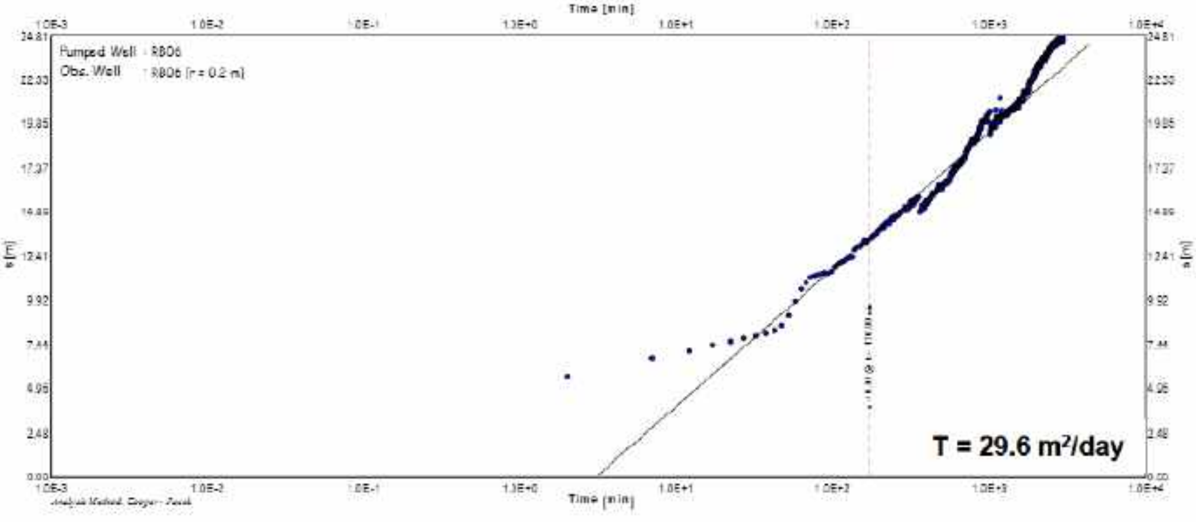


b) Hantush –Biershenk Analysis



c) Eden Hazel Analysis

HYDRAULIC TEST ANALYSIS
Project: Gwalia TSF Program
Bore: RB06



d) Jacob Method

Attachment C

Water Quality Results

Sample Name Bore # Date	Units	**MB01**	**MB02**	**MB03**	**MB04**	**MB05**	**MB06**	**MB07**	**MB08**	**MB09**
Alkalinity	mg/L	160	90	130	200	130	190	130	180	150
Conductivity	uS/cm	110000	61100	76700	106000	108000	99400	137000	132000	106000
Hardness	mg/L	16000	6300	9100	16000	14000	14000	20000	21000	15000
Total Dissolved Solids (TDS)	mg/L	90000	44000	59000	88000	89000	81000	120000	120000	88000
Ionic Balance	%	1.4	2.4	5.4	1.4	2.9	0.3	1.3	0.9	1
pH		7.3	7	7.4	7.5	7.2	7.3	7.2	7.3	7.3
Carbonate as CaCO3	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Calcium	mg/L	554	922	1070	627	432	938	785	681	942
Chloride	mg/L	50800	25000	31600	49900	50500	48400	71700	68800	50500
Fluoride	mg/L	0.24	0.32	0.33	0.16	0.22	0.25	0.14	0.22	0.26
Fe_total	mg/L	0.61	1.1	11	21	0.72	3.8	1.4	3.1	4.9
Bicarbonate as CaCO3	mg/L	160	90	130	200	130	190	130	180	150
Potassium	mg/L	632	323	441	661	762	618	1080	892	698
Magnesium	mg/L	3450	968	1550	3510	3170	2730	4490	4620	2990
Manganese	mg/L	<0.010	0.17	<0.010	<0.010	0.44	0.01	0.058	0.022	0.22
Nitrogen, nitrite	mg/L	<0.010	<0.010	<0.010	<0.010	0.022	0.35	0.022	0.043	<0.010
Nitrogen, nitrate	mg/L	9.8	0.54	3	6.1	9.7	9.7	3.6	9.2	21
Nitrogen, nitrate + nitrite	mg/L	9.8	0.54	3	6.1	9.7	10	3.7	9.2	21
Nitrogen, total	mg/L	11	6.9	13	7.7	11	13	5	9.7	25
Sodium	mg/L	29700	15700	20600	29000	30200	28200	41800	40400	29700
Sulphate	mg/L	6600	3500	3900	6900	4600	6600	8400	10000	6800
Silica, molybdate reactive	mg/L	50	54	65	65	43	64	33	57	35
Silver, total	mg/L	<0.0020	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010	<0.0020	<0.0020	<0.0020
Aluminium, total	mg/L	0.52	0.61	6.8	8.1	0.56	1.8	0.97	1.7	3.1
Arsenic, total	mg/L	0.0037	0.0041	0.015	0.0069	<0.0020	0.0043	0.002	0.0035	0.005
Boron, total	mg/L	5.8	2.9	3.4	5.4	8.3	4.8	9.7	6.5	6.9
Barium, total	mg/L	0.095	0.25	0.075	0.25	0.12	0.096	0.043	0.036	0.31
Beryllium, total	mg/L	<0.0020	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010	<0.0020	<0.0020	<0.0020
Cadmium, total	mg/L	<0.0020	<0.0010	<0.0010	<0.0020	<0.0020	0.0013	<0.0020	<0.0020	<0.0020
Cobalt, total	mg/L	0.48	1.3	2.2	1.4	0.25	1.6	0.97	0.71	0.11
Chromium, total	mg/L	0.04	<0.010	0.058	0.17	0.01	0.028	<0.010	0.023	<0.010
Copper, total	mg/L	<0.0020	0.014	0.0074	0.012	<0.0020	0.0025	<0.0020	<0.0020	<0.0020
Molybdenum, total	mg/L	0.013	0.0086	0.0024	<0.0020	0.0062	0.0035	0.017	0.0026	0.024
Nickel, total	mg/L	0.024	0.012	0.024	0.025	0.017	0.023	0.021	0.032	0.058
Lead, total	mg/L	<0.0020	<0.0010	0.0014	<0.0020	<0.0020	<0.0010	<0.0020	<0.0020	<0.0020
Selenium, total	mg/L	0.016	<0.0020	<0.0020	0.0082	0.016	0.0059	0.019	0.014	0.0058
Tin, total	mg/L	<0.0020	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010	<0.0020	<0.0020	<0.0020
Zinc, total	mg/L	<0.050	0.077	<0.050	0.074	<0.050	<0.050	<0.050	<0.050	0.055