KordaMentha

10 March 2022

ASX Announcement

Salt Lake Potash Limited (Administrators Appointed) (Receivers and Managers Appointed)
ACN 117 085 748 and its subsidiaries outlined in Schedule 1 ('the Group')
Trading as SO4
ASX Code: SO4

Commencement of sales process

The Receivers in conjunction with Macquarie Capital are commencing a process to sell the Group's flagship Lake Way Project ("the Project") or recapitalise the Group and are seeking expressions of interest from interested parties.

Parties that wish to participate in the process can contact Macquarie Capital or the Receivers:

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Material Resource upgrade

Highlights

- Measured Mineral Resource for the Project has increased 108%, from 0.90 Mt of Potassium to 1.87 Mt of Potassium based on drainable porosity.
- Upgrade of Indicated Mineral Resource for the Project has increased 156% from 0.90 Mt of Potassium to 2.30 Mt of Potassium based on drainable porosity.

SO4 has upgraded its JORC Code (2012) compliant Mineral Resource estimate for the Project further de-risking the investment.

Summary

The Company reported its maiden Mineral Resource Estimate at the Project in July 2018. A significant extension to the Resource Estimate was subsequently reported in March 2019 and further updated in October 2019 to be consistent with the AMEC (2019) Brine Guidelines adopted by the JORC Committee.

The lakebed sediment hosted Mineral Resource at the Project was refined in the Bankable Feasibility Study (BFS) based on an updated geological modelling to reflect larger sediment volumes (ASX Announcement, 11 October 2019).

The availability of additional data collected during the paleochannel production bore drilling program increased the understanding and known extent of the paleochannel sequence. The geometry of the

channel and the overlaying units were able to be further defined through an extensive drilling and test pumping program. This data was used to update the 3D Leapfrog model which increased the confidence in the amount of extractable resource from these units. This new information provides a material increase to the previously reported Measured Resource which is the basis for this resource upgrade.

A summary of the upgrade is covered at Schedule 2 and Schedule 3.

We note that creditor and shareholder queries should be directed to KPMG. Contact details are:

KPMG
235 St Georges Terrace
Perth WA 6000
Tel: +61 8 9263 7171
Email: saltlakepotash@kpmg.com.au

Media inquiries:

Michael Smith, Inside Public Relations | 0411 055 306 | msmith@insidepr.com.au

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About KordaMentha Restructuring

KordaMentha Restructuring is the distressed business division of KordaMentha, an advisory and investment firm that helps clients to grow, protect and recover value.

KordaMentha Restructuring works with companies in financial distress – to restructure and to stabilise the business or to recover value on behalf of stakeholders. They have over 170 professional staff with diverse backgrounds and deep experience from accounting and agriculture to mining and real estate.

Schedule 1

Company (all Administrators appointed) (all Receivers and Managers appointed)	ACN
SO4 Fertiliser Holdings Pty Ltd	633 114 628
SO4 Fertiliser Developments Pty Ltd	634 354 224
Two Lake Holdings Pty Ltd	633 114 637
Two Lake Developments Pty Ltd	634 354 233
Piper Preston Pty. Ltd.	142 962 409
Australia Salt Lake Potash Pty. Ltd.	164 369 420
Irve Holdings Pty Ltd	633 114 619
Irve Developments Pty Ltd	634 354 215

Schedule 2 – Comparison

Set out below is a comparison of the 2019 BFS resource and the 2022 Mineral Resource Upgrade. We note that this has been prepared by the Group for illustration purposes and the 2019 BFS was not reviewed by the same Competent Person as part of the 2022 Mineral Resource Upgrade process. Further, the confidence level of considerable portions of the Inferred and Indicated units from the 2019 BFS have been upgraded to Measured and Indicated and, therefore, are reflected in table 2 as negative values when compared to the 2019 BFS.

	2019 BFS					2022 Mineral Resource Upgrade					
	K grade	porosity	brine volume	K tonnage	SOP[5]	K grade	porosity	brine volume	K[4]	SOP[5]	% Change in K tonnage 2019 to 2022[1]
	kg/m3	-	Mm3	Mt	Mt	kg/m3	-	Mm3	Mt	Mt	%
Resource based on Specific Yield	**6.52**	**0.11**	**772.36**	**5.14**	**11.45**	**5.34**	**0.07**	**830.96**	**4.41**	**9.84**	**(14.1%)**
Measured	**6.45**	**0.13**	**134.45**	**0.90**	**2.01**	**5.39**	**0.08**	**316.69**	**1.87**	**4.18**	**107.6%**
Lake Bed Sediments North	6.80	0.11	116.60	0.79	1.77	6.80	0.11	116.60	0.79	1.77	-
Paleo sequence	-	-	-	-	-	5.19	0.07	151.60	0.77	1.71	100.0%
Paleochannel Basal Sands	6.10	0.15	17.85	0.11	0.24	6.20	0.11	48.50	0.31	0.70	187.7%
Indicated	**6.10**	**0.15**	**147.15**	**0.90**	**2.00**	**5.28**	**0.06**	**479.51**	**2.30**	**5.13**	**156.4%**
Paleo Sequence[2]	-	-	-	-	-	5.21	0.05	440.48	2.08	4.64	100.0%
Paleochannel Basal Sands	6.10	0.15	147.15	0.90	2.00	5.87	0.11	39.04	0.22	0.50	(75.3%)
Inferred	**6.80**	**0.07**	**490.76**	**3.34**	**7.44**	**6.80**	**0.11**	**34.76**	**0.24**	**0.53**	**(92.9%)**
Lake Bed Sediments South	6.80	0.11	34.76	0.24	0.53	6.80	0.11	34.76	0.24	0.53	0.0%
Paleochannel Sediments [2]	6.80	0.03	456.00	3.10	6.91	-	-	-	-	-	(100.0%)
Tonnage from total porosity	**6.52**	**0.41**	**7,111.68**	**48.05**	**107.15**	**5.34**	**0.25**	**4,375.05**	**22.94**	**51.16**	(52.3%)
Measured	**6.45**	**0.42**	**503.40**	**3.39**	**7.56**	**5.39**	**0.24**	**1,055.11**	**6.31**	**14.08**	**86.3%**

Lake Bed Sediments North[3]	6.80	0.43	455.80	3.10	6.91	6.80	0.43	455.80	3.10	6.91	-
Paleo Sequence	-	-	-	-	-	5.19	0.23	483.35	2.47	5.50	100.0%
Paleochannel Basal Sands	6.10	0.40	47.60	0.29	0.65	6.20	0.25	115.96	0.75	1.67	157.9%
Indicated	**6.10**	**0.40**	**392.40**	**2.39**	**5.34**	**5.28**	**0.25**	**3,184.06**	**15.70**	**35.02**	**556.1%**
Paleo Sequence[2]	-	-	-	-	-	5.21	0.25	3,090.73	15.17	33.83	100.0%
Paleochannel Basal Sands	6.10	0.40	392.40	2.39	5.34	5.87	0.25	93.33	0.53	1.18	(77.8%)
Inferred	**6.80**	**0.42**	**6,215.88**	**42.27**	**94.26**	**6.80**	**0.43**	**135.88**	**0.92**	**2.06**	**(97.8%)**
Lake Bed Sediments South[3]	6.80	0.43	135.88	0.92	2.06	6.80	0.43	135.88	0.92	2.06	0.0%
Paleochannel Sediments [2]	6.80	0.40	6,080.00	41.34	92.20	-	-	-	-	-	(100.0%)

Notes:

(1) Percentage change is calculated as (new_value -old value)/old value x 100%. In case if old_value = 0, percentage change is assumed 100% (to avoid dividing by 0)

(2) Paleo Sequence in 2022 assessment includes Paleochannel Sediments as defined in 2019 assessment

(3) South Lake Bed Sediment *(0.4-8m bgl) and North Lake Bed Sediments *(0.4-8m bgl) were not updated and were not evaluated as part of 2022 assessment

(4) Potassium (K) grade represent average grade, in 2022 assessment tonnage was calculated for sub-zones for each unit, to account for grade variability within the aquifer.

(5) Conversion of K to SOP has been calculated by using a factor of 2.23

Note, negative values have been presented in parentheses.

Schedule 3

Memo

Date: 03/02/2022

Subject: Mineral Resource Statement - Upgrade of Lake Way Paleochannel Sequence Resource

1. Introduction

Since January 2019, SO4 has been investigating the paleochannel brine resource at Lake Way. A drilling campaign commenced in March 2020 to install test production bores into the paleochannel basal sand unit. A total of 111 bores have been installed and include 32 in the paleochannel basal sands (19 monitoring bores and 13 production bores) and 79 in the intermediate lakebed sediments unit (18 monitoring bores and 61 production bores). This program is still underway as of December 2021. Brine production commenced in September 2020 and the borefield has been operating continuously with 52 production bores pumping as of December 2021. The balance of the 74 production bores are currently being outfitted and anticipated to be fully operational in the coming months.

During the initial stages of the drilling campaign other prospective units were identified from the bore logs that required further evaluation for their prospectivity for brine production. This memo discusses these and includes an updated Mineral Resource for the paleochannel aquifer at the Lake Way Project.

The Company reported its maiden Mineral Resource Estimate at Lake Way in July 2018. A significant extension to the Resource Estimate was subsequently reported in March 2019 and further updated in October 2019 to be consistent with the AMEC (2019) Brine Guidelines adopted by the JORC Committee.

The lake bed sediment hosted Mineral Resource at Lake Way was refined in the Bankable Feasibility Study (BFS) report based on a updated geological modelling to reflect larger sediment volumes (ASX Announcement 11 October 2019). No further updates to the lake bed sediment (LBS) hosted Mineral Resource are reported in this memo.

The availability of additional data collected during the paleochannel production bore drilling program increased the understanding and known extent of the paleochannel sequence. The geometry of the channel and the overlaying units were able to be further defined through an extensive drilling and test pumping program. This data was used to update the 3D Leapfrog model which increased the confidence in the amount of extractable resource from these units. This new information provides a significant material increase to the known Measured Resource which is the basis for this resource upgrade.

2. Resource Upgrade Methodology

2.1. Basis for Upgrade

Since the October 2019 upgrade, a significant amount of work has been undertaken to expand the understanding of the Lake Way paleochannel resource, including.

- Drilling and construction of an additional 101 bores bringing total number of completed bores to 111, including 32 Paleochannel basal sand production and monitoring bores (December 2021).
- Long term pumping of the aquifer commenced in September 2020. Continuous pumping is currently undertaken from 52 bores, including 11 paleochannel basal sand production bores.
- Stabilisation of aquifer parameters after long term pumping (>12 months).
- Long term consistency in brine grade measurements.
- Geophysical testing with Gamma & Bore Magnetic Resonance (BMR) for 7 bores, including 4 basal sand bores to determine specific yield and total porosity.
- In-situ core sample from 6 bores from depths 8-30m to determine specific yield and total porosity.
- 80 additional passive seismic lines, bringing total number of lines to 134 and total number of stations to 2377, with lines covering over 350km.

This data allowed for the identification of additional resource units within the Paleochannel Sequence, and for an upgrade of portion of this and previously identified resource to “Measured” status. The Paleochannel Sequence is made up of the following units which have been divided up within the Leapfrog model.

- Lake Bed sediments (8 - 30m)
- on-shore alluvials (WL-30m)
- Shallow gravel aquifer
- Silcrete aquifer
- Paleochannel clay
- Transitional sandy clay
- Paleochannel Basal Sand

2.2. Updates to Leapfrog 3D Geological Model

A 3D Leapfrog geological model was updated with all newly collected data. Geometry of the paleochannel was further refined and increased in confidence (Figure 2-1).

Continuity and connectivity of paleochannel was confirmed, based on observed responses to long term pumping.

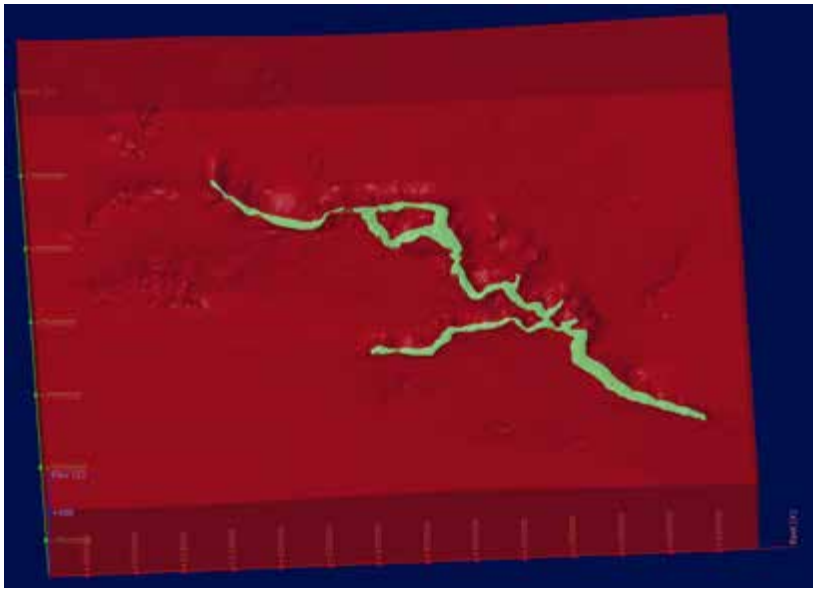

Figure 2-2

Updated Paleochannel Geometry generated with Leapfrog Geological Model

Additional resource units were identified within the paleochannel sequence, based on drilling and geophysical (BMR) data, and confirmed with pumping and monitoring data (Figure 2-2).

Data was aggregated by dividing geological units into zones based on brine grade, porosity, and confidence level. For each zone, sediment volume was calculated in a 3D Leapfrog geological model. This information was used to calculate resource tonnage per each zone.

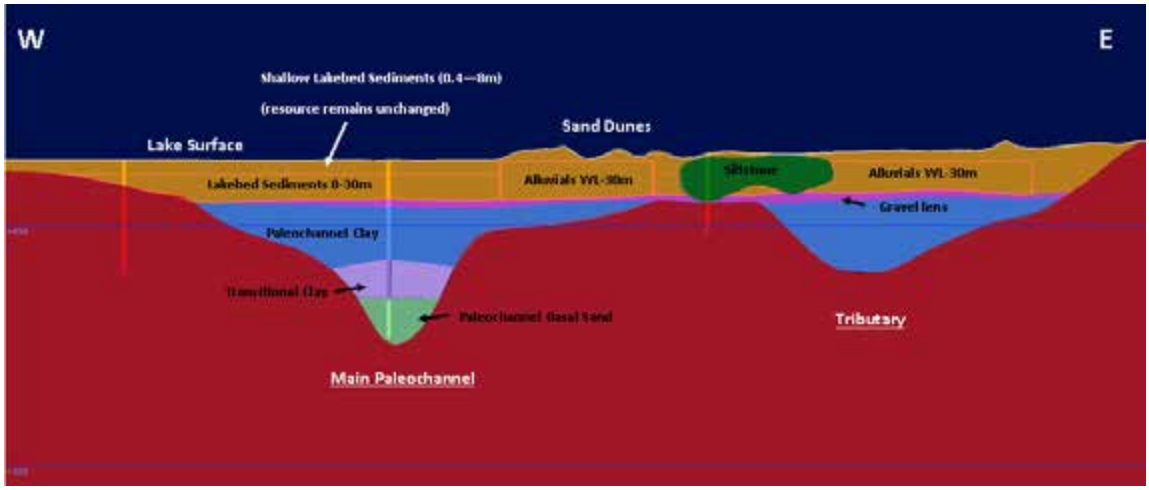

Figure 2-3 Cross-section through geological model showing resource units

2.3. Resource Volume Calculation

The resource was calculated in accordance with JORC Guidelines for Resource and Reserve Estimation for Brines (April 2019).

The upgrade methodology is summarized as:

1. Each resource unit was delineated in Leapfrog geological model based on available data
2. Volumes were clipped to tenement boundaries, and for Qal also horizontally to either 8mbgl (on lake, to separate from existing LBS resource) or Water Level (off lake)
3. Volumes were exported as thickness rasters
4. Zones were derived for units, based on measured grade, and measured/indicated designation (which was based on data availability and observed extents of drawdown from pumping bores). One set of zones was used for shallow resource (Qal to Qsil) and Tc. Separate zones for translation sandy clay Tcs, and separate for basal sands (Ts).
5. Porosity (specific yield and total porosity) was defined per unit, based on BMR and core data. No zones were defined for porosity, due to lack of significant variability across the deposit
6. Zones were used to cut thickness rasters into sections, which then allowed to calculate volume for each zone that falls into each unit.
7. Each sub zone had volume, porosity (Sy), total porosity, grade, and measured/indicated designation, which allowed for calculation for total resource per resource unit.

This methodology allowed for the consideration of spatial variability of brine concentration, confidence of the resource designation (measured/indicated), differences in porosities etc. The method does not include automated interpolation or extrapolation of grade but relies on manual designation of zones. This enables more control (e.g. ignoring outlier values, and taking into account geographic consideration such as higher grade on-lake, and lower grade off lake, especially in areas where data density is low) and allows for conservative resource estimation.

3. Resource Mineralization Results

Results are presented in Table 3-1.

Table 3-1 Lake Way mineral Resource Upgrade

			K	SO4	Mg	K	K2SO4(SOP)	K2SO4(SOP)
resource	Drainable Brine Volume	Average K grade	from drainable porosity	from drainable porosity	from drainable porosity	from total brine volume	from drainable brine volume	from total brine volume
unit	Mm3	kg/m3	Mt	Mt	Mt	Mt	Mt	Mt
Indicated	**479.511**	**5.281**	**2.302**	**8.708**	**2.770**	**15.703**	**5.133**	**35.019**
Paleo Sequence	440.475	5.208	2.080	7.793	2.489	15.172	4.638	33.835
Paleochannel Basal Sands	39.036	5.867	0.222	0.915	0.281	0.531	0.495	1.184
Measured	**200.094**	**5.350**	**1.080**	**4.617**	**1.406**	**3.215**	**2.407**	**7.169**
Paleo Sequence	151.597	5.193	0.766	3.280	0.989	2.466	1.709	5.499
Paleochannel Basal Sands	48.497	6.200	0.313	1.337	0.417	0.749	0.698	1.670
Mineral Resource Upgrade	**679.605**	**5.307**	**3.381**	**13.325**	**4.175**	**18.918**	**7.540**	**42.188**

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A summary of the total Lake Way Resource is presented in Table 3-2.

Table 3-2 Lake Way mineral Resource Summary

resource	status change	Drainable Brine Volume	Average K grade	K from drainable porosity	SO_4 from drainable porosity	Mg from drainable porosity	K from total brine volume	K_2SO_4(SOP) from drainable brine volume	K_2SO_4(SOP) from total brine volume
unit		Mm_3	kg/m_3	Mt	Mt	Mt	Mt	Mt	Mt
Total Indicated Resource		**479.511**	**5.281**	**2.302**	**8.708**	**2.770**	**15.703**	**5.133**	**35.019**
Paleo Sequence	upgrade	440.475	5.208	2.080	7.793	2.489	15.172	4.638	33.835
Paleochannel Basal Sands	upgrade	39.036	5.867	0.222	0.915	0.281	0.531	0.495	1.184
Total Inferred		**34.760**	**6.800**	**0.236**	**0.959**	**0.278**	**0.924**	**0.527**	**2.060**
South Lake Bed Sediment *(0.4-8m bgl)	no change	34.760	6.800	0.236	0.959	0.278	0.924	0.527	2.060
Total Measured Resource		**316.694**	**5.394**	**1.872**	**7.836**	**2.338**	**6.314**	**4.175**	**14.081**
Paleo Sequence	upgrade	151.597	5.193	0.766	3.280	0.989	2.466	1.709	5.499
Paleochannel Basal Sands	upgrade	48.497	6.200	0.313	1.337	0.417	0.749	0.698	1.670
North Lake Bed Sediments *(0.4-8m bgl)	no change	116.600	6.800	0.793	3.218	0.933	3.099	1.768	6.912
Total Mineral Resource		**830.965**	**5.341**	**4.411**	**17.503**	**5.386**	**22.942**	**9.836**	**51.160**

* South Lake Bed Sediment *(0.4-8m bgl) and North Lake Bed Sediments *(0.4-8m bgl) are not updated in this report and were not evaluated as part of this assessment

Changes to the resource definition are summarised in Table 3-3. The upgrade increases measured Paleochannel Resource (based on specific yield) from 0.109 to 0.313 Mt K (an increase of 188%). The total mass of K (as estimated from total porosity) and contained within the zone of measured resource is increased from 0.290 to 0.749 Mt (an increase of 158 %), and is now equivalent to 31% of original indicated tonnage of 2.4 Mt.

In addition, this resource upgrade adds 0.766 Mt Potassium to the measured resource (based on specific yield) in the Paleochannel Sequence (Deep Lake Bed Sediments and Alluvium, Shallow Gravel, Silcrete, and Transitional Sandy Clay), which was previously classified as Inferred.

This revised resource upgrade increases the total Measured resource of the Lake Way Project (based on specific yield/drainable porosity) from 0.900 to 1.872 Mt of Potassium, an increase of 108%.

Table 3-3 Changes to Measured Resource

	2019	2021	2019	2021
	Based on drainable porosity (resource)		Based on Total porosity (total mineral content)	
	Mt K	Mt K		Mt K
Paleochannel Sequence*	0.000	0.766	0.000	2.466
Paleochannel Basal Sands	0.109	0.313	0.290	0.749
Total Measured Resource	0.902	1.872	3.390	6.314

*In 2019 resource definition this unit was called Paleochannel Sediments, in 2021 estimate this units was subdivided to Tc, Tcs, and expanded with Qal, Qg, Qsil, with resource presented as sum here.

Memo

4. Compliance

The Company engages external consultants and Competent Persons (as determined pursuant to the JORC Code 2012) to prepare and estimate the Mineral Resources and Reserves. Management have reviewed these estimates and underlying assumptions for tenability and accuracy. The results of the Mineral Resource and Reserve estimates are then reported in accordance with the requirements of the JORC Code 2012.

5. Competent Person Statement

The information in this Mineral Resource Statement that relates to Mineral Resources and Ore Reserves is based on information compiled by SO4 and reviewed and confirmed by Brian Luinstra, a Competent Person who is a Practicing Member of the Association of Professional Geoscientists of Ontario (APGO # 1177) and a Member of the Australasian Institute of Geoscientists (AIG). Dr Luinstra is an employee of SRK (Australasia) Pty Ltd. SRK (Australasia) Pty Ltd. And is engaged as a consultant to SO4. Dr Luinstra has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Core for Reporting of Exploration Results, Minerals Resources and Ore Reserves."

Dr Luinstra has approved this Mineral Resource Statement - Upgrade of Lake Way Paleochannel Sequence Resource, dated 21st of December 2021 as a whole and consents to its inclusion in the form and context in which it appears.

6. Abbreviations

JORC	Australasian Joint Ore Reserves Committee
Sy	specific yield
LBS	resource unit: Lake Bed Sediments 0-8m bgl
Qal	resource unit: Lake Bed Sediments 8 - 30m & on-shore alluvials WL-30m bgl
Qg	resource unit: Shallow Gravel Aquifer
Qsil	resource unit: Silcrete Aquifer
Tc	resource unit: Paleochannel Clay
Tcs	resource unit: Transitional Sandy Clay
Ts	resource unit: Paleochannel Basal Sand
mbgl	metres below ground level
BMR	Bore Magnetic Resonance
Mt	Mega ton
K	Potassium
Mg	Magnesium
So_4	Sulphate
K_2SO_4 SOP	Sulphate of Potash

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Competent Person's Consent Form

Pursuant to the requirements of ASX Listing Rule 5.6 and Clause 8 of the 2004 JORC Code

(Written Consent Statement)

2 February 2022
STP002

Matt Thompson, Manager Resource Development
Salt Lake Potash Ltd
Ground Floor, 239 Adelaide Terrace
Perth WA 6000

Statement

I, Brian Richard Luinstra confirm that:

- I have read and understood the requirements of the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("2004 JORC Code").
- I am a Competent Person as defined by the 2004 JORC Code, having five years' experience which is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Member or Fellow of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a 'Recognised Overseas Professional Organisation' ("ROPO") included in a list promulgated by ASX from time to time.
- I have reviewed the Report to which this Consent Statement applies.
- I am a full time employee of SRK Consulting (Australasia) Pty Ltd (SRK).

Regards

SRK Consulting (Australasia) Pty Ltd

Dr. Brian Luinstra, PGeo (Ontario), MAIG
Principal Hydrogoelogist

Memo

Appendix 1 - Calculations

Memo

	Resource component	Volume of deposit Mm^3	Sy	Total porosity	Average Brine Grade kg/m^3	Mineral resource: (Mineral Tonnage Mt K Based on sy)*	Total mass of K in deposit (Mineral Tonnage Mt K Based on s total porosity)*
Indicated							
Qal	South Lake Bed Sediment (0.4-8.0m)	Excluded from this assessment					
Qal	Lake Bed Sediments 8 - 30m & on-shore alluvials WL-30m	3733.5	0.076	0.227	5.071	**1.284**	3.859
Qg	Shallow Gravel Aquifer	157.6	0.059	0.187	5.071	**0.034**	0.106
Qsil	Silcrete Aquifer	1.1	0.085	0.256	5.071	**0.001**	0.002
Tc	Paleochannel Clay	7197.5	0.019	0.296	5.077	**0.691**	10.681
Tcs	Transitional Sandy Clay	336.5	0.033	0.243	6.000	**0.071**	0.524
Ts	Paleochannel Basal Sand	369.9	0.106	0.252	5.867	**0.222**	0.531
Measured							
Qal	Lake Bed Sediments 8 - 30m & on-shore alluvials WL-30m	1599.0	0.076	0.227	5.083	**0.613**	1.841
Qg	Shallow Gravel Aquifer	208.8	0.059	0.187	5.083	**0.064**	0.202
Qsil	Silcrete Aquifer	148.6	0.085	0.256	5.083	**0.056**	0.168
Tcs	Transitional Sandy Clay	177.0	0.033	0.243	6.067	**0.034**	0.255
Ts	Paleochannel Basal Sand	459.6	0.106	0.252	6.200	0.313	0.749

*Note: Mass of potassium was calculated using sub-zones for each resource component, for zones based on grade, not average grade

Memo

Appendix 2 – Resource Calculation Zone Maps

0 2 4

Kilometres

Lake Way

Paleochannel Sequence
bore locations

Legend

- Monitoring bore
- Production bore (deep)
- Production bore (shallow)
- Historical WMC monitoring bore

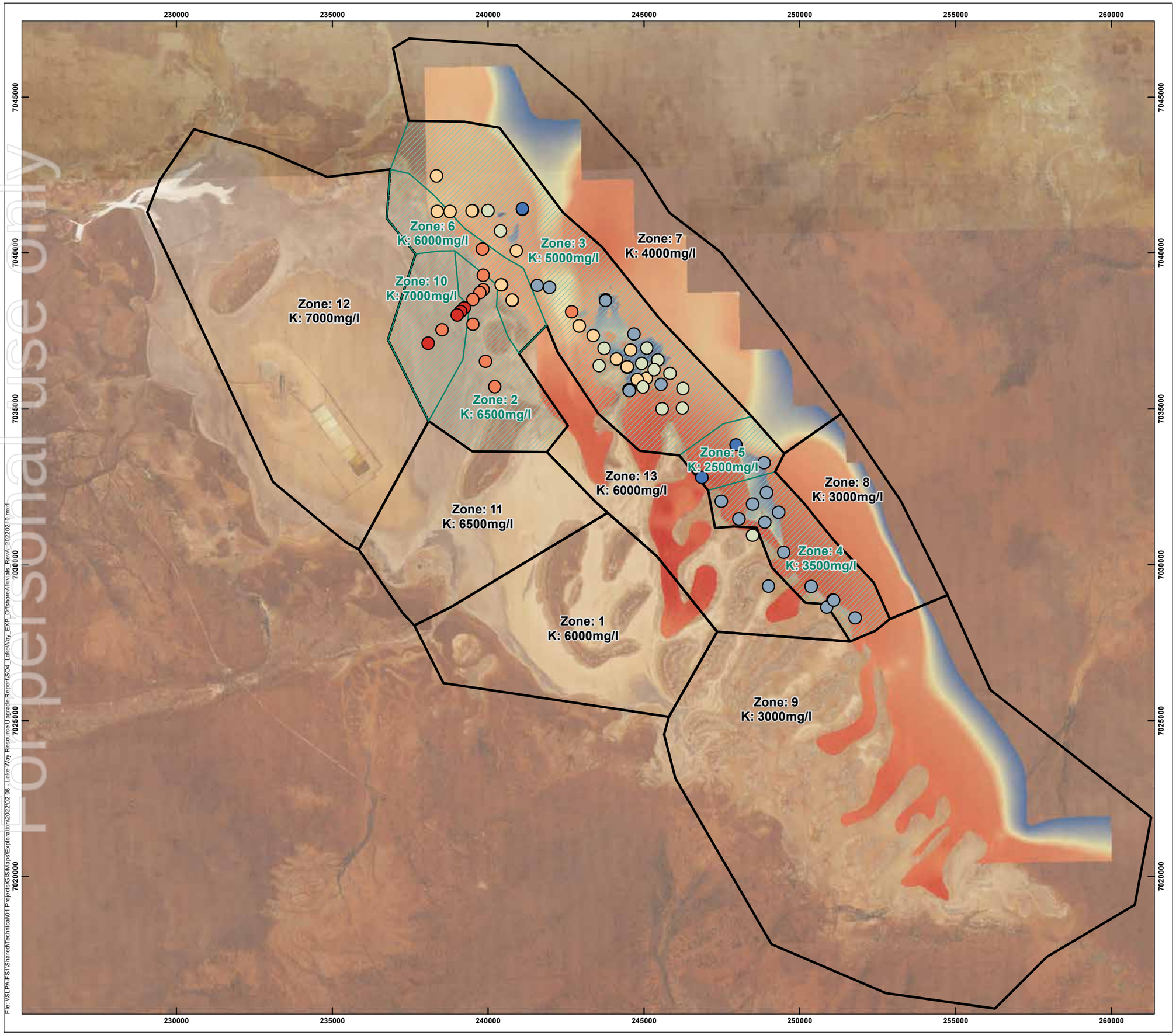
Paleochannel basal sand thickness

High : 35.81

Low : 0.004

SO4

Date: 11/02/2022	Version: A
Scale 1:60,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar



0 2 4
Kilometres

Lake Way

Shallow Paleochannel Sequence subunit On-shore Alluvials (WL-30m)
resource calculation zones,
brine grade data,
resource unit extent and thickness

Legend

Shallow paleochannel sequence bores

by K grade (mg/l)

- 2000 - 3000
- 3001 - 4000
- 4001 - 5000
- 5001 - 6000
- 6001 - 7000
- 7001 - 7314

Bores intersecting Shallow Paleochannel Sequence Units (On-Shore Alluvials WL-30m, Lake Bed Sediments WL-30m, Silcrete Aquifer, Shallow Gravel) are typically screened across multiple layered aquifer units of varying thickness. These units are hydraulically connected and it is not possible to fully separate grade between different units. Therefore, grade data for all bores screened in Shallow Paleochannel Sequence units was used to determine grade for resource calculation zones.

Resource calculation zones

(with zone ID and K grade mg/l)

- Indicated
- Measured

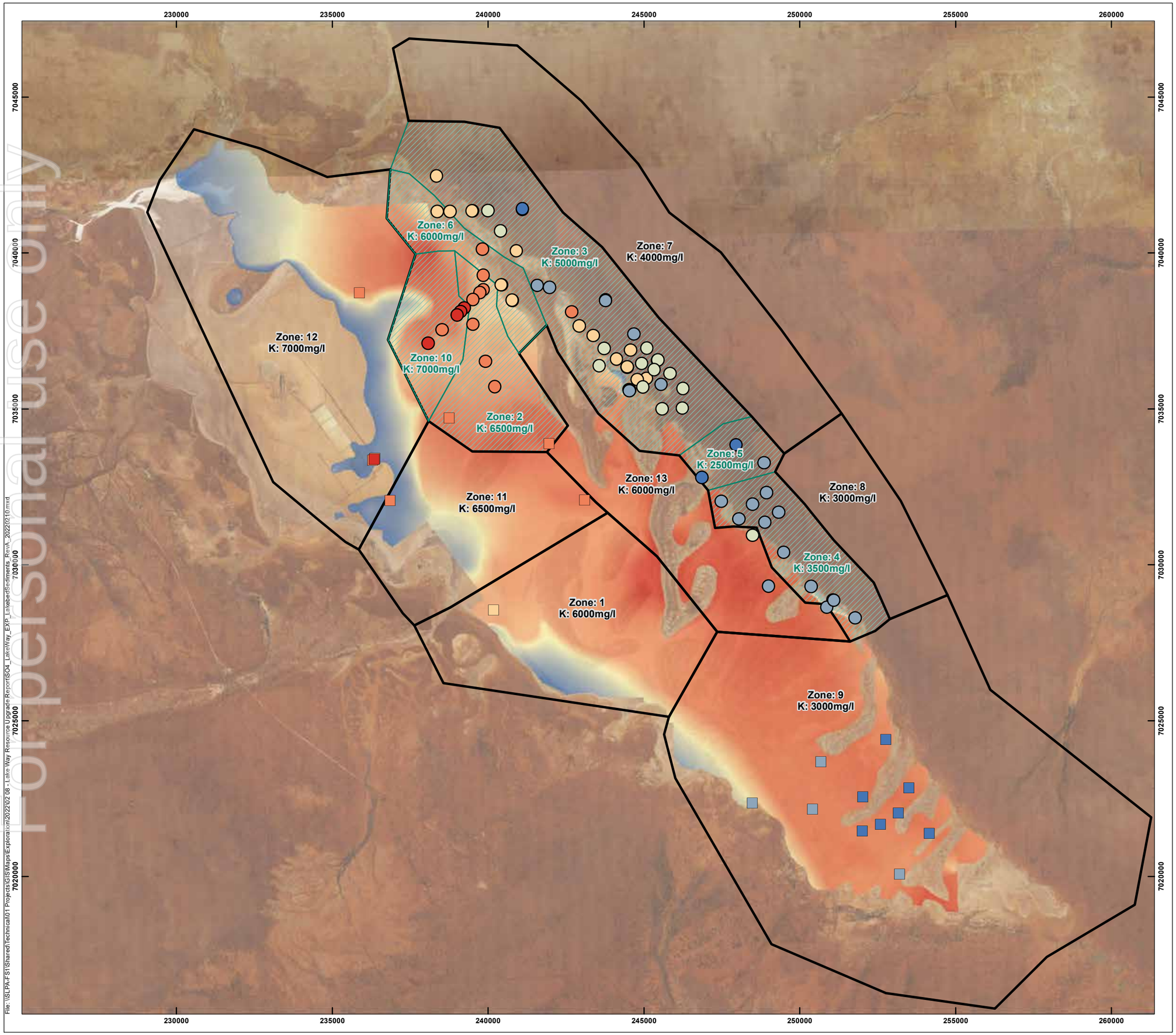
Thickness of on-shore alluvials (WL-30m)

High : 32.3085

Low : 0.0004

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar



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0 2 4
Kilometres

Lake Way

Shallow Paleochannel Sequence subunit Lake Bed Sediments 8 - 30m
resource calculation zones,
brine grade data,
resource unit extent and thickness

Legend

Shallow paleochannel sequence bores

by K grade (mg/l)

- 2000 - 3000
- 3001 - 4000
- 4001 - 5000
- 5001 - 6000
- 6001 - 7000
- 7001 - 7314

Bores intersecting Shallow Paleochannel Sequence Units (On-Shore Alluvials WL-30m, Lake Bed Sediments WL-30m, Silcrete Aquifer, Shallow Gravel) are typically screened across multiple layered aquifer units of varying thickness. These units are hydraulically connected and it is not possible to fully separate grade between different units. Therefore, grade data for all bores screened in Shallow Paleochannel Sequence units was used to determine grade for resource calculation zones.

Shallow lake bed piezometers (<8m deep)

by K grade (mg/l)

- 2370 - 3000
- 3001 - 4000
- 5001 - 6000
- 6001 - 7000
- 7001 - 7050

Grade for deeper Lake Bed Sediments (>8m deep) is limited in some areas, e.g. on lake. Shallow Lake Bed Sediments Piezometers (<8m deep) grade results are presented to visualise spatial distribution of grade and are indicative of grade for underlying sediments. The uncertainty related to this was reflected in resource classification (indicated).

Resource calculation zones

(with zone ID and K grade mg/l)

- Indicated
- Measured

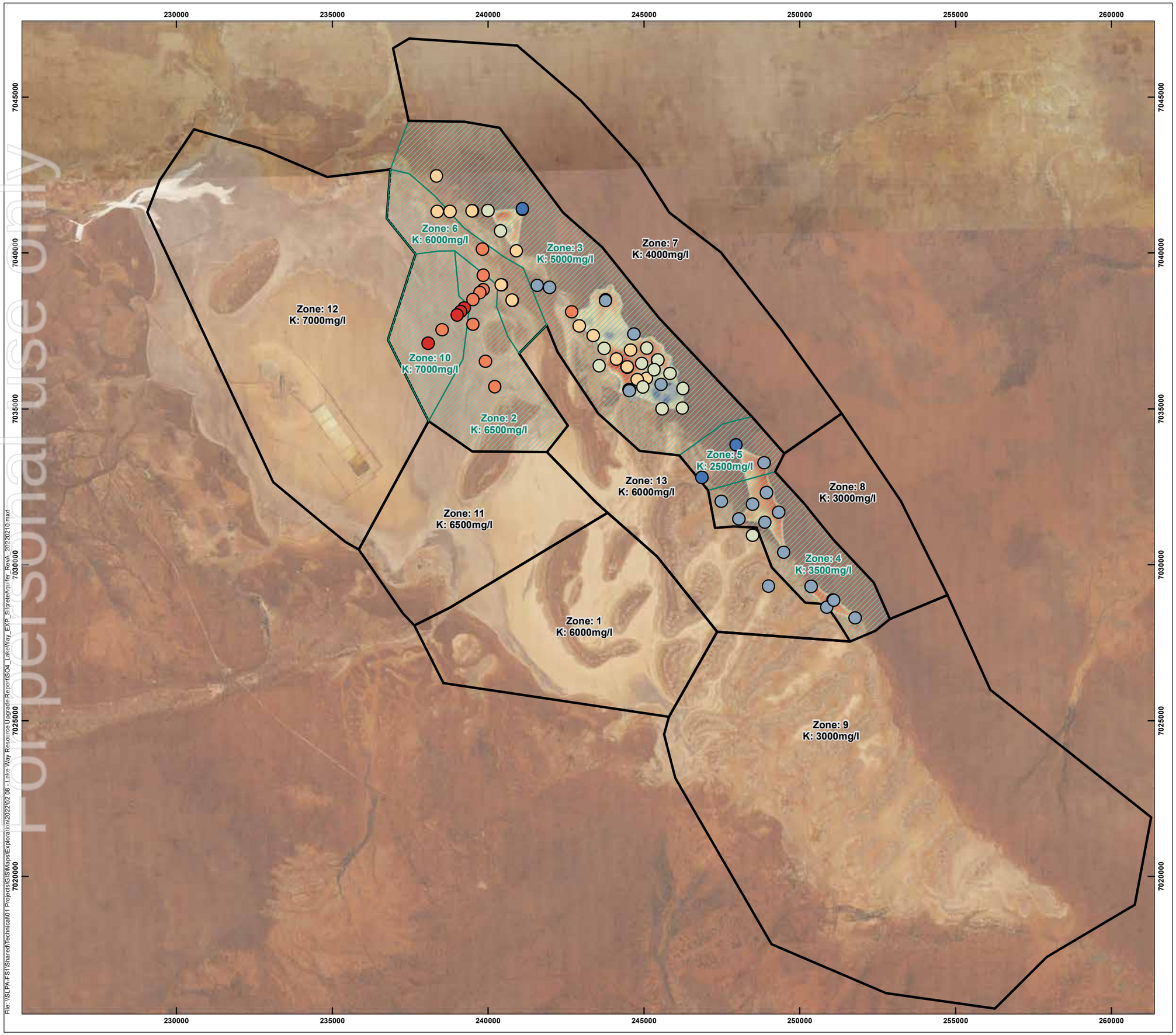
Thickness of lake bed sediments (8-30m)

High : 23.7353

Low : 0.0012

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar



0 2 4
Kilometres

Lake Way

Shallow Paleochannel Sequence subunit Silcrete Aquifer
resource calculation zones,
brine grade data,
resource unit extent and thickness

Legend

Shallow paleochannel sequence bores

by K grade (mg/l)

- 2000 - 3000
- 3001 - 4000
- 4001 - 5000
- 5001 - 6000
- 6001 - 7000
- 7001 - 7314

Bores intersecting Shallow Paleochannel Sequence Units (On-Shore Alluvials WL-30m, Lake Bed Sediments WL-30m, Silcrete Aquifer, Shallow Gravel) are typically screened across multiple layered aquifer units of varying thickness. These units are hydraulically connected and it is not possible to fully separate grade between different units. Therefore, grade data for all bores screened in Shallow Paleochannel Sequence units was used to determine grade for resource calculation zones.

Resource calculation zones

(with zone ID and K grade mg/l)

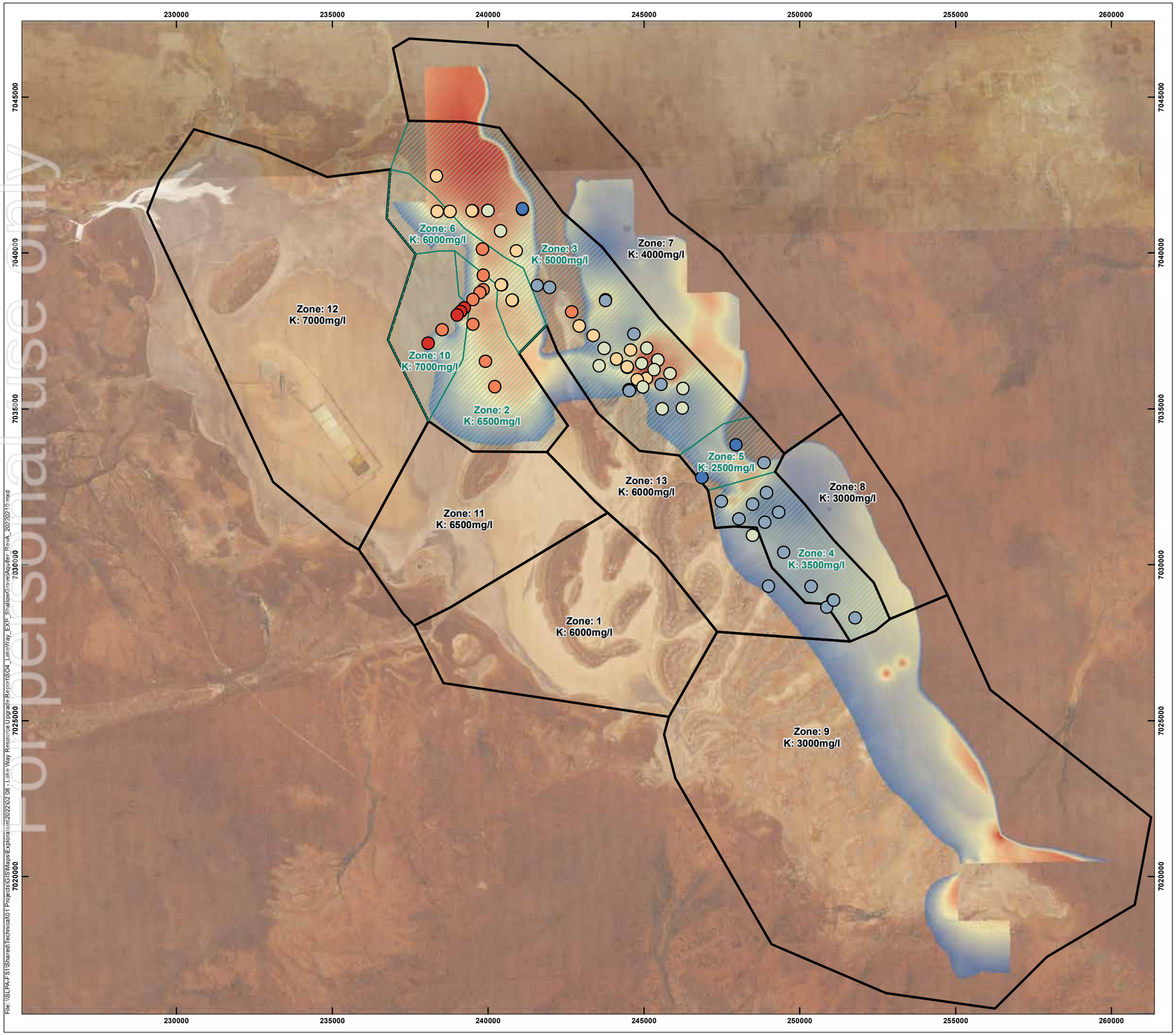
- Indicated
- Measured

Thickness of silcrete aquifer

- High : 24.9031
- Low : 0.0083

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar



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0 2 4
Kilometres

Lake Way

Shallow Paleochannel Sequence subunit Shallow Gravel Aquifer
resource calculation zones,
brine grade data,
resource unit extent and thickness

Legend

Shallow paleochannel sequence bores

by K grade (mg/l)

- 2000 - 3000
- 3001 - 4000
- 4001 - 5000
- 5001 - 6000
- 6001 - 7000
- 7001 - 7314

Bores intersecting Shallow Paleochannel Sequence Units (On-Shore Alluvials WL-30m, Lake Bed Sediments WL-30m, Silcrete Aquifer, Shallow Gravel) are typically screened across multiple layered aquifer units of varying thickness. These units are hydraulically connected and it is not possible to fully separate grade between different units. Therefore, grade data for all bores screened in Shallow Paleochannel Sequence units was used to determine grade for resource calculation zones.

Resource calculation zones

(with zone ID and K grade mg/l)

- Indicated
- Measured

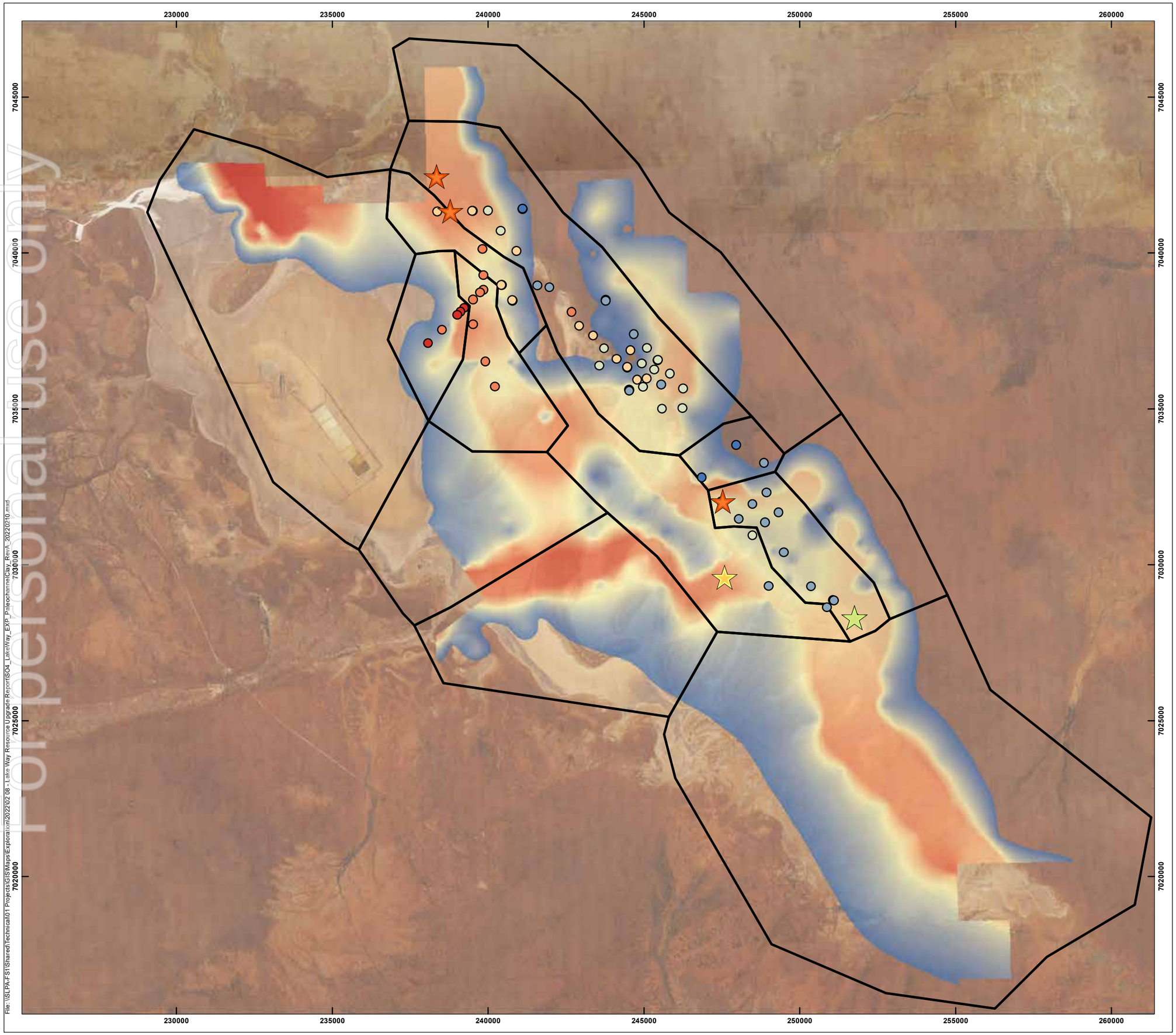
Thickness of shallow gravel aquifer

High : 10.1721

Low : 0.0004

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar



0 2 4
Kilometres

Lake Way

Paleochannel Clay
resource calculation zones,
brine grade data,
resource unit extent and thickness

Legend

Paleochannel clay bores

by K grade (mg/l)

- 4001 - 5000
- 5001 - 6000
- 6001 - 7000

Grade data for Paleochannel Clay is limited. However, available data indicates that grade increases with depth, and follows similar distribution to overlying sediments. Therefore grade data from overlying sediments (in addition to available grade data from Paleochannel Clay) was used to indicate grade in Paleochannel Clay.

Shallow paleochannel sequence bores

by K grade (mg/l)

- 2000 - 3000
- 3001 - 4000
- 4001 - 5000
- 5001 - 6000
- 6001 - 7000
- 7001 - 7314

Resource calculation zones

- Indicated (with zone ID and K grade mg/l)

Paleochannel clay thickness (m)

High : 75.2362

Low : 0.0018

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar

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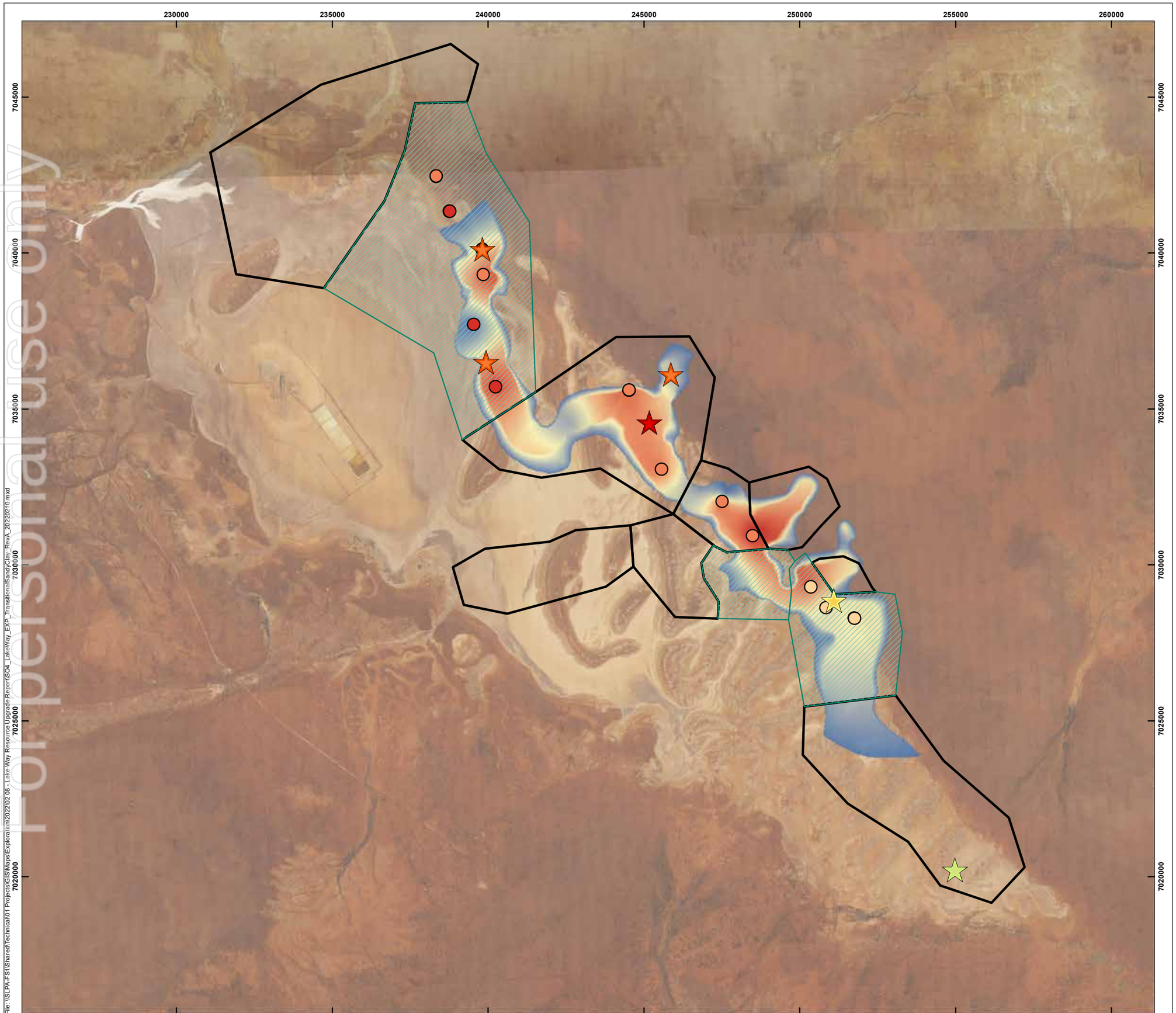

0 2 4
Kilometres

Lake Way

Transitional Sandy Clay
resource calculation zones,
brine grade data,
resource unit extent and thickness

Legend

Transitional sandy clay bores

by K grade (mg/l)

- 4001 - 5000
- 5001 - 6000
- 6001 - 7000
- 7001 - 7314

Grade data for Transitional Sandy Clay is limited. However, pumping data indicates that this unit is in hydraulic continuity with underlying Paleochannel Basal Sands, and has similar grade. Therefore grade data from underlying Paleochannel Basal Sands was used (in addition to available grade data from Transitional Sandy Clay) to indicate grade in Transitional Sandy Clay.

Paleochannel basal sand bores

by K grade (mg/l)

- 5001 - 6000
- 6001 - 7000
- 7001 - 7314

Resource calculation zones

(with zone ID and K grade mg/l)

- Indicated
- Measured

Transitional sandy clay thickness (m)

High : 25.8815

Low : 0.000245

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar

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0 2 4
Kilometres

Lake Way

Paleochannel Basal Sands
resource calculation zones,
brine grade data,
resource unit extent and thickness

Legend

Paleochannel basal sand bores
by K grade (mg/l)
- 5001 - 6000
- 6001 - 7000
- 7001 - 7314

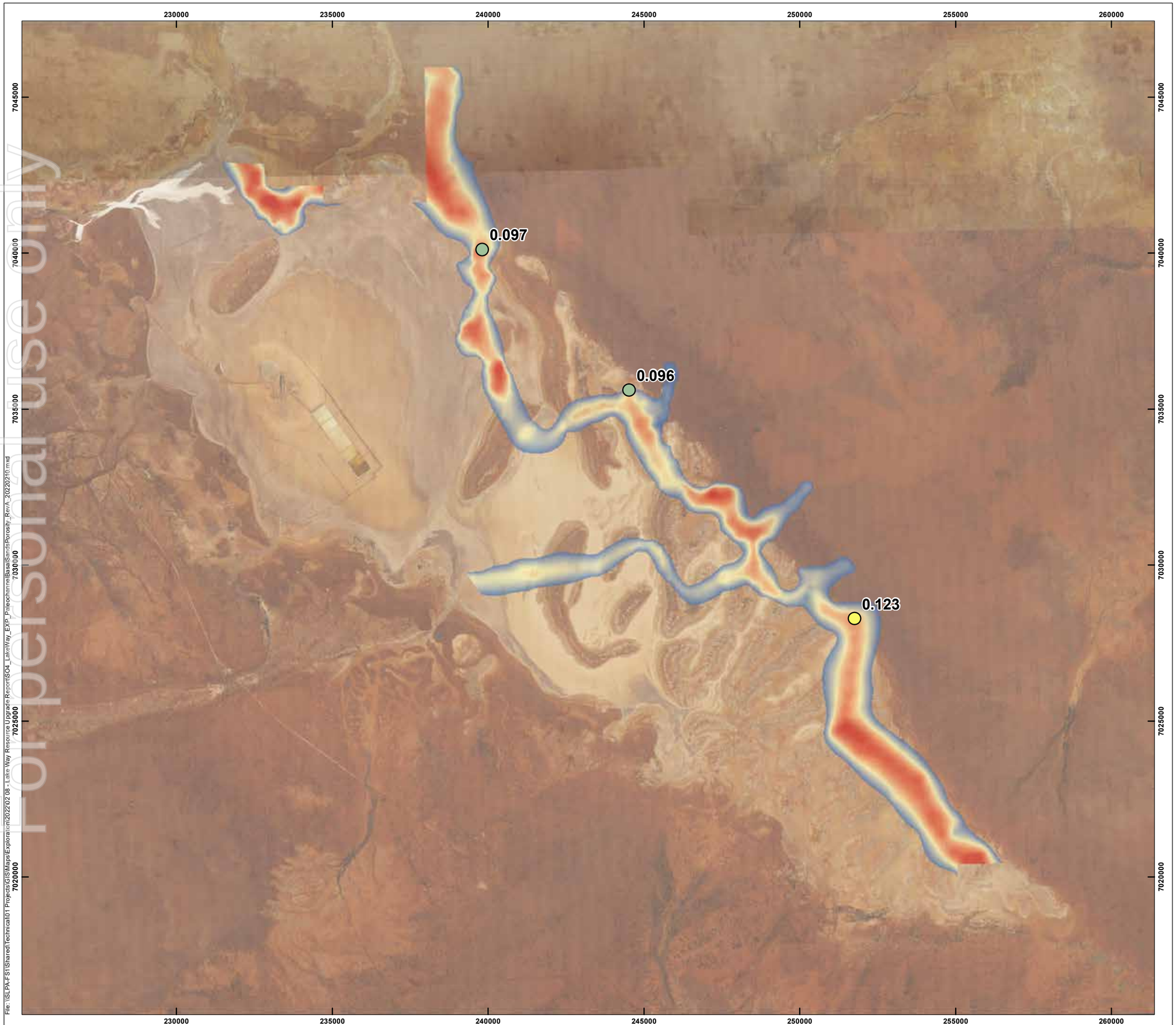
Resource calculation zones
(with zone ID and K grade mg/l)
- Indicated
- Measured

Paleochannel basal sands thickness (m)
High : 35.8061
Low : 0.00415

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar

File: \\SLPA-FS1\Shared\Technical\01 Projects\GIS\Maps\Exploration\2022\02 08 - Lake Way Resource Upgrade Report\SO4_LakeWay_EXP_PrelechannelBasalSands_RevA_20220210.mxd



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0 2 4
Kilometres

Lake Way

Paleochannel Basal Sands
porosity measurements from BMR

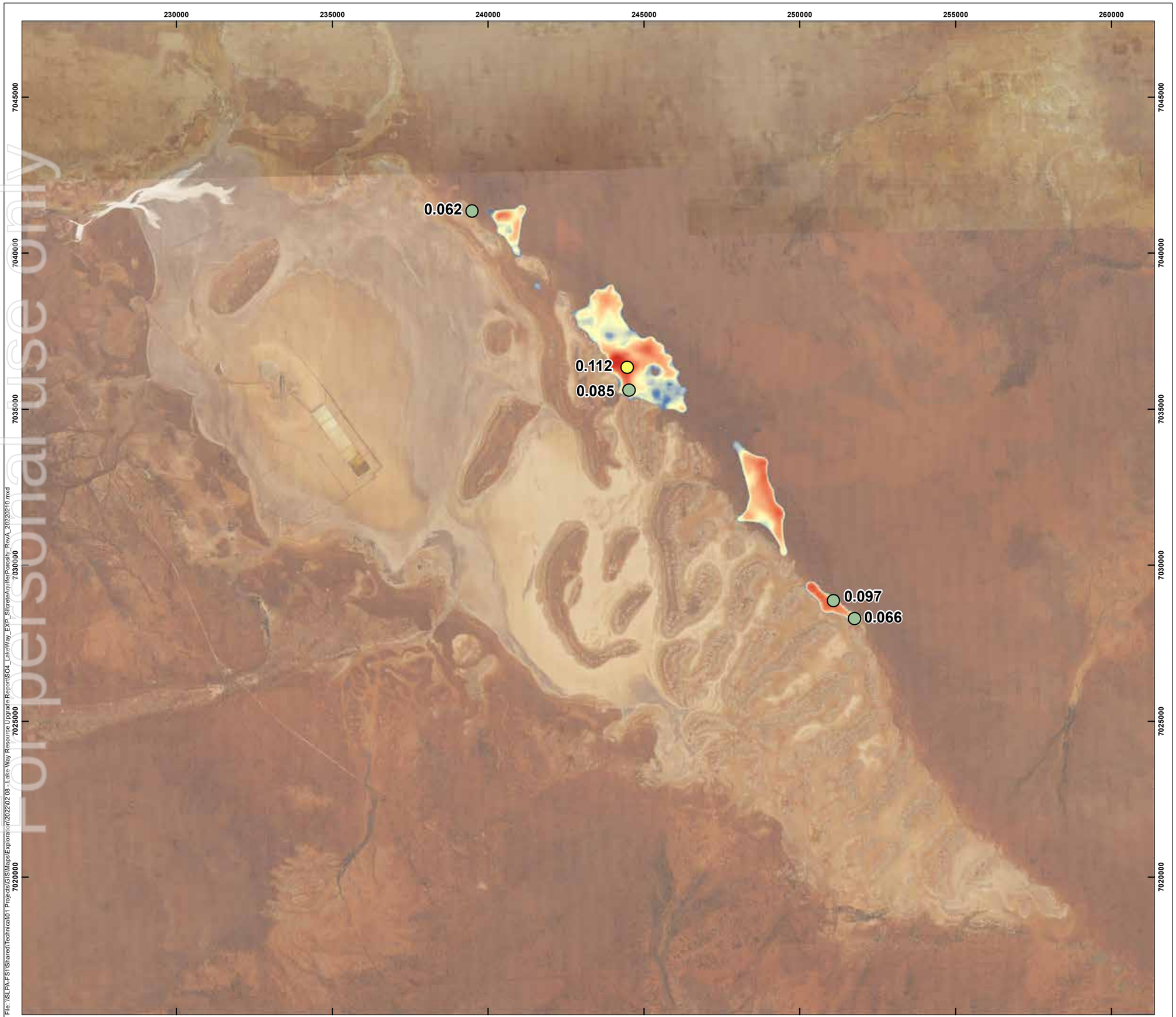
Legend

Porosity
- >0.05 - 0.10
- >0.10 - 0.15

Paleochannel basal sands thickness (m)
- High : 35.8061
- Low : 0.00415

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar



0 2 4
Kilometres

Lake Way

Silcrete Aquifer
porosity measurements from BMR

Legend

Porosity
- >0.05 - 0.10
- >0.10 - 0.15

Silcrete Aquifer Thickness
- High : 24.9031
- Low : 0.0083

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar

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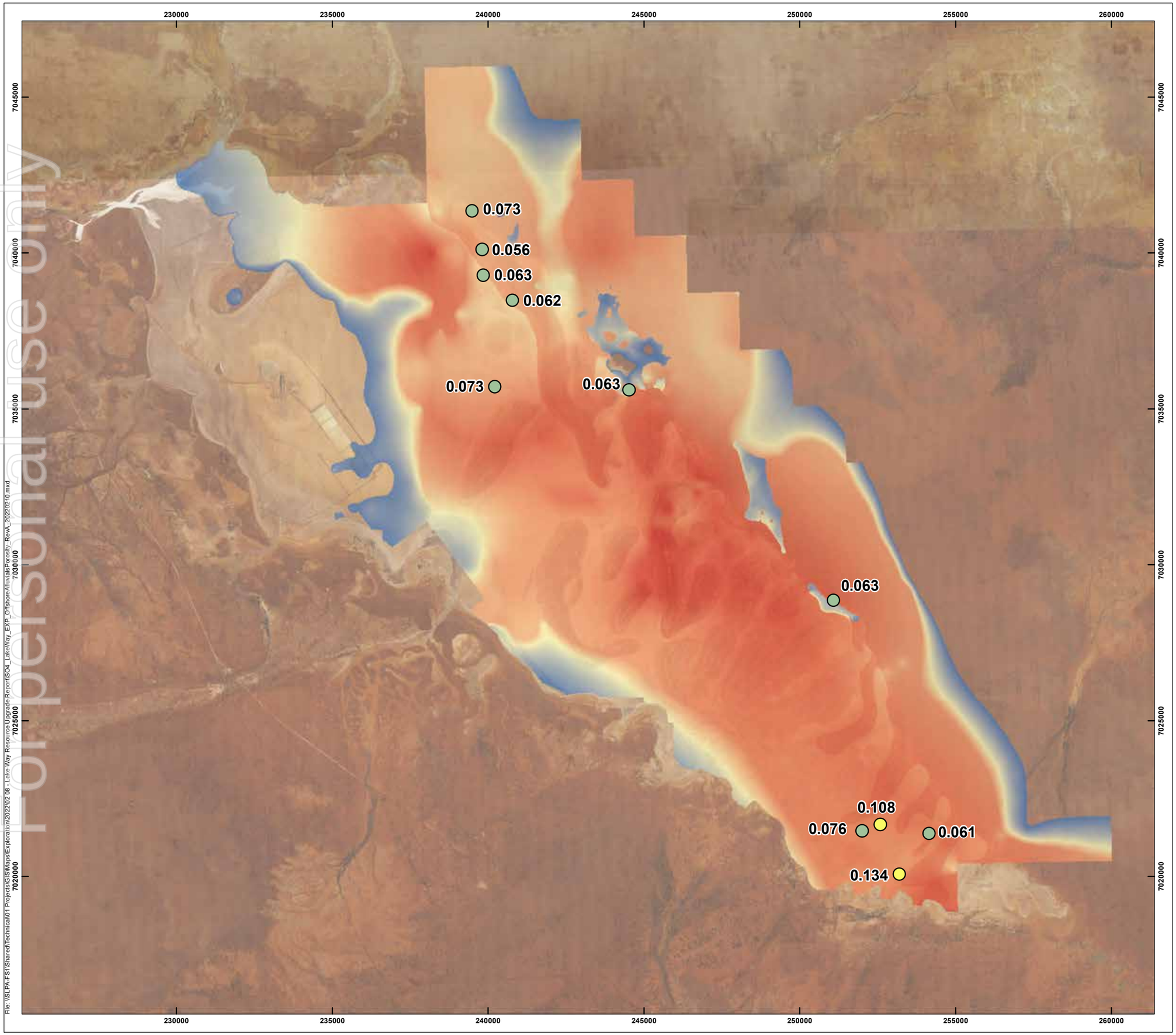


0 2 4
Kilometres

Lake Way

On-shore alluvials (WL-30m) and lake bed sediments 8-30m
porosity measurements from BMR and in situ core sampling

Legend

Porosity
- >0.05 - 0.10
- >0.10 - 0.15

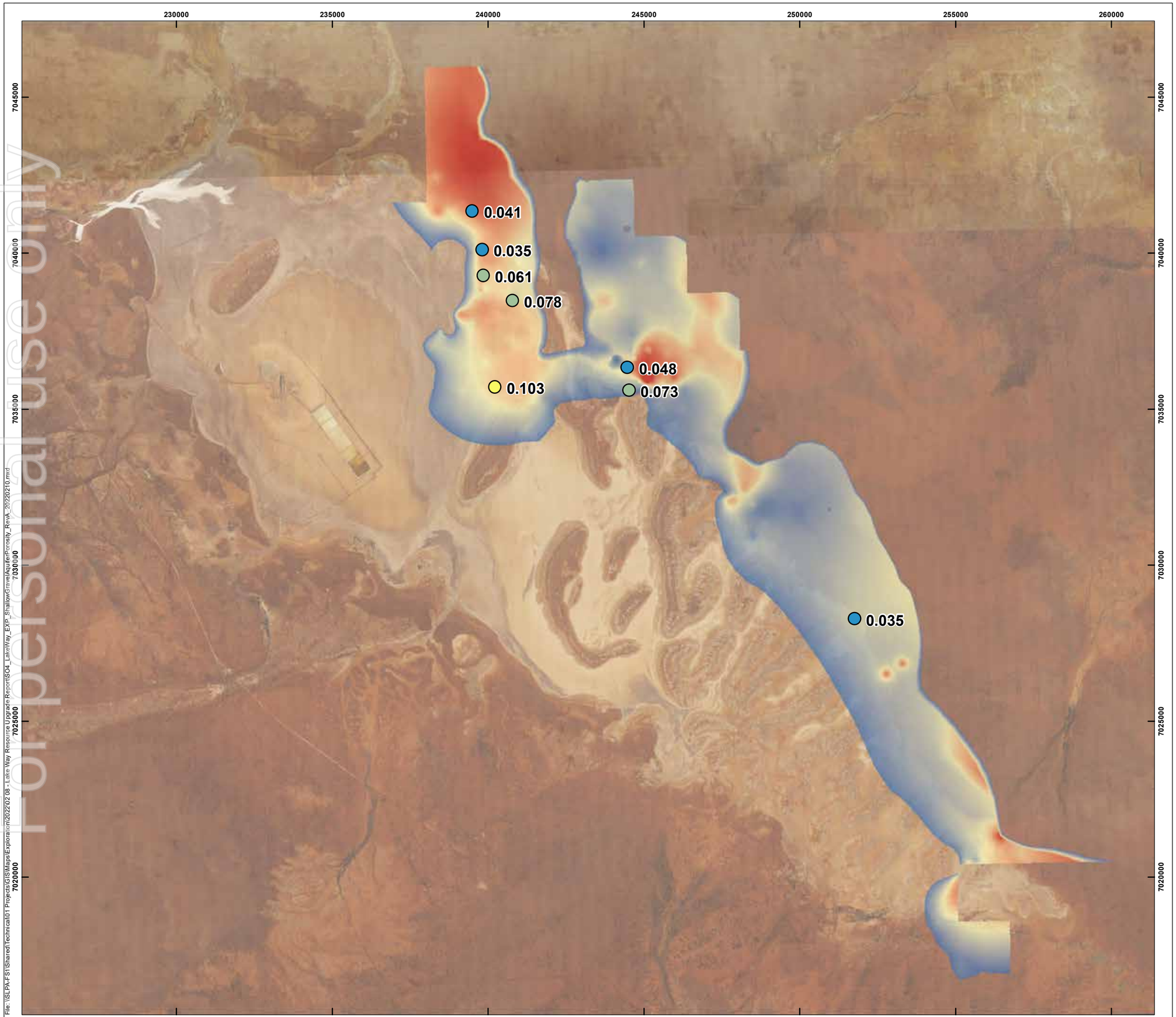
Thickness of lake bed sediments (8-30m)
High : 23.7353
Low : 0.0012

Thickness of on-shore alluvials (WL-30m)
High : 32.3085
Low : 0.0004

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar

File: \\SLPA-FS1\Shared\Technical\01 Projects\GIS\Maps\Exploration\2022\02 08 - Lake Way Resource Upgrade Report\SO4_LakeWay_EXP_OffshoreAlluvialPorosity_RevA_20220210.mxd



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0 2 4
Kilometres

Lake Way

Shallow Gravel Aquifer
porosity measurements from BMR and in situ core sampling

Legend

Porosity
- 0.01 - 0.05
- >0.05 - 0.10
- >0.10 - 0.15

Thickness of shallow gravel aquifer
- High : 10.1721
- Low : 0.0004

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar

0 2 4
Kilometres

Lake Way

Transitional Sandy Clay
porosity measurements and drawdown observations

Legend

2.5km buffer around location of measured drawdown in transitional sandy clay to defined measured resource

Porosity

0.01 - 0.05

Transitional sandy clay thickness (m)

High : 25.8815

Low : 0.00025

SO4

Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar

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Memo

Appendix 3 – Tabulated Data

Installed Bore Details

Bore ID	Pad ID	Cased Depth (m)	Easting	Northing	Ground Elevation (mAHD)	Dip	Azimuth	Type *	Lab K (mg/L)	Unit**
LYSP001	Pad 23	32	248486	7030931	491.86	90	0	SPB	4940	Shallow Paleochannel Sequence
LYSP002	Pad 18	31	238351	7042469	493.73	90	0	SPB	5460	Shallow Paleochannel Sequence
LYSP003	Pad 21	30	238774	7041326	493.88	90	0	SPB	5930	Shallow Paleochannel Sequence
LYSP004	Pad 17	33	239821	7040116	494.86	90	0	SPB	6270	Shallow Paleochannel Sequence
LYSP006	Pad 14	27	244524	7035613	494.33	90	0	SPB	5280	Shallow Paleochannel Sequence
LYSP007	Pad 28	33.7	248856	7033263	495.71	90	0	SPB	3180	Shallow Paleochannel Sequence
LYSP010	Pad 29	45	244124	7036595	494.80	90	0	SPB	5550	Shallow Paleochannel Sequence
LYSP011	Pad 24	30	239920	7036513	490.42	90	0	SPB	6840	Shallow Paleochannel Sequence
LYSP012	Pad 04	30	239521	7037707	490.62	90	0	SPB	6660	Shallow Paleochannel Sequence
LYSP013	Pad 22	29	239849	7039280	490.71	90	0	SPB	6170	Shallow Paleochannel Sequence
LYSP014	Pad 16	29.1	240223	7035710	490.54	90	0	SPB	6800	Shallow Paleochannel Sequence
LYSP014A	Pad 16	29	240212	7035678	490.52	90	0	SMB	-	Shallow Paleochannel Sequence
LYSP014B	Pad 16	6	240220	7035719	490.55	90	0	SMB	-	Shallow Paleochannel Sequence
LYSP015	T2-1	29	239847	7038812	490.70	90	0	SPB	6530	Shallow Paleochannel Sequence
LYSP016	T2-2	28	239747	7038728	490.67	90	0	SPB	6650	Shallow Paleochannel Sequence
LYSP017	T2-3	28.5	239516	7038503	490.61	90	0	SPB	6890	Shallow Paleochannel Sequence
LYSP018	T2-4	28	239233	7038227	490.59	90	0	SPB	7070	Shallow Paleochannel Sequence
LYSP019	T2-5	28.5	239123	7038114	490.57	90	0	SPB	7170	Shallow Paleochannel Sequence
LYSP020	T2-6	28.5	239012	7038008	490.42	90	0	SPB	7200	Shallow Paleochannel Sequence
LYSP021	T2-7	35	238523	7037525	490.52	90	0	SPB	6960	Shallow Paleochannel Sequence

Bore ID	Pad ID	Cased Depth (m)	Easting	Northing	Ground Elevation (mAHD)	Dip	Azimuth	Type *	Lab K (mg/L)	Unit**
LYSP022	T2-8	39	238082	7037095	490.55	90	0	SPB	7210	Shallow Paleochannel Sequence
LYSP023	GT070	28.5	245837	7036124	493.79	90	0	SPB	4730	Shallow Paleochannel Sequence
LYSP024	PT017	30	239999	7041356	495.20	90	0	SPB	5000	Shallow Paleochannel Sequence
LYSP025	BT006	34.5	245085	7035973	496.55	90	0	SPB	5340	Shallow Paleochannel Sequence
LYSP026	PT012	29	239506	7041348	492.90	90	0	SPB	5280	Shallow Paleochannel Sequence
LYSP026A	PT012	28.5	239489	7041347	492.39	90	0	SMB	5160	Shallow Paleochannel Sequence
LYSP027	GT076	29	246261	7035647	494.22	90	0	SPB	4010	Shallow Paleochannel Sequence
LYSP028	PT001	27	238374	7041324	495.65	90	0	SPB	5230	Shallow Paleochannel Sequence
LYSP029	KT012	31	245583	7035000	493.50	90	0	SPB	4940	Shallow Paleochannel Sequence
LYSP030	C5006	39	243573	7036376	497.52	90	0	SPB	4960	Shallow Paleochannel Sequence
LYSP031	CT037	32	243375	7037344	496.80	90	0	SPB	5660	Shallow Paleochannel Sequence
LYSP032	CT011	30	241584	7038952	495.18	90	0	SPB	3150	Shallow Paleochannel Sequence
LYSP033	CT027	25	242688	7038106	494.85	90	0	SPB	6680	Shallow Paleochannel Sequence
LYSP034	NT053	26	240784	7038461	492.36	90	0	SPB	6180	Shallow Paleochannel Sequence
LYSP034A	NT053	28	240782	7038473	492.41	90	0	SMB	6090	Shallow Paleochannel Sequence
LYSP034B	NT053	10	240776	7038477	492.42	90	0	SMB	5130	Shallow Paleochannel Sequence
LYSP035A	GT101	25.5	247965	7033839	495.54	90	0	SMB	2240	Shallow Paleochannel Sequence
LYSP036	GT064	29.5	245441	7036553	494.48	90	0	SPB	4650	Shallow Paleochannel Sequence
LYSP037	GT064	30.5	245453	7036565	494.44	90	0	SPB	4680	Shallow Paleochannel Sequence
LYSP038A	CT015	30	241976	7038895	495.40	90	0	SMB	3880	Shallow Paleochannel Sequence
LYSP039	Pad 14	30	244544	7035603	495.27	90	0	SPB	5230	Shallow Paleochannel Sequence

Bore ID	Pad ID	Cased Depth (m)	Easting	Northing	Ground Elevation (mAHD)	Dip	Azimuth	Type *	Lab K (mg/L)	Unit**
LYSP040	ST035	34	248046	7031463	495.11	90	0	SPB	3980	Shallow Paleochannel Sequence
LYSP041	NL010	30	240916	7040063	494.47	90	0	SPB	5610	Shallow Paleochannel Sequence
LYSP042	S5009	27	249325	7031673	494.32	90	0	SPB	3690	Shallow Paleochannel Sequence
LYSP043A	NL018	19	240401	7040705	496.08	90	0	SMB	4750	Shallow Paleochannel Sequence
LYSP044	S5004	28	248886	7031354	493.56	90	0	SPB	3290	Shallow Paleochannel Sequence
LYSP045	Pad 09	34	251070	7028860	493.93	90	0	SPB	3650	Shallow Paleochannel Sequence
LYSP046	Pad 08	30	251774	7028288	493.47	90	0	SPB	3660	Shallow Paleochannel Sequence
LYSP047A	ST013	29	246862	7032798	492.94	90	0	SMB	2650	Shallow Paleochannel Sequence
LYSP048	CT058	31	244790	7035934	495.92	90	0	SPB	5220	Shallow Paleochannel Sequence
LYSP049	CT053	37	244467	7036321	496.49	90	0	SPB	5300	Shallow Paleochannel Sequence
LYSP049A	CT053	37	244470	7036327	496.49	90	0	SMB	5500	Shallow Paleochannel Sequence
LYSP050	BT003	33	245334	7036253	494.52	90	0	SPB	4500	Shallow Paleochannel Sequence
LYSP051	BT010	30	244975	7035693	493.37	90	0	SPB	4950	Shallow Paleochannel Sequence
LYSP052	KT005	31.5	246240	7035015	494.47	90	0	SPB	4780	Shallow Paleochannel Sequence
LYSP053	CT032	28	242930	7037658	496.16	90	0	SPB	5430	Shallow Paleochannel Sequence
LYSP054	CT043	34	243728	7036929	496.80	90	0	SPB	4740	Shallow Paleochannel Sequence
LYSP055	GT039	32	243778	7038487	495.15	90	0	SPB	5070	Shallow Paleochannel Sequence
LYSP056A	GT053	35	244683	7037392	494.90	90	0	SMB	3860	Shallow Paleochannel Sequence
LYSP057	G5004	37	244574	7036873	495.05	90	0	SPB	5070	Shallow Paleochannel Sequence
LYSP058	GT059	31.3	245096	7036947	494.65	90	0	SPB	4560	Shallow Paleochannel Sequence
LYSP059	G6004	32	244928	7036446	495.00	90	0	SPB	4900	Shallow Paleochannel Sequence

Bore ID	Pad ID	Cased Depth (m)	Easting	Northing	Ground Elevation (mAHD)	Dip	Azimuth	Type *	Lab K (mg/L)	Unit**
LYSP060	G7004	27.5	245559	7035779	494.35	90	0	SPB	3610	Shallow Paleochannel Sequence
LYSP061	S3008	30	248486	7031942	494.18	90	0	SPB	3610	Shallow Paleochannel Sequence
LYSP062	S3014	34	248939	7032312	494.30	90	0	SPB	3610	Shallow Paleochannel Sequence
LYSP062A	S3014	31.5	248929	7032331	494.30	90	0	SMB	-	Shallow Paleochannel Sequence
LYSP063	ST055	33	249487	7030389	492.94	90	0	SPB	3520	Shallow Paleochannel Sequence
LYSP064	ST071	30	250370	7029300	493.94	90	0	SPB	3710	Shallow Paleochannel Sequence
LYSP066	CT053	37	244467	7036336	496.20	90	0	SPB	5390	Shallow Paleochannel Sequence
LYSP067A	NT047	28	240440	7038973	492.59	90	0	SMB	6580	Shallow Paleochannel Sequence
LYSP067B	NT047	10	240428	7038967	492.59	90	0	SMB	5730	Shallow Paleochannel Sequence
LYSP068	ST079	30	250871	7028625	491.52	90	0	SPB	3830	Shallow Paleochannel Sequence
LYSP069	GT039	32	243772	7038462	495.15	90	0	SPB	3520	Shallow Paleochannel Sequence
LYSP070	Pad 09	31	251096	7028852	493.78	90	0	SPB	3690	Shallow Paleochannel Sequence
LYSP071	S6009	34	249004	7029309	491.46	90	0	SPB	3840	Shallow Paleochannel Sequence
LYPZB007B	Pad 30	26	241109	7041395	494.69	90	0	SMB	5110	Shallow Paleochannel Sequence
LYPZB007C	Pad 30	10	241104	7041409	494.69	90	0	SMB	2480	Shallow Paleochannel Sequence
LYPZB008B	Pad 14	5.8	244530	7035573	494.11	90	0	SMB	3400	Shallow Paleochannel Sequence
LYPZB009B	Pad 12	5.7	247486	7032021	492.11	90	0	SMB	3900	Shallow Paleochannel Sequence
LYPBB001	Pad 17	112.4	239815	7040119	494.93	90	0	PB	7240	Paleochannel basal sand
LYPBB002	Pad 21	111	238759	7041334	494.12	90	0	PB	7230	Paleochannel basal sand
LYPBB004	Pad 08	112	251750	7028286	493.33	90	0	PB	5630	Paleochannel basal sand
LYPBB005	Pad 05	111	254974	7020217	491.33	90	0	MB	4995	Transitional Sandy Clay

Bore ID	Pad ID	Cased Depth (m)	Easting	Northing	Ground Elevation (mAHD)	Dip	Azimuth	Type *	Lab K (mg/L)	Unit**
LYPBB006	Pad 18	112	238340	7042457	493.48	90	0	PB	6890	Paleochannel basal sand
LYPBB008	Pad 14	108	244523	7035591	494.18	90	0	PB	6770	Paleochannel basal sand
LYPBB009	Pad 12	113	247515	7032023	491.99	90	0	PB	6380	Paleochannel basal sand
LYPBB010	Pad 23	112	248490	7030922	491.78	90	0	PB	6260	Paleochannel basal sand
LYPBB012	Pad 24	114	239925	7036498	490.45	90	0	MB	6710	Transitional Sandy Clay
LYPBB013	Pad 04	109	239537	7037700	490.61	90	0	PB	7314	Paleochannel basal sand
LYPBB014	Pad 22	109	239849	7039297	490.73	90	0	PB	6990	Paleochannel basal sand
LYPBB015	Pad 16	112	240237	7035709	490.56	90	0	PB	7040	Paleochannel basal sand
LYPBB016	KT018	108	245167	7034560	492.98	90	0	MB	7010	Transitional Sandy Clay
LYPBB017	KT038	110	245563	7033059	491.09	90	0	PB	6720	Paleochannel basal sand
LYPBB019	ST071	96	250353	7029290	493.94	90	0	PB	5300	Paleochannel basal sand
LYPBB020	ST079	109	250848	7028617	491.53	90	0	PB	5170	Paleochannel basal sand
LYPBB021	GT070	104	245857	7036101	493.85	90	0	MB	6030	Transitional Sandy Clay
LYPZB001A	Pad 17	113	239807	7040112	494.94	90	0	MB	7260	Paleochannel basal sand
LYPZB001B	Pad 17	72.2	239811	7040122	494.88	90	0	MB	6890	Transitional Sandy Clay
LYPZB002A	Pad 21	108.4	238769	7041333	494.00	90	0	MB	7200	Paleochannel basal sand
LYPZB002B	Pad 21	68.5	238780	7041336	493.94	90	0	MB	6320	Paleochannel Clay
LYPZB003A	Pad 09	94	251083	7028856	493.60	90	0	MB	5390	Transitional Sandy Clay
LYPZB004A	Pad 08	112	251757	7028273	493.35	90	0	MB	5340	Paleochannel basal sand
LYPZB004B	Pad 08	70	251746	7028294	493.33	90	0	MB	4600	Paleochannel Clay
LYPZB004C	Pad 08	46	251749	7028295	493.34	90	0	MB	4100	Paleochannel Clay

Bore ID	Pad ID	Cased Depth (m)	Easting	Northing	Ground Elevation (mAHD)	Dip	Azimuth	Type *	Lab K (mg/L)	Unit**
LYPZB006A	Pad 18	112	238340	7042469	493.57	90	0	MB	6960	Paleochannel basal sand
LYPZB006B	Pad 18	64	238336	7042443	493.38	90	0	MB	6300	Paleochannel Clay
LYPZB007A	Pad 30	60	241104	7041416	494.69	90	0	MB	5170	Basement
LYPZB008A	Pad 14	104.75	244523	7035601	494.23	90	0	MB	6650	Paleochannel basal sand
LYPZB009A	Pad 12	76	247520	7032030	491.99	90	0	MB	6060	Paleochannel Clay
LYPZB018A	Pad 46	93	247584	7029592	491.21	90	0	MB	5830	Paleochannel Clay
LYSP065A	TT007	59.7	248224	7032684	494.72	90	0	MB	2790	Basement

*Types; PB (Production Bore), MB (Monitoring Bore), SPB (Shallow Production Bore), SMB (Shallow Monitoring Bore)
**The Shallow Paleochannel Sequence is a grouping of the units; On shore Lake Bed sediments (8 - 30m), Off-shore alluvials (WL-30m), Shallow gravel aquifer and Silcrete aquifer from the Leapfrog Model

Shallow Lakebed Bores Average K

Bore ID	Cased Depth (m)	Easting	Northing	Ground Elevation (mAHD)	Dip	Azimuth	Average Lab K (mg/L)
LYAGZ001	6.1	236853	7032049	490.74	90	0	6390
LYAGZ005	6.4	240171	7028538	490.56	90	0	5540
LYAGZ007	4.35	238747	7034697	490.75	90	0	6325
LYAGZ008	6.1	235864	7038720	490.37	90	0	6840
LYAGZ010	8.19	241951	7033873	490.8	90	0	6745
LYAGZ011	5.67	243088	7032074	490.94	90	0	6540
LYAGZ016	6	253164	7022036	493	90	0	2890
LYAGZ017	8.1	253196	7020072	492	90	0	3510
LYAGZ018	8.2	254152	7021373	492	90	0	2920
LYAGZ019	8.3	251999	7021456	499	90	0	2790
LYAGZ020	4.8	253502	7022840	500	90	0	2370
LYAGZ021	6.5	252019	7022537	496	90	0	2600
LYAGZ022	6.45	252766	7024389	494	90	0	2790
LYAGZ023	8.2	252590	7021665	492	90	0	2880
LYAGZ024	4.75	250682	7023676	492	90	0	3270
LYAGZ025	5.05	250408	7022156	493	90	0	3450
LYAGZ026	6.85	248476	7022343	496	90	0	3860
LYTR01-20W	5.12	236365	7033398	490.75	90	0	6550
LYTR01-50W	5.18	236340	7033383	490.75	90	0	7050
LYTR01-100W	5.13	236297	7033355	490.75	90	0	6980

Memo

Appendix 4 – Bore Logs

COMPOSITE BORE LOG

Bore No: LYPBB001

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 21/03/2020
Finish: 03/04/2020
Drilled By: Acqua Drill
Logged By: A. Edgar

Drilling Method: Mud Rotary
Fluid: Muds
Bit Record: 22": 0-6m,15": ream 6m-113m
Casing Stickup: 0.905 m

Elevation (GL): 494.932 mRL
Easting: 239815.159
Northing: 7040118.682
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 5.81 **Date of SWL:** 08/04/2020 **First Water Strike (mbgl):** N/A

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Laterite		Salt: Salt crust. White to light grey, gypsum crystals present.			0-6m: 16" steel surface casing
			Siltstone: Laterite. Red-brown laterite / hardpan. Consolidated with silt to medium grained sand. Mottled and hard. Minor quartz and gypsum. Black layer from 4-6m.	SWL: 5.81mbgl		0-6m: sanitary cement seal
10			Siltstone: Laterite and clay. Light brown, well consolidated siltstone laterite with lessor soft clay and gypsum. Minor sand grains also present.			
			Clay: Clay and gravels. brown to khaki, soft and sticky clay mixed with gravels, with minor silt. Quartz rich sand at base, white/grey			
20				Laboratory Results		
			Clay: Reddish brown alluvial clay, soft clay with trace silt and sand.	Potassium: 7,240mg/L		
			Clay: Clay and gravel. Light brown/grey soft clay and gravel with minor sand and siltstone fragments. Sand has moderate sorting and is sub rounded to sub angular. Larger inclusions of siltstone from 28-30m.	Magnesium: 8,650mg/L		6-75m: gravel pack 1.6 x 3.2mm
30				SO4: 28,700mg/L		
			Clay: Fat clay. Dark grey/brown. Thick clays, hard. Colour changes from grey 32-44m, yellow cream 44-56m, then dark grey from 56-68m. Trace fine grit/sand inclusions.	TDS: 272,853mg/L		
40				Specific Gravity: 1.1866 g/cm3		
50	Clay					0-94.4m: 10" blank PVC CI18
60						
70			Clay: Clay and some minor silt. Grey and yellow soft grey clay .			
			Clay: Fat clay. Dark grey meduim hard, sticky clay with moderate placticity.			
80						75-84.4m: neat cement seal with 5% bentonite
			Clay and Sand: Clay and sand. Dark grey. Minor sand and quartz gravel layer. Sub angular with moderate sorting			
90			Clay: Fat clay. As above. Dark grey			85.4-113m: gravel pack 1.6 x 3.2mm
			Sand: Paleochannel sand. White/clear to grey. Coarse sand, angular, moderately sorted, however finer sand likely washing through sieve. Minor black organic peaty fragments			
100	Sand			Airlift: Q: 35 L/s, EC: 193.5 mS/cm, pH: 6.91, Temp: 25.0 C		94.4-112.4m: 10" stainless steel wirewound screen (1mm aperture)
			Sand: Paleochannel sand and clay. Trace soft clay, grey to light brown. Large quartz crystals (2cm) from 112m - indicating close to contact with basement			
110	ement					112.4m: end cap
			Basement: Granite. Light grey. Hard and crystaline. Very few cuttings returned			

COMPOSITE BORE LOG

Bore No: LYPZB001A

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 13/3/2020
Finish: 21/3/2020
Drilled By: Acqua Drill
Logged By: K. Pannell

Drilling Method: Mud Rotary
Fluid: Drilling Mud
Bit Record: 15" 0-6m, 10" 6m-115m
Casing Stickup: 0.846 m

Elevation (GL): 494.943 mRL
Easting: 239807.327
Northing: 7040112.139
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 5.69 **Date of SWL:** 26/03/2020 **First Water Strike (mbgl):** N/A

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Salt: Salt crust, white to light grey, large gypsum crystals.			0-6m 10" steel surface casing
	Laterite		Siltstone: Brown organic rich silttone laterite. Mottled, hard, consilidated, fine grained, lessor gypsum, minor silt.	Static Water Level: 5.69mbgl		0-6m cement seal
10			Siltstone: lightbrown, well consolidated siltstone with lessor soft claty and and gypsum.			
			Clay: Khaki, soft and sticky, with minor silt and traces or oganic material. Quartz rich sand at base,	Laboratory Results		
20			Clay: Reddish brown alluvial clay, malliable and sticky.	Potassium: 7,260mg/L		
			Clay: Light brown/grey clay and gravel with minor sand and siltstone fragments. Sand has moderate sorting and is sub angular. Larger inclusions of siltstone from 28-30m.	Magnesium: 8,670mg/L		
30				SO4: 29,000mg/L		6-115m gravel pack 1.6x3.2mm
	Clay		Clay: Dark grey/brown fat channel clay. Trace fine grit inclusions.	TDS: 270,133mg/L		
40				Specific Gravity: 1.184 g/cm3		
50						
60						0-95m 6" blank PVC Class 18
			Clay: Grey and yellow soft grey channel clay with minor quartz well sorted rich sand.			
70						
			Clay: Dark grey meduim hard, sticky fat clay with moderate plasticity. Minor sand present from 87-89m.			
80						
90						
	Sand		Sand: Coarse paleochannel sand. White/clear sand with minor organic fragments including shale.	Airlift: Q: <12 L/s, EC: 193.5 mS/cm, pH: 6.33, Temp: 25.0 C		95-113m 6" slotted PVC Class 18 (1mm aperture)
100						
			Sand: Coarse paleochannel quartz sand with trace soft clay.			
110	Basement		Basement: Hard and crystalline granite basement. Fresh			113m end cap

COMPOSITE BORE LOG

Bore No: LYPZB001B

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 4/4/2020
Finish: 7/04/2020
Drilled By: Acqua Drill
Logged By: Anna Edgar

Drilling Method: Mud Rotary
Fluid: Muds
Bit Record: 15" 0-5m, 6" 5-73.5m
Casing Stickup: 0.968 m

Elevation (GL): 494.880 mRL
Easting: 239810.961
Northing: 7040121.624
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 5.66 **Date of SWL:** 9/04/2020 **First Water Strike (mbgl):** N/A

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Saltcrust		Salt: Salt crust, white to light grey with gypsum crystals.			0-5m sanitary cement seal
	Siltstone		Siltstone: Red brown, consolidated laterite siltstone with trace quartz.	Static Water Level: 5.66mbgl		0-5m 10" steel surface casing
10	Soft Clays		Clay: Red brown silty clay, malleable and sticky with minor sand.	Laboratory Results Potassium: 6,890mg/L Magnesium: 8,360mg/L SO4: 27,200mg/L TDS: 258,777mg/L Specific Gravity: 1.184 g/cm3		
20	Clays with gravel		Clay: Red brown silty clay, maleable and sticky with minor gravel (upto 5mm) and sand. Gravels are fe rich , subrounded and well sorted.			5-48.5m gravel Pack 1.6-3.2mm
30						0-66.2m 50mm blank PVC, Class 18.
40	Thick clays		Clay: Grey fat clays, massive. Colour change to yellow cream between 46 - 54m.			
50						
60						48.5-62m neat cement, low heat with 5% bentonite & SG 1.41
70	Clay with sand		Clay: Grey fat clays with some minor medium grain, sub-angular sand lenses.	Development airlift: 0.2 L/s, TDS: 177.0, pH 6.78, Temp 26.1 C		66.2-72.2m 50mm slotted (1mm apeture) PVC, Class 18 72.2m: end cap 72.2-73.5m fallback

COMPOSITE BORE LOG

Bore No: LYPBB002

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 8/4/2020
Finish: 18/04/2020
Drilled By: Acqua Drill
Logged By: A. Edgar, K. Pannell

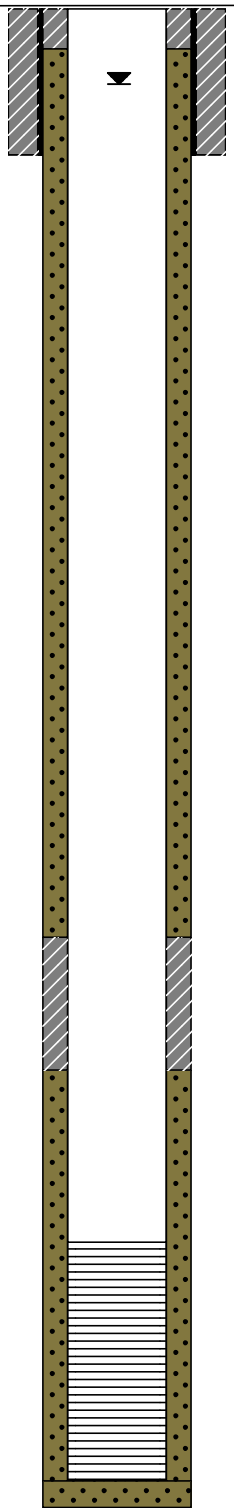
Drilling Method: Mud Rotary
Fluid: Muds
Bit Record: 22" 0-11m, 15" 11m-113m
Casing Stickup: 0.25 m

Elevation (GL): 494.122 mRL
Easting: 238759.343
Northing: 7041333.717
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 5.66 **Date of SWL:** 22/4/2020 **First Water Strike (mbgl):** N/A

Depth	Geology	Lithological Description	Hydro Field Data
0	Alluvials	Sand: Red aeolian sand dune, well sorted, fine sand	
		Siltstone: Red, hard siltstone, gravel from 0.5 to 3 cm, poorly sorted. Minor sand, silt and clay.	Static Water Level: 5.66mbgl on 22/4/2020
10		Clay: Red. Soft, sticky maleable alluvial clay. Feels gritty with minor silt and sand present. Trace fine gravels present. Minor light grey soft clays 12-14m and increased sand.	
20		Gravelly Clay: Red-brown. Red clays as above. Large cuttings of hard black siltstone, up to 2cm, angular. Lesser yellow weathered calcrete. Trace sub-angular fine gravel.	Laboratory Results
		Gravelly Clay: Red to brown. Red alluvial clay with increased plasticity. Minor fine gravels composed of quartz and black siltstone, angular. Change to grey and yellow clays from 28-30m with transition into fat clay.	Potassium: 7,230 mg/L
30			Magnesium: 9,180 mg/L
		Clay: Grey to dark red/purple. Plastic fat channel clay, massive structure. Increased plasticity from 36m. Firm, slow drilling. Cuttings in long slices. Trace gritty texture. Soft khaki from 52-58m	SO4: 29,500 mg/L
40			TDS: 268,560 mg/L
			Specific Gravity: 1.1836 g/cm3
50	Channel Clay		
		Clay: Grey to khaki. Softer clays with reduced plasticity. Smaller cuttings with a more crumbly texture. Large fragments of brittle rock - light, easily chipped. Possible weathered/transported greenstone	
60			
		Clay: Dark grey to purple. Clear colour change with increased plasticity of fat clay. Long sliced cuttings and slower drilling.	
70			
80			
		Clay and Sand: Dark grey and yellow. Alternating fat clay and coarse sand lenses (~0.5m thick). Quartz dominant sand, sub-angular. Trace soft yellow clay. Lenses from 84-84.5m and 87-91m. Quick drilling through lenses.	
90	Clay and Sand		
		Sand: Clear to grey. Coarse quartz rich sand, sub-angular. Minor clay, likely contamination as clay slower to clear from hole. Fine sand in desanding cones - washing through sieve. Large angular quartz (2cm) from 94-96m, indicating base of lense.	
100			Airlift field results: Q: 16 L/s, EC: 200.7mS/cm, TDS: 126.9ppt, pH: 6.89, Temp: 25.7C
	Sand	Clay: Dark grey. Mixture of soft light grey clay and crumbly dark grey and hard fat clay. Vey slow drilling with roller. Bit balling up.	
110	ement	Sand: Clear to light brown/grey. Very coarse quartz rich gravel. Sub-angular to sub-rounded. Trace soft black peaty organic material. Larger angular quartz (2cm) 110-111m with basement contact. Quick drilling.	
		Basement: Hard and fresh granite	

Bore Construction



Bore Diagram	Construction Notes
	0-3m sanitary cement seal
	0-11m 16" steel surface casing
	3-70m gravel pack, mix of 1.6x3.2mm and 3.2x6.4mm
	0-93m 10" blank PVC Class 18
	70-80 neat cement, 5% bentonite seal
	80-113m gravel pack 1.6x3.2mm
	93-111m 10" stainless steel wirewound screen (1mm aperture)
	111m end cap

COMPOSITE BORE LOG

Bore No: LYPZB002A

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 12/5/2020
Finish: 20/5/2020
Drilled By: Acqua Drill
Logged By: K. Pannell

Drilling Method: Mud Rotary
Fluid: Muds
Bit Record: 15" 0-10m, 6" 10-112m
Casing Stickup: 1.019 m

Elevation (GL): 494 mRL
Easting: 238769.33
Northing: 7041332.984
Projection: GDA94 ZONE 51

Static Water Level (mbgl): TBD **Date of SWL:** TBD **First Water Strike (mbgl):** N/A

Depth	Geology	Lithological Description	Hydro Field Data	Bore Diagram	Construction Notes
0	Alluvials	Sand: Red aeolian sand dune, well sorted, fine sand			0-3m: sanitary cement seal
		Siltstone: Red, hard siltstone, gravel from 0.5 to 3 cm, poorly sorted. Minor sand, silt and clay also present	Static Water Level: TBD		0-10m 10" PVC Class 18 surface casing
10		Clay: Red. Soft, sticky alluvial clay. Gritty with minor silt and sand present. Trace fine gravels present. Minor light grey soft clays 12-14m and increased sand. Harder 14-17m			
20		Gravelly Clay: Red-brown. Red alluvial clays as above. Large cuttings of hard black siltstone, up to 2cm, angular. Lesser yellow weathered calcrete. Trace sub-angular fine gravel.	Laboratory Results		
		Gravelly Clay: Red to brown. Red alluvial clay with increased plasticity. Minor fine gravels composed of quartz and black siltstone, angular. High concentration of gravel from 24-26m. Change to grey and yellow clays from 28-30m with transition into fat clay.	Potassium: 7,200mg/L Magnesium: 9,020mg/L SO4: 29,300mg/L TDS: 270,031mg/L Specific Gravity: 1.1826 g/cm3		3-70m: gravel pack 1.6x3.2mm
30					
40		Clay: Grey to dark red/purple. Plastic fat channel clay, massive structure. Firm, slow drilling. Cuttings coming up in long slices.			
50	Channel Clay				0-90.4m: 50mm blank PVC Class 18
60		Clay: Grey to khaki. Transition into dark grey fat clay. Smaller cuttings with a more crumbly texture. Large fragments of highly weathered greenstone			
70		Clay: Dark grey to purple. Clear colour change with increased plasticity. Long sliced cuttings and slower drilling. Hard crumbled cuttings 64-68m.			
80		Clay: Grey. Mixture of dark grey, light grey and white clays. Transition out of the firm dark grey channel clay. Trace v. fine sand lense 76-78m			70-80m: neat cement, 5% bentonite seal
		Clay and Sand: Dark grey and yellow. Alternating soft clay and fine sand lenses (~0.5m thick). Quartz dominant sand, sub-angular. Lenses from 84-84.5m and 87-91m. Coarser quartz grains from 86-90m.			
90	Clay and Sand		Airlift field results: Q: 1.5L/s, EC: 173.9uS/cm, TDS: 111ppt, pH: 6.42, Temp: 25.1C		80-108.4m: gravel pack 1.6x3.2mm
		Sand: Light grey/clear. Quartz rich sand, v. fine, lesser coarse sand, moderately sorted, sub-angular. Minor clay, likely contamination. Large quartz (2cm) from 94-95m.			
100					90.4-108.4m: 50mm slotted PVC Class 18 (1mm aperture)
		Clay: Dark grey. Mixture of soft light grey clay and crumbly dark grey and hard fat clay. Vey slow drilling with roller. Large quartz from 100-102m			
110	ement Sand				108.4m: end cap
		Sand: Clear to light brown/grey. Very fine sand dominant. Minor coarse quartz. Trace soft black peaty material. Large quartz (2cm) from 110-111m with basement contact. Quick drilling.			108.4-112m: fallback
		Basement: Light grey to green. Hard and crystaline granite, fresh.			

COMPOSITE BORE LOG

Bore No: LYPZB002B

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 17/5/2020
Finish: 21/5/2020
Drilled By: Acqua Drill
Logged By: K. Pannell

Drilling Method: Mud Rotary
Fluid: Muds
Bit Record: 15" 0-12m, 6" 12-70m
Casing Stickup: 1.031 m

Elevation (GL): 493.941 mRL
Easting: 238779.602
Northing: 7041335.839
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 4.06 **Date of SWL:** 31/05/2020 **First Water Strike (mbgl):** N/A

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Sand: Red aeolian sand dune, well sorted, fine sand			0-2m: sanitary cement seal
			Siltstone: Red, hard siltstone, gravel from 0.5 to 3 cm, poorly sorted. Minor sand, silt and clay also present	Static Water Level: 4.06mbgl		0-12m 10" PVC Class 18 surface casing
10			Clay: Red. Soft, sticky maleable clay. Feels gritty with minor silt and sand present. Trace fine gravels present. Minor light grey soft clays 12-14m and increased sand.	Laboratory Results Potassium: 6,320mg/L Magnesium: 7,980mg/L SO4: 25,200mg/L TDS: 254,405mg/L Specific Gravity: 1.1747 g/cm3		
			Clay: Red. Similar to 7-14m but becoming harder, more fat and less maleable. Gritty texture with trace fine sand.			
20			Gravelly Clay: Red-brown. Red clays as above. Large cuttings of hard black siltstone, up to 2cm, angular. Lesser yellow weathered calcrete. Trace sub-angular fine gravel.			2-40.5m: gravel pack 1.6x3.2mm
			Gravelly Clay: Red to brown. Red alluvial clay with increased plasticity. Minor fine gravels composed of quartz and black siltstone, angular. High concentration of gravel from 24-26m. Change to grey and yellow clays from 28-30m with transition into fat clay.			
30			Clay: Grey to dark red/purple. Plastic fat channel clay, massive structure. Firm, slow drilling. Cuttings coming up in long slices.			0-62.5m: 50mm blank PVC Class 18
40	Channel Clay		Clay: Dark grey to purple. Clear colour change with increased plasticity. Return to long sliced cuttings and slower drilling. Dark red/purple streaks in clay. Trace gritty texture			40.5-57m: neat cement, 5% bentonite seal
50						
60			Clay: Grey to khaki. Transition into dark grey fat clay. Smaller cuttings with a more crumbly texture. Large fragments of brittle rock - light, easily chipped, light green to grey. Highly weathered greenstone inclusions.	Airlift field results: Q: <0.01L/s, EC: 169.6uS/cm, TDS: 108.3ppt, pH: 7.65, Temp: 21.7C		57-68.5m: gravel pack 1.6x3.2mm
			Clay: Dark grey to purple. Clear colour change with increased plasticity, very firm. Return to long sliced cuttings and slower drilling. Hard crumbled cuttings from 64-68m.			62.5-68.5m: 50mm slotted PVC Class 18 (1mm aperture)
70						68.5m: end cap 68.5-70m: fallback

COMPOSITE BORE LOG

Bore No: LYPZB003A

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

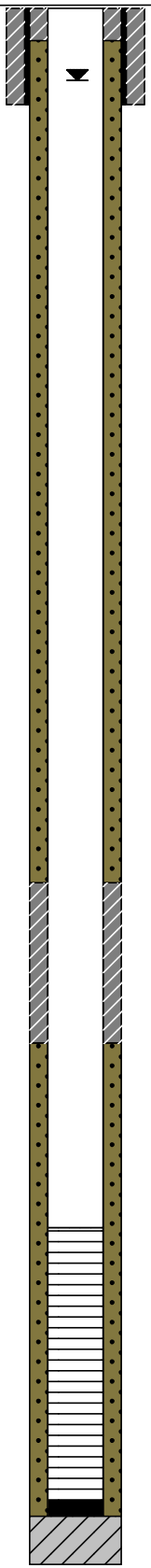
Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 3/4/2020
Finish: 10/4/2020
Drilled By: Acqua Drill
Logged By: Anna Edgar

Drilling Method: Mud Rotary
Fluid: Muds
Bit Record: 0-6m 15", 6-97m 10"
Casing Stickup: 0.452 m

Elevation (GL): 493.599 mRL
Easting: 251082.587
Northing: 7028856.063
Projection: GDA94 Zone 51

Static Water Level (mbgl): 4.49 **Date of SWL:** 13/4/2020 **First Water Strike (mbgl):** N/A

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Alluvium: Red brown, poorly sorted, sub rounded alluvium with silt, sand and gravel.	SWL: 4.49 mbgl on 13/4/2020		0-2m Sanitary cement seal 0-6m 10" steel surface casing, cemented in
10			Siltstone: Red brown, siltstone gravel, poorly sorted with minor light cream calcareous gravels present, 25% increasing to 70% 14-16.			
20			Calcrete: White grey, well sorted calcrete with minor soft grey clay.	<u>Laboratory Results</u>		2-54.5m gravel pack 1.6x3.2mm
30	Paleochannel Clay		Clay: Red brown soft sticky maleable clays with minor silt and gravel.	Potassium: 5,390mg/L Magnesium: 7,590mg/L		
40			Clay: Grey fay clays, massive with only trace silt. Colour change to green from 48-60.	SO4: 24,700mg/L TDS: 212,482mg/L Specific Gravity: 1.1447 g/cm3		0-76m 6" blank PVC Class 18
50						
60			Clay: Transition from massive, fat grey clays to grey and red crumbly clays. Sand caused circulation loss at 60m, but was difficult to find in samples collected.			54.5-64.5m cement-bentonite seal
70			Clay: Grey and red crumbly, hard clays. Trace sand from 72-74.			64.5-94m gravel pack 1.6x3.2mm
80	Clay and Sand		Clay and Sand: Red grey paleochannel medium sand to fine gravel mixed with plastic fat clay, in near equal proportions. Likely that the sand is present in interbedded lenses and that it has mixed with the clay in the returns, contaminating the samples. This results in it being hard to differentiate between clay and sand layers. Increasing quartz sand down hole. No coarse quartz gravel seen above basement contact.	Development airlift: Q: 0.8L/s, EC: 185.8mS/cm, TDS: 118.6ppt, pH: 7.12, T=26.3C		76-94m 6" slotted PVC Class 18 (1mm aperture)
90	Basement		Basement: Quartz porphyry basement with fine grained groundmass and minor foliation.			94m end cap 94-97m fallback

COMPOSITE BORE LOG

Bore No: LYPBB004

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
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www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 22/4/2020
Finish: 04/05/2020
Drilled By: Acqua Drill
Logged By: Anna Edgar

Drilling Method: Mud Rotary
Fluid: Muds
Bit Record: 0-6m 22", 6-114m 15"
Casing Stickup: 0.292 m

Elevation (GL): 493.549 mRL
Easting: 251750.422
Northing: 7028286.308
Projection: GDA94 Zone 51

Static Water Level (mbgl): 5.49 **Date of SWL:** 12/05/2020 **First Water Strike (mbgl):** N/A

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Calcrete: Calcrete: White to light brown and minor to moderate alluvial gravel, angular	Static Water Level: 5.49mbgl		0-5.5m 16" steel surface casing 0-5.5m sanitary cement seal
10	Alluvials		Alluvium: Alluvial Gravel: Dark red brown, poorly sorted and angular gravels in a silty matrix. Trace calcrete present.			
	Alluvials		Alluvium: Siltstone Gravel: Brown to yellow. Continued alluvial gravels, moderatly sorted, angular, silty matrix			
20	Alluvials		Conglomerate: Calcareous Conglomerate and Gravel: light brown to brown, angular alluvial fragments, with minor alluval fragments broken and weathered with minor to moderate calcareous cement. Trace pure calcrete fragments.	Laboratory Results		
	Alluvials		Gravelly Clay: Clay and Gravel: Red-brown. Red clay dominant, sticky. Lesser gravel, reduced size, increased rounding (sub-rounded) and moderately sorted.	Potassium: 5,630mg/L		
30	Fat Channel Clay		Clay: Clay: Red brown, soft and sticky clays with trace gravels, subrounded and moderate sorting.	Magnesium: 7,390mg/L		5.5-75m gravel pack 3.2 x 6.4
	Fat Channel Clay		Clay: Fat Channel Clay: Light grey. High plasticity clay, firm and massive with trace gritty texture. Lesser deep red colouration in clay. Slow drilling	SO4: 22,900mg/L TDS: 241,941mg/L Specific Gravity: 1.1674 g/cm3		
40	Fat Channel Clay					
50	Fat Channel Clay					0-94m threaded blank, PVC CL 18
60	Fat Channel Clay		Clay: Fat Channel Clay: Light grey to yellow. Reduced cutting size and reduced plasticity from 54-58.			
70	Fat Channel Clay		Clay: Fat Channel Clay: Dark grey, high plasticity, firm, slow drilling. Reduced cutting size and plasticity from 70-76.			
80	Clay and Sand		Clay and Sand: White. Soft white clay dominant. Contains minor subangular lithic fragments which are dark drown and hard weathered clay. Minor deep red soft clays. Trace sand, quartz rich from76-80m.			75-83.5m 5% bentonite seal, with SG 1.44
90	Clay and Sand		Clay and Sand: Dark grey. Dark grey fat clay dominant. Minor quartz sand lenses, fine moderatly sorted. Trace gravels from 85-94m increasing to minor gravels from 94-98m. Gravels are subrounded and weathered to v. dark grey, hard clay.	Development Airlift: 22.6 L/s, TDS 110 ppt, EC 174.1 mS, pH 6.58, Temp 24.3 C		83.5-114m gravel pack 1.6 x 3.2 94-112m Johnson screens (1mm apeture)
100	Sand		Sand: Clear / light grey. Dominated by coarse quartz gravel/sand, angular to subangular, minor organic rich material - black and peaty. Trace clay.			
110	Basement		Granite: Light green. Dominated by soft green weathered basement clay. Minor coarse quartz gravel			112m end cap
	Basement		Granite: Dark green. Hard granite basement with chlorite altered matrix and quartz and feldspar grains. Minor granite weathered to khaki yellow colour. Minor subrounded quartz present (1cm). Very slow drilling.			112-114m fallback

COMPOSITE BORE LOG

Bore No: LYPZB004A

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 12/4/2020
Finish: 18/4/2020
Drilled By: Acqua Drill
Logged By: Kit Pannell

Drilling Method: Mud Rotary
Fluid: Muds
Bit Record: 0-6m 15", 6-114m 10"
Casing Stickup: 0.269 m

Elevation (GL): 493.346 mRL
Easting: 251757.408
Northing: 7028272.916
Projection: GDA94 Zone 51

Static Water Level (mbgl): 5.52 **Date of SWL:** 18/4/2020 **First Water Strike (mbgl):** 2.5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Calcrete: White to light brown. Calcrete weathered out to soft and spongy clay/silt. Trace alluvial gravel, angular			0-6m 10" steel surface casing, cemented in
10	Alluvials		Alluvium: Dark red. Poorly sorted and angular alluvial gravels in a silty matrix, loose. Easy drilling	SWL: 5.52 mbgl on 18/4/2020		0-2m sanitary cement seal
	Alluvials		Alluvium: Brown to yellow. Continued alluvial gravels, poorly sorted, increased siltstone in harder bands, angular, highly weathered to yellow calcareous clay on surfaces, silty matrix			
20	Alluvials		Calcrete: White to cream. Highly weathered calcrete to soft spongey clay/silt as from 0-2m	Laboratory Results		2-66m gravel pack 1.6x3.2mm
	Alluvials		Conglomerate: White to light brown. Large angular alluvial fragments (up to 2cm), broken and weathered with calcareous cement. Minor soft clay and fine gravel, poorly sorted.	Potassium: 5,340mg/L		
30	Paleochannel Clay		Gravelly Clay: Red-brown. Red clay dominant, sticky. Lesser gravel, reduced size, increased rounding (sub-angular to sub-rounded) and moderately sorted. Increased plasticity from 30m and reduced gravel with transition into fat clay.	Magnesium: 7,590mg/L SO4: 24,000mg/L		
40	Paleochannel Clay			TDS: 230,959mg/L		0-88m 6" blank PVC Class 18
	Paleochannel Clay		Clay: Light grey. High plasticity fat clay, firm and massive with trace gritty texture. Lesser deep red colouration in clay. Slow drilling	Specific Gravity: 1.1574 g/cm3		
50	Paleochannel Clay					
	Paleochannel Clay		Clay: Light grey to yellow. Fat clays. Reduced cutting size, soft yellow clays on surfaces. Reduced plasticity. Trace fine sand with gritty texture to clay.			
60	Paleochannel Clay					
70	Paleochannel Clay					66-72m cement-bentonite seal
	Clay and Sand		Clay and Sand: White. Soft white clay dominant. Contains minor fine to coarse quartz sand, which could be finely interbedded. Larger (up to 4cm), hard, angular fragments of coffee rock. Dark brown and weathered. Minor weathered deep red clays. PDC bit worn down. Quicker drilling from 84m with roller			
80	Clay and Sand					72-114m gravel pack 1.6x3.2mm
	Clay and Sand		Clay and Sand: Dark grey. Fat clay dominant. Trace small lenses of quartz gravel, angular and poorly sorted. Fine sand mixed with clay in the samples. Driller noted fine sand stuck to the rods. Sand lenses (0.5m) from 89-89.5m and 91.5-92m. Trace coarse quartz gravel. Very slow drilling with tricone.	Development airlift: Q: 16.6L/s, EC: 192.1mS/cm, TDS: 123.2ppt, pH: 6.63, T: 25.3C		
90	Clay and Sand					
	Clay and Sand					88-112m 6" slotted PVC Class 18 (1mm aperture)
100	Clay and Sand					
	Paleochannel Sand		Sand: Clear / light grey. Dominated by coarse quartz gravel/sand, ~1cm, angular to lesser well rounded, minor organic rich material - black and peaty. Trace pyrite on surfaces. Quick drilling.			
110	Basement		Granite: White to light green. Basement weathered to soft white clay and minor green clay. Minor coarse quartz gravel, sub angular.			112m end cap
	Basement		Granite: Dark green to brown. Hard granite basement, reduced weathering. Weathered quartz present. Very slow drilling.			

COMPOSITE BORE LOG

Bore No: LYPZB004B

SALT LAKE POTASH LTD
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239 Adelaide Terrace
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www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 4/5/2020
Finish: 7/05/2020
Drilled By: Acqua Drill
Logged By: Anna Edgar

Drilling Method: Mud Rotary
Fluid: Muds
Bit Record: 0-6m 10", 6-71m 6"
Casing Stickup: 0.822 m

Elevation (GL): 493.328 mRL
Easting: 251745.959
Northing: 7028293.694
Projection: GDA94 Zone 51

Static Water Level (mbgl): **Date of SWL:** **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Calcrete: Calcrete: White, highly porus depositional calcrete, with minor to moderate anglular alluvial gravels.			0-2m sanitary cement seal 0-6m 10" PVC surface casing
			Alluvium: Alluvial Gravel: Red brown, poorly sorted, angular gravels in a silty matrix. Trace calcrete present.			
10			Alluvium: Siltstone Gravel: Brown to yellow alluvial gravels, poorly sorted, angular, silty matrix, weathered to yellow clay on surfaces. Minor to trace carcete fragments present.	Laboratory Results Potassium: 4,600 mg/L Magnesium: 5,190 mg/L SO4: 18,900 mg/L TDS: 196,059 mg/L Specific Gravity: 1.1346 g/cm3		
20			Calcified: Calcrete & gravel: White to light red. Highly weathered calcrete to soft spongy clay/silt. red/brown fine subangular gravels also present.			2-45m gravel pack 3.2 x 6.4
			Gravelly Clay: Gravel and clay: Red-brown, subrounded, poorly sorted gravels with minor calcereous matrix. Minor sticky red clay also present.			
30			Clay: Red brown, soft and sticky clays and silt. Gravels, subrounded and with moderate sorting decreasing from minor (24-26) to trace (26-32).			
40	Clay		Clay: Fat Channel Clay: Grey, high plasticity clay, firm and massive with trace gritty texture. Lesser deep red colouration in clay. Slow drilling.			0-64m blank, 50mm PVC class 18
50			Clay: Fat Channel Clay: Light grey to yellow, firm, high plasticity, massive. Slow drilling.			45-60m 5% bentonite seal, with SG 1.44,
60			Clay: Fat Channel Clay: Dark grey, firm, high plasticity, massive. Slow drilling.	Airlift development: Q=<0.01L/s, EC=165mS/cm, TDS=105.5ppt, pH=7.69, T=22C (field water quality taken following additional bailing)		60-71m gravel pack 1.6 x 3.2 64-70m slotted PVC, class 18, (1mm apeture). 70-71m fallback & gravel pack
70						

COMPOSITE BORE LOG

Bore No: LYPZB004C

SALT LAKE POTASH LTD
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Perth, WA 6000
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www.so4.com.au

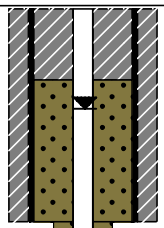
Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 7/5/2020
Finish: 9/5/2020
Drilled By: Acqua Drill
Logged By: Kit Pannell

Drilling Method: Mud Rotary
Fluid: Muds
Bit Record: 0-6m 15", 6-47m 6"
Casing Stickup: 0.892 m

Elevation (GL): 493.342 mRL
Easting: 251749.293
Northing: 7028294.946
Projection: GDA94 Zone 51

Static Water Level (mbgl): 2.81 mbgl **Date of SWL:** 16/5/2020 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Calcrete: Calcrete and Alluvials: White to light brown. Mix of calcrete and salt evaporite coating on large, angular alluvial fragments. Loose and highly porous	SWL: 2.81 mbgl on 16/5/2020		0-2m sanitary cement seal 0-6m 10" PVC surface casing
			Alluvium: Alluvial Gravel: Red to light brown. Poorly sorted and angular alluvial gravels, silt matrix. Partly consolidated from 4-6m with slower drilling. Calcrete coating on alluvials from 6-8m.			
10			Alluvium: Siltstone Gravel: Light brown to yellow. Alluvial gravels dominated by siltstone. Siltstone weathered out to yellow clays. Poorly sorted and angular with a silty matrix. Trace calcareous coating	Laboratory Results Potassium: 4,100 mg/L Magnesium: 3,400 mg/L SO4: 14,100 mg/L TDS: 183,926 mg/L Specific Gravity: 1.1136 g/cm3		2-22m gravel pack 1.6 x 3.2
20			Calcrete: Gravels and Calcareous Clay: Light brown. Reduced alluvial gravels and smaller in size, sub-angular. Soft and spongey calcareous clay. Likely weathering product. Minor red silt matrix.			0-40m blank, 50mm PVC class 18
30			Clay: Clay and Silt: Red-brown. Soft alluvial clay and silt.			22-34.8m 5% bentonite seal
	Channel Clay		Clay: Fat Channel Clay: Light grey. Firm and highly plastic, massive, with trace gritty texture. Minor streaks of dark red clay throughout. Slow drilling.			34.8-46m gravel pack 1.6 x 3.2
40				Development airlift: Q=<0.01L/s, EC=147.8mS/cm, TDS=95.17ppt, pH=7.49, T=22.7C (Water quality taken following additional bailing of piezo)		40-46m slotted PVC, class 18 (1mm apeture) 46-47m fallback & gravel pack

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COMPOSITE BORE LOG

Bore No: LYPBB005

Client: Salt Lake Potash **Project:** 2019 Palaeochannel Drilling **Pad ID:** **Location:** Lake Way

Start:
Finish:
Drilled By: Silver City
Logged By: N. Kulu, K Raath

Drilling Method: Mud rotary (0-111m)
Fluid: Mud
Bit Record: 24": 0-6m, 14.75": 6-111m
14.75"
Casing Stickup: 0.514 magl

Elevation (GL): 491.325
Easting: 254974.45
Northing: 7020216.996
Projection: GDA94 Zone 51

Static Water Level (mbgl): 4.49 **Date of SWL:** 27/07/2019 **First Water Strike (mbgl):** N/A

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Clayey Sand: Orange brown Clayey Sand. Lake Sediment. Transported material. Fine to medium Gravelly Sand.			0 - 5m: 16" Steel surface casing
			Sandy Clay: Orange brown Sandy Clay. Lake Sediment. Medium coarse Quartz Sand.	SWL: 4.49 on 27/07/2019		
10			Sandy Clay: Orange brown Slightly Sandy Clay. Trace medium to fine quartz gravel. Lake Sediment.	Lab Sample Y900199 Potassium 5,090 mg/l Magnesium 6,140 mg/l		9 - 68m: 3.2 x 6.4mm Gravel Pack
20			Clay: Orange brown Sticky Clay with trace Sand.	Sulphate 19,950 mg/l TDS 209,801 mg/l		0 - 87.5m: Blank Casing: 10" uPVC
30	Sandy Clay					
40			Clay: Orange brown and Grey stiff plastic Clay.	Clay balling around bit at 44m before changing to drag bit 50m.		
50						
60						
70			Clay: Grey stiff Clay with minor fine yellow/orange Sand.	Driller noted possible increase in yield due to mud running thinner		68 - 78m: Bentonite seal
80	Sand / with interbedded clay lastic Clay minor fine sand					78 - 111m: 1.6 x 3.2mm Gravel Pack
90			Clay: Grey White plastic Clay and fine Sand. Transition zone into Palaeochannel Sand.	84m: pH 7.26, Q= 1L/s, Temp 18.4°C		
			Sand: Grey White unconsolidated Sand with interbedded Clay. Sand coarseness increasing with depth.			87.5 - 110.5m: Stainless Steel WW screens, 1mm slots
100			Sand: Grey brown medium coarse grained siliceous Sand.	Driller noted hard ground from ~103m. Possibly top of weathered granite.		
	Granite		Granite: Grey brown weathered Granite.	Extremely slow drilling from 110m.		
110			Granite: Grey brown fresh Granite. Angular chips.	110m: pH 6.15, Q= 1L/s, Temp 23°C		110.5m: Endcap 111m: End of Hole

COMPOSITE BORE LOG

Bore No: LYPBB006

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 26/05/2020
Finish: 7/06/2020
Drilled By: Acqua Drill
Logged By: A. Edgar

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 22" 0-6m, 15" 6m-112.5
Casing Stickup: TBC

Elevation (GL): 493.484 mRL
Easting: 238340.46
Northing: 7042456.682
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 6.69 **Date of SWL:** 2/07/2020 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Quaternary Alluvials		Alluvium: Red brown siltstone alluvial gravels, poorly sorted, subangular, silty matrix. Trace calcrete alteration.			0-4m sanitary cement seal.
			Alluvium: Red brown siltstone, poorly sorted, subrounded with silty matrix and weathered silty clay. Trace quartz.	SWL: 6.69 mbgl		0-6m 16" steel surface casing
10			Clay and Silt: Orange brown, soft sticky clay with high grit (silt) content. Minor subrounded siltstone gravels, poorly sorted. Trace quartz.			
			Calcrete: White calcrete wearthed to clay, soft and spongey. Brown siltstone, subrounded, moderatly sorted and weathering to clay.	Laboratory Results		
20			Clay and Silt: Red brown, soft, sticky, silty clay with gritty feel. Minor small, well sorted, rounded, red brown siltstone gravels. Trace quartz.	Potassium: 6,960 mg/L		
			Gravelly Clay: Brown soft, sticky, gritty clay with small, rounded, well sorted gravels. Trace quartz.	Magnesium: 8,730 mg/L		4-64m gravel pack, 3.2-6.4mm
30	Fat Channel Clay		Clay: Grey with red contamination, thick, fat channel clay with high plasticity. 27-30m: trace grit and small gravels. 39-46: slight colour change to patchy yellor grey and purple grey.	SO4: 28,300 mg/L		
				TDS: 262,809 mg/L		
40				Specific Gravity: 1.1845 g/cm3		
50			Clay: Yellow white grey, thick and fat. Reduced cutting size and plasticity.			
60			Clay: Grey, massive, thick and fat. Increased cutting size and high plasticity. 64-70: Increased plasticity and cutting size.			0-88m blank 10" PVC Class 18
70						64-76m cement seal, 5% bentonite, SG .
80	Clay & sand		Clay and Sand: Grey clay, reduced pasticity and cuttings, with small sand lenses containing fine to coarse sand.			
			Sand: Fine quartz sand with soft black clay (organic material) and trace coarse quartz sand.			76-112m gravel pack, 1.6-3.2mm.
90			Sand: Lenses of coarse quartz sand with lenses of fine quartz sand and minor soft grey clay.	Final airlift field results: Q=10L/s, pH=6.76, EC=194.4mS/cm, T=25.7C		
			Clay and Sand: Grey, soft, sticky, low plasticity clay with fine quartz sand and trace coarse sand.			88-112: 1mm mesh stainless steel Johnson Screens, grade 304.
100	Paleochannel Sand		Sand: Fine to coarse quartz sand. Black weathered organic material (wood) present from 102-106m.			
			Gravel: Quartz gravel, fine to coarse (upto 15mm), opaque white to dark dusty translucent colour. Minor weathered organic material. Trace other lithic fragments including pyritic fragments.			112m stainless steel end cap.
110	Basement		Basement: Granite with chlorite alteration.			112-112.5 fallback and gravel pack.

COMPOSITE BORE LOG

Bore No: LYPZB006A

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 22/05/2020
Finish: 27/05/2020
Drilled By: Acqua Drill
Logged By: A. Edgar

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 15" 0-6m, 10" 6m-112
Casing Stickup: 0.203 m

Elevation (GL): 493.566 mRL
Easting: 238339.923
Northing: 7042468.602
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 5.07 **Date of SWL:** 02/06/20 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Quaternary Alluvials		Alluvium: Red brown siltstone alluvial gravels, poorly sorted, angular, silty matrix. Minor to moderate calcrete matrix replacement, weathered and hard.	Static Water Level: 5.07mbgl		0-6m 10" steel surface casing 0-5m sanitary cement seal.
			Alluvium: Red brown siltstone, poorly sorted, angular with silty matrix. Trace calcrete.			
10			Siltstone: Yellow brown siltstone, poorly sorted, angular to subrounded, with minor yellow brown sillty clay. Trace quartz and trace calcrete.			
20			Calcrete: White calcrete wearthed to clay, soft and spongey. Brown siltstone, subrounded, moderatly sorted, weathering to clay. Trace quartz.	Laboratory Results Potassium: 6,960 mg/L		
			Clay and Silt: Red brown, soft, sticky, silty clay with gritty feel. Minor small, well rounded, well sorted red brown siltstone gravels also present. Trace quartz.	Magnesium: 8,730 mg/L		5-68m gravel pack, 3.2-6.4mm
30			Gravelly Clay: Light grey brown small, well rounded, well sorted gravels and soft, sticky, gritty clay. Trace quartz.	SO4: 28,300 mg/L		
40			Clay: Grey with red contamination, thick, fat, massive channel clay. 28-30m, trace gritty feel.	TDS: 262,809 mg/L		
			Clay: Light yellow grey, thick and fat. Reduced cutting size and plasticity.	Specific Gravity: 1.1862 g/cm3		
50	Fat Channel Clay		Clay: Grey, massive, thick and fat. Increased cutting size and high plasticity.			
			Clay: Yellow grey, thick and fat. Reduced cutting size and plasticity.			
60			Clay: Dark grey, massive, thick and fat. Increased cutting size and high plasticity.			0-88m blank PVC Class 18
70						68-76.5 cement seal, 5% bentonite, SG 1.43.
80						76.5-112m gravel pack, 1.6-3.2mm.
	Clay & sand		Clay and Sand: Grey, reduced pasticity, and cuttings with fine brown sand lenses, no more than 15cm thick. Minor white sticky clay and reduced sand from 86-88m.			
90			Sand: Coarse white quartz sand with lenses of fine quartz sand and soft grey clay.	Development Airlift: 10 L/s, Temp: 23.4 C, EC: 200.0 mS, pH:6.67		
			Clay: Grey, soft, sticky, low plasticity. Feels smooth and not gritty.			88-112 1mm slotted apeture PVC Class 18
100	channel Sand		Sand: Black to dark grey very fine sand. Dark colour from weathered organic material. Minor silt and clay also present.			
			Sand: Coarse white quartz sand with black weathered organic material (wood), and minor fine sand.			
110	ement		Gravel: Quartz , fine to coarse (upto 20mm) gravel, opaque white to dark dusty translucent quartz. Minor weathered organic material. Trace pyrite rich lithic fragments.			112m PVC end cap.
			Basement: Fresh granite with chlorite alteration.			

COMPOSITE BORE LOG

Bore No: LYPZB006B

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
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www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 8/6/2020
Finish: 11/6/2020
Drilled By: Acqua Drill
Logged By: K. Pannell

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 15" 0-3m, 6" 3-68m
Casing Stickup: 0.934 m

Elevation (GL): 493.375 mRL
Easting: 238336.076
Northing: 7042442.985
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 4.64 **Date of SWL:** 2/7/2020 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvial siltstone		Alluvium: Alluvial Gravels: Red brown siltstone, poorly sorted, subrounded with silty matrix and weathered silty clay. Trace quartz.	SWL: 4.64mbgl		0-3m sanitary cement seal 0-3m 10" PVC surface casing
10	Alluvial siltstone		Clay and Silt: Clay and Siltstone: orange brown, soft sticky clay with high silt content. Minor subrounded siltstone gravels, poorly sorted. Trace quartz.			
	Alluvial siltstone		Siltstone: Siltstone and Calcrete: Brown siltstone, subrounded, moderatly sorted and weathering to clay. Lesser white calcrete wearthed to clay, soft and spongey.			
20	Alluvial clay		Clay and Silt: Silty Clay: Red brown, soft, sticky, clay dominant, silty texture. Stickier from 22m. Trace small siltstone and quartz.	Laboratory Results Potassium: 6,300 mg/L		3-40m gravel pack, 1.6-3.2mm
	Alluvial clay		Gravelly Clay: Clay and Gravel: Light grey clay, soft, sticky and gritty. Lesser large fragments of dark brown coffee rock. Well weathered and mottled. Trace quartz	Magnesium: 6,530 mg/L SO4: 21,800 mg/L TDS: 240,689 mg/L		
30	Fat channel clay		Clay: Fat Channel Clay: Grey with red streaks, thick, fat clay with high plasticity. Colour change to pale yellow to grey from 42m, darkening to 50m. Slower drilling from 40m.	Specific Gravity: 1.1734 g/cm3		0-58m blank 50mm PVC Class 18
40	Fat channel clay					40-53m cement seal, 5% bentonite
50	Fat channel clay		Clay: Fat Channel Clay: Yellow to light grey, thick and fat. Reduced cutting size and plasticity. However, very slow drilling.			53-64m gravel pack 1.6-3.2mm
60	Fat channel clay		Clay: Fat Channel Clay: Dark grey, massive, thick and high plasticity. Increased cutting size, with long strips. Quicker drilling.	Final airlift field results: Q=<0.01L/s, pH=7.37, EC=201.8mS/cm, TDS=130.1ppt, T=25.1C		58-64: slotted 50mm PVC Class 18, 1mm aperture 64m end cap 64-66m fallback and gravel pack

COMPOSITE BORE LOG

Bore No: LYPZB007A

SALT LAKE POTASH LTD
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 28/7/2020
Finish: 1/08/2020
Drilled By: Acqua Drill
Logged By: A. Edgar/J. Meertens

Drilling Method: Air Rotary
Fluid: Muds
Bit Record: 15" 0-12m, 6.5" 12-60.4m
Casing Stickup: 0.895 m

Elevation (ToC): 499mRL (handheld)
Easting: 241106 (handheld gps)
Northing: 7041418 (handheld gps)
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 4.335 **Date of SWL:** 4/08/20 **First Water Strike (mbgl):** 6

Depth	Geology	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium	Alluvium: Red-brown alluvial sand and silt, well sorted. Trace gravel.			0-5m cement seal
	Siltstone	Siltstone: Red-brown, well rounded, poorly sorted silt, sand and gravel. Dries to a grey colour, possibly due to minor calcareous siltstone matrix.	SWL: 4.335 mbgl on 4/08/2020		
		Gravel and Sand: Red-brown, moderately sorted, rounded sand and gravel.	FWS 6m		0-10.8m 12" steel surface casing
10		Sand: Red-brown, well sorted, rounded coarse sand to fine gravel. Fine material escaping sieve.			10.8-12m fallback prior to installing surface casing
	Sand & Gravel	Gravel: Brown, well sorted, sub-angular fine gravel.Trace rounded quartz 'eyes'.	Laboratory Water Quality Results: K: 5,170mg/L, Mg: 5,080mg/L, Ca: 824mg/L, Cl: 111,338mg/L, TDS: 201,577mg/L, pH: 8.29.		5-22m gravel pack 1.6x3.2mm
20			18m: Q: ~4L/s, EC: 144 mS/cm, pH: 6.73, TDS: 95.14 ppk, Temp: 22.7 C		
		Gravel: Yellow-brown, well sorted, sub-angular fine gravel. Mixed detrital composition, minor (~25%) quartz 'eyes'.			
		Gravel: White-brown, well sorted, rounded to sub-angular quartz (~50%) and mixed detritals			22-26m cement seal
		Granite: Highly weathered to completely weathered residual granite gravel / sand. White with some red-brown, quartz rich (30-60%). Significant staining / alteration.			
30		Granite: Moderately weathered to highly weathered. Brown-red, quartz rich (30-60%). Patchy hematite alteration / staining. Some larger granitic lithic fragments.			0-54m 6" blank PVC Class 12
	Granite	Granite: Slightly weathered, coarse grained, quartz rich (20-40%). Blue-white with minor reddish pink K-Feldspar (20%). Some staining / weathering alteration evident. Some larger angular fragments (possible fracturing?).			
40					26-60m gravel pack 1.6-3.2mm
			45m: Q: ~4L/s, EC: 158.8 mS/cm, pH: 7.00, TDS: 101.9 ppk, Temp: 25.3 C		
50					
		Granite: Fresh to slightly weathered, coarse grained. Greenish blue hue with white / clear quartz (~20-40%) and reddish pink K-Feldspar (~20%). Little to no staining / weathering alteration (K-Feldspar noticeably fresher). Consistent sample size (absence of fracturing?).	Airlift sample Q: ~0.01L/s, EC: 159 mS/cm, pH: 8.30, TDS: 101.0 ppk, Temp: 24.2 C		54-60m 6" slotted PVC Class 12 (1mm aperture)
60					60m end cap

COMPOSITE BORE LOG

Bore No: LYPZB007B

SO4
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
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www.so4.com.au

Client: SO4 **Project:** Lake Way **Pad ID:** Pad 30 **Location:** Paleochannel

Start: 4/9/2021
Finish: 5/09/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 10" (0-2.5m), 6" (2.5-26.5m)
Casing Stickup: 0.68m

Elevation (GL): 489mRL (handheld)
Easting: 241109 (handheld)
Northing: 7041395 (handheld)
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 4.75 **Date of SWL:** 16/09/21 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Silty Sand: Red-brown alluvial sand and silt, well sorted. Minor silcrete fragments.	Laboratory Results: K: 5,110 mg/L Mg: 6,840 mg/L SO4: 22,500 mg/L TDS: 202,656 mg/L SG: 1.1507 g/cm3		0-2m sanitary cement seal
	Siltstone		Calcrete: Orange-cream to red-brown, fine to medium grained. Soft, crumbly. Transitioning to more siliceous cementation down hole.			0-2.5m 6" PVC surface casing
			Siltstone: Mix of red-brown silcrete with gravel, sand & silt. Poorly sorted, angular fragments. Bit likely crushing silcrete to unconsolidated material.			2-7.5m gravel pack 1.6x3.2mm
10			Sand: Red-brown, fine to medium grained. Moderately well sorted. Minor gravel.			7.5-11.5m cement seal
			Siltstone: Red-brown silcrete with gravel, sand & silt. Moderately hard, well consolidated 11-12m. Reducing to unconsolidated material 12-14m as above.			11.5-12.5m bentonite plug
	Sand & Gravel		Gravel and Sand: Red-brown fine to coarse grained sand with some gravel. Modferately well sorted. Minor silcrete fragments.			0-17m 6" blank PVC
			Siltstone: Cream/light grey to red-brown silcrete. Medium grained. Consolidated, but soft & brittle. Highly weathered / altered. Some calcareous alteration.			12.5-26m gravel pack 1.6-3.2mm
20			Granite: Highly weathered / residual granite. Yellow-orange to red-brown. Quartz rich. Soft & crumbly. Highly oxidised.	Airlift water quality: EC=159mS/cm, pH=6.82, TDS=102ppk, T=22C		17-26m 6" slotted PVC (1mm aperture) 26m end cap 26-26.5m fallback

COMPOSITE BORE LOG

Bore No: LYPZB007C

SO4
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Client: SO4 **Project:** Lake Way **Pad ID:** Pad 30 **Location:** Paleochannel

Start: 5/09/2021
Finish: 5/09/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 10" (0-2.5m), 6" (2.5-10m)
Casing Stickup: 0.67m

Elevation (GL): 487mRL (handheld)
Easting: 241104 (handheld)
Northing: 7041409 (handheld)
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 4.25 **Date of SWL:** 16/09/21 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Silty Sand: Red-brown alluvial sand and silt, well sorted. Minor silcrete fragments.	Laboratory Results: K: 2,480 mg/L Mg: 4,180 mg/L		0-2m sanitary cement seal
			Calcrete: Orange-cream to red-brown, fine to medium grained. Soft, crumbly. Transitioning to more siliceous cementation down hole.	SO4: 13,500 mg/L TDS: 115,092 mg/L SG: 1.087 g/cm3		0-2.5m 6" PVC surface casing 0-4m 50mm blank PVC
	Siltstone		Siltstone: Mix of red-brown silcrete with gravel, sand & silt. Poorly sorted, angular fragments. Bit likely crushing silcrete to unconsolidated material.	Airlift water quality: EC=118.4mS/cm, pH=7.15, TDS=76.2ppk		4-10m 50mm slotted PVC (1mm aperture) 2-10m gravel pack 1.6-3.2mm 10m end cap
10						

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COMPOSITE BORE LOG

Bore No: LYPBB008

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 12/08/2020
Finish: 21/08/2020
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 22" 0-12m, 15" 12-108m
Casing Stickup: 0.47 m

Elevation (GL): 499 mRL (handheld)
Easting: 244523 (handheld GPS)
Northing: 7035593 (handheld GPS)
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 7.49 **Date of SWL:** 3/09/2020 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium/Calcrete		Calcrete: Cream brown, moderately sorted, calcrete clay. Trace gravels			0-4m sanitary cement seal.
	Alluvium		Alluvium: Red brown, moderately sorted clay with minor cream calcrete gravels			
10	Siltstone		Siltstone: Yellow brown, moderately sorted siltstone gravels. Trace patchy calcrete. Trace quartz	SWL: 7.49mbgl on 3/09/2020		0-12m 15" steel surface casing
			Siltstone: Red brown, well sorted siltstone gravels. Minor thin black beds. Trace calcrete.			
	Alluvial Clay & Siltstone Gravel		Clay: Red brown alluvial clay. Soft and wet, low plasticity. Minor sand and siltstone gravels.			
20			Gravelly Clay: Red brown alluvial clay. Low to medium plasticity. Some siltstone gravels (30-50%) recirculated after ream pass to 18m. Minor sand.	Laboratory Results Potassium: 6,770 mg/L		
30			Clay: Red brown with minor yellow & grey alluvial clay. Sticky, low to medium plasticity. Minor to trace siltstone gravels (likely recirculated). Trace to minor sand.	Magnesium: 9,040 mg/L		4-63m gravel pack, 1.6-3.2mm
			Clay: Fat Channel Clay: Grey, moderate to high plasticity, very sticky. Minor red brown and pinkish red colourations. Minor to trace sand.	SO4: 27,900 mg/L TDS: 269,276 mg/L		
40						
			Clay: Fat channel clay. Yellow grey, sticky, moderate to high plasticity. Minor red brown and pinkish red colourations.	Specific Gravity: 1.1876 g/cm3		
50						0-86m 10" blank PVC, Class 18
	Clay		Clay: Fat channel clay. Blueish dark grey, very sticky, high plasticity. Some red brown and pinkish red colouration. Minor sand and gravel.			
60			Clay: Fat Channel Clay: Blueish dark grey and light grey, low to moderate plasticity, very sticky. Minor red brown, orange and purple colourations. Minor to trace sand.			
70			Clay: Fat channel clay. Dark grey and minor light grey. Sticky, moderate plasticity. Trace sand.			63 -76 cement seal, 5% bentonite, SG 1.45.
			Clay: Fat channel clay. Dark grey with minor red brown and yellow. Sticky, low to moderate plasticity. Minor to trace sand and fine gravel.			
80						76-104m gravel pack, 1.6-3.2mm.
	Clay & Sand		Clay and Sand: Light & dark grey clay (soft, low plasticity) with some grey brown sand (quartz dominant, fine grained, well sorted).	Final airlift field results: Q=39 L/s, pH=5.85, EC=172.6 mS/cm, T=29.0		
90						
	Sand		Sand: Coarse paleochannel sand. Brown grey coarse sand / fine gravel. Quartz dominant, moderately sorted. Minor mixed lithic fragments. Trace to minor black organic material.			86-104 1mm slotted apeture stainless steel, grade
100						
	Basement		Basement: Quartz porphyry. Moderately weathered.			104m stainless steel end-cap.
			Basement: Quartz porphyry. Trace weathering.			104-108m Fallback

COMPOSITE BORE LOG

Bore No: LYPZB008A

Ground Floor
239 Adelaide Terrace
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www.so4.com.au

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 03/08/2020
Finish: 09/08/2020
Drilled By: Acqua Drill
Logged By: A. Edgar

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 14" 0-11m, 9.75" 11m-106
Casing Stickup: 0.40m

Elevation (GL): 497mRL (handheld)
Easting: 244524 (handheld)
Northing: 7035602 (handheld)
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 5.99 mbgl **Date of SWL:** 21/08/20 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Calcrete: Red brown to reddish white, moderately sorted, fine grained to coarse grained with pervasive calcrete alteration.	SWL: 5.99mbgl on 21/08/2020		0-5m sanitary cement seal
10	Alluvials		Alluvium: Clay: Red brown with minor light grey alluvial soft wet clay. Very well sorted, with trace calcrete and trace quartz.			0-11m 10" steel surface casing
	Alluvials		Siltstone: Red brown with minor reddish white, moderately sorted, soft to medium hard siltstone gravels. Trace organics.			
20	Alluvials		Siltstone: Red brown, moderately sorted, siltstone gravels of varying composition. Red brown alluvial siltstone dominant, with minor thin fine black organic rich laminations, and minor thin light grey coarse grained gravels. Minor calcrete alteration.	Laboratory Results		
	Fat Channel Clay		Clay: Red brown alluvial clay, very well sorted, soft, wet and sticky. Minor to trace sand causing gritty texture.	Potassium: 6650 mg/L		
30	Fat Channel Clay		Clay: Red brown sticky clay, with increasing plasticity from low to moderate down hole. Trace sand causing gritty texture.	Magnesium: 8420 mg/L		5-63m gravel pack, 3.2-6.4mm
	Fat Channel Clay		Clay: Fat Channel Clay: Brown grey clays with high to moderate plasticity forming cuttings 1cm by 3cm.	SO4: 28300 mg/L		
40	Fat Channel Clay			TDS: 263716 mg/L		
	Fat Channel Clay		Clay: Fat Channel Clay: Yellow grey clays with reduced (moderate to low) plasticity.	Specific Gravity: 1.1915		
50	Fat Channel Clay					0-86.75m blank 6" PVC Class 18
60	Fat Channel Clay		Clay: Fat Channel Clay: Grey, very high plasticity. Thick clay ring formed on drill rod.			
	Clay and Sand		Clay and Sand: Yellow, soft sticky clays with very low plasticity. Sand lense with well sorted medium sand.			
70	Clay and Sand		Clay: Grey soft sticky channel clay with low plasticity. Minor sand creating gritty texture.			63-74m cement seal, 5% bentonite, SG 1.44.
	Clay and Sand		Clay: Fat Channel Clay: Grey channel clays with plasticity decreasing from moderate to low, soft and sticky clays down hole.			
80	Clay and Sand					74-104.75m gravel pack, 1.6-3.2mm.
	Clay and Sand		Clay and Sand: Grey soft sticky channel clays with low plasticity. Minor small fine grained sand lense.			
	Sand and Gravel		Sand: Fine Paleochannel Sand: Brown grey, fine quartz sand with soft sticky grey clay.	Development Airlift Results		
90	Sand and Gravel			Q: 16.6L/s		
	Sand and Gravel			EC: 192.1mS/cm		
	Sand and Gravel		Gravel and Sand: Coarse Paleochannel Sand and Gravel: Brown, coarse sand to gravel with increasing size downhole. Dominant quartz, but other lithic fragments also present. Minor dark organic rich fragments.	TDS: 123.2ppt		86.75-104.75m slotted 6" PVC Class 181mm aperture
100	Sand and Gravel			pH: 6.63		
	Basement			Temp: 25.3 C		
	Basement		Basement: Quartz porphyry. Trace weathering. Chlorite alteration.			104.75m PVC end cap 104.75-106m fallback

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COMPOSITE BORE LOG

Bore No: LYPZB008B

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 26/7/2020
Finish: 26/7/2020
Drilled By: SO4
Logged By: H. Russell

Drilling Method: Auger (Rig Argo)
Fluid:
Bit Record: 6" 0-6m
Casing Stickup: 1.08 m

Elevation (GL): 497 mRL (handheld)
Easting: 244530 (handheld)
Northing: 7035573 (handheld)
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 4.8 mbgl **Date of SWL:** 26/07/2020 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: Red brown to reddish white, moderatly sorted, fine grained to coarse grained with pervasive calcrete alteration.	<u>Laboratory Results</u> Potassium: 4940 mg/L Magnesium: 6760 mg/L SO4: 20200 mg/L TDS: 199480 mg/L Specific Gravity: 1.1390		0-0.5m sanitary cement seal
	Alluvials		Alluvium: Clay: Red brown with minor light grey alluvial soft wet clay. Very well sorted, with trace calcrete and trace quartz.	SWL: 4.8mbgl on 26/07/2020		0-4.8m blank 2" PVC Class 18 0-4.8m gravel pack, 1.6-3.2mm 4.8-5.8m slotted 2" PVC Class 18, 1mm aperture 5.8m PVC end cap 5.8-6m fallback

COMPOSITE BORE LOG

Bore No: LYPBB009

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239 Adelaide Terrace
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Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 26/08/2020
Finish: 17/09/2020
Drilled By: Acqua Drill
Logged By: A. Edgar

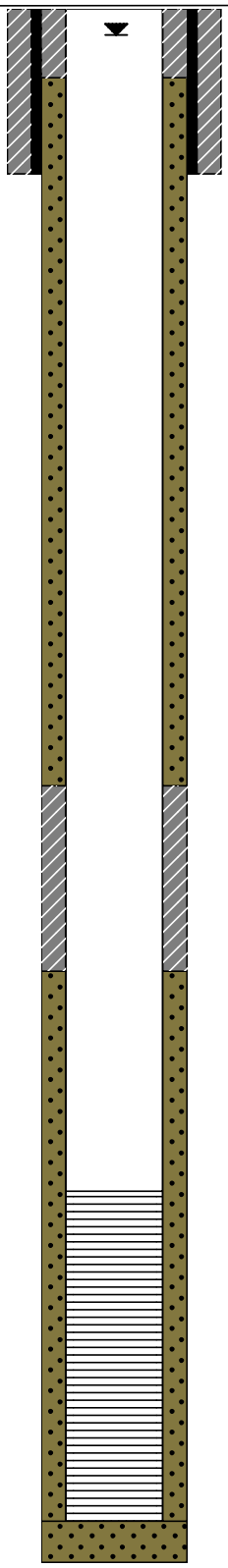
Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 12m (22"), 113m (15")
Casing Stickup: 0.56m

Elevation (GL): 490mRL (handheld)
Easting: 247517
Northing: 7032027
Projection: GDA94 Zone 51

Static Water Level (mbgl): 1.89 **Date of SWL:** 25/09/2020 **First Water Strike (mbgl):** Unknown

Depth	Geology	Lithological Description	Hydro Field Data
0	Alluvium	Alluvium: Red brown, poorly to moderatly sorted, sand gravel and silt with minor clay.	SWL: 1.89mbgl on 25/09/2020
		Calcrete: Cream brown, moderatly sorted, gravel (dominaint), sand and silt with minor clay. Minor pervasive calcrete.	
10		Clay and Silt: Red brown, clay and silt with minor sand and gravel reducing down hole. Minor patchy calcrete. Trace quartz.	
	Soft Clay	Clay: Red brown, soft sticky clays with low plasticity. Minor grit texture and trace quartz.	
20		Clay: Red brown, sticky clay with increased plasticity, minor grit texture.	Laboratory Results
		Clay: Red brown, soft sticky clays with low plasticity and minor grit. Trace quartz.	Potassium: 6,380 mg/L
30		Clay: Red brown, sticky clay with moderate plasticity. Smalls cuttings. Minor grit texture.	Magnesium: 8,450 mg/L
		Clay: Brown grey, sticky clay with moderate plasticity.	SO4: 26,100 mg/L
40			TDS: 258,380 mg/L
	Fat Channel Clay	Clay: Cream grey, moderate to high plasticty.	Specific Gravity: 1.1773 g/cm3
50			
	Sand	Sand: Sand lense. Red brown to white poorly sorted fine to coarse sand. Minor soft sticky clay.	
60		Clay: Grey, high plasticity clay.	
70	Clay	Clay: Grey, high plasticty clay with minor black clay (organic?). Trace quartz and gravels creating gritty texture.	
		Clay: Dark grey, moderate plasticity. Minor hard black clays.	
80	Sand	Sand: Fine, well sorted paleochannel sand. Quartz dominant.	
		Sand: Fine paleochannel sand with trace gravels (quartz).	
90	Sand & Clay	Clay and Sand: Lenses of fine sand with soft sticky low plasticity grey clay.	Final airlift field results: Q=41L/s, pH=6.26, EC=172.1 mS/cm, T=25.0
		Clay: Grey, sofy sticky, low plasticity clay with minor hard black clay. Trace sand is likely contamination.	
100		Clay and sand: Fine sand, trace gravel. Minor soft sticky grey clay. Minor organic fragments. Trace lithic fragments.	
	Basement Sand	Sand: Fine paleochannel quartz sand with fine gravel. Poorly sorted, angular to rounded. Trace organic fragments.	
110		Sand: Moderate to coarse paleochannel sand with minor fine gravel. Minor organic fragments.	
		Basement: Granite. Moderate to low weathered, medium grained granite.	

Bore Construction



Bore Diagram	Construction Notes
	0-5m sanitary cement seal
	0-12m 16" steel surface casing
	5-56.5m gravel pack, 1.6-3.2mm
	0-86m 10" blank PVC, Class 18
	56.5-70m cement seal, 5% bentonite
	70-113m gravel pack, 1.6-3.2mm
	86-110m slotted (1mm aperture) wirewound stainless steel screen
	110m stainless steel end-cap.

COMPOSITE BORE LOG

Bore No: LYPZB009A

SO4
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
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www.so4.com.au

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 14/09/2020
Finish: 19/09/2020
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 12m (12"), 76m (6.5")
Casing Stickup:

Elevation (GL): 490mRL (handheld)
Easting: 247518
Northing: 7032031
Projection: GDA94 Zone 51

Static Water Level (mbgl): **Date of SWL:** **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Alluvium: Red brown, poorly sorted gravel with some clay. Minor sand & silt			0-3m sanitary cement seal
			Alluvium: Red brown, very soft, low plasticity clay. Some poorly sorted gravels and sand. Minor calcrete	Laboratory Results Magnesium = 8090 mg/L Potassium = 6060 mg/L SO4 = 18100 mg/L TDS = 193993 ppk		
10			Clay: Red brown, very soft, low plasticity clay. Trace sand and gravel (reducing down-hole)			0-12m 8" steel surface casing
	Soft Clay		Clay: Red brown, very sticky, moderate to high plasticity clay. Minor to trace sand			
20						0-70m 50mm blank PVC, Class 18
30						
			Clay: Grey, sticky, high plasticity clay. Some pinkish-red colourations			3 - 47.5m gravel pack, 1.6-3.2mm
40						
	Fat Channel Clay		Clay: Yellowish light grey clay. Sticky with moderate to high plasticity			
50						
						47.5-62m cement seal, 5% bentonite
60			Clay: Grey, sticky clay. Moderate plasticity. Minior light grey / cream and yellow colourations. Trace sand and gravel	Airlift Water Sample Q = <0.1L/s EC = 160.2 mS/cm pH = 6.48 TDS = 103.6 ppk Temp: 30.9 C		62-76m gravel pack, 1.6-3.2mm
70			Clay: Dark grey, sticky, high plasticity clay			70-76m 50mm slotted (1mm aperture) PVC screen, Class 18
						76m PVC end-cap

COMPOSITE BORE LOG

Bore No: LYPZB009B

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Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 06/09/2020
Finish: 07/09/2020
Drilled By: SO4
Logged By: H. Russell

Drilling Method: Auger (Rig Argo)
Fluid:
Bit Record: 6" 0-5.7m
Casing Stickup: 0.95 m

Elevation (GL): 490mRL (handheld)
Easting: 247483 (handheld)
Northing: 7032023 (handheld)
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 1.5 mbgl **Date of SWL:** 06/10/2020 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Alluvium: Red brown, poorly sorted gravel with some clay. Minor sand & silt	SWL: 1.5 mbgl on 06/10/2020 <u>Laboratory Results</u> Potassium: tbc mg/L Magnesium: tbc mg/L SO4: tbc mg/L TDS: tbc mg/L Specific Gravity: tbc		0-0.5m sanitary cement seal 0-4.7m blank 2" PVC Class 18 0-5.7m gravel pack, 1.6-3.2mm
			Alluvium: Red brown, very soft, low plasticity clay. Some poorly sorted gravels and sand. Minor calcrete			4.7-5.7m slotted 2" PVC Class 18, 1mm aperture 5.7m PVC end cap

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COMPOSITE BORE LOG

Bore No: LYPBB010

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 18/09/2020
Finish: 1/10/2020
Drilled By: Acqua Drill
Logged By: A. Edgar

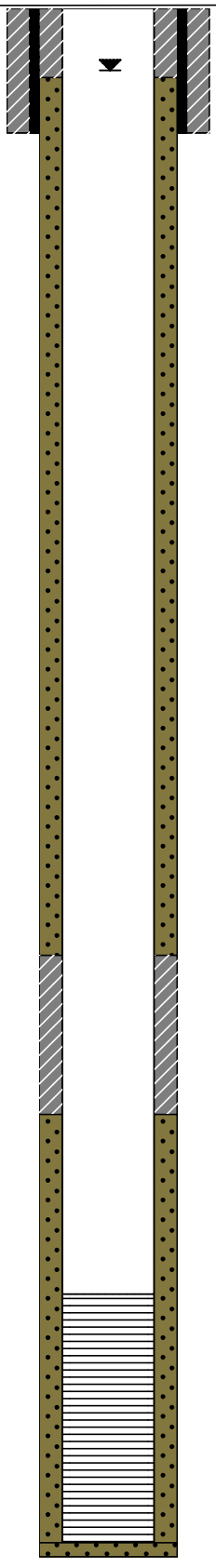
Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 12m (22"), 112m (15")
Casing Stickup: 0.49m

Elevation (GL): 490 mRL (handheld)
Easting: 248494 (handheld GPS)
Northing: 7030923 (handheld GPS)
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 4.48 mbgl **Date of SWL:** 18/10/2020 **First Water Strike (mbgl):** Unknown

Depth	Geology	Lithological Description	Hydro Field Data
0	Alluvium	Alluvium: Red brown to cream, poorly sorted, subangular to rounded gravels with moderate calcrete alteration. Minor sand and silt.	SWL: 4.48 mbgl on 18/10/2020
10	Alluvium	Alluvium: Red brown, moderatly sorted, subangular to rounded gravels with minor patchy calcrete. Minor to trace sand and silt. Trace rounded quartz.	
	Soft Clay, Gravel & Silt	Clay and Silt: Red brown, low to moderate plasticity, soft sticky silt and clay. Grading from silt dominant (11-14) to clay dominant (16-18). Trace sand.	
20	Soft Clay, Gravel & Silt	Gravelly Clay: Clay and Siltstone: Red brown, soft sticky low plasticity clay with well rounded gravels. Gravels increasing downhole from minor (18-24) to dominant (24-27).	Laboratory Results
	Soft Clay, Gravel & Silt	Clay: Red brown, soft sticky clays with low plasticity. Minor silt and sand. Trace gravel.	Potassium: 6,260 mg/L
30	Soft Clay, Gravel & Silt	Sandy Clay: Red brown, low to moderate plasticity clay with fine well sorted sand.	Magnesium: 7,940 mg/L
	Fat Channel Clay	Clay: Fat channel clays. Brown to grey, moderate to high plasticity.	SO4: 25,100 mg/L
40	Fat Channel Clay		TDS: 252,573 mg/L
	Fat Channel Clay	Clay: Yellow, reduced plasticity to moderate with reduced cutting size.	Specific Gravity: 1.1766 g/cm3
50	Fat Channel Clay		
	Fat Channel Clay	Clay: Minor to trace sand with grey clays. Mix of very soft sticky clay and hard clay lumps.	
60	Fat Channel Clay		
	Fat Channel Clay	Clay: Dark grey, moderate to high plasticity. Hard black (organic?) clay lumps from 79m.	
70	Fat Channel Clay		
	Fat Channel Clay		
80	Fat Channel Clay		
	Fat Channel Clay	Clay: Dark grey, low to moderate plasticity with hard black clay lumps. Trace to minor silt. Trace sand.	
90	Clay & Sand		Final airlift field results: Q=32.8 L/s, pH=6.12, EC=179.1 mS/cm, T=27.5
	Clay & Sand	Clay and Sand: Dark grey, soft sticky clay with fine to coarse grained quartz sand.	
	Gravel & Sand	Sand: Medium to coarse quartz rich paleochannel sand. Minor organic fragments. Trace lithic fragments.	
100	Gravel & Sand		
	Gravel & Sand	Gravel and Sand: Coarse quartz rich paleochannel sand and gravel. Minor ogranic fragments. Minor lithic fragments.	
	Basement	Granite: Basement. Granite, medium grained. Fresh, very hard.	
110	Basement		

Bore Construction



Bore Diagram	Construction Notes
	0-5m sanitary cement seal
	0-9m 16" steel surface casing
	5-68.5m gravel pack, 1.6-3.2mm
	0-93m 10" blank PVC, Class 18
	68.5-80m cement seal, 5% bentonite, SG=1.45
	80-112m gravel pack, 1.6-3.2mm
	93-111m slotted (1mm aperture) stainless steel screen
	111m stainless steel end-cap

COMPOSITE BORE LOG

Bore No: LYPBB012

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Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 11/01/2020
Finish: 5/02/2021
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 116.5m (12.25") 117m (8")
Casing Stickup: 0.51 m

Elevation (GL): 490mRL (handheld)
Easting: 239925 (handheld GPS)
Northing: 7036498 (handheld GPS)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 32.17 **Date of SWL:** 15/05/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Clay	Clay: Red-brown clay, moderately sorted, high silt content. Moderate to high plasticity.			0-5.5m sanitary cement seal 0-6m 12" steel surface casing
10	Clay	Clay: Red-brown, moderately sorted, minor silt. Moderate plasticity.			
20	Gravel	Gravel: Red-brown, moderately sorted fine gravel. Sub-angular. Minor quartz. Minor clay.	Laboratory Results Potassium: 6,710 mg/L		
30	Fat Channel Clay	Clay: Grey fat channel clay. Minor pink-purple colourations. Change to light grey colour 45-48m. Moderate plasticity. Trace sand.	Magnesium: 10,000 mg/L SO4: 30,600 mg/L TDS: 283,334 mg/L Specific Gravity: 1.1992 g/cm3		0-96.2m 8" blank PVC, Class 12. Note: Class 12 used due to manufacturing errors with the Class 18 PVC lifting lug located onsite.
40					
50		Clay: Light grey & yellow clay. Moderate plasticity.			5.5-76m gravel pack, 1.6-3.2mm
60		Clay: Grey clay with minor purple & yellow colourations. Moderate plasticity.			
70		Clay: Blueish dark grey & purple. Moderate plasticity 60-64m, soft & low plasticity 64-79m. Minor dark grey, very soft mudstone fragments 64-79m. Trace sand.			
80	Mudstone	Mudstone: Dark grey & purple mudstone / consolidated clay. Very soft. Minor light grey mudstone 79-80m.			76-81m cement seal, 5% bentonite, SG=1.44
		Clay: Dark red & dark grey fat channel clay. Moderate plasticity.			
90	Clay and Sand	Clay and Sand: Light grey & yellow clay. Very soft, low plasticity. Some very fine sands 86-88m. Trace sand 88-104m. Minor dark grey mudstone & red clay 96-98m. Some dark red/purple clay 102-104m.			81-114.2m gravel pack, 1.6-3.2mm
100					96.2-114.2m slotted (1mm aperture) stainless steel screen
		Clay: Dark grey & green clay. Soft, low plasticity. Trace sand.	Airlift Results: EC = 186.9 mS/cm, TDS = 119.7 ppk, pH 7.15, Temp = 24.2 C, Q = 1L/s		
110	Sand	Sand: Fine, well sorted, light brown sand 107-108m. Mixed fine & coarse sands 108-116.3m, yellow/grey & pink/red. Silica rich. Tracegranitic material 114-116.5m.			114.2m end-cap
	Bsmt	Basement: Granite. Hard, slightly weathered to fresh. Minor chlorite & pink hematite alteration.			114.2-116.5m fallback

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COMPOSITE BORE LOG

Bore No: LYPBB013

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 12/02/2020
Finish: 7/4/2021
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 112m (12.25")
Casing Stickup: 0.58m

Elevation (GL): 499 mRL (handheld)
Easting: 239541 (handheld GPS)
Northing: 7037699 (handheld GPS)
Projection: GDA94 MGA ZONE 51

Static Water Level (mbgl): 33.02 mbgl **Date of SWL:** 13/4/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Clay		Clay: Red-brown clay, moderate plasticity. Moderately sorted, some silt. Minor coarse sand / fine gravel 6-8m & 10-12m.			0-4.5m sanitary cement seal 0-6m 12" steel surface casing
10						
20	Gravel		Gravel: Red-brown, moderately sorted gravels & coarse sands. Quartz rich sand (40-50%), trace large quartz eyes. Minor red-brown clay, very soft, content increasing 26-28m.	**Laboratory Results** Potassium: 6,870 mg/L		
30	Fat Channel Clay		Clay: Grey & purple-red fat channel, moderate plasticity. Trace sand. Minor white gypsum fragments 42-44m.	Magnesium: 8,850 mg/L SO4: 29,900 mg/L TDS: 270,371 mg/L		0-85m 8" blank PVC, Class 18 (ID = 193).
40			Clay: Light grey & purple-red. Moderate plasticity. Minor white gypsum, trace sand.	Specific Gravity: 1.2375 g/cm3		
50			Clay: Yellow-grey, moderate plasticity.			0-63m gravel pack, 1.6-3.2mm
			Clay: Grey with minor yellow & purple-red. Low to moderate plasticity.			
60			Clay: Blueish dark grey with minor yellow, red & light grey. Low plasticity.			
			Clay: Dark grey & purple. Low to moderate plasticity.			63-75m cement seal, 5% bentonite, SG=1.44
70						
80	Paleo Sand & Clay		Sand: Grey, moderately sorted coarse quartz sand. Angular to sub-rounded. Some fine sand (escaping sieve). Trace mixed lithic coarse sands / gravels.	**Airlift Results** Q= 14 L/s EC= 184.0 mS/cm TDS= 117.6 ppk, pH= 6.25 Temp= 27.5 C.		75-109m gravel pack, 1.6-3.2mm
			Clay and Sand: Coarse quartz sand as above with very soft, light & dark grey clay bands.			
90			Sand: Grey & light brown coarse quartz sands (as above).			
			Clay and Sand: Mixed bands of coarse quartz sand (as above) and very soft, grey clay. Minor sand content only 100-102m.			85-109m slotted (1mm aperture) stainless steel Jonhonson screen
100						
	Basement Clay		Clay: Dark & light grey hard clay/soft mudstone & soft light grey silty clay. Soft clay reducing down hole. Minor stiff green clay 104-109m. Trace coarse sand/gravel.			109m end-cap
110			Basement: Weathered basement or quartz rich gravels(?) 108.5-109m. Angular to rounded. Mottled dark blue, pink & grey granite 109-112m. Coarse grained, hard, slightly weathered to fresh.			109-112m fallback/gravel pack

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COMPOSITE BORE LOG

Bore No: LYPBB014

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 11/05/2021
Finish: 21/05/2021
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 112m (12.25")
Casing Stickup: 0.91

Elevation (GL): 491 mRL (handheld)
Easting: 239849 (handheld GPS)
Northing: 7039297 (handheld GPS)
Projection: GDA94 MGA ZONE 51

Static Water Level (mbgl): 66.88 **Date of SWL:** 31/05/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Clay		Clay and Silt: Red-brown, soft, low plasticity clay with high silt content (50-20%), decreasing down hole. Gritty texture. Minor fine sand 0-6m, coarse quartz sand & silcrete gravels 6-12m. Minor thin gypsum bands 2-6m.			0-5m sanitary cement seal 0-6m 12" steel surface casing
10	Clay		Clay: Red-brown, soft, low plasticity. Sticky. Minor silt, decreasing down hole. Trace sand.			
20	Gravelly Clay		Gravelly Clay: Red-brown clay, soft, low plasticity. Minor silcrete gravels, silt & fine sand. Trace coarse quartz sand.	**Laboratory Results** Potassium: 6,990 mg/L		
30	Fat Channel Clay		Clay: Grey & purple-red fat channel clay, moderate plasticity.	Magnesium: 8,970 mg/L SO4: 28,900 mg/L TDS: 272,475 mg/L Specific Gravity: 1.1964 g/cm3		0-85m 8" blank PVC, Class 18 (ID = 193mm).
40			Clay: Yellowish light grey with minor purple-red. Moderate plasticity. Minor yellow-white gypsum 42-44m.			
50			Clay: Grey with minor purple-red & yellow. Low to moderate plasticity.			5-55m gravel pack, 1.6-3.2mm
			Clay: Yellow, cream & grey. Soft, low plasticity. Fine sand lens 55.5-56.5m.			
60			Clay: Blueish dark grey. Soft, low plasticity. Minor yellow & light grey/cream firm clay.			
70			Clay: Dark grey with minor purple. Low to moderate plasticity. Minor grey and yellow soft mudstone bands 64-66m, 70-72m. Minor fine sand 76-78m as thin lens.			55-75.5m cement seal, 5% bentonite, SG=XX
			Clay: Cream, soft, low plasticity.			
80			Clay: Dark grey/black, soft, low plasticity.	**Airlift Results** Q= 12 L/s EC= 186.0 mS/cm TDS= 119.0 ppk, pH= 8.01 Temp= 26.8 C		
	Sand & Clay		Clay and Sand: Light grey, moderately sorted, fine to coarse quartz sand. Angular to sub-rounded. Some very soft grey/black clay, low plasticity.			
90			Sand: Coarse quartz sand as above, reduced fines. Angular to rounded. Minor soft grey/black clay bands (incr 94-98m) & thin, soft mudstone layers. Trace quartz gravels & organics.			75.5-109m gravel pack, 1.6-3.2mm
100	Sand		Sand: Clean coarse sand & trace gravel as above. Increased organics, minor fine sand 104-106m.			85-109m slotted (1mm aperture) stainless steel screen
			Gravel: Fine to coarse quartz gravel (up to 2cm), moderately sorted, angular to rounded. Minor soft, grey clay 108-109m (recirc?). Minor organics.			109m steel end-cap 109-112m gravel/fallback
110	Basement		Basement: Granite. Residual quart-rich material, moderately hard,108.5-109.5m. Moderately weathered, hard 109.5-112.			

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COMPOSITE BORE LOG

Bore No: LYPBB015

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 28/05/2021
Finish: 09/06/2021
Drilled By: Acqua Drill
Logged By: K. Pannell

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 113.6m (12.25")
Casing Stickup: 0.46

Elevation (GL): 494 mRL (handheld)
Easting: 240237 (handheld GPS)
Northing: 7035709 (handheld GPS)
Projection: GDA94 MGA ZONE 51

Static Water Level (mbgl): 40.18 **Date of SWL:** 10/06/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Lakebed Seriments		Clay and Silt: Red-brown, lakebed sediments, sticky clay dominant, lesser silt, trace gravels, large gypsum crystals from 2-6m			0-4m sanitary cement seal
10	Lakebed Seriments		Clay and Silt: Red-brown, reduced clay content, minor coarse gravels, angular, up to 1cm in diameter			0-6m 12" steel surface casing
	Alluvial Clay		Clay: Red-brown, sticky clay dominant, soft. Trace silt and gravels, reduced clay content from 16-20m			4-18m cement seal, 5% bentonite, SG=1.46
20	Alluvial Gravels		Gravelly Clay: Brown, gravel dominant layer, poorly sorted, angular, weathered basement and cap rock material, trace quartz, minor soft brown clay, base of alluvials	**Laboratory Results** Potassium: 7,040 mg/L		
30			Clay: Grey, channel clay, low to moderate plasticity, sticky, dark red streaking, cut into strips by blade bit	Magnesium: 8,925 mg/L SO4: 29,100 mg/L		
40				TDS: 265,363 mg/L		0-88m 8" blank PVC, Class 18 (ID = 193mm).
			Clay: Cream to light grey, channel clay, increased plasticity	Specific Gravity: 1.2113 g/cm3		
50			Clay: Grey, band of crumbly brittle clay, trace quartz, possible gravel lense that has been weathered out to clay/mudstone, driller noted lost circ			
	Fat Channel Clay		Clay: Grey/cream/brown, moderate plasticity channel clay, noted by driller as firm			Annulus assumed open (filled with drilling mud) ~18-78.5m. Poly pipe ruptured at ~4m during cement seal installation.
60			Clay: Dark grey, crumbly brittle clay/mudstone, similar to 48-52m, trace sand bands, issues drilling with lost circ at 63m			
			Clay: Dark grey, channel clay, moderate to high plasticity, some continued brittle clay from 63-68m - possible contamination			
70						
80			Clay: Dark grey to black, moderate to high plasticity channel clay. Transition zone with softer clay and fine sand 86-88m.	**Airlift Results** Q= 13 L/s EC= 177.0 mS/cm TDS= 113.3 ppk, pH= 6.68 Temp= 24.4 C		
	Paleo Sand		Sand: Light grey to white, coarse paleo sand, quartz dominant and angular, fine sand passing through de-sander, clay contamination 88-94m			78.5-113m gravel pack, 1.6-3.2mm
90						
100			Sand: Light grey to white, coarse sand with appearance of coarse gravel and minor lignite			88-112m slotted (1mm aperture) stainless steel screen
			Sand: Light grey to black, increased coarse gravels, significant lignite, up to 4cm, trace well rounded quartz			
110			Sand: Light grey to green, large quartz gravel 1-2cm at contact. Trace soft clay.			
			Basement: Weathered granite 111.5-112m, quartz rich. Fresh & hard from 112m, porphyritic texture with quartz up to ~1cm.			112m steel end-cap

COMPOSITE BORE LOG

Bore No: LYPBB016

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Client: SO4 **Project:** Lake Way **Pad ID:** Pad 43 / KT018 **Location:** Paleochannel

Start: 22/08/2021
Finish: 1/09/2021
Drilled By: Acqua Drill
Logged By: K. Pannell

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 111m (12.25")
Casing Stickup: 0.52

Elevation (GL): 496mRL (handheld)
Easting: 245167 (handheld GPS)
Northing: 7034560 (handheld GPS)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 67.95 **Date of SWL:** 13/12/21 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials and clay		Clay: Red-brown clay, lake clay high silt content. Moderate to high plasticity.			0-6m sanitary cement seal
10			Clay: White to cream, highly weathered soft calcrete and clay			0-6m 12" steel surface casing
			Gravelly Clay: Red-brown, moderately sorted, clay dominant, trace alluvial gravels, transported, lense from 12-14m			
20			Clay: Red-brown, clay dominant, trace gravels - no clear lense on channel clay contact	Laboratory Results Potassium: 7,010 mg/L		
30				Magnesium: 8,900 mg/L		0-84m 8" blank PVC, Class 18
	Channel Clay		Clay: Light grey, fat channel clay, minor red and white colourations, moderate plasticity, increasing from 56m	SO4: 31,200 mg/L TDS: 258,420 mg/L Specific Gravity: 1.1895 g/cm3		
40						
50						6-65m gravel pack, 1.6-3.2mm
60			Clay: Dark grey & purple, moderate plasticity 60-64m, low plasticity 64-80m, trace sand			
70						65-75m cement seal TBC
80			Clay: Dark grey fat channel clay, trace crumbly clay and trace sand			
			Clay and Sand: Light grey, coarse quartz gravel lense, angular to sub angular gravel, white clays at 87m			75-111m gravel pack, 1.6-3.2mm
90	Sand and and Clay		Clay: Grey, crumbly channel clays			84-108m slotted (1mm aperture) stainless steel screen
			Clay and Sand: Light grey, interbedded coarse channel sands and clays			
100			Sand: Dark grey, coarse channel gravel and lignite, quartz dominant, trace well rounded, minor weathered basement - possibly transported shorter distance from source			
	Basement te Clay		Clay: Black, soft lignite clay, trace large quartz inclusions, no sand	Airlift Results: EC = 172.7 mS/cm, TDS = xx ppk, pH xx, Temp = xx C, Q = 1L/s		108m end-cap
110			Basement: Grey, granite, hard, slightly weathered 106-107m, fresh from 107m			

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COMPOSITE BORE LOG

Bore No: LYPBB017

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 10/09/2021
Finish: 20/09/2021
Drilled By: Acqua Drill
Logged By: K. Pannell

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 111m (12.25")
Casing Stickup: 0.55m

Elevation (GL): 490 mRL (handheld)
Easting: 245610 (handheld)
Northing: 7033031 (handheld)
Projection: GDA94 MGA ZONE 51

Static Water Level (mbgl): 52.32 mbgl **Date of SWL:** 3/10/21 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvial Clay and Silt		Sandy Clay: Brown, sandy lake sediments, gypsum, grey clay from 6-8m			0-6m (TBC) sanitary cement seal
10	Alluvial Clay and Silt		Clay and Silt: Light brown, soft clay dominant, lesser sand, trace alluvial gravels			0-6m 12" steel surface casing
20	Alluvial Clay		Clay: Red to brown, firm and plastic alluvial clay, trace alluvial gravel 28-30m, mixed with clays	**Laboratory Results**		
30	Fat Channel Clay		Clay: Light grey to brown, channel clay, plastic with gritty texture	Potassium: 6,720 mg/L Magnesium: 8,600 mg/L SO4: 26,500 mg/L TDS: 260,992 mg/L Specific Gravity: 1.1824 g/cm3		6-65m gravel pack, 1.6-3.2mm
40	Fat Channel Clay					0-86m 8" blank PVC, Class 18 (ID = 193mm).
50	Fat Channel Clay					
60	Fat Channel Clay		Clay: Grey/white/red, mixed black and marbled channel clays, crumbly from 60-70m, with coarse sand from 60-62m and fine sand lenses to 70m			
70	Fat Channel Clay		Clay: Dark grey to black, highly plastic and firm channel clay			65-75m cement seal, 5% bentonite
80	Fat Channel Clay			**Airlift Results** Q= 7 L/s EC= 176.8 mS/cm TDS= 114 ppk, pH= 6.68 Temp= xx C		
90	Clay and Sand		Sandy Clay: Grey to black, coarse quatz rich sand lense, soft lignite clay from 88-90m			75-111m gravel pack, 1.6-3.2mm
100	Channel Sand / Basement		Clay: Grey, firm channel clay			
110	Basement		Sand: Grey to black, coarse quartz sands mixed with soft grey clay, possible contamination, trace well rounded quartz, large lignite inclusions from 96-100m			
	Basement		Basement: Light grey, well weathered saprolitic basement, clay is soft and puggy			86-110m slotted (1mm aperture) stainless steel screen
	Basement		Basement: Grey/green, fresh granite basement, hard, trace quartz on contact, quick transition			110m steel end-cap

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COMPOSITE BORE LOG

Bore No: LYPZB018A

Client: SO4 **Project:** Lake Way **Pad ID:** Pad 46 **Location:** Paleochannel

Start: 05/10/2021
Finish: 3/11/2021
Drilled By: Acqua Drill
Logged By: K. Pannell

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 107m (12.25")
Casing Stickup: 0.42m

Elevation (GL): 487mRL (handheld)
Easting: 247584 (handheld GPS)
Northing: 7029592 (handheld GPS)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 7.24 mbgl **Date of SWL:** 3/11/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silt & Clay		Silt: Dark brown, silty lake sediments, soft and unconsolidated, high gypsum content			0-5m sanitary cement seal
10	Silt & Clay		Clay and Silt: Light brown, silty alluvial clay, soft and puggy, high silt content, trace sand and gravel throughout			0-6m 12" steel surface casing
20	Alluvial Clay		Clay: Red/brown, alluvial clay, clay dominant, moderate plasticity, reduced silt, no trace of gravel lense	Laboratory Results Potassium: 5,830 mg/L		5-41m gravel pack (1.6-3.2mm)
30	Channel Clay		Clay: Dark grey, fat channel clay, firm and plastic	Magnesium: 7,470 mg/L SO4: 24,000 mg/L		0-69m 5" blank PVC Class 18 (ID=125mm)
40	Channel Clay		Clay: Light grey/yellow, fat channel clay, colour change, reduced plasticity from 54m	TDS: 243,409 mg/L Specific Gravity: 1.1716 g/cm3		41-52m cement-bentonite seal
50	Channel Clay					
60	Channel Clay		Clay: Black/grey, plastic and firm, lignite clay			
70	Channel Clay					52-107m gravel pack (1.6-3.2mm)
80	Channel Clay					69-93m 5" slotted (1mm aperture) PVC Class 12 (ID=125mm)
90	Channel Clay		Clay: White / cream, crumbly clay, possibly marks the transition into weathered basement			
100	Basement		Basement: Grey, weathered basement clay, soft and light, low plasticity, gritty texture with trace shale weathering product, fully weathered basement saprolite, easy drilling	Airlift Results: Q = 1 L/s EC = 172 mS/cm, TDS = 110 ppk pH = 7.17, Temp = 30 C		93m PVC end-cap
	Basement		Basement: Light grey, fresh granite basement, quartz rich, bit refusal ~107m			

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COMPOSITE BORE LOG

Bore No: LYPBB019

Client: SO4 **Project:** Lake Way **Pad ID:** ST071 **Location:** Paleochannel

Start: 2/11/2021
Finish: 13/11/2021
Drilled By: Harrington
Logged By: W. Foy

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 2.5m (17.5"), 102m (15")
Casing Stickup: 0.24m

Elevation (GL): 496 mAHD
Easting: 250353 (handheld)
Northing: 7029290 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 31.04 mbgl **Date of SWL:** 10/12/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Calcrete		Calcrete: Orange-cream, fine grained. Consolidated, soft to moderately hard. Some red-brown alluvial silty sand.	**Laboratory Results** K: 5300 mg/L Mg: 7,360 mg/L SO4: 24,100 mg/L TDS: 222,819 mg/L SG: 1.1528 g/cm3		0-2.5m 16" steel surface casing 0-2.5m sanitary cement seal
10	Silcrete & Calcrete		Siltstone: Brown silcrete, fine to medium grained. Consolidated but brittle & crumbly. Some black staining / alteration. Porous texture.			
			Siltstone: Brown silcrete, fine to medium grained, increased consolidation. Some calcrete alteration, white & green cementation on surfaces.			
20			Siltstone: Brown silcrete & calcrete conglomerate. Silcrete dominant with white & yellow calcrete cementation within matrix. Some porous texture.			2.5-54m gravel pack (3.2-6.4mm)
	Clay Clay & Sand		Siltstone: Brown silcrete, fine grained. Consolidated, but soft. Reduced alteration. Minor to trace calcrete.			
30			Clay and Sand: Brown mix of soft clay, silt & sand. Very gritty texture. Some semi-consolidated silcrete. Minor calcrete.			
			Clay: Red-brown alluvial clay with minor silt. Moderate plasticity.			
			Clay: Light grey & yellow channel clay. Moderate to high plasticity.			0-84m 10" class 18 blank PVC (ID=241mm)
40			Clay: Grey, with some purple / red-brown, channel clay. High plasticity.			
50	Channel Clay		Clay: Light grey, with some yellow, channel clay. High plasticity.			
60			Clay: Grey channel clay, moderate plasticity. Some to minor fine yellow sand (decreasing down hole). Some coarser grained light grey quartz sand 66-68m, likely as lens.			54-64m cement-bentonite seal
70			Clay: Grey channel clay. Moderate to high plasticity. Some firm dark grey clay 78-82m.			
80			Clay: Light grey channel clay. Moderate plasticity. Minor fine yellow sand.			64-102m gravel pack (3.2-6.4mm)
	Clay Paleo Sand		Clay and Sand: Soft grey clay with coarse paleo quartz sand & gravel. Sand & gravel sub-rounded to sub-angular.	**Airlift Results** Q= 15 L/s EC: 163.8 mS/cm, pH: 6.38 TDS: 104.9 ppk, T: 26.7 C		
90			Sand: Grey paleo sand. Coarse, quartz-rich, sub-rounded to angular. Minor larger quartz gravels.			84-96m 10" slotted (1mm aperture) stainless steel screens
	Clay		Clay: Cream, soft, low plasticity. Some quartz sand & large gravels (up to ~1cm). Residual basement?.			
100	Basement		Basement: Weathered granite. Grey-blue 96-98m, transitioning to blue-pink 98-102m. Highly weathered, brittle.			96m steel end plate

COMPOSITE BORE LOG

Bore No: LYPBB020

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Client: SO4 **Project:** Lake Way **Pad ID:** ST079 **Location:** Paleochannel

Start: 12/11/2021
Finish: 24/11/2021
Drilled By: Acqua Drill
Logged By: W. Foy

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 111m (12.25")
Casing Stickup: 0.57m

Elevation (GL): 490mRL (handheld)
Easting: 250848 (handheld GPS)
Northing: 7028617 (handheld GPS)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 29.34 mbgl **Date of SWL:** 28/11/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silcrete & Calcrete		Siltstone: Brown-black & red-brown silcrete. Fine grained, consolidated, moderately hard. Highly altered. Minor sandy clay at surface. Minor white calcrete.			0-6m sanitary cement seal
			Siltstone: Red-brown to orange-cream silcrete. Fine grained, consolidated, soft to moderately hard. Minor calcrete alteration.			0-6m 12" steel surface casing
10			Siltstone: Red-brown to orange-cream silcrete with some white calcrete. Fine grained, consolidated, soft to moderately hard. Increased alteration; staining & cementation on surfaces. Minor porous textures. Minor soft brown clay.			
20	Alluvial Clay		Clay: Red-brown alluvial clay with minor silt. Soft, low plasticity. Minor to trace gravel (reducing down hole).	Laboratory Results Potassium: 5,170 mg/L		6-39m cement-bentonite seal (SG=1.45)
30			Clay: Yellow-grey channel clay. Moderate plasticity.	Magnesium: 7,280 mg/L		
40	Channel Clay		Clay: Grey channel clay with purple-red colourations. Moderate to high plasticity.	SO4: 24,300 mg/L TDS: 231,048 mg/L Specific Gravity: 1.1573 g/cm3		
50			Clay: Dark grey channel clay with minor yellow colourations. Moderate plasticity.			0-85m 8" blank PVC Class 18 (ID=193mm)
60			Clay: Grey channel clay with minor fine brown sand. Soft, low to moderate plasticity.			
70			Clay: Dark grey channel clay. Moderate plasticity.			39-110m gravel pack (1.6-3.2mm)
80			Clay and Sand: Soft, low plasticity grey channel clay with some grey, coarse, quartz-rich paleo sand (increased 90-92, trace gravel). Sub-rounded to angular.			
90	Paleochannel Sand & Clay		Clay: Grey, soft, low plasticity.			85-109m 8" slotted (1mm aperture) stainless steel screens (ID=193mm)
			Sand: Grey, coarse, quartz-rich paleo sand. Sub-rounded to angular. Minor quartz gravels 100-101m. Minor clay.			
100			Clay: Grey, orange & green clay/residual basement with some fine sand. Very gritty texture. Soft, low plasticity.	Airlift Results: Q=17 L/s EC=168mS/cm, TDS=108ppk pH=6.88, Temp=25 C		
	Basement		Gravel and Sand: Grey, coarse quartz-rich sand & gravel. Sub-rounded to angular. Mixed with residual basement material.			109m steel end-plate 110-111m fallback
110			Basement: Grey & white granitic basement. Highly weathered, quartz-rich			

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COMPOSITE BORE LOG

Bore No: LYPBB021

Client: SO4 **Project:** Lake Way **Pad ID:** GT070 **Location:** Paleochannel

Start: 24/11/2021
Finish: 30/11/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 2.5m (15"), 105m (12")
Casing Stickup: 0.41m

Elevation (GL): 495mAHD
Easting: 245857 (handheld)
Northing: 7036101 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 9.70 mbgl **Date of SWL:** 04/12/21 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silcrete		Siltstone: Orange-cream to red-brown, fine grained. Consolidated, but soft. Some calcrete alteration. Some unconsolidated silty sand.	**Laboratory Results** K: 6030 mg/L Mg: 7770 mg/L SO4: 13100 mg/L TDS: 136800 mg/L SG: 1.0854 g/cm3		0-2.5m 12" steel surface casing 0-3m sanitary cement seal
10	Silcrete		Siltstone: Red-brown to orange-cream. Fine to medium grained. Consolidated, soft & brittle. Highly altered. White & yellow cementation on surfaces. Some oxidation.			
	Silcrete & Calcrete		Siltstone: Brown to orange-cream, fine grained. Consolidated, soft. Some calcrete alteration. Some soft brown red clay.			
20	Silcrete & Calcrete		Siltstone: Red-brown to white silcrete & calcrete conglomerate. Consolidated, soft & brittle. Extremely altered. Distinct vein-like white calcareous cementation within silcrete matrix.			3-60m gravel pack (3.2-6.4mm)
	Alluvial Clay		Clay: Red-brown, soft, low plasticity.			
30	Alluvial Clay		Clay: Yellow-grey & red-brown, soft, low plasticity. Some red-brown sand & gravel 26-28m, reducing down-hole.			
	Channel Clay		Clay: Grey with lessor purple-red & yellow. Moderate plasticity.			0-80m 8" class 18 blank PVC (ID=193mm)
40	Channel Clay		Clay: Light grey with lessor pink/purple. Moderate plasticity.			
	Channel Clay & Sand		Clay and Sand: Light grey channel clay with lessor pink & yellow. Moderate plasticity. Minor thin lenses of fine light brown sand throughout. Minor soft white clay.			
50	Channel Clay & Sand		Clay: Grey channel clay with lessor purple/red. Moderate plasticity.			
60	Channel Clay		Clay: Light grey channel clay with lessor yellow & red. Moderate plasticity.			60-70m cement-bentonite seal
70	Channel Clay					70-104m gravel pack (1.6-3.2mm)
	Clay & Sand		Clay and Sand: Grey to light grey channel clay with lessor yellow & red. Moderate to low plasticity. Thin (0.2-0.5m) lenses of light brown quartz-rich sand, fine to medium grained. Minor soft white clay. Becoming softer down-hole.			
80	Clay & Sand			Airlift Results Q= 0.4 L/s EC: 160.9 mS/cm, pH: 6.88 TDS: 103 ppk		
	Clay, Sand & Gravel		Clay and Sand: Light grey with lessor orange & white. Some fine sand, gritty texture. Soft, low plasticity. Some thin (0.2-0.5m) lenses of fine light brown sand & coarse quartz sand & gravel (up to ~1cm), angular to sub-angular.			80-104m 8" slotted (1mm) PVC Class 18
90	Clay, Sand & Gravel					
100	Clay, Sand & Gravel					
	Basement		Basement: Quartz-rich, coarse grained. Granitic composition. Highly weathered.			104m PVC end-cap 104-105m fallback

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COMPOSITE BORE LOG

Bore No: LYSP001

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 2/10/2020
Finish: 4/10/2020
Drilled By: Acqua Drill
Logged By: A. Edgar

Drilling Method: Air
Fluid: 0-10m Mud, 10-32m Air
Bit Record: 10m (15"), 32m (10")
Casing Stickup: 0.44m

Elevation (GL): 491 (handheld GPS)
Easting: 248490 (handheld GPS)
Northing: 7030933 (handheld GPS)
Projection: GDA94 Zone 51

Static Water Level (mbgl): 1.95 mbgl **Date of SWL:** 5/10/2020 **First Water Strike (mbgl):** 15m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Alluvium		Alluvium: Cream-red, well rounded, poorly sorted gravels with calcrete alteration. Minor sand and silt.	SWL: 1.95 mbgl		0-4.5m cement seal
	Alluvium		Alluvium: Red brown, poorly sorted, rounded gravel and clay with minor patchy calcrete, sand and silt. Trace rounded quartz.	**Laboratory Results** K: 4,940mg/L, Mg: 6,760mg/L, SO4: 20,200 mg/L, TDS: 199,480mg/L, SG: 1.1390 g/cm3		0-10m 10" steel surface casing
10	Clay and Gravel		Gravelly Clay: Red brown, well rounded, moderately sorted gravel and soft sticky clay.			0-19.2m 6" class 12 blank PVC
20	Clay and Gravel					4.5-31.2m gravel pack (1.6-3.2mm)
	Clay and Gravel			25m: Q= 2.2 L/s, EC=145mS, pH=6.34, Temp=25 C		19.2-31.2m 6" class 12 PVC with 1mm aperture.
	Clay and Gravel		Clay: Red brown clay with moderate plasticity and small cuttings. Clay has malleable texture. Trace rounded gravels.			
30	Clay and Gravel			Airlift: Q= 1.67 L/s, EC=148.4mS, pH=6.68, Temp=25 C		
	Clay and Gravel			31m: Q= 4 L/s		31.2m endcap 31.2-32m fallback

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COMPOSITE BORE LOG

Bore No: LYSP002

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 5/10/2020
Finish: 7/10/2020
Drilled By: Acqua Drill
Logged By: A. Edgar

Drilling Method: Air
Fluid: Air
Bit Record: 10m (15"), 31m (10")
Casing Stickup: 0.35m

Elevation (GL): 487mAHD
Easting: 238354
Northing: 7042468
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 3.46 mbgl **Date of SWL:** 10/10/2020 **First Water Strike (mbgl):** 15m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Alluvium: Cream-red brown, subangular, poorly sorted sand and gravel with calcrete alteration.	**Laboratory Results** K: 5,460mg/L Mg: 8,210mg/L SO4: 25,900 mg/L TDS: 220,971mg/L SG: 1.1563 g/cm3		0-4.5m cement seal
			Alluvium: Light red brown, poorly sorted, sand, silt, clay and trace rounded gravel. Calcrete alteration. Trace quartz.			0-10m 6" steel surface casing
10	Clay and Gravel		Gravelly Clay: Red brown, subangular to subrounded fine gravel and soft clays. Minor silt and sand, trace quartz.			0-10.9m 6" class 12 blank PVC
			Gravelly Clay: Insrease in fine gravel.	20m: Q= 4 L/s		4.5-28.9m gravel pack (1.6-3.2mm)
20	Gravel		Gravel: Grey brown, well sorted, fine gravel with minor rounded quartz. Trace sand and clay.	24m: Q= 5 L/s Airlift Q= 6.67 L/s, EC=174mS, pH=5.86 Temp=21 C		10.9-28.9m 6" class 12 PVC with 1mm aperture.
30	Clay		Clay: Grey, moderate plasticity clay with small cuttings. Minor to trace sand and silt.	31m Q= 8 L/s, EC=163mS, pH=6.57 Temp=25 C		28.9m endcap 28.9-31m fallback

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COMPOSITE BORE LOG

Bore No: LYSP003

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 9/10/2020
Finish: 12/10/2020
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: 0-7m mud, 7-30m air
Fluid: Air
Bit Record: 7m (17.5"), 30m (12.25")
Casing Stickup: 0.34m

Elevation (GL): 489mAHD
Easting: 238776
Northing: 7041327
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 3.76 mgbl **Date of SWL:** 14/10/2020 **First Water Strike (mbgl):** 18m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Sand		Sand: Red-brown aeolian sand and silt, well sorted, fine grained.	**Laboratory Results**		
	Alluvium		Alluvium: Red-brown, poorly sorted, mixed alluvial sand, silt and gravels. Gravels of siltstone / laterite origin, sub-rounded to angular, up to ~2cm in diameter. Minor clay.	K: 5,930mg/L, Mg: 7,890mg/L, SO4: 27100mg/L, TDS: 242,775mg/L, SG: 1.1675 g/cm3		0-4m cement seal
	Alluvial Clay		Clay: Red-brown poorly sorted alluvials. Clay dominant with minor silt, sand and gravel (as above). Trace calcrete.			0-7m 12" steel surface casing
10	Alluvial Clay		Clay: Red-brown alluvial clay, low to moderate plasticity. Minor sand and silt. Trace gravels. Pervasive calcrete alteration 8-12m.			0-10.6m 8" class 12 blank PVC
20	Alluvial Clay & Gravel		Gravelly Clay: Red-brown, soft alluvial clay, low to moderate plasticity. Thin (<1m) gravel and coarse sand lenses occurring throughout section. Gravels up to ~1cm in diameter, mixed lithic origin, angular to sub-rounded, moderately sorted.	FWS 18m: Q= 0.5L/s 24m: Q= 2.7L/s 30m: Q= 6.5L/s		4-28.6m gravel pack (1.6-3.2mm) 10.6-28.6m 8" class 12 slotted PVC (1mm aperture)
	Clay		Clay: Yellow-grey clay, increased plasticity. Trace sand and silt.	**Airlift Results** Q= 5.6L/s EC= 176.2mS/cm TDS= 113.2ppk, pH= 6.66 Temp= 27.8 C		28.6m PVC endcap 28.6-30m fallback
30						

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COMPOSITE BORE LOG

Bore No: LYSP004

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 11/10/2020
Finish: 14/10/2020
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Air
Fluid: Air
Bit Record: 6m (17.5"), 33m (12.25")
Casing Stickup: 0.32m

Elevation (GL): 491mAHD
Easting: 239824
Northing: 7040118
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 4.37 mbgl **Date of SWL:** 18/10/2020 **First Water Strike (mbgl):** 7m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Calcrete		Calcrete: White to cream-orange calcrete & salt crust. Moderately well sorted, fine to medium grained. Mixed with red-brown, fine grained alluvial sand and silt.	**Laboratory Results**		
	Gravel		Gravel: Light brown, poorly sorted, unconsolidated alluvial gravels of clay/silt/sand composition. Crumble when handled. Some calcrete alteration. Trace calcrete gravels.	K: 6,270mg/L, Mg: 8,360mg/L, SO4: 25,600 mg/L, TDS: 247,019mg/L, SG: 1.1703 g/cm3		0-4m sanitary cement seal 0-6m 12" steel surface casing
			Sandy Clay: Red-brown, moist clay with high (40-50%) sand & silt content. Sand is red-brown, fine grained, well sorted. Minor siltstone gravels up to ~3cm diameter, sub-angular to sub-rounded, poorly sorted. Some calcrete alteration. Trace calcrete gravels.			
			Gravelly Clay: Brown to red-brown, wet clay mixed with fine sand & silt giving gritty texture. Very soft, low plasticity. Minor coarse sand & siltstone gravels up to ~2cm diameter, poorly sorted, sub-rounded to sub-angular.	FWS 7m: Q= 0.25 L/s		
10			Gravelly Clay: Brown to khaki clay mixed with some fine sand & silt. Increased plasticity (low to moderate). Minor coarse sands & gravels (siltstone/laterite dominant with quartz) occurring as separate thin lenses (changes noted whilst drilling). Moderately well sorted, sub-angular to sub-rounded.	13m: Q= 1.5 L/s		0-12.3m 8" class 12 blank PVC
	Sandy Clay & Gravel		Gravelly Clay: Sandy clay as above but change to darker red-brown colour with slight increase in plasticity. Coarse sands & gravels up to ~1cm diameter occur throughout as thin lenses. Some larger quartz fragments 20-22m.	19m: Q= 3.0 L/s		4-30.3m gravel pack (1.6-3.2mm)
20				25m: Q= 4.0 L/s		12.3-30.3m 8" class 12 slotted PVC (1mm aperture)
30	Clay		Clay: Yellow-grey to brown clay, increased plasticity. Hard, slow drilling. Transition to channel clays. Minor silt & sand. Gravels as above, though these are likely contamination from shallower intervals due to slow drilling with air. Large (~8cm diameter), thin (<1cm) siltstone/laterite fragment suggesting thin duricrust layer in this interval.	Airlift Results Q= 4.4L/s EC= 179.0mS/cm TDS= 115.0ppk, pH= 6.82 Temp= 26.5 C		30.3m PVC endcap 30.3-33m fallback

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COMPOSITE BORE LOG

Bore No: LYSP006

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 18/10/2020
Finish: 20/10/2020
Drilled By: Acqua Drill
Logged By: A. Edgar

Drilling Method: Air
Fluid: Air
Bit Record: 6m (17.5"), 32m (12.25")
Casing Stickup: 0.23m

Elevation (GL): 490 mAHD
Easting: 244530
Northing: 7035617
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 4.07 mbtoc **Date of SWL:** 22/10/2020 **First Water Strike (mbgl):** 6m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Calcrete		Calcrete: Cream, poorly sorted sand and gravels altered to calcrete	1.87m Standing Water Level		0-4m sanitary cement seal
	Siltstone		Siltstone: Red brown, rounded to subangular, poorly sorted siltstone, with minor sand and silt decreasing down hole. Patchy calcrete alteration. Some gravels have black (Mg?) coloured fracture surfaces from 10-16m.	**Laboratory Results** Potassium: 5,280 mg/L Magnesium: 5,050 mg/L SO4: 18,100 mg/L TDS: 193,993 mg/L Specific Gravity: 1.1320 g/cm3 13m: Q= 1.5 L/s		0-6m 12" steel surface casing 0-9m 8" class 12 blank PVC
10	Gravel		Gravel: Red brown, subangular, well sorted fine gravel with minor siltstone. Siltstone has patchy calcrete alteration.	19m: Q= 14 L/s		9-27m 8" class 12 slotted PVC (1mm aperture) 4-27m gravel pack (1.6-3.2mm)
20	Clay		Clay: Red brown, soft sticky clay with moderate plasticity. Minor trace siltstone and gravel (contamination?).	25m: Q= 20 L/s		27m PVC endcap
30			Clay: Red brown high plasticity clay with small cuttings.	Airlift Results Q= 17.5L/s EC= 160.5mS/cm TDS= 105.0ppk, pH= 6.82 Temp= 26.7 C		27-32m fallback

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COMPOSITE BORE LOG

Bore No: LYSP007

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 4/11/2020
Finish: 7/11/2020
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Air
Fluid: Air
Bit Record: 6m (17.5"), 34m (12.25")
Casing Stickup: 0.31m

Elevation (GL): 494 mAHD
Easting: 248859
Northing: 7033266
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.37 mbtoc **Date of SWL:** 11/11/2020 **First Water Strike (mbgl):** 8m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Alluvium: Red-brown to cream, well to moderately sorted silty sand. Minor gravels. Minor calcrete alteration.	**Laboratory Results** Potassium: 3,180 mg/L Magnesium: 6,150 mg/L SO4: 22,600 mg/L TDS: 177,395 mg/L Specific Gravity: 1.1221 g/cm3 FWS 8m		0-4.5m sanitary cement seal
	Gravel		Gravel: Cream to red-brown, poorly sorted gravels. Predominantly semi-consolidated silt/sand composition with some siltstone/laterite fragments. Sub-angular to rounded. Patchy calcrete alteration.			0-6m 12" steel surface casing 0-15.7m 8" class 12 blank PVC
10	Gravelly Clay		Gravelly Clay: Red-brown, soft clay with minor silt & sand. Minor poorly sorted siltstone/laterite fragments & calcrete gravels, angular to sub-rounded. Some calcrete alteration.	13m: Q= 0.1 L/s		4.5-33.7m gravel pack (1.6-3.2mm)
20	Siltstone		Siltstone: Cream to red-brown, poorly sorted siltstone/laterite fragments. Angular to sub-rounded, patchy calcrete alteration. Some calcrete gravels. Minor silt & sand.	19m: Q= 2 L/s 25m: Q= 8.5 L/s		15.7-33.7m 8" class 12 slotted PVC (1mm aperture)
30	Granite		Granite: Residual / skeletal granite, extremely weathered. Predominantly white with minor pink to red-brown gravels. Large, angular chert fragments (up to ~5cm) 28-30m, likely occurring as veins.			
			Granite: Moderately weathered, medium to coarse grained. Minor large chert fragments occur throughout interval. Minor chlorite alteration. Trace calcrete (clean white & very fine-grained).	31m: Q= 11 L/s 37m: Q= 12 L/s Airlift Results Q= ~12-15L/s EC= 157.2mS/cm TDS= 100.7ppk, pH= 6.84 Temp= 27.0 C		33.7m PVC endcap 33.7-37m fallback

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COMPOSITE BORE LOG

Bore No: LYSP010

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 14/11/2020
Finish: 18/11/2020
Drilled By: Acqua Drill
Logged By: A. Edgar

Drilling Method: Air
Fluid: 0-6m Air, 6-50m mud
Bit Record: 6m (17.5"), 50m(12.25")
Casing Stickup: 0.98m

Elevation (GL): 490 mAHD
Easting: 244126
Northing: 7036596
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 4.32 mbgl **Date of SWL:** 9/12/2020 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Alluvium & Calcrete		Alluvium: Red, well sorted alluvial sand with minor gravel.			
			Calcrete: Red brown, well rounded, moderately sorted gravel and sand with patchy calcrete alteration.	SWL: 4.32 mbgl		0-4.5m sanitary cement seal 0-6m 12" steel surface casing
10	Siltstone & Clay		Siltstone: Red brown, well sorted sub to well rounded siltstone gravels with minor patchy calcrete. Minor clay. Additional clay may have been lost through mud circulation and sieve sampling technique. Concrete contamination in chips.	**Laboratory Results** K: 5,550 mg/L Mg: 5,290 mg/L SO4: 17,900 mg/L TDS: 200,793 mg/L SG: 1.1389 g/cm3		0-21m 8" class 12 blank PVC
			Gravelly Clay: Red brown, well sorted, well rounded siltstone gravel with increase in sand and clay content.			
20			Sandy Clay: Thick red brown clay with high sand and silt content. Minor fine siltstone gravels.			4.5-50m gravel pack (1.6-3.2mm)
	Calcrete		Calcrete: White to orange-cream squishy, soft calcrete clay with low plasticity. Minor small hard calcrete "gravels". Trace siltstone and quartz inclusions in calcrete.			
30	Granite Sand		Sand: Quartz of sand size, likely from highly weathered granite basement rock. Very well sorted, sub angular with orange tint from fe staining. Fine grained sand visible on mud puppy. Minor calcrete (contamination?)			21-45m 8" class 12 slotted PVC (1mm aperture)
40				Airlift Results Q= 11L/s EC= 174.5mS/cm TDS= 111.7ppk, pH= 6.82 Temp= 27.5 C pH= 6.48		
	Granite		Basement: Orange cream weathered bedrock of medium grained felsic composition (granite). Fe altered. Quartz rich. Minor calcrete (contamination?).			45m PVC endcap 45-50m Gravel pack / fallback
50						

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COMPOSITE BORE LOG

Bore No: LYSP011

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 8/12/20
Finish: 17/12/2020
Drilled By: Acqua Drill
Logged By: A. Edgar

Drilling Method: Mud
Fluid: Mud
Bit Record: 6m (17.5"), 32m (12.25") 55m(6.5")
Casing Stickup: 0.66m

Elevation (GL): 493mAHD
Easting: 239921
Northing: 7036515
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 0.79 mbgl **Date of SWL:** 19/12/2020 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
10	Clay		Clay: Red-brown, sticky, moderate to low plasticity clay. Minor silt 0-4m.	SWL: 0.79 mbgl		0-6m sanitary cement seal
						0-11m 12" steel surface casing and cement seal
				Laboratory Results K: 6840mg/L, Mg: 9320mg/L, SO4: 29800mg/L, TDS: 268357mg/L, SG: 1.1835g/cm3		0-18m 8" class 12 blank PVC
20			Clay: Red-brown sticky, moderate to high plasticity. Very small cuttings 12-22m.			
	Gravel		Gravel: Red-brown fine gravels. Quartz rich, subangular, well sorted. Minor clay.			6-32m gravel pack (1.6-3.2mm)
						18-30m 8" class 12 slotted PVC (1mm aperture)
30			Clay: Fat channel clays, grey, low plasticity, large cuttings. Very slow drilling.			30m PVC endcap
				Airlift Results Q= 2 L/s EC= 170.1 mS/cm TDS= 109.2 ppk, Temp= 29.4 C pH= 5.51		30-32m Gravel pack / fallback (filling 12" diameter)
40	Clay					
						32-55m Gravel pack / fallback (filling 6" diameter)
50						

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COMPOSITE BORE LOG

Bore No: LYSP012

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 16/04/2021
Finish: 18/04/2021
Drilled By: Acqua Drill
Logged By: A. Edgar

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 32m (12.25")
Casing Stickup: 0.55 m

Elevation (GL): 498 (handheld)
Easting: 239521 (handheld)
Northing: 7037707 (handheld)
Projection: GDA94 MGA ZONE 51

Static Water Level (mbgl): 0.78 **Date of SWL:** 23/04/21 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Clay		Alluvium: Alluvial silt: Red brown silt with minor sand and clay.			0-5m sanitary cement seal
	Clay		Alluvium: Sand & Clay: Red brown silt, sand, sticky clay, and minor gravel with trace rounded quartz.	**Laboratory Results** K: 6,660 mg/L Mg: 8,480 mg/L SO4: 27,900 mg/L TDS: 261,445 mg/L SG: 1.1824 g/cm3		0-6m 12" steel surface casing, and cement.
10	Clay		Clay: Red brown, sticky clay with minor hard clay gravel lumps giving gritty feel.			0-18m 8" blank PVC, Class 12.
20	Gravel & Clay		Gravelly Clay: Red brown, sticky clay with hard clay gravel lumps, minor rounded quartz gravel and minor fine sand lenses.	**Airlift Results** Q= 3.5 L/s EC= 186.3 mS/cm TDS= 119.1 ppk, pH= 6.53 Temp= 25.2 C.		0-32m gravel pack, 1.6-3.2mm 18-32m slotted (1mm aperture) 8" PVC screens
30	Clay		Clay: Grey thick tertiary clay with low plasticity.			30m end-cap

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COMPOSITE BORE LOG

Bore No: LYSP013

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 23/04/2021
Finish: 28/04/2021
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 31.5m (12.25")
Casing Stickup: 0.6 m

Ground Elevation: 490 (handheld)
Easting: 239849 (handheld)
Northing: 7039280 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 0.69 **Date of SWL:** 25/05/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Clay		Clay: Red-brown clay with high (30-50%) silt content. Very gritty texture. Minor gypsum and salt crust. Minor coarse quartz-rich coarse sand to fine gravel 4-6m.	SWL: 0.69mbgl on 25/05/2021 **Laboratory Results** K: 6,170 mg/L Mg: 8,350 mg/L SO4: 24,900 mg/L TDS: 254,406 mg/L SG: 1.1813 g/cm3		0-5.5m sanitary cement seal 0-6m 12" steel surface casing
10	Clay		Clay: Red-brown clay with some (20-30%) silt. Gritty texture. Soft, low plasticity, Minor quartz-rich coarse sand & silcrete gravels.			0-17m 8" class 12 blank PVC (ID=203mm)
			Clay: Red-brown clay with minor to trace silt (decreasingh down hole). Soft, low plasticity, sticky. Trace sand.			5.5-29m gravel pack (1.6-3.2mm)
20	Gravelly Clay		Gravelly Clay: Red-brown, soft, low plasticity clay with some (~20%) moderately sorted silcrete fragments/gravels. Minor silt/fine sand. Trace coarse quartz sand.			17-29m 8" class 12 slotted PVC (1mm aperture)
	Fat Channel Clay		Clay: Grey fat channel clay with minor pink/purple colourations. Moderate plasticity. Minor silt/fine sand.	Airlift Results Q= 1.5 L/s EC= 187.0 mS/cm TDS= 119.7 ppk, pH= 6.75 Temp= 24.5 C		29m PVC endcap
30						29-31.5m gravel pack / fallback

COMPOSITE BORE LOG

Bore No: LYSP014

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Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 18/06/2021
Finish: 23/06/2021
Drilled By: Acqua Drill
Logged By: K. Pannell

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 30m (12.25")
Casing Stickup:

Elevation (GL): 491 mRL (handheld)
Easting: 240223 (handheld GPS)
Northing: 7035710 (handheld GPS)
Projection: GDA94 MGA ZONE 51

Static Water Level (mbgl): 0.76 **Date of SWL:** 7/07/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Lakebed Semiments		Clay and Silt: Red-brown, lakebed sediments, sticky clay dominant, lesser silt, trace gravels, large gypsum crystals from 2-6m	**Laboratory Results**		0-5m sanitary cement seal
				Potassium: 6,800 mg/L		0-6m 12" steel surface casing
			Clay and Silt: Red-brown, reduced clay content, minor coarse gravels, angular, up to 1cm in diameter	Magnesium: 8,900 mg/L		
				SO4: 28,000 mg/L		
10				TDS: 262,208 mg/L		0-17.1m 8" blank PVC, Class 12
				Specific Gravity: 1.2306 g/cm3		
	Alluvial Clay		Clay: Red-brown, sticky clay dominant, soft. Trace silt and gravels, reduced clay content from 16-20m			4.5-29.1m gravel pack, 1.6-3.2mm
20						17.1-29.1m slotted PVC (1mm aperture), Class 12
	Alluvial Gravels		Gravelly Clay: Brown, gravel dominant layer, poorly sorted, angular, weathered basement and cap rock material, trace quartz, minor soft brown clay, base of alluvials	**Airlift Results** Q= 3.5 L/s EC= 205 mS/cm TDS= 118 ppk, pH= 6.87 Temp= 20 C		29.1m end-cap
			Clay: Grey, channel clay, low to moderate plasticity, sticky, dark red streaking, cut into strips by blade bit			29.1-30m fallback
30						

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COMPOSITE BORE LOG

Bore No: LYSP014A

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 25/06/2021
Finish: 29/06/2021
Drilled By: Acqua Drill
Logged By: J. Phillips

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (14.75"), 30m (10")
Casing Stickup: 0.57 m

Elevation (GL): 491 mRL (handheld)
Easting: 240212 (handheld GPS)
Northing: 7035678 (handheld GPS)
Projection: GDA94 MGA ZONE 51

Static Water Level (mbgl): 0.75 **Date of SWL:** 8/07/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Lakebed Semiments		Clay and Silt: Red-brown, lakebed sediments, sticky clay dominant, lesser silt, trace gravels, large gypsum crystals from 2-6m			0-4.5m sanitary cement seal 0-6m 10" steel surface casing
			Clay and Silt: Red-brown, reduced clay content, minor coarse gravels, angular, up to 1cm in diameter			0-17m 6" blank PVC, Class 12
10	Alluvial Clay		Clay: Red-brown, sticky clay dominant, soft. Trace silt and gravels, reduced clay content from 16-20m			4.5-29m gravel pack, 1.6-3.2mm
20	Alluvial Gravels		Gravelly Clay: Brown, gravel dominant layer, poorly sorted, angular, weathered basement and cap rock material, trace quartz, minor soft brown clay, base of alluvials	**Airlift Results** Q= 3 L/s		17-29m 6" slotted PVC (1mm aperture), Class 12 29m end-cap
			Clay: Grey, channel clay, low to moderate plasticity, sticky, dark red streaking, cut into strips by blade bit			29-30m fallback
30						

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COMPOSITE BORE LOG

Bore No: LYSP014B

Client: SO4 **Project:** Lake Way **Pad ID:** **Location:** Paleochannel

Start: 24/06/2021
Finish: 24/06/2021
Drilled By: Acqua Drill
Logged By: J. Phillips

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (8.5")
Casing Stickup: 0.86m

Elevation (GL): 491 mRL (handheld)
Easting: 240220 (handheld GPS)
Northing: 7035719 (handheld GPS)
Projection: GDA94 MGA ZONE 51

Static Water Level (mbgl): 0.81 **Date of SWL:** 14/07/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Lakebed Semiments		Clay and Silt: Red-brown, lakebed sediments, sticky clay dominant, lesser silt, trace gravels, large gypsum crystals from 2-6m			0-0.5m sanitary cement seal 0-1m 50mm blank PVC, Class 12 0.5-6m gravel pack, 1.6-3.2mm 1-6m 50mm slotted PVC (1mm aperture), Class 12 6m end-cap

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COMPOSITE BORE LOG

Bore No: LYSP015

Client: SO4 **Project:** Lake Way **Pad ID:** T2-1 **Location:** Paleochannel

Start: 30/06/2021
Finish: 13/07/2021
Drilled By: Acqua Drill
Logged By: J. Phillips

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 30m (12.25")
Casing Stickup: 0.68m

Elevation (GL): 485 mAHD
Easting: 239817 (handheld)
Northing: 7038796 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 1.85 **Date of SWL:** 14/07/21 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Clay		Clay: Red-brown clay with high silt content. Some coarse and fine sand. Gritty texture.	**Laboratory Results** K: 6,530 mg/L Mg: 8,860 mg/L SO4: 28,000 mg/L TDS: 274,842 mg/L SG: 1.1838 g/cm3		0-4.5m sanitary cement seal 0-6m 12" steel surface casing
10	Clay		Clay: Red-brown clay with minor to trace silt and sand. Soft, low plasticity, sticky.			0-17m 8" class 12 blank PVC (ID=203mm) 4.5-30m gravel pack (1.6-3.2mm)
20	Gravelly Clay		Gravelly Clay: Red-brown, soft, low plasticity clay with some moderately sorted silcrete fragments/gravels. Minor silt/fine sand. Trace coarse quartz sand.	Airlift Results Q= 1.5-2 L/s EC= 170.3 mS/cm TDS= 108.9 ppk, pH= 6.13		17-29m 8" class 12 slotted PVC (1mm aperture)
30	Channel Clay		Clay: Grey fat channel clay with minor pink/purple colourations. Moderate plasticity. Trace silt/fine sand.			29m PVC endcap

COMPOSITE BORE LOG

Bore No: LYSP016

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Client: SO4 **Project:** Lake Way **Pad ID:** T2-2 **Location:** Paleochannel

Start: 13/07/2021
Finish: 16/07/2021
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 30m (12.25")
Casing Stickup: 0.58m

Elevation (GL): 489 mAHD
Easting: 239747 (handheld)
Northing: 7038728 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.08 **Date of SWL:** 26/07/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Clay		Clay: Red-brown clay with high silt content. Soft, very low plasticity. Some coarse and fine sand. Gritty texture.	**Laboratory Results** K: 6,650 mg/L Mg: 8,970 mg/L SO4: 28,600 mg/L TDS: 278,498 mg/L SG: 1.1854 g/cm3		0-6.5m sanitary cement seal
			Clay: Darker red-brown clay. Soft, low plasticity, sticky. Minor silt.			0-6m 12" steel surface casing
10	Clay		Clay: Red-brown clay with minor to trace silt and sand. Soft, very low to low plasticity, sticky.			0-16m 8" class 12 blank PVC (ID=203mm)
						6.5-30m gravel pack (1.6-3.2mm)
20	Gravelly Clay		Gravelly Clay: Red-brown wth minor light grey/cream cay. Soft, low plasticity. Some poorly sorted gravel, sand and silt. Siltstone/laterite fragments (up to ~2cm) 24-26m. Trace gravel 26-27.5m, increase in silt content.	Airlift Results Q= 2.5 L/s EC= 171.4 mS/cm TDS= 109.7 ppk, pH= 6.88		16-28m 8" class 12 slotted PVC (1mm aperture)
	Channel Clay		Clay: Grey channel clay with minor pink/purple colourations. Moderate plasticity.			28m PVC endcap
30						

COMPOSITE BORE LOG

Bore No: LYSP017

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Client: SO4 **Project:** Lake Way **Pad ID:** T2-3 **Location:** Paleochannel

Start: 17/07/2021
Finish: 19/07/2021
Drilled By: Acqua Drill
Logged By: J. Phillips

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 30m (12.25")
Casing Stickup: 0.47m

Elevation (GL): 487 mAHD
Easting: 239516 (handheld)
Northing: 7038503 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.36 **Date of SWL:** 26/07/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Clay		Clay: Red-brown clay.Soft, very low plasticity. Salt crust. Some fine sand at 3m. Gritty texture.	**Laboratory Results**		
				K: 6,890 mg/L		0-6m sanitary cement seal
			Clay: Darker red-brown clay. Soft, low plasticity, sticky.	Mg: 8,610 mg/L		
				SO4: 29,000 mg/L		0-6m 12" steel surface casing
				TDS: 276,967 mg/L		
	Clay		Clay: Red-brown clay with minor to trace silt and sand. Soft, very low to low plasticity, sticky.	SG: 1.1823 g/cm3		
10						0-16.5m 8" class 12 blank PVC (ID=203mm)
						6-30m gravel pack (1.6-3.2mm)
20	Gravelly Clay		Gravelly Clay: Red-brown clay. Soft, low plasticity. Some poorly sorted gravel, sand and silt.	Airlift Results Q= 2 L/s EC= 168.8 mS/cm TDS= 108.7 ppk, pH= XX Temp= 21.6 C		16.5-28.5m 8" class 12 slotted PVC (1mm aperture)
	Channel Clay		Clay: Grey channel clay. Firm. Moderate plasticity. Trace silt			28.5m PVC endcap
30						

COMPOSITE BORE LOG

Bore No: LYSP018

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Client: SO4 **Project:** Lake Way **Pad ID:** T2-4 **Location:** Paleochannel

Start: 20/07/2021
Finish: 22/07/2021
Drilled By: Acqua Drill
Logged By: J. Phillips

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 30m (12.25")
Casing Stickup: 0.6m

Elevation (GL): 490 mAHD
Easting: 239233 (handheld)
Northing: 7038227 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.01 **Date of SWL:** 26/07/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Clay		Clay: Red-brown clay.Soft, very low plasticity. Salt crust. Some fine sand at 3m. Gritty texture.	**Laboratory Results** K: 7,070 mg/L Mg: 8,580 mg/L SO4: 28,600 mg/L TDS: 258,025 mg/L SG: 1.1825 g/cm3		0-6m sanitary cement seal
			Clay: Darker red-brown clay. Soft, low plasticity, sticky.			0-6m 12" steel surface casing
10	Clay		Clay: Red-brown clay with minor to trace silt and sand. Soft, very low to low plasticity, sticky.			0-16m 8" class 12 blank PVC (ID=203mm)
						6-30m gravel pack (1.6-3.2mm)
20	Gravelly Clay		Gravelly Clay: Red-brown clay. Soft, low plasticity. Some poorly sorted gravel, sand and silt.	Airlift Results Q= 3 L/s EC= 170.2 mS/cm TDS= 108.9 ppk, pH= 6.4 Temp= 20.5 C		16-28m 8" class 12 slotted PVC (1mm aperture)
	Channel Clay		Clay: Grey channel clay. Firm. Moderate plasticity. Trace silt			28m PVC endcap
30						

COMPOSITE BORE LOG

Bore No: LYSP019

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Client: SO4 **Project:** Lake Way **Pad ID:** T2-5 **Location:** Paleochannel

Start: 30/07/2021
Finish: 2/08/2021
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 30m (12.25")
Casing Stickup: 0.50m

Elevation (GL): 489 mAHD
Easting: 239123 (handheld)
Northing: 7038114 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.11 **Date of SWL:** 4/08/21 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Clay		Clay: Red-brown clay with minor silt. Gritty texture. Soft, low plasticity. Silt increase 18-22m.	**Laboratory Results** K: 7,170 mg/L Mg: 8,510 mg/L SO4: 28,800 mg/L TDS: 282,753 mg/L SG: 1.1868 g/cm3		0-6m sanitary cement seal 0-6m 12" steel surface casing
10						0-16.5m 8" class 12 blank PVC (ID=203mm)
20	Sandy Clay		Sandy Clay: Red-brown clay, low plasticity, sticky. High sand and silt content, very gritty texture. Trace gravel.			6-30m gravel pack (1.6-3.2mm) 16.5-28.5m 8" class 12 slotted PVC (1mm aperture)
			Sandy Clay: Firm red-brown clay, very sticky. Dries to hard clay. High sand & silt content. Trace gravel.	Airlift Results Q= 2-2.5 L/s EC= 170.3 mS/cm TDS= 109.4 ppk, pH= 6.48 Temp= 24.0 C		
30	Channel Clay		Clay: Grey channel clay. Moderate plasticity.			28.5m PVC endcap

COMPOSITE BORE LOG

Bore No: LYSP020

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Client: SO4 **Project:** Lake Way **Pad ID:** T2-6 **Location:** Paleochannel

Start: 3/08/2021
Finish: 5/08/2021
Drilled By: Acqua Drill
Logged By: J. Philips

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 30m (12.25")
Casing Stickup: 0.52m

Elevation (GL): 490 mAHD
Easting: 239012 (handheld)
Northing: 7038008 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.10 **Date of SWL:** 6/08/21 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Clay: Red-brown clay with minor silt and sand. Gritty texture. Soft, low plasticity. Increase in silt from 12-18m.	**Laboratory Results** K: 7,200 mg/L Mg: 8,990 mg/L SO4: 30,300 mg/L TDS: 282,753 mg/L SG: 1.1868 g/cm3		0-6m sanitary cement seal 0-6m 12" steel surface casing
10						0-16.5m 8" class 12 blank PVC (ID=203mm)
20			Sandy Clay: Red-brown, low plasticity, Coarse sub-angular to sub-rounded sand present, poorly sorted, trace gravel, very sticky matrix.			6-30m gravel pack (1.6-3.2mm)
			Sandy Clay: --- Increasing sand and gravel, white clay from 25-26m, coarse sand from 26-27.5m.	Airlift Results Q= 2.5 L/s Final water quality not measured		16.5-28.5m 8" class 12 slotted PVC (1mm aperture)
30			Clay: Grey paleochannel clay, medium plasticity, becoming firm from 27.8m.			28.5m PVC endcap

COMPOSITE BORE LOG

Bore No: LYSP021

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Client: SO4 **Project:** Lake Way **Pad ID:** T2-7 **Location:** Paleochannel

Start: 6/08/2021
Finish: 8/08/2021
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 36m (12.25")
Casing Stickup: 0.49

Elevation (GL): 488 mAHD
Easting: 238523 (handheld)
Northing: 7037525 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.26 **Date of SWL:** 11/8/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Clay		Clay: Red-brown alluvial clay with minor silt. Gritty texture. Soft, low plasticity.	**Laboratory Results** K: 6,960 mg/L Mg: 8,360 mg/L SO4: 29,100 mg/L TDS: 261,371 mg/L SG: 1.1865 g/cm3		0-6m sanitary cement seal 0-6m 12" steel surface casing
10	Silty Clay		Clay: As above, but banded with soft, low plasticity and firmer, moderate plasticity clay (plasticity increasing down hole). Minor fine sand 15-18m. Trace gravel throughout.			0-17m 8" class 12 blank PVC (ID=203mm)
20	Sandy / Silty Clay		Sandy Clay: Red-brown to yellow-brown clay with minor sand and silt. Very gritty texture. Soft, low plasticity. Minor gravel lenses.			6-36m gravel pack (1.6-3.2mm)
	Sandy / Silty Clay		Clay: Light grey/cream clay with minor silt, sand and gravel. Very soft, very low plasticity, sticky. Trace calcrete fragments.			
	Sandy / Silty Clay		Sandy Clay: Red-brown to yellow-brown clay with minor sand, silt & gravel. Very gritty texture. Soft, low plasticity.	Airlift Results Q= 2.5 L/s EC: 170.3 mS/cm, pH: 6.54 TDS: 109.0 ppk, T: 24.0 C		
30	Channel Clay		Clay: Grey channel clay with purple, red & yellow colourations. Moderate plasticity.			17-35m 8" class 12 slotted PVC (1mm aperture)
	Granite		Granite: White & red (turning to yellow 35-36m) highly weathered granite. Heavily oxidised, quartz rich. Moderately hard to soft. Mostly angular to sub-angular fragments (up to ~2cm). Minor white clay.			35m PVC endcap

COMPOSITE BORE LOG

Bore No: LYSP022

SO4
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Client: SO4 **Project:** Lake Way **Pad ID:** T2-8 **Location:** Paleochannel

Start: 9/08/2021
Finish: 19/08/2021
Drilled By: Acqua Drill
Logged By: J. Meertens

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 40m (12.25")
Casing Stickup: 0.51 m

Elevation (GL): 496 mAHD
Easting: 238082 (handheld)
Northing: 7037095 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.13 **Date of SWL:** 29/08/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Clay		Clay: Red-brown alluvial clay with minor silt and sand. Gritty texture. Soft, low plasticity 0-15m, moderate plasticity 15-16m. Minor gypsum 0-2m.	**Laboratory Results** K: 7,210 mg/L Mg: 8,570 mg/L SO4: 28,700 mg/L TDS: 258,117 mg/L SG: 1.183 g/cm3		0-6m sanitary cement seal 0-6m 12" steel surface casing 0-15m 8" class 12 blank PVC (ID=203mm)
10						
20	Gravel / Silcrete		Gravel: Moderately well sorted fine to coarse gravel and coarse sand. Angular to sub-rounded. Banded firm and soft layering (noted by driller, bit refusal at 17m). Angular silcrete fragments up to ~3cm. Trace angular quartz eyes. Minor clay (likely contamination).			6-40m gravel pack (1.6-3.2mm)
	Gravelly Clay		Gravelly Clay: Red-brown sandy alluvial clay (soft, low plasticity, gritty texture) with high gravel & silcrete content (30-50%), occurring as bands 21-24m. Reduced gravel 24-26m. Minor soft yellow clay.	Airlift Results Q= 2 L/s EC: 200 mS/cm, pH: 6.98 TDS: 120.3 ppk		
	Sandy Clay		Sandy Clay: Yellow-grey clay, soft, low plasticity with minor sand & silt. Gritty texture. Trace gravel (contamination?).			
30	Clay		Clay: Very soft, very low plasticity, light grey clay with some dark red clay, silt & sand (heavily oxidised). Minor silcrete fragments and fine gravel / coarse sand throughout, likely occurring as thin lenses. Minor grey & yellow firm clay / soft mudstone 34-40m. Trace quartz.			15-39m 8" class 12 slotted PVC (1mm aperture)
40						39m PVC endcap

COMPOSITE BORE LOG

Bore No: LYSP023

SO4

Ground Floor
239 Adelaide Terrace
Perth, WA 6000
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www.so4.com.au

Client: SO4 **Project:** Lake Way **Pad ID:** GT070 / GP1_07 **Location:** Paleochannel

Start: 20/08/2021
Finish: 21/08/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 4.5m (15"), 29m (12.25")
Casing Stickup: 0.57 m

Elevation (GL): 491 mAHD
Easting: 245837 (handheld)
Northing: 7036124 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.93 **Date of SWL:** 26/08/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Alluvials		Alluvium: Red-brown, coarse alluvial gravel, large angular cuttings up to 3cm, poorly sorted, calcrete alteration on surfaces	**Laboratory Results** K: 4,730 mg/L Mg: 6,010 mg/L SO4: 20,700 mg/L TDS: 195,867 mg/L SG: 1.1289 g/cm3		0-2.5m sanitary cement seal 0-4.5m 12" steel surface casing
10	Siltstone		Silty Sand: Brown, silt dominant with lesser fine sand, coarser gravel layer from 10-12m with calcrete alteration on surfaces, angular, transition into siltstone from 12-14m Siltstone: Red-brown, large cuttings of siltstone, hard, angular and flaked, contain gravel inclusions, calcrete alteration and mottled surfaces from 16-20m, trace silt throughout, likely main yielding zone			0-16.5m 8" class 18 blank PVC (ID=193mm) 2.5-28.5m gravel pack (1.6-3.2mm)
20	Sandy Alluvial Clay		Gravelly Clay: Brown to cream, transition from siltstone gravels into soft silty clay, calcrete alteration on gravels Clay: Red-brown, soft and sticky clay dominant, high silt content and lesser sand	Airlift Results Q= 12 L/s EC: 146.4 mS/cm, pH: 6.52 TDS: 93.6 ppk, T: 26.8 C		16.5-28.5m 8" class 12 slotted PVC (1mm aperture) (ID=193mm)
			Sandy Clay: Brown to cream, soft calcrete clay, low plasticity, gritty with high sand content			
	Clay		Clay: Grey channel clay assumed, missing sample			28.5m PVC endcap 28.5-29m fallback

COMPOSITE BORE LOG

Bore No: LYSP024

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Client: SO4 **Project:** Lake Way **Pad ID:** PT017 / GP1_01 **Location:** Paleochannel

Start: 21/08/2021
Finish: 22/08/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (12"), 30m (10")
Casing Stickup: 0.58 m

Elevation (GL): 492 mAHD
Easting: 239999 (handheld)
Northing: 7041356 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 4.94 **Date of SWL:** 26/8/2021 **First Water Strike (mbgl):** 7

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Silty Sand: Red-brown alluvial silty sand. Fine grained, well sorted. Minor calcrete as thin bands.	**Laboratory Results**		0-2.5m 10" steel surface casing 0-2m sanitary cement seal
			Calcrete: Orange-cream, medium to fine grained, moderately hard. Becoming more brittle / less consolidated down hole.	K: 5,000 mg/L Mg: 7,210 mg/L SO4: 23,400 mg/L TDS: 212,540 mg/L SG: 1.1421 g/cm3		0-6m 6" class 12 blank PVC (ID=150mm)
10			Calcrete: White to orange-cream calcrete with high (30-50%) red-brown silty sand content. Calcrete is moderately hard but brittle. Complete cementation 10-12m, partial otherwise.			6-30m 6" class 12 slotted PVC (1mm aperture) (ID=150mm)
			Siltstone: Red-brown & white silcrete, medium grained, moderately hard. Consolidated but brittle. Composition as above but transition to more siliceous cementation, although some calcareous cementation still present.			
20			Clayey Sand: Red-brown silty sand with high (30-50%) clayontent. Fine to medium grained, moderately wel sorted. Trace gravel. Partially cemented 22-24m.			2.5-30m gravel pack (1.6-3.2mm)
			Gravel and Sand: Mix of red-brown fine to coarse sand & silt with some clay & gravel. Poorly sorted. Increase in red & grey clay & gravel content 26-28m with thin silcrete bands. Gravel is rounded to angular. Decreased clay content 28-30m.	Airlift Results Q= 2.85 L/s EC: XX mS/cm, pH: XX TDS: XX ppk, T: XX C		
30						30m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP025

Client: SO4 **Project:** Lake Way **Pad ID:** BT006 / GP1_08 **Location:** Paleochannel

Start: 21/08/2021
Finish: 22/08/2021
Drilled By: Harrington
Logged By: J.Philips / K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 4.5m (15"), 35m (12.25")
Casing Stickup: 0.51 m

Elevation (GL): 493 mAHD
Easting: 245085 (handheld)
Northing: 7035973 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 6.33 **Date of SWL:** 26/08/2021 **First Water Strike (mbgl):** 15

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Alluvium: Red-brown to white, large sub-angular alluvium, ~1cm, ~40% with calcrete alteration, trace silt	**Laboratory Results**		0-2.5m sanitary cement seal
			Silty Sand: Red-brown, soft silty sand matrix, minor large fragments of alluvium	K: 5,340 mg/L Mg: 5,610 mg/L SO4: 18,600 mg/L TDS: 198,012 mg/L SG: 1.1401 g/cm3		0-5.5m 12" steel surface casing 0-10.5m 8" class 18 blank PVC (ID=193mm)
			Gravel: Dark brown, coarse alluvial gravel layer, moderately sorted, sub-angular			
10	Siltsone		Siltstone: Light brown to cream, coarse siltstone with calcrete alteration/cementing throughout, flakey fragments up to 3cm, sand inclusions, fairly massive			
			Siltstone: Light brown to cream, as above but finer gravel, loose	15m: FWS 17m: 1 L/s		10.5-34.5m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
20			Gravelly Clay: Red-brown, coarse alluvial gravel with reduced calcrete, lesser soft silty clay, reduced returns			2.5-34.5m gravel pack (1.6-3.2mm)
	Alluvial Clay		Gravelly Clay: Red-brown, as above but with increased silty clay and reducing gravels with depth	23m: 2.5 L/s 29m: 2.8 L/s		
30	Channel Clay		Clay: Light grey, top of channel clay, contains high sand content, possible contaminantion or part of gravel lense on contact	Airlift Results Q= 3 L/s		34.5m PVC endcap 34.5-35m fallback

COMPOSITE BORE LOG

Bore No: LYSP026

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239 Adelaide Terrace
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Client: SO4 **Project:** Lake Way **Pad ID:** PT012 / GP1_02 **Location:** Paleochannel

Start: 22/08/2021
Finish: 23/08/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (12"), 30m (10")
Casing Stickup: 0.63 m

Elevation (GL): 491 mAHD
Easting: 239506 (handheld)
Northing: 7041348 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.66 **Date of SWL:** 26/8/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Silty Sand: Red-brown alluvial silty sand. Fine grained, well sorted. Minor calcrete.	**Laboratory Results**		0-2.5m sanitary cement seal 0-2.5m 10" steel surface casing
			Calcrete: White to orange-cream, fine grained. Coherent, moderately hard 1-2m, crumbly 2-4m. Minor coarse sand & gravel 1-2m.	K: 5,280 mg/L Mg: 7,690 mg/L		
			Silty Sand: Red-brown alluvial silty sand with minor clay. Fine grained, moderately to well sorted. Some calcrete alteration / cementation.	SO4: 25,000 mg/L TDS: 220,977 mg/L SG: 1.1461 g/cm3		
10			Calcrete: Orange-cream, medium to coarse grained, moderately well sorted. Moderately hard, but brittle.			0-12m 6" class 12 blank PVC (ID=150mm)
			Siltstone: Red-brown silcrete, medium to coarse grained, moderately well sorted. Moderately hard. Composition as above (8-14m) but transition to more siliceous cementation, although some calcareous cementation still present.			
			Sandy Clay: Red-brown moderate plasticity clay with some silt & sand. Moderately well sorted. Gritty texture. Trace gravel.			12-29m 6" class 12 slotted PVC (1mm aperture) (ID=150mm)
			Clay: Red-brown clay with minor silt. Low to moderate plasticity. Trace sand & gravel.			
20			Gravel and Sand: Mix of red-brown fine to coarse sand & silt with some clay & gravel. Poorly sorted. Increase in red & grey clay 24-26m with thin silcrete bands. Increased gravel, decreased clay content 26-28m. Gravel is rounded to angular, quartz rich.	Airlift Results Q= 3.5 L/s		2.5-29m gravel pack (1.6-3.2mm)
			Sand: Red-brown fine to coarse grained sand with minor silt & clay. Moderately well sorted. Trace gravel.			29m PVC endcap 29-30m fallback
30			Clay: Red & grey channel clay. Low to moderate plasticity.			

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COMPOSITE BORE LOG

Bore No: LYSP026A

Client: SO4 **Project:** Lake Way **Pad ID:** PT012 / GP1_02 **Location:** Paleochannel

Start: 24/08/2021
Finish: 3/09/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (12"), 28.7m (10")
Casing Stickup: 0.55 m

Elevation (GL): 480mAHD
Easting: 239489 (handheld)
Northing: 7041347 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.36 mbgl **Date of SWL:** 12/9/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: White to orange-cream 0-2m, darker red-brown 2-5m. Fine grained. Coherent, medium to soft hardness. Crumbly 2-4m.	**Laboratory Results** K: 5,160 mg/L Mg: 7,660 mg/L SO4: 24,800 mg/L TDS: 211,198 mg/L SG: 1.1974 g/cm3		0-2.5m sanitary cement seal 0-2.5m 10" steel surface casing
10	Clayey Sand		Clayey Sand: Red-brown alluvial fine to coarse sand with some clay, silt & gravel. Poorly sorted. Some calcrete fragments throughout.			0-10.5m 6" class 12 blank PVC (ID=150mm)
	Silcrete		Siltstone: Red-brown consolidated sandy clay (silcrete). Fine to coarse grained. Brittle. Minor unconsolidated gravel & clay.			
	Clay		Clay: Red-brown clay with minor silt & sand. Gritty texture. Low to moderate plasticity. Sand increased 16-18m. Trace gravel.			10.5-28.5m 6" class 12 slotted PVC (2mm aperture) (ID=150mm)
20	Gravel & Sand		Gravel and Sand: Mix of red-brown fine to coarse sand with some clay, silt & gravel. Poorly sorted. Gravel is rounded to angular.	Airlift Results Q= 3.7 L/s EC: 164mS/cm, pH: 7.0 TDS: 106ppk, T: 23C		2.5-28.5m gravel pack (3.2-6.4mm) 28.5m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP027

Client: SO4 **Project:** Lake Way **Pad ID:** GT076 / 15_SG **Location:** Paleochannel

Start: 22/08/2021
Finish: 23/08/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 29m (12.25")
Casing Stickup: 0.36 m

Elevation (GL): 496 mAHD
Easting: 246261 (handheld)
Northing: 7035647 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 3.16 **Date of SWL:** 26/08/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Alluvium: Red-brown to cream, coarse alluvial gravel, large angular cuttings up to 3cm, poorly sorted, calcrete alteration on surfaces and cementing, easily broken	**Laboratory Results** K: 4,010 mg/L Mg: 6,120 mg/L SO4: 21,700 mg/L TDS: 187,158 mg/L SG: 1.1265 g/cm3 5.5m: FWS		0-2.5m 12" steel surface casing 0-2.5m sanitary cement seal
			Clay and Silt: Brown, siltstone dominant with lesser soft clay, rounding on large siltstone clasts, brittle, trace calcrete			0-17m 8" class 18 blank PVC (ID=193mm)
10			Siltstone: Red-brown, gravel sized cuttings of siltstone, hard and brittle, angular, contain gravel inclusions, trace silt, clay and calcrete throughout	11m: 1.25 L/s		
			Gravelly Clay: Brown to cream, soft silty clay and siltstone gravels, calcrete alteration			2.5-29m gravel pack (1.6-3.2mm)
			Siltstone: Red-brown, gravel sized cuttings of siltstone with some larger clasts, hard and brittle, angular, contain gravel inclusions, trace silt	17m: 2 L/s		
20			Clay: Red-brown, soft and sticky clay dominant, high silt content, large gravel from 18-20m with transition into clay	23m: 3 L/s Airlift Results Q= 3.3 L/s		17-29m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
			Clay: Grey channel clay, soft, contains thin lense of sub-angular, well sorted quartz gravel from ~26-27m			29m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP028

Client: SO4 **Project:** Lake Way **Pad ID:** PT001 / GP1_03 **Location:** Paleochannel

Start: 23/08/2021
Finish: 23/08/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (12"), 29m (10")
Casing Stickup: 0.78 m

Elevation (GL): 499 mAHD
Easting: 238374 (handheld)
Northing: 7041324 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.56 **Date of SWL:** 26/8/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Diagram	Construction Notes
0	Calcrete		Calcrete: White to cream, loose from 0-2m, more massive from 2-4m	**Laboratory Results** K: 5,230 mg/L Mg: 7,090 mg/L SO4: 24,400 mg/L TDS: 213,663 mg/L SG: 1.1435 g/cm3		0-2.5m sanitary cement seal 0-2.5m 10" steel surface casing
	Clay and Silt		Sandy Clay: Red brown, sand and silt dominant, minor alluvial gravels, increasing clay content from 6m, large siltstone from 8-10m with minor calcrete alteration			0-9m 6" class 12 blank PVC (ID=150mm)
10			Clay and Silt: Light brown, soft clay dominant, lesser silt and gravels, highly weathered siltstone inclusions			
	Alluvial Clay		Clay: Red brown, firm and plastic alluvial clay			9-27m 6" class 12 slotted PVC (1mm aperture) (ID=150mm)
20						2.5-27m gravel pack (1.6-3.2mm)
	Gravelly Clay		Gravelly Clay: Dark brown, reduced plasticity of alluvial clay, coarse alluvial gravels, moderately sorted and transported, hematite dominant, lesser quartz	Airlift Results Q= 2.2 L/s EC: 152.4 mS/cm, pH: 6.98 TDS: 99.8 ppk, T: 23.7 C		27m PVC endcap
	Channel Clay		Clay: Brown to grey, top of grey channel clay, gravel contamination			27-29m fallback

SO4

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COMPOSITE BORE LOG

Bore No: LYSP029

Client: SO4 **Project:** Lake Way **Pad ID:** KT012 / 29_SG **Location:** Paleochannel

Start: 23/08/2021
Finish: 24/08/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 32m (12.25")
Casing Stickup: 0.3 m

Elevation (GL): 489 mAHD
Easting: 245583 (handheld)
Northing: 7035000 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.76 **Date of SWL:** 27/08/2021 **First Water Strike (mbgl):** 5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Sand		Alluvium: Dark brown, alluvial gravels, large clasts, loose and poorly sorted	**Laboratory Results** K: 4,940 mg/L Mg: 7,010 mg/L SO4: 23,600 mg/L TDS: 214,518 mg/L SG: 1.1273 g/cm3		0-3m 12" steel surface casing 0-4m sanitary cement seal
	Calcrete		Calcrete: Light brown to cream, calcrete, large fragments up to 10cm			
			Gravel: Light brown to cream, clacrete gravel, coarse alluvial gravels with calcrete cementing throughout, trace well rounded gravels, firm drilling	5m: FWS, 6.6L/s with bucket, pH=7.3, EC=98mS/cm, TDS=64.7ppt, T=23C		0-13m 8" class 18 blank PVC (ID=193mm)
10	Calcrete & Sand		Sandy Clay: Light brown to cream, soft and puggy calcrete clay with fine sand/silt inclusions, highest sand content 10-12m, increase in clays from 12m, easy drilling in soft ground	10m: 6.6L/s with bucket, 4L/s v-notch (still filling), pH=7.5, EC=101mS/cm, TDS=64.9ppt, T=23C		
	Silcrete		Clay: Red-brown, increased plasticity alluvial clay, reduced silt and sand from 20m and inreasing firmness	16m: 5L/s v-nothch (still filling), pH=7.3, EC=110mS/cm, TDS=70.3ppt, T=24C		
20	Clayey Sand					13-31m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
				23m: 6L/s v-notch		
	Gravel & Sand			Airlift Results Q= 2 L/s EC: 157.5 mS/cm, pH: 7.03 TDS: 101 ppk, T: 24.5 C		4-31m gravel pack (1.6-3.2mm)
				29m: 6L/s v-notch, pH=7.1, EC=125mS/cm, TDS=82.1ppt, T=23C		
30			Gravelly Clay: Brown, thin band of coarse quartz rich gravel, minor clay throughout	32m: 6L/s v-notch, pH=7.1, EC=137mS/cm, TDS=82.3ppt, T=22C		31m PVC endcap
			Clay: Grey, firm grey channel clay			31-32m fallback

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COMPOSITE BORE LOG

Bore No: LYSP030

Client: SO4 **Project:** Lake Way **Pad ID:** C5006 / 34_SG **Location:** Paleochannel

Start: 3/09/2021
Finish: 4/09/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 39m (12.25")
Casing Stickup: 0.46 m

Elevation (GL): 496 mAHD
Easting: 243573 (handheld)
Northing: 7036376 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 8.24 mbgl **Date of SWL:** 12/09/2021 **First Water Strike (mbgl):** 6

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: Cream/white, fine grained, soft. Chalky texture. Damp 5-7m.	**Laboratory Results** K: 4,960 mg/L Mg: 6,460 mg/L SO4: 22,300 mg/L TDS: 196,858 mg/L SG: 1.1457 g/cm3		0-3m sanitary cement seal 0-5.5m 12" steel surface casing
	Clay		Clay: Red-brown alluvial clay with minor silt. Soft, low plasticity. Sticky 7-10m.			
10	Sandy Clay		Sandy Clay: Red-brown alluvial clay with minor fine sand and silt. Soft & crumbly. Minor white-yellow calcrete 14-16m.	Airlift Results Q= 2.5 L/s EC: 163.0 mS/cm, pH: 7.2 TDS: 103 ppk, T: 22 C		0-21m 8" class 18 blank PVC (ID=193mm) 4-39m gravel pack (1.6-3.2mm)
	Clay		Clay: Red-brown alluvial clay with minor silt. Soft, low plasticity. Minor white-yellow hard calcrete 20-24m. Trace quartz rich sand & gravel 28-30m. Wet from 16m.	23m: Q= 0.75L/s, pH=6.44, EC=148mS/cm, TDS=93ppt, T=21.5C 29m: Q= 2L/s, pH=6.74, EC=117mS/cm, TDS=81ppt, T=19C		21-39m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
30	Weathered Granite		Granite: Skeletal granite transitioning into extremely weathered granite down hole. Yellow angular, quartz rich fragments & sand. Very brittle, soft. Heavy oxidation staining. Trace thin white calcrete slivers (heavily fractured zone?).	35m: Q= 6L/s, pH=7.0, EC=179mS/cm, TDS=110ppt, T=16C 39m: Q= 4L/s, pH=7.0, EC=160mS/cm, TDS=101ppt, T=23C		
			Granite: Pink-purple, moderately weathered & fractured. Moderately hard but			39m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP031

Client: SO4 **Project:** Lake Way **Pad ID:** CT037 / 15_GG **Location:** Paleochannel

Start: 5/09/2021
Finish: 5/09/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 51.5m (12.25")
Casing Stickup: 0.3 m (steel)

Elevation (GL): 497 mAHD
Easting: 243375 (handheld)
Northing: 7037344 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 6.23 mbgl **Date of SWL:** 12/09/2021 **First Water Strike (mbgl):** 7

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Silty Sand: Red-brown alluvial sand & silt. Well sorted. Partial cementation, minor silcrete fragments.	**Laboratory Results** K: 5,660 mg/L Mg: 5,850 mg/L SO4: 19,700 mg/L TDS: 199,707 mg/L SG: 1.1443 g/cm3		0-2.5m 12" steel surface casing 0-3m sanitary cement seal
10	Silcrete		Siltstone: Orange-cream to red-brown silcrete. Soft 2-10m, very crumbly & porous 6-10m. More consolidarted 10-16m. Minor calcareous cementation throughout. Minor gravel & coarse quartz sand 16-18m.	<u>Airlift Results</u> Q= 4 L/s EC: 163.0 mS/cm, pH: 6.4 TDS: 105 ppt, T: 18 C		0-8m 8" class 18 blank PVC (ID=193mm)
20	Sandy Clay		Sandy Clay: Red-brown alluvial clay with minor sand & silt (decreasing down hole). Soft, low plasticity. Sticky. Minor bands of stiffer semi-consolidated clay (in transition to silcrete) throughout.	17m: Q= 6L/s, pH=6.98, EC=156mS/cm, TDS=100ppt, T=25C 23m: Q= 7L/s, pH=6.98, EC=155mS/cm, TDS=100ppt, T=25C		8-32m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
30	Residual Granite		Granite: Extremely weathered / skeletal granitic sand. Light grey & yellow-orange, quartz rich. Sub-angular to angular fragments. Some cream, white, yellow & orange sticky clay. Trace large quartz eyes 29-36m, larger fragments (~5cm) from 36m.	29m: Q= 7L/s, pH=7.01, EC=159mS/cm, TDS=101ppt, T=24C 35m: Q= 7L/s, pH=6.89, EC=151mS/cm, TDS=96ppt, T=21C		32m PVC endcap
40	Weathered Granite		Granite: Yellow-orange, white & pink. Highly weathered. Corase grained. K-feldspar rich (~50%). Soft, very brittle & crumbly. No sample 50-51.5m.	41m: Q= 7L/s, pH=6.79, EC=138mS/cm, TDS=88ppt, T=26C 47m: Q= 7L/s, pH=6.85, EC=150mS/cm, TDS=96ppt, T=24C		3-51.5m gravel pack (1.6-3.2mm)
50						

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COMPOSITE BORE LOG

Bore No: LYSP032

Client: SO4 **Project:** Lake Way **Pad ID:** CT011 / GP1_04 **Location:** Paleochannel

Start: 6/09/2021
Finish: 6/09/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (12"), 34.7m (10")
Casing Stickup: 0.47m

Elevation (GL): 490 mAHD
Easting: 241584 (handheld)
Northing: 7038952 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.53 mbgl **Date of SWL:** 12/09/2021 **First Water Strike (mbgl):** 8

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Silty Sand: Red-brown alluvial sand & silt. Fine grained. Moderately to well sorted. Minor orange-cream calcrete. Trace quartz.	**Laboratory Results** K: 3,150 mg/L Mg: 4,450 mg/L SO4: 13,400 mg/L TDS: 124,083 mg/L SG: 1.0943 g/cm3		0-2.5m 10" steel surface casing
	Silcrete		Siltstone: Red-brown fine to coarse grained silcrete. Soft, crumbly. Semi-consolidated 2-4m, becoming more coherent 6-10m. Minor coarse quartz rich sand 2-6m. Minor gritty clay 'paste' 6-10m.			0-3m sanitary cement seal
10			Siltstone: Mix of red-brown coherent silcrete with some soft red-brown sandy clay. Minor soft cream calcrete. Likely interbedded.			0-12m 6" class 12 blank PVC (ID=150mm)
	Sandy Clay		Sandy Clay: Red-brown alluvial clay with some sand & silt. Soft, low plasticity 12-16m. Moderate plasticity 16-23m. Minor to trace silcrete & quartz coarse sand / fine gravel. Very gritty texture.			12-30m 6" class 12 slotted PVC (1mm aperture) (ID=150mm)
20	Residual Granite		Granite: White, dark blue/black & yellow-orange residual granite. Soft, medium to coarse grained. Quartz rich. Pervasive calcrete alteration. Somy sticky white residual clay.	Airlift Results Q= 2.5 L/s EC: 126.1 mS/cm, pH: 7.3 TDS: 80.5 ppt, T: 17 C		3-34.7m gravel pack (1.6-3.2mm)
	Weathered Granite		Granite: Orange & light grey, extremely weathered. Coarse grained. Soft & brittle. Quartz rich, minor large quartz eyes (~1cm). Minor sticky white residual clay.			30m PVC endcap
30						

COMPOSITE BORE LOG

Bore No: LYSP033

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Client: SO4 **Project:** Lake Way **Pad ID:** CT027 / 14_GG **Location:** Paleochannel

Start: 6/09/2021
Finish: 6/09/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 25m (12.25")
Casing Stickup: 0.31 m

Elevation (GL): 493 mAHD
Easting: 242688 (handheld)
Northing: 7038106 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 4.44 mbgl **Date of SWL:** 12/09/2021 **First Water Strike (mbgl):** 5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: White to cream, fine grained. Coherent but soft.	**Laboratory Results** K: 6,680 mg/L Mg: 6,830 mg/L SO4: 23,100 mg/L TDS: 237,273 mg/L SG: 1.1713 g/cm3		0-2.5m 12" steel surface casing
			Calcrete: Grey-white to red-brown, fine to coarse grained. Crumbly, semi-consolidated. Transition down hole from calcareous to siliceous cementation. Bit crushing formation to sand/gravel.	FWS at 5m: Q= 1L/s		0-3m sanitary cement seal
10	Silcrete		Siltstone: Red-brown with speckled black & white silcrete. Coarse grained. Reduces to poorly sorted gravel, sand & silt in samples. Some quartz sand/gravel.	11m: Q= 6L/s		0-7m 8" class 18 blank PVC (ID=193mm)
	Clay		Clay: Red-brown clay with minor silt. Very soft, low plasticity. Gritty texture. Trace sand & gravel.	17m: Q= 6L/s		7-25m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
20	Granite		Granite: Yellow-brown & pink. Coarse grained. Highly weathered, soft to moderately hard. Minor sticky white clay 22-24m. Hard at 25m, bit refusal.	Airlift Results Q= 4.5 L/s EC: 169.0 mS/cm, pH: 6.56 TDS: 109 ppt, T: 25 C 23m: Q= 6L/s		3-25m gravel pack (1.6-3.2mm) 25m PVC endcap

COMPOSITE BORE LOG

Bore No: LYSP034

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Client: SO4 **Project:** Lake Way **Pad ID:** NT053 / GP1_05 **Location:** Paleochannel

Start: 7/09/2021
Finish: 7/09/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (12"), 28.7m (10")
Casing Stickup: 0.34m

Elevation (GL): 494 mAHD
Easting: 240784 (handheld)
Northing: 7038461 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.37 mbgl **Date of SWL:** 12/09/2021 **First Water Strike (mbgl):** 3

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: Cream-orange, fine to coarse grained. Soft, crumbly.	**Laboratory Results** K: 6,180 mg/L Mg: 8,650 mg/L SO4: 25,200 mg/L TDS: 237,353 mg/L SG: 1.1754 g/cm3		0-2m sanitary cement seal
	Sandy Clay		Sandy Clay: Red-brown clay with some sand & silt. Very gritty texture. Soft, low plasticity. Minor gravel.			0-2.5m 10" steel surface casing
10			Sand: Red-brown fine to coarse grained sand. Moderately well sorted. Minor silt & clay.			0-10m 6" class 12 blank PVC (ID=150mm)
	Sandy Clay		Sandy Clay: Red-brown alluvial clay with some sand & silt. Gritty texture. Low to moderate plasticity.			10-26m 6" class 12 slotted PVC (1mm aperture) (ID=150mm)
20						2-26m gravel pack (1.6-3.2mm)
	Gravelly Clay		Gravelly Clay: Red-brown clay with some sand & silt. Gritty texture. Soft, low plasticity. Minor gravel & silcrete.	Airlift Results Q= 2.6 L/s EC: mS/cm, pH: TDS: ppt, T: C		26m PVC endcap
			Clay: No sample return. Driller noted very firm clay while drilling. Likely channel clay.			26-28.7m fallback

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COMPOSITE BORE LOG

Bore No: LYSP034A

Client: SO4 **Project:** Lake Way **Pad ID:** NT053 / GP1_05 **Location:** Paleochannel

Start: 9/09/2021
Finish: 10/09/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (12"), 30m (10")
Casing Stickup: 0.41 m

Elevation (GL): 493 mAHD
Easting: 240782 (handheld)
Northing: 7038473 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.34 mbgl **Date of SWL:** 11/09/2021 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: Cream-orange, fine to coarse grained. Soft, crumbly.	**Laboratory Results** K: 6,090 mg/L Mg: 8,640 mg/L SO4: 24,900 mg/L TDS: 212,758 mg/L SG: 1.1806 g/cm3		0-2.5m sanitary cement seal 0-2.5m 10" steel surface casing
	Sandy Clay		Sandy Clay: Red-brown clay with some sand & silt. Very gritty texture. Soft, low plasticity. Minor gravel.			0-10m 6" class 18 blank PVC (ID=134.7mm)
10			Sand: Red-brown fine to coarse grained sand. Moderately well sorted. Minor silt & clay.			
	Sandy Clay		Sandy Clay: Red-brown alluvial clay with some sand & silt. Gritty texture. Low to moderate plasticity.			10-28m 6" class 18 slotted PVC (1mm aperture) (ID=134.7mm)
20						2-28m gravel pack (1.6-3.2mm)
	Gravelly Clay		Gravelly Clay: Red-brown clay with some sand & silt. Gritty texture. Soft, low plasticity. Minor gravel & silcrete.	Airlift Results Q= 2 L/s EC: 164.1 mS/cm, pH: 7.16 TDS: 106.2 ppt, T: 24.4 C		28m PVC endcap
	Channel Clay		Clay: Grey, firm and plastic channel clay			28-30m fallback
30						

COMPOSITE BORE LOG

Bore No: LYSP034B

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Client: SO4 **Project:** Lake Way **Pad ID:** NT053 / GP1_05 **Location:** Paleochannel

Start: 10/09/2021
Finish: 10/09/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (10"), 10m (6")
Casing Stickup: 0.63 m

Elevation (GL): 489 mAHD
Easting: 240776 (handheld)
Northing: 7038477 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.32 **Date of SWL:** 11/09/2021 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: Cream-orange, fine to coarse grained. Soft, crumbly.	**Laboratory Results**		0-2.5m sanitary cement seal
				K: 5,130 mg/L		0-2.5m 6" PVC surface casing
				Mg: 7,590 mg/L		
			Sandy Clay: Red-brown clay with some sand & silt. Very gritty texture. Soft, low plasticity. Minor gravel.	SO4: 22,300 mg/L		
				TDS: 211,126 mg/L		
				SG: 1.154 g/cm3		0-4m 50mm CL18 blank PVC
	Sandy Clay					4-10m 50mm CL18 slotted PVC (1mm aperture)
				Airlift Results EC: 136.9 mS/cm, pH: 7.1 TDS: 92.5 ppt, T: 30 C		2.5-10m gravel pack (1.6-3.2mm)
						10m PVC endcap
10						

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COMPOSITE BORE LOG

Bore No: LYSP035A

Client: SO4 **Project:** Lake Way **Pad ID:** GT101 **Location:** Paleochannel

Start: 7/09/2021
Finish: 8/09/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 25.5m (12.25")
Casing Stickup: 0.30 m

Elevation (GL): 496 mAHD
Easting: 247965 (handheld)
Northing: 7033839 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.41 mbgl **Date of SWL:** 10/09/2021 **First Water Strike (mbgl):** 8

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Silty Sand		Silty Sand: Red-brown alluvial sand & silt. Fine grained, very well sorted.	**Laboratory Results**		0-2.5m 12" steel surface casing
	Silcrete		Siltstone: Red-brown to white, fine to medium grained silcrete. Significant calcareous alteration 2-6m. Crumbly, semi-consolidated 6-8m. Consolidated but soft 8-10m.	K: 2,240 mg/L Mg: 4,250 mg/L SO4: 14,700 mg/L TDS: 111,302 mg/L SG: 1.0847 g/cm3		0-3m sanitary cement seal
10	Sand		Sand: Red-brown fine to coarse grained sand with some silt & clay. Minor to trace gravel. Moderately well sorted.	Airlift Results Q= 2.5L/s EC=105mS/cm, pH=7.33 TDS=65ppk, T=28.5C 11m: Q=2.5L/s, EC=77mS/cm, pH=7.52, TDS=48ppk, T=24C		0-7.5m 8" class 18 blank PVC (ID=193mm)
	Silcrete		Siltstone: Red-brown to white, fine to medium grained. Soft, brittle. Some calcareous alteration.			
	Sandy Clay		Sandy Clay: Red-brown clay with some sand & silt. Very gritty texture. Soft, low plasticity. Silcrete band in 20-22m interval.	17m: Q=7L/s, EC=76mS/cm, pH=7.53, TDS=49ppk, T=25C 23m: Q=7L/s, EC=101mS/cm, pH=7.43, TDS=63ppk, T=22C		3-25.5m gravel pack (1.6-3.2mm) 7.5-25.5m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
20	Granite		Granite: Yellow-brown & pink. Coarse grained. Moderately weathered, moderately hard. High Fe alteration.	25m: Q=7L/s, EC=100mS/cm, pH=7.39, TDS=64ppk, T=26C		25.5m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP036

Client: SO4 **Project:** Lake Way **Pad ID:** GT064 / 13_SG **Location:** Paleochannel

Start: 9/09/2021
Finish: 10/09/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 33.5m (12.25")
Casing Stickup: 0.50 m

Elevation (GL): 487 mAHD
Easting: 245441 (handheld)
Northing: 7036553 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 3.55 **Date of SWL:** 11/09/2021 **First Water Strike (mbgl):** 5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Alluvium: Red brown, loose, high sand and silt content, large weathered fragments of iron ore, sub-angular, minor calcrete coating	**Laboratory Results** K: 4,650 mg/L Mg: 5,750 mg/L SO4: 20,200 mg/L TDS: 237,923 mg/L SG: 1.1353 g/cm3		0-2.5m 12" steel surface casing
			Siltstone: Light brown to cream, siltstone dominant, weakly cemented, lesser calcrete cemented siltstone, hard and angular, trace soft calcrete clay, increased cementing from 6m, reduced loose silt, calcrete conglomerate more dominant from 8m	5m: FWS - trickle 7m: Q= ~1L/s		0-3.5m sanitary cement seal 0-14.5m 8" class 18 blank PVC (ID=193mm)
10	Siltstone and calcrete		Calcrete: White to cream, more massive calcrete, hard, angular, large fragments with smooth surfaces, reduced siltstone inclusions	11m: Q= 2L/s, pH=7.5, EC=77mS/cm, TDS=51ppt, T=28C		
			Siltstone: Light brown to cream, return to less consolidated siltstone, reduced cementing, sub-angular, increased soft and crumbly weathered calcrete			3.5-29.5m gravel pack (1.6-3.2mm)
				17m: Q= 2.5L/s, pH=7.5, EC=93mS/cm, TDS=58ppt, T=28C		
20			Conglomerate: Light brown to cream, calcrete conglomerate, siltstone with ~90% calcrete cementing, fragments weathered and voided, uneven and rough surfaces			14.5-29.5m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Gravel		Gravel: Red brown to grey, coarse quartz rich gravel dominant, well sorted, sub-angular to sub-rounded, loose, minor fragments with silty matrix, minor calcrete clay/shale - highly weathered	23m: Q= 20L/s, pH=7.4, EC=132mS/cm, TDS=90ppt, T=31C Airlift Results Q= 14 L/s EC: 153 mS/cm, pH: 7.16 TDS: 96.8 ppk, T: 25 C		
30	Clay		Clay: Yellow to light brown, clay and gravel, soft clay dominant, white to grey and plastic, channel clay, gravel possible contamination	29m: Q= 22L/s, pH=7.1, EC=143mS/cm, TDS=88ppt, T=29C		29.5m PVC endcap
				33.5m: Q= 20L/s, pH=7.1, EC=144mS/cm, TDS=89ppt, T=29C		29.5-33.5m fallback

COMPOSITE BORE LOG

Bore No: LYSP037

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Client: SO4 **Project:** Lake Way **Pad ID:** GT064 / 13_SG **Location:** Paleochannel

Start: 10/09/2021
Finish: 11/09/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 32.7m (12.25")
Casing Stickup: 0.29 m

Elevation (GL): 491 mAHD
Easting: 245453 (handheld)
Northing: 7036565 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 3.9 **Date of SWL:** 12/09/2021 **First Water Strike (mbgl):** 5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Alluvium: Red brown, loose, high sand and silt content, large weathered fragments of iron ore, sub-angular, minor calcrete coating	**Laboratory Results** K: 4,680 mg/L Mg: 5,750 mg/L SO4: 20,400 mg/L TDS: 188,470 mg/L SG: 1.1452 g/cm3		0-2.5m 12" steel surface casing
			Siltstone: Light brown to cream, siltstone dominant, weakly cemented, lesser calcrete cemented siltstone, hard and angular, trace soft calcrete clay, increased cementing from 6m, reduced loose silt, calcrete conglomerate more dominant from 8m	5m: FWS ~1L/s		0-3.5m sanitary cement seal
10	Siltstone and calcrete		Calcrete: White to cream, more massive calcrete, hard, angular, large fragments with smooth surfaces, reduced siltstone inclusions	11m: Q= 1.5L/s		0-12.5m 8" class 18 blank PVC (ID=193mm)
			Siltstone: Light brown to cream, return to less consolidated siltstone, reduced cementing, sub-angular, increased soft and crumbly weathered calcrete			3.5-30.5m gravel pack (1.6-3.2mm)
20			Conglomerate: Light brown to cream, calcrete conglomerate, siltstone with ~90% calcrete cementing, fragments weathered and voided, uneven and rough surfaces	17m: Q= 3L/s, pH=7.4, EC=106mS/cm, TDS=73ppt, T=26C		12.5-30.5m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Gravel		Gravel: Red brown to grey, coarse quartz rich gravel dominant, well sorted, sub-angular to sub-rounded, loose, minor fragments with silty matrix, minor calcrete clay/shale - highly weathered	23m: Q= 17L/s, pH=7.2, EC=151mS/cm, TDS=97ppt, T=26C Airlift Results Q= 14 L/s EC: 150 mS/cm, pH: 7.2 TDS: 95.8 ppk, T: 26 C		
30	Clay		Clay: Yellow to light brown, clay and gravel, soft clay dominant, white to grey and plastic, channel clay, gravel possible contamination	29m: Q= 22L/s, pH=7.2, EC=149mS/cm, TDS=96ppt, T=27C 32.7m: Q= 22L/s, pH=7.2, EC=151mS/cm, TDS=97ppt, T=26C		30.5m PVC endcap 30.5-32.7m fallback

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COMPOSITE BORE LOG

Bore No: LYSP038A

Client: SO4 **Project:** Lake Way **Pad ID:** CT015 **Location:** Paleochannel

Start: 11/09/2021
Finish: 11/09/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (12"), 32m (10")
Casing Stickup: 0.54m

Elevation (GL): 483 mAHD
Easting: 241976 (handheld)
Northing: 7038895 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.12 mbgl **Date of SWL:** 11/09/2021 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: White to light brown, hard, small cuttings from 2-4m, angular to sub-angular	**Laboratory Results** K: 3,880 mg/L Mg: 5,500 mg/L SO4: 19,600 mg/L TDS: 168,647 mg/L SG: 1.1297 g/cm3		0-2.5m 10" steel surface casing 0-2.5m sanitary cement seal
	Alluvial Silty Sand		Sandy Silt: Brown, silt dominant alluvials, lesser sand and gravel, increasing clay with depth			
10						0-18m 6" class 18 blank PVC (ID=143mm)
	Alluvial Clay		Clay: Light brown to brown, soft and sticky alluvial clay from 12-16m, silty, increased plasticity from16-21m, reduced silt, firm			
20						18-30m 6" class 18 slotted PVC (1mm aperture) (ID=143mm)
	Weathered Granite		Basement: Yellow to brown, weathered granite basement, large cuttings from 24m, weathered surfaces from 30-32m, hard at 32m - refusal	Airlift Results Q= 0.6 L/s EC: 141 mS/cm, pH: 7.38 TDS: 91 ppt, T: 24 C		2.5-32m gravel pack (1.6-3.2mm) 30m PVC endcap
30						

COMPOSITE BORE LOG

Bore No: LYSP039

SALT LAKE POTASH LTD
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239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 11/09/2021
Finish: 12/09/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 32m (12.25")
Casing Stickup: 0.41 m

Elevation (ToC): 490mAHD
Easting: 244544 (handheld)
Northing: 7035603 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.71 **Date of SWL:** 16/09/2021 **First Water Strike (mbgl):** 11

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: White to cream, sand and gravels with calcrete cementing throughout, soft	**Laboratory Results** K: 5,230 mg/L Mg: 4,940 mg/L SO4: 17,300 mg/L TDS: 183,355 mg/L SG: 1.142 g/cm3		0-2.5m 12" steel surface casing 0-6m sanitary cement seal
			Clay and Silt: Light brown, siltstone gravels - mostly weathered out to soft silty clay			
10	Siltstone		Siltstone: Red brown, rounded to subangular, loose and poorly sorted siltstone gravels, trace sand and silt. High proportion of gravels have black coloured fracture surfaces from 10-16m, with fluid flow. Patchy calcrete alteration on surfaces	11m: FWS, 3L/s, pH=7.5, EC=132mS/cm, TDS=84ppt, T=20C		0-12m 8" class 18 blank PVC (ID=193mm)
20	Gravel		Siltstone: Red brown, subangular, soft and crumbly siltstone, transition into clay with depth, harder from 16-18m with calcrete alteration throughout			12-30m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Clay		Clay: Red brown, soft sticky clay with moderate plasticity. Minor trace siltstone and gravel. Clay content higher from 24-28m	23m: 5L/s Airlift Results Q= 7 L/s EC: 156 mS/cm, pH: 7.3 TDS: 99 ppk, T: 22.3 C 29m: 8L/s		6-30m gravel pack (1.6-3.2mm)
30			Clay: Grey, top of channel clay, firm and plastic, trace gritty texture			30m PVC endcap 30-32m fallback

COMPOSITE BORE LOG

Bore No: LYSP040

SO4
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
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www.so4.com.au

Client: SO4 **Project:** Lake Way **Pad ID:** ST035 / Pad 45 **Location:** Paleochannel

Start: 13/09/2021
Finish: 13/09/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35m (12.25")
Casing Stickup: 0.43 m

Elevation (GL): 492 mAHD
Easting: 248046 (handheld)
Northing: 7031463 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 4.26 **Date of SWL:** 16/09/2021 **First Water Strike (mbgl):** 8

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: White to cream, calcrete dominant, alluvial gravels with calcrete cementing from 0-6m, loose broken ground from 0-2m and more massive calcrete from 6-8m, some highly weathered fragments	**Laboratory Results** K: 3,980 mg/L Mg: 5,330 mg/L SO4: 18,000 mg/L TDS: 174,387 mg/L SG: 1.1269 g/cm3		0-2.5m 12" steel surface casing 0-4m sanitary cement seal
10	Siltstone		Siltstone: Light brown, hardened silcrete dominant, angular cuttings, contains minor calcrete alteration, fine gravel inclusions, lesser softer siltstone, highly weathered calcrete 8-10m, weathered surfaces on silcrete 10-12m	11m: Q= 5L/s, pH=7.4, EC=114mS/cm, TDS=73ppt, T=23C		0-10m 8" class 18 blank PVC (ID=193mm)
			Siltstone: Brown to black, highly weathered section of siltstone, soft and crumbly, minor calcrete weathered to shale, total blackening of surfaces with fluid flow			4-34m gravel pack (1.6-3.2mm)
			Siltstone: Light brown, soft and crumbly siltstone, transitioning to clay, trace gravels	17m: Q= 12L/s, pH=7.4, EC=121mS/cm, TDS=77ppt, T=23C		
20	Clay and Silt		Clay and Silt: Brown to dark brown, soft and sticky alluvial clay dominant, trace gravel throughout, remnant weathered calcrete, darker brown towards base	23m: Q= 16L/s, pH=7.4, EC=124mS/cm, TDS=78ppt, T=23C		10-34m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
				29m: Q= 16L/s, pH=7.4, EC=126mS/cm, TDS=81ppt, T=24C		
30				Airlift Results Q= 6 L/s EC: 130 mS/cm, pH: 7.3 TDS: 87.5 ppk, T: 27 C		
				35m: Q= 17L/s, pH=7.3, EC=130mS/cm, TDS=88ppt, T=27C		34m PVC endcap
	nnel Clay		Clay: Grey, firm fat channel clay, gritty texture			34-35m fallback

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COMPOSITE BORE LOG

Bore No: LYSP041

Client: SO4 **Project:** Lake Way **Pad ID:** NL010 / 12_GG **Location:** Paleochannel

Start: 13/09/2021
Finish: 13/09/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (12"), 32m (10")
Casing Stickup: 0.48m

Elevation (GL): xx mAHD
Easting: 240916 (handheld)
Northing: 7040063 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 4.42 mbgl **Date of SWL:** 16/09/2021 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Alluvium: Red to brown, loose sandy alluvials, transported and partially rounded	**Laboratory Results** K: 5,610 mg/L Mg: 7,200 mg/L SO4: 22,500 mg/L TDS: 218,950 mg/L SG: 1.1618 g/cm3		0-2.5m sanitary cement seal
	Calcrete		Calcrete: White to light brown, calcrete dominant, loose, mostly angular cuttings, partial weathering of surfaces			0-2.5m 10" steel surface casing
	Siltstone		Siltstone: Brown to white, weathered siltstone dominant, yellow weathered surfaces, minor large clasts of weathered calcrete			0-7m 6" class 18 blank PVC (ID=134.7mm)
10			Siltstone: Brown, siltstone with reduced weathering, more consolidated, reduced calcrete, more finely ground cuttings and flaked siltstone	Q of 4 L/s with drilling		7-30m 6" class 18 slotted PVC (1mm aperture) (ID=134.7mm)
			Gravelly Clay: Brown, transition from siltstone into alluvial clays, alluvial clays soft and sticky			
20	Alluvial clay and gravel		Clay: Brown to red, alluvial clay dominant, increased plasticity, reduced siltstone gravels			2.5-32m gravel pack (1.6-3.2mm)
			Gravelly Clay: Light brown, soft alluvial clay and thin gravel layer above channel clay	Airlift Results Q= 2.5 L/s EC: 168.2 mS/cm, pH: 7.1 TDS: 107 ppt, T: 24.2C		
30	Channel clay		Clay: Grey, fat channel clay, transition from alluvials from 28-30m, gritty texture throughout			30m PVC endcap

COMPOSITE BORE LOG

Bore No: LYSP042

SO4
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Pad ID:** S5009 / 24_SG **Location:** Paleochannel

Start: 13/09/2021
Finish: 14/09/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 29m (12.25")
Casing Stickup: 0.42 m

Elevation (GL): 492 mAHD
Easting: 249325 (handheld)
Northing: 7031673 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 4.01 **Date of SWL:** 16/09/2021 **First Water Strike (mbgl):** 5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Alluvium: Brown, loose and coarse alluvial gravel, transported, angular to sub-rounded, weathered, minor silty sand	**Laboratory Results** K: 3,690 mg/L Mg: 5,460 mg/L SO4: 18,800 mg/L TDS: 167,722 mg/L SG: 1.123 g/cm3		0-2.5m 12" steel surface casing 0-3m sanitary cement seal
			Siltstone: Light brown/cream, hard silcrete and siltstone dominant, smaller cuttings and reduced rounding, minor clacrete			
10	Siltstone		Siltstone: Brown to yellow, well weathered siltstone, blackened surfaces with fluid flow, easily broken, sub-angular, minor calcrete on surfaces	11m: Q= 4L/s, pH=7.7, EC=60mS/cm, TDS=40ppt, T=27C		0-15m 8" class 18 blank PVC (ID=193mm)
			Conglomerate: Brown to white, siltstone gravels cemented with calcrete, well weathered from 17-19m, sub-angular	17m: Q= 8L/s, pH=7.5, EC=99mS/cm, TDS=65ppt, T=27C		3-29m gravel pack (1.6-3.2mm)
20			Siltstone: Light brown to cream, well weathered siltstone dominant, highly weathered 23-26m, easily broken, sub-rounded, increased weathering of massive calcrete from 19-23m	23m: Q= 11L/s, pH=7.3, EC=125mS/cm, TDS=82ppt, T=26C Airlift Results Q= 8.5 L/s EC: 141 mS/cm, pH: 7.3 TDS: 90.7 ppk, T: 25 C		15-27m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Clay and Gravels		Gravelly Clay: Red to brown, soft alluvial clay dominant, increased silt, trace gravel, quick drilling	29m: Q= 14L/s, pH=7.4, EC=132mS/cm, TDS=85ppt, T=26C		27m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP043A

Client: SO4 **Project:** Lake Way **Pad ID:** NL018 / 7_SG **Location:** Paleochannel

Start: 14/09/2021
Finish: 14/09/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (12"), 20m (10")
Casing Stickup: 0.44m

Elevation (GL): 490mAHD (handheld)
Easting: 240401 (handheld)
Northing: 7040705 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.86 **Date of SWL:** 16/09/2021 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Alluvials		Alluvium: Red to brown, loose sandy alluvials, transported and partially rounded	**Laboratory Results** K: 4,750 mg/L Mg: 6,680 mg/L SO4: 20,300 mg/L TDS: 195,823 mg/L SG: 1.1395 g/cm3		0-2.5m sanitary cement seal
	Calcrete		Calcrete: White to light brown, calcrete dominant, loose from 2-4m, massive and hard from 4-6m, mostly angular cuttings, partial weathering of surfaces			0-2.5m 10" steel surface casing 0-7m 6" class 12 blank PVC (ID=150mm) Sun damaged
10	Siltstone and gravel		Siltstone: Brown to white, weathered siltstone dominant, blackened surfaces with fluid flow, minor large clasts of calcrete with pitted weathered surfaces, calcareous coating on siltstone 10-12m			7-19m 6" class 12 slotted PVC (1mm aperture) (ID=150mm) Sun damaged
			Siltstone: Brown, siltstone with reduced weathering, more consolidated, reduced calcrete, more finely ground cuttings	Q of 4 L/s with drilling Airlift Results Q= 2 L/s EC: 138 mS/cm, pH: 7.3 TDS: 92 ppt, T: 25C		2.5-20m gravel pack (1.6-3.2mm)
			Gravel: Dark brown, thin band of coarse alluvial gravel - moderately sorted, sub-angular to rounded			19m PVC endcap
20	Alluvial Clay		Clay: Brown, soft and sticky alluvial clay, trace sand			

COMPOSITE BORE LOG

Bore No: LYSP044

SO4

Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800

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Client: SO4 **Project:** Lake Way **Pad ID:** S5004 / 25_SG **Location:** Paleochannel

Start: 15/09/2021
Finish: 15/09/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 34m (12.25")
Casing Stickup: 0.40 m

Elevation (GL): 491 mAHD
Easting: 248886 (handheld)
Northing: 7031354 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.85 **Date of SWL:** 16/09/2021 **First Water Strike (mbgl):** 5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials		Alluvium: Light brown to cream, loose alluvials and sand, coarse, poorly sorted, angular to well rounded, minor clacrete	**Laboratory Results** K: 3,290 mg/L Mg: 5,110 mg/L SO4: 16,200 mg/L TDS: 151,880 mg/L SG: 1.106 g/cm3		0-2.5m 12" steel surface casing 0-3m sanitary cement seal
			Siltstone: Light brown, weathered silcrete and calcrete, harder drilling, siltstone mostly broken up to sand and silt			
	Siltstone		Siltstone: Brown to cream, well weathered siltstone dominant, rounding of edges, blackened surfaces with fluid flow from 9-11m, calcrete alteration on surfaces, calcrete conglomerate from 11-13m	5m: FWS - damp		0-10m 8" class 18 blank PVC (ID=193mm)
10				11m: Q= 4L/s, pH=7.7, EC=80mS/cm, TDS=45ppt, T=24C		
			Gravelly Clay: Light brown, rounded siltstone conglomerate wih calcrete cementing, soft and sticky clay throughout			3-34m gravel pack (1.6-3.2mm)
	Clay and Gravels		Gravelly Clay: Light brown, alluvial clay dominant, minor gravels - reducing with depth, increasing plasticity of clay with depth	17m: Q= 4L/s, pH=7.8, EC=76mS/cm, TDS=45ppt, T=24C		
20				23m: Q= 5L/s, pH=7.6, EC=101mS/cm, TDS=61ppt, T=24C		10-28m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
			Clay: Red to brown, firm and plastic alluvial clay	<u>Airlift Results</u> Q= 2.5 L/s EC: 121 mS/cm, pH: 7.3 TDS: 84.3 ppk, T: 27 C		28m PVC endcap
	Alluvial Clay			29m: Q= 5L/s, pH=7.5, EC=100mS/cm, TDS=63ppt, T=26C		
30				33m: Q= 5L/s, pH=7.4, EC=94mS/cm, TDS=60ppt, T=27C		
	Clay					

COMPOSITE BORE LOG

Bore No: LYSP045

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239 Adelaide Terrace
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www.so4.com.au

Client: SO4 **Project:** Lake Way **Pad ID:** Pad 9 **Location:** Paleochannel

Start: 26/09/2021
Finish: 27/09/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 34.4m (12.25")
Casing Stickup: 0.39 m

Elevation (GL): 489 mAHD
Easting: 251070 (handheld)
Northing: 7028860 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.88 mbgl **Date of SWL:** 2/10/2021 **First Water Strike (mbgl):** 5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: Cream-orange to white, fine to medium grained. Soft to moderately hard. Consolidated 0-2m, semi-consolidated 2-4m.	**Laboratory Results** K: 3,650 mg/L Mg: 4,220 mg/L SO4: 14,300 mg/L TDS: 148,958 mg/L SG: 1.1058 g/cm3		0-2.5m 12" steel surface casing 0-3m sanitary cement seal
	Silcrete		Siltstone: Red-brown, fine to coarse grained. Soft to moderately hard. Some calcrete alteration / cementing 4-6m. Increased calcareous alteration and massive calcrete (up to 50%) 6-12m.	5m (FWS): Q=0.3L/s, pH=7.04, EC=65.5mS/cm, TDS=42ppt, T=27C		0-7m 8" class 18 blank PVC (ID=193mm)
10				11m: Q= 4L/s, pH=7.2, EC=142mS/cm, TDS=90ppt, T=25C		
			Siltstone: Red-brown, white & black. Fine to coarse grained. Consolidated, soft to moderately hard. Heavily altered. Minor calcrete 12-14m, pervasive calcareous alteration & cementation of silcrete fragments 14-16m. Some porous, vuggy textures.			3-34.6m gravel pack (1.6-3.2mm)
	Calcrete		Calcrete: White, fine grained. Consolidated, moderately hard. Nodular, vuggy texture. Minor red-brown silcrete band within 16-17m interval. Trace translucent yellowish material as thin bands & cemented matrix (gypsum-like but moderately hard).	17m: Q= 10L/s		
20	Clay		Clay: Light green/grey hard clay to soft mudstone. Some calcareous alteration. Minor white calcrete (possible contamination).			7-31m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Silcrete		Siltstone: Red-brown, fine grained. Soft, semi-consolidated. Minor white calcrete (possible contamination).	23m: Q= 17L/s, pH=7.26, EC=150mS/cm, TDS=96ppt, T=24C		
	Clay		Clay: Red-brown soft clay with some silt. Gritty texture. Low plasticity.	29m: Q= 19L/s, pH=7.21, EC=153mS/cm, TDS=97ppt, T=24C		
30				Airlift Results Q= 14 L/s EC: 148.5 mS/cm, pH: 724 TDS: 95.6 ppk, T: 26 C		31m PVC endcap
				34m: Q= 20L/s, pH=7.28, EC=153mS/cm, TDS=98ppt, T=24C		
			Clay: Grey & red-brown channel clay. Moderate to high plasticity.			

COMPOSITE BORE LOG

Bore No: LYSP046

SO4
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
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www.so4.com.au

Client: SO4 **Project:** Lake Way **Pad ID:** Pad 8 **Location:** Paleochannel

Start: 28/09/2021
Finish: 30/09/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 33.2m (12.25")
Casing Stickup: 0.38 m

Elevation (GL): 493 mAHD
Easting: 251774 (handheld)
Northing: 7028288 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.59 mbgl **Date of SWL:** 3/10/2021 **First Water Strike (mbgl):** 5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: White to orange-cream, fine grained. Massive. Coherent, but soft.	**Laboratory Results** K: 3,660 mg/L Mg: 4,240 mg/L SO4: 14,700 mg/L TDS: 150,051 mg/L SG: 1.103 g/cm3		0-2.5m 12" steel surface casing
	Silcrete		Siltstone: Red-brown fine to medium-grained silcrete. Semi-consolidated 2-6m, bit reducing samples to mix of sand, silt & gravel. More consolidated 6-10m. Calcareous alteration throughout.	5m (FWS): Q=0.7L/s, pH=7.28, EC=99.9mS/cm, TDS=64.7ppt, T=31C		0-4m sanitary cement seal
10			Siltstone: Red-brown to cream-orange & white with minor green staining. Fine to medium grained, moderately hard. Increased coherency, but brittle. Highly altered with calcareous cementation. Some vuggy textures.	11m: Q= 5L/s, pH=7.26, EC=131mS/cm, TDS=84.4ppt, T=29C		0-12m 8" class 18 blank PVC (ID=193mm)
			Siltstone: Red-brown & white. As above, but less consolidated. Samples reduced to sand, silt & gravel. Some calcareous alteration & cementation.			
			Siltstone: Red-brown & white with orange staining. Soft & brittle, but more consolidated than 12-16m. Highly altered, pervasive calcareous cementation on surfaces. Distinct vuggy & porous texture. Likely highly fractured & laminated (large thin fragments in discharge).	17m: Q= 10L/s, pH=7.27, EC=140mS/cm, TDS=91ppt, T=29C		4-30m gravel pack (1.6-3.2mm)
	Sand		Sand: Red-brown sand & silt with minor gravel. Moderately to well sorted, unconsolidated. Some calcareous alteration. Large cave-in within this interval during drilling.			
20	Sand, Gravel & Silcrete		Gravel and Sand: Red-brown mixed sand, silt & gravel. Moderately to poorly sorted. Gravels dominated by angular silcrete fragments. Minor calareous alteration. Samples highly contaminated with sand from unit 18-20m due to cave in. Minor red-brown soft sandy clay 26-33m.	23m: Q= ~22L/s, pH=7.2, EC=157mS/cm, TDS=100ppt, T=28C Airlift Results Q= 12 L/s EC: 151.2 mS/cm, pH: 7.2 TDS: 97.1 ppk, T: 24 C 29m: Q= Unknown. V-notch failed		12-30m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
30			Clay: Red-brown & yellowish-grey channel clay. Moderate plasticity.	34m: Q= Unknown. V-notch failed		30m PVC endcap 30-33.2m fallback

COMPOSITE BORE LOG

Bore No: LYSP047A

SO4
Ground Floor
239 Adelaide Terrace
Perth, WA 6000
T +61 8 6559 5800
www.so4.com.au

Client: SO4 **Project:** Lake Way **Pad ID:** ST013 **Location:** Paleochannel

Start: 1/10/2021
Finish: 2/10/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 34.6m (12.25")
Casing Stickup: 0.44 m

Elevation (GL): 492 mAHD
Easting: 246862 (handheld)
Northing: 7032798 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.05 mbgl **Date of SWL:** 4/10/2021 **First Water Strike (mbgl):** 2.5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Silcrete		Siltstone: Orange-cream to red-brown with minor black staining. Fine to medium grained. Coherent, but soft & brittle. Some calcareous alteration. Some alluvial fine sand 0-1m.	**Laboratory Results** K: 2,650 mg/L Mg: 4,400 mg/L SO4: 15,200 mg/L TDS: 131,678 mg/L SG: 1.0916 g/cm3		0-2.5m sanitary cement seal 0-2.5m 12" steel surface casing
	Sand		Sand: Red-brown, fine to medium grained. Well sorted. Minor silt & clay. Minor silcrete fragments,	2.5m FWS: Q= <1L/s		
	Clayey Sand		Clayey Sand: Sand as above but with increased clay content. Minor angular coarse sand & gravel. Moderately well sorted.	5m: Q= 5L/s, EC=99mS/cm, TDS=63ppk, pH=7.35, T=27C		3-12m gravel pack (3.2-6.4mm)
10	Clay		Clay: Red-brown alluvial clay with minor silt. Mostly soft, low plasticity. Some bands of increased plasticity 18-20m, 26-28m, 32-34m. Thin black coarse grained silcrete band within 28-30m interval. trace gravel 16-18m & 24-28m.	11m: Q= 7L/s, EC=105mS/cm, TDS=67ppk, pH=7.41, T=26C		0-16.7m 6" class 18 blank PVC (ID=134mm) Large washout zone ~12-16m (hole required 11T gravel)
20				17m: Q= 7L/s, EC=105mS/cm, TDS=67ppk, pH=7.45, T=24C		12-28.7m gravel pack (1.6-3.2mm)
				23m: Q= 7L/s, EC=105mS/cm, TDS=67ppk, pH=7.28, T=24C		16.7-28.7m 6" class 18 slotted PVC (1mm aperture) (ID=134mm)
				Airlift Results Q= 2.5 L/s EC= 139mS/cm, pH= 7.41 TDS= 89ppk, T= 23C		28.7m PVC endcap
30				29m: Q= 7L/s, EC=108mS/cm, TDS=69ppk, pH=7.14, T=24C		28.7-34.6m fallback
				34m: Q= 5L/s, EC=103mS/cm, TDS=67ppk, pH=7.10, T=27C		
			Clay: Grey & yellow channel clay. Moderate to high plasticity. Very firm drilling.			

COMPOSITE BORE LOG

Bore No: LYSP048

SO4
Ground Floor
239 Adelaide Terrace
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Client: SO4 **Project:** Lake Way **Pad ID:** CT058 **Location:** Paleochannel

Start: 3/10/2021
Finish: 3/10/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35m (12.25")
Casing Stickup: 0.42 m

Elevation (GL): 495 mAHD
Easting: 244790 (handheld)
Northing: 7035934 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 6.55 mbgl **Date of SWL:** 6/10/21 **First Water Strike (mbgl):** 11

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Alluvium: Red-brown alluvial silty sand. Unconsolidated. Well sorted. Minor calcrete.	**Laboratory Results** K: 5,220 mg/L Mg: 5,130 mg/L SO4: 16,900 mg/L TDS: 187,887 mg/L SG: 1.1321 g/cm3		0-2.5m 12" steel surface casing
	Silcrete & Calcrete		Siltstone: Red-brown to orange-cream silcrete. Consolidated, but brittle. Fine to medium grained. Some unconsolidated sand, silt & clay balling around angular silcrete fragments. Some calcrete alteration.			0-3m sanitary cement seal
10			Siltstone: Red-brown to orange-cream & black. Consolidated, but brittle. Loose sediment reduced to absent. Highly altered. Increased calcareous interation, minor massive white calcrete.	11m FWS: Q= <1L/s		0-13m 8" class 18 blank PVC (ID=193mm)
			Siltstone: Red-brown dominant with minor white & black colourations. Semi-consolidated, soft & brittle. Bit reducing samples to sand & gravel. Minor white calcareous clay & calcrete alteration on silcrete fragments.	17m: Q= 8L/s, pH=7.11, EC=174mS/cm, TDS=112ppt, T=25C		3-35m gravel pack (1.6-3.2mm)
			Clayey Sand: Red-brown fine sand & silt with lessor clay. Moderately well sorted. Minor soft, brittle silcrete.			
20	Sand, Silt & Clay		Clay and Silt: Red-brown soft, low plasticity clay with lessor silt. Silt up to 50% 20-22m, reducing down-hole. Gritty texture. Trace gravel 24-28m.	23m: Q= 9L/s, pH=7.21, EC=176mS/cm, TDS=113ppt, T=25C Airlift Results Q= 7 L/s EC: 177 mS/cm, pH: 7.27 TDS: 113 ppk, T: 24 C		13-31m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
			Sand: Red-brown fine to medium sand with lessor silt & clay. Moderately well sorted.	29m: Q= 10L/s, pH=7.22, EC=178mS/cm, TDS=114ppt, T=24C		
30			Sandy Clay: Grey, yellow & minor red-brown soft, low plasticity clay. Some fine red-brown sand mixed with clay. Minor coarse, angular quartz rich sand / fine gravel & semi-consolidated silcrete fragments.			31m PVC endcap
	Channel Clay		Clay: Grey & yellow channel clay with minor fine sand. Increased plasticity. Firmer drilling.	35m: Q= 11L/s, pH=7.17, EC=168mS/cm, TDS=108ppt, T=27C		

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COMPOSITE BORE LOG

Bore No: LYSP049

Client: SO4 **Project:** Lake Way **Pad ID:** CT053 **Location:** Paleochannel

Start: 4/10/2021
Finish: 5/10/2021
Drilled By: Harrington
Logged By: J. Meertens

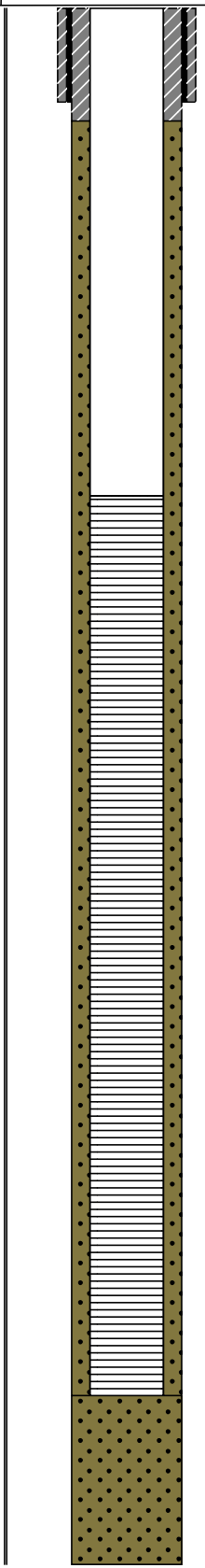
Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 41.5m (12.25")
Casing Stickup: 0.46 m

Elevation (GL): 490 mAHD
Easting: 244467 (handheld)
Northing: 7036321 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 6.62 **Date of SWL:** 10/10/2021 **First Water Strike (mbgl):** 9.5

Depth	Geology	Lithological Description	Hydro Field Data
0	Alluvium	Alluvium: Red-brown alluvial silty sand. Well sorted. Semi-consolidated with partial cementation. Minor massive calcrete.	**Laboratory Results** K: 5,300 mg/L Mg: 5,580 mg/L SO4: 17,900 mg/L TDS: 197,192 mg/L SG: 1.1379 g/cm3
	Silcrete	Siltstone: Red-brown to orange-cream silcrete. Fine grained. Mostly consolidated, soft to moderately hard (increasing downhole). Some unconsolidated sand, silt & clay balling around angular silcrete fragments. Some calcrete alteration throughout, minor soft white calcareous cementation 6-8m. Distinct vein-like harder cementation 8-10m.	
10			9.5m FWS: Q= <0.5L/s
	Silcrete & Calcrete	Siltstone: Red-brown to orange-cream & white with yellow & orange staining. Silcrete dominant with pervasive calcrete alteration. Some massive calcrete 12-14m. Consolidated, but soft & brittle. Highly weathered / altered. Unconsolidated material minor to absent. Distinct vein-like calcareous cementation & vuggy, porous texture within silcrete 16-20m.	11m: Q= 0.5L/s, pH=6.94, EC=135mS/cm, TDS=86ppt, T=26C
20		Siltstone: Red-brown, fine grained, consolidated but soft. Trace to absent calcareous cementation / alteration. Minor porous texture.	17m: Q= ~14L/s, pH=7.07, EC=172mS/cm, TDS=110ppt, T=26C
		Siltstone: Light brown, to orange-cream. Silcrete dominant with calcareous alteration. Fine grained. Consolidated, but soft. Some massive white calcrete.	23m: Q= 24L/s, pH=7.09, EC=174mS/cm, TDS=111ppt, T=26C
	Calcrete	Calcrete: White, fine grained massive calcrete with some remnants of orange-cream silcrete inclusions. Consolidated, but soft. Distinct nodular, vuggy texture.	
	Sand & Gravel crete	Siltstone: Brown, soft, fine grained silcrete. Some porous, vuggy texture. Minor grey compact clay / soft mudstone, likely altered.	29m: Q= ~30L/s, pH=7.17, EC=176mS/cm, TDS=112ppt, T=28C
30		Gravel and Sand: Brown, grey & orange silt, sand & gravel. Poorly sorted, angular. Quartz & silcrete dominant. Minor brown clay & white calcrete. Likely to be altered skeletal basement material (?).	Airlift Results Q= ~15 L/s EC: 178mS/cm, pH: 7.17 TDS: 114ppk, T: 25C
	Residual Basement	Basement: Mix of moderately hard, brown, purple, orange & black fragments with soft, brittle light grey altered clay / mudstone. Quartz inclusions in altered clay. Likely to be extremely weathered & altered residual basement. Minor soft, brown sandy clay. Trace loose quartz gravels. Firm drilling.	35m: Q= ~30L/s, pH=7.16, EC=176mS/cm, TDS=113ppt, T=27C
40		Basement: Light grey clay/mudstone red, purple & orange colourations. Extremely weathered/altered. Soft & brittle. Quartz inclusions within clay. Softer drilling.	41.5m: Q= ~30L/s

Bore Construction



Construction Notes
0-2.5m 12" steel surface casing
0-3m sanitary cement seal
0-13m 8" class 18 blank PVC (ID=193mm)
3-41.5m gravel pack (1.6-3.2mm)
13-37m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
37m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP049A

Client: SO4 **Project:** Lake Way **Pad ID:** CT053 **Location:** Paleochannel

Start: 16/11/2021
Finish: 18/11/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 40m (12.25")
Casing Stickup: 0.45 m

Elevation (GL): 495 mAHD
Easting: 244470 (handheld)
Northing: 7036327 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 8.51 **Date of SWL:** 24/11/2021 **First Water Strike (mbgl):** 11

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Alluvium: Red-brown alluvial silty sand. Well sorted. Minor calcrete alteration.	**Laboratory Results** K: 5500 mg/L Mg: 5730 mg/L SO4: 18500 mg/L TDS: 198391 mg/L SG: 1.1303 g/cm3		0-2.5m 12" steel surface casing
	Silcrete		Siltstone: Red-brown to orange-cream silcrete, fine grained. Soft to moderately hard. Minor calcrete alteration. Some unconsolidated sand, silt & clay.			0-3m sanitary cement seal
10			Siltstone: Red-brown, fine grained silcrete. Consolidated, soft to moderately hard (increasing downhole). Some black & green staining/alteration.	11m (FWS): Q= <1L/s		0-13m 6" class 12 blank PVC (ID=150mm)
	Silcrete & Calcrete		Siltstone: Red-brown silcrete & calcrete conglomerate. Fine grained. Consolidated, but soft & brittle. Some vuggy texturs. Highly altered. White & black staining & cementation on surfaces. Distinct vein-likw white calcareous cementation within silcrete matrix. Reduced alteration 18-20m.	17m: Q= ~37L/s, pH=5.98, EC=151mS/cm, TDS=97ppt, T=29C		3-40m gravel pack (3.2-6.4mm)
20			Siltstone: Red-brown silcrete, fine grained. Consolidated, but soft. Trace calcrete alteration.			
	Calcrete		Calcrete: Orange-cream to white, fine grained. Consolidated, soft. Porous vuggy texture.	23m: Q= ~37L/s, pH=5.94, EC=156mS/cm, TDS=100ppt, T=27C		13-37m 6" class 12 slotted PVC (1mm aperture) (ID=150mm)
	Silcrete		Siltstone: Brown, fine grained silcrete. Consolidated, soft. Minor white calcrete. Some firm grey altered clay & minor soft brown clay.	29m: Q= ~40L/s, pH=5.97, EC=153mS/cm, TDS=98ppt, T=29C		
30	Clay & Sand		Clay and Sand: Firm grey clay with brown mix of sand, silt & clay. very gritty texture.			
	Residual Basement		Basement: Firm grey altered clay with purple, yellow & red residual basement material. Moderately hard, extremely altered / weathered. Clay with quartz inclusions within matrix.	Airlift Results Q= ~5 L/s EC: 159mS/cm, pH: 6.75 TDS: 102ppt, T: 25C 35m: Q= ~40L/s, pH=5.91, EC=151mS/cm, TDS=98ppt, T=29C		37m PVC endcap
40						

COMPOSITE BORE LOG

Bore No: LYSP050

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Client: SO4 **Project:** Lake Way **Pad ID:** BT003 **Location:** Paleochannel

Start: 6/10/2021
Finish: 6/10/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 34.6m (12.25")
Casing Stickup: 0.4 m

Elevation (GL): 499 mAHD
Easting: 245334 (handheld)
Northing: 7036253 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.78 **Date of SWL:** 08/10/2021 **First Water Strike (mbgl):** 11m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silcrete		Siltstone: Red-brown to orange-cream with black & light grey colourations. Semi-consolidated, high clay, silt & sand content (~50%). Silcrete fragments soft & crumbly.	**Laboratory Results** K: 4500 mg/L Mg: 5290 mg/L SO4: 17400 mg/L TDS: 181572 mg/L SG: 1.1242 g/cm3		0-2.5m sanitary cement seal 0-2.5m 12" steel surface casing
10	Silty Clay		Clay and Silt: Brown with lessor light grey clay. Soft, very low plasticity. High silt content. Minor sand.	11m FWS: Q= 0.5L/s, EC=107mS/cm, TDS=68ppk, pH=7.14, T=24C		0-15m 8" class 18 blank PVC (ID=193mm)
	Silcrete		Siltstone: Red-brown, fine grained. Semi-consolidated, some clay & sit. Minor coarse quartz sand.	17m: Q= 4L/s, EC=167mS/cm, TDS=107ppk, pH=7.01, T=25C		3-34.6m gravel pack (1.6-3.2mm)
20	Silty Clay		Clay and Silt: Red-brown, soft, very low plasticity clay with high silt content. Trace gravel.			
			Sandy Clay: Red-brown, soft, low plasticity clay dominant with lessor fine sand. Gritty texture. Minor quartz rich angular fine gravel.	23m: Q= 5L/s, EC=172mS/cm, TDS=110ppk, pH=7.10, T=25C		15-33m 8" class 12 slotted PVC (1mm aperture) (ID=193mm)
	Sandy Clay		Sandy Clay: Light grey, brown & yellow clay with some fine sand. Very gritty texture. Increased plasticity. Minor angular quartz rich gravel (increased 30-32m, although possible contam). Gravel likely as lenses.	Airlift Results Q= 4.5 L/s EC: 172mS/cm, pH: 7.15 TDS: 110ppk, T: 25C 29m: Q= 5L/s, EC=171mS/cm, TDS=109ppk, pH=7.12, T=25C		
30	Clay		Clay: Light grey & brown channel clay. Moderate plasticity. Minor to trace sand & silt. Firm drilling.	34m: Q= 5L/s, EC=169mS/cm, TDS=108ppk, pH=7.13, T=26C		33m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP051

Client: SO4 **Project:** Lake Way **Pad ID:** BT010 **Location:** Paleochannel

Start: 7/10/2021
Finish: 8/10/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35m (12.25")
Casing Stickup: 0.28 m

Elevation (GL): 490 mAHD
Easting: 244975 (handheld)
Northing: 7035693 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 4.17 **Date of SWL:** 9/10/2021 **First Water Strike (mbgl):** 11m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Calcrete		Calcrete: White to cream, loose broken calcrete dominant, highly weathered	**Laboratory Results** K: 4950 mg/L Mg: 5170 mg/L SO4: 17500 mg/L TDS: 177969 mg/L SG: 1.1395 g/cm3		0-2.5m sanitary cement seal 0-2.5m 12" steel surface casing
	Alluvial Siltstone		Siltstone: Brown to black, siltstone gravel, soft and easily broken, blackened weathered surfaces, trace calcrete coating on surfaces			0-12m 8" class 18 blank PVC (ID=193mm)
10			Siltstone: Dark brown to green, highly weathered section of siltstone, soft and crumbly, trace soft clays from 11-13m	11m FWS: Q=1L/s, EC=152mS/cm, TDS=96ppk, pH=7.5, T=27C		
			Conglomerate: Cream to light brown, calcrete conglomerate and silt, highly deformed hard clasts of calcrete, angular with pitted surfaces, lesser soft silt and mudstone - increasing from 15m			2.5-30m gravel pack (1.6-3.2mm)
20	Alluvial Clay		Clay: Red brown, alluvial clay, soft and sticky - trace siltstone gravels, sandy from 25-29m	17m: Q=4L/s, EC=168mS/cm, TDS=108ppk, pH=7.7, T=25C 23m: Q=5L/s, EC=164mS/cm, TDS=105ppk, pH=7.58, T=24.8C Airlift Results Q= 3.5 L/s EC: 171mS/cm, pH: 7.34 TDS: 109ppk, T: 25C 29m: Q=4.5L/s, EC=170mS/cm, TDS=110ppk, pH=7.2, T=24C		12-30m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
30			Gravel: Brown, thin transported gravel lense, quartz rich and sub-rounded			30m PVC endcap
	Channel Clay		Clay: Light grey, fat channel clay, firm and plastic	35m: Q=4.5L/s, EC=172mS/cm, TDS=110ppk, pH=7.2, T=24C		30-35m fallback

COMPOSITE BORE LOG

Bore No: LYSP052

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Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 8/10/2021
Finish: 9/10/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 33m (12.25")
Casing Stickup: 0.37 m

Elevation (ToC): 491 mAHD
Easting: 246240 (handheld)
Northing: 7035015 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 3.75 **Date of SWL:** 10/10/2021 **First Water Strike (mbgl):** 11m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvials and Calcrete		Alluvium: Light brown / cream, loose alluvials, sub-angular, poorly sorted, transported	**Laboratory Results**		0-2.5m sanitary cement seal
				K: 4780 mg/L		0-2.5m 12" steel surface casing
			Calcrete: White to cream, loose and broken clacrete, weathered and soft	Mg: 6110 mg/L		
				SO4: 20000 mg/L		
	Siltstone and Clay		Siltstone: Brown, soft and crumbly siltstone dominant, lesser fine silt, trace clay	TDS: 196978 mg/L		
				SG: 1.1600 g/cm3		0-13.5m 8" class 18 blank PVC (ID=193mm)
10						
			Siltstone: Brown, siltstone and clay, same as above but with increased clay content, highly weathered calcrete shale 15-17m			2.5-31.5m gravel pack (1.6-3.2mm)
			Siltstone: Red-brown, soft siltstone dominant, large fragments, partial rounding, increasing fines from 19m	17m FWS: Q=6L/s, EC=153mS/cm, TDS=100ppk, pH=7.2, T=34C		
20						13.5-31.5m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Alluvial Clay		Clay: Red-brown, alluvial clay dominant, sticky and plastic, trace remnant clasts of calcrete with rounding	23m: Q=7L/s, EC=167mS/cm, TDS=113ppk, pH=7.2, T=27C		
				Airlift Results Q= 8 L/s EC: 185mS/cm, pH: 7.5 TDS: 117ppk, T: 24C		
	Channel Clay		Clay: Grey, fat channel clay, firm, trace gravels on contact 27-28m	29m: Q=8L/s, EC=171mS/cm, TDS=109ppk, pH=7.2, T=28C		
30						31.5m PVC endcap
				33m: Q=8L/s		31.5-33m fallback

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COMPOSITE BORE LOG

Bore No: LYSP053

Client: SO4 **Project:** Lake Way **Location:** Paleochannel

Start: 9/10/2021
Finish: 10/10/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 33m (12.25")
Casing Stickup: 0.31 m

Elevation (ToC): 488 mAHD
Easting: 242930 (handheld)
Northing: 7037658 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.92 **Date of SWL:** 11/10/2021 **First Water Strike (mbgl):** 11m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: Light brown to white, highly weathered and loose from 0-5m, pitted surfaces, sub-angular, more competent and harder drilling from 5-9m, reduced weathering of calcrete	**Laboratory Results** K: 5430 mg/L Mg: 5360 mg/L SO4: 17700 mg/L TDS: 191381 mg/L SG: 1.2145 g/cm3		0-2.5m sanitary cement seal 0-2.5m 12" steel surface casing 0-10m 8" class 18 blank PVC (ID=193mm)
10	Siltstone		Siltstone: Brown to yellow, hard silcrete dominant from 9-11m, blackened surfaces with fluid flow, minor highly weathered calcrete shale, softer siltstone dominant from 11-15m, angular cuttings	9m FWS: Q=~4L/s 11m: Q= 10L/s, EC=146mS/cm, TDS=96ppk, pH=7.4, T=30C		
	Siltstone		Siltstone: Red / brown, soft and crumbly siltstone dominant, minor rounding and pocketed surfaces, increasing clay/fines from 17m	17m: Q= ~12L/s, EC=150mS/cm, TDS=99ppk, pH=7.4, T=28C		2.5-33m gravel pack (1.6-3.2mm) 10-28m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
20	Alluvial Clay		Clay: Red / brown, alluvial clay, sticky clay dominant, increased plasticity from 21m, trace gravels on basement contact from 24-25m	23m: Q= ~12L/s, EC=161mS/cm, TDS=103ppk, pH=7.4, T=25C		
	Basement		Basement: Grey / yellow, highly weathered skeletal granite, minor soft yellow clay throughout, easy drilling but no yield increase, quartz dominant, angular	Airlift Results Q= 4 L/s EC: 170mS/cm, pH: 7.37 TDS: 110ppk, T: 27C 29m: Q=~12L/s, EC=150mS/cm, TDS=97ppk, pH=7.1, T=25C		28m PVC endcap
30						

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COMPOSITE BORE LOG

Bore No: LYSP054

Client: SO4 **Project:** Lake Way **Pad ID:** CT043 **Location:** Paleochannel

Start: 10/10/2021
Finish: 10/10/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35m (12.25")
Casing Stickup: 0.54 m

Elevation (GL): 490mAHD (handheld)
Easting: 243728 (handheld)
Northing: 7036929 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 7.21 **Date of SWL:** 11/10/2021 **First Water Strike (mbgl):** 11m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Alluvials		Alluvium: Red / brown, sandy alluvials, fine silty sand dominant, large gypsum crystals from 0-3m, loose	**Laboratory Results** K: 4740 mg/L Mg: 5580 mg/L SO4: 20600 mg/L TDS: 184294 mg/L SG: 1.1648 g/cm3		0-2.5m sanitary cement seal 0-2.5m 12" steel surface casing
10	Silcrete / Siltstone		Siltstone: Brown, silcrete dominant, well cemented and hard, angular cuttings, calcareous cement, clayey from 5-7m, lesser soft siltstone 9-13m	11m FWS: Q=0.3L/s		0-10m 8" class 18 blank PVC (ID=193mm)
			Siltstone: Red / brown, silcrete/siltstone and clay, calcareous cemented siltstone as above, softening from 17-23m with increasing clay content	17m: Q=5L/s, EC=146mS/cm, TDS=97ppk, pH=7.4, T=32C		2.5-35m gravel pack (1.6-3.2mm)
20	Alluvial Clay		Clay and Silt: Light brown to cream, calcrete and clay, highly weathered calcrete, equal amount of soft silty clay	23m: Q=5L/s, EC=158mS/cm, TDS=102ppk, pH=7.4, T=27C Airlift Results Q= 4.5 L/s EC: 158mS/cm, pH: 7.4 TDS: 101ppk, T: 31C		10-34m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
30	Basement		Basement: Light grey, granite basement, slightly weathered, indication of fractured surfaces to 33m with large cuttings, pyrite on surfaces, hard drilling at 35m	29m: Q=6L/s, EC=165mS/cm, TDS=106ppk, pH=7.4, T=27C 35m: Q=5L/s, EC=165mS/cm, TDS=105ppk, pH=7.4, T=27C		34m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP055

Client: SO4 **Project:** Lake Way **Pad ID:** GT039 **Location:** Paleochannel

Start: 10/10/2021
Finish: 11/10/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35m (12.25")
Casing Stickup: 0.33 m

Elevation (GL): 490 mAHD
Easting: 243778 (handheld)
Northing: 7038487 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.22 **Date of SWL:** 13/10/2021 **First Water Strike (mbgl):** 11m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Alluvium		Alluvium: Dark brown, hard alluvial cap rock, angular and pitted, high hematite content, slow drilling	**Laboratory Results** K: 5070 mg/L Mg: 5270 mg/L SO4: 18100 mg/L TDS: 189268 mg/L SG: 1.2951 g/cm3		0-2.5m sanitary cement seal 0-2.5m 12" steel surface casing
	Siltstone		Siltstone: Light brown / cream, siltstone dominant, minor calcrete cementing throughout, soft silt from 3-5m, hardening 7-9m, sub-angular			0-14m 8" class 18 blank PVC (ID=193mm)
10	Siltstone		Siltstone: Brown, brittle siltstone / silcrete dominant, blackened surfaces on siltstone, calcrete veining from 11-13m, angular cuttings	11m FWS: Q=~2L/s, mixed with silt		
	Siltstone		Siltstone: Brown to light brown, hard siltstone / silcrete, blackened surfaces, minor calcrete conglomerate			2.5-35m gravel pack (1.6-3.2mm)
20	Calcrete		Calcrete: White to light grey, hard, highly weathered with nodular surfaces, voided, change to massive calcrete 21-23m with quartz (clear/grey) throughout, very slow penetration, switched to roller bit	17m: Q=~8L/s (lots of foam), EC=143mS/cm, TDS=93ppk, pH=7.5, T=33C 23m: Q=16L/s, EC=164mS/cm, TDS=106ppk, pH=7.3, T=28C		14-32m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Alluvial Gravel		Gravel: Dark brown to white, equal mix of highly weathered and rounded siltstone and weathered calcrete, minor soft calcrete shale, loose	24m: Q=22L/s, EC=162mS/cm, TDS=104ppk, pH=7.4, T=31C Airlift Results Q= 14 L/s EC: 180mS/cm, pH: 7.4 TDS: 112ppk		
30	Basement		Basement: Light grey to brown, well weathered 28-31m, light grey granite - mostly weathered out to shale, broken surfaces, slow drilling from 31m with fresher basement	29m: Q=20L/s, EC=165mS/cm, TDS=106ppk, pH=7.2, T=28C		32m PVC endcap

COMPOSITE BORE LOG

Bore No: LYSP056A

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Client: SO4 **Project:** Lake Way **Pad ID:** GT053 **Location:** Paleochannel

Start: 12/10/2021
Finish: 13/10/2021
Drilled By: Harrington
Logged By: K. Pannell

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 37m (12.25")
Casing Stickup: 0.46m

Elevation (GL): 495 mAHD
Easting: 244683 (handheld)
Northing: 7037392 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.4 mbgl **Date of SWL:** 27/10/2021 **First Water Strike (mbgl):** 11m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium and siltstone		Alluvium: Red-brown, loose and rounded alluvials in top ~1m. Hard from ~1m. Minor silty sand	**Laboratory Results** K: 3,860 mg/L Mg: 4,200 mg/L SO4: 14,900 mg/L TDS: 150,271 mg/L SG: 1.164 g/cm3		0-3m sanitary cement seal 0-2.5m 12" steel surface casing
10	Clay and Silt		Siltstone: Brown to yellow, hard silcrete with calcareous cementing, weathered and blackened surfaces with fluid flow, pocketed surfaces Clay and Silt: Light brown, silty clay, soft and sticky alluvial clay, high silt content, clay looks like a remnant weathering product of calcrete / siltstone	11m: Q=1L/s, EC=99mS/cm, TDS=64ppk, pH=7.7, T=21C		0-17m 6" class 18 blank PVC (ID=193mm) 3-35m gravel pack (3.2-6.4mm)
20	Gravelly Clay		Gravelly Clay: Grey to brown, highly weathered siltstone and calcrete conglomerate, mostly weathered to clay, lesser coarse alluvial gravels - loose	17m: Q=1.6L/s, EC=91mS/cm, TDS=58ppk, pH=7.5, T=21C 23m: Q=2.5L/s, EC=101mS/cm, TDS=65ppk, pH=7.4, T=22C Airlift Results Q= 1L/s EC=150mS/cm, pH=7.4 TDS=96ppk, T=28C		16-35m 6" class 18 slotted PVC (1mm aperture) (ID=193mm)
30	Channel Clay		Clay: Light brown to yellow, channel clay, firm and plastic, gravel contamination throughout	29m: Q=2.5L/s, EC=119mS/cm, TDS=77ppk, pH=7.6, T=24C		
	Basement		Basement: Light grey, weathered basement, well weathered and pocketed granite	35m: Q=3.3L/s, EC=140mS/cm, TDS=90ppk, pH=7.7, T=24C 37m: Q=3.3L/s, EC=139mS/cm, TDS=89ppk, pH=7.4, T=25.5C		35m PVC endcap 35-37m fallback

COMPOSITE BORE LOG

Bore No: LYSP057

Client: SO4 **Project:** Lake Way **Pad ID:** G5004 **Location:** Paleochannel

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Start: 23/10/2021
Finish: 24/10/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 39m (12.25")
Casing Stickup: 0.45 m

Elevation (GL): 488 mAHD
Easting: 244574 (handheld)
Northing: 7036873 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 6.15 mbgl **Date of SWL:** 27/10/2021 **First Water Strike (mbgl):** 11m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silcrete		Siltstone: Red-brown to orange-cream silcrete. Fine grained. Consolidated, but soft. Some alluvial sand & silt. Some calcrete alteration.	**Laboratory Results** K: 5,070 mg/L Mg: 5,040 mg/L		0-3m sanitary cement seal 0-2.5m 12" steel surface casing
			Siltstone: Light brown silcrete, fine to medium grained. Consolidated, but soft & crumbly. Some alluvial sand & silt.	SO4: 17,300 mg/L TDS: 183,825 mg/L SG: 1.13 g/cm3		
10	Silcrete & Calcrete		Siltstone: Red-brown to orange-cream silcrete dominant with some calcareous cementation on surfaces. Fine grained. Soft, but increased consolidation relative to above. Increased alteration, some yellow & black staining on surfaces.	11m FWS: Q=<1L/s		0-13m 8" class 18 blank PVC (ID=193mm)
			Siltstone: Red-brown, white & yellow silcrete & calcrete mixed conglomerate. Consolidated, but soft. Highly altered. Some vein-like calcareous cementation fabrics. Minor white & yellow massive calcrete.			3-21m gravel pack (1.6-3.2mm)
	Silcrete		Siltstone: Red-brown, fine grained silcrete. Consolidated, but soft 16-18m. Semi-consolidated 18-20m with some loose clay, silt & sand. Some calcrete alteration throughout.	17m: Q=~10-12L/s, EC=172mS/cm, TDS=110ppk, pH=7.24, T=31C		
20	Silty Clay		Clay and Silt: Red-brown soft clay with some silt. Low plasticity. Some white to orange-cream clay 20-22m. Minor sand 22-24m.	23m: Q=12-14L/s, EC=170mS/cm, TDS=107ppk, pH=7.26, T=31C		
	Sandy Clay		Sandy Clay: Red-brown to grey (transitioning down hole) soft, crumbly clay with some sand (increasing down hole). Minor quartz rich gravels 28-30m (likely residual basement material) with soft white clay.			13-37m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
30				29m: Q=12-14L/s, EC=169mS/cm, TDS=109ppk, pH=7.24, T=30C		
			Basement: Soft white & yellow clay dominant with lessor residual granitic (quartz rich) gravels & sand,	Airlift Results Q= 9L/s EC=181mS/cm, pH=7.13 TDS=114ppk, T=24C		21-39m gravel pack (3.2-6.4mm)
	Residual Basement		Basement: Yellow with minor pink skeletal granitic sand & gravel (crushed by bit). Angular, quartz rich. Minor soft residual clay. Larger quartz & K-feldspar fragments 38-39m, harder drilling. Bit refusal at 39m.	35m: Q=~16L/s, EC=172mS/cm, TDS=111ppk, pH=7.23, T=28C 39m: Q=~14L/s, EC=173mS/cm, TDS=110ppk, pH=7.24, T=28C		37m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP058

Client: SO4 **Project:** Lake Way **Pad ID:** GT059 **Location:** Paleochannel

Start: 24/10/2021
Finish: 25/10/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 36m (12.25")
Casing Stickup: 0.46m

Elevation (GL): 482 mAHD
Easting: 245096 (handheld)
Northing: 7036947 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.4 mbgl **Date of SWL:** 27/10/2021 **First Water Strike (mbgl):** 7m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Silcrete		Siltstone: Red-brown to orange-cream silcrete. Fine grained. Semi-consolidated alluvials 0-2m. Consolidated but soft 2-8m, becoming more coherent down hole. Some white calcrete alteration & minor black staining.	**Laboratory Results** K: 4,560 mg/L Mg: 4,980 mg/L SO4: 17,600 mg/L TDS: 178,276 mg/L SG: 1.1183 g/cm3 7m FWS: Q=<1L/s		0-3m sanitary cement seal 0-2.5m 12" steel surface casing
	Calcrete		Calcrete: Yellow-cream massive calcrete dominant with lessor red-brown silcrete. Fine grained. Soft to moderately hard.			0-13m 8" class 18 blank PVC (ID=193mm)
10	Silcrete & Calcrete		Siltstone: White & yellow calcrete & red-brown silcrete mixed conglomerate. Fine to medium grained. Consolidated, soft to moderately hard. Highly altered, some black staining on surfaces. Minor vein-like calcareous cementation fabrics.	11m: Q=~0.7L/s, EC=93mS/cm, TDS=59ppk, pH=7.68, T=27C		
	Silcrete		Siltstone: Red-brown, fine grained silcrete with white & yellow calcareous cementation on surfaces. Highly altered, though reduced from above. Minor black staining. Soft, bit reducing samples to fine material.	17m: Q=~5-6L/s, EC=158mS/cm, TDS=101ppk, pH=7.37, T=28C		3-36m gravel pack (3.2-6.4mm)
20	Silcrete & Calcrete		Siltstone: Red-brown silcrete dominant with lessor white calcrete (reducing downhole). Fine grained. Coherent but soft 20-22m, very soft 22-26m (samples reduced to fine material). Highly altered 20-22m with some vuggy textures in calcrete. Minor soft clay 24-26m.	23m: Q=~9-10L/s, EC=163mS/cm, TDS=105ppk, pH=7.29, T=28C Airlift Results Q= 8L/s EC=169mS/cm, pH=7.27 TDS=108ppk, T=27C		13-31m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Sandy Clay		Sandy Clay: Grey & yellow-orange clay with some fine to medium grained sand. Very gritty texture. Soft, low plasticity 26-28m, though increasing down-hole. Minor angular quartz-rich sand & gravel 30-32m (likely residual granitic material).	29m: Q=~10-11L/s, EC=164mS/cm, TDS=105ppk, pH=7.33, T=28C		
30	Channel Clay		Clay: Yellow-grey clay 32-34m transitioning to light & dark grey clay 34-36m with increasing plasticity. Minor to trace sand (reducing down hole). Harder drilling from 34m (channel clay).	35m: Q=~10L/s, EC=165mS/cm, TDS=106ppk, pH=7.2, T=30C		31m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP059

Client: SO4 **Project:** Lake Way **Pad ID:** G6004 **Location:** Paleochannel

Start: 26/10/2021
Finish: 26/10/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35m (12.25")
Casing Stickup: 0.42m

Elevation (GL): 492 mAHD
Easting: 244928 (handheld)
Northing: 7036446 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 5.39 mbgl **Date of SWL:** 28/10/2021 **First Water Strike (mbgl):** 7m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Silcrete		Siltstone: Red-brown, fine grained silcrete. Consolidated, but soft. Some black staining. Transition to white & cream-orange colour 2-6m with increasing calcrete alteration.	**Laboratory Results** K: 4,900 mg/L Mg: 4,950 mg/L SO4: 17,400 mg/L TDS: 178,052 mg/L SG: 1.1193 g/cm3		0-3m sanitary cement seal 0-2.5m 12" steel surface casing
	Silcrete		Siltstone: Red-brown to orange-cream, fine grained. Consolidated, soft to medum hard. White vein-like calcareous cementation fabrics 6-8m, 10-12m. Some white & yellow cementation on surfaces 8-10m with minor massive calcrete.	7m FWS: Q=<1L/s		0-14m 8" class 18 blank PVC (ID=193mm)
10				11m: Q=~2L/s, EC=101mS/cm, TDS=64ppk, pH=7.62, T=27C		
	Calcrete		Calcrete: Cream to white calcrete dominant with lessor red-brown silcrete. Calcrete has very fine grained matrix with coarse grained inclusions. Moderately hard. Silcrete has very vuggy texture, crumbly & soft, brittle. Highly altered.			3-35m gravel pack (3.2-6.4mm)
	Silcrete		Siltstone: Red-brown, fine grained silcrete. Consolidated, but soft & brittle 16-20m. Semi-consolidated 20-22m, transitioning to clay * silt. Minor white calcrete alteration 16-18m.	17m: Q=~6-7L/s, EC=153mS/cm, TDS=98ppk, pH=7.42, T=26C		
20						
	Clay		Sandy Clay: Red-brown, soft, low plasticity. Minor silt.	23m: Q=~4-5L/s, EC=160mS/cm, TDS=102ppk, pH=7.35, T=26C		14-32m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Sandy Clay		Sandy Clay: Red-brown to yellow-grey (transitioning down hole) clay with high sand content. very gritty texture. Soft, low to moderate plasticity. Minor angular quartz rich coarse sand & gravel throughout.	Airlift Results Q= ~6-7L/s EC=161mS/cm, pH=7.25 TDS=103ppk, T=27C 29m: Q=~4-5L/s, EC=163mS/cm, TDS=104ppk, pH=7.25, T=28C		
30						32m PVC endcap
	Channel Clay		Clay: Grey & yellow channel clay, transitioning to dark grey 34-35m. Minor to trace sand (reducing down hole). Increasing plasticity, dark grey clay very firm.	35m: Q=~4-5L/s, EC=161mS/cm, TDS=103ppk, pH=7.25, T=27C		

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COMPOSITE BORE LOG

Bore No: LYSP060

Client: SO4 **Project:** Lake Way **Pad ID:** G7004 **Location:** Paleochannel

Start: 27/10/2021
Finish: 28/10/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35m (12.25")
Casing Stickup: 0.45m

Elevation (GL): 488 mAHD
Easting: 245559 (handheld)
Northing: 7035779 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 4.83 mbgl **Date of SWL:** 30/10/2021 **First Water Strike (mbgl):** 6m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Alluvium		Alluvium: Red-brown alluvial silty sand. Fine grained, very well sorted.	**Laboratory Results**		0-3m sanitary cement seal
			Siltstone: Red-brown, fine grained silcrete. Consolidated. Soft to moderately hard. ome alteration with black staining / oxidation. Minor white calcrete.	K: 3,920 mg/L		0-2.5m 12" steel surface casing
	Silcrete & Calcrete		Siltstone: Red-brown & cream-orange to white. Silcrete dominant but with high to pervasive calcrete alteration. Fine grained, sof tot moderately hard. Minor bands of hard white calcrete with vuggy texture 2-4m, 10-12m. Some black, yellow & white staining / cementation on surfaces throughout.	Mg: 4,620 mg/L SO4: 16,000 mg/L TDS: 162,369 mg/L SG: 1.1081 g/cm3 6m FWS: Q=<1L/s		0-11.5m 8" class 18 blank PVC (ID=193mm)
10				11m: Q=~3.5L/s, EC=121mS/cm, TDS=77ppk, pH=7.47, T=26C		
	Silcrete		Siltstone: Red-brown, fine grained. Consolidated, but soft 12-16m. Semi-consolidated with some clay 16-18m. Minor calcrete alteration, yellow staining.			3-27.5m gravel pack (3.2-6.4mm)
				17m: Q=~5-6L/s, EC=131mS/cm, TDS=85ppk, pH=7.49, T=26C		
20	Clay		Clay: Red-brown clay with minor silt. Soft, low plasticity. Minor fine sand 26-28m. Gritty texture.	23m: Q=~5-6L/s, EC=144mS/cm, TDS=91ppk, pH=7.38, T=26C		11.5-27.5m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
				Airlift Results Q= 2.5L/s EC=160mS/cm, pH=7.54 TDS=103ppk, T=25C		
	Sandy Clay		Sandy Clay: Grey & yellow soft, low plasticity clay with some fine to coarse sand (increased 28-30m, possible sand lens). Minor gravel. Very gritty texture.	29m: Q=~5-6L/s, EC=148mS/cm, TDS=94ppk, pH=7.3, T=27C		
30						27.5m PVC endcap 27.5-35m fallback
	Channel Clay		Clay: Yellow-grey channel clay, moderate to high plasticity. Trace sand.	35m: Q=~5-6L/s		

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COMPOSITE BORE LOG

Bore No: LYSP061

Client: SO4 **Project:** Lake Way **Pad ID:** S3008 **Location:** Paleochannel

Start: 28/10/2021
Finish: 29/10/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 34m (12.25")
Casing Stickup: 0.52m

Elevation (GL): 491mAHD
Easting: 248486
Northing: 7031942
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 3.83 mbgl **Date of SWL:** 03/11/2021 **First Water Strike (mbgl):** 6m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Alluvium		Alluvium: Red-brown silty sand 0-1m, very well sorted. Transitioning to semi-consolidated, soft silcrete 1-2m. Minor black staining & some calcrete alteration.	**Laboratory Results** K: 3,610 mg/L Mg: 4,960 mg/L SO4: 17,000 mg/L TDS: 157,283 mg/L SG: 1.1096 g/cm3 6m FWS: Q=~1L/s		0-3m sanitary cement seal 0-2.5m 12" steel surface casing
	Silcrete		Siltstone: Red-brown to orange-cream silcrete dominant. Fine grained. Consolidated, but soft. Moderately to highly altered 2-8m with white, yellow & black cementation/staining. Alteration reduced 8-12m. Minor soft, white massive calcrete 2-6m.			0-12m 8" class 18 blank PVC (ID=193mm)
10				11m: Q=~1L/s, EC=96mS/cm, TDS=61ppk, pH=7.55, T=28C		
	Silcrete & Calcrete		Siltstone: Red-brown to orange-cream silcrete & calcrete conglomerate. Consolidated, but soft & brittle. Likely fractured, large fragments (~10cm) in samples. Highly altered. Pervasive white & yellow cementation, some vein-like calcareous cementation within silcrete matrix. Rough, pitted textures.			3-34m gravel pack (3.2-6.4mm)
	Silcrete		Siltstone: Red-brown, fine grained. Consolidated, but soft. Becoming softer down-hole. Some clay & sand 18-19m. Some alteration & yellow cementation.	17m: Q=~20L/s, EC=160mS/cm, TDS=102ppk, pH=7.28, T=27C		
20	Clay & Sand		Clay and Sand: Red-brown mix of clay, silt & fine sand. Moderately well sorted. Very gritty texture. Very oft, low plasticity. Some coarse sand 22-24m.	23m: Q=~20L/s, EC=158mS/cm, TDS=101ppk, pH=7.29, T=27C		12-30m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Clay		Clay: Red-brown silty clay. Soft, low plasticity. Minor fine sand throughout, but decreasing down-hole. Minor coarse sand & gravel 26-28m. Plasticity increasing 32-33m.	Airlift Results Q= ~13L/s EC=160mS/cm, pH=7.36 TDS=103ppk, T=26C		
				29m: Q=~20L/s, EC=158mS/cm, TDS=101ppk, pH=7.03, T=29C		30m PVC endcap
30						
	Channel Clay		Clay: Yellow-grey channel clay. Firm, moderate to high plasticity.	34m: Q=~12L/s		

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COMPOSITE BORE LOG

Bore No: LYSP062

Client: SO4 **Project:** Lake Way **Pad ID:** S3014 **Location:** Paleochannel

Start: 30/10/2021
Finish: 30/10/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35m (12.25")
Casing Stickup: 0.47m

Elevation (GL): 486mAHD
Easting: 248039
Northing: 7032312
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 4.36 mbgl **Date of SWL:** 03/11/2021 **First Water Strike (mbgl):** 6m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Alluvium		Alluvium: Red-brown silty sand 0-1m, very well sorted. Transitioning to consolidated silcrete 1-2m. Minor black staining & some calcrete alteration.	**Laboratory Results** K: 3,610 mg/L Mg: 4,990 mg/L SO4: 17,200 mg/L TDS: 164,930 mg/L SG: 1.1277 g/cm3 6m FWS: Q=<1L/s		0-3m sanitary cement seal 0-2.5m 12" steel surface casing
	Silcrete		Siltstone: Orange-cream silcrete. Fine grained. Consolidated. Soft to moderately hard. Some calcrete alteration. Yellow & white cementation 6-8m. Darker red-brown colour 8-10m with increased coherency.			0-16m 8" class 18 blank PVC (ID=193mm)
10			Siltstone: As above but very soft or semi-consolidated. Samples reduced to fine sand.	11m: Q=~1.5L/s, EC=64mS/cm, TDS=41ppk, pH=7.74, T=28C		
	Silcrete & Calcrete		Siltstone: Red-brown to orange-cream silcrete & calcrete conglomerate. Fine grained. Consolidated, but soft, brittle & crumbly. Highly altered. Yellow & white cementation on surfaces & vein-like calcareous cementation fabrics throughout.			3-35m gravel pack (3.2-6.4mm)
				17m: Q=~4L/s, EC=103mS/cm, TDS=66ppk, pH=7.59, T=28C		
20	Calcrete		Calcrete: White, yellow & red-brown. Calcrete dominant with minor original silcrete. Extremely altered. Pervasive vein-like calcareous cementation fabrics. Moderately hard, but brittle. Extensive vuggy, nodular texture.			
	Silcrete		Siltstone: Red-brown to cream-orange, fine grained. Consolidated, but soft. Minor calcrete alteration.	23m: Q=~32L/s, EC=157mS/cm, TDS=101ppk, pH=7.29, T=27C		16-34m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Clay & Sand		Clay and Sand: Brown mix of fine to coarse sand with clay & silt. Moderately well sorted. Very gritty texture. Minor gravel.	Airlift Results Q= ~17L/s EC=161mS/cm, pH=7.29 TDS=103ppk, T=26C		
	Clay		Clay: Red-brown, soft, low to moderate plasticity (increased 30-31m). Minor silt. Trace sand.	29m: Q=~32L/s, EC=158mS/cm, TDS=101ppk, pH=7.22, T=27C		
30						
	Channel Clay		Clay: Yellow-grey channel clay, transitioning to dark grey & purple from 34m. Moderate to high plasticity. Trace gravel 32-34m.	34m: Q=~32L/s, EC=159mS/cm, TDS=102ppk, pH=7.23, T=26C		34m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP062A

Client: SO4 **Project:** Lake Way **Pad ID:** S3014 **Location:** Paleochannel

Start: 30/11/2021
Finish: 1/12/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35m (12.25")
Casing Stickup: 0.5m

Elevation (GL): 496mAHD
Easting: 248929
Northing: 7032331
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 3.72 mbgl **Date of SWL:** 4/12/2021 **First Water Strike (mbgl):** 6m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Alluvium: Red-brown silty sand 0-1m, very well sorted. Transitioning to consolidated silcrete 1-2m. Minor black staining & some calcrete alteration.			0-2.5m sanitary cement seal 0-2.5m 12" steel surface casing
	Silcrete		Siltstone: Orange-cream silcrete. Fine grained. Consolidated. Soft to moderately hard. Some calcrete alteration. Yellow & white cementation 6-8m. Darker red-brown colour 8-10m with increased coherency.			0-13.5m 8" class 18 blank PVC (ID=193mm)
10			Siltstone: As above but very soft or semi-consolidated. Samples reduced to fine sand.			
	Silcrete & Calcrete		Siltstone: Red-brown to orange-cream silcrete & calcrete conglomerate. Fine grained. Consolidated, but soft, brittle & crumbly. Highly altered. Yellow & white cementation on surfaces & vein-like calcareous cementation fabrics throughout.			2.5-31.5m gravel pack (3.2-6.4mm)
	Calcrete		Calcrete: White, yellow & red-brown. Calcrete dominant with minor original silcrete. Extremely altered. Pervasive vein-like calcareous cementation fabrics. Moderately hard, but brittle. Extensive vuggy, nodular texture.			
20	Silcrete		Siltstone: Red-brown to cream-orange, fine grained. Consolidated, but soft. Minor calcrete alteration.			13.5-31.5m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Clay & Sand		Clay and Sand: Brown mix of fine to coarse sand with clay & silt. Moderately well sorted. Very gritty texture. Minor gravel.	Airlift Results Q= 30L/s EC=144.6mS/cm, pH=7.28 TDS=93ppk		
	Clay		Clay: Red-brown, soft, low to moderate plasticity (increased 30-31m). Minor silt. Trace sand.			
30	Channel Clay		Clay: Yellow-grey channel clay, transitioning to dark grey & purple from 34m. Moderate to high plasticity. Trace gravel 32-34m.			31.5m PVC endcap 31.5-35m fallback

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COMPOSITE BORE LOG

Bore No: LYSP063

Client: SO4 **Project:** Lake Way **Pad ID:** ST055 **Location:** Paleochannel

Start: 31/10/2021
Finish: 1/11/2021
Drilled By: Harrington
Logged By: J.Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35.3m (12")
Casing Stickup: 0.46m

Elevation (GL): 493 mAHD
Easting: 249487 (handheld)
Northing: 7030389 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.94 **Date of SWL:** 13/11/21 **First Water Strike (mbgl):** 5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Calcrete		Calcrete: White to cream massive calcrete dominant with red-brown to orange cream silcrete. Fine grained. Soft, semi-consolidated.	**Laboratory Results** K: 3,520 mg/L Mg: 5,000 mg/L SO4: 16,900 mg/L TDS: 162,518 mg/L SG: 1.1072 g/cm3		0-2.5m 12" steel surface casing
	Silcrete		Siltstone: Orange cream to red-brown. Fine grained. Consolidated, but soft. Crumbly 2-4m. Highlty altered. White, yellow & black cementation & staining.			0-3m sanitary cement seal
10			Siltstone: Orange-cream & yellow white, fine grained. Increased coherency, soft to hard. Altered with yellow and white cementation/staining on surfaces.	11m: Q= 1.8L/s, pH=7.43, EC=111.1mS/cm, TDS=70.8ppt, T=28C		0-21m 8" class 18 blank PVC (ID=193mm)
			Siltstone: Red-brown to orange cream silcrete dominant. Semi-consolidated, crumbly & soft. Lessor brown and cream clay with minor sand and silt.	17m: Q= 2.8L/s, pH=7.42, EC=112.1mS/cm, TDS=71.9ppt, T=27.7C		
			Clay: Brown and light grey clay. Very soft, very low plasticity. Sloppy, wet. Minor silt. Minor to trace sand. Minor silcrete fragments 16-18m.	23m: Q= 2.8L/s, pH=7.34, EC=112.1mS/cm, TDS=71.7ppt, T=26.8C 29m: Q= 6L/s, pH=7.32, EC=128.8mS/cm, TDS=83.1ppt, T=27.2C		3-35.5m gravel pack (3.2-6.4mm)
20				35m: Q= 6L/s, pH=7.36, EC=138.1mS/cm, TDS=88.4ppt, T=25.1C		
	Clay		Clay: Red-brown clay with minor silt. Soft low plasticity. Some hardened clay/semi-consolidated silcrete 23-26m.			21-33m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
30						
	Channel Clay		Clay: Grey and purple channel clay. Firm, moderate to high plasticity.	Airlift Results Q= 4 L/s EC: 138.1 mS/cm, pH: 7.36 TDS: 88.4 ppk, T: 25.1 C		33m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP064

Client: SO4 **Project:** Lake Way **Pad ID:** ST071 **Location:** Paleochannel

Start: 1/11/2021
Finish: 2/11/2021
Drilled By: Harrington
Logged By: J.Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35.3m (12")
Casing Stickup: 0.4m

Elevation (GL): 495 mAHD
Easting: 250370 (handheld)
Northing: 7029300 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 3.21 mbgl **Date of SWL:** 15/11/21 **First Water Strike (mbgl):** 5

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Alluvium		Alluvium: Red-brown silty sand. Well sorted.	**Laboratory Results** K: 3,710 mg/L Mg: 4,460 mg/L SO4: 15,100 mg/L TDS: 148,668 mg/L SG: 1.1 g/cm3		0-2.5m 12" steel surface casing
	Calcrete		Calcrete: White to orange-cream. Fine to medum grained. Consolidated, soft to moderately hard. Some crumbly intervals.			0-3m sanitary cement seal
	Silcrete		Siltstone: Red-brown, soft to moderately hard. Consolidated, but brittle. Porous texture. Minor calcrete alteration with orange staining.			0-12m 8" class 18 blank PVC (ID=193mm)
10	Silcrete & Calcrete		Siltstone: Red-brown to orange-cream silcrete with high to pervasive calcrete alteration. Consolidated, soft to moderately hard. Some porous, vuggy textures & yellow-white cementation on surfaces. Minor white massive calcrete.	11m: Q= 3L/s, pH=7.40, EC=122.7mS/cm, TDS=78.6ppt, T=27.3C 17m: Q= 8.9L/s, pH=7.37, EC=128.4mS/cm, TDS=81.9ppt, T=27.4C 23m: Q= 10L/s, pH=7.37, EC=131.9mS/cm, TDS=83.6ppt, T=27.3C 29m: Q= 15L/s, pH=7.34, EC=134.7mS/cm, TDS=86.3ppt, T=26.5C 35m: Q= 15L/s, pH=7.36, EC=130.8mS/cm, TDS=84ppt, T=26C		3-35.3m gravel pack (3.2-6.4mm)
20						12-30m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Clay		Clay: Red-brown with minor silt. Soft, low plasticity.	Airlift Results Q= 11 L/s EC: 137 mS/cm, pH: 7.4 TDS: 87.6 ppk, T: 25.0 C		30m PVC endcap
30	Channel Clay		Clay: Yellow-grey channel clay, moderate plasticity. Trending to red-grey 34-35m.			

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COMPOSITE BORE LOG

Bore No: LYSP065A

Client: SO4 **Project:** Lake Way **Pad ID:** TT007 **Location:** Paleochannel

Start: 13/09/2021
Finish: 16/09/2021
Drilled By: Harrington
Logged By: W. Foy

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 62m (12.25")
Casing Stickup: 0.54 m

Elevation (GL): 489 mAHD
Easting: 248224 (handheld)
Northing: 7032684 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 6.06 mbgl **Date of SWL:** 23/11/2021 **First Water Strike (mbgl):** 12

Depth	Geology	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silcrete	Siltstone: Red to brown silcrete, fine grained. Consolidated, soft to moderately hard. Some calcrete alteration, black staining, green & cream cementation on surfaces.	**Laboratory Results** K: 2790 mg/L Mg: 3780 mg/L SO4: 15200 mg/L TDS: 130650 mg/L SG: 1.0861 g/cm3		0-2.5m 12" steel surface casing 0-3m sanitary cement seal
10	Silty Clay	Clay: Brown clay with some silt. Firm but crumbly, semi-consolidated.			
	Sandy Clay	Sandy Clay: Brown clay with some fine sand & silt. Gritty texture. Soft, very low plasticity. Minor siltstone gravels 12-14m.	12m (FWS)		3-28m gravel pack (3.2-6.4mm)
20	Clay	Clay: Red-brown clay with minor silt. Soft, low plasticity. Trace sand.	Airlift Results Q= 1 L/s EC: 120 mS/cm, pH: 5.94 TDS: 74 ppk, T: 33 C		0-41.7m 8" class 18 blank PVC (ID=193mm)
30		Clay: Yellow-grey clay with some silt & fine sand. Gritty texture. Some hard, dark brown-black altered rock (weathered caprock/ferricrete?).			28-34m cement seal
	Channel Clay	Clay: Grey channel clay. Minor yellow & red-purple colourations. Moderate plasticity.	35m: Q= 5L/s, pH=6.14, EC=137mS/cm, TDS=84ppk, T=31C		
40	Residual Basement	Basement: Grey & orange-brown residual granitic basement. Extremely weathered & altered. Soft & brittle.	41m: Q= 5L/s, pH=6.11, EC=138mS/cm, TDS=83ppk, T=833C 47m: Q= 5L/s, pH=5.99, EC=135mS/cm, TDS=86ppk, T=28C		34-62m gravel pack (3.2-6.4mm)
50	Weathered Basement	Basement: Grey, white & pink granite basement. Highly weathered. Quartz-rich. Moderately hard, brittle.	53m: Q= 4L/s, pH=6.0, EC=125mS/cm, TDS=86ppt, T=28C		41.7-59.7m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
60			60m: Q= 4L/s, pH=6.04, EC=134mS/cm, TDS=87ppt, T=30C		59.7m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP066

Client: SO4 **Project:** Lake Way **Pad ID:** CT053 **Location:** Paleochannel

Start: 19/11/2021
Finish: 20/11/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 40m (12.25")
Casing Stickup: 0.43 m

Elevation (GL): mAHD
Easting: 244467 (handheld)
Northing: 7036336 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 8.55 **Date of SWL:** 24/11/2021 **First Water Strike (mbgl):** 11

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
	Alluvium		Alluvium: Red-brown alluvial silty sand. Well sorted. Minor calcrete alteration.	**Laboratory Results** K: 5,390 mg/L Mg: 5,500 mg/L SO4: 18,800 mg/L TDS: 196,333 mg/L SG: 1.1244 g/cm3		0-2.5m 12" steel surface casing
	Silcrete		Siltstone: Red-brown to orange-cream silcrete, fine grained. Soft to moderately hard. Minor calcrete alteration. Some unconsolidated sand, silt & clay.			0-3m sanitary cement seal
10			Siltstone: Red-brown, fine grained silcrete. Consolidated, soft to moderately hard (increasing downhole). Some black & green staining/alteration.	11m (FWS): Q= <1L/s, pH=7.02, EC=93mS/cm, TDS=59ppt, T=25C		0-13m 8" class 18 blank PVC (ID=193mm)
	Silcrete & Calcrete		Siltstone: Red-brown silcrete & calcrete conglomerate. Fine grained. Consolidated, but soft & brittle. Some vuggy texturs. Highly altered. White & black staining & cementation on surfaces. Distinct vein-likw white calcareous cementation within silcrete matrix.	17m: Q= ~15L/s, pH=7.07, EC=154mS/cm, TDS=99ppt, T=24C		3-40m gravel pack (3.2-6.4mm)
20			Siltstone: Red-brown silcrete, fine grained. Consolidated, but soft. Trace calcrete alteration.			
	Calcrete		Calcrete: Orange-cream to white, fine grained. Consolidated, soft. Porous vuggy texture.	23m: Q= ~30L/s, pH=7.15, EC=158mS/cm, TDS=101ppt, T=24C		13-37m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Silcrete		Siltstone: Brown, fine grained silcrete. Consolidated, soft. Minor white calcrete. Some firm grey altered clay & minor soft brown clay.	29m: Q= ~37L/s, pH=7.14, EC=160mS/cm, TDS=102ppt, T=24C		
30	Clay & Sand		Clay and Sand: Firm grey clay with brown mix of sand, silt & clay. very gritty texture.			
	Residual Basement		Basement: Firm grey altered clay with purple, yellow & red residual basement material. Moderately hard, extremely altered / weathered. Clay with quartz inclusions within matrix.	Airlift Results Q= ~15 L/s EC: 159mS/cm, pH: 7.10 TDS: 102ppt, T: 25C 35m: Q= ~37L/s, pH=7.11, EC=158mS/cm, TDS=101ppt, T=24C 40m: Q= ~37L/s		37m PVC endcap
40						

COMPOSITE BORE LOG

Bore No: LYSP067A

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Client: SO4 **Project:** Lake Way **Pad ID:** NT047 **Location:** Paleochannel

Start: 21/11/2021
Finish: 23/11/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (8.5"), 28.8m (6.5")
Casing Stickup: 0.5m

Elevation (GL): 495 mAHD
Easting: 240440 (handheld)
Northing: 7038973 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 3.4 **Date of SWL:** 04/12/2021 **First Water Strike (mbgl):** 4

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Sand		Silty Sand: Brown silty sand, fine grained. Well sorted. Some calcrete alteration.	**Laboratory Results** K: 6580 mg/L Mg: 9000 mg/L SO4: 27000 mg/L TDS: 259854 mg/L SG: 1.1786 g/cm3		0-2.5m 8" steel surface casing
	Silty Clay		Clay: Brown clay with some silt. Moderate plasticity, firm. Some calcrete alteration 2-4m. Some gravel & coarse sand 4-6m.			0-2.5m sanitary cement seal
	Sandy Clay		Sandy Clay: Brown clay with some fine to coarse sand. Very gritty texture.			2.5-17m gravel pack (3.2-6.4mm)
10			Clay: Brown clay, very soft, very low plasticity. Sloppy, wet.			0-17m 50mm blank PVC Class 18
	Clay		Clay: Red-brown, low to moderate plasticity. Some fine sand & minor gravel 22-24m.			17-20m cement seal
20						22-28m 50mm slotted PVC (1mm aperture) Class 18
	Sand & Gravel		Gravel and Sand: Brown mix of fine to coarse sand & gravel. Poorly sorted. Minor cream-grey clay.	Airlift Results EC: 167mS/cm, pH: 6.82 TDS: 109ppt, T: 26C		20-28m gravel pack (3.2-6.4mm)
	Clay		Clay: Red-brown, firm, moderate plasticity. Yellow-grey channel clay at EOH. Firm, moderate to high plasticity.			28m PVC endcap

COMPOSITE BORE LOG

Bore No: LYSP067B

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Client: SO4 **Project:** Lake Way **Pad ID:** NT047 **Location:** Paleochannel

Start: 21/11/2021
Finish: 22/11/2021
Drilled By: Harrington
Logged By: J. Meertens

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (8.5"), 10m (8.5")
Casing Stickup: 0.51m

Elevation (GL): 495 mAHD
Easting: 240428 (handheld)
Northing: 7038967 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 2.41 **Date of SWL:** 22/11/2021 **First Water Strike (mbgl):** 4

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silty Sand		Silty Sand: Brown silty sand, fine grained. Well sorted. Some white calcrete.	**Laboratory Results**		0-2.5m 8" steel surface casing
				K: 5730 mg/L		
	Silty Clay		Clay: Red-brown clay with some silt. Soft, low plasticity.	Mg: 7830 mg/L		0-2.5m sanitary cement seal
				SO4: 24100 mg/L		
				TDS: 228073 mg/L		0-4m 50mm blank PVC Class 18
				SG: 1.1554 g/cm3		
						2.5-10m gravel pack (3.2-6.4mm)
	Sandy Clay		Sandy Clay: Brown clay with some fine to coarse sand. Very gritty texture.	Airlift Results EC: 168mS/cm, pH: 6.85 TDS: 107ppk, T: 25C		4-10m 50mm slotted PVC (1mm aperture) Class 18
10						10m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP068

Client: SO4 **Project:** Lake Way **Pad ID:** ST079 **Location:** Paleochannel

Start: 05/12/2021
Finish: 08/12/2021
Drilled By: Acqua Drill
Logged By: W. Foy

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 32m (12.25")
Casing Stickup: 0.59 m

Elevation (GL): 495mRL (handheld)
Easting: 250871 (handheld GPS)
Northing: 7028625 (handheld GPS)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 1.29 **Date of SWL:** 12/12/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Silcrete & Calcrete		Siltstone: Brown-black & red-brown silcrete. Fine grained, consolidated, moderately hard. Highly altered. Minor sandy clay at surface. Minor white calcrete.	Laboratory Results		0-3m sanitary cement seal
			Siltstone: Red-brown to orange-cream silcrete. Fine grained, consolidated, soft to moderately hard. Minor calcrete alteration.	Potassium: 3830 mg/L Magnesium: 4190 mg/L SO4: 14700 mg/L TDS: 154208 mg/L Specific Gravity: 1.1008 g/cm3		0-3m 12" steel surface casing 0-12m 8" blank PVC Class 18 (ID=193mm)
10			Siltstone: Red-brown to orange-cream silcrete with some white calcrete. Fine grained, consolidated, soft to moderately hard. Increased alteration; staining & cementation on surfaces. Minor porous textures. Minor soft brown clay.			12-30m 8" slotted (1mm aperture) PVC class 18 (ID=193mm)
			Calcrete: Cream calcrete, hard and rounded nobules. Some red-brown silcrete.			
			Siltstone: Red-brown to cream silcrete, angular. Some cream calcrete and angular white-grey weathered quartz.			
20	Clay		Clay: Red-brown alluvial clay. Soft, low plasticity. Some gravel reducing downhole.			3-32m gravel pack (1.6-3.2mm)
				Airlift Results: Q=12 L/s EC=137.9mS/cm, TDS=88.5ppk pH=7.44, Temp=23.3 C		
30						30m PVC end cap

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COMPOSITE BORE LOG

Bore No: LYSP069

Client: SO4 **Project:** Lake Way **Pad ID:** GT039 **Location:** Paleochannel

Start: 04/12/2021
Finish: 05/12/2021
Drilled By: Harrington
Logged By: W. Foy

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 35m (12.25")
Casing Stickup: 0.47 m

Elevation (GL): 497 mAHD
Easting: 243772 (handheld)
Northing: 7038462 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 6.93 **Date of SWL:** 06/12/2021 **First Water Strike (mbgl):** ~8m

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Alluvium		Alluvium: Dark brown, hard alluvial cap rock, angular and pitted, high hematite content, slow drilling	**Laboratory Results**		0-2.5m sanitary cement seal
			Siltstone: Light brown / cream, siltstone dominant, minor calcrete cementing throughout, soft silt from 3-5m, hardening 7-9m, sub-angular	K: 3520 mg/L Mg: 3970 mg/L SO4: 13300 mg/L TDS: 141927 mg/L SG: 1.092 g/cm3		0-2.5m 12" steel surface casing
	Siltstone		Siltstone: Brown, brittle siltstone / silcrete dominant, blackened surfaces on siltstone, calcrete veining from 11-13m, angular cuttings	FWS ~8m: Q= >1L/s, very silty.		0-14m 8" class 18 blank PVC (ID=193mm)
10				11m Q=1L/s, EC= 103mS/cm, TDS=65.73ppk, pH= 7.29, T= 30C		
			Siltstone: Brown to light brown, hard siltstone / silcrete, blackened surfaces, minor calcrete conglomerate			2.5-34m gravel pack (3.2-6.4mm)
	Calcrete		Calcrete: White to light grey, hard, highly weathered with nodular surfaces, voided, change to massive calcrete 21-23m with quartz (clear/grey) throughout, very slow penetration, switched to roller bit	17m: Q=5L/s, EC=142.7mS/cm, TDS=90.36ppk, pH=7.23, T=29.3C		
20						14-32m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Alluvial Gravel		Gravel: Dark brown to white, equal mix of highly weathered and rounded siltstone and weathered calcrete, minor soft calcrete shale, loose	23m: Q=18L/s, EC=156.3mS/cm, TDS=99.8ppk, pH=7.29, T=26.7C Airlift Results Q= 14 L/s EC: 158.1mS/cm, pH: 7.39 TDS: 101.1ppk, T= 26.8C		
	Basement		Basement: Light grey to brown, well weathered 28-31m, light grey granite - mostly weathered out to shale, broken surfaces, slow drilling from 31m with fresher basement	29m: Q=18L/s, EC=156mS/cm, TDS=99.7ppk, pH=7.15, T=26.8C		
30				34m: Q=20L/s, EC=156.6mS/cm, TDS=100.3ppk, pH=7.2, T=26.4C		32m PVC endcap

COMPOSITE BORE LOG

Bore No: LYSP070

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Client: SO4 **Project:** Lake Way **Pad ID:** Pad 9 **Location:** Paleochannel

Start: 05/12/2021
Finish: 06/12/2021
Drilled By: Harrington
Logged By: W.Foy

Drilling Method: Air Rotary
Fluid: Air
Bit Record: 2.5m (15"), 32m (12.25")
Casing Stickup: 0.42 m

Elevation (GL): 496 mAHD
Easting: 251096 (handheld)
Northing: 7028852 (handheld)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 3.88 mbgl **Date of SWL:** 7/12/2021 **First Water Strike (mbgl):** 6

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Calcrete		Calcrete: Cream-orange to white-black, fine to medium grained. Soft to moderately hard.	**Laboratory Results** K: 3690 mg/L Mg: 4150 mg/L SO4: 14200 mg/L TDS: 148667 mg/L SG: 1.0983 g/cm3		0-2.5m 12" steel surface casing 0-2.5m sanitary cement seal
	Silcrete		Siltstone: Red-brown to orange-cream silcrete. fine to coarse grained. Soft to moderately hard.	6m: FWS >1		0-7m 8" class 18 blank PVC (ID=193mm)
10			Siltstone: Red-brown & yellow-green. Fine to coarse grained. Soft to moderately hard. Some yellow fine sand.	11m: Q: 5L/s; EC: 123.2; pH: 7.5; TDS: 78.68; T: 29C		2.5-31m gravel pack (3.2-6.4mm)
	Calcrete		Calcrete: White to cream with some brown, fine grained. Hard drilling from 16m. Quartz rich.	17m: Q: 10L/s; EC: 128.1; pH: 7.36; TDS: 82.13; T: 27.8C		
20	Clay		Clay: Light green/grey hard clay to soft mudstone. Minor white calcrete andc some red-brown siltstone.			7-31m 8" class 18 slotted PVC (1mm aperture) (ID=193mm)
	Silcrete		Siltstone: Red-brown, fine grained. Soft, semi-consolidated. Minor white calcrete.	23m: Q: 515L/s; EC: 131.7; pH: 7.33; TDS: 84.4; T: 26.7C		
	Clay		Clay: Red-brown soft clay with some silt. Gritty texture. Low plasticity.	29m: Q: 15L/s; EC: 133.9; pH: 7.25; TDS: 85.76; T: 27.2C 32: Q: 15L/s; EC: 132.6; pH: 7.26; TDS: 84.36; T: 35.5C		
30				Airlift Results Q= 14 L/s EC: 148.5 mS/cm, pH: 724 TDS: 95.6 ppk, T: 26 C		31m PVC endcap

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COMPOSITE BORE LOG

Bore No: LYSP071

Client: SO4 **Project:** Lake Way **Pad ID:** S6009 **Location:** Paleochannel

Start: 09/12/2021
Finish: 13/12/2021
Drilled By: Acqua Drill
Logged By: W.Foy

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: 6m (17.5"), 37m (12.25")
Casing Stickup: 0.5 m

Elevation (GL): 492 mRL (handheld)
Easting: 249004 (handheld GPS)
Northing: 7029309 (handheld GPS)
Projection: GDA94 MGA Zone 51

Static Water Level (mbgl): 0.73 mbgl **Date of SWL:** 14/12/2021 **First Water Strike (mbgl):** Unknown

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Silt: Dark brown, silty lake sediments, soft and unconsolidated, high gypsum content	Laboratory Results		0-3m sanitary cement seal
	Silt & Clay		Clay and Silt: Light brown, silty alluvial clay, soft and puggy, high silt content, trace sand and gravel throughout	Potassium: 3840 mg/L Magnesium: 5710 mg/L SO4: 19900 mg/L TDS: 176194 mg/L Specific Gravity: 1.1192 g/cm3		0-6m 12" steel surface casing 0-10m 8" blank PVC Class 18 (ID=193mm)
10						3-37m gravel pack (1.6-3.2mm)
20	Alluvial Clay		Clay: Red/brown, alluvial clay, clay dominant, moderate plasticity, reduced silt, no trace of gravel lense			10-34m 8" slotted (1mm aperture) PVC Class 18 (ID=193mm)
30				Airlift Results: Q = 2 L/s EC = 149 mS/cm, TDS = 95.38 ppk pH = 7.5, Temp = 24.5 C		
	Channel Clay		Clay: Dark grey, fat channel clay, firm and plastic			34m PVC end-cap
40						
50						

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COMPOSITE BORE LOG

Bore No: Bore 2/3

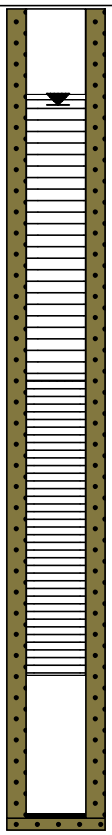
Client: WMC **Project:** WMC 1992 **Location:** Lake Way

Start: 14/10/1992
Finish: 17/10/1992
Drilled By: DrillCorp
Logged By: Danielle Wheatley

Drilling Method: Mud Rotary Drilling
Fluid: Mud Rotary Drilling
Bit Record: 310mm, 310mm
Casing Stickup: 0.475

Elevation (GL):
Easting: 256346 (handheld)
Northing: 7021022 (handheld)
Projection: MGA Zone 51

Static Water Level (mbgl): 4.025 **Date of SWL:** 5/02/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Carbonate Replacement		Calcareous Siltstone: Brown, nodular calcrete and silt	Yield : 6L/s, pH: 6.6, EC: 290,000 (µmho/cm), TDS: 170,000mg/L		0-3.6m Blank PVC 155mm Class 9 4.025 SWL
10	Alluvial Sediments		Silty Sand: Silt, sand, fine to medium grained, water saturated, gravelly layer 26-24m	Tranmissivity 37 (m³/d/m) Sodium 57,000 (mg/L)		3.8-15.6 Slotted PVC 155mm Class 9
20				Potassium 4,000 (mg/L)		15.6-28m Screen 155mm stainless steel screen (0.5mm aperture)
30	Mottled Zone/Lacustrine Sediments/Base of Seds		Granite: Weathered granite profile, clays/sand, no water	Magnesium 4,000 (mg/L) Calcium 820 (mg/L)		0-34.5m Gravel Pack 33.3m End Cap PVC 34m EOH
40				Sulphate 14,000 (mg/L)		
50	Weathered Granite			Laboratory Report Sample #8084		
60						
70	Oxidised Granite					

COMPOSITE BORE LOG

Bore No: Bore 3 / 4

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Client: WMC **Project:** WMC 1992 **Location:** Lake Way

Start: 17/10/1992 (estimate)
Finish: 8/11/1992 (estimate)
Drilled By: DrillCorp
Logged By: Danielle Wheatley

Drilling Method: Mud Rotary Drilling
Fluid: Mud Rotary Drilling
Bit Record: 310mm, 310mm
Casing Stickup: 0.48

Elevation: 492.3230
Easting: 247629
Northing: 7032291
Projection: MGA Zone 51

Static Water Level (mbgl): 3.095 **Date of SWL:** 1/02/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Carbonate Replac		Silty Sand: Red-brown, silty, fine to coarse sand	Yield : 6L/s, pH: 5.4, EC: 470,000 (µmho/cm), TDS: 260,000mg/L		3.095 SWL
			Silty Sand: Red-brown, silty, fine to coarse sand, ferricrete and calcrete (1-2m)			0-9.5m Concrete Plug
10			Silt: Brown, sandy, clayey silt			0-9.5 m Surface Casing 355mm steel
			Clay: Brown, puggy clay			
20			Clay and Silt: Red-brown silt-clayey	Tranmissivity 42 (m^3/d/m)		0-35m Gravel Pack 0.8-1.6mm
				Sodium 83,000 (mg/L)		
30	Lacu Late Tertiary Weathering Profile		Clay: Light and dark grey clay, stiff, mottled	Potassium 6,300 (mg/L)		
				Magnesium 8,200 (mg/L)		35-40m Grout Seal
40				Calcium 520 (mg/L)		0-80m Blank PVC 155mm Class 12 blank casing
				Sulphate 24,000 (mg/L)		
50				Laboratory Report Sample #8201		40-93m Gravel Pack 0.8-1.6mm
60						
70						
80						80-93m Screen 150mm stainless steel screen(0.5mm aperture)
90	Alluvial Sediments		Sand: Sand and some clay lenses			93-93.3m End Cap PVC
100			Sand: sand continues below 101m			93-105.5m Fallback Sand infill
	crete					105.5m EOH

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COMPOSITE BORE LOG

Bore No: Bore 5 / 7

Client: **Project:** Lake Way **Pad ID:** **Location:** Lake Way

Start: Unknown
Finish: Unknown
Drilled By: Unknown
Logged By: Unknown

Drilling Method: Mud Rotary
Fluid: Mud
Bit Record: Unknown
N/A
Casing Stickup: 0.485

Elevation (GL):
Easting: 242614
Northing: 7034457
Projection: MGA Zone 51

Static Water Level (mbgl): 3.29m **Date of SWL:** 28/01/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction	
					Bore Diagram	Construction Notes
0						400mm steel casing SWL
10			Unknown Lithology			
20						
30						
40						
50						Blank PVC 149mm Class 12
60						
70						1.6-3.22mm gravel pack
80						
90						
100						Stainless steel wire wound screen 105m: End of Bore 108m: End of Hole

COMPOSITE BORE LOG

Bore No: LYAGZ001

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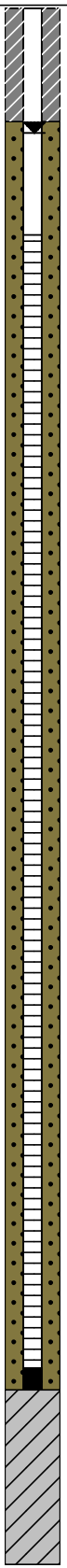
Client: SO4 **Project:** Lake Way **Location:** On Lake

Start: 25/02/2019
Finish: 25/02/2019
Drilled By: SO4
Logged By:

Drilling Method: Auger
Fluid:
Bit Record: 6": 0-6.87m
Casing Stickup: 0.4 m

Elevation (GL): 490.74
Easting: 236852.82
Northing: 7032049.3
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 0.55 **Date of SWL:** 30/03/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction	
					Bore Diagram	Construction Notes
0	Lakebed Clay		Clay	SWL = 0.55 mbgl		0-0.5m: Bentonite seal 0-1m: Blank 50mm PVC casing 0.5-6.1m: Gravel pack 1-6.1m: Slotted 50mm PVC casing 6.1m: Endcap 6.1-6.87m: Fallback

COMPOSITE BORE LOG

Bore No: LYAGZ005

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Client: SO4 **Project:** Lake Way **Location:** On Lake

Start: 23/02/2019
Finish: 23/02/2019
Drilled By: SO4
Logged By:

Drilling Method: Auger
Fluid:
Bit Record: 6": 0-6.45m
Casing Stickup: 1.05 m

Elevation (GL): 490.56
Easting: 240171.22
Northing: 7028538.34
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 0.43 **Date of SWL:** 30/03/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction	
					Bore Diagram	Construction Notes
0	Lakebed Clay		Clay	SWL = 0.43 mbgl		0-0.5m: Bentonite seal 0-1m: Blank 50mm PVC casing 0.5-6.45m: Gravel pack 1-6.45m: Slotted 50mm PVC casing 6.4m: Endcap

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COMPOSITE BORE LOG

Bore No: LYAGZ007

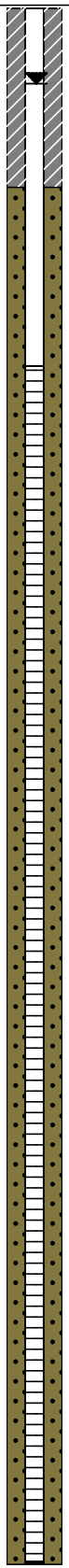
Client: SO4 **Project:** Lake Way **Location:** On Lake

Start: 24/02/2019
Finish: 24/02/2019
Drilled By: SO4
Logged By:

Drilling Method: Auger
Fluid:
Bit Record: 6": 0-4.35m
Casing Stickup: 0.61 m

Elevation (GL): 490.754
Easting: 238747
Northing: 7034697
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 0.21 **Date of SWL:** 30/03/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction	
					Bore Diagram	Construction Notes
0	Lakebed Clay		Clay	SWL = 0.21 mbgl		0-0.5m: Bentonite seal 0-1m: Blank 50mm PVC casing 0.5-4.35m: Gravel pack 1-4.35m: Slotted 50mm PVC casing 4.35m: Endcap

COMPOSITE BORE LOG

Bore No: LYAGZ008

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Client: SO4 **Project:** Lake Way **Location:** On Lake

Start: 24/02/2019
Finish: 24/02/2019
Drilled By: SO4
Logged By:

Drilling Method: Auger
Fluid:
Bit Record: 6": 0-6.2m
Casing Stickup: 1.07 m

Elevation (GL): 490.37
Easting: 235863.9
Northing: 7038719.5
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 0.37 **Date of SWL:** 30/03/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction	
					Bore Diagram	Construction Notes
0	Lakebed Clay		Sand: Yellow-brown, evaporite sand, clean and dry	SWL = 0.37 mbgl		0-0.5m: Bentonite seal
			Clay: Red-brown, Clay, Soft. 20% FG Evap S (Mtx supported)			0-1m: Blank 50mm PVC casing
			Clay: Red-brown, Clay, Firm. Minor gleyed mottling (<5%)			
			Clay: Grey, sandy, gleyed clay. Moderate Flow			0.5-6.1m: Gravel pack
			Clay: Red-brown, Clay, Firm. Minor gleyed mottling (<5%)			1-6.1m: Slotted 50mm PVC casing
						6.1m: Endcap
						6.1-6.2m: Fallback

COMPOSITE BORE LOG

Bore No: LYAGZ010

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Client: SO4 **Project:** Lake Way **Location:** On Lake

Start: 24/02/2019
Finish: 24/02/2019
Drilled By: SO4
Logged By:

Drilling Method: Auger
Fluid:
Bit Record: 6": 0-8.23m
Casing Stickup: 1.12 m

Elevation (GL): 490.8
Easting: 241951.2
Northing: 7033873.2
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 0.5 **Date of SWL:** 30/03/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Lakebed Clay		Sand: Yellow-brown, evaporite sand, clean and dry			0-0.5m: Bentonite seal
			Clay: Red-brown, Clay, sandy (30%). Very soft, unstable (rapid collapse)	SWL = 0.5 mbgl		0-1m: Blank 50mm PVC casing
			Clay: Red-brown, Clay. Stiff. 30% VFS in Mtx. 5% pockets clean large Gypsum			0.5-8.19m: Gravel pack
			Clay: Red-Brown, Clay. Very stiff. Slight Gleyed mottling			1-8.19m: Slotted 50mm PVC casing
						8.19m: Endcap 8.19-8.23m: Fallback

COMPOSITE BORE LOG

Bore No: LYAGZ011

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Client: SO4 **Project:** Lake Way **Location:** On Lake

Start: 23/02/2019
Finish: 23/02/2019
Drilled By: SO4
Logged By:

Drilling Method: Auger
Fluid:
Bit Record: 6": 0-5.67m
Casing Stickup: 1.12 m

Elevation (GL): 490.94
Easting: 243087.9
Northing: 7032074.3
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 0.44 **Date of SWL:** 30/03/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Sand: Yellow-brown, evaporite sand, clean and dry			0-0.5m: Bentonite seal
			Clay: Red-brown, Clay, Very soft, moderately unstable. 30% Mtx supported Evap-S	SWL = 0.44 mbgl		0-1m: Blank 50mm PVC casing
			Clay: Red-brown, Clay. Firm. 30% Mtx supported VFG Evap-S. Minor pockets of large Gypsum			
	Lakebed Clay		Clay: Red-Brown, Clay, V. Stiff. No Evap-S. Slight gleyed mottling			0.5-5.67m: Gravel pack
						1-5.67m: Slotted 50mm PVC casing
						5.67m: Endcap

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COMPOSITE BORE LOG

Bore No: LYAGZ016

Client: SO4 Exploration **Project:** Lake Way **Project Number:** n/a **Area** Lake Way

Start:	20/04/2019	**Drilling Method:**	Solid Auger	**Elevation:**	493
Finish:	20/04/2019	**Fluid:**	n/a	**Easting:**	253164
Drilled By:	Soil Mechanics	**Bit Record:**	90mm	**Northing:**	7022036
Logged By:	Andrew Tawil	**Casing Stickup:**	1.0m	**Projection:**	MGA 1994 Zone 51

Static Water Level (mbgl): 1.15 mbgl **Date of SWL:** 20/04/2019 **First Water Strike (mbgl):** 1.15

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction	
					Bore Diagram	Construction Notes
0			unable to log geology			
1				FWS: 1.15m SWL: 1.15m		First Water Strike at 1.15m Bentonite Seal (0.8-1.3m)
2						Top of slots/screen (1.5m)
3						
4						
5			Clay and Sand: Red-brown, medium sands, rounded and well sorted			Gravel x 1.6mm - 3.2mm (1.3-6.05m)
6				EOH at 6.6m		Bottom of slots/screen (6m) Fallback (6-6.6m)
			Sandy Clay: Red fine stiff hard sands ? consolidated			

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COMPOSITE BORE LOG

Bore No: LYAGZ017

Client: SO4 Exploration **Project:** Lake Way **Project Number:** n/a **Area** Lake Way

Start: 21/04/2019	**Drilling Method:** Solid Auger	**Elevation:** 492
Finish: 21/04/2019	**Fluid:** n/a	**Easting:** 253195
Drilled By: Soil Mechanics	**Bit Record:** 90mm	**Northing:** 7020072
Logged By: Andrew Tawil	**Casing Stickup:** 0.89m	**Projection:** MGA 1994 Zone 51

Static Water Level (mbgl): **Date of SWL:** 21/04/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0–1			No Returns: No return			
1–4			Clay: Red-brown, firm and damp			Bentonite Seal (0.5-1.25m) Top of slots/screen (1.61m)
4–5			Sandy Clay: Brown, medium sands, poorly sorted, rounded			Gravel x 1.6mm - 3.2mm (1.25-8.15m)
5–7			Clay: Red-brown, firm and wet			
7–8			Clay: Beige, traces of medium rounded silica clasts, stiff and dry			Bottom of slots/screen (8.1m) Fallback (8.1-8.38m)
8			EOH at 8.5m			

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COMPOSITE BORE LOG

Bore No: LYAGZ018

Client: SO4 Exploration **Project:** Lake Way **Project Number:** n/a **Area** Lake Way

Start: 21/04/2019	**Drilling Method:** Solid Auger	**Elevation:** 499 masl
Finish: 21/04/2019	**Fluid:** n/a	**Easting:** 254152
Drilled By: Soil Mechanics	**Bit Record:** 90mm (0.0-8.55m)	**Northing:** 7021373
Logged By: Andrew Tawil	**Casing Stickup:** 0.85m	**Projection:** MGA 1994 Zone 51

Static Water Level (mbgl): 1.1 mbgl **Date of SWL:** 21/04/2019 **First Water Strike (mbgl):** 1.1

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Clay: Brown clay with traces of fine sandsm, soft to firm, dry			Bentonite Seal (0.3-1.1m)
1				FWS: 1.1m SWL:1.1m		First Water Strike at 1.1m
			Clay: Light brown clay with traces of fine sand, stiff and dry			Top of slots/screen (1.5m) Gravel x 1.6mm - 3.2mm (1.1-8.25m)
2						
3						
4						
5						
6						
			Clay: Light brown clay with traces of medium sands, rounded, stiff and dry			
7						
8				EOH at 8.55m		Bottom of slots/screen (8.2m) Fallback (8.2-8.55m)

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COMPOSITE BORE LOG

Bore No: LYAGZ019

Client: SO4 Exploration **Project:** Lake Way **Project Number:** n/a **Area** Lake Way

Start: 22/04/2019	**Drilling Method:** Solid Auger	**Elevation:** 492
Finish: 22/04/2019	**Fluid:** n/a	**Easting:** 251999
Drilled By: Soil Mechanics	**Bit Record:** 90mm	**Northing:** 7021456
Logged By: Andrew Tawil	**Casing Stickup:** 1.0m	**Projection:** MGA 1994 Zone 51

Static Water Level (mbgl): 1.0 mbgl **Date of SWL:** 22/04/2019 **First Water Strike (mbgl):** 1.0

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Clay and Silt: Red-brown, firm and wet			
1				FWS: 1m SWL: 1m		First Water Strike at 1m Bentonite Seal (0.3-1.3m)
2						Top of slots/screen (1.4m)
3			Clay: Light brown, trace fine sands, moderately sorted and rounded			
4						
5						Gravel x 1.6mm - 3.2mm (1.3-8.35m)
6						
7						
8				EOH at 8.8m		Bottom of slots/screen (8.3m) Fallback (8.3-8.8m)

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COMPOSITE BORE LOG

Bore No: LYAGZ020

Client: SO4 Exploration **Project:** Lake Way **Project Number:** n/a **Area** Lake Way

Start: 22/04/2019	**Drilling Method:** Solid Auger	**Elevation:** 500
Finish: 22/04/2019	**Fluid:** n/a	**Easting:** 253502
Drilled By: Soil Mechanics	**Bit Record:** 90mm	**Northing:** 7022840
Logged By: Andrew Tawil	**Casing Stickup:** 1.0m	**Projection:** MGA 1994 Zone 51

Static Water Level (mbgl): 1.15 mbgl **Date of SWL:** 22/04/2019 **First Water Strike (mbgl):** 1.15

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction	
					Bore Diagram	Construction Notes

0 m — Clay: Beige-brown interbedded clay and unconsolidated calcrete, dry

FWS: 1.15m

SWL: 1.15m

1 m

2 m — Clay and Silt: Red-brown, wet and firm

3 m — Calcareous Sandstone: Beige-brown, calcrete possibly cemented

4 m — Gypsum: Evaporite hard gypsum

First Water Strike at 1.15m

Bentonite Seal (0.6-1.3m)

Top of slots/screen (1.5m)

Gravel x 1.6mm - 3.2mm (1.3-4.85m)

Bottom of slots/screen (4.8m)

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COMPOSITE BORE LOG

Bore No: LYAGZ021

Client: SO4 Exploration **Project:** Lake Way **Project Number:** n/a **Area** Lake Way

Start: 22/04/2019	**Drilling Method:** Solid Auger	**Elevation:** 496
Finish: 22/04/2019	**Fluid:** n/a	**Easting:** 252019
Drilled By: Soil Mechanics	**Bit Record:** 90mm	**Northing:** 7022537
Logged By: Andrew Tawil	**Casing Stickup:** 0.7m	**Projection:** MGA 1994 Zone 51

Static Water Level (mbgl): 1.45 mbgl **Date of SWL:** 22/04/2019 **First Water Strike (mbgl):** 1.45

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Clay and Silt: Brown, firm and dry			Backfill (0-1.4)
1				FWS: 1.45m		First Water Strike at 1.45m
			Sandy Clay: Red-brown, fine sands, well sorted, rounded, soft and damp	SWL: 1.45m		Bentonite Seal (1.15-1.7m)
2						Top of slots/screen (1.8m)
3			Clayey Sand: Brown, traces of medium sands, rounded and soft			
4						
5						Gravel x 1.6mm - 3.2mm (1.7-6.6m)
6			Sandy Clay: Light brown, fine sands, well sorted, stiff and damp	EOH at 6.7m		Bottom of slots/screen (6.5m)
						Fallback (6.5-6.7m)

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COMPOSITE BORE LOG

Bore No: LYAGZ022

Client: SO4 Exploration **Project:** Lake Way **Project Number:** n/a **Area** Lake Way

Start:	23/04/2019	**Drilling Method:**	Solid Auger	**Elevation:**	494
Finish:	23/04/2019	**Fluid:**	n/a	**Easting:**	252766
Drilled By:	Soil Mechanics	**Bit Record:**	90mm	**Northing:**	7024389
Logged By:	Andrew Tawil	**Casing Stickup:**	1.0m	**Projection:**	MGA 1994 Zone 51

Static Water Level (mbgl): 0.95 mbgl **Date of SWL:** 23/04/2019 **First Water Strike (mbgl):** 0.95

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Gypsum: Beige, medium to coarse gypsum evaporitic sands, dry			
1			Clay: Red-brown firm and wet	FWS: 0.95m SWL: 0.95m		First Water Strike at 0.95m Bentonite Seal (0.45-1.3m)
			Hole was extremely wet/sloppy therefore unable to accurately define geology after 1.5m			Top of slots/screen (1.5m)
2						
3						
4						
5						Gravel x 1.6mm - 3.2mm (1.3-6.5m)
6						Bottom of slots/screen (6.45m)
7				EOH at 7.6m		Fallback (6.45-7.6m)

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COMPOSITE BORE LOG

Bore No: LYAGZ023

Client: SO4 Exploration **Project:** Lake Way **Project Number:** n/a **Area** Lake Way

Start:	20/04/2019	**Drilling Method:**	Solid Auger	**Elevation:**	492
Finish:	20/04/2019	**Fluid:**	n/a	**Easting:**	252590
Drilled By:	Soil Mechanics	**Bit Record:**	90mm 90mm	**Northing:**	7021665
Logged By:	Andrew Tawil	**Casing Stickup:**	1m	**Projection:**	MGA 1994 Zone 51

Static Water Level (mbgl): 1.1 mbgl **Date of SWL:** 20/04/2019 **First Water Strike (mbgl):** 1.1

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Sand: Evaporitic sand, beige coarse dry sands			Backfill (0-0.8m)
1						First Water Strike at 1.1m
			Clay: Light brown, traces of fine sands, firm			Bentonite Seal (0.8-1.3m)
						Top of slots/screen (1.5m)
2						
3			Clay: Light brown, firm			
4						
5						Gravel (1.3-8.25m)
6						
7			Clay and Sand: Beige, fine to medium sands with traces of gypsum crystals			
8						Bottom of slots/screen (8.2m)
						Fallback (8.2-9m)
9			EOH at 9m			

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COMPOSITE BORE LOG

Bore No: LYAGZ024

Client: SO4 Exploration **Project:** Lake Way **Project Number:** n/a **Area** Lake Way

Start:	23/04/2019	**Drilling Method:**	Solid Auger	**Elevation:**	492
Finish:	23/04/2019	**Fluid:**	n/a	**Easting:**	250681
Drilled By:	Soil Mechanics	**Bit Record:**	90mm	**Northing:**	7023677
Logged By:	Andrew Tawil	**Casing Stickup:**	1.0m	**Projection:**	MGA 1994 Zone 51

Static Water Level (mbgl): 1.1 mbgl **Date of SWL:** 23/04/2019 **First Water Strike (mbgl):** 1.1

Depth	Geology / Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0		Gypsum: Evaporitic sands, beige medium to coarse grain gypsum sands, dry			Backfill (0-0.55m)
		Clay and Silt: Brown, soft and dry			Bentonite Seal (0.55-1.3m)
1			FWS: 1.1m		First Water Strike at 1.1m
			SWL: 1.1m		
					Top of slots/screen (1.5m)
2		Sandy Clay: Red-brown, fine sands moderately sorted, firm to stiff. Sand content increases with depth			
3					
4					Gravel x 1.6mm - 3.2mm (1.3-4.8m)
					Bottom of slots/screen (4.75m)
5			EOH at 5.5m		Fallback (4.75-5.5m)

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COMPOSITE BORE LOG

Bore No: LYAGZ025

Client: SO4 Exploration **Project:** Lake Way **Project Number:** n/a **Area** Lake Way

Start:	23/04/2019	**Drilling Method:**	Solid Auger	**Elevation:**	493
Finish:	23/04/2019	**Fluid:**	n/a	**Easting:**	250408
Drilled By:	Soil Mechanics	**Bit Record:**	90mm	**Northing:**	7022156
Logged By:	Andrew Tawil	**Casing Stickup:**	1.0m	**Projection:**	MGA 1994 Zone 51

Static Water Level (mbgl): 1.1 mbgl **Date of SWL:** 23/04/2019 **First Water Strike (mbgl):** 1.1

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0			Gypsum: Evaporitic sands, beige medium to coarse grain gypsum sands, dry			Backfill (0-0.15m)
1			Clay: Red-brown, traces of fine sands, firm and wet	FWS: 1.1m SWL: 1.1m		Bentonite Seal (0.15-1.2m) First Water Strike at 1.1m
2						Top of slots/screen (1.5m)
3						
4						Gravel x 1.6mm - 3.2mm (1.2-5.1m)
5			Clay: Red-brown, firm and wet			Bottom of slots/screen (5.05m)
6						Fallback (5.05-7.0m)
7			Clay: Mottled yellow and orange, traces of medium sands, high plasticity, dry	EOH at 7.0m		

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COMPOSITE BORE LOG

Bore No: LYAGZ026

Client: SO4 Exploration **Project:** Lake Way **Project Number:** n/a **Area** Lake Way

Start:	23/04/2019	**Drilling Method:**	Solid Auger	**Elevation:**	496
Finish:	23/04/2019	**Fluid:**	n/a	**Easting:**	248471
Drilled By:	Soil Mechanics	**Bit Record:**	90mm	**Northing:**	7022346
Logged By:	Andrew Tawil	**Casing Stickup:**	1.0m	**Projection:**	MGA 1994 Zone 51

Static Water Level (mbgl): 1.3 mbgl **Date of SWL:** 23/04/2019 **First Water Strike (mbgl):** 1.3

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction	
					Bore Diagram	Construction Notes

0
1
2
3
4
5
6

Clay: Red-brown silty clay with traces of gypsum crystals 5-20mm

Sandy Clay: Red-brown, fine to medium sand moderatley sorted with sand content varying with depth

FWS: 1.3m

SWL: 1.3m

EOH at 7.5m

Backfill (0-0.5m)

First Water Strike at 1.3m
Top of slots/screen (1.4m)

Bentonite Seal (0.5-1.3m)

Gravel x 1.6mm - 3.2mm (1.3-6.9m)

Bottom of slots/screen (6.85m)
Fallback (6.85-6.9m)

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COMPOSITE BORE LOG

Bore No: LYTR01-20W

Client: SO4 **Project:** Lake Way **Location:** Trench 1

Start: 7/07/2019
Finish: 7/07/2019
Drilled By:
Logged By:

Drilling Method: Auger
Fluid:
Bit Record: 4": 0-6.2m
Casing Stickup: 0.98 m

Elevation (GL): 490.75
Easting: 236364.68
Northing: 7033397.99
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 3.08 **Date of SWL:** 21/07/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction	
					Bore Diagram	Construction Notes
0	Sandy Clay		Sandy Clay: Orange red brown slightly sandy clay. Lake Sediment.	SWL = 3.08 mbgl		0-0.5m: Bentonite seal 0-1.82m: Blank 50mm PVC casing 0.5-5.12m: Gravel pack 1.82-5.12m: Slotted 50mm PVC casing 5.12m: Endcap 5.12-6.2m: Fallback

COMPOSITE BORE LOG

Bore No: LYTR01-50W

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Client: SO4 **Project:** Lake Way **Location:** Trench 1

Start: 7/07/2019
Finish: 7/07/2019
Drilled By:
Logged By:

Drilling Method: Auger
Fluid:
Bit Record: 4": 0-6.2m
Casing Stickup: 0.92 m

Elevation (GL): 490.75
Easting: 236339.68
Northing: 7033383
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 2.38 **Date of SWL:** 21/07/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction: Bore Diagram	Bore Construction: Construction Notes
0	Sandy Clay		Sandy Clay: Orange red brown slightly sandy clay. Lake Sediment.	SWL = 2.38 mbgl		0-0.5m: Bentonite seal 0-1.58m: Blank 50mm PVC casing 0.5-5.18m: Gravel pack 1.58-5.18m: Slotted 50mm PVC casing 5.18m: Endcap 5.18-6.2m: Fallback

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COMPOSITE BORE LOG

Bore No: LYTR01-100W

Client: SO4 **Project:** Lake Way **Location:** Trench 1

Start: 7/07/2019
Finish: 7/07/2019
Drilled By:
Logged By:

Drilling Method: Auger
Fluid:
Bit Record: 4": 0-6m
Casing Stickup: 0.97 m

Elevation (GL): 490.75
Easting: 236296.58
Northing: 7033354.56
Projection: GDA94 ZONE 51

Static Water Level (mbgl): 1.49 **Date of SWL:** 21/07/2019 **First Water Strike (mbgl):**

Depth	Geology	Log	Lithological Description	Hydro Field Data	Bore Construction	
					Bore Diagram	Construction Notes
0	Sandy Clay		Sandy Clay: Orange red brown slightly sandy clay. Lake Sediment.	SWL = 1.49 mbgl		0-0.5m: Bentonite seal 0-2.13m: Blank 50mm PVC casing 0.5-5.13m: Gravel pack 2.13-5.13m: Slotted 50mm PVC casing 5.13m: Endcap 5.13-6m: Fallback

Memo

Appendix 5 – Geophysical Results

Surtech SYSTEMS
A company of Hopper Industrial Group

LYPZB001A
COMPOSITE LOG

COMPANY	Salt lake Potash
WELL	LYPZB001A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

MEASURED DEPTH

Easting	239807.327	Mag Declination °	Other Services:
Northing	7040112.139	Planned Dip °	
Datum		Planned Azimuth °	

Permanent Datum:		Elev 0.00 metres	Ground Level 1.035 metres
Drilling Measured From:			Drill Floor metres
Log Measured From:			Kelly Bushing metres

Logging Date	27/11/2021			
Run Number	1			
Depth Driller	113	metres		
Depth Logger	113	metres		
First Reading		metres		
Last Reading		metres		
Casing Driller	113	metres		
Casing Logger	113	metres		
Bit Size		millimetres		
Hole Fluid Type				
Density / Viscosity		g/cc		
PH / Fluid Loss				
Sample Source				
Rm @ Measured Temp		ohm-m @	°C	
Rmf @ Measured Temp		ohm-m @	°C	
Rmc @ Measured Temp		ohm-m @	°C	
Source Rmf/Rmc				
Rm @ BHT		ohm-m @	°C	Density Matrix
Stop Circulation Time				Neutron Matrix
Time Since Circulation				DeltaT Fluid
Max Recorded Temp				DeltaT Matrix
Equipment Name				
Logging Unit / Base	SL14			SURTECH
Recorded By	SW/ IA			
Witnessed By				

BOREHOLE RECORD

Bit Size millimeters	Depth From metres	Depth To metres

CASING RECORD

Type	Size millimeters	Depth From metres	Shoe Depth metres	Weight kg/metre

REMARKS

EQUIPMENT RECORD

Run Number	Sonde Type	Sonde Serial	Sonde Hardware	Source	Calibration Date

	BMR	172303			
	SGR-40	210809			

COMPOSITE LOG 1:200

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LYPZB001A

FLUID LEVEL (m)	82	**T2_START (µs)**	400	**CBW_CUTOFF (ms)**	3	**TEMP_OPTION**	Geothermal
NUM_STACKS	3	**T2_STOP (s)**	10	**CAPW_CUTOFF (ms)**	33	**TEMP_GRAD (°C/100m)**	3
IGNORE_ECHO	0	**NUM_STEPS**	64	**FFV_CUTOFF (s)**	1.5	**SURFACE_TEMP (°C)**	21
BURSTS	True	**ALPHA**	500				

TOOL_CONFIG	BMR-90-172303_500e_1100TE_0.3.yml	**CAL_FILE**	BMR-90-172303_20Sep2021_362mm_0.3.CAL
NMRLib Version	1.6.1.3	**PROCESSED BY**	N Jervis-Bardy

PERMEABILITY MODELS

TIMUR-COATES (TIM)

$$k_{TIM} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot \left(\frac{FFV}{BFV}\right)^{\mathrm{n}}$$

a	1
m	4
n	2

SCHLUMBERGER DOLL RESEARCH (SDR)

$$k_{SDR} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot (T_{2LM})^{\mathrm{n}}$$

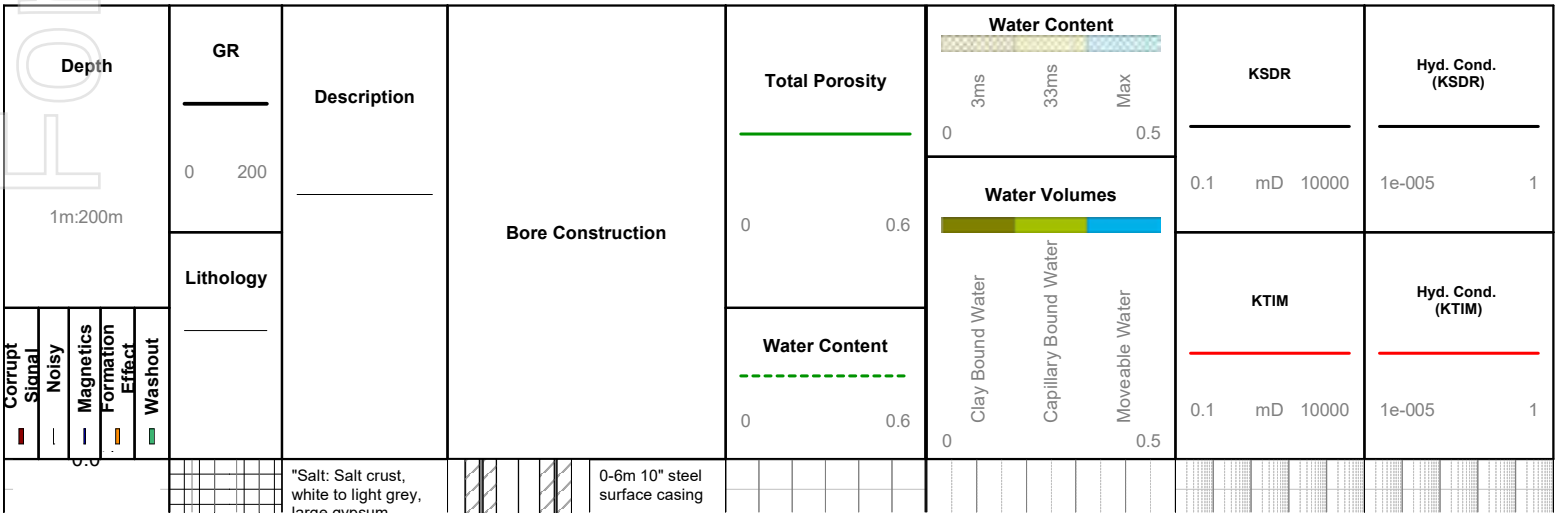
a	4
m	4
n	2

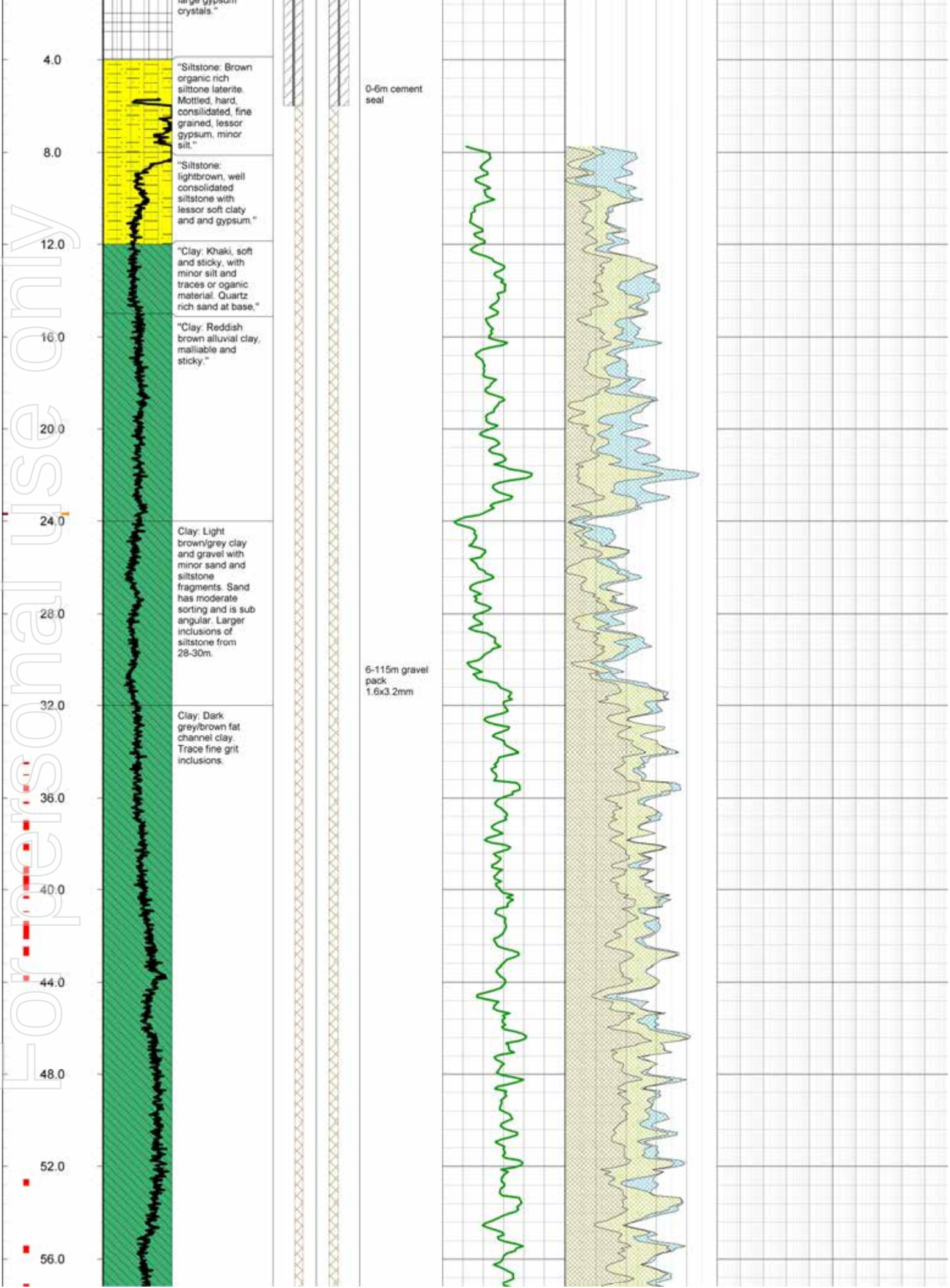
COMMENTS

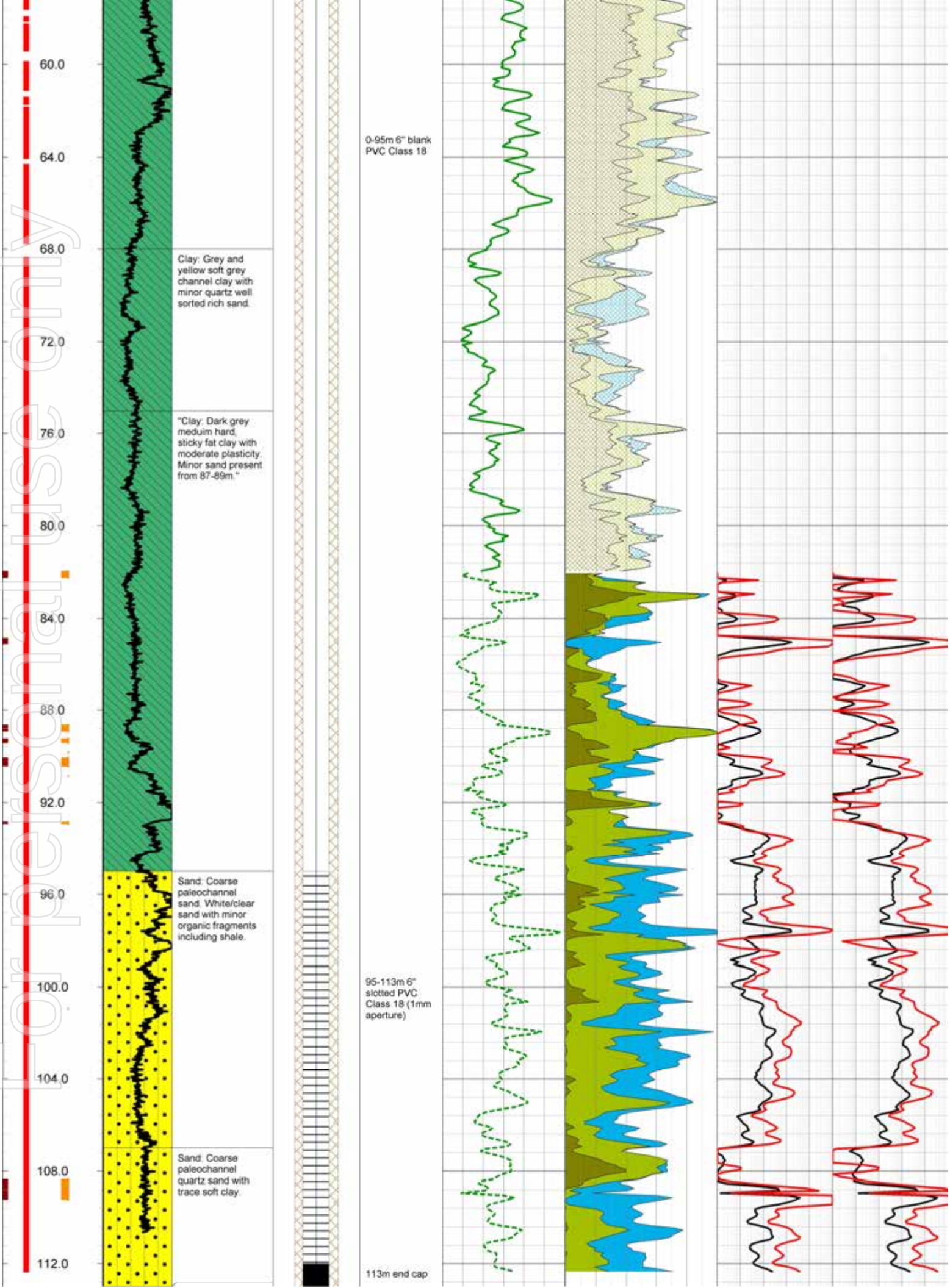
Formation Water level estimated at 82m based on tool behaviour Salinity Correction performed with HI of 0.9 calculated from supplied borehole fluid chemistry (TDS = 270,133 mg/L).

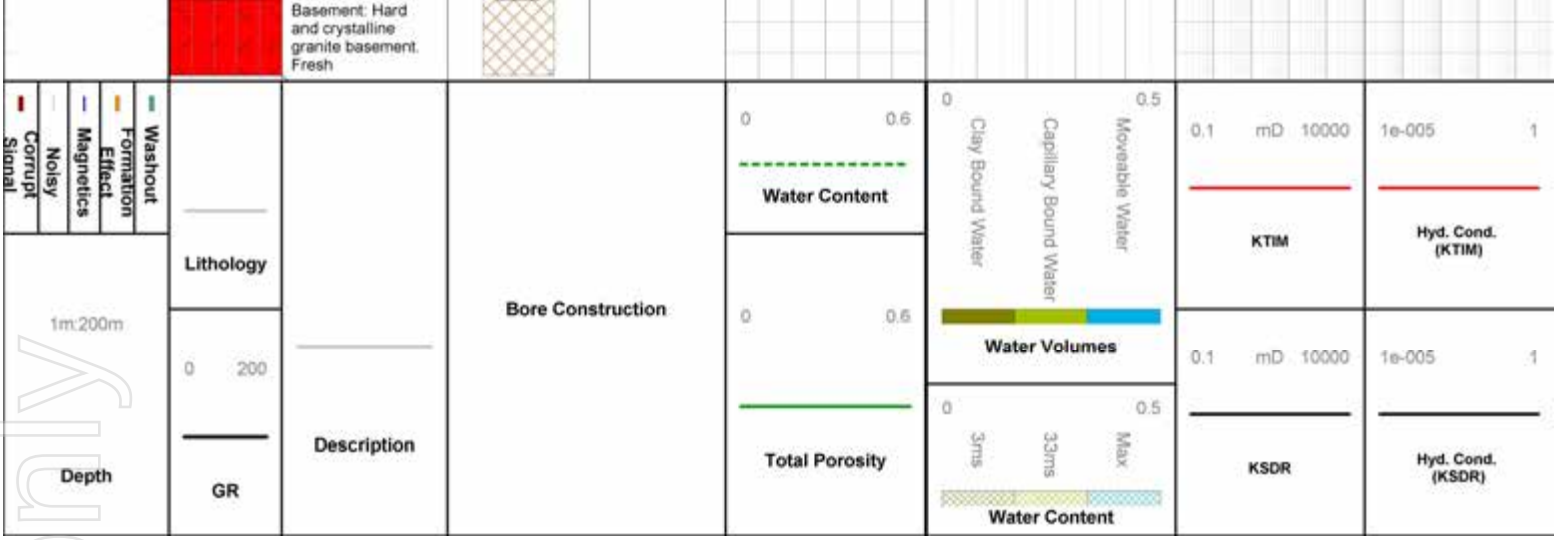
The supplied water content labels are different above and below the Inferred formation water level. Estimates of Total Porosity and water volumes made below the water table are consistent with saturated media. Conversely measurements taken above the water table are being made in unsaturated media and consequently the assumptions that underlie the calculations of porosity and water volumes can no longer be applied. Water volumes are labelled instead by the T2-cutoffs used in their calculation. In these intervals water volume labels are for indicative purposes only. These volumes no longer reflect purely the pore space as part of that pore space is air filled due to unsaturation and is not measured by the BMR tool.

IMPORTANT NOTE









COMPOSITE LOG 1:200

COMPANY	Salt lake Potash
WELL	LYPZB001A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

Logging Date	27/11/2021				
Depth Driller	113	metres	Casing Driller	113	metres
Depth Logger	113	metres	Casing Logger	113	metres

LYPZB001A
COMPOSITE LOG

Surtech SYSTEMS
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LYPSB003A
COMPOSITE LOG

COMPANY	Salt lake Potash
WELL	LYPSB003A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

MEASURED DEPTH

Easting	251082.587	Mag Declination °	Other Services:
Northing	7028856.063	Planned Dip °	
Datum		Planned Azimuth °	
Permanent Datum:		Elev 0.00 metres	Ground Level 0.40 metres
Drilling Measured From:			Drill Floor metres
Log Measured From:			Kelly Bushing metres

Logging Date	29/11/2021			
Run Number	1			
Depth Driller	94	metres		
Depth Logger	94	metres		
First Reading		metres		
Last Reading		metres		
Casing Driller	94	metres		
Casing Logger	94	metres		
Bit Size		millimetres		
Hole Fluid Type				
Density / Viscosity		g/cc		
PH / Fluid Loss				
Sample Source				
Rm @ Measured Temp		ohm-m @	°C	
Rmf @ Measured Temp		ohm-m @	°C	
Rmc @ Measured Temp		ohm-m @	°C	
Source Rmf/Rmc				
Rm @ BHT		ohm-m @	°C	Density Matrix
Stop Circulation Time				Neutron Matrix
Time Since Circulation				DeltaT Fluid
Max Recorded Temp				DeltaT Matrix
Equipment Name				
Logging Unit / Base	SL14			SURTECH
Recorded By	SW/ IA			
Witnessed By				

BOREHOLE RECORD

Bit Size millimeters	Depth From metres	Depth To metres

CASING RECORD

Type	Size millimeters	Depth From metres	Shoe Depth metres	Weight kg/metre

REMARKS

EQUIPMENT RECORD

Run Number	Sonde Type	Sonde Serial	Sonde Hardware	Source	Calibration Date

	BMR	172303			
	SGR-40	210809			

COMPOSITE LOG 1:200

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LYPZ003A

FLUID LEVEL (m)	3	**T2_START (µs)**	400	**CBW_CUTOFF (ms)**	3	**TEMP_OPTION**	Geothermal
NUM_STACKS	3	**T2_STOP (s)**	10	**CAPW_CUTOFF (ms)**	33	**TEMP_GRAD (°C/100m)**	3
IGNORE_ECHO	0	**NUM_STEPS**	64	**FFV_CUTOFF (s)**	3	**SURFACE_TEMP (°C)**	21
BURSTS	True	**ALPHA**	500				

TOOL_CONFIG	BMR-90-172303_500e_1100TE_0.3.yml	**CAL_FILE**	BMR-90-172303_20Sep2021_362mm_0.3.CAL
NMRLib Version	1.6.1.3	**PROCESSED BY**	N Jervis-Bardy

PERMEABILITY MODELS

TIMUR-COATES (TIM)

$$k_{TIM} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot \left(\frac{FFV}{BFV}\right)^{\mathrm{n}}$$

a	1
m	4
n	2

SCHLUMBERGER DOLL RESEARCH (SDR)

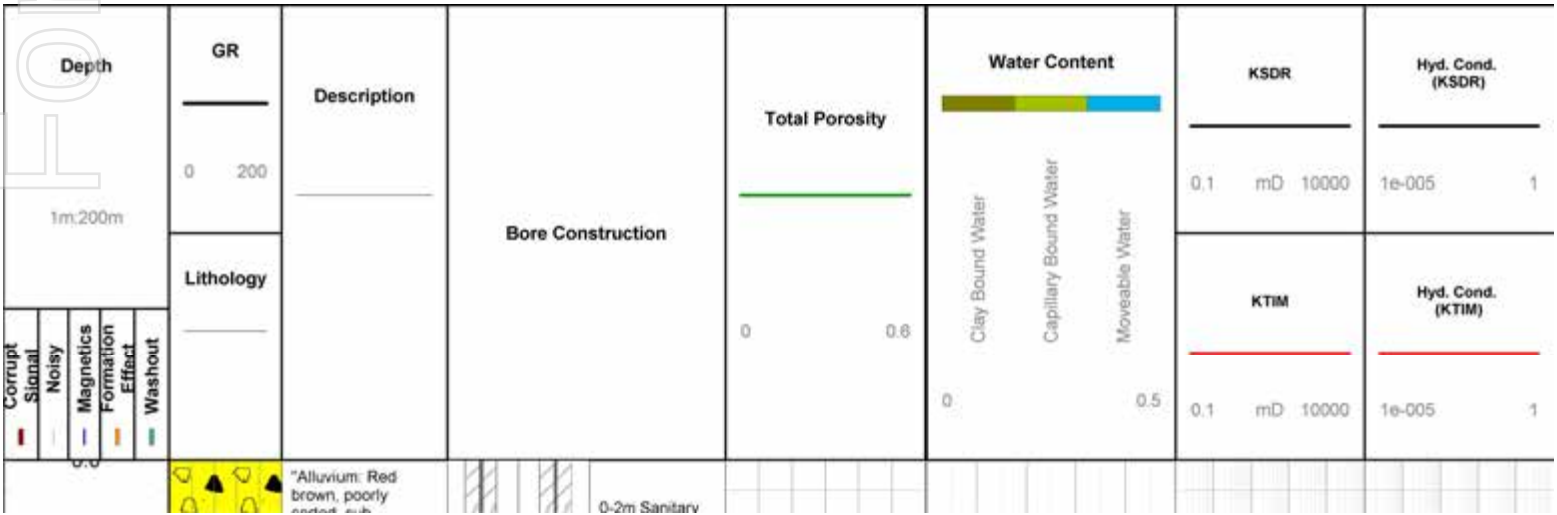
$$k_{\mathrm{SDR}} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot (T_{2\mathrm{LM}})^{\mathrm{n}}$$

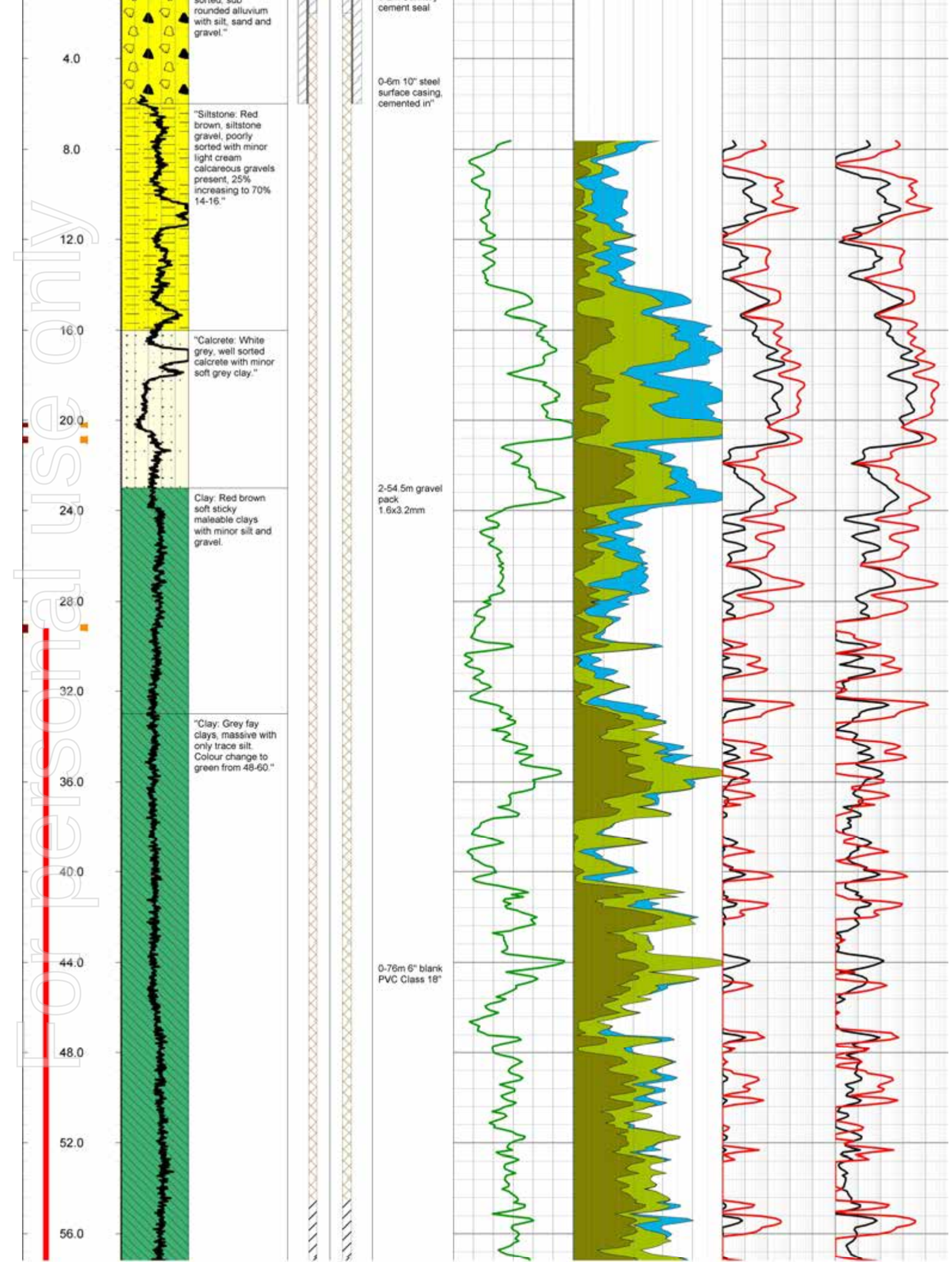
a	4
m	4
n	2

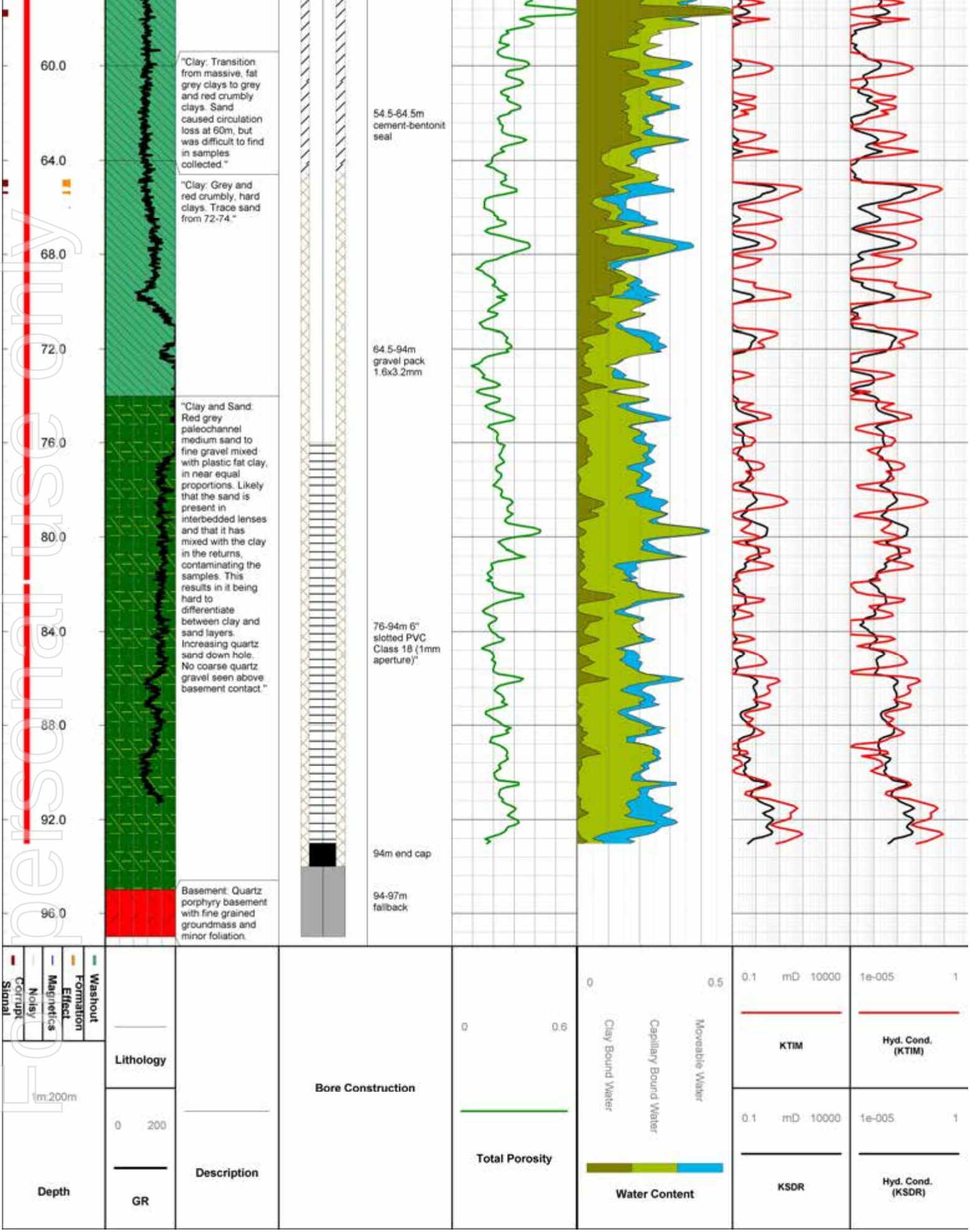
COMMENTS

Formation Water at 3m supplied by client. Salinity Correction performed with HI of 0.92 calculated from supplied borehole fluid chemistry (TDS = 212,482 mg/L).

IMPORTANT NOTE







COMPOSITE LOG 1:200

COMPANY	Salt lake Potash

WELL	LYPSB003A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

Logging Date	29/11/2021				
Depth Driller	94	metres	Casing Driller	94	metres
Depth Logger	94	metres	Casing Logger	94	metres

LYPSB003A
COMPOSITE LOG

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LYPZB004A
COMPOSITE LOG

COMPANY	Salt lake Potash
WELL	LYPZB004A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

MEASURED DEPTH

Easting	Mag Declination °	Other Services:
Northing	Planned Dip °	
Datum	Planned Azimuth °	

Permanent Datum:	Elev 0.00 metres	Ground Level	metres
Drilling Measured From:		Drill Floor	metres
Log Measured From:		Kelly Bushing	metres

Logging Date	26/11/2021			
Run Number				
Depth Driller	112	metres		
Depth Logger	112	metres		
First Reading		metres		
Last Reading		metres		
Casing Driller		metres		
Casing Logger		metres		
Bit Size		millimetres		
Hole Fluid Type				
Density / Viscosity	g/cc			
PH / Fluid Loss				
Sample Source				
Rm @ Measured Temp	ohm-m @	°C		
Rmf @ Measured Temp	ohm-m @	°C		
Rmc @ Measured Temp	ohm-m @	°C		
Source Rmf/Rmc				
Rm @ BHT	ohm-m @	°C	Density Matrix	
Stop Circulation Time			Neutron Matrix	
Time Since Circulation			DeltaT Fluid	
Max Recorded Temp			DeltaT Matrix	
Equipment Name				
Logging Unit / Base	SL124		SURTECH	
Recorded By	SW/IA			
Witnessed By	KT			

BOREHOLE RECORD

Bit Size millimeters	Depth From metres	Depth To metres

CASING RECORD

Type	Size millimeters	Depth From metres	Shoe Depth metres	Weight kg/metre

REMARKS

BMR Tool Failure from 77m-82.7m.

Logged over multiple days. 98.6m-110.8m merged from earlier run. No GR data available for this section. Depth matching performed on the T2 Distribution.

EQUIPMENT RECORD

Run Number	Sonde Type	Sonde Serial	Sonde Hardware	Source	Calibration Date

	BMR	172303			
	SGR-40	210809			

COMPOSITE LOG 1:200

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LYPZB004A

FLUID LEVEL (m)		**T2_START (µs)**	400	**CBW_CUTOFF (ms)**	3	**TEMP_OPTION**	Geothermal
NUM_STACKS	3	**T2_STOP (s)**	10	**CAPW_CUTOFF (ms)**	33	**TEMP_GRAD (°C/100m)**	3
IGNORE_ECHO	0	**NUM_STEPS**	64	**FFV_CUTOFF (s)**	3	**SURFACE_TEMP (°C)**	21
BURSTS	True	**ALPHA**	500				

TOOL_CONFIG	BMR-90-172303_500e_1100TE_0.3.yml	**CAL_FILE**	BMR-90-172303_20Sep2021_362mm_0.3.CAL
NMRLib Version	1.6.1.3	**PROCESSED BY**	N Jervis-Bardy

PERMEABILITY MODELS

TIMUR-COATES (TIM)

$$k_{TIM} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot \left(\frac{FFV}{BFV}\right)^{\mathrm{n}}$$

a	1
m	4
n	2

SCHLUMBERGER DOLL RESEARCH (SDR)

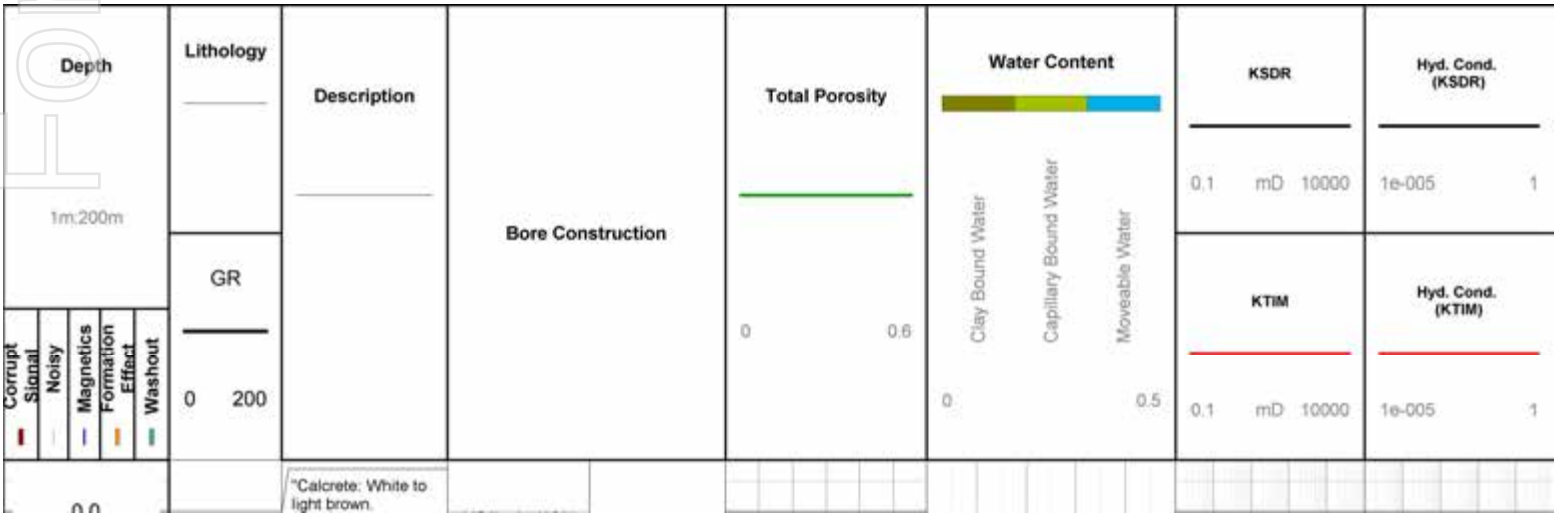
$$k_{\mathrm{SDR}} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot (T_{2\mathrm{LM}})^{\mathrm{n}}$$

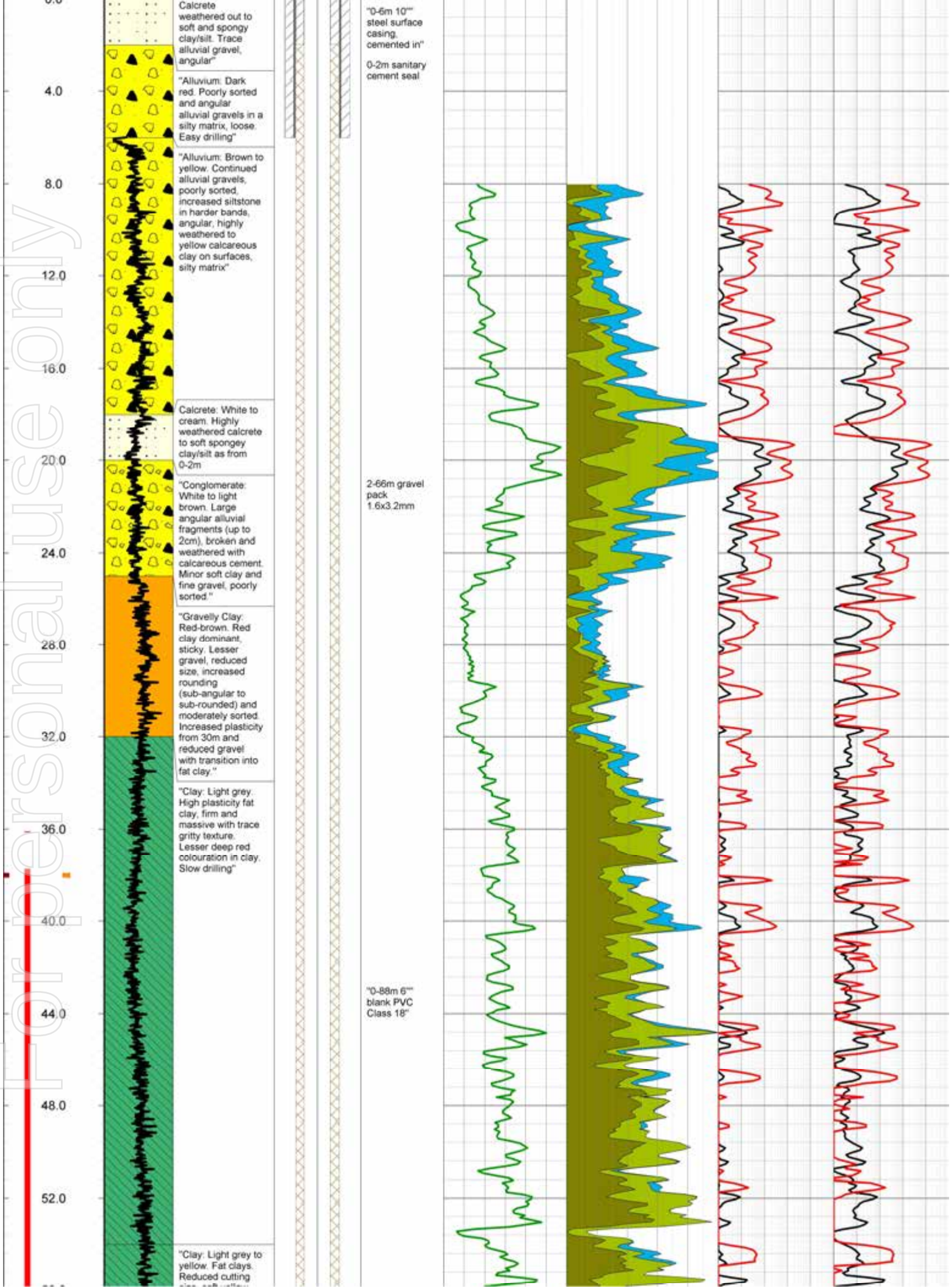
a	4
m	4
n	2

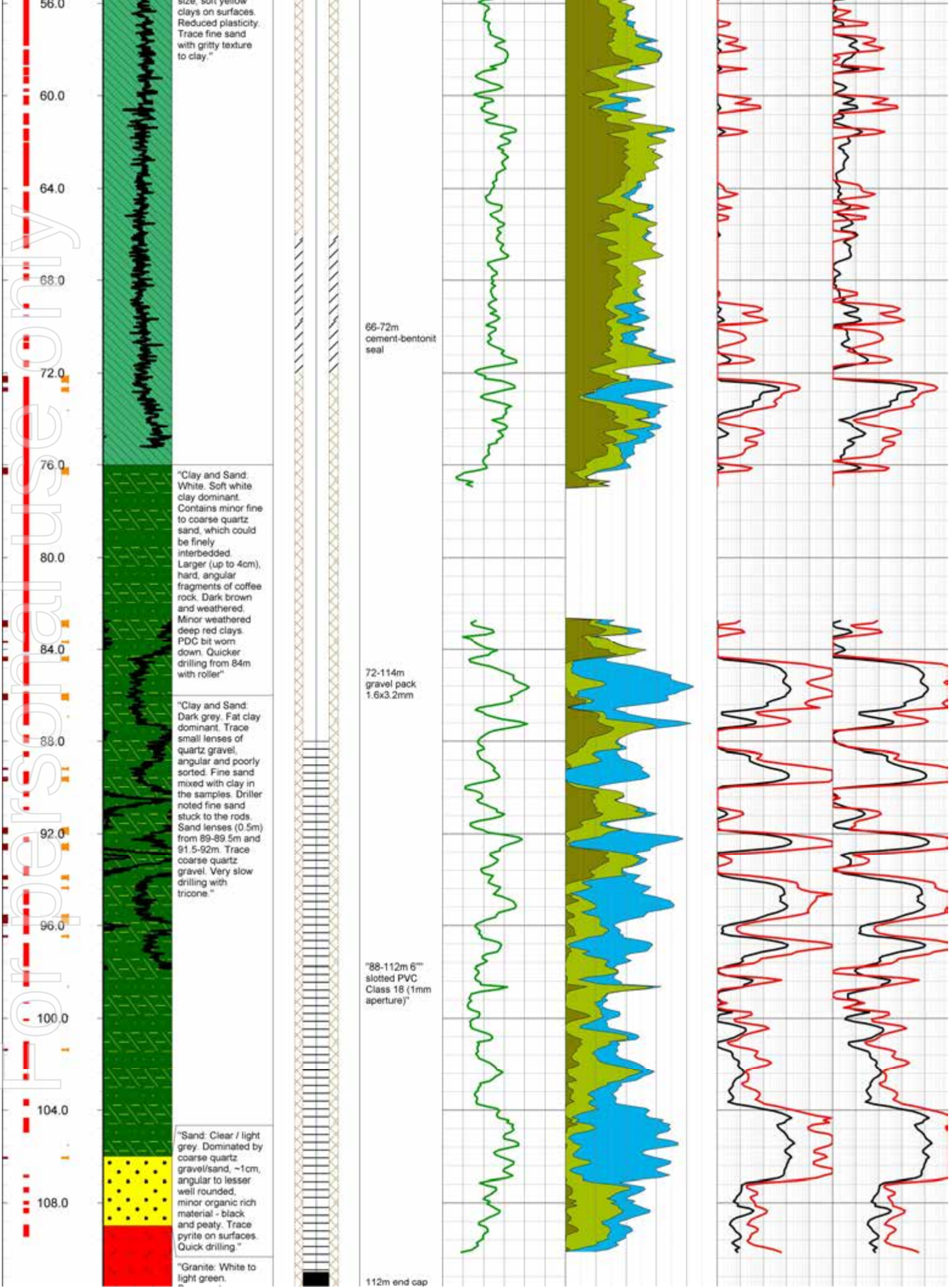
COMMENTS

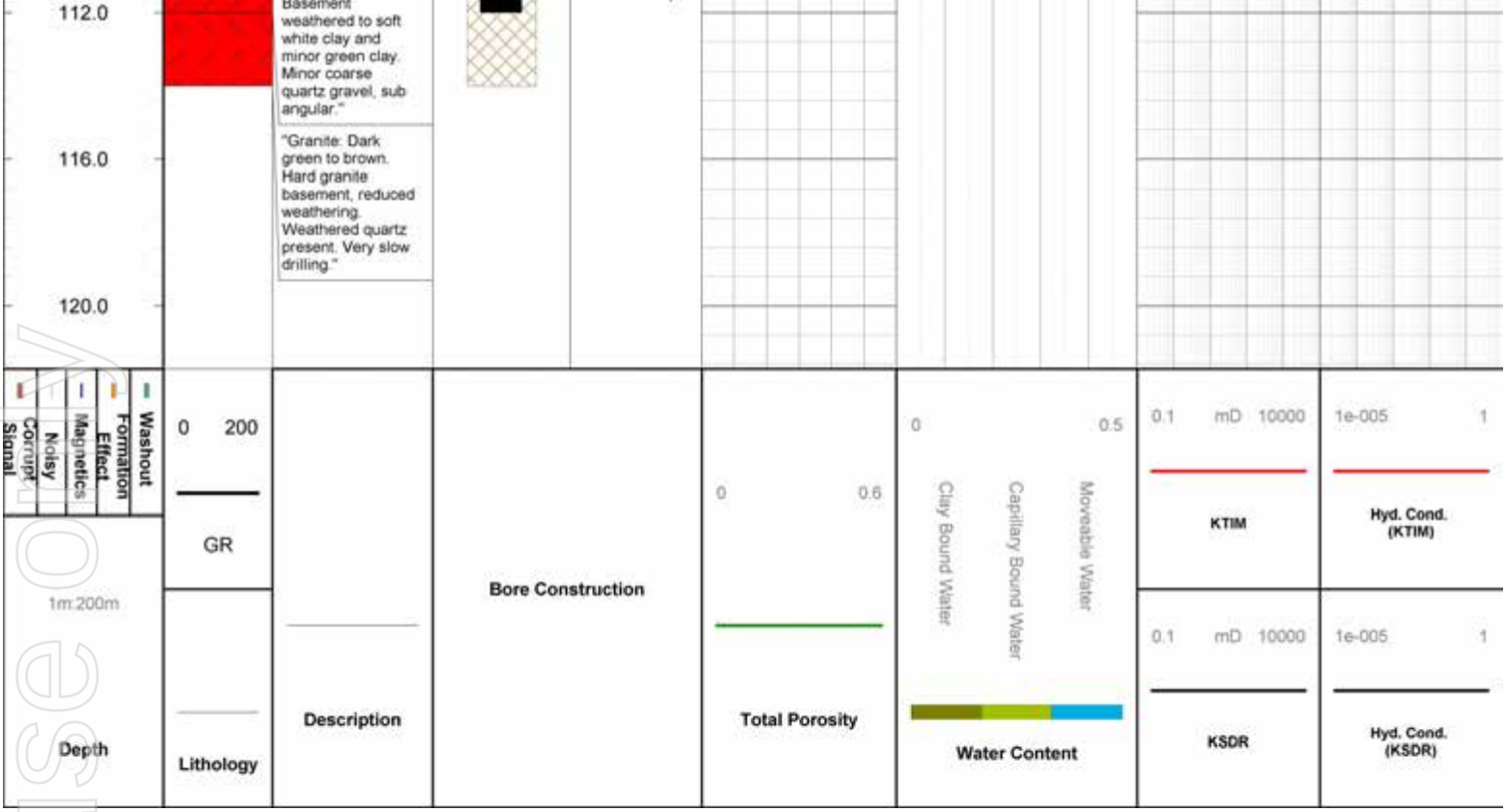
Formation Water at 3m supplied by client. Salinity Correction performed with HI of 0.92 calculated from supplied borehole chemistry (TDS = 230,959 mg/L).

IMPORTANT NOTE









COMPOSITE LOG 1:200

COMPANY	Salt lake Potash
WELL	LYPZB004A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

Logging Date	26/11/2021			
Depth Driller	112	metres	Casing Driller	metres
Depth Logger	112	metres	Casing Logger	metres

LYPZB004A
COMPOSITE LOG

Surtech SYSTEMS
A company of Hopper Industrial Group

Surtech SYSTEMS
A company of Hopper Industrial Group

LYPZB008A
COMPOSITE LOG

COMPANY	Salt lake Potash
WELL	LYPZB008A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

MEASURED DEPTH

Easting	244524(handheld)	Mag Declination °	Other Services:
Northing	7035602(handheld)	Planned Dip °	
Datum		Planned Azimuth °	
Permanent Datum:		Elev 0.00 metres	Ground Level 0.40 metres
Drilling Measured From:			Drill Floor metres
Log Measured From:			Kelly Bushing metres

Logging Date	28/11/2021			
Run Number	1			
Depth Driller	113	metres		
Depth Logger	113	metres		
First Reading		metres		
Last Reading		metres		
Casing Driller	113	metres		
Casing Logger	113	metres		
Bit Size		millimetres		
Hole Fluid Type				
Density / Viscosity	g/cc			
PH / Fluid Loss				
Sample Source				
Rm @ Measured Temp	ohm-m @	°C		
Rmf @ Measured Temp	ohm-m @	°C		
Rmc @ Measured Temp	ohm-m @	°C		
Source Rmf/Rmc				
Rm @ BHT	ohm-m @	°C	Density Matrix	
Stop Circulation Time			Neutron Matrix	
Time Since Circulation			DeltaT Fluid	
Max Recorded Temp			DeltaT Matrix	
Equipment Name				
Logging Unit / Base	SL14		SURTECH	
Recorded By	SW/ IA			
Witnessed By				

BOREHOLE RECORD

Bit Size millimeters	Depth From metres	Depth To metres

CASING RECORD

Type	Size millimeters	Depth From metres	Shoe Depth metres	Weight kg/metre

REMARKS

EQUIPMENT RECORD

Run Number	Sonde Type	Sonde Serial	Sonde Hardware	Source	Calibration Date

	BMR	172303			
	SGR-40	210809			

COMPOSITE LOG 1:200

NMRSA
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LYPZB008A

FLUID LEVEL (m)	6	**T2_START (µs)**	400	**CBW_CUTOFF (ms)**	3	**TEMP_OPTION**	Geothermal
NUM_STACKS	3	**T2_STOP (s)**	10	**CAPW_CUTOFF (ms)**	33	**TEMP_GRAD (°C/100m)**	3
IGNORE_ECHO	0	**NUM_STEPS**	64	**FFV_CUTOFF (s)**	3	**SURFACE_TEMP (°C)**	21
BURSTS	True	**ALPHA**	500				

TOOL_CONFIG	BMR-90-172303_500e_1100TE_0.3.yml	**CAL_FILE**	BMR-90-172303_20Sep2021_362mm_0.3.CAL
NMRLib Version	1.6.1.3	**PROCESSED BY**	N Jervis-Bardy

PERMEABILITY MODELS

TIMUR-COATES (TIM)

$$k_{TIM} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot \left(\frac{FFV}{BFV}\right)^{\mathrm{n}}$$

a	1
m	4
n	2

SCHLUMBERGER DOLL RESEARCH (SDR)

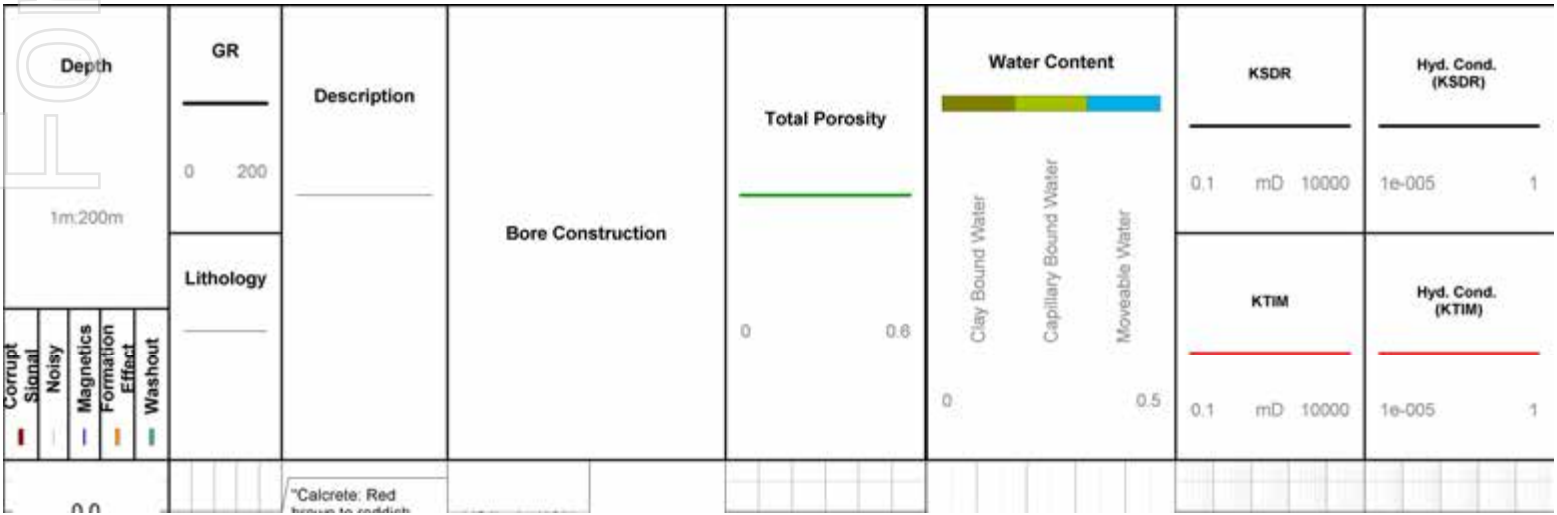
$$k_{\mathrm{SDR}} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot (T_{2\mathrm{LM}})^{\mathrm{n}}$$

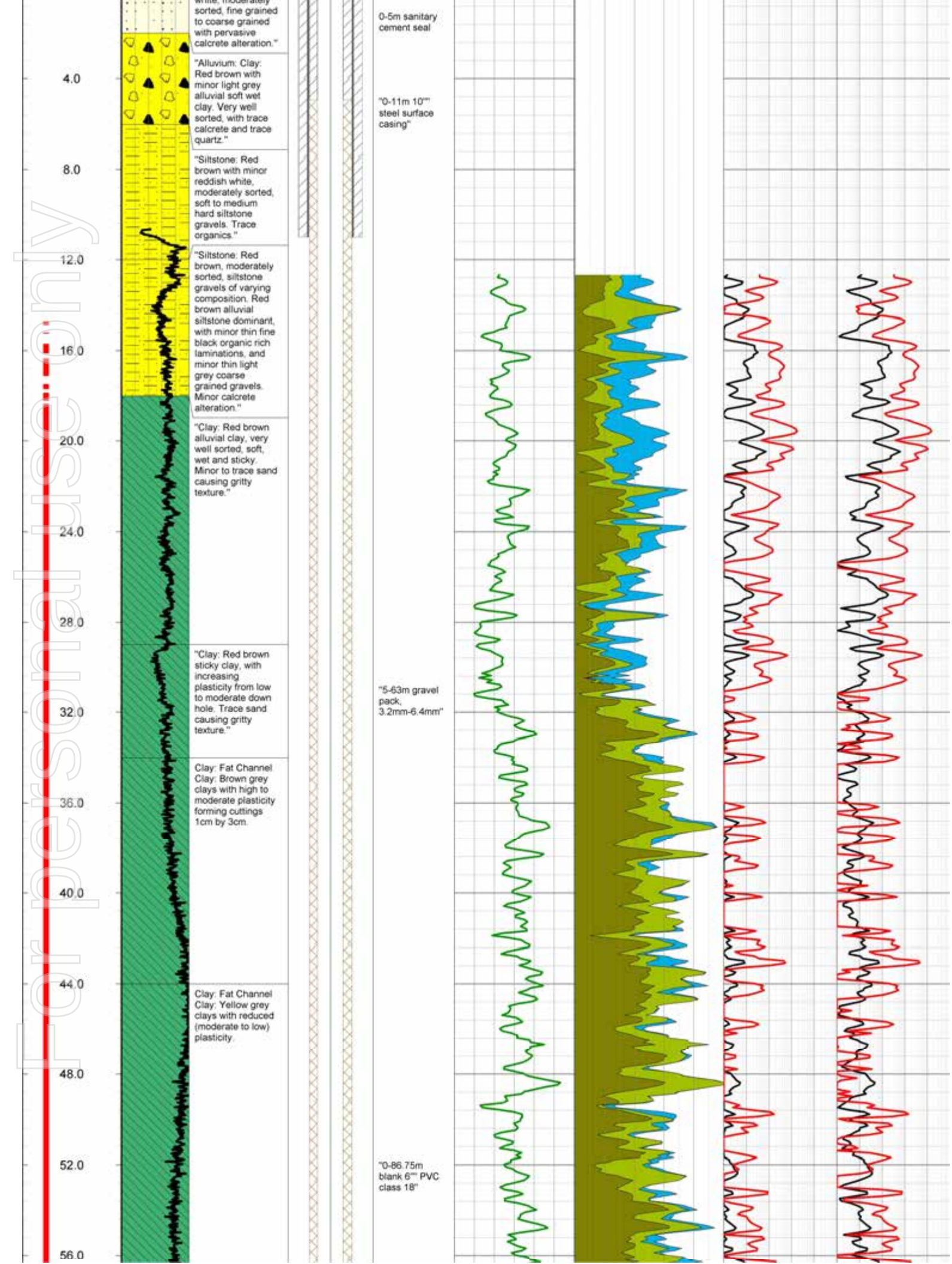
a	4
m	4
n	2

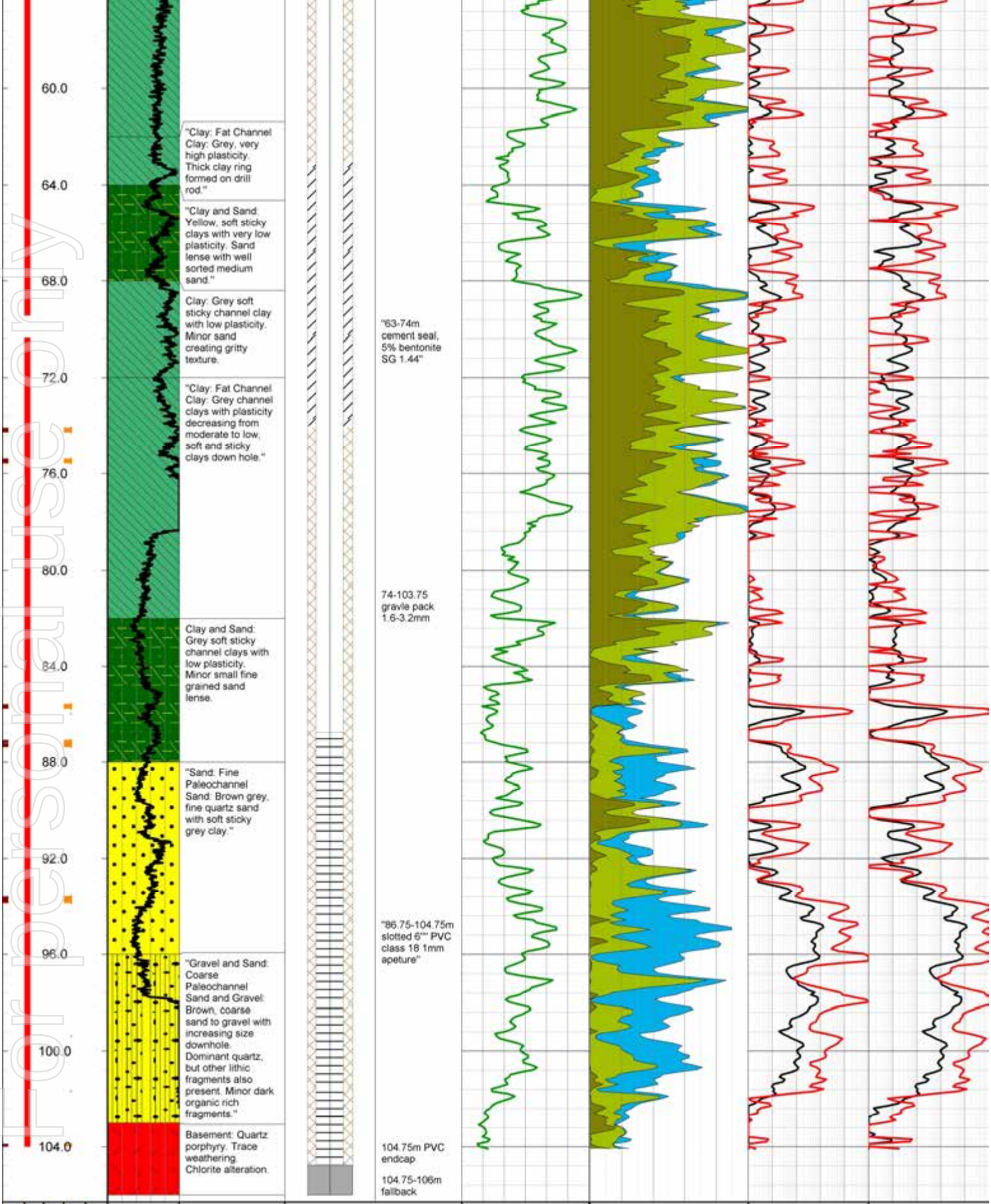
COMMENTS

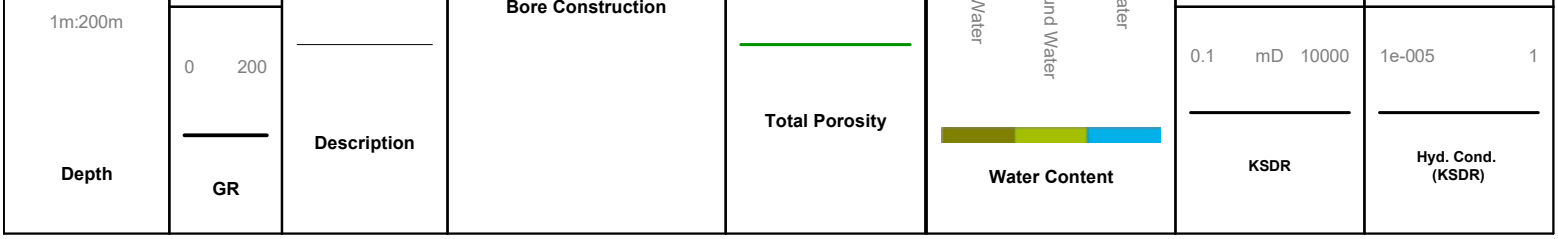
Formation Water at 6m supplied by client. Salinity Correction performed with HI of 0.9 calculated from supplied borehole chemistry (TDS = 263,716 mg/L).

IMPORTANT NOTE









COMPOSITE LOG 1:200

COMPANY	Salt lake Potash
WELL	LYPZB008A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

Logging Date	28/11/2021				
Depth Driller	113	metres	Casing Driller	113	metres
Depth Logger	113	metres	Casing Logger	113	metres

LYPZB008A
COMPOSITE LOG

Surtech SYSTEMS
A company of Hopper Industrial Group

Surtech SYSTEMS
A company of Hopper Industrial Group

LYSP026A
COMPOSITE LOG

COMPANY	Salt lake Potash
WELL	LYSP026A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

MEASURED DEPTH

Easting	239489	Mag Declination °	Other Services:
Northing	7041347	Planned Dip °	
Datum		Planned Azimuth °	

Permanent Datum:		Elev 0.00 metres	Ground Level 0.40 metres
Drilling Measured From:			Drill Floor metres
Log Measured From:			Kelly Bushing metres

Logging Date	28/11/2021			
Run Number	1			
Depth Driller	113	metres		
Depth Logger	113	metres		
First Reading		metres		
Last Reading		metres		
Casing Driller	113	metres		
Casing Logger	113	metres		
Bit Size		millimetres		
Hole Fluid Type				
Density / Viscosity	g/cc			
PH / Fluid Loss				
Sample Source				
Rm @ Measured Temp	ohm-m @	°C		
Rmf @ Measured Temp	ohm-m @	°C		
Rmc @ Measured Temp	ohm-m @	°C		
Source Rmf/Rmc				
Rm @ BHT	ohm-m @	°C	Density Matrix	
Stop Circulation Time			Neutron Matrix	
Time Since Circulation			DeltaT Fluid	
Max Recorded Temp			DeltaT Matrix	
Equipment Name				
Logging Unit / Base	SL14		SURTECH	
Recorded By	SW/ IA			
Witnessed By				

BOREHOLE RECORD

Bit Size millimeters	Depth From metres	Depth To metres

CASING RECORD

Type	Size millimeters	Depth From metres	Shoe Depth metres	Weight kg/metre

REMARKS

EQUIPMENT RECORD

Run Number	Sonde Type	Sonde Serial	Sonde Hardware	Source	Calibration Date

	BMR	172303			
	SGR-40	210809			

COMPOSITE LOG 1:200

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LYSP026A

PRELIMINARY DELIVERABLE

FLUID LEVEL (m)	-	**T2_START (µs)**	400	**CBW_CUTOFF (ms)**	3	**TEMP_OPTION**	Geothermal
NUM_STACKS	3	**T2_STOP (s)**	10	**CAPW_CUTOFF (ms)**	33	**TEMP_GRAD (°C/100m)**	3
IGNORE_ECHO	0	**NUM_STEPS**	64	**FFV_CUTOFF (s)**	3	**SURFACE_TEMP (°C)**	21
BURSTS	True	**ALPHA**	500				

TOOL_CONFIG	BMR-90-172303_500e_1100TE_0.3.yml	**CAL_FILE**	BMR-90-172303_20Sep2021_362mm_0.3.CAL
NMRLib Version	1.6.1.3	**PROCESSED BY**	N Jervis-Bardy

PERMEABILITY MODELS

TIMUR-COATES (TIM)

$$k_{TIM} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot \left(\frac{FFV}{BFV}\right)^{\mathrm{n}}$$

a	1
m	4
n	2

SCHLUMBERGER DOLL RESEARCH (SDR)

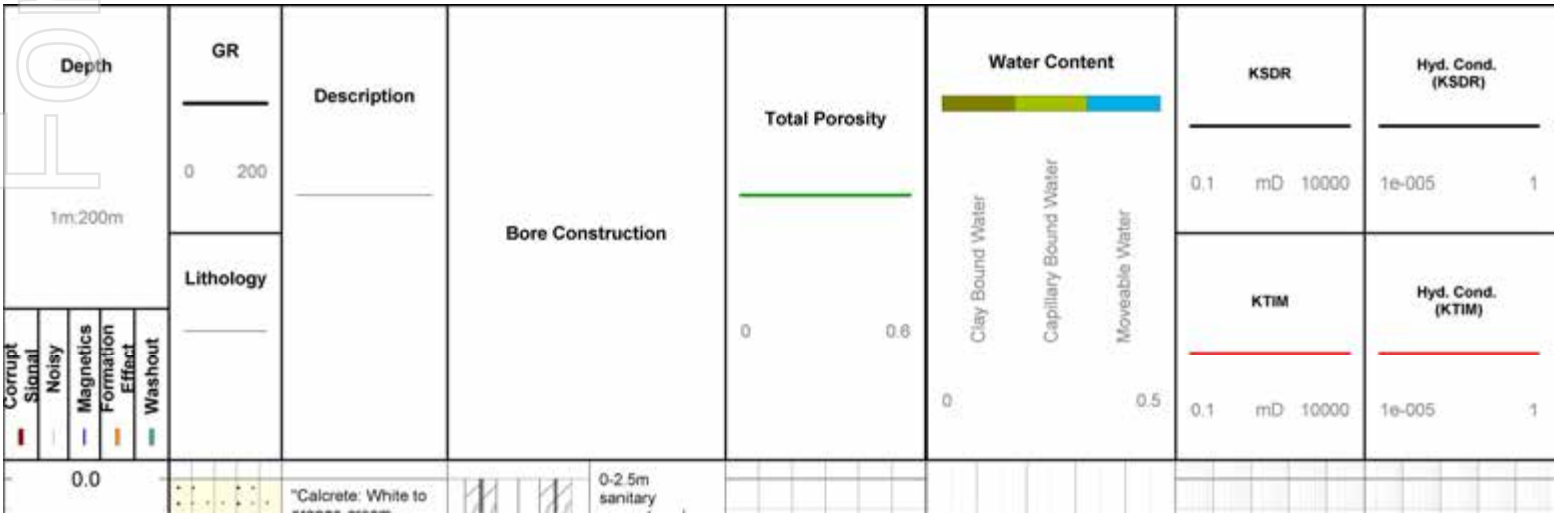
$$k_{\mathrm{SDR}} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot (T_{2\mathrm{LM}})^{\mathrm{n}}$$

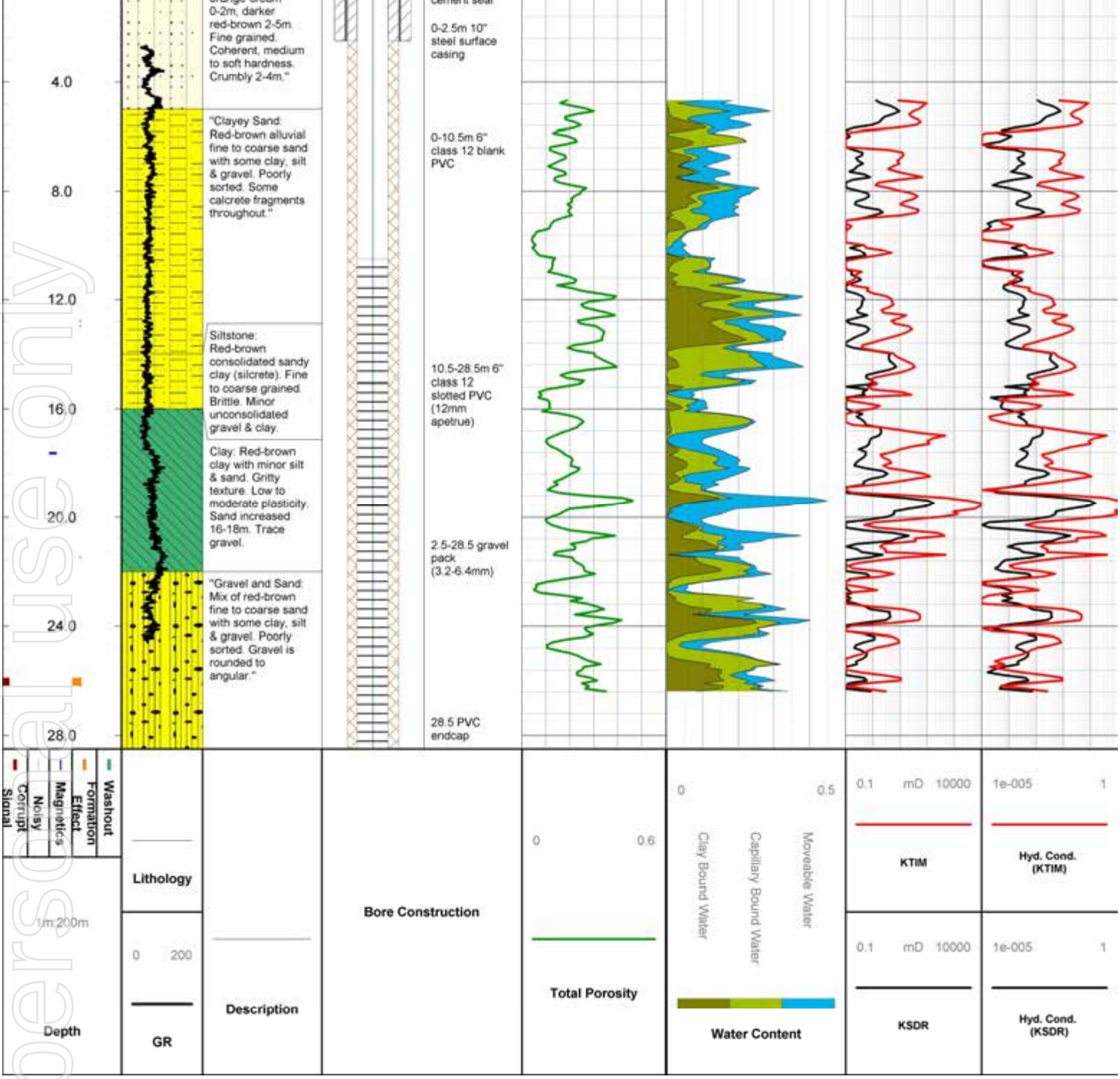
a	4
m	4
n	2

COMMENTS

Salinity Correction performed with HI of 0.93 calculated from supplied borehole fluid chemistry (TDS = 211,198 mg/L) .

IMPORTANT NOTE





COMPOSITE LOG 1:200

COMPANY	Salt lake Potash
WELL	LYSP026A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

Logging Date	28/11/2021				
Depth Driller	113	metres	Casing Driller	113	metres
Depth Logger	113	metres	Casing Logger	113	metres

LYSP026A
COMPOSITE LOG

Surtech SYSTEMS
A company of Hopper Industrial Group

LYSP034A
COMPOSITE LOG

COMPANY	Salt lake Potash
WELL	LYSP034A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

MEASURED DEPTH

Easting	240782(HANDHELD)	Mag Declination °	Other Services:
Northing	7038473 (HANDHELD)	Planned Dip °	
Datum		Planned Azimuth °	
Permanent Datum:		Elev 0.00 metres	Ground Level metres
Drilling Measured From:			Drill Floor metres
Log Measured From:			Kelly Bushing metres

Logging Date	23/11/2021						
Run Number							
Depth Driller	28	metres					
Depth Logger	28	metres					
First Reading		metres					
Last Reading		metres					
Casing Driller	28	metres					
Casing Logger	28	metres					
Bit Size		millimetres					
Hole Fluid Type							
Density / Viscosity		g/cc					
PH / Fluid Loss							
Sample Source							
Rm @ Measured Temp		ohm-m @	°C				
Rmf @ Measured Temp		ohm-m @	°C				
Rmc @ Measured Temp		ohm-m @	°C				
Source Rmf/Rmc							
Rm @ BHT		ohm-m @	°C	Density Matrix			
Stop Circulation Time				Neutron Matrix			
Time Since Circulation				DeltaT Fluid			
Max Recorded Temp				DeltaT Matrix			
Equipment Name							
Logging Unit / Base	SL14			SURTECH			
Recorded By	SW/ IA						
Witnessed By	KIT						

BOREHOLE RECORD

Bit Size millimeters	Depth From metres	Depth To metres

CASING RECORD

Type	Size millimeters	Depth From metres	Shoe Depth metres	Weight kg/metre

REMARKS

No Depth Match Performed between 2 runs

EQUIPMENT RECORD

Run Number	Sonde Type	Sonde Serial	Sonde Hardware	Source	Calibration Date

	BMR	172303			
	SGR-40	210809			

COMPOSITE LOG 1:200

NMRSA
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LYSP034A

FLUID LEVEL (m)	-	**T2_START (µs)**	400	**CBW_CUTOFF (ms)**	3	**TEMP_OPTION**	Geothermal
NUM_STACKS	3	**T2_STOP (s)**	10	**CAPW_CUTOFF (ms)**	33	**TEMP_GRAD (°C/100m)**	3
IGNORE_ECHO	0	**NUM_STEPS**	64	**FFV_CUTOFF (s)**	3	**SURFACE_TEMP (°C)**	21
BURSTS	True	**ALPHA**					

TOOL_CONFIG	BMR-90-172303_500e_1100TE_0.3.yml	**CAL_FILE**	BMR-90-172303_20Sep2021_362mm_0.3.CAL
NMRLib Version	1.6.1.3	**PROCESSED BY**	N Jervis-Bardy

PERMEABILITY MODELS

TIMUR-COATES (TIM)

$$k_{TIM} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot \left(\frac{FFV}{BFV}\right)^{\mathrm{n}}$$

a	1
m	4
n	2

SCHLUMBERGER DOLL RESEARCH (SDR)

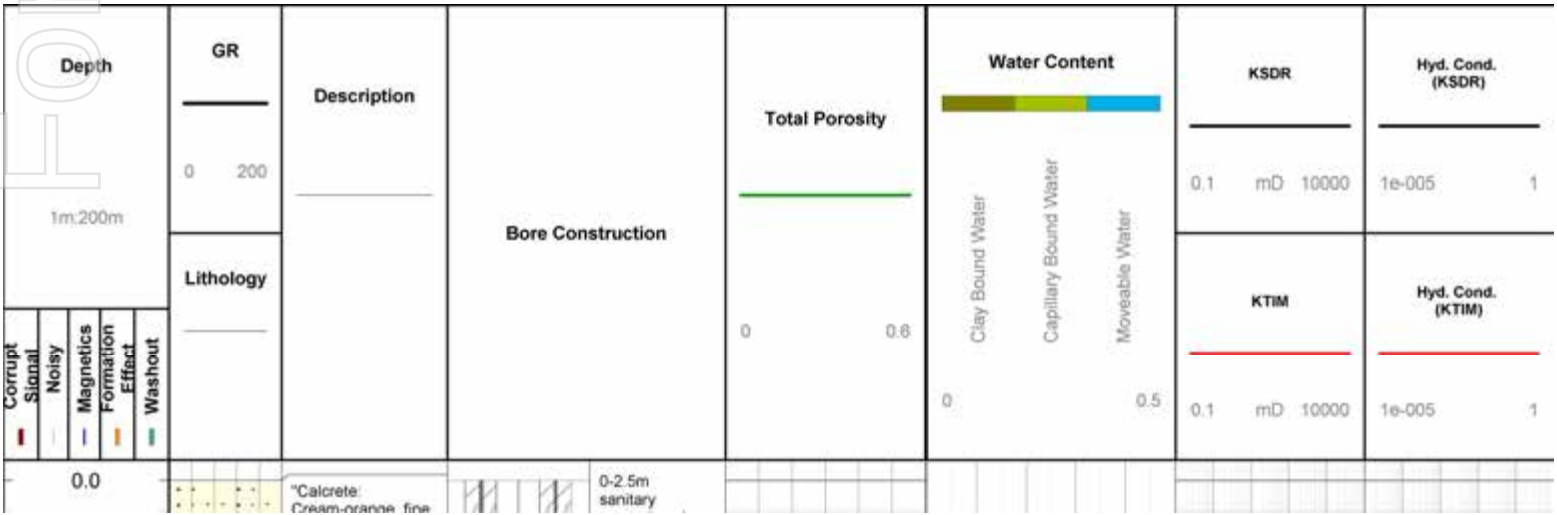
$$k_{\mathrm{SDR}} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot (T_{2\mathrm{LM}})^{\mathrm{n}}$$

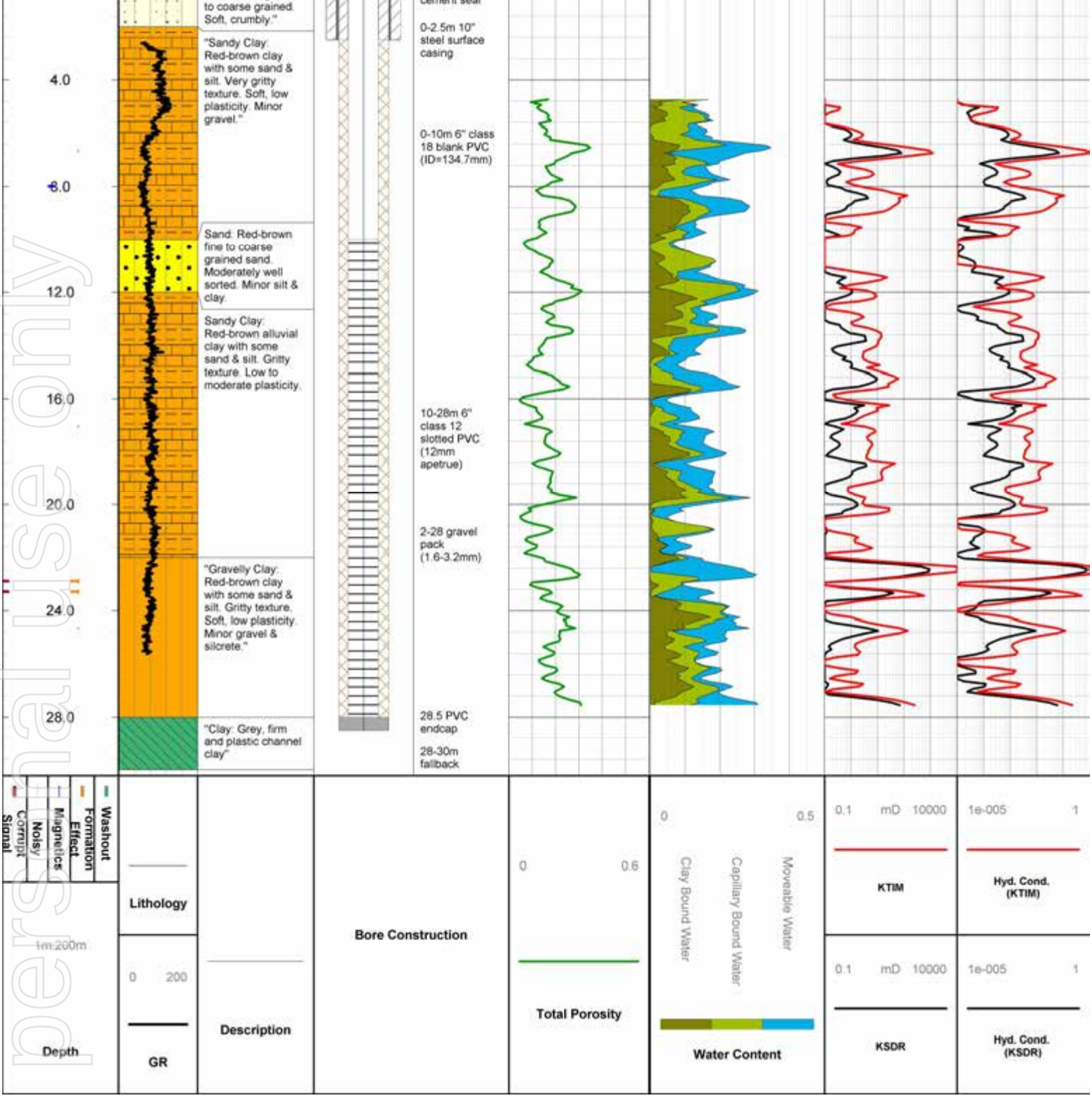
a	4
m	4
n	2

COMMENTS

Salinity Correction performed with HI of 0.93 calculated from supplied borehole fluid chemistry (TDS = 212,758 mg/L).

IMPORTANT NOTE





COMPOSITE LOG 1:200

COMPANY	Salt lake Potash
WELL	LYSP034A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

Logging Date	23/11/2021				
Depth Driller	28	metres	Casing Driller	28	metres
Depth Logger	28	metres	Casing Logger	28	metres

LYSP034A
COMPOSITE LOG

Surtech SYSTEMS
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LYSP049A
COMPOSITE LOG

COMPANY	Salt lake Potash
WELL	LYSP049A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

MEASURED DEPTH

Easting	244467(handheld)	Mag Declination °	Other Services:
Northing	7036321(handheld)	Planned Dip °	
Datum		Planned Azimuth °	
Permanent Datum:		Elev 0.00 metres	Ground Level 0.46 metres
Drilling Measured From:			Drill Floor metres
Log Measured From:			Kelly Bushing metres

Logging Date	28/11/2021			
Run Number	1			
Depth Driller	113	metres		
Depth Logger	113	metres		
First Reading		metres		
Last Reading		metres		
Casing Driller	113	metres		
Casing Logger	113	metres		
Bit Size		millimetres		
Hole Fluid Type				
Density / Viscosity	g/cc			
PH / Fluid Loss				
Sample Source				
Rm @ Measured Temp	ohm-m @	°C		
Rmf @ Measured Temp	ohm-m @	°C		
Rmc @ Measured Temp	ohm-m @	°C		
Source Rmf/Rmc				
Rm @ BHT	ohm-m @	°C	Density Matrix	
Stop Circulation Time			Neutron Matrix	
Time Since Circulation			DeltaT Fluid	
Max Recorded Temp			DeltaT Matrix	
Equipment Name				
Logging Unit / Base	SL14		SURTECH	
Recorded By	SW/ IA			
Witnessed By				

BOREHOLE RECORD

Bit Size millimeters	Depth From metres	Depth To metres

CASING RECORD

Type	Size millimeters	Depth From metres	Shoe Depth metres	Weight kg/metre

REMARKS

EQUIPMENT RECORD

Run Number	Sonde Type	Sonde Serial	Sonde Hardware	Source	Calibration Date

	BMR	172303			
	SGR-40	210809			

COMPOSITE LOG 1:200

NMRSA
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LYSP049A

FLUID LEVEL (m)	8.6	**T2_START (µs)**	400	**CBW_CUTOFF (ms)**	3	**TEMP_OPTION**	Geothermal
NUM_STACKS	3	**T2_STOP (s)**	10	**CAPW_CUTOFF (ms)**	33	**TEMP_GRAD (°C/100m)**	3
IGNORE_ECHO	0	**NUM_STEPS**	64	**FFV_CUTOFF (s)**	3	**SURFACE_TEMP (°C)**	21
BURSTS	True	**ALPHA**	500				

TOOL_CONFIG	BMR-90-172303_500e_1100TE_0.3.yml	**CAL_FILE**	BMR-90-172303_20Sep2021_362mm_0.3.CAL
NMRLib Version	1.6.1.3	**PROCESSED BY**	N Jervis-Bardy

PERMEABILITY MODELS

TIMUR-COATES (TIM)

$$k_{TIM} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot \left(\frac{FFV}{BFV}\right)^{\mathrm{n}}$$

a	1
m	4
n	2

SCHLUMBERGER DOLL RESEARCH (SDR)

$$k_{\mathrm{SDR}} = a \cdot \mathrm{TPOR}^{\mathrm{m}} \cdot (T_{2\mathrm{LM}})^{\mathrm{n}}$$

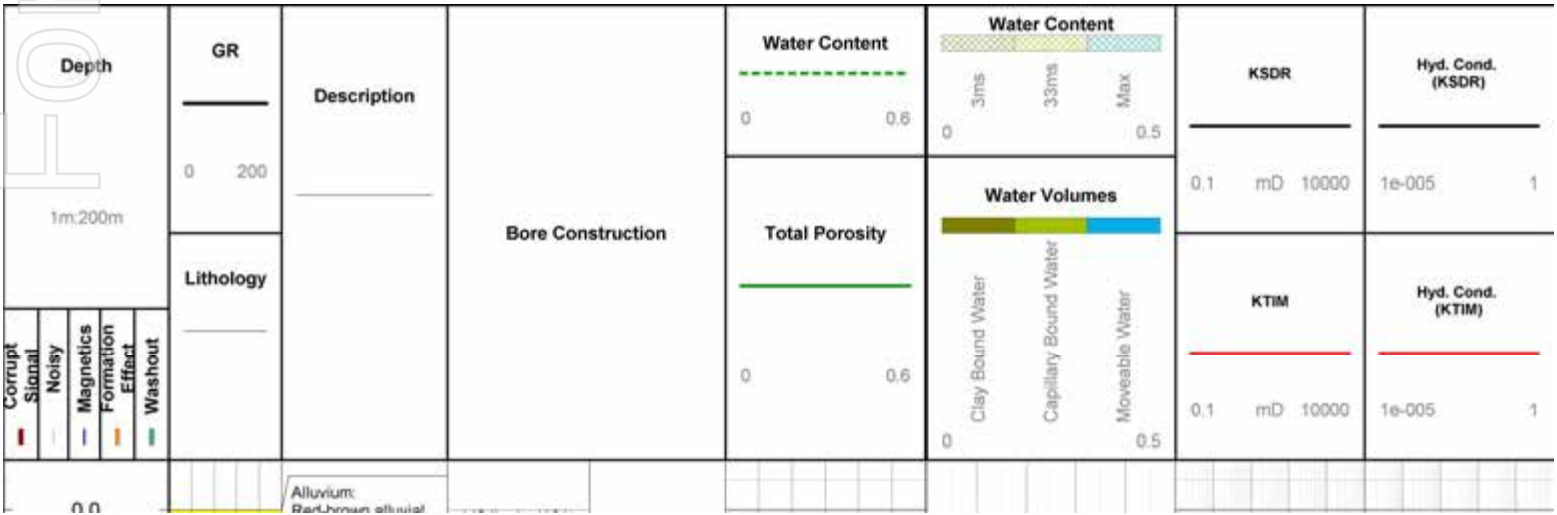
a	4
m	4
n	2

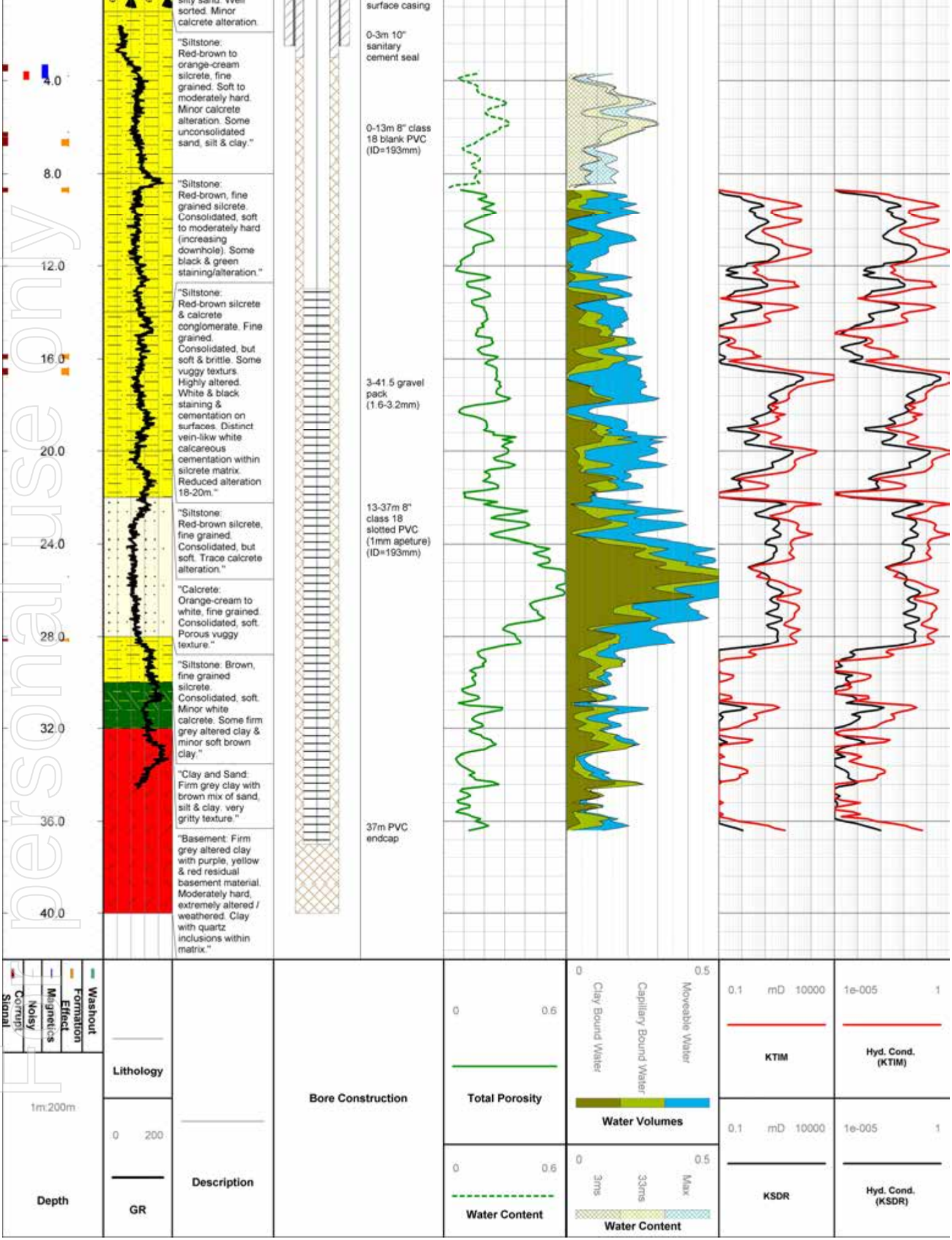
COMMENTS

Formation Water level estimated at 82m based on tool behaviour. Salinity Correction performed with HI of 0.96 calculated from supplied borehole
fluid chemistry for LYSP049 (TDS = 113 ppt).

The supplied water content labels are different above and below the Inferred formation water level. Estimates of Total Porosity and water volumes made below the water table are consistent with saturated media. Conversely measurements taken above the water table are being made in unsaturated media and consequently the assumptions that underlie the calculations of porosity and water volumes can no longer be applied. Water volumes are labelled instead by the T2-cutoffs used in their calculation. In these intervals water volume labels are for indicative purposes only. These volumes no longer reflect purely the pore space as part of that pore space is air filled due to unsaturation and is not measured by the BMR tool.

IMPORTANT NOTE





COMPOSITE LOG 1:200

COMPANY	Salt lake Potash
WELL	LYSP049A
FIELD	LAKE WAY
LOCATION	PALEOCHANNEL
STATE	WA
COUNTRY	AUSTRALIA

Logging Date	28/11/2021				
Depth Driller	113	metres	Casing Driller	113	metres
Depth Logger	113	metres	Casing Logger	113	metres

LYSP049A
COMPOSITE LOG

Surtech SYSTEMS
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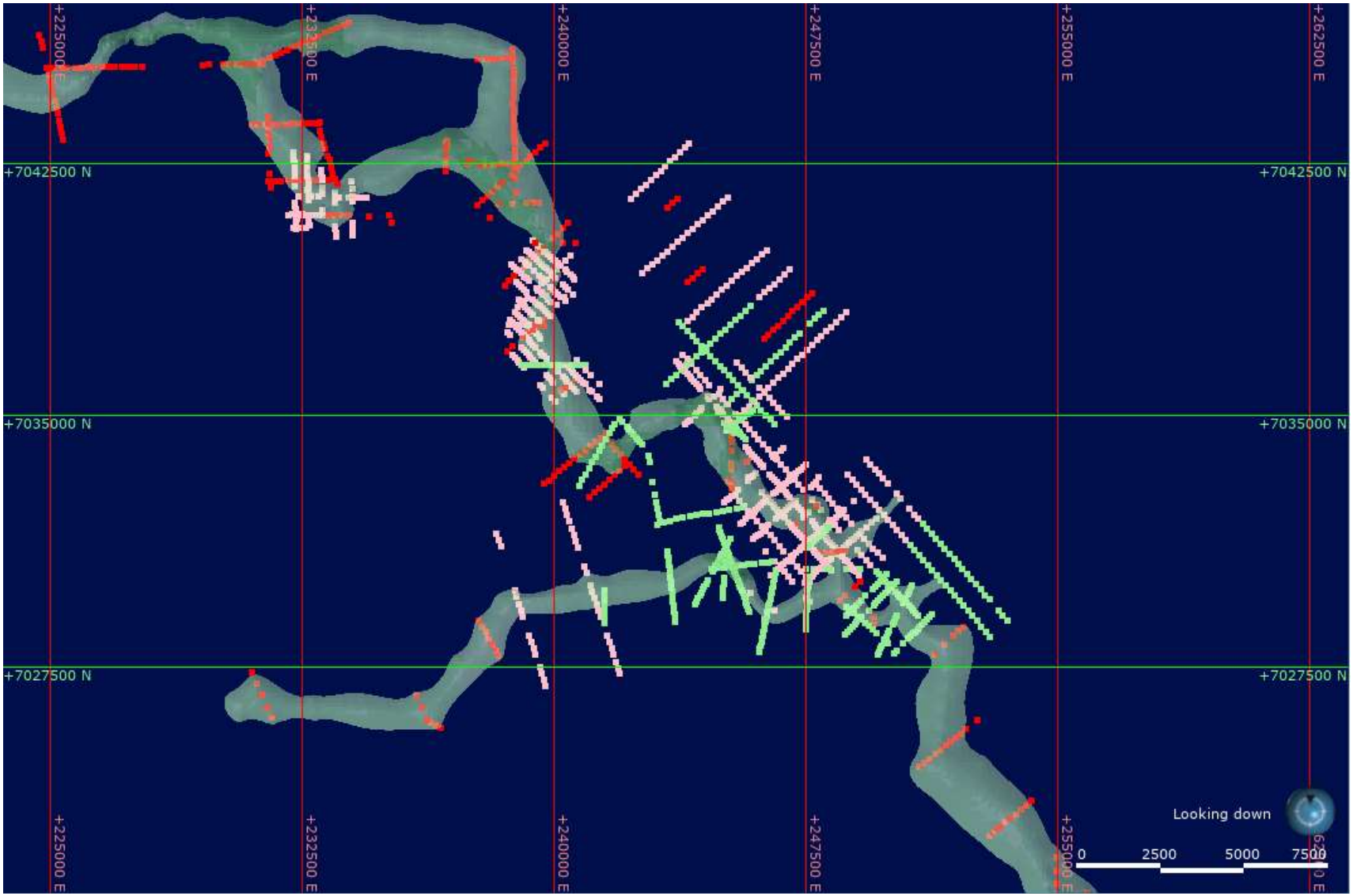
Passive Seismic Stations (from 3 phases) taken from Leapfrog Model



Memo

Appendix 6 – Test Pumping Results

File: \\SLPA-F51\Shared\Technical\01 Projects\GIS\Maps\Exploration\20220208 - Lake Way Response Upgrade Report\SO4_LakeWay_EXP_PumpTestLocations_RevA_20220208.mxd

0 2 4
Kilometres

Lake Way

Aquifer Test Locations

Legend

- Pumping test location
- Historical bore

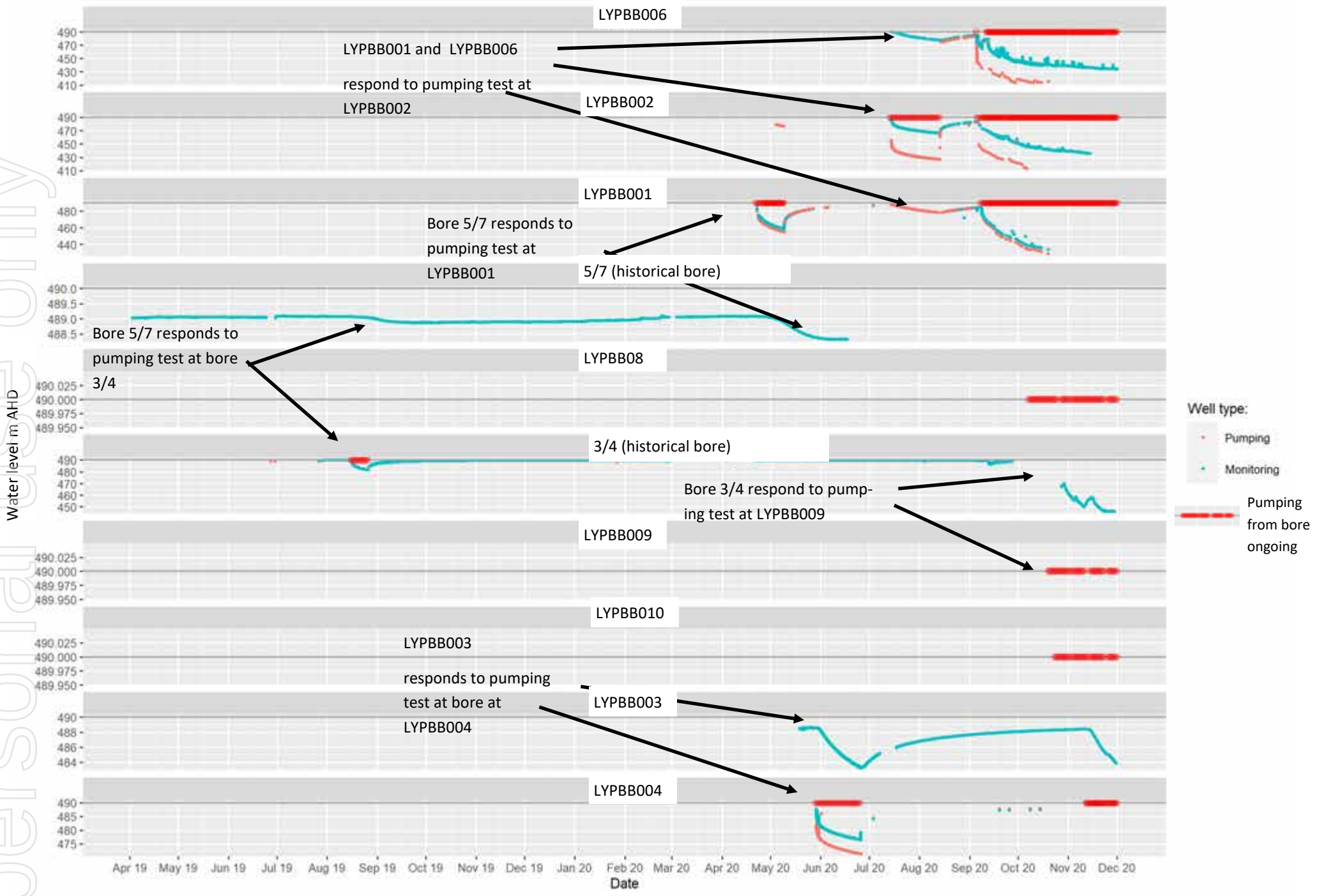
Paleochannel basal sand thickness

High : 35.81

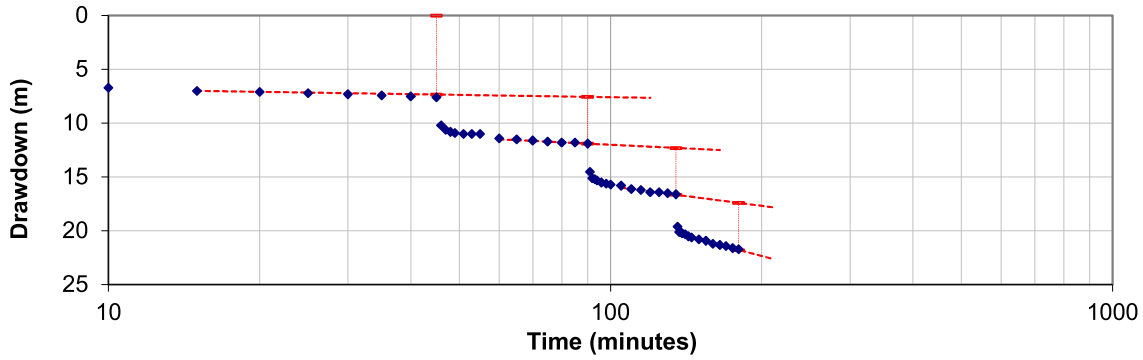
Low : 0.004

SO4

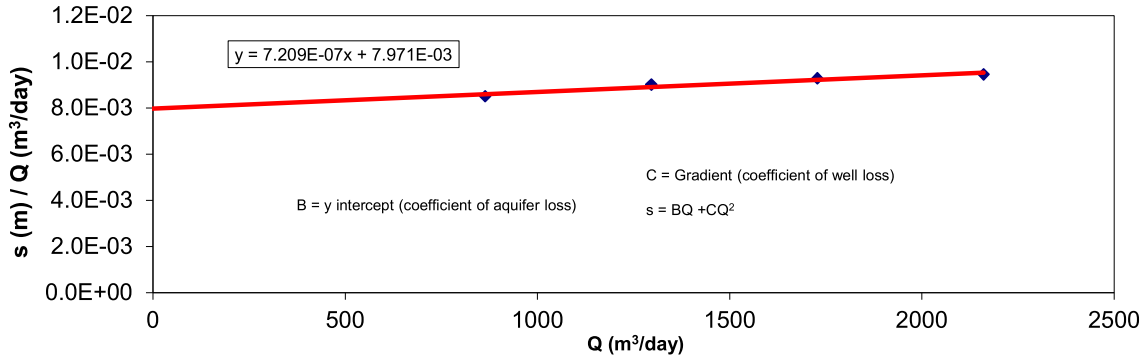
Date: 11/02/2022	Version: A
Scale 1:115,000 @ A3	Author: P. Rakowski
GDA 1994 MGA Zone 51	Drawn: L. Weggelaar



Pad 12 (LYPBB009): **Step Discharge Pumping Test**



Analytical Plot of s/Q v Q



$s_{w(n)} = BQ_n + CQ_n^P$ (Rorabaugh's equation)

Where: B = Intercept with y axis (coefficient of aquifer loss or laminar flow)
C = Gradient (coefficient of turbulent flow loss or apparent well loss)
s = Drawdown in the borehole
P = Value determined using Rorabaugh's method of superposition

Components of Jacob's (1947) equation BQ and CQ^2 are termed the aquifer loss and apparent well loss respectively.

They give an indication of the proportion of total drawdown caused by laminar and turbulent flow.

Please note: 1. In thin or fissured aquifers large components of well loss are due to high flow velocities in the aquifer rather than inefficient bore design. Therefore, the term "apparent well loss" is better than well loss.
2. In aquifers where the flow horizons are vertically anisotropic, changes in bore performance often relate to changes in the rest water level with respect to the primary aquifer horizons.

$Ew = (BQ/(BQ + CQ^P)) \times 100$

Ew or Well Efficiency represents the proportion of drawdown caused by laminar flow

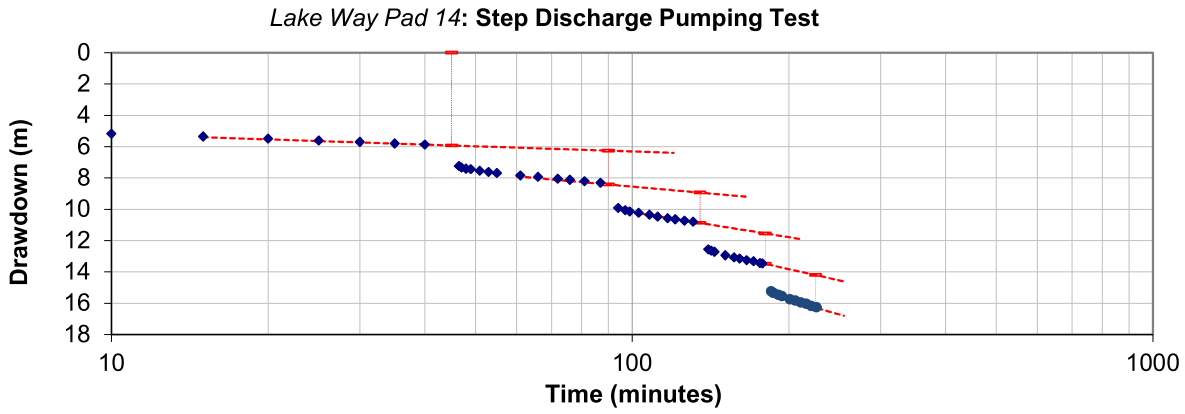
From plot of s/Q v Q (trend line equation):

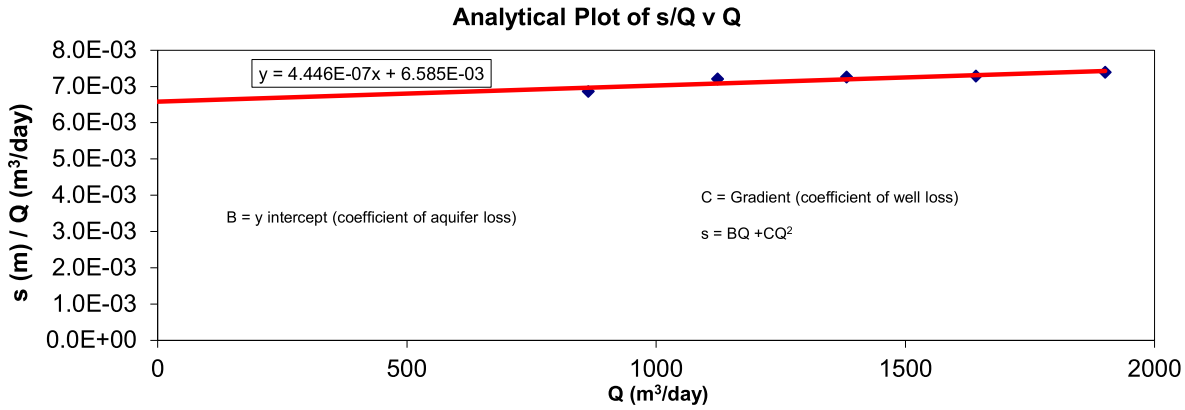
Intercept (B) 7.971E-03
Gradient (C) 7.209E-07

ANALYSIS TABLE

Calculation of well efficiency and comparison of observed and predicted drawdowns

Step (45 minute duration)	Discharge (l/s)	Discharge (Q) (m^3/d)	Measured Incremental Drawdown (metres)	Corrected Drawdown (metres)	Predicted Drawdown (metres)	s/Q	Apparent Efficiency (Ew) %
1	10.0	864	7.34	7.34	7.43	8.50E-03	92.8
2	15.0	1296	4.34	11.68	11.54	9.02E-03	89.5
3	20.0	1728	4.35	16.04	15.93	9.28E-03	86.5
4	25.0	2160	4.38	20.41	20.58	9.45E-03	83.7





$s_{w(n)} = BQ_n + CQ_n^P$ (Rorabaugh's equation)

Where: B = Intercept with y axis (coefficient of aquifer loss or laminar flow)
C = Gradient (coefficient of turbulent flow loss or apparent well loss)
s = Drawdown in the borehole
P = Value determined using Rorabaugh's method of superposition

Components of Jacob's (1947) equation BQ and CQ^2 are termed the aquifer loss and apparent well loss respectively.

They give an indication of the proportion of total drawdown caused by laminar and turbulent flow.

Please note: 1. In thin or fissured aquifers large components of well loss are due to high flow velocities in the aquifer rather than inefficient bore design. Therefore, the term "apparent well loss" is better than well loss.
2. In aquifers where the flow horizons are vertically anisotropic, changes in bore performance often relate to changes in the rest water level with respect to the primary aquifer horizons.

$Ew = (BQ/(BQ + CQ^P)) \times 100$

Ew or Well Efficiency represents the proportion of drawdown caused by laminar flow

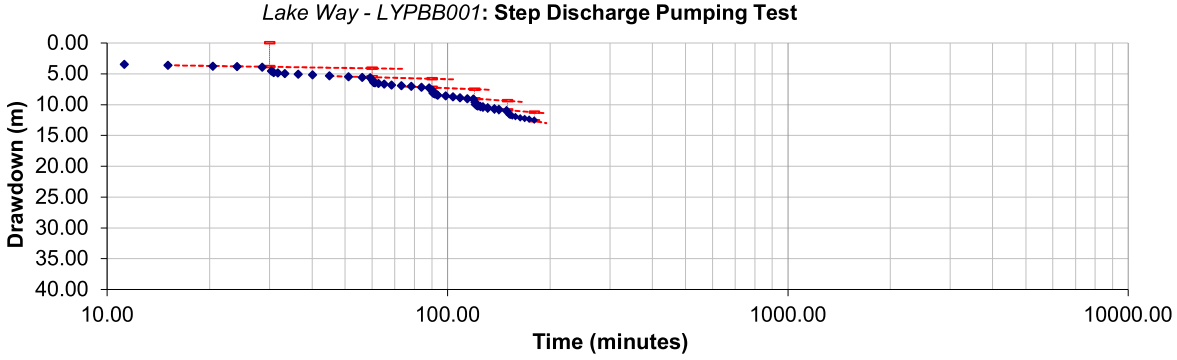
From plot of s/Q v Q (trend line equation):

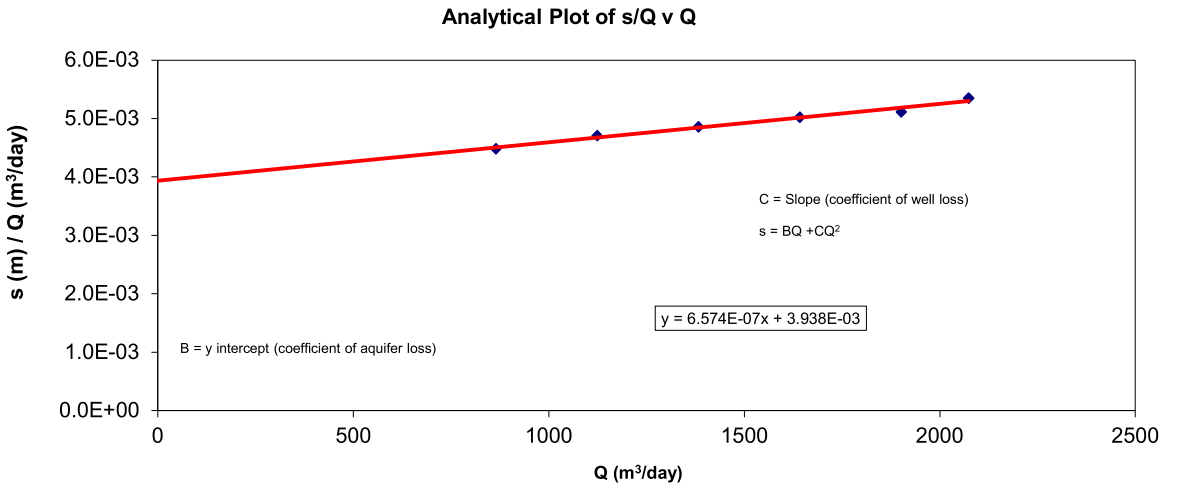
Intercept (B) 6.585E-03
Gradient (C) 4.446E-07

ANALYSIS TABLE

Calculation of well efficiency and comparison of observed and predicted drawdowns

Step (45 minute duration)	Discharge (l/s)	Discharge (Q) (m^3/d)	Measured Incremental Drawdown (metres)	Corrected Drawdown (metres)	Predicted Drawdown (metres)	s/Q	Apparent Efficiency (Ew) %
1	10.0	864	5.93	5.93	6.02	6.86E-03	94.5
2	13.0	1123	2.16	8.09	7.96	7.20E-03	93.0
3	16.0	1382	1.94	10.03	9.95	7.25E-03	91.5
4	19.0	1642	1.94	11.97	12.01	7.29E-03	90.0
5	22.0	1900.8	2.09	14.05	14.12	7.39E-03	88.6





$s_{w(n)} = BQ_n + CQ_n^P$ (Rorabaugh's equation)

Where: B = Intercept with y axis (coefficient of aquifer loss or laminar flow)
C = Gradient (coefficient of turbulent flow loss or apparent well loss)
s = Drawdown in the borehole
P = Value determined using Rorabaugh's method of superposition

Components of Jacob's (1947) equation BQ and CQ^2 are termed the aquifer loss and apparent well loss respectively.

They give an indication of the proportion of total drawdown caused by laminar and turbulent flow.

Please note: 1. In thin or fissured aquifers large components of well loss are due to high flow velocities in the aquifer rather than inefficient bore design. Therefore, the term "apparent well loss" is better than well loss.
2. In aquifers where the flow horizons are vertically anisotropic, changes in bore performance often relate to changes in the pumping water level with respect to the primary aquifer horizons.

$Ew = (BQ/(BQ + CQ^2) \times 100$

Ew or Well Efficiency represents the proportion of drawdown caused by laminar flow

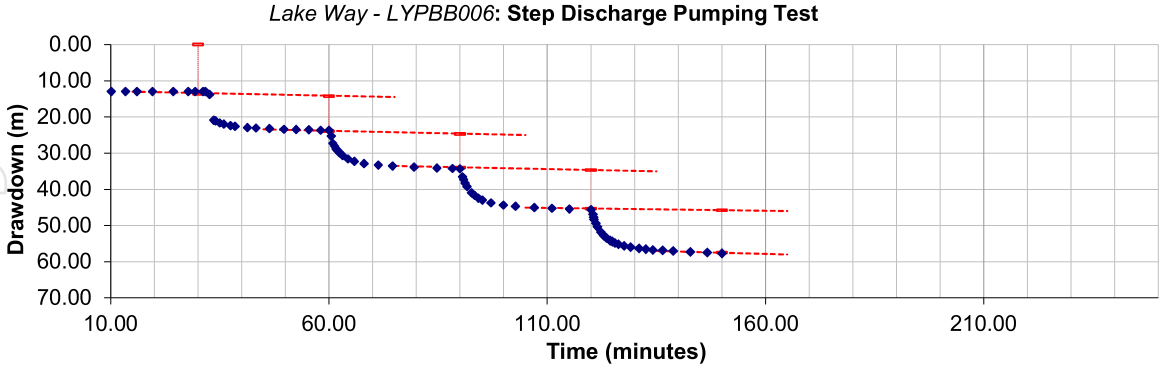
From plot of s/Q v Q (trend line equation):

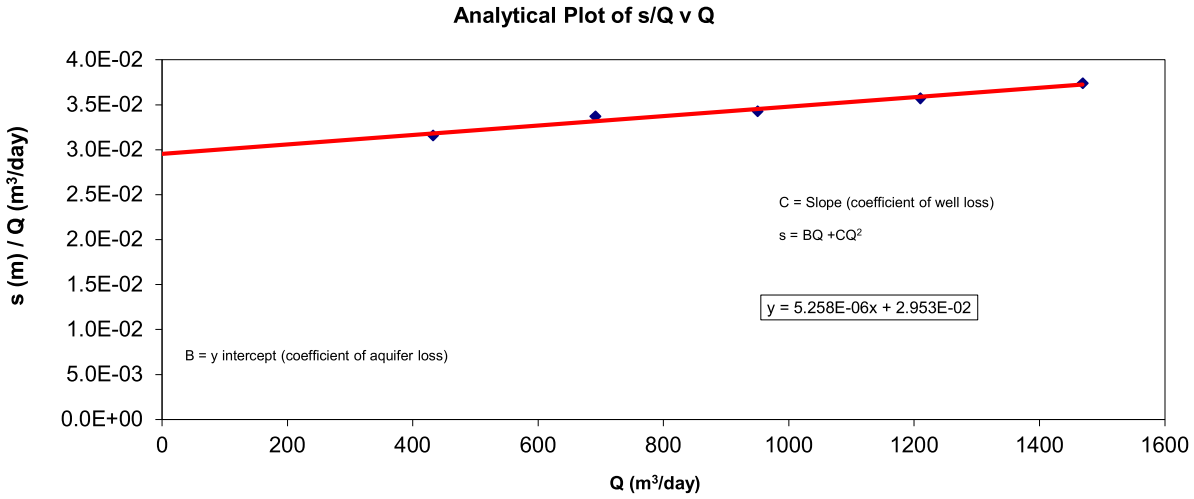
Intercept (B) 3.938E-03
Gradient (C) 6.574E-07

ANALYSIS TABLE

Calculation of well efficiency and comparison of observed and predicted drawdowns

Step (28 minute duration)	Discharge (l/s)	Discharge (Q) (m^3/d)	Measured Incremental Drawdown (metres)	Corrected Drawdown (metres)	Predicted Drawdown (metres)	s/Q	Apparent Efficiency (Ew) %
1	10.0	864	3.87	3.87	3.89	4.48E-03	87.4
2	13.0	1123	1.41	5.29	5.25	4.71E-03	84.2
3	16.0	1382	1.43	6.72	6.70	4.86E-03	81.2
4	19.0	1642	1.53	8.25	8.24	5.02E-03	78.5
5	22.0	1901	1.47	9.72	9.86	5.11E-03	75.9
6	24.0	2074	1.37	11.09	10.99	5.35E-03	74.3





$s_{w(n)} = BQ_n + CQ_n^P$ (Rorabaugh's equation)

Where: B = Intercept with y axis (coefficient of aquifer loss or laminar flow)
C = Gradient (coefficient of turbulent flow loss or apparent well loss)
s = Drawdown in the borehole
P = Value determined using Rorabaugh's method of superposition

Components of Jacob's (1947) equation BQ and CQ^2 are termed the aquifer loss and apparent well loss respectively. They give an indication of the proportion of total drawdown caused by laminar and turbulent flow.

Please note: 1. In thin or fissured aquifers large components of well loss are due to high flow velocities in the aquifer rather than inefficient bore design. Therefore, the term "apparent well loss" is better than well loss.
2. In aquifers where the flow horizons are vertically anisotropic, changes in bore performance often relate to changes in the pumping water level with respect to the primary aquifer horizons.

$Ew = (BQ/(BQ + CQ^2)) \times 100$

Ew or Well Efficiency represents the proportion of drawdown caused by laminar flow

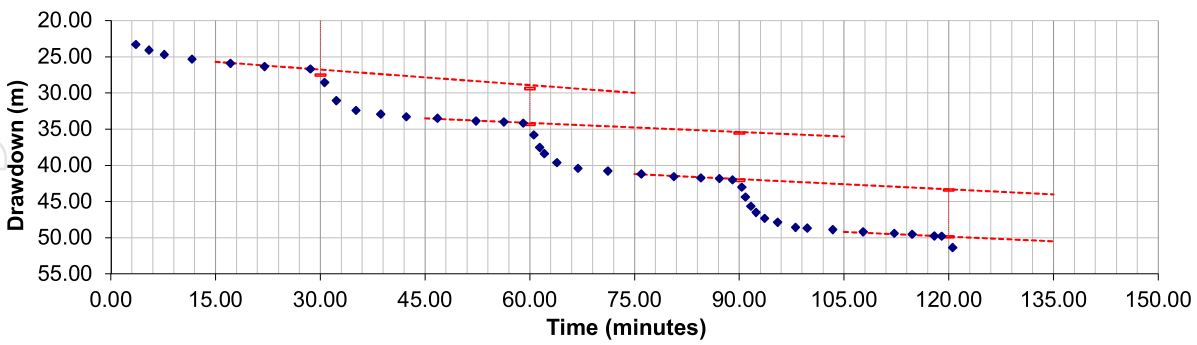
From plot of s/Q v Q (trend line equation):

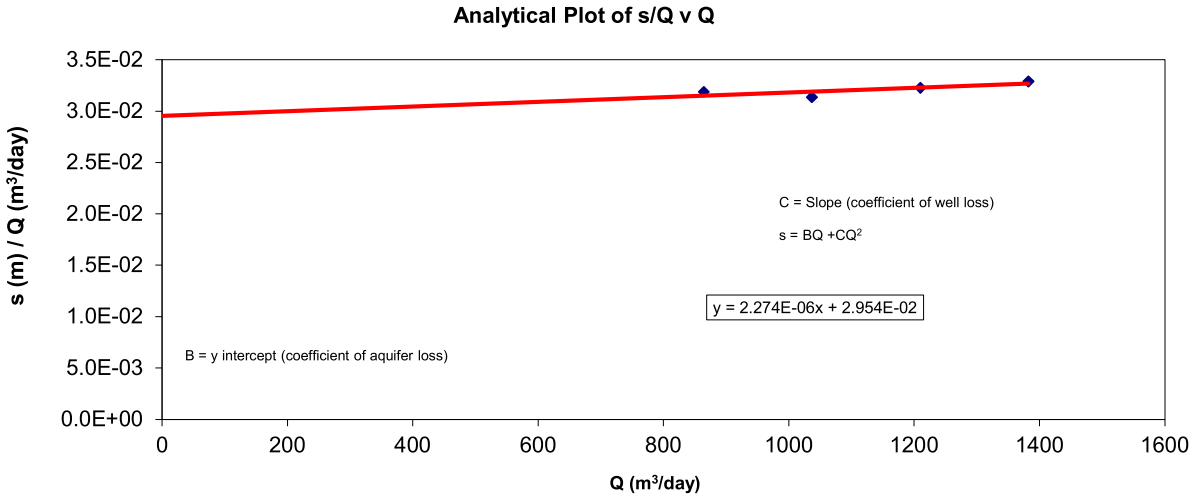
Intercept (B) 2.953E-02
Gradient (C) 5.258E-06

ANALYSIS TABLE

Calculation of well efficiency and comparison of observed and predicted drawdowns

Step (28 minute duration)	Discharge (l/s)	Discharge (Q) (m^3/d)	Measured Incremental Drawdown (metres)	Corrected Drawdown (metres)	Predicted Drawdown (metres)	s/Q	Apparent Efficiency (Ew) %
1	5.0	432	13.65	13.65	13.74	3.16E-02	92.9
2	8.0	691	9.65	23.30	22.93	3.37E-02	89.0
3	11.0	950	9.26	32.55	32.82	3.43E-02	85.5
4	14.0	1210	10.64	43.19	43.42	3.57E-02	82.3
5	17.0	1469	11.74	54.93	54.72	3.74E-02	79.3





$s_{w(n)} = BQ_n + CQ_n^P$ (Rorabaugh's equation)

Where: B = Intercept with y axis (coefficient of aquifer loss or laminar flow)
C = Gradient (coefficient of turbulent flow loss or apparent well loss)
s = Drawdown in the borehole
P = Value determined using Rorabaugh's method of superposition

Components of Jacob's (1947) equation BQ and CQ^2 are termed the aquifer loss and apparent well loss respectively. They give an indication of the proportion of total drawdown caused by laminar and turbulent flow.

Please note: 1. In thin or fissured aquifers large components of well loss are due to high flow velocities in the aquifer rather than inefficient bore design. Therefore, the term "apparent well loss" is better than well loss.
2. In aquifers where the flow horizons are vertically anisotropic, changes in bore performance often relate to changes in the pumping water level with respect to the primary aquifer horizons.

$Ew = (BQ/(BQ + CQ^2)) \times 100$

Ew or Well Efficiency represents the proportion of drawdown caused by laminar flow

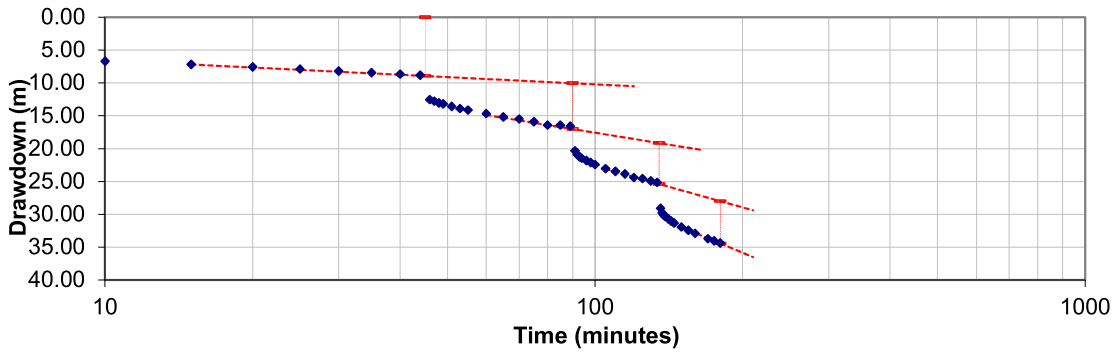
From plot of s/Q v Q (trend line equation):

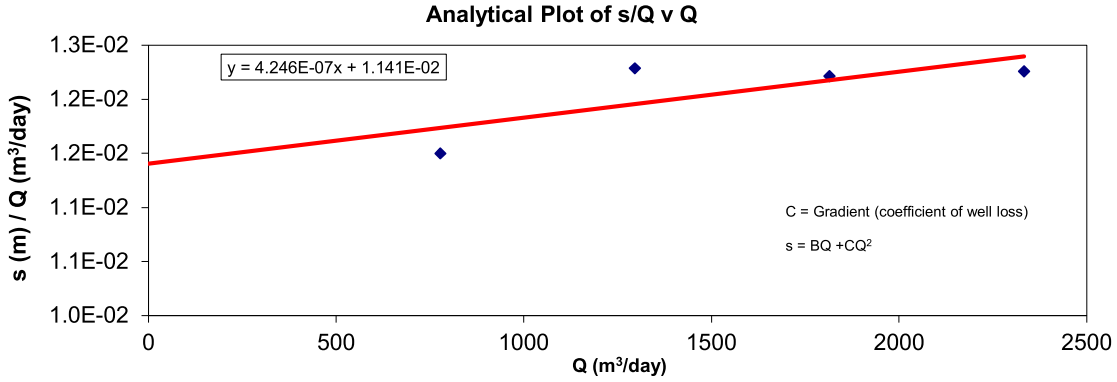
Intercept (B) 2.954E-02
Gradient (C) 2.274E-06

ANALYSIS TABLE

Calculation of well efficiency and comparison of observed and predicted drawdowns

Step (28 minute duration)	Discharge (l/s)	Discharge (Q) (m^3/d)	Measured Incremental Drawdown (metres)	Corrected Drawdown (metres)	Predicted Drawdown (metres)	s/Q	Apparent Efficiency (Ew) %
1	10.0	864	27.55	27.55	27.22	3.19E-02	93.8
2	12.0	1037	4.95	32.50	33.07	3.13E-02	92.6
3	14.0	1210	6.52	39.02	39.06	3.23E-02	91.5
4	16.0	1382	6.45	45.47	45.18	3.29E-02	90.4
5							
6							





$s_{w(n)} = BQ_n + CQ_n^P$ (Rorabaugh's equation)

Where: B = Intercept with y axis (coefficient of aquifer loss or laminar flow)
C = Gradient (coefficient of turbulent flow loss or apparent well loss)
s = Drawdown in the borehole
P = Value determined using Rorabaugh's method of superposition

Components of Jacob's (1947) equation BQ and CQ^c are termed the aquifer loss and apparent well loss respectively.

They give an indication of the proportion of total drawdown caused by laminar and turbulent flow.

Please note:
1. In thin or fissured aquifers large components of well loss are due to high flow velocities in the aquifer rather than inefficient bore design. Therefore, the term "apparent well loss" is better than well loss.
2. In aquifers where the flow horizons are vertically anisotropic, changes in bore performance often relate to changes in the rest water level with respect to the primary aquifer horizons.

$Ew = (BQ/(BQ + CQ^P)) \times 100$

Ew or Well Efficiency represents the proportion of drawdown caused by laminar flow

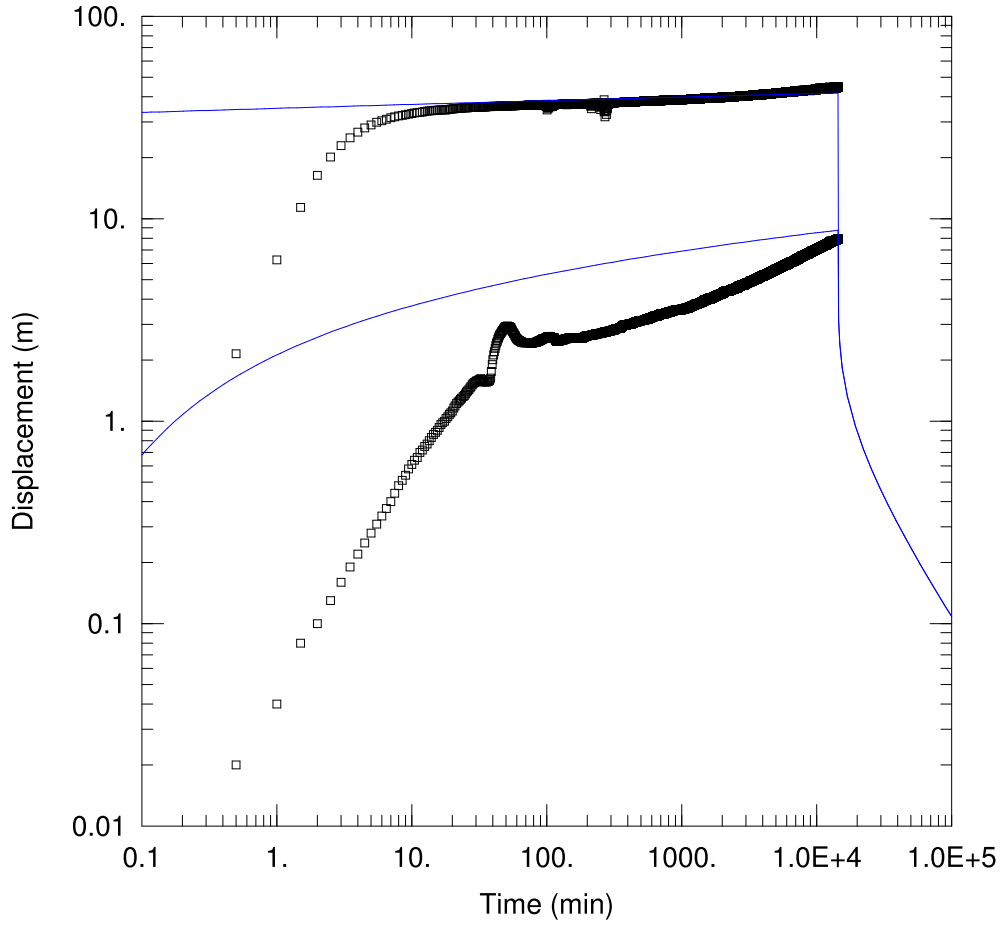
From plot of s/Q v Q (trend line equation):

Intercept (B) 1.141E-02
Gradient (C) 4.246E-07

ANALYSIS TABLE

Calculation of well efficiency and comparison of observed and predicted drawdowns

Step (60 minute duration)	Discharge (l/s)	Discharge (Q) (m^3/d)	Measured Incremental Drawdown (metres)	Corrected Drawdown (metres)	Predicted Drawdown (metres)	s/Q	Apparent Efficiency (Ew) %
1	9.0	778	8.94	8.94	9.13	1.15E-02	97.2
2	15.0	1296	6.98	15.92	15.49	1.23E-02	95.4
3	21.0	1814	6.24	22.16	22.09	1.22E-02	93.7
4	27.0	2333	6.44	28.60	28.92	1.23E-02	92.0



WELL TEST ANALYSIS

Data Set: W:\...\LW 3_4 Theis PB.aqt
Date: 09/02/19 Time: 16:46:45

PROJECT INFORMATION

Company: Salt Lake Potash
Client: Salt Lake Potash
Project: Lake Way
Location: Lake Way
Test Well: LW3_4
Test Date: 16/08/2019

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
LW3_4	0	0

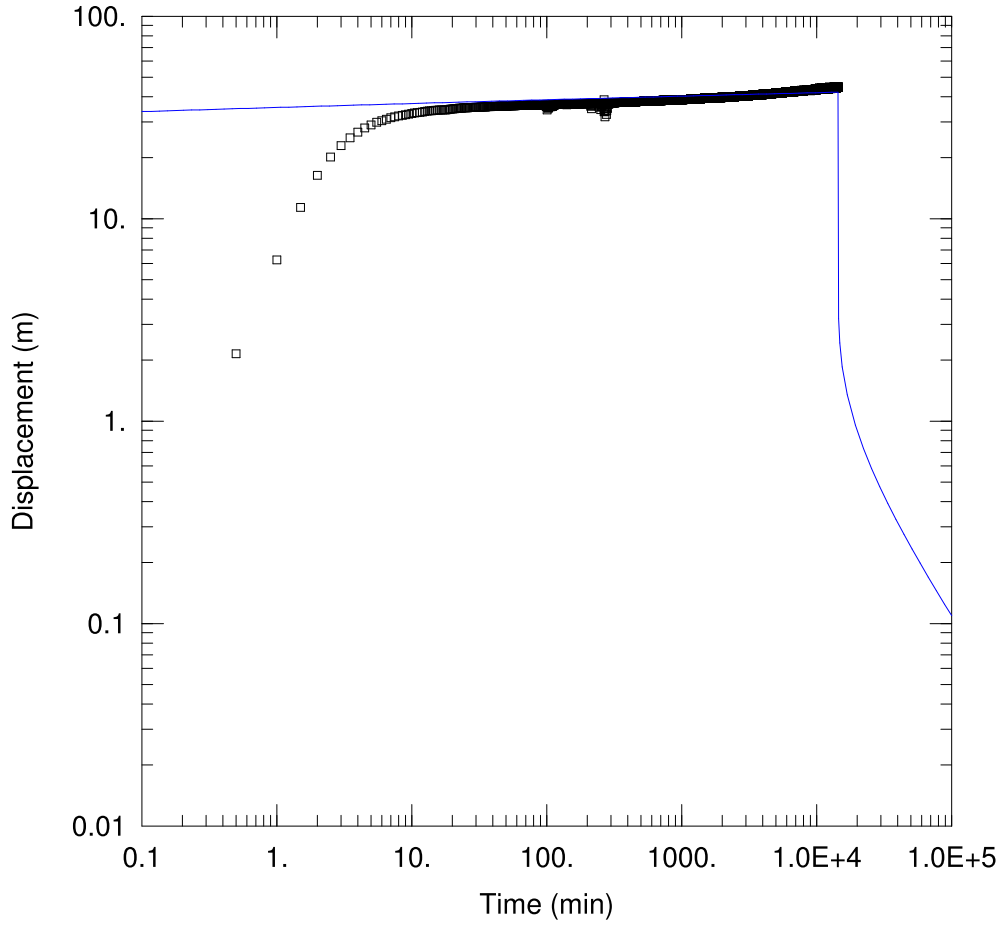
Observation Wells

Well Name	X (m)	Y (m)
LW3_4	0	0
Deep MB	0	33.4

SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 49.36 m^2/day
S = 3.365E-6
Kz/Kr = 1.
b = 10. m



WELL TEST ANALYSIS

Data Set: W:\...\LW 3_4 Theis Late Time PB.aqt
Date: 09/03/19 Time: 12:03:47

PROJECT INFORMATION

Company: Salt Lake Potash
Client: Salt Lake Potash
Project: Lake Way
Location: Lake Way
Test Well: LW3_4
Test Date: 16/08/2019

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
LW3_4	0	0

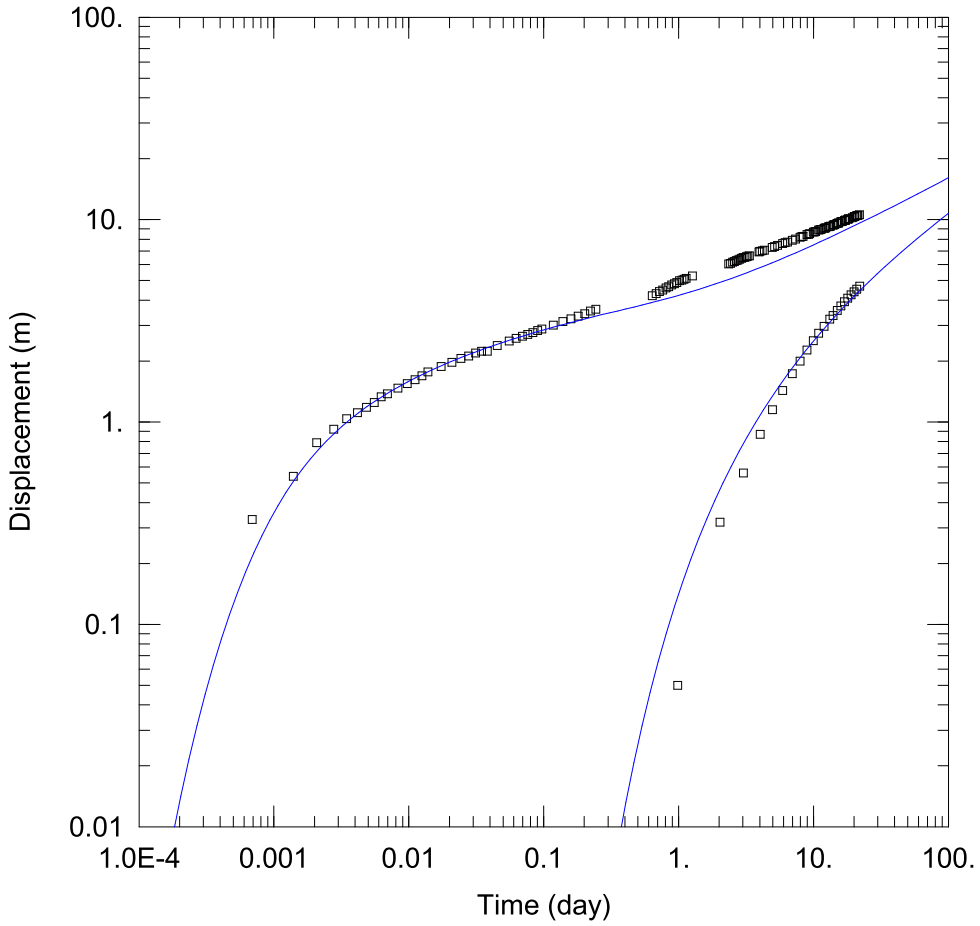
Observation Wells

Well Name	X (m)	Y (m)
▫ LW3_4	0	0

SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 48.83 m^2/day
S = 3.462E-6
Kz/Kr = 1.
b = 10. m



WELL TEST ANALYSIS

Data Set: W:\...\LY_PC_pad8_v1.aqt
Date: 02/02/22 Time: 15:05:47

AQUIFER DATA

Saturated Thickness: 20. m
Aquitard Thickness (b'): 94. m
Anisotropy Ratio (Kz/Kr): 0.1
Aquitard Thickness (b"): 0.001 m

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
PB_pad_8	0	0

Observation Wells

Well Name	X (m)	Y (m)
Obs_sand_pad_8	0	15.1
Obs_sand_pad_9	878	0

SOLUTION

Aquifer Model: Leaky
Solution Method: Moench (Case 2)

T = 125.6 m^2/day
1/B' = 0.0001664 m^{-1}
1/B" = 6.623E-7 m^{-1}
Sw = 0.
r(c) = 0.15 m

S = 0.0006585
ß'/r = 3.724E-5 m^{-1}
ß"/r = 0. m^{-1}
r(w) = 0.5012 m

Pad 8 Aquifer Test Summary: Lake Way Paleochannel LYPBB004 May-June 2020

A constant rate pumping test was conducted at production bore LYPBB004 at a rate of 10 liters/second. This test started on the 29th of May 2020. At the time of writing of this memo (24th June 2020) the test has been on going for a total duration to date of 25 days.

Test Configuration

The test included four observation bores in the sand and two in the overlying clay. Both sand observation bores and the pumped bore fully penetrated the sand aquifer. The purpose of the observation bores in the clay was to allow an estimate of the Kv of the paleochannel sand.

Details of the test configuration including bore construction and distances from the pumped bore are provided in Table 1. Locations are presented on Figure 1. Bore construction diagrams are presented at the end of this appendix.

Table 1: Bore Details

Bore Name	Type	Radial Distance from Pumped Bore (m)	Screened Interval (mbgs)		Unit
LYPBB004	Production	0	94	112	Paleochannel Sand
LYPBB004A	Observation	14.7	88	112	Paleochannel Sand
LYPBB004B	Observation	9.2	40	46	Paleovalley Clay (deep)
LYPBB004C	Observation	9.0	64	70	Paleovalley Clay (shallow)
LYPBB003A	Observation	878	76	94	Paleochannel Sand
Bore 3/4	Observation	5580	83.5	101.5	Paleochannel Sand
LYPBB005	Observation	8700	87.5	110.5	Paleochannel Sand

Test Results and Analysis

The pumping test data was analysed using a numerical model. No suitable analytical solution was available due to the observation bore in the clay unit.

Model Code and Grid

MODFLOW-USG Transport using the Groundwater Vistas GUI were used to develop the model using a structured finite difference grid. The model is a vertical rectangular section with a length of 49,229m (discretised using 125 columns), a width of 1043m (discretised using 24 rows), and height of 109m (discretised using 16 layers).

The paleochannel sand is represented by the bottom four layers with a thickness of 5m for each layer. The overlying paleovalley clay is represented by 12 layers with a thickness of 7.4m for each layer. Aquifer parameters (Kh, Kv, Sy, and Ss) are assumed to be homogenous in each of the two units.

Boundary Conditions

The model has no-flow boundaries on all sides except on the top which has a phreatic surface boundary. The model was extended along the length of the paleochannel far enough so that pumping impacts would not hit the boundaries.

The pumped well was centered in the middle of the paleochannel and was represented with a specified flux boundary (WEL package) and a conduit (CLN cell) spanning the two bottom sand layers. The pumping rate was specified at 10 liters/second for the duration of the test.

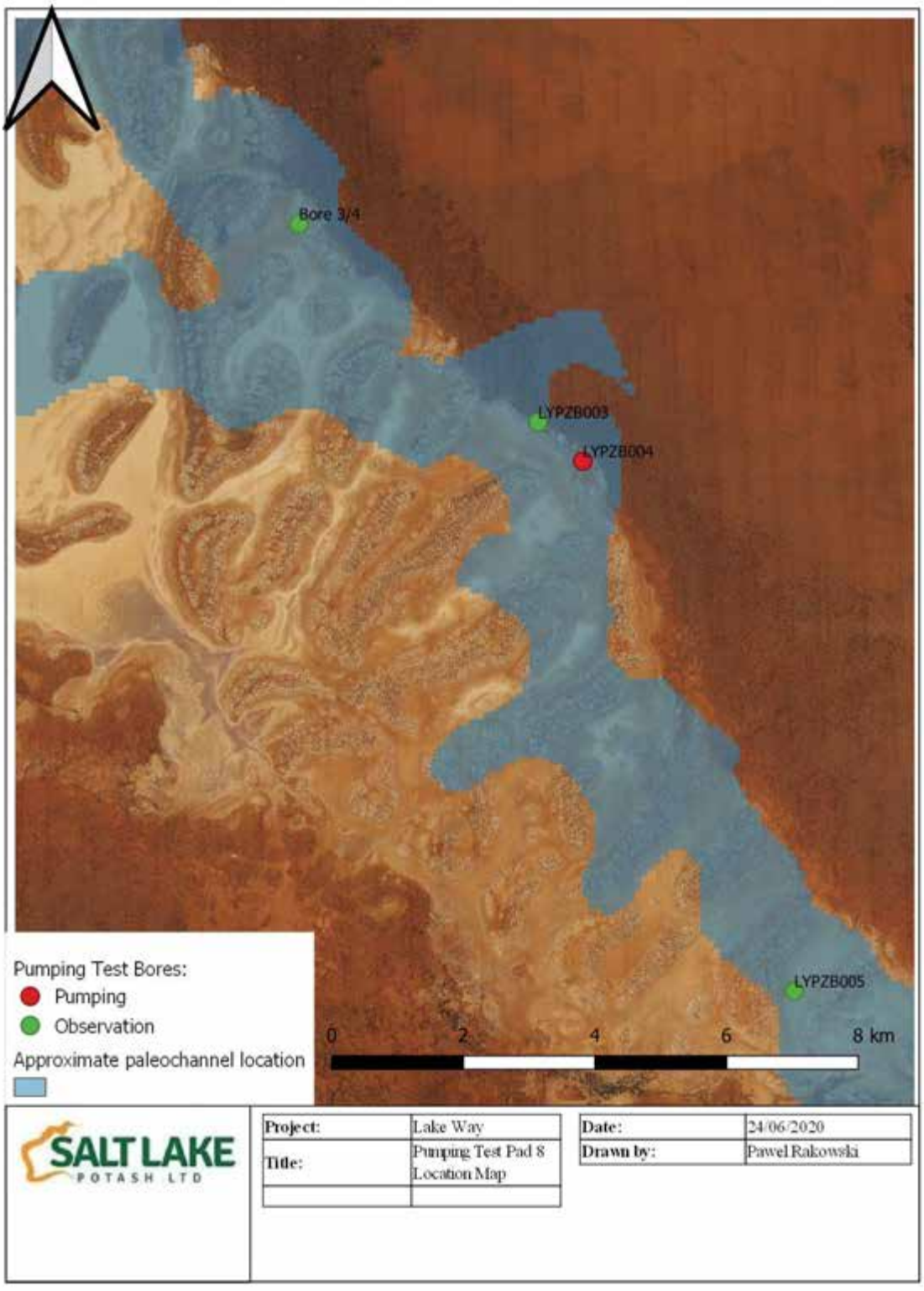


Figure 1: Bore Location Map

Aquifer Parameters

Parameters were determined by matching modelled drawdown curves to the measured drawdown curves at the three observation bores LYPBB004A (sand observation bore 14.7m away), LYPBB004C (shallow clay observation bore) and LYPBB003A (sand observation bore 878m away). LYPBB004B (deep clay observation bore) was not used because it was still recovering from bore development during the test. Remote sand observation bores Bore 3 – 4 (5.6km away) and LYPBB005 (8.7km away) could not be used for curve matching because insufficient response was observed. As described above the model was divided into two homogeneous zones: a 20m thick paleochannel sand overlain by a 89m thick paleovalley clay.

Curve matching was performed by hand. Only the following parameters were varied during the estimation process: Kh and Ss of the sand and Kv and Ss of the clay. The paleochannel never dewatered so the Sy of the sand was not used by the model and irrelevant to the parameter estimation. The final parameters are presented in Table *2* below. Curve matches are presented on Figures 2 to 4.

Table 2: Estimated Aquifer Parameters

Parameter	**Paleochannel Sand**		**Paleovalley Clay**	
	Parameter Value	Varied	Parameter Value	Varied
Kh (m/d)	5.5	Y	0.001	N
Kv (m/d)	0.5	N	0.0001	Y
Ss (1/m)	1.7×10^{-5}	Y	2.8×10^{-5}	Y
Sy (m/m)	0.15	N	0.02	N

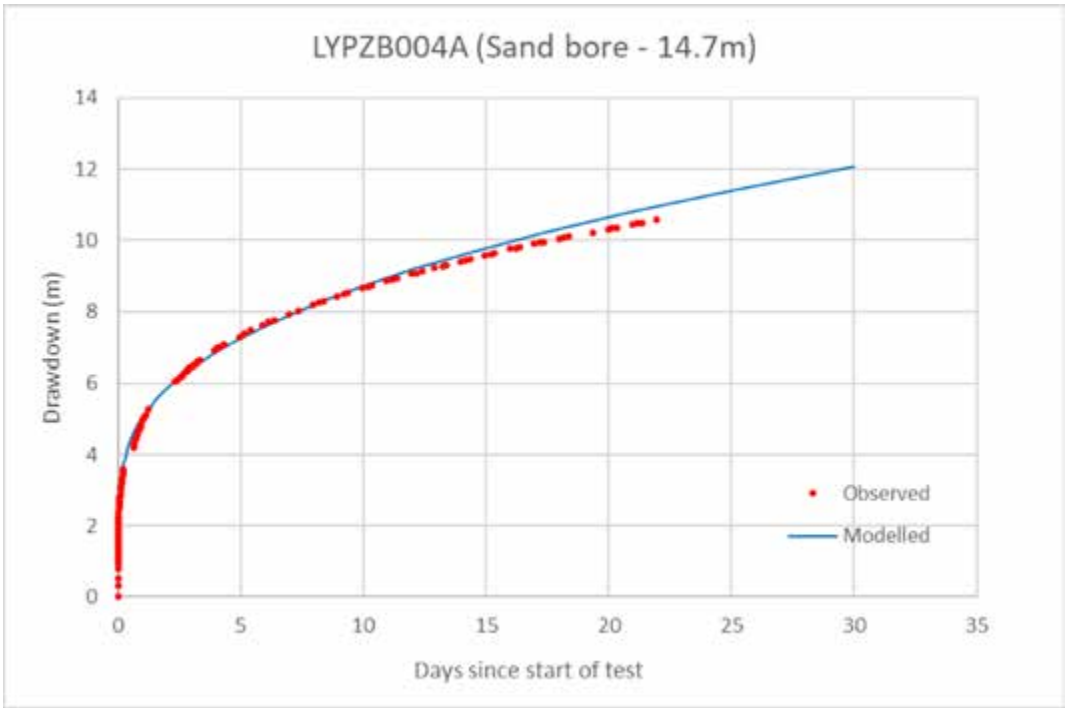


Figure 2: LYPPBB004A Observed and Modelled Drawdown

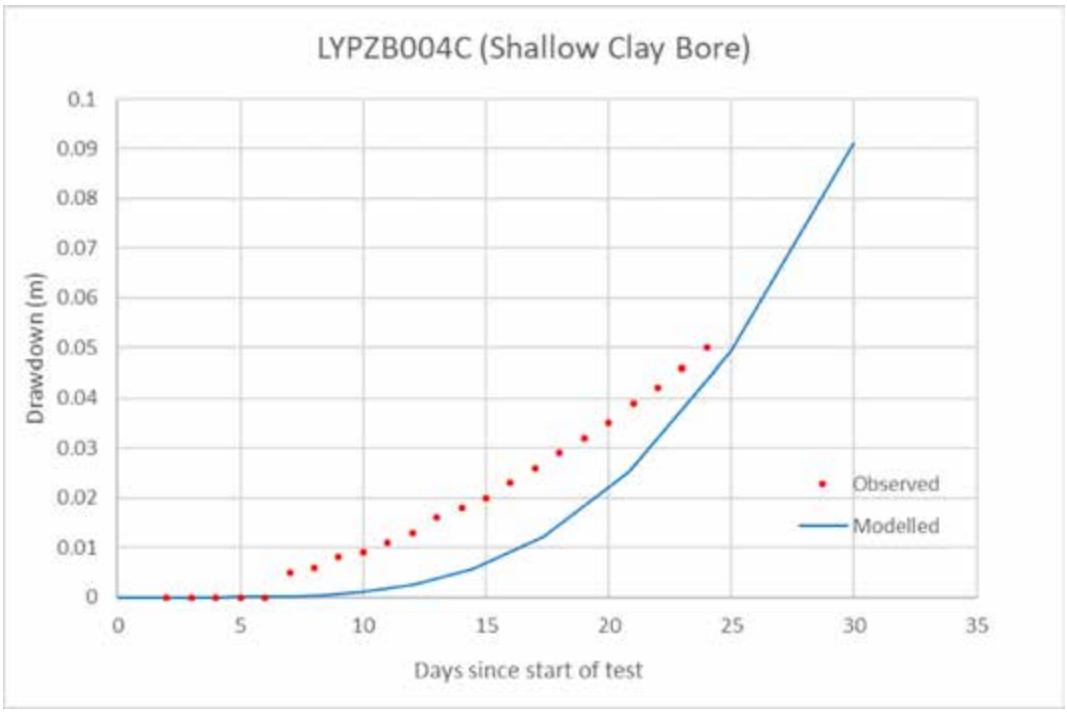


Figure 3: LYPBB004C Observed and Modelled Drawdown

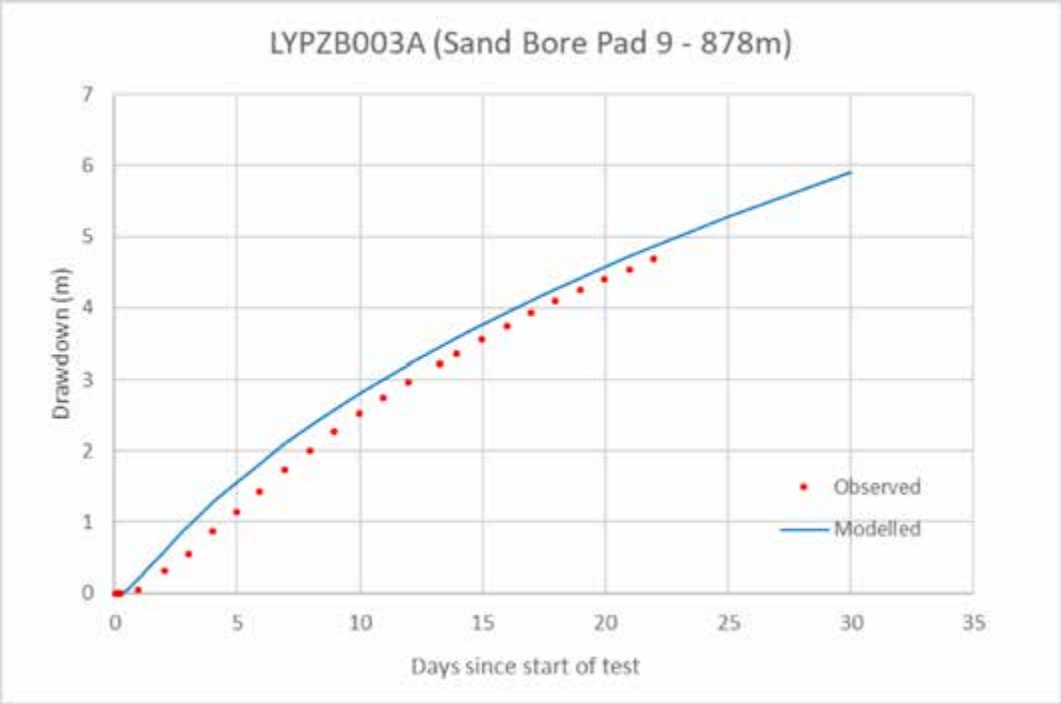


Figure 4: LYBB003 Observed and Modelled Drawdown

Pad 17 Aquifer Test Summary: Lake Way Paleochannel LYPBB001 April-May 2020

A constant rate pumping test was conducted at production bore LYPBB001 at a rate of 18 liters/second. This test started on the 22nd of April 2020 to 9th May 2020 for a total duration of 17 days pumping.

Test Configuration

The test included two observation bores in the sand and one in the overlying clay. Both sand observation bores and the pumped bore fully penetrated the sand aquifer. The purpose of the observation bore in the clay was to allow an estimate of the Kv of the paleochannel sand.

Details of the test configuration including bore construction and distances from the pumped bore are provided in Table 1. Locations are presented on Figure 1. Bore construction diagrams are presented at the end of this appendix.

Table 1: Bore Details

Bore Name	Type	Radial Distance from Pumped Bore (m)	Screened Interval (mbgs)	Unit
LYPBB001	Pumped	0	94 to 112	Paleochannel Sand
LYPBB001A	Observation	9.6	95 to 113	Paleochannel Sand
LYPBB001B	Observation	4.8	66 to 72	Paleovalley Clay
LYPBB002	Observation	1600	93 to 111	Paleochannel Sand

Test Results and Analysis

The pumping test data was analysed using a numerical model. No suitable analytical solution was available due to the observation bore in the clay unit.

Model Code and Grid

MODFLOW-USG Transport using the Groundwater Vistas GUI were used to develop the model using a structured finite difference grid. The model is a vertical rectangular section with a length of 49,229m (discretised using 125 columns), a width of 500m (discretised using 18 rows), and height of 112m (discretised using 16 layers).

The paleochannel sand is represented by the bottom four layers with a thickness of 5.5m for each layer. The overlying paleovalley clay is represented by 12 layers with a thickness of 7.5m for each layer. Aquifer parameters (Kh, Kv, Sy, and Ss) are assumed to be homogenous in each of the two units.

Boundary Conditions

The model has no-flow boundaries on all sides except on the top which has a phreatic surface boundary. The model was extended along the length of the paleochannel far enough so that pumping impacts would not hit the boundaries.

The pumped well was centered in the middle of the paleochannel and was represented with a specified flux boundary (WEL package) and a conduit (CLN cell) spanning the four sand layers. The pumping rate was specified at 18 liters/second for the duration of the test.

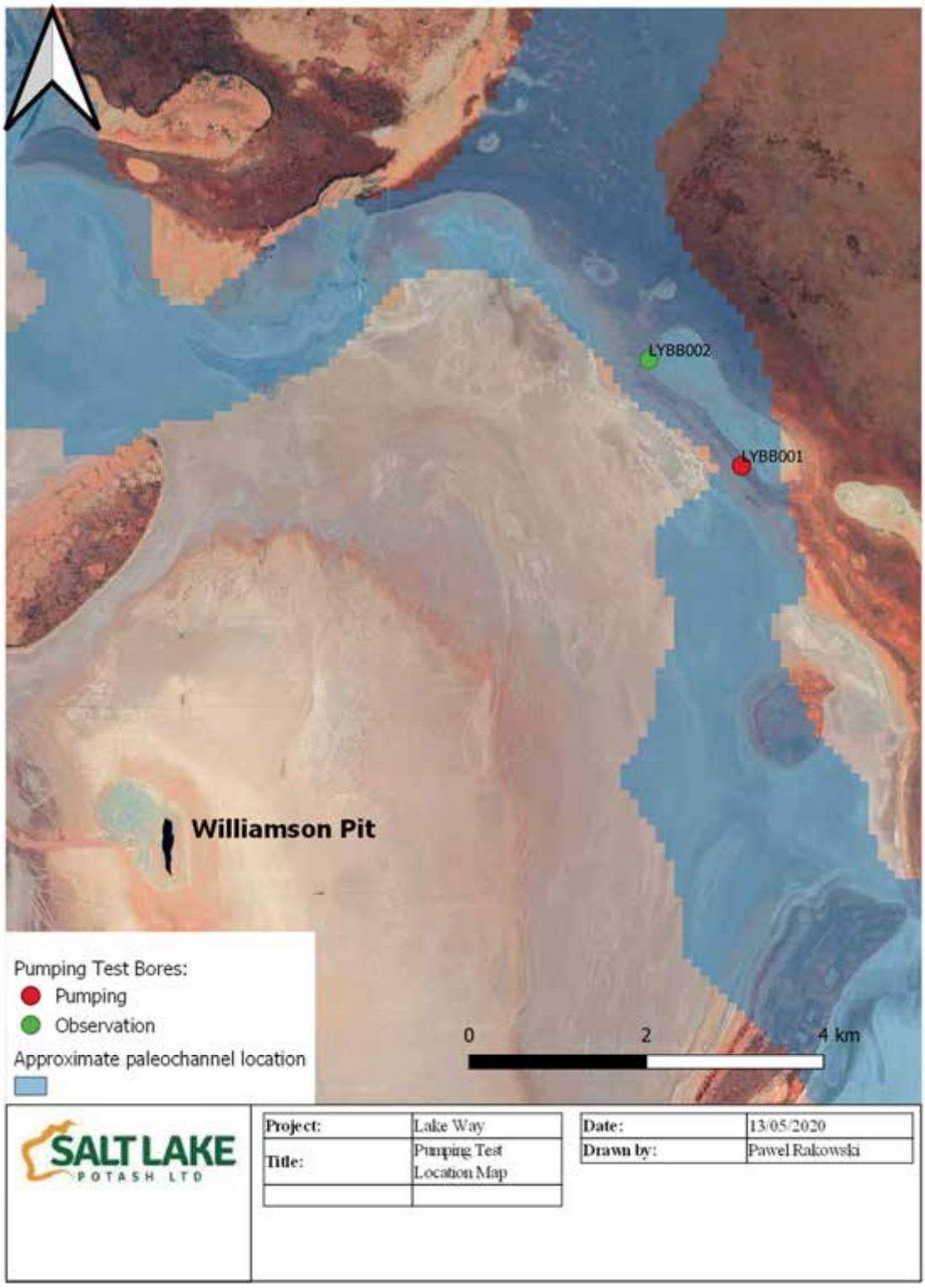


Figure 1: Bore Location Map

Aquifer Parameters

Parameters were determined by matching modelled drawdown curves to the measured drawdown curves at each of the three observation bores. As described above the model was divided into two homogeneous zones: a 22m thick paleochannel sand overlain by a 90m thick paleovalley clay.

Curve matching was first performed by hand, then further refined using the parameter estimation program PEST. Only the following parameters were varied during the estimation process: Kh and Ss of the sand and Kv and Ss of the clay. The paleochannel never dewatered so the Sy of the sand was not used by the model and irrelevant to the parameter estimation. The final parameters are presented in Table *2* below. Curve matches are presented on Figures 2 to 4.

Table 2: Estimated Aquifer Parameters

Parameter	**Paleochannel Sand**		**Paleovalley Clay**	
	Parameter Value	Varied	Parameter Value	Varied
Kh (m/d)	5.86	Y	0.001	N
Kv (m/d)	0.5	N	0.00043	Y
Ss (1/m)	1.76×10^{-5}	Y	1.11×10^{-5}	Y
Sy (m/m)	0.075	N	0.02	N

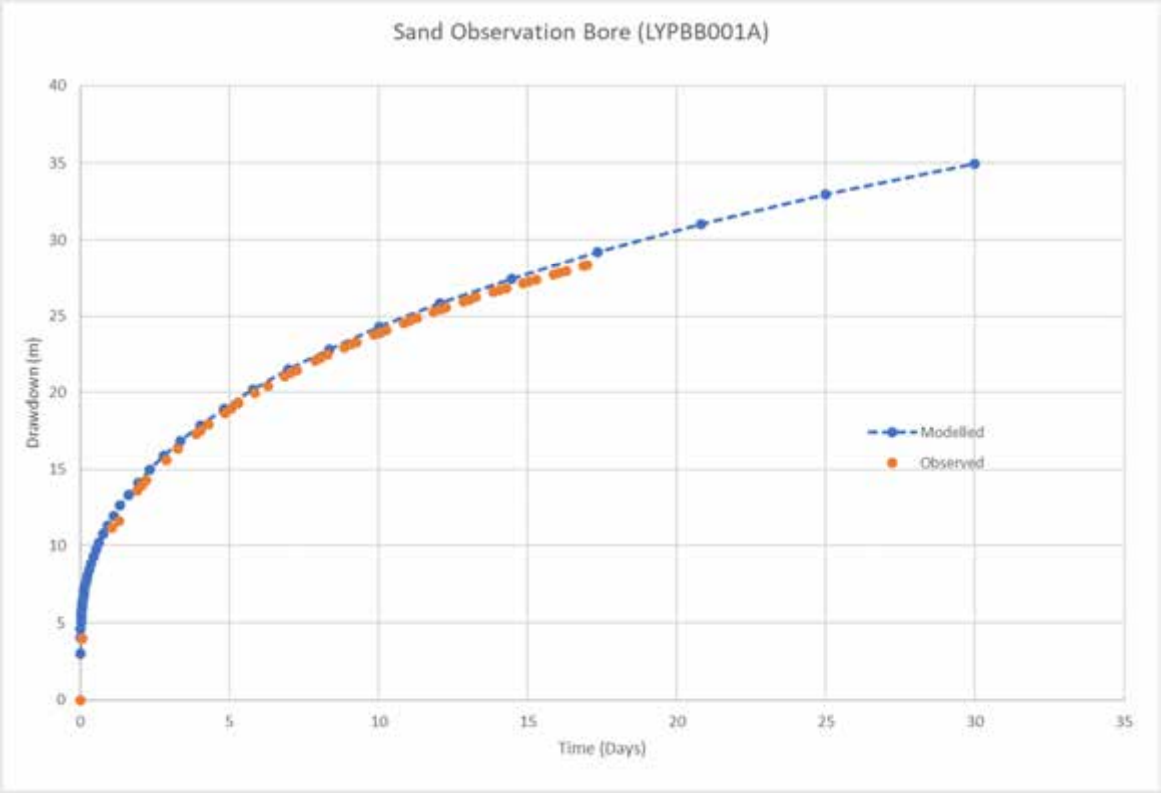


Figure 2: LYPPBB001A Observed and Modelled Drawdown

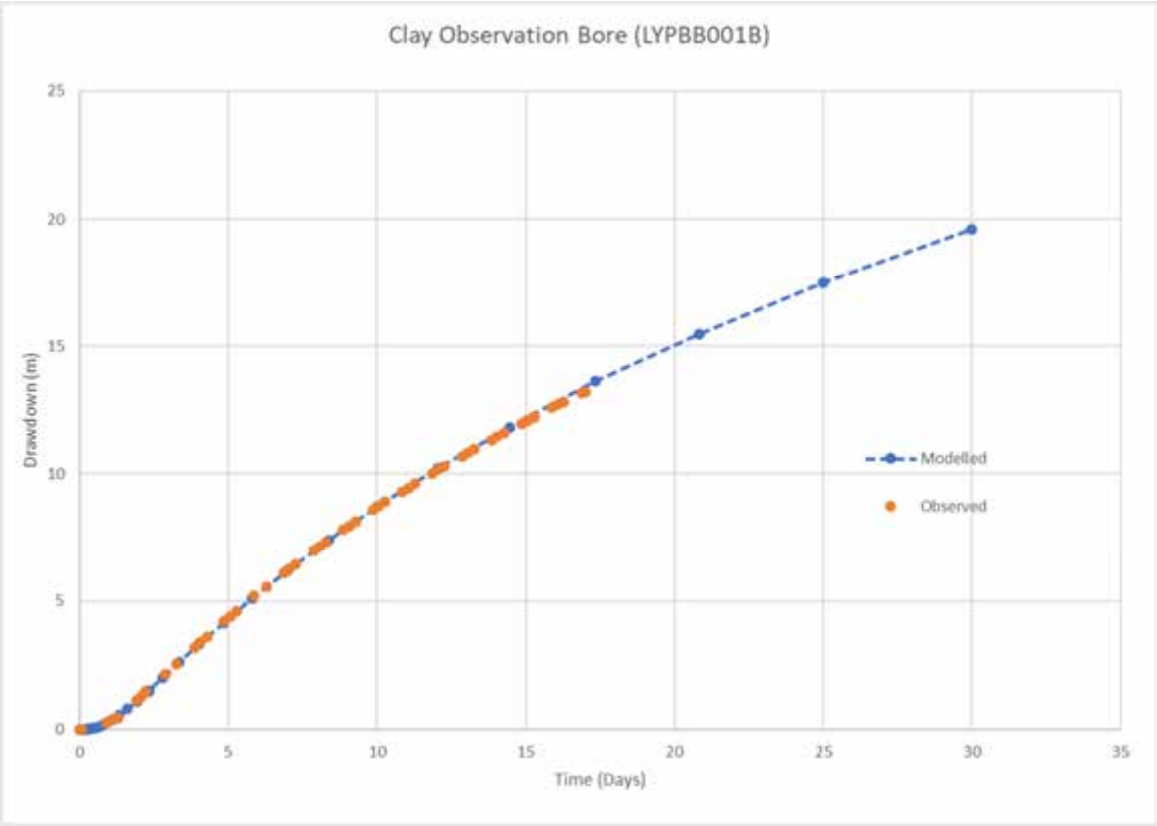


Figure 3: LYPBB001B Observed and Modelled Drawdown

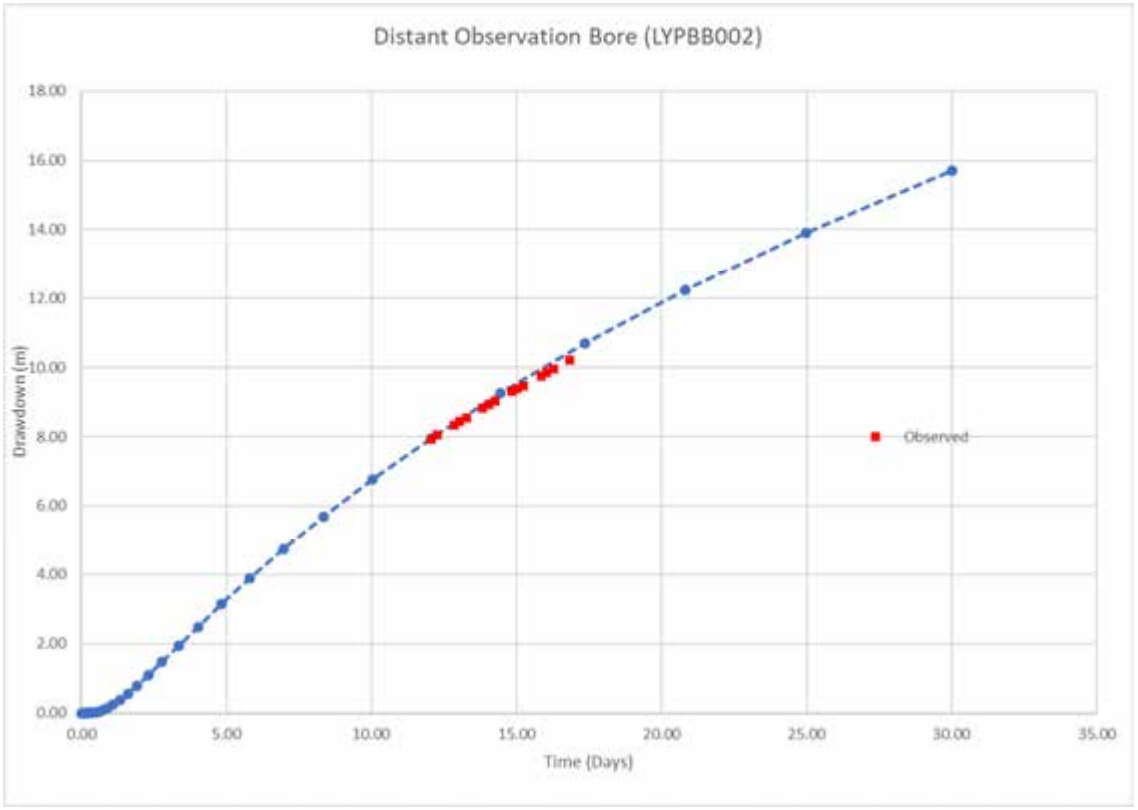
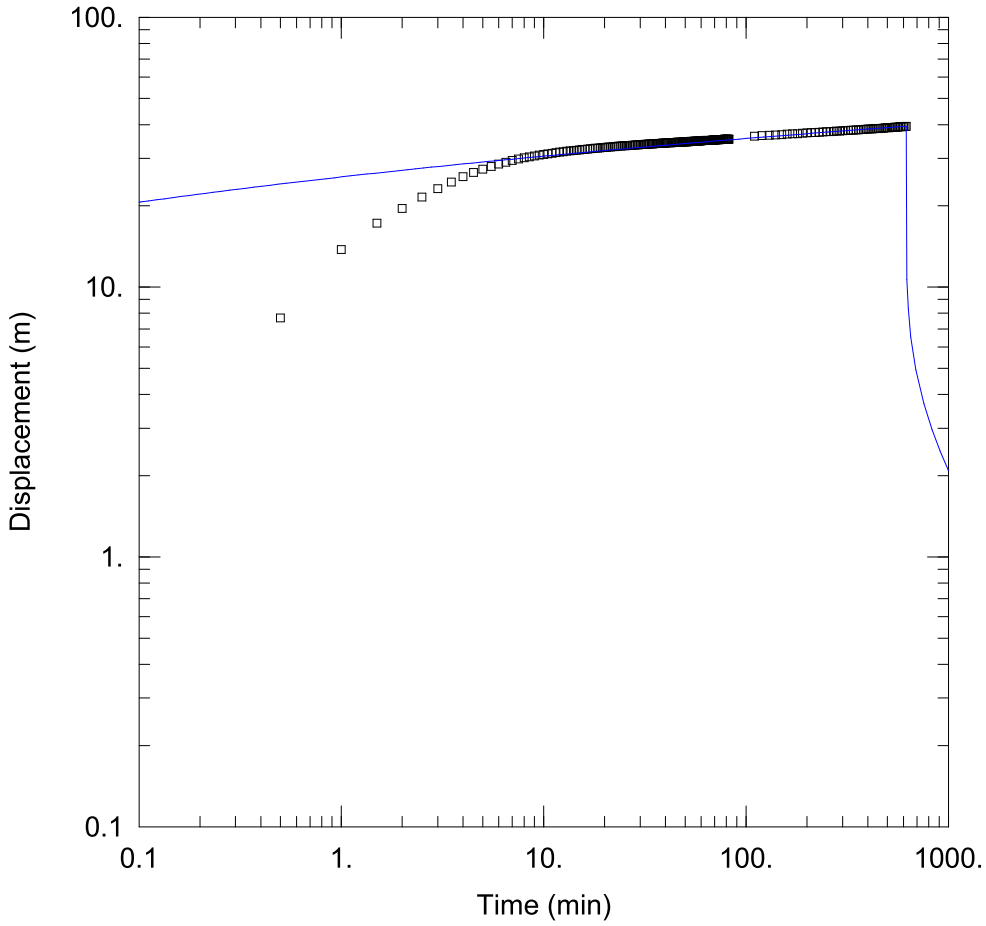


Figure 4: LYBB002 Observed and Modelled Drawdown



WELL TEST ANALYSIS

Data Set: W:\...\LYPBB006_Multiwell_Theis.aqt
Date: 02/02/22 Time: 15:09:52

PROJECT INFORMATION

Company: SO4
Location: Paleochannel
Test Well: LYPBB006
Test Date: 5/09/2020

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
LYPBB006	238340.46	7042456.682

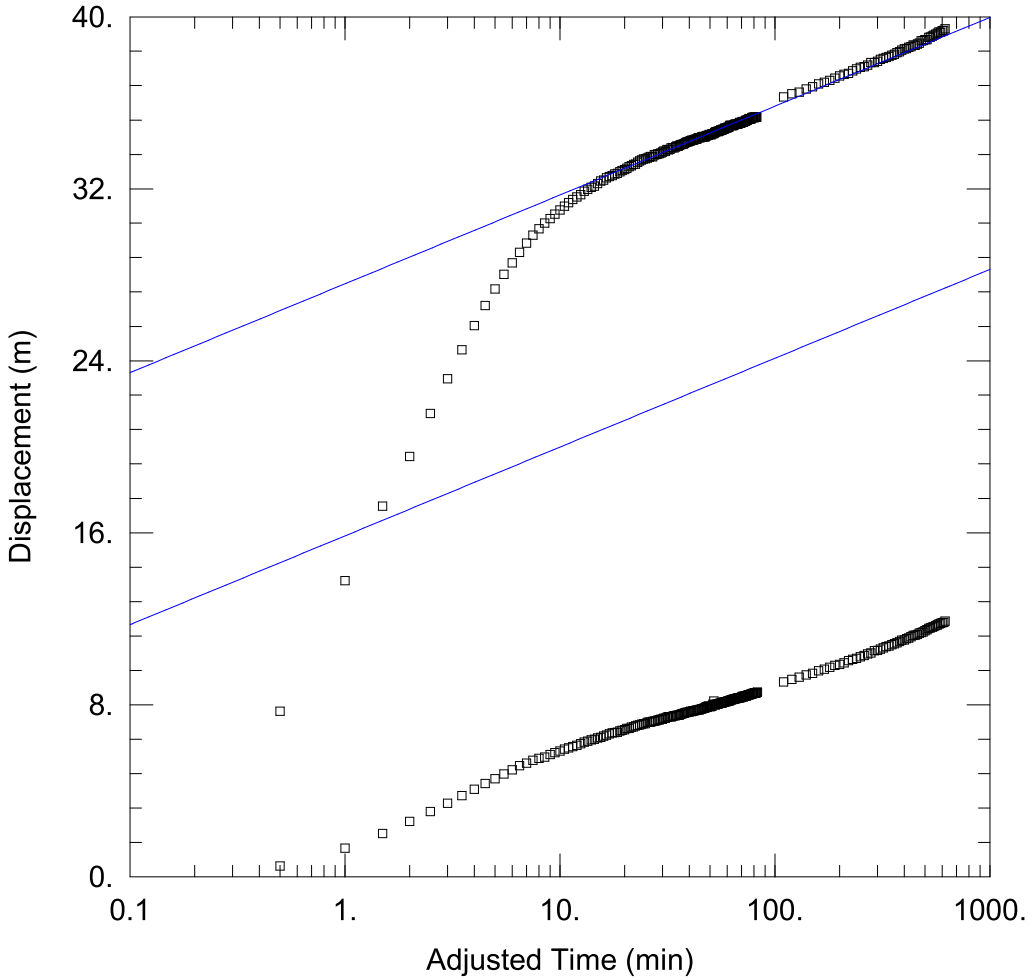
Observation Wells

Well Name	X (m)	Y (m)
LYPBB006	238340.46	7042456.682
LYPZB006A	238339.923	7042468.602

SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 35.07 m^2/day
S = 2.64E-6
Kz/Kr = 1.
b = 60. m



WELL TEST ANALYSIS

Data Set: \...\LYPBB006_Multiwell_CJ.aqt
Date: 03/30/21 Time: 14:28:38

PROJECT INFORMATION

Company: SO4
Location: Paleochannel
Test Well: LYPBB006
Test Date: 5/09/2020

AQUIFER DATA

Saturated Thickness: 60. m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
LYPBB006	0	0

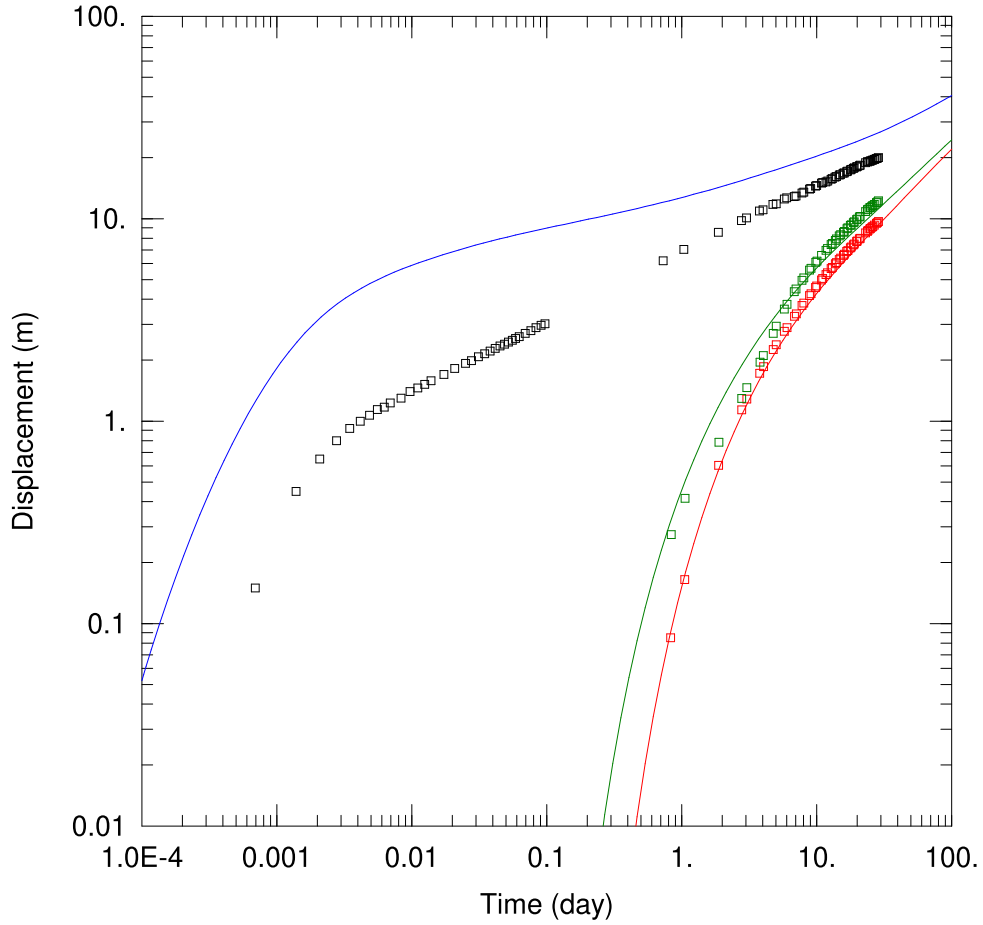
Observation Wells

Well Name	X (m)	Y (m)
LYPBB006	0	0
LYPZB006A	0	10

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 42.15 m^2/day S = 9.57E-8



WELL TEST ANALYSIS

Data Set: \...\pad21_MOENCH85V3_v5.aqt
Date: 08/20/20 Time: 14:51:40

PROJECT INFORMATION

Company: so4
Test Well: pad21

AQUIFER DATA

Saturated Thickness: 20. m
Aquitard Thickness (b'): 63. m
Anisotropy Ratio (Kz/Kr): 1.
Aquitard Thickness (b"): 0.1 m

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
pw	0	0

Observation Wells

Well Name	X (m)	Y (m)
sand	0	9.87
17	0	1600
18	0	1200

SOLUTION

Aquifer Model: Leaky
Solution Method: Moench (Case 2)

T = 62.16 m^2/day
1/B' = 0.000357 m^{-1}
1/B" = 0. m^{-1}
Sw = 0.
r(c) = 0.127 m

S = 0.0001462
ß'/r = 0.0001276 m^{-1}
ß"/r = 0. m^{-1}
r(w) = 0.127 m

Pad 21 Aquifer Test Notes: July-August 2020

A constant rate pumping test was conducted at production bore LYPBB004 at a rate of 12 liters/second. This test started on the 14th of July 2020 and continued for a total duration of 25 days.

Test Configuration

The test included three observation bores in the sand and one in the overlying clay. Details of the test configuration including bore construction and distances from the pumped bore are provided in Table 1. Locations are presented on Figure 1. Bore construction diagrams are presented at the end of this appendix.

Table 1: Bore Details

Bore Name	Type	Radial Distance from Pumped Bore (m)	Screened Interval (mbgs)		Unit
LYPBB002	Production	0	93	111	Paleochannel Sand
LYPBB002A	Observation	9.87	90	108	Paleochannel Sand
LYPBB002B	Observation	10.7	62.5	68.5	Paleovalley Clay
LYPBB006A	Observation	1200	88	112	Paleochannel Sand
LYPBB001	Observation	1600	94	113	Paleochannel Sand

Test Results and Analysis

The pumping test data was analysed using curve matching to an analytical solution. The analytical solution (Moench 1985) included two parallel no-flow boundaries to represent the channel boundaries. The clay bore drawdown was not analysed because the measurement error was at about the same order of magnitude as the observed drawdown. Measurement error was due to a reverse fluctuation (Wolff, 1970) and background water level fluctuations.

The test was complicated because the nearby sand observation bore was not completed across the same interval as the pumped well. Notably the sand observation bore was not screened across the gravel at the base of the sand.

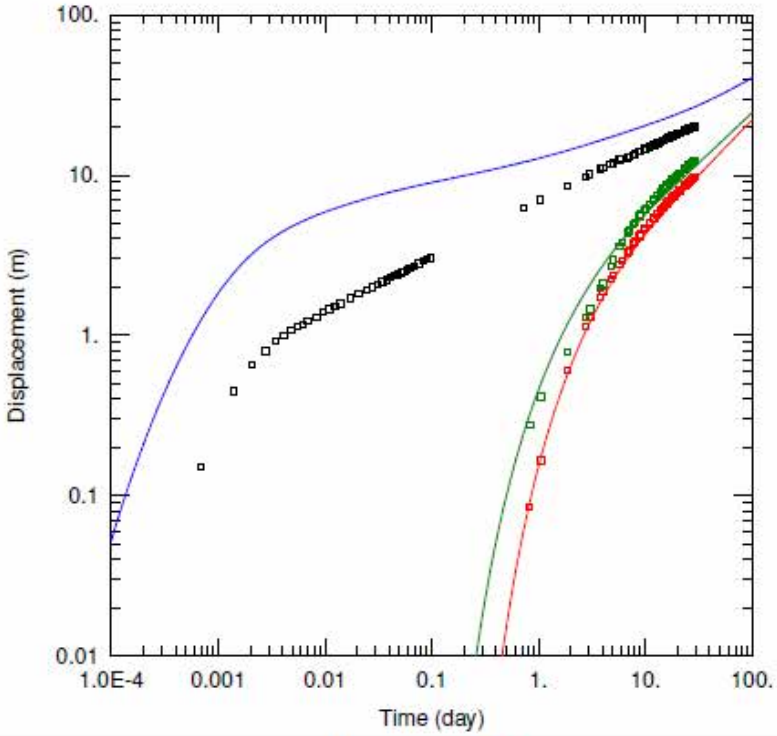
Matches to drawdown in the sand observation bore resulted in unrealistically high values for storativity (S) of the sand aquifer. It is likely that much of the flow into the pumped bore was from the basal gravel unit reducing the observed drawdown in the sand observation bore. Consequently, the matching focussed on observations further away from the pumped bore and matching the slope of the nearby observation bore only at later times.

Aquifer Parameters

The estimated aquifer parameters are summarised in Table 1.

Table *1*: Estimated Aquifer Parameters

Parameter	**Paleochannel Sand**	**Paleovalley Clay**
	Parameter Value	Parameter Value
Kh (m/d)	3.1	NA
Kv (m/d)	NA	5.0×10^{-4}
Ss (1/m)	7.3×10^{-5}	4.9×10^{-6}



WELL TEST ANALYSIS

Data Set: \...\pad21_MOENCH85V3_v5.aqt
Date: 08/20/20 Time: 14:51:40

PROJECT INFORMATION

Company: so4
Test Well: pad21

AQUIFER DATA

Saturated Thickness: 20. m
Aquitard Thickness (b'): 63. m
Anisotropy Ratio (Kz/Kr): 1.
Aquitard Thickness (b"): 0.1 m

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
pw	0	0

Observation Wells

Well Name	X (m)	Y (m)
sand	0	9.87
17	0	1600
18	0	1200

SOLUTION

Aquifer Model: Leaky
Solution Method: Moench (Case 2)

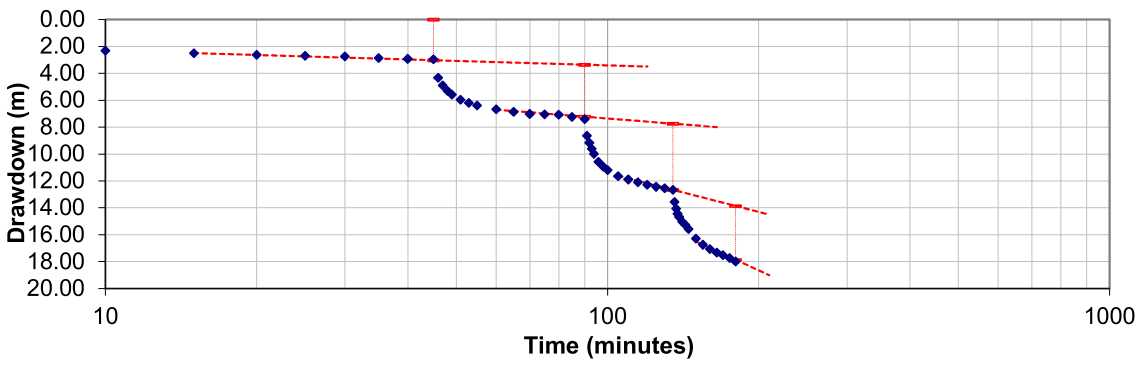
T = 62.16 m^2/day
1/B' = 0.000357 m^{-1}
1/B" = 0. m^{-1}
Sw = 0.
r(c) = 0.127 m

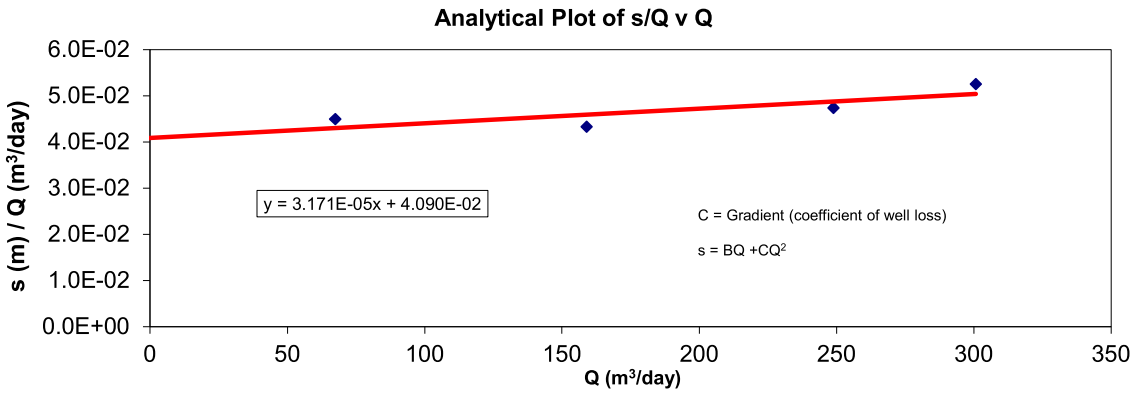
S = 0.0001462
ß'/r = 0.0001276 m^{-1}
ß"/r = 0. m^{-1}
r(w) = 0.127 m

Figure 1: Curve Match for Pad 21 Test

Reference

Wolff, R.G., Relationship between Horizontal Strain near a Well and Reverse Water Level Fluctuation., Water Resources Research, December 1970, p. 1721-1728.





$s_{w(n)} = BQ_n + CQ_n^P$ (Rorabaugh's equation)

Where: B = Intercept with y axis (coefficient of aquifer loss or laminar flow)
C = Gradient (coefficient of turbulent flow loss or apparent well loss)
s = Drawdown in the borehole
P = Value determined using Rorabaugh's method of superposition

Components of Jacob's (1947) equation BQ and CQ^2 are termed the aquifer loss and apparent well loss respectively. They give an indication of the proportion of total drawdown caused by laminar and turbulent flow.

Please note:
1. In thin or fissured aquifers large components of well loss are due to high flow velocities in the aquifer rather than inefficient bore design. Therefore, the term "apparent well loss" is better than well loss.
2. In aquifers where the flow horizons are vertically anisotropic, changes in bore performance often relate to changes in the rest water level with respect to the primary aquifer horizons.

$Ew = (BQ/(BQ + CQ^P)) \times 100$

Ew or Well Efficiency represents the proportion of drawdown caused by laminar flow

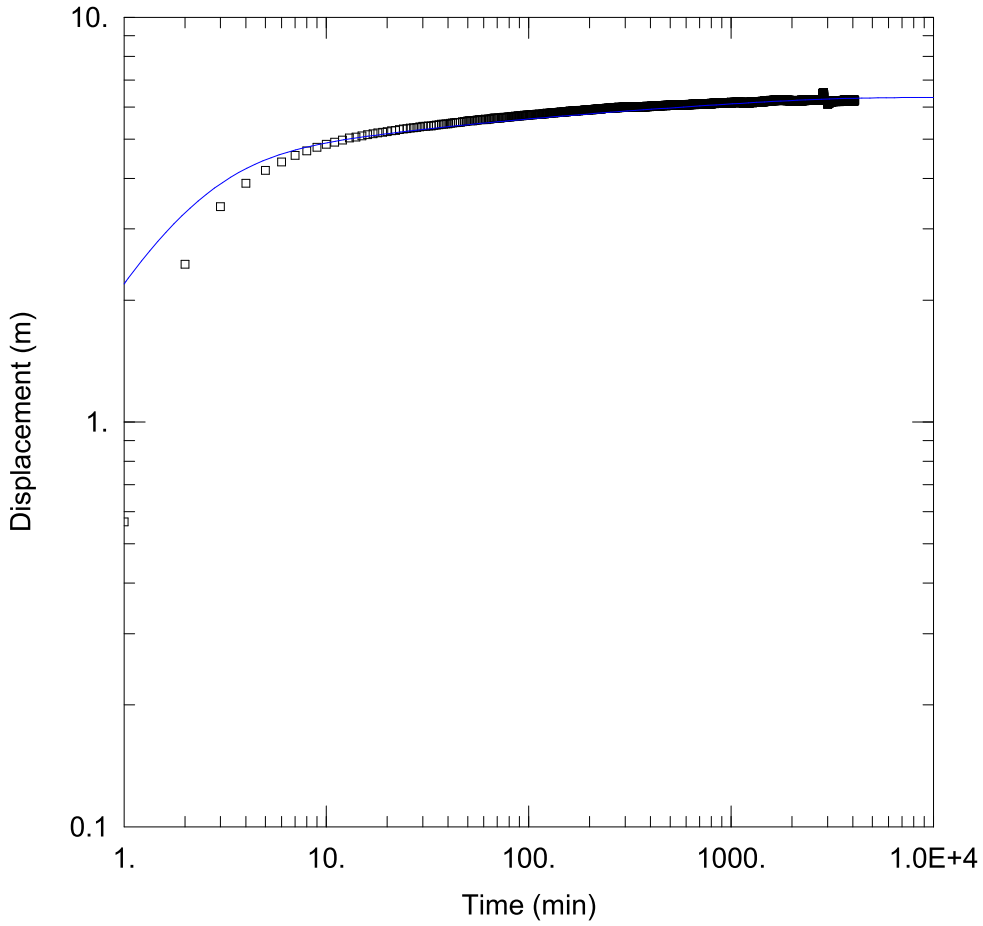
From plot of s/Q v Q (trend line equation):

Intercept (B) 4.090E-02
Gradient (C) 3.171E-05

ANALYSIS TABLE

Calculation of well efficiency and comparison of observed and predicted drawdowns

Step (60 minute duration)	Discharge (l/s)	Discharge (Q) (m^3/d)	Measured Incremental Drawdown (metres)	Corrected Drawdown (metres)	Predicted Drawdown (metres)	s/Q	Apparent Efficiency (Ew) %
1	0.78	67	3.03	3.03	2.90	4.49E-02	95.0
2	1.84	159	3.86	6.89	7.30	4.33E-02	89.0
3	2.88	249	4.91	11.80	12.14	4.74E-02	83.8
4	3.48	301	4.00	15.80	15.16	5.25E-02	81.1



WELL TEST ANALYSIS

Data Set: W:\...\LYSP004_nov_2020_moench85_final.aqt
Date: 02/02/22 Time: 15:08:37

PROJECT INFORMATION

Company: SO4
Location: Paleochannel
Test Well: LYSP004
Test Date: 5/11/2020

AQUIFER DATA

Saturated Thickness: 5. m
Aquitard Thickness (b'): 20. m
Anisotropy Ratio (Kz/Kr): 1.
Aquitard Thickness (b"): 0.1 m

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
LYSP004	0	0

Observation Wells

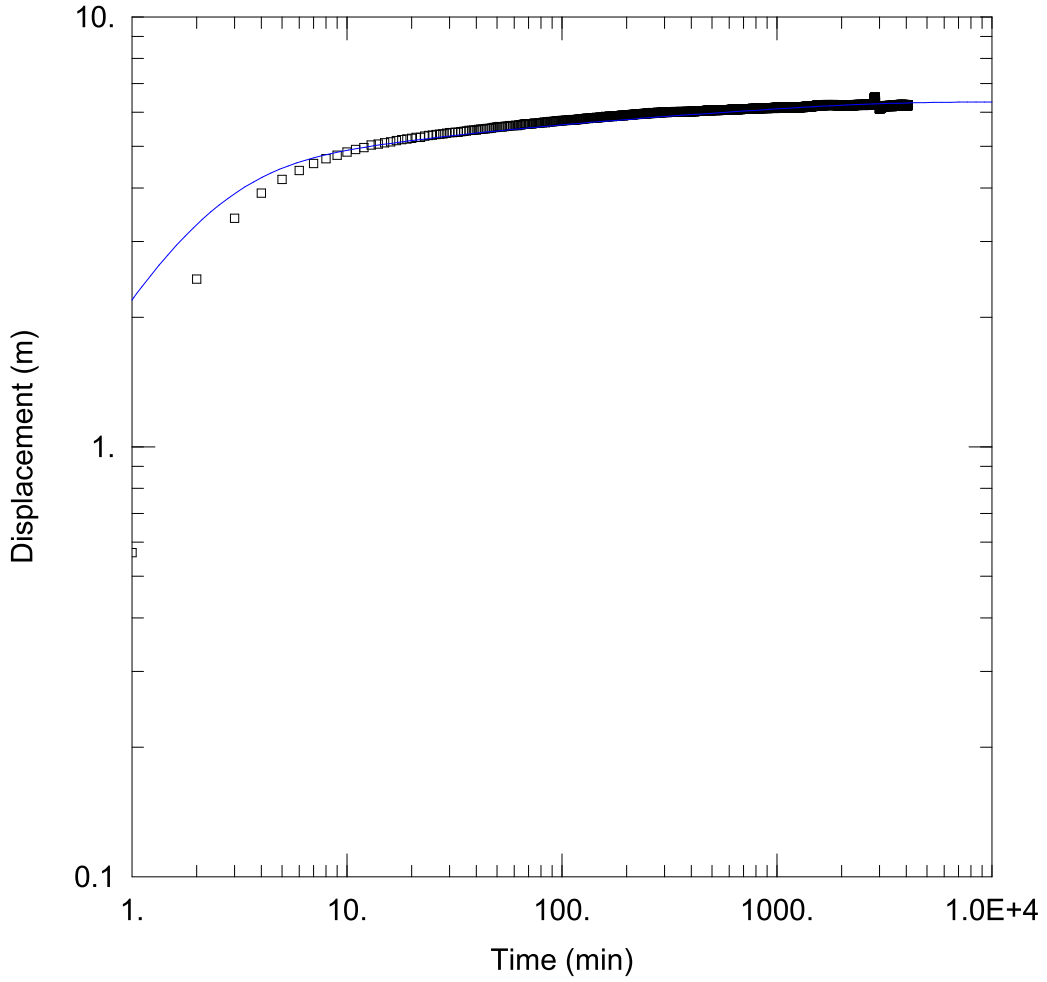
Well Name	X (m)	Y (m)
▫ LYSP004	0	0

SOLUTION

Aquifer Model: Leaky
Solution Method: Moench (Case 1)

T = 32.1 m^2/day
r/B' = 0.004786
r/B" = 0.
Sw = 4.15
r(c) = 0.096 m

S = 0.00038
ß' = 0.00309
ß" = 0.
r(w) = 1. m



WELL TEST ANALYSIS

Data Set: \...\LYSP004_nov_2020_moench85_final.aqt
Date: 03/24/21 Time: 09:26:58

PROJECT INFORMATION

Company: SO4
Location: Paleochannel
Test Well: LYSP004
Test Date: 5/11/2020

AQUIFER DATA

Saturated Thickness: 5. m
Anisotropy Ratio (Kz/Kr): 1.
Aquitard Thickness (b'): 20. m
Aquitard Thickness (b"): 0.1 m

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
LYSP004	0	0

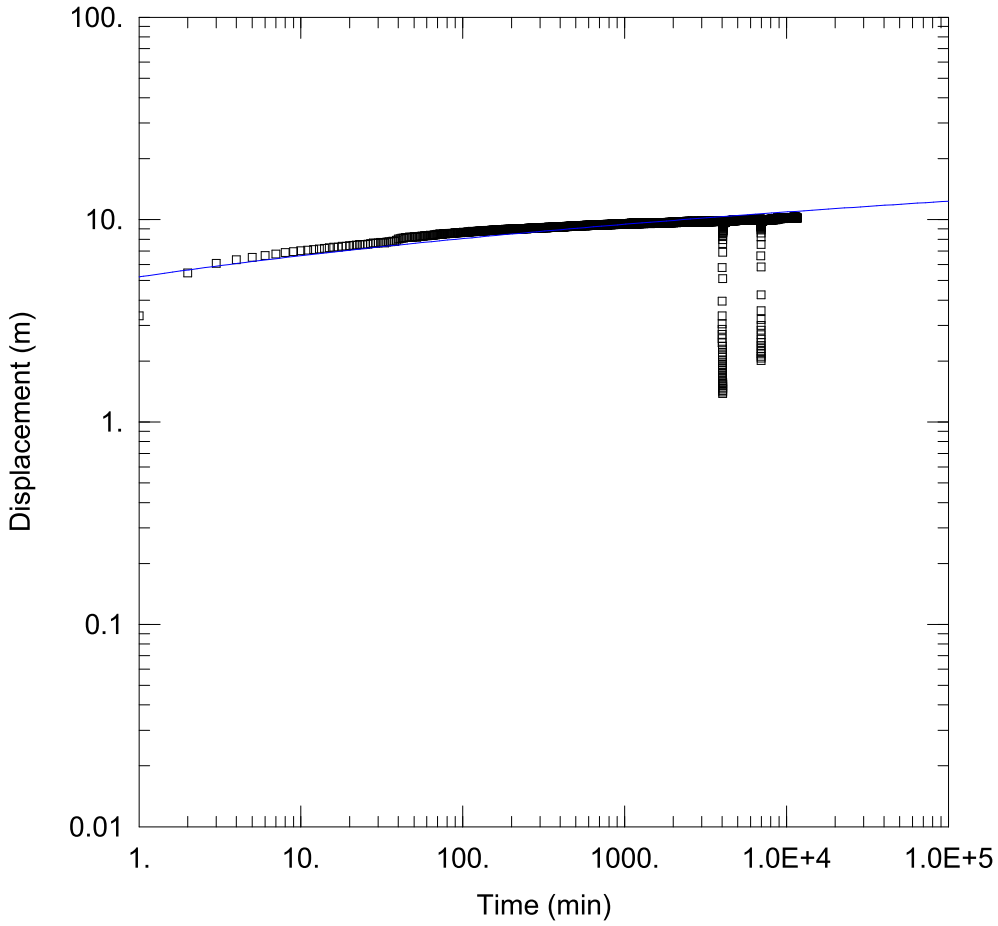
Observation Wells

Well Name	X (m)	Y (m)
LYSP004	0	0

SOLUTION

Aquifer Model: Leaky
Solution Method: Moench (Case 1)

T = 32.1 m^2/day
S = 0.00038
r/B' = 0.004786
ß' = 0.00309
r/B" = 0.
ß" = 0.
Sw = 4.15
r(w) = 1. m



WELL TEST ANALYSIS

Data Set: W:\...\LYSP002_nov_2020_PR.aqt
Date: 02/02/22 Time: 15:10:48

PROJECT INFORMATION

Company: SO4
Location: Paleochannel
Test Well: LYSP002
Test Date: 4/11/2020

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
LYSP002	0	0
New Well	800	0

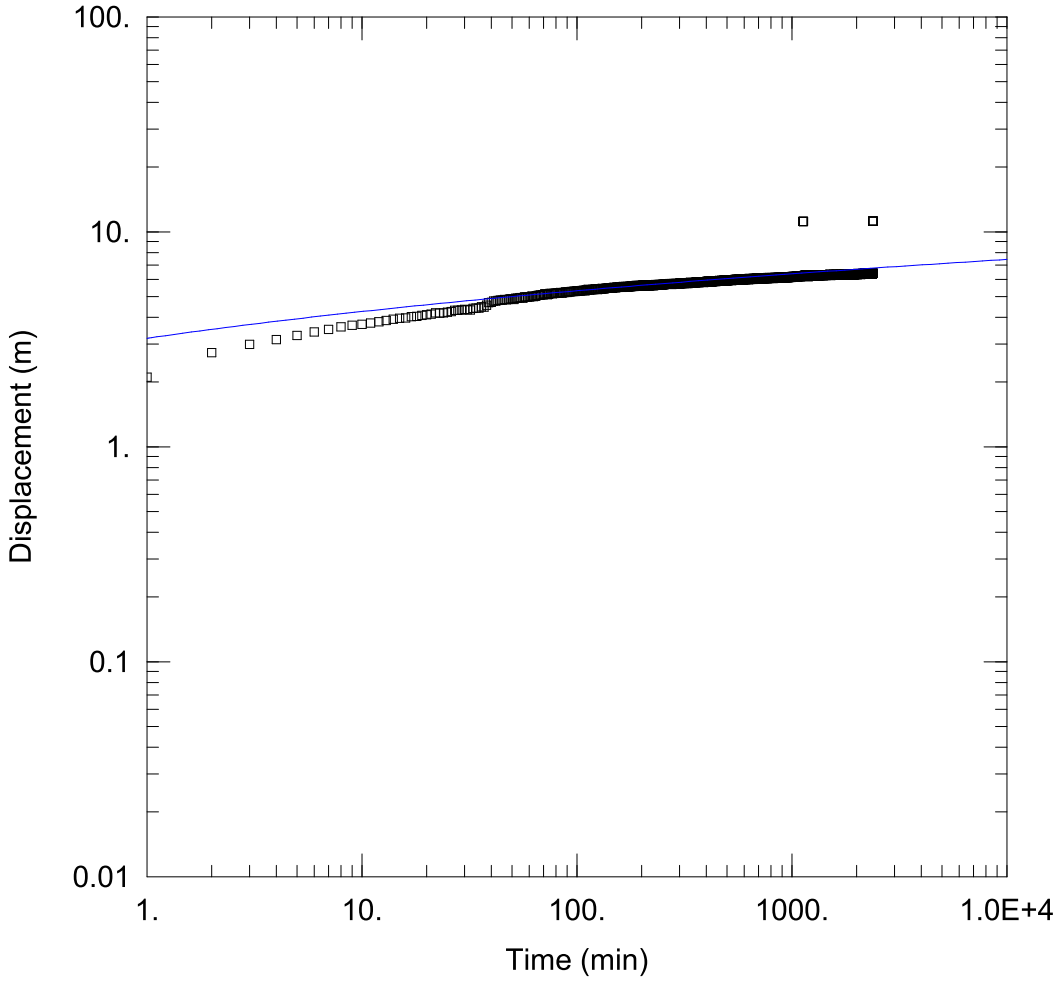
Observation Wells

Well Name	X (m)	Y (m)
LYSP002	0	0

SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 38.34 m^2/day
S = 1.316E-5
Kz/Kr = 1.
b = 18. m



WELL TEST ANALYSIS

Data Set: \...\LYSP002_nov_2020.aqt
Date: 03/24/21 Time: 09:44:13

PROJECT INFORMATION

Company: SO4
Location: Paleochannel
Test Well: LYSP002
Test Date: 4/11/2020

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
LYSP002	0	0
New Well	800	0

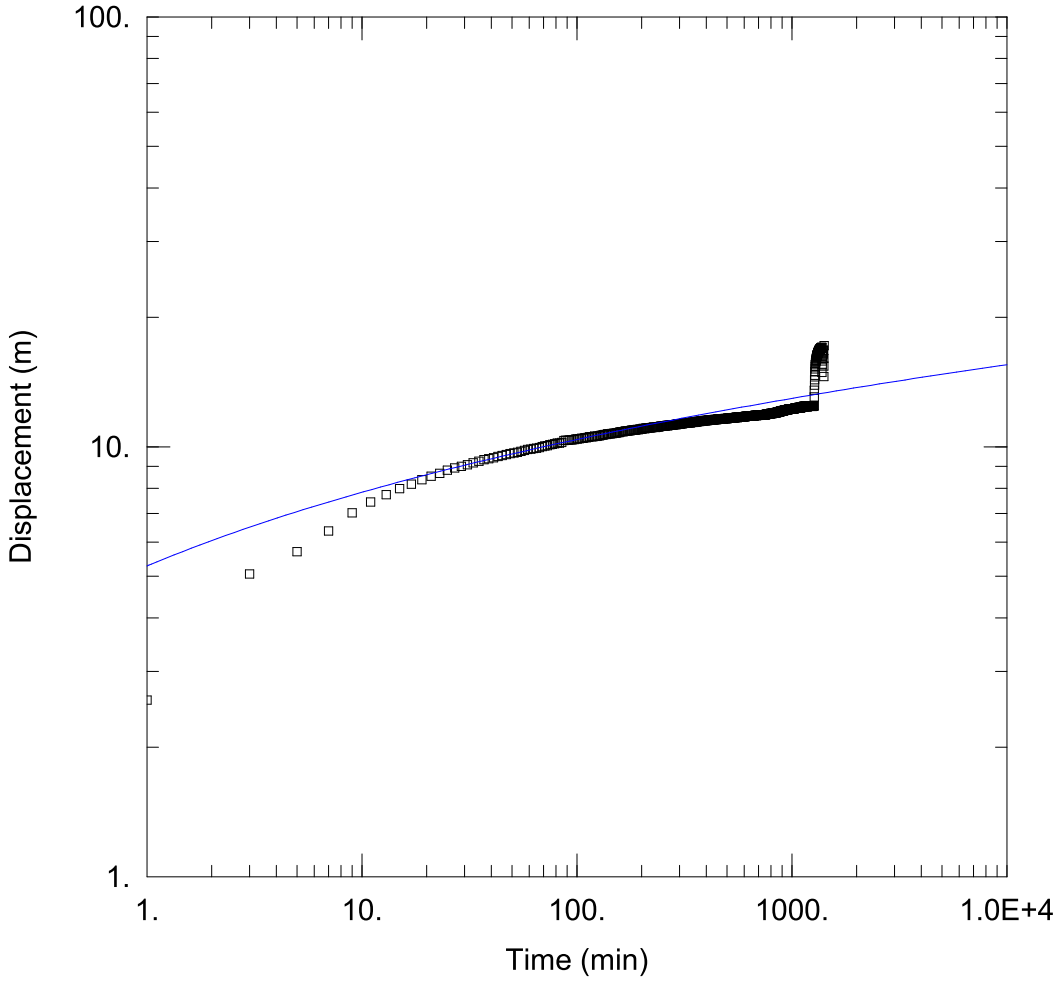
Observation Wells

Well Name	X (m)	Y (m)
LYSP002	0	0

SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 51.53 m^2/day
S = 7.751E-5
Kz/Kr = 1.
b = 18. m



WELL TEST ANALYSIS

Data Set: \...\LYSP003_oct_2020.aqt
Date: 03/24/21 Time: 09:45:21

PROJECT INFORMATION

Company: SO4
Location: Paleochannel
Test Well: LYSP003
Test Date: 16/06/2020

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
LYSP003	0	0

Observation Wells

Well Name	X (m)	Y (m)
LYSP003	0	0

SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 15.46 m^2/day
S = 0.00021
Kz/Kr = 1.
b = 18. m

Memo

Appendix 7 – Insitu Core Sample Results

CORE LABORATORIES AUSTRALIA PTY LTD

ROUTINE CORE ANALYSIS REPORT

LYSP013 & LYSP014 BOREHOLES

WESTERN AUSTRALIA

Prepared for
Salt Lake Potash Ltd

September 2021

202103527

Rock Properties
Core Laboratories
Perth
Australia

CORE LABORATORIES AUSTRALIA PTY LTD

2nd September 2021

Salt Lake Potash Ltd
Ground floor
239 Adelaide Terrace
Perth, WA 6000

Attention: Matthew Thompson

Routine Core Analysis

Dear Matt,

Presented herein is the final report of a routine core analysis study conducted on selected samples.

We appreciate the opportunity to present this service to Salt Lake Potash. Please contact us should you require any further information or assistance.

Yours sincerely
Core Laboratories Australia Pty Ltd

Samah Nabhan
Core analyst III

Justin Tomlinson
Core Analysis Supervisor

ABN. 67 065 540 838
P.O Box 785 Cloverdale, WA 6985 Australia Tel : (61-8) 9353 8888 Fax : (61-8) 9353 8899
Email: corelab.australia@corelab.com

TABLE OF CONTENTS

INTRODUCTION

Nine samples were delivered to Core Lab Perth in June 2021.

The following services were performed:

- Permeability, porosity (NCS's 800psi) and grain density measurements on plugs
- Effective Porosity

The reported data is presented digitally in this report.

LABORATORY PROCEDURES

Plug Sampling and Preparation:

Due to the nature of the samples the softer (mainly clay) samples were taken with a plunge cutter whilst still in the Shelby tube. The samples were trimmed and then length and diameter were measured to calculate bulk volume. All samples were frozen in dry ice prior to sleeving. All samples were then mounted in Nickel sleeving with screens at each end to prevent material loss.

Effective Porosity, Porosity:

The samples were placed in a controlled humidity oven at 60°C and 45% humidity until a constant weight was obtained indicating the sample was dry.

The weight of each sample was measured before being processed through the Ultra-pore™ porosimeter to determine grain volume. As samples are loaded into the matrix cup, any excess dead volume is made-up with calibrated disks. The internal tank is filled with helium and equilibrated at 200 psi; the pressure is then released into the matrix cup, Grain volume is calculated through Boyle's law once the pressure has stabilised to within 0.01 psi for 10 seconds to ensure complete saturation of the pore space with helium. As a standard quality control measure, a calibration check plug was run after every fifth sample. Grain density data was calculated from grain volume and sample weight data corrected for sleeving, screens and Teflon.

- *no correction for salt in pore spaces was made, if required would recommend methanol cleaning, redrying and weighing after analysis as to not induce fractures in the clays*

Pore volume was measured in the CMS-300™ at 800 psi net confining stress Two standard check plugs were run with each batch of samples. Pore volume was measured by Boyle's law in the same manner as the grain volume except the pore volume was measured directly while the sample is confined in a rubber boot with end stems and overburden pressure applied. Porosity was calculated from the grain volume and pore volume.

The samples were saturated in formation brine supplied and then spun down in a centrifuge at 200psi until brine production had stopped. Weights of the sample were taken before and after centrifuging from which, using the calculated pore volume and the brine density an effective porosity was calculated.

Permeability:

Permeability measurements were made at a confining stress of 800psi for all samples in the CMS-300™ automated core measurement system (800 psi is the minimum pressure for the CMS-300 and is considered an ambient measurement) Klinkenberg permeability (K_{inf}) values are obtained directly from the CMS-300™, since it operates by unsteady-state principles.

CORE LABORATORIES
AUSTRALIA PTY LTD

Company : Salt Lake Potash

Well: LYSP013 & LYSP014

POROSITY, PERMEABILITY, EFFECTIVE POROSITY and GRAIN DENSITY

CLIENT SAMPLE NUMBER	CLIENT SAMPLE ID	SAMPLE TOP DEPTH (m)	PERMEABILITY CONFINING STRESS (800psi) Kinf (md)	PERMEABILITY CONFINING STRESS (800psi) Kair (md)	TOTAL POROSITY (%)	EFFECTTIVE POROSITY (%)	GRAIN DENSITY (g/cc)	CLIENT'S COMMENTS
1	LYCS001	12.0	1.94	2.38	21.4	6.98	2.422	
2	LYCS002	18.0	2.71	3.00	13.6	5.58	2.294	lost ~30mm of sample top as attached to drive head
3	LYCS003	24.0	1.44	1.99	19.1	6.14	2.629	
4	LYCS004	30.0	0.96	1.25	9.61	9.21	2.123	poor recovery in fat clay-likelly stayed in drill hole
5	LYCS005	6.00	5.88	7.44	21.8	7.87	2.417	
6	LYCS006	12.0	2.88	3.63	19.5	6.77	2.399	
7	LYCS007	18.0	13.8	16.9	17.2	7.89	2.339	small chunk of clay lost from top, stuck to drive head
8	LYCS008	24.0	3.53	4.38	20.3	7.22	2.616	
9	LYCS009	27.5	2.95	4.45	19.8	13.3	2.489	clayey at bottom ~ 5 cm stayed in drill hole

CORE LABORATORIES
AUSTRALIA PTY LTD

ROUTINE CORE ANALYSIS REPORT

LYPIEZO -VARIOUS BOREHOLES

WESTERN AUSTRALIA

Prepared for
Salt Lake Potash Ltd

August 2019

201901590

Rock Properties
Core Laboratories
Perth
Australia

CORE LABORATORIES AUSTRALIA PTY LTD

1st August 2019

Salt Lake Potash Ltd
Level 5 BGC Building
28 The Esplanade
Perth, WA 6000

Attention: Bob Kinnell

Routine Core Analysis – Various Archived samples

Dear Bob

Presented herein is the final report of a routine core analysis study conducted on selected samples.

We appreciate the opportunity to present this service to Salt Lake Potash. Please contact us should you require any further information or assistance.

Yours sincerely
Core Laboratories Australia Pty Ltd

Justin Tomlinson
Core Analysis Supervisor

ABN. 67 065 540 838
P.O Box 785 Cloverdale, WA 6985 Australia Tel : (61-8) 9353 3944 Fax : (61-8) 9353 1369
Email: corelab.australia@corelab.com

TABLE OF CONTENTS

INTRODUCTION

Twenty Five samples were delivered to Core Lab Perth in May 2019.

The following services were performed:

- Permeability, porosity (NCS's 400psi) and grain density measurements on plugs
- Effective Porosity

The reported data is presented digitally in this report.

LABORATORY PROCEDURES

Plug Sampling and Preparation:

Due to the nature of the samples the softer (mainly clay) samples were taken with a plunge cutter whilst still in the Shelby tube. The samples were trimmed and then length and diameter were measured to calculate bulk volume. All samples were frozen in dry ice prior to sleeving. All samples were then mounted in Nickel sleeving with screens at each end to prevent material loss. Three samples failed during sleeving/ drying.

Effective Porosity, Porosity:

The samples were placed in a controlled humidity oven at 60°C and 45% humidity until a constant weight was obtained indicating the sample was dry.

The weight of each sample was measured before being processed through the Ultra-pore™ porosimeter to determine grain volume. As samples are loaded into the matrix cup, any excess dead volume is made-up with calibrated disks. The internal tank is filled with helium and equilibrated at 200 psi; the pressure is then released into the matrix cup, Grain volume is calculated through Boyle's law once the pressure has stabilised to within 0.01 psi for 10 seconds to ensure complete saturation of the pore space with helium. As a standard quality control measure, a calibration check plug was run after every fifth sample. Grain density data was calculated from grain volume and sample weight data corrected for sleeving, screens and Teflon. Ambient Pore volume was calculated from subtracting grain volume from fresh state bulk volume. Samples are placed back into a sealed desiccator when the test was finished.

- *no correction for salt in pore spaces was made, if required would recommend methanol cleaning, redrying and weighing after analysis as to not induce fractures in the clays*

Pore volume was measured in the Ultrapore™ at 400 psi net confining stress. Pore volume was measured by Boyle's law in the same manner as the grain volume except the pore volume was measured directly while the sample is confined in a rubber boot with end stems and overburden pressure applied. Porosity was calculated from the grain volume and pore volume.

The selected samples were saturated in formation brine supplied and then spun down in a centrifuge at 3700rpm until brine production had stopped. Weights of the sample were taken before and after centrifuging from which, using the calculated pore volume and the brine density an effective porosity was calculated.

Permeability:

Permeability measurements were made at a confining stress of 800psi for all samples in the CMS-300™ automated core measurement system (800 psi is the minimum pressure for the CMS-300 and is considered an ambient measurement)

Two standard check plugs were run with each batch of samples. Klinkenberg permeability (K_{inf}) values are obtained directly from the CMS-300™, since it operates by unsteady-state principles.

Company : Salt Lake Potash

Well: Lypiezo- Various boreholes

POROSITY, PERMEABILITY, and GRAIN DENSITY

SAMPLE NUMBER	SAMPLE DEPTH (m)	SAMPLE ID	HUM. DRIED Bulk Density (g/cc)	CONFINING STRESS (400psi) CMS Kinf (md)	CMS Kair (md)	POROSITY (%)	Ambient caliper POROSITY (%)	EFFECTTIVE POROSITY (%)	GRAIN DENSITY (g/cc)	COMMENTS
1	2.8	LYPIEZO023	1.93	67.9	77.7	20.6	26.1	13.1	2.436	
2	9.0	LYPIEZO023	1.96	27.0	30.7	17.9	26.6	10.8	2.392	
3	2.8	LYPIEZO016	1.78	104	126	29.7	50.1	12.4	2.528	
4	5.2	LYPIEZO016	1.81	889	957	29.0	37.8	23.9	2.552	
5	1.5	LYPIEZO017	2.02	813	1136	25.5	45.0	19.1	2.716	
6	8.5	LYPIEZO017	1.65	66.2	83.3	35.2	47.5	13.4	2.551	
7	5.5	LYPIEZO018	1.95	29.2	33.8	24.8	32.0	7.2	2.595	
8	9.0	LYPIEZO018	1.85	699	892	29.4	39.5	6.1	2.617	
9	2.0	LYPIEZO019	1.84	59.4	69	25.3	39.4	11.4	2.470	
10	8.8	LYPIEZO019	1.78	3.94	5.61	31.2	46.7	7.6	2.589	
11	3.5	LYPIEZO020								Failed
12	2.0	LYPIEZO021	1.77	997	1054	32.8	45.8	21.0	2.640	
13	6.7	LYPIEZO021								Failed
14	1.5	LYPIEZO022	1.36	837	886	44.9	52.0	14.7	2.477	
15	7.6	LYPIEZO022	1.45	160	186	41.9	45.2	8.5	2.493	
16	2.0	LYPEIZO024	1.91	121	140	25.2	33.2	12.0	2.554	
17	5.5	LYPEIZO024	1.80	52	57	29.5	38.1	15.3	2.553	
18	2.0	LYPIEZO025	1.65	183	210	33.1	55.6	15.4	2.463	
19	7.0	LYPIEZO025	1.82	10.4	12.0	28.9	38.4	5.9	2.561	
20	1.5	LYPIEZO026	1.69	95.8	115	31.3	46.6	15.5	2.466	
21	7.5	LYPIEZO026	1.71	115	148	32.3	48.4	14.6	2.520	
22	1.5	LYPIEZO027	1.81	96.8	114	28.0	44.9	15.8	2.518	
23	7.5	LYPIEZO027	1.87	9.2	14.0	26.9	37.3	6.8	2.554	
24	2.0	LYPIEZO028								Failed
25	4.5	LYPIEZO029	2.00	6.4	8.1	22.2	30.4	3.8	2.570	

JORC CODE, 2012 EDITION – TABLE 1

Section 1 – Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample presentively and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done, this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Drill cutting samples were taken manually at the regular intervals every 2m from the discharge flume on the drill rig using a bucket to catch samples over the 2m section. Samples were then washed and inspected by an onsite hydrogeologist who then collected the samples in chip trays for storage. Downhole gamma and borehole magnetic resonance (BMR) were used on 7 holes and compared to lithologic logs. Brine samples were taken manually at the end of development from the discharge flume on the drill rig. Brine samples were analysed for K, Mg, Ca, Na, Cl, SO_4, HCO_3, NO_3, pH, TDS and specific gravity. Test pumping was conducted at 5 deep production bores (~110m depth) and at 3 intermediate production bores (~30m depth). Test pumping from the borehole was carried out using an electric submersible pump powered by a diesel generator at the surface. Discharge was transported to open an existing trench network then transported to the pond network. Water levels in the production bores and piezometers were measured manually regularly and by pressure transducer several times a day with barometric pressure and brine density correction. In-situ core sample from 6 bores from depths 8-30m to determine specific yield and total porosity. 134 separate lines of passive seismic totalling 2,377 station across a length of 350km.
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	A production bore drilling campaign utilising Mud & Air Rotary drilling methods commenced in March of 2020[1] to install test production bores into the paleochannel basal sand unit and shallower units (paleochannel sequence). This program is still underway as of December 2021. A total of 111 bores have been installed. This includes: • 74 production bores including: o 13 deep paleochannel basal sand production bores (Mud Rotary) o 61 shallow production bores (15 Mud Rotary and 46 Air Rotary) • 37 monitoring bores including: o 19 deep monitoring bores (including basal sand and paleochannel clay unit) (Mud Rotary) o 18 shallow monitoring bores This excludes shallow on lake monitoring and exploration bores. Brine production commenced in September 2020 and the borefield has been operating continuously since, with 52 production bores pumping as of December 2021.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed.	All Air and Mud Rotary holes were continuously sampled for cuttings and a sample collected every 2m and retained in chip trays. These represented 95% recovery.

[1] One bore installed in July 2019

Criteria	JORC Code explanation	Commentary
	• Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	A continuous insitu core sample was taken during Mud Rotary drilling. Recoveries were 90%+, below the water table all samples were 100% saturated, upon retrieval the ends were sealed with duct tape to preserve the saturation. The samples were sent to Core Laboratories Australia Perth branch for total and drainable porosity and hydraulic conductivity analysis. Given the homogeneous nature of the lake surface there is no bias and the samples are representative of the lakebed sediments. 100% of excavated sample was available for sampling. The ability to see the bulk sample facilitated the selection of a representative sample. There is no relationship between sample recovery and grade and no loss of material as a result of excavation.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography. • The total length and percentage of the relevant intersections logged.	The geological logging is sufficient for the purposes of identifying variations in sand/ clay and silt fraction, basal sand and bedrock contact units to ~120m. For a brine abstraction project, the key parameters are the hydraulic conductivity and storativity of the host rock, which will be determined during test pumping of the production bores. The logging is qualitative. The entire depth was manually geologically logged by a qualified and experienced hydrogeologist in every case. Download geophysical logging took place at 7 different locations. Borehole Magnetic resonance (BMR) and Gamma were undertaken. The following parameters were recorded for each log: Total Porosity, Clay bound water, Capillary bound water, Specific Yield, Specific Retention, Hydraulic Permeability, Natural Gamma, K,U,Th – Spectral Gamma Decomposition
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the insitu material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	Full insitu core was used for porosity determination. Not applicable, core drilling. All initial brine samples were collected from the production bores after the completion of development, once the bore was sufficiently developed and free of sediment. Regular monthly samples are collected from each production bore to monitor any changes in the grade or chemistry. All the samples taken were incorporated into a rigorous QA / QC program in which Standards and Duplicates were taken. The samples were taken in sterile plastic bottles of 250ml capacity. For all brine samples (original or check samples) the samples were labelled with the alphanumeric code Y8001, Y80002 and recorded in a database. Samples collected were insitu core samples and brine samples.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable	The brine samples were sent to Bureau Veritas Laboratories in Perth, WA with the duplicates being held by SO4. Every 10th duplicate was sent to Intertek, an alternate laboratory for comparison purposes. Samples are then QA/QC and an ion balance conducted. No laboratory analysis was undertaken with geophysical tools. Insitu soil samples and laboratory derived hydraulic conductivity, total porosity and drainable porosity samples were analysed by Core Laboratories in Perth WA. All laboratories used are NATA certified. All laboratories that analyse brine samples are NATA certified and adopt quality control measures such as standards, blanks, duplicates and calibration.

Criteria	JORC Code explanation	Commentary
	levels of accuracy (i.e. lack of bias) and precision have been established.	
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	Not applicable due to consistent brine concentration. No twin holes drilled. All sampling and assaying is well documented and contained on SO4's internal database. No adjustments have been made to assay data.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	All coordinates were collected by handheld GPS. The grid system is the Australian National Grid Zone MGA 51 (GDA 94) Topography is controlled by site specific LIDAR survey. A 3D Leapfrog geological model was updated with all newly collected data. Geometry of the paleochannel was further refined and increased in confidence with the input of new drilling data and increased, concentration of passive seismic station locations.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	The paleochannel within the tenements is ~40km (excluding tributaries), with 13 production bores installed in the basal sand unit at an average spacing of 1-1.5km.Paleochannel bores are currently centred around the northern and central part of the paleochannel on the tenements. All bores within the centre of the channel, display lateral continuity of geological units and brine chemistry typical of the basal sand aquifer. Formal pumping test have been undertaken in 5 basal sand bores, including 1 historic bores, and 4 recently drilled bores. After pumping test concluded, the basal sand aquifer was pumped continuously since approximately September 2020. During this time drawdown, grade and pumping rates have remained stable. Continuity and connectivity of central and northern part of paleochannel was confirmed, based on observed responses to pumping (e.g. observed response at remote bores). Shallow Quaternary Siltstone (part of Paleochannel Sequence) has been encountered in 40 shallow bores drilled by SO4 and is observed over 17.5km along the eastern shoreline. Shallow Gravel Lens (part of Paleochannel Sequence) is laterally extensive on the contact with the paleochannel clay. The unit has been encountered in 37 bores drilled by SO4 and 8 of the historical WMC bores. The units have been continuously pumped for over one year. During this time drawdown, grade and pumping rates have remained stable. Sample compositing not applied.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	There are no structural or geological controls with respect to sampling the lake bed sediments or basal sand units. Geological influence on the brine is limited to the aquifer parameters of the host rock, namely the hydraulic conductivity, porosity and storage parameters. The drill holes are vertical.
Sample security	• The measures taken to ensure sample security.	SO4 hydrogeologists were responsible for possession and completion of chain of custody forms (COC) and transport of samples prior to shipping to the BV, Corelabs lab in Perth and the SO4 offices. The security measures for the material and type of sampling at hand was appropriate.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	Data review is summarised in the resource report and included an assessment of the quality of assay data and laboratory tests and

Criteria	JORC Code explanation	Commentary
		verification of sampling and assaying. No audits of sampling techniques and data have been undertaken.

Section 2 – Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The Lake Way Project comprises tenements held by Piper Preston Pty LTD, a wholly owned subsidiary of Salt Lake Potash Limited (SO4 or the Company) and includes those acquired from Blackham Resources Limited (Blackham) in October of 2019. The tenements held in the name of Piper Preston are detailed in the table below.

Type of License	Holder	Status	Tenement
EXPLORATION LICENCE	PIPER PRESTON PTY LTD	LIVE	E 53/1862
EXPLORATION LICENCE	PIPER PRESTON PTY LTD	LIVE	E 53/1863-I
EXPLORATION LICENCE	PIPER PRESTON PTY LTD	LIVE	E 53/1878
EXPLORATION LICENCE	PIPER PRESTON PTY LTD	LIVE	E 53/1897
EXPLORATION LICENCE	PIPER PRESTON PTY LTD	LIVE	E 53/2057
EXPLORATION LICENCE	PIPER PRESTON PTY LTD	LIVE	E 53/2059
EXPLORATION LICENCE	PIPER PRESTON PTY LTD	LIVE	E 53/2060
GENERAL PURPOSE LEASE	PIPER PRESTON PTY LTD	LIVE	G 53/24
GENERAL PURPOSE LEASE	PIPER PRESTON PTY LTD	LIVE	G 53/25
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/21
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/22
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/23
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/51
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/207
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/211
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/212
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/214
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/215
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/216
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/217
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/218
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/219
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/225
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/226
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/228
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/229
MISCELLANEOUS LICENCE	PIPER PRESTON PTY LTD	LIVE	L 53/238
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/121
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/122
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/123
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/147
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/253
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/796
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/797
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/798
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/910
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/1102
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/1103
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/1104
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/1105
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/1106
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/1107
MINING LEASE	PIPER PRESTON PTY LTD	LIVE	M 53/1109
PROSPECTING LICENCE	PIPER PRESTON PTY LTD	LIVE	P 53/1643
PROSPECTING LICENCE	PIPER PRESTON PTY LTD	LIVE	P 53/1644
PROSPECTING LICENCE	PIPER PRESTON PTY LTD	LIVE	P 53/1645

SO4 holds a portfolio of mining and exploration tenements covering 3,312 km2 in the Northern Goldfields region of Western Australia.

- 43 granted and 3 pending tenement licences, with a total of 942,200 ha tenements
- 7 granted and 3 pending Exploration Licences (912,500ha)
- 16 Mining Leases (27,635ha)
- 2 General Purpose Leases for the process plant site.
- 18 Miscellaneous Licences (1551ha) to secure key mining infrastructure.

In 2018 SO4 entered into an agreement to purchase a number of tenement from Wiluna Mining Corporation Ltd (WMX) completing the purchase and transfer of the tenement in August 2020.

Two pastoral leases—the Lake Way and Millbillillie pastoral stations (owned by Toro Energy)—underlie the project area. SO4 continues to work with the underlying pastoral lease holders to ensure the project does not unreasonably affect their operations. This arrangement includes a Pipeline Access Agreement with Nova.

Criteria	JORC Code explanation	Commentary
		The Lake Way project lies within the Wiluna People's Native Title Determination area (WCD2013/004), and it is located on, and in the vicinity of registered Aboriginal sites. The Tarlka Matuwa Piarku Aboriginal Corporation RNTBC (ICN8156) hold native title rights and interests on trust for the native title holders. In November 2019, SO4 and TMPAC executed the Lake Way Project Land Access (Native Title) Agreement covering all the activities that support the whole of the Lake Way Project. The Agreement framework sets the value-sharing model for the financial and non-financial benefits communities receive. The Agreement includes a Cultural Heritage Management Plan (CHMP), which provide agreed principles and processes to facilitate the protection of Aboriginal cultural heritage. In partnership with TMPAC, the Company secured s18 regulatory Ministerial Consent for all key mining Activities and infrastructure. 28 April 2021: EPA granted the Part IV license for 260ktpa production and up to 30GL abstraction. 17 September 2021 DWER granted a 28GL groundwater licence. 14GL paleochannel alluvium (GWL205291(2) (lake playa) and 14 GL paleochannel aquifer GWL202044(4)). 14 Jan 2022, DWER provided draft Part V works approval to operate the ponds, process plant and brine infrastructure. This is anticipated to be completed by early February 2022.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	There are approximately 6,200 boreholes across Lake Way. The primary source for the information is the publicly available Western Australian Mineral Exploration (WAMEX) report data base. Sterilisation drilling has also been undertaken by Blackham to the south and east of the Williamson Pit area. The majority of previous work has been concerned with investigating the bedrock and calcrete for gold and uranium, it is of limited value in defining the stratigraphy of the lakebed sediments. The data has been shown to be useful in the determination of the depth to base of lakebed sediments and has been used to develop an overall estimate of the volume of lake bed sediments that has been applied to the mineral resource calculations. WMC undertook a process water supply investigation into the paleochannel down the eastern shore consisting of 7 lines. Five production bores were installed and 4 tested, of these 4, 1 was prospective for brine.
Geology	• Deposit type, geological setting and style of mineralisation.	The deposit is a salt-lake brine deposit. The lake setting is typical of a Western Australian palaeovalley environment. Ancient hydrological systems have incised palaeovalleys into Archaean basement rocks, which were then infilled by Tertiary-aged sediments typically comprising a coarse-grained fluvial basal sand overlaid by palaeovalley clay with some coarser grained interbeds. The clay is overlaid by recent Cainozoic material including lacustrine sediment, calcrete, evaporite and aeolian deposits.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: • easting and northing of the drill hole collar • elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar • dip and azimuth of the hole • downhole length and interception depth • hole length.	The data related to the borehole specifics can be found within the report and its corresponding appendices.

Criteria	JORC Code explanation	Commentary
	• If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	Within the salt-lake extent no low-grade cut-off or high-grade capping has been implemented due to the consistent nature of the brine assay data. Data was aggregated by dividing geological units into zones based on brine grade, porosity, and confidence level. For each zone, sediment volume was calculated in a 3d geological model. This information was later used to calculate resource tonnage per each zone.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the downhole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	The chemical analysis from each of the production bores has shown the that the brine resource is consistent and continuous through the full thickness of the basal sand unit and paleochannel sequence unit. The basal sand unit is, continuous as observed during test pumping and the thickness of the basal sand unit in general was observed to be between 12-18m of thickness when the centre of the channel was drilled. The intersected depth is equivalent to the vertical depth and the thickness of mineralisation (basal sand units and lake bed sediments) as these deposits are sedimentary/alluvial and therefore not structurally controlled.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	All location maps and sections are contained within the body of the report.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Production bore brine grade results have been included in the body of the report or Appendices.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	All material exploration data has been reported within the body of this report and previous MRE reports.
Further work	• The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Continuation of drilling, hydraulic testing and brine analysis and grade modelling of additional bores within the northern paleochannel to continue to upgrade the confidence of the resource estimate. Figures which show the full extent of the known paleochannel can be found within the report.

Section 3 – Estimation and Reporting of Mineral Resources

<table>
<tr><th>Criteria</th><th>JORC Code Explanation</th><th>Commentary</th></tr>
<tr><td>Database integrity</td><td>• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.
• Data validation procedures used.</td><td>Cross-check of laboratory assay reports and database.

Extensive QA/QC as described in Section 3 Sampling Techniques and Data.</td></tr>
<tr><td>Site visits</td><td>• Comment on any site visits undertaken by the Competent Person and the outcome of those visits.
• If no site visits have been undertaken indicate why this is the case.</td><td>A site visit was undertaken by Competent Person Dr Brian Luinstra on the 20th of October 2021.</td></tr>
<tr><td>Geological interpretation</td><td>• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.
• Nature of the data used and of any assumptions made.
• The effect, if any, of alternative interpretations on Mineral Resource estimation.
• The use of geology in guiding and controlling Mineral Resource estimation.
• The factors affecting continuity both of grade and geology.</td><td>The lakebed sediment geological profile beneath the lake is relatively homogenous (0-30m). The porosity of the material is consistent with depth; hence the geological interpretation has little impact on the resource except to define its thickness.

Islands are excluded from the estimate of the shallow Lake Bed Sediment resource as access is not permitted.

The paleochannel geometry has been interpreted from geophysical cross sections developed from passive seismic, old geological cross sections from WMC 1992 and from the recently drilled bore logs.

Continuity of the paleochannel has been confirmed by water level observations during test pumping.

Long term observations during pumping (<12 months) of grade show little variability and consistent grade</td></tr>
<tr><td>Dimensions</td><td>• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.</td><td>Shallow Lake Bed Sediments

(not part of this upgrade, remains unchanged)

The area of the northern lake area of the resource extends 139.5km^2, the area of the southern lake area extends 41.6km^2.

The top of the lakebed resource is defined by the water table surface; on average 0.3m below ground surface. The average thickness of the resource is 5.3m as determined from the leapfrog model.

Paleochannel Basal Sands
The extent of the paleochannel resource has been ordinally defined as a result of modelling the historic drillhole data, the WMC bores and passive seismic geophysical surveys. Additional work, including completion of 17 paleochannel basal sand bores, 80 additional passive seismic lines allowed for refinement of paleochannel geometry.

The total length of the paleochannel within SO4 tenements is about 40 km with additional 12 km of tributaries. The channel remains open to the north, south and via the Yeleerie tributary to the west.

The total volume of sediment infilling the Paleochannel Basal Sand unit has been calculated using the Leapfrog model, volume is 829.5 Mm^3.

Paleochannel Sequence:
Paleochannel sequence includes resource units identified between Shallow Lake Bed Sediments and Paleochannel Basa Sands. These units we identified based on over 111 drill holes and historic data, geophysics (BMR and passive seismic), core samples and hydraulic testing.

These units include:
<table>
<tr><td>resource unit Mm^3</td><td>sediment volume Mm^3</td></tr>
<tr><td>Lake Bed sediments 8 - 30m</td><td></td></tr>
<tr><td>on-shore alluvials WL-30m</td><td>5332.5</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Criteria</th><th>JORC Code Explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Shallow gravel aquifer</td><td>366.5</td></tr>
<tr><td>Silcrete aquifer</td><td>149.8</td></tr>
<tr><td>Paleochannel clay</td><td>7197.5</td></tr>
<tr><td>Transitional sandy clay</td><td>513.4</td></tr>
</table>
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<tr><td>Estimation and modelling techniques</td><td>• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.
• The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.
• The assumptions made regarding recovery of by-products.
• Estimation of deleterious elements or other non-grade variables of economic significance (e.g sulphur for acid mine drainage characterisation).
• In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.
• Any assumptions behind modelling of selective mining units.
• Any assumptions about correlation between variables.
• Description of how the geological interpretation was used to control the resource estimates.
• Discussion of basis for using or not using grade cutting or capping.
• The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</td><td>The resource calculation methodology (for all units except of shallow Lake Bed Sediments 0-8m bgl units, that were not part of the upgrade) is summarized as:

1. Each resource unit was delineated in Leapfrog geological model based on available data
2. Volumes were clipped to tenement boundaries, and for Lake Bed sediments 8 - 30m and on-shore alluvials WL-30m also horizontally to either 8mbgl (on lake, to separate from existing LBS resource) or Water Level (off lake)
3. Volumes were exported as thickness rasters
4. Zones were derived for units, based on measured grade, and measured/indicated designation (which was based on data availability and observed extents of drawdown from pumping bores). One set of zones was used for shallow resource (Lake Bed sediments 8 - 30m, on-shore alluvials WL-30m, Shallow gravel aquifer, Silcrete aquifer, Paleochannel clay). Separate zones for Translation Sandy Clay, and separate for Basal Sands .
5. Porosity (specific yield and total porosity) was defined per unit, based on BMR and core data. No zones were defined for porosity, due to lack of significant variability across the deposit
6. Zones were used to cut thickness rasters into sections, which then allowed to calculate volume for each zone that falls into each unit.
7. Each sub zone had volume, porosity (sy), total porosity, grade, and measured/indicated designation, which allowed for calculation for total resource per resource unit.
This methodology allowed for considering of spatial variability of brine concentration, confidence of the resource designation (measured/indicated), differences in porosities. The method does not include automated interpolation or extrapolation of grade but relies on manual designation of zones. This enables more control (e.g. ignoring outlier values, and taking into account geographic consideration such as higher grade on-lake, and lower grade off lake, especially in areas where data density is low) and allows for conservative and realistic resource estimation, which would be difficult to achieve using automated method.

No check estimates were available.

No recovery of by-products was considered.

Deleterious elements were not considered.

Selective mining units were not modelled.

Correlation between variables was not assumed.

The geological interpretation from the available drilling data and the geophysical cross sections were used to inform a 3D geological model which was used to define the geometry of the resource units. For the paleochannel basal sands interpretation included assumption of channel continuity in areas where data was unavailable (this assumption was validated with pumping test data).

Grade cutting or capping was not employed due to the homogenous nature of the orebody.

Drainable and total porosity for the sediments was derived from BMR geophysical data (BMR) and from laboratory analysis of core samples.

134 seismic lines were run across the lake.

The seismic response was calibrated using the drill hole data.</td></tr>
<tr><td>Moisture</td><td>• Whether the tonnages are estimated on a dry basis or with natural moisture, and the</td><td>Not applicable to brine resources. See discussion of moisture content under Bulk Density.</td></tr>
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Criteria	JORC Code Explanation	Commentary
	method of determination of the moisture content.	
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	No cut-off parameters were used.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	Mining will be undertaken by gravity drainage of brine from trenches and by pumping from the paleochannel and intermediate bores . Test pumping was conducted at 5 deep production bores (~110m depth) and at 3 intermediate production bores (~30m depth). In addition long term pumping has taken place consistently since September 2020.
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The brine is characterised by elevated concentration of potassium, magnesium and sulphate elements and distinctly deficient in calcium ions. Such a chemical makeup is considered highly favourable for efficient recovery of Schoenite from the lake brines (the main feedstock for SOP production), using conventional evaporation methods.
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	Environmental impacts are expected to be; localized reduction in saline groundwater level, surface disturbance associated with trench and pond construction and accumulation of salt tails. The Project is in a remote area and these impacts are not expected to prevent Project development.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the	Bulk density is not relevant to brine resource estimation.

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<tr><th>Criteria</th><th>JORC Code Explanation</th><th>Commentary</th></tr>
<tr><td></td><td>method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.
• The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.
• Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</td><td>The porosity estimates for the different lakebed units can be found in the table below which shows the Specific Yield (drainable porosity) and total porosity. These were based on insitu core samples and BMR geophysics. These volumes were used in the Measured resource calculations.
<table><tr><th>Lithologic Unit</th><th>Average of SY</th><th>Average of total porosity</th></tr><tr><td>Qal (Lakebed Sediments)</td><td>7.6%</td><td>22.7%</td></tr><tr><td>Qg</td><td>5.9%</td><td>18.7%</td></tr><tr><td>Qsil</td><td>8.5%</td><td>25.6%</td></tr><tr><td>Tc</td><td>1.9%</td><td>29.6%</td></tr><tr><td>Tcs</td><td>3.3%</td><td>24.3%</td></tr><tr><td>Ts</td><td>10.6%</td><td>25.2%</td></tr></table></td></tr>
<tr><td>Classification</td><td>• The basis for the classification of the Mineral Resources into varying confidence categories.
• Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).
• Whether the result appropriately reflects the Competent Person's view of the deposit.</td><td>The data is considered sufficient to assign a Measured resource classification to brine within the Paleochannel Sequence (Qal, Qg, Qsil, Tc, Tcs) and the Paleochannel Basal Sand unit within the radius of influence of the test pumping.
An indicated resource was assigned to the remainder of the paleochannel.
An inferred resource was assigned for the lakebed sediments to the south (not part of this resource upgrade and not analysed in this report).
The result reflects the views of the Competent Person.</td></tr>
<tr><td>Audits or reviews</td><td>• The results of any audits or reviews of Mineral Resource estimates.</td><td>No audit or reviews were undertaken.</td></tr>
<tr><td>Discussion of relative accuracy/ confidence</td><td>• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.
• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.
• These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</td><td>For both the lakebed sediments and the paleochannel the estimated tonnage represents the in-situ brine with no recharge factor applied. The amount which can be extracted depends on many factors including the permeability of the sediments, the drainable porosity, and the recharge dynamics of the aquifers.</td></tr>
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