

Our Ref: 118284-02-L001-1.docx

16 August 2019

Australian Mine Limited
C/-
AARC Environmental Solutions Ltd
Suite 5, 1 Swann Road
TARINGA QLD 4068

ATTENTION HOLLIE DICK:

Dear Hollie,

**ASSESSMENT OF THE DINGO DAM RESIDUAL MINE VOID & DINGO DAM MINING LEASE
CONSEQUENCE CATEGORY ASSESSMENTS.**

1 PROJECT BACKGROUND

The Lucky Break Project is an open cut nickel mine located in central Queensland, some 90km northwest of Charters Towers. The Project encompasses two MLs known as Dingo Dam (ML 10324) and Lucky Break (ML 10332).

Mining activities have previously been undertaken on the Dingo Dam ML in which Queensland Nickel Pty Ltd (QNPL) extracted ore product on behalf of NORNICO, the previous Environmental Authority holder (EPML00900713). Mining ceased in July 2015 at which point the balance of ore reserves in the Dingo Dam deposit have been left in place for potential later mining by the Lucky Break Project.

At the cessation of mining the Project entered a care and maintenance period and QNPL commenced rehabilitation of the site. Rehabilitation activities undertaken include the removal of infrastructure, re-profiling of the waste dump, reducing batter angles of the residual void, installing stormwater controls, ripping hardstand areas, spreading topsoil and seeding and installing fences. Sconi Mining Operations Pty Ltd, a subsidiary of Australian Mines Limited (AML), has since taken over the Lucky Break Project.

1.1 Assessment Objectives

The objective of the Residual Void Assessment carried out by ATC Williams (ATCW) is to present the focussed risks associated with the residual mining void within the Dingo Dam Mining Lease. This short letter report presents the findings of three individual focus studies carried out as per ATCW project proposal *118284-02P001-rev0*. The studies are:

- Hydrological Study
- Hydrogeological Study
- Mine Void Geotechnical Stability Study

Subsequent to the Dingo Dam mine void assessment A Consequence Category Assessment (CCA) was carried out for relevant structures within the Dingo Dam ML and is also presented by this letter report.

As per the project proposal, the Site's EA conditions addressed by submission of this report are as follows:

- *D1 - Assessment of consequence category*

The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635) at the following times:

- a) prior to the design and construction of the structure, if it is not an existing structure; or*
- b) if it is an existing structure, prior to the adoption of this schedule; or*
- c) prior to any change in its purpose or the nature of its stored contents*

- *D2 - A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.*

- *D3 - Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635).*

- **D26 - Register of Regulated Dams**

A Register of Regulated Dams must be established and maintained by the holder for each regulated dam.

- **C7 - Residual Void Outcome**

Residual voids must not cause any serious environmental harm to land, surface waters or any

recognised groundwater aquifer, other than the environmental harm constituted by the existence of the residual void itself, and subject to any other condition within this Environmental Authority

- *C8 - The holder of this Environmental Authority must manage mining voids during the operation and decommissioning phases to maximise the potential post mine beneficial uses, by consideration of the following:*

- a) limiting sulphide exposures in void walls; and*
- b) capping of sulphide exposures in void base; and*
- c) limiting period of exposure of sulphides in void walls and base to oxidising conditions; and*
- d) managing catchment into the void; and*
- e) geo-technical stability of final void.*

- *C9 - Decommissioning strategies for the final voids must be provided in the Post Mine Land Use Plan including the following information:*

- a) final potential wall and base rock exposure quality in terms of acid producing potential and levels of environmentally relevant salts and metals; and*
- b) expected periods of exposure for wall and base rock with acid producing potential; and*
- c) management options for maximising final void water quality; and*
- d) assessment of potential final void water quality.*

1.2 Assessments Summary

Hydrological Study (Dingo Dam Mining Void)

A hydrological assessment of the site to determine the potential for surface water interaction with the residual void was conducted. A water balance model using GoldSIM calculated the spill risk of the void and a long-term equilibrium pit water level.

The Hydrological Assessment is presented in **Attachment 1**.

Hydrogeological Desktop Study (Dingo Dam Mining Void)

ATCW sub-contracted GeoSquare to carry out a hydrogeological assessment of the site to determine the potential for groundwater interaction with the residual void. The hydrogeological study will assess the potential for groundwater inflow into the residual void, the potential for pit water to seep into any local groundwater aquifer. The assessment is based on existing available data and associated interpretation by a hydrogeologist.

The Hydrogeological study is presented in **Attachment 2**.

Pit Wall Desktop Stability Study (Dingo Dam Mining Void)

The pit wall geotechnical stability assessment is based on associated drilling logs, Geoscience Australia geological maps, site photographs and pit wall slope angles from available survey. The potential long-term stability of the void, including geotechnical issues and the effects of erosion and weathering is assessed.

The Pit Wall Stability Assessment is presented in **Attachment 3**.

Consequence Category Assessment (relevant storages on Dingo Dam ML)

ATC Williams carried out a Consequence Category Assessment (CCA) for the Dingo Dam mining void, Dingo Dam and the Sediment Dams. The CCA is carried out in accordance with *The Manual*¹ and categorised each structure appropriate for submission to the regulator. The CCA was completed in conjunction with the AARC Environmental Solutions Letter Report (RE: Environmental Consequence Advice - Lucky Break Project, 01 May 2019). The CCA includes a certification statement for submission to the Regulator.

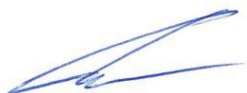
The Consequence Category Assessment is presented in **Attachment 4**.

¹ *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures • ESR/2016/1933 • Version 5.01 • Effective: 29 MAR 16*

2 CONCLUDING COMMENTS

We trust this meets your current requirements.

Yours sincerely,



THOMAS ROSE
Project Engineer
ATC Williams Pty Ltd



LIS BOCZEK
Principal Engineer
ATC Williams Pty Ltd

Our Ref: 118284-02-L002-2.docx

16 August 2019

Australian Mines Limited
C/-
AARC Environmental Solutions Ltd
Suite 5, 1 Swann Road
TARINGA QLD 4068

ATTENTION: HOLLIE DICK

Dear Hollie,

HYDROLOGICAL ASSESSMENT OF THE DINGO DAM RESIDUAL MINE VOID

1 ASSESSMENT OBJECTIVE

The objective of the Water Balance assessment carried out by ATCW is to estimate the spill risk of the residual mining void at Dingo Dam. The assessment utilised a probabilistic water balance model (WBM) to estimate water inventories within the Dingo Dam mining void and the modelled probability of the void overflowing (spilling) and associated modelled spill volume.

2 DINGO DAM MINING VOID WATER BALANCE MODEL

A water balance model was developed to provide an understanding the expected water levels within the mining void over time and assess the annual spill risk probability. Model development was based on the Dingo Dam survey (2019), geological information, site rainfall data and assumed the implementation of various bunding which effectively isolates the pit from external catchment inflows.

The water balance model was developed using Goldsim Pro, a dynamic probabilistic simulation program. The model uses a range of parameters to represent the catchment surface water flow system, being routed through a time series of daily rainfall data for an estimate of daily runoff. Monte Carlo simulations are performed to assess the water balance subject to the uncertainty of the input data (principally rainfall).



ATC Williams Pty Ltd
ABN 64 005 931 288
Melbourne T: +61 3 8587 0900 Perth T: +61 8 9213 1600 Brisbane T: +617 3352 7222
www.atcwilliams.com.au



2.1 Model Inputs

Input data adopted for the water balance model are summarised in **Table 1**.

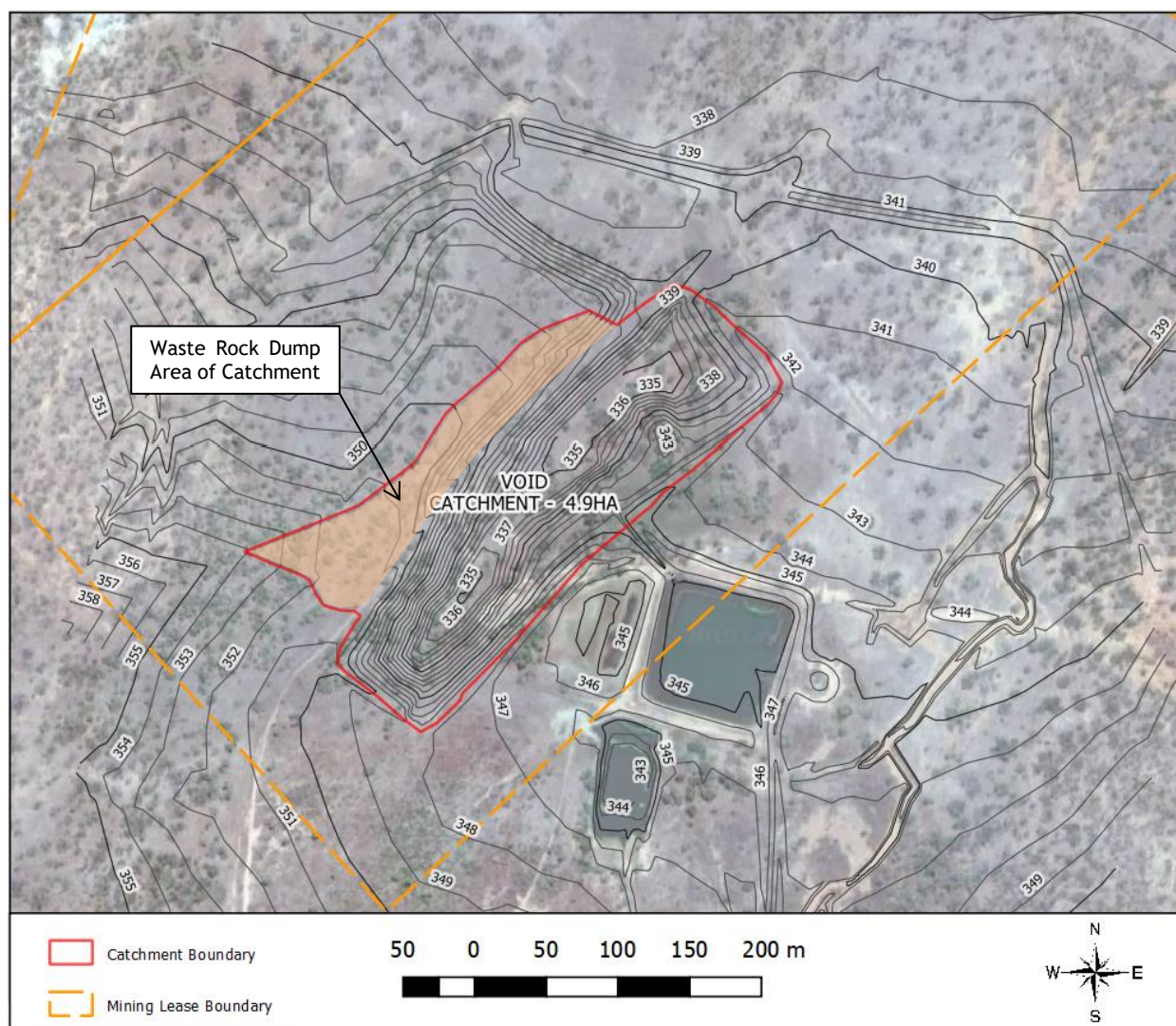
Table 1
Site Water Balance - Input Data

Model Parameter	Available Data	Data Source	Comments
Climate Data			
Rainfall	Daily rainfall (1889 to 2018)	SILO Datadrill for Site	Input to the surface runoff model (AWBM) and incident rainfall over site structures.
Evaporation	Morton’s (1983) evaporation over shallow lakes		Input to the calculated evaporative loss from site structures based on water surface area within the structure.
Evapotranspiration	Daily evapotranspiration data calculated using the FAO’s reference short crop method, assuming a constant wind speed of 2 m/s. (1889-2018)		Input to the surface runoff model (AWBM) defining potential evapotranspiration losses from catchment surfaces
Storage Data and Catchment			
Stage Storage Curve	Digital Elevation Model	Site Survey (Rowlands, 2019)	High quality recent ground survey data suitable for stage storage curve development
Soil Data			
Groundwater Interaction	Hydrogeological Model	Geosquare Hydrogeological report (2019)	Report indicates no discernible groundwater interaction at the site

2.1.1 Mining Void Catchment

The catchment area adopted for the mining void assumes various works at site are undertaken with the resulting catchment area shown in **Plate 1**. The full footprint of the Waste Rock Dump (located at the western spur of the catchment shown) is assumed to report to the mining void, however underlying ground conditions may result in these flows reporting elsewhere. In this regard, the model is considered conservative and represents the maximum possible inflow conditions.

Plate 1
Adopted Mining Void Catchment



2.1.2 Climate and Rainfall

The project site, located in Northern Queensland, is subject to a tropical climate. This climate is associated with variable rainfall conditions; however, average values indicate a distinct seasonal pattern with lower rainfall conditions associated with winter months and higher rainfall conditions during the summer months. The wet season occurs from November to March, with 81% of mean annual rainfall occurring during these months.

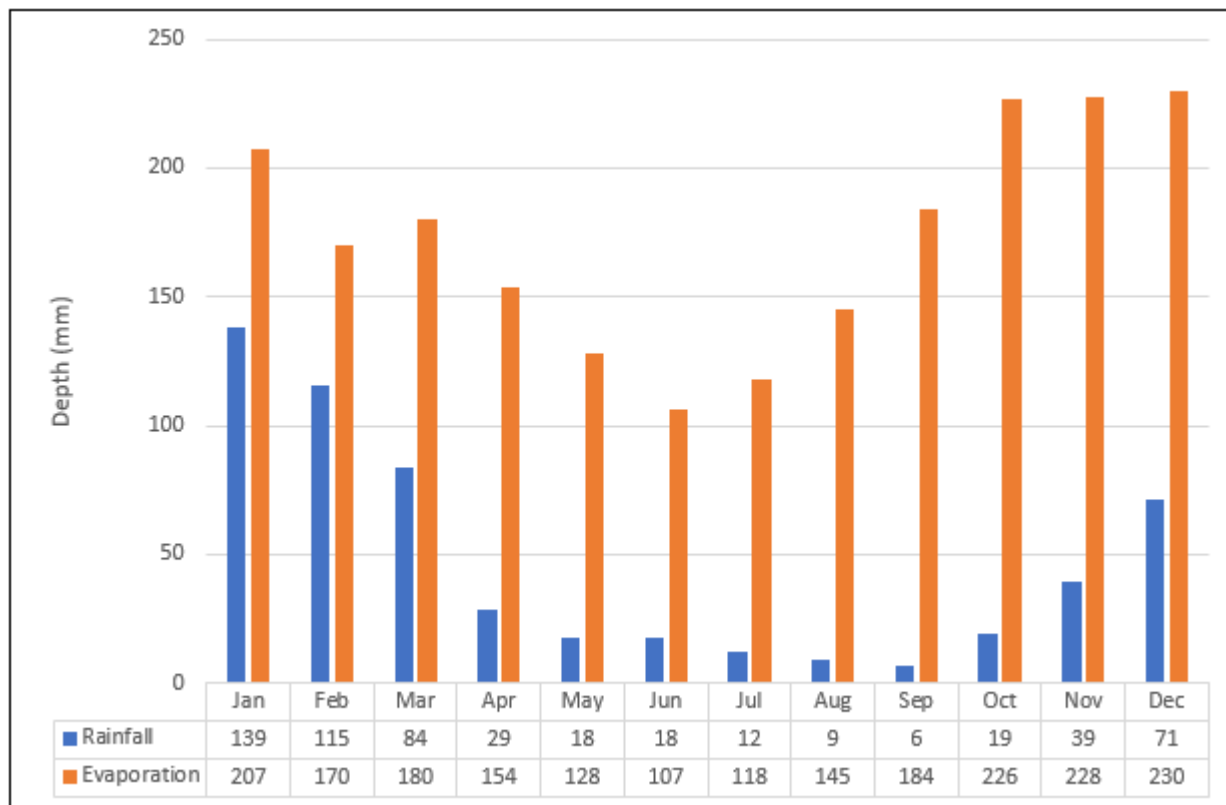
The nearest Bureau of Meteorology station to the site, with the longest data history, is Hillgrove weather station (No. 30137), located approximately 18km to the south-east. Data from this station shows that mean annual rainfall is some 553mm. The months with the highest and lowest average rainfall are January and August, respectively.

Hillgrove station does not have long term evaporation data; therefore, all climate data has been sourced from a SILO Data Drill specific to the site location, with details as follows:

Latitude: 19° 30' S
 Longitude: 145° 42' E
 Elevation: 388m
 Period: 01/01/1889 - 28/03/2019 (truncated to 2018)

Plate 2 summarises the average rainfall and evaporation for all months of the year for the SILO Data Drill location. Evaporation was assessed from Class A evaporation pan data existing between 1970 and 2018 within the SILO Data Drill series.

Plate 2
Mean Rainfall and Evaporation



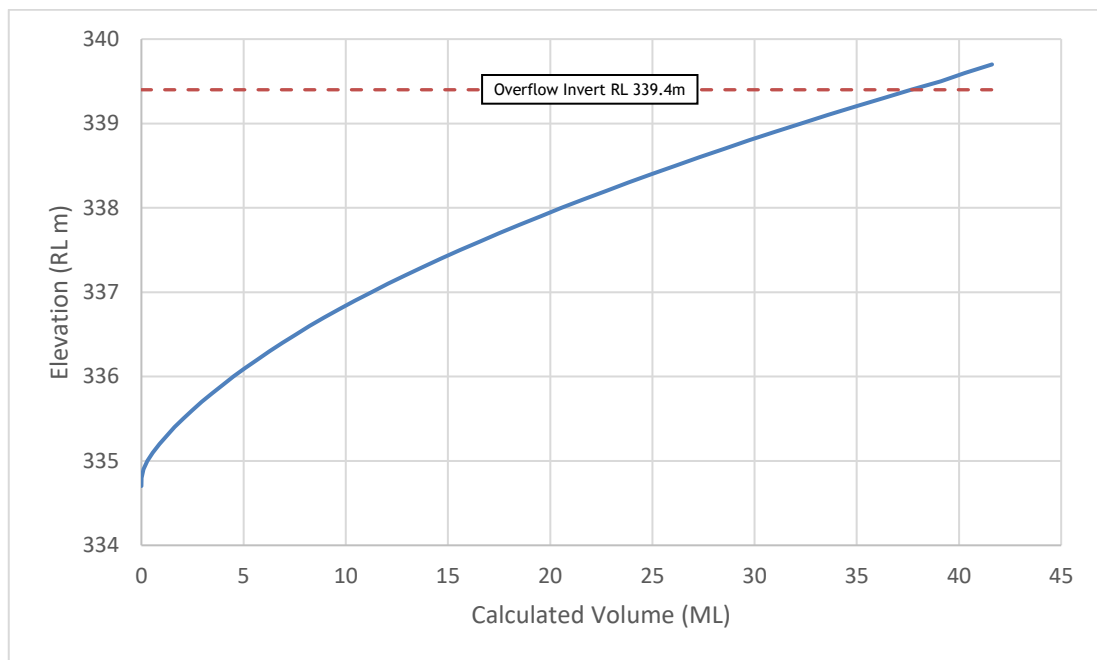
Source: BOM Hillgrove station (No. 30137) and SILO Data Drill requested for the site location.

Plate 2 indicates that evaporation exceeds mean monthly rainfall throughout the entire year. On an average monthly basis, maximum evaporation occurs later in the year (October to December). During the dry season months, evaporation is significantly lower, with the lowest monthly total typically occurring in June.

2.1.3 Mining Void Stage Storage Curve

A stage storage curve was developed for the Dingo Dam mining void to facilitate the water balance model and is based on the Rowlands (2019) ground survey of the site (refer **Plate 3**). The overflow elevation is noted as RL 339.4m, which was assessed through interpretation of the survey. The storage volume to the overflow invert level is estimated at 37.7 ML.

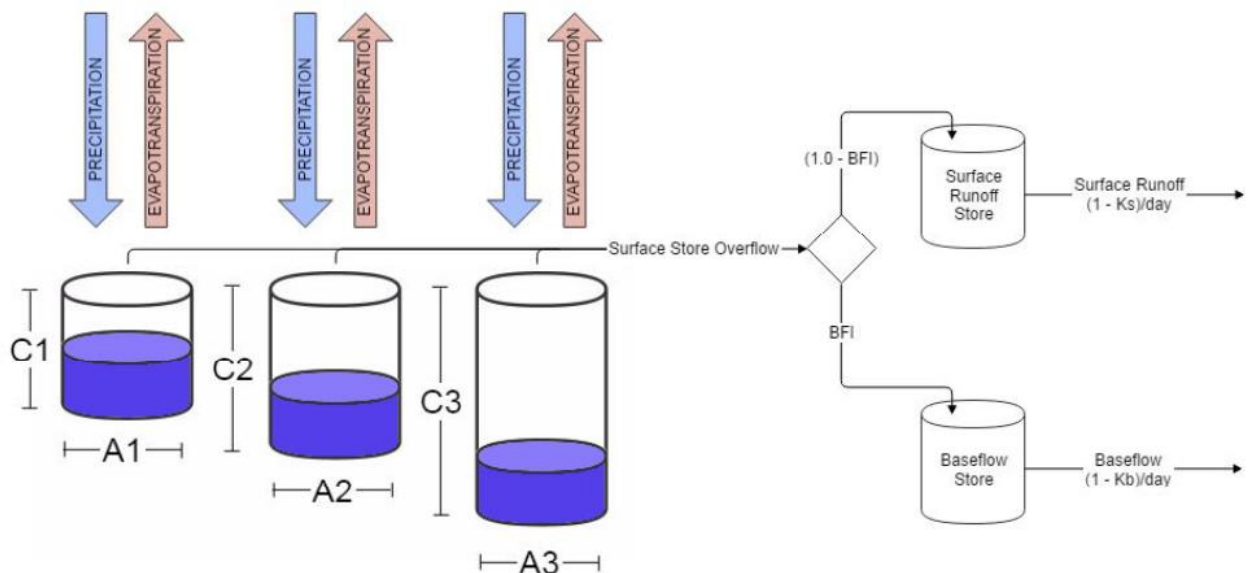
Plate 3
Dingo Dam Mining Void Stage Storage Curve



2.1.4 Catchment Runoff Estimation

The Australian Water Balance Model (AWBM, 2004) was utilised to simulate daily runoff from rainfall generated within the various sub-catchment types that are present on the project site. **Plate 4** represents a schematic of the AWBM model, reproduced from Boughton (2009).

Plate 4
Schematic of the AWBM Rainfall-Runoff Model



Source: Boughton, 2009.

Where:
 C1 - C3 = Surface Storage Capacities
 A1 - A3 = Partial Areas Represented by Surface Storages
 BFI = Baseflow Index
 K_b = Daily Baseflow Recession Constant
 BS = Current Volume in Baseflow Store
 K_s = Daily Surface Flow Recession Constant
 S = Current Volume in Surface Store Routing

The catchment types and AWBM model parameters used to simulate these different catchment types and the average yields from these catchments are summarized in **Table 2**. AWBM model parameters have been selected based on experience with similar water balance model studies.

Table 2
AWBM Model Parameters

Catchment	Split Areas (sum=1.0)			Storage Capacities (mm)			Average Surface Store	K _s (day-1)	BFI	K _b (day-1)
	A1	A2	A3	C1	C2	C3				
WRD (1.19ha)	0.2	0.8	0	10	300	300	242 mm	0.9	0.2	0.9
Void (3.71ha)	0.1	0.9	0	5	20	20	18.5 mm	0	0	1

2.2 Modelled Scenarios

The Dingo Dam mining void is a single structure and assumed to be isolated from external catchments based on the proposed construction of various bunds at site (refer ATCW 118284-01L001-0). No active management occurs at the site (i.e. transfer of water to other storages, or usage of water for other activities such as construction or dust suppression) so only a single scenario has been modelled.

The water balance model was run for a period of 5 years to help understand the impact of consecutive high rainfall wet seasons and determine whether a long-term water level trend would establish.

2.3 Initial Condition

Site photographs of the mine void taken by AARC during site inspection in September 2018, December 2018, February 2019 and April 2019 show the void water level progressing from practically empty in September 2019 to overflowing in February 2019 followed by minor recession to April 2019.

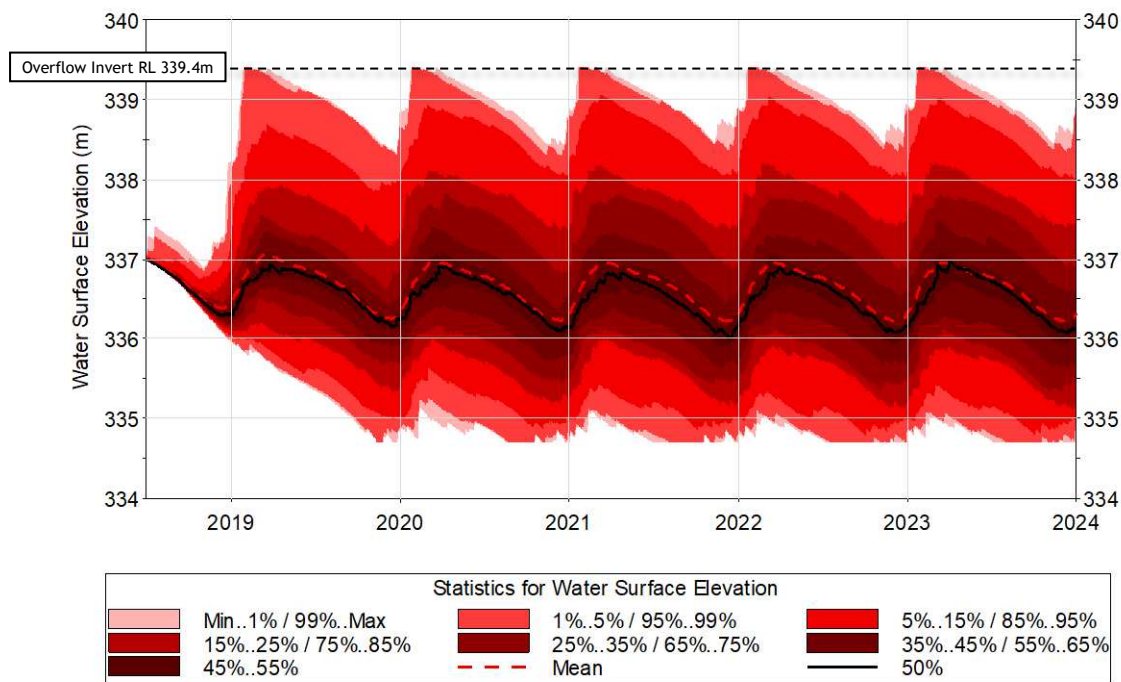
Within the water balance model the initial water level was adopted at RL 337m (2.4m below the overflow invert level), equating to an initial water storage volume of 11.2ML. This level was adopted as the initial condition as it represents a level of roughly half the depth of the void and would provide opportunity to assess whether the median water level is trending higher or low in subsequent modelled years. Note that the catchment conditions present during the site photographs listed above are dissimilar to that used within the water balance model and that correlation between model response and site observations would not be possible.

3 WATER BALANCE MODEL RESULTS

3.1 Modelled Water Surface Elevation

The modelled Water Surface Elevation (WSE) outcomes are shown in **Plate 5**, presented as calculated probabilities, based upon simulating each year of the available climate record (127 years). The plotted results represents the probability of a modelled outcome of WSE at that time of year. The 99th percentile result (shown as the lightest colour shading) represents an outcome with less than 1% chance of occurring, and so on. It is important to note that the probabilistic outcomes shown in the graphs do not directly translate to Annual Exceedance Probabilities (AEPs) of rainfall events.

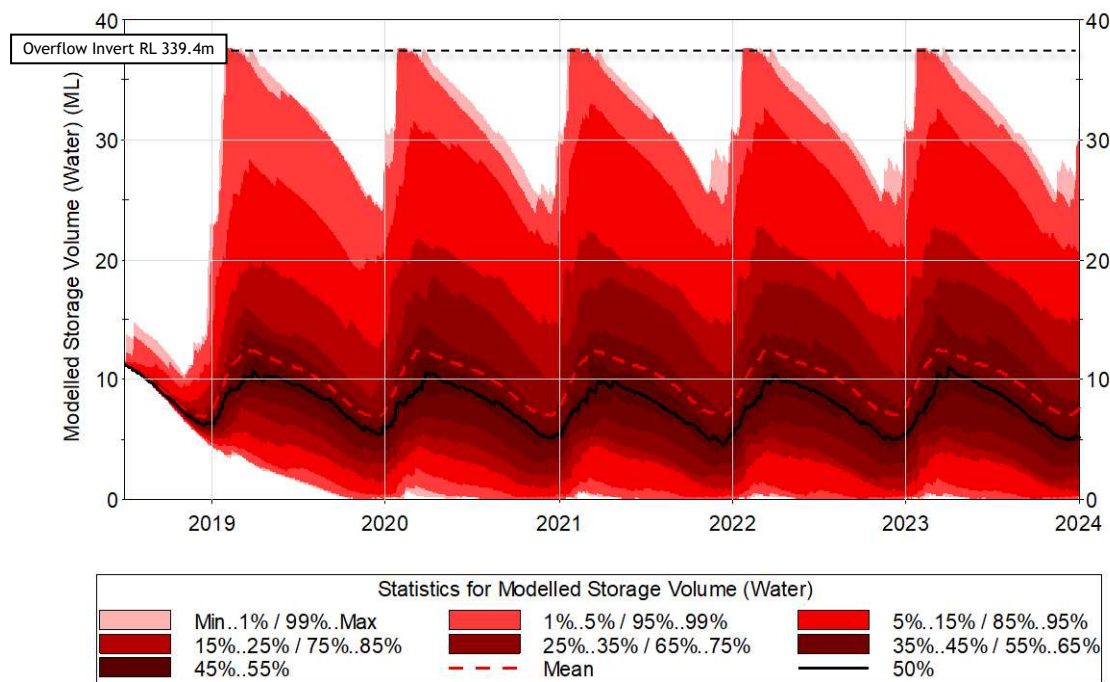
Plate 5
Modelled Probabilistic Water Surface Elevation in Dingo Dam Mine Void



3.2 Modelled Water Storage Volume

The modelled Water Storage Volume outcomes is shown in **Plate 6**, as calculated probabilities, based upon simulating each year of the available climate record (127 years). The plotted results represents the probability of a modelled outcome of WSE at that time of year. This graph represents the same information as **Plate 5**, however is shown as a volume.

Plate 6
Modelled Probabilistic Water Storage Volume in Dingo Dam Mine Void



3.3 Modelled Accumulated Spill Volume

The modelled Accumulated Spill Volume outcomes is shown in **Plate 7**, as calculated probabilities, based upon simulating each year of the available climate record (127 years). The plotted results represents the modelled cumulative volume of water which spills from the void at that time of year. The model results indicate that spills occurred in less than 5% of the modelled years of rainfall (realisations). For those sequences where spills events were modelled, multiple spills generally occurred, accumulating to total spill volumes between approximately 15ML and 21ML each year.

Plate 7
Modelled Probabilistic Accumulated Spill Volumes in Dingo Dam Mine Void



3.4 Modelled Annual Spill Probability

The modelled annual spill probability of the Dingo Dam mine void ranges between 1.6% (2 of 127 realisations) and 2.5% (3 of 127 realisations).

3.5 Model Results Discussion

The water balance modelling results show that the mining void at Dingo Dam has the potential to overflow during periods of high/extreme rainfall, with modelled overflows typically occurring in response to consecutive high rainfall events over a short period (i.e. wet season), rather than a single storm event. As seepage losses are negligible and evaporation is low compared to rainfall during the wet season, the modelled results indicates that the void overtops multiple times during a high/extreme rainfall wet season (as show on **Plate 7**).

Analysis of the Water Balance Model from an initial dry condition (no water within the mine void) shows that overtopping was modelled in 2 of the 127 years of climate data available, indicating that a single wet season has the potential to result in a spill from the mine void.

The results indicate that the median modelled water storage volume generally trends consistently around 10ML with no overall increase or decrease over the modelled rainfall sequence. It is therefore that the annual spill risk would not be expected to increase over time.

3.6 Limitations

The WBM models the accumulation of water within the Dingo Dam mine void. The WBM does not analyse groundwater flow interactions, or saturated / unsaturated flow (seepage) regimes. Accordingly, ingress through seepage, or other hydrogeological systems was not modelled.

It is noted that the Dingo Dam mining void water balance model has an unknown degree of error due to limited calibration opportunities and the accuracy and resolution of model input data. As such the results presented in the assessment should be considered with a level of conservatism.

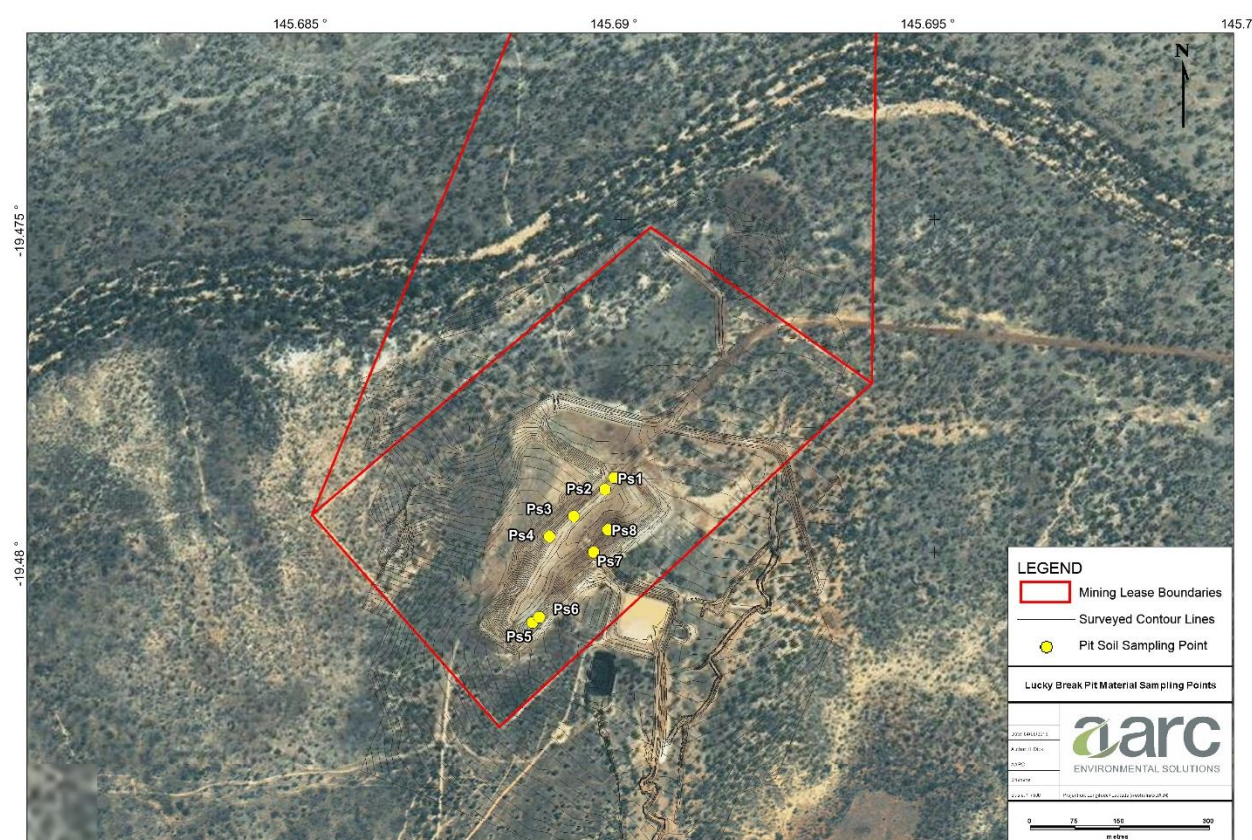
The length of the modelled time period within the water balance model may also impact the reliability of the result, with the uncertainty within the model result increasing with length of time period modelled.

4 VOID WATER QUALITY CONSIDERATIONS

As presented in **Section 3**, a spill from the Dingo Dam mining void is possible during a high rainfall wet season (November to April - see **Section 3.4 and 3.5** for modelled spill probability and discussion). The water likely to be contained within the void and potentially released to the environment due to spills would primarily be accumulated rain water; however, contaminants which could potentially enter the void would be primarily associated with leaching from the surrounding surface soils and void surfaces.

To assess the potential water quality from runoff into the void and as a result of leaching of any contaminants from the void surfaces, AARC undertook geochemical analysis of eight surface material grab samples within the void at the locations identified in **Plate 8**. The samples were selected as they were considered representative of the different void surface materials.

Plate 8
Location of AARC Surface Material Grab Samples in Dingo Dam Mine Void



The surface soil grab samples were analysed to assess:

- pH, Electrical Conductivity (EC) and Sulphur
- Acid Neutralising Capacity
- Acid Forming Potential
- Water Extractable Elements

4.1 Assessment of Laboratory Analysis

Assessment of the laboratory analysis (**Attachment 1**) was undertaken by AARC and provided to ATCW, summarised in Sections 4.1.1 to 4.1.4.:

4.1.1 pH, EC & Sulphur

Existing pH provides an indication of the likely pH condition of runoff from the pit walls. The results show that the pH (1 soil :5 water leach (1:5)) ranged from 7.6 to 8.5, indicating that materials represented by the samples were neutral to alkaline at the time of testing.

The EC provides an indication of the inherent salinity of a topsoil material that forms the walls of the residual void. The EC (1:5) ranged from 11 to 66 $\mu\text{S}/\text{m}$ indicating that the samples were non-saline.

The total sulphur contents of the samples were very low ranging from <0.01 to 0.03 %. With the exception of one sample, all samples from the walls of the residual void recorded a total S content below the limit of reporting (0.01%).

4.1.2 Acid Neutralising Capacity

The ANC of the samples varied greatly from 4.1 to 466 $\text{kg H}_2\text{SO}_4/\text{t}$, with an average of 110.7 $\text{kg H}_2\text{SO}_4/\text{t}$ and a median value of 19.05 $\text{kg H}_2\text{SO}_4/\text{t}$. 75% of the samples had an ANC of less than 30 $\text{kg H}_2\text{SO}_4/\text{t}$ indicating that the majority of samples have a low ANC.

4.1.3 Acid Forming Potential

The Acid Base Account (ABA) evaluates the balance between acid generation processes (oxidation of sulfide minerals) and acid neutralising processes (dissolution of alkaline carbonates, displacement of exchangeable bases and weathering of silicates) (Jones *et al.*, 2016). The acid base account is based on the Maximum Potential Acidity (MPA) and the inherent ANC of the tested samples. Total sulfur has been used as a conservative estimate of pyritic sulfur (i.e. all S is assumed to be present in the form of pyrite) to calculate MPA ($\text{MPA} = \text{weight\% S} \times 30.6$).

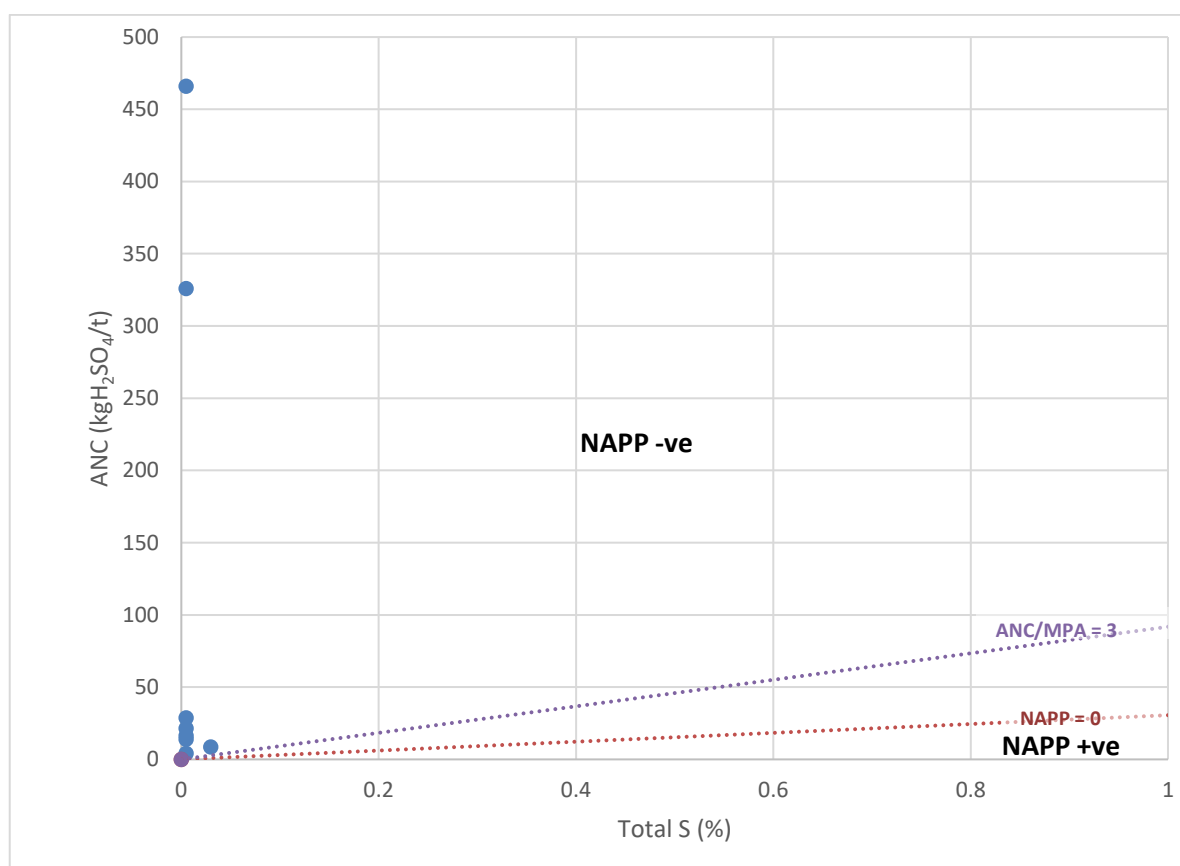
If the MPA is less than the ANC then the NAPP is negative, indicating that the sample may have sufficient ANC to prevent acid generation. If the MPA exceeds the ANC then the NAPP is positive, indicating that the material may be acid generating (Jones *et al.*, 2016).

The acid forming characteristics of the samples are presented in **Attachment 1. Plate 9** presents the ABA plot of the void surface material samples indicating NAPP negative and positive domains. A $\text{NAPP} = 0$ line is included in the ABA plot to separate NAPP positive and negative domains and is equivalent to an ANC/MPA ratio of 1. This plot has been scaled to demonstrate the distribution of all samples which have a total S content less than 1 % S. **Plate 9** shows all samples lie in the NAPP negative domain.

All of the samples tested have an ANC/MPA ratio greater than 3. The ANC/MPA ratio is used as an indication of the relative factor of safety within the NAPP negative domain. Usually a ratio of 2 or more signifies a high probability that the material will remain circum-neutral in pH and thereby should not be problematic with respect to Acid Rock Drainage (ARD) (Jones *et al.*, 2016). An ANC/MPA ratio of 3 or higher indicates a high probability that the material will be non-acid forming (NAF).

Most samples recorded an ANC of less than 50 $\text{kg H}_2\text{SO}_4/\text{t}$, while two samples recorded significant excess ANC (>100 $\text{kg H}_2\text{SO}_4/\text{t}$). On average the pit material contains an ANC of 110.7 $\text{kg H}_2\text{SO}_4/\text{t}$ which can be classified as Acid Consuming (NAF-AC).

Plate 9
Acid Base Account Plot of total S versus ANC



The NAG pH test is used in association with the NAPP to classify the acid-generating potential of a sample. As the NAG pH test is completely independent of the NAPP approach, the combination of the NAPP and NAG pH provides greater certainty to the assessment of ARD potential (Jones *et al.*, 2016)¹.

The standard criteria used to classify the ARD potentials of the void material samples are shown in **Table 3**.

Table 3
Standard Geochemical Classification Criteria (source: Jones et al., 2016)

Primary Geochemical Material Type	NAPP (kg H ₂ SO ₄ /t)	NAG pH
Potentially Acid Forming (PAF)	>10	< 4.5
Potentially Acid Forming - Low Capacity (PAF-LC)	0 to 10	< 4.5
Non-Acid Forming (NAF)	Negative	≥ 4.5
Acid Consuming (AC)	Less than -100	≥ 4.5
Uncertain	Positive	≥ 4.5
	Negative	< 4.5

¹ Jones, D. R., Taylor, J., Pape, S., McCullough, C. D., Brown, P., Garvie, A., Appleyard, S., Miller, S., Unger, C. J., Laurencont, T., Slater, S., Williams, D., Scott, P., Fawcett, M., Waggitt, P. and Robertson, A. (2016) *Preventing acid and metalliferous drainage - Leading Practice Sustainable Development Program for the Mining Industry*. Canberra: Commonwealth of Australia.

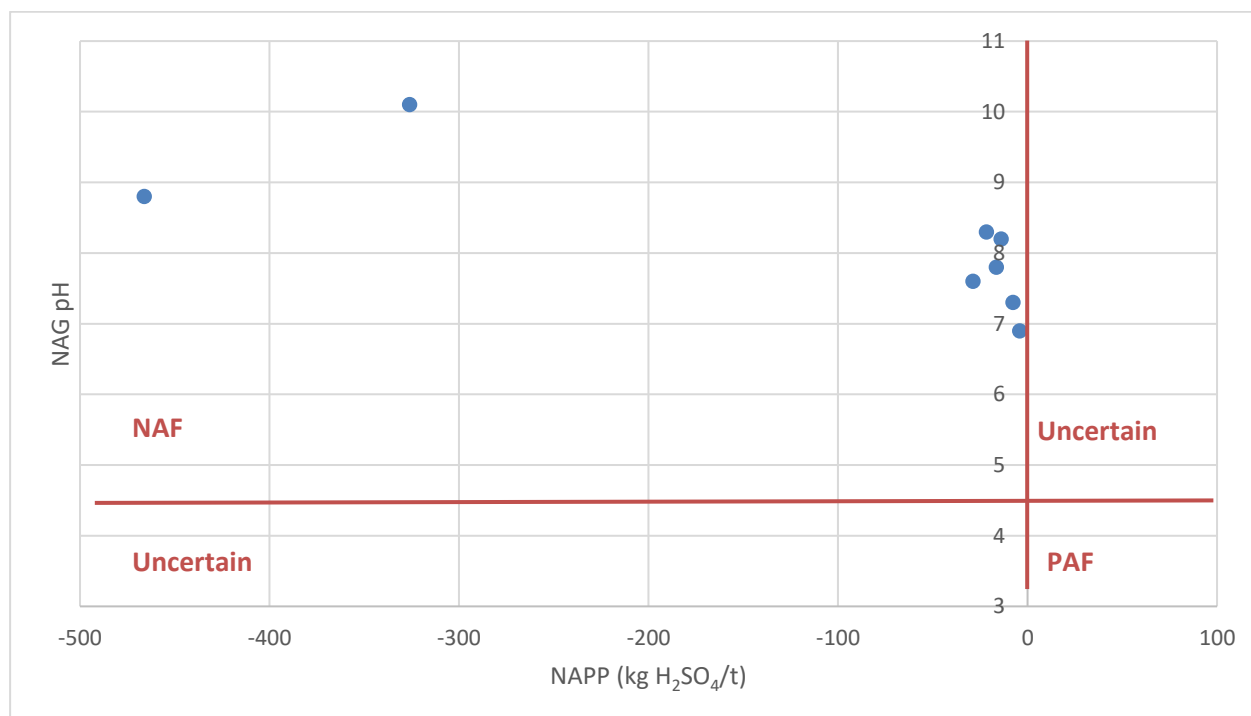
The primary geochemical classification types are described as follows:

- Potentially Acid Forming (PAF) material is likely to result in acidification and ARD generation during exposure to atmospheric conditions; and
- Non-Acid Forming (NAF) material generally contains ANC sufficient to neutralise any acid that might have been produced by sulphide oxidation; and
- Uncertain (UC) material shows disparity between the NAPP and NAG results. A sample may have a negative NAPP and a positive NAG if the ANC within sample is not readily available under NAG test conditions. Conversely, a sample may have a positive NAPP and negative NAG if some or all of the sulphur occurs in non-acid generating forms such as sulphate.

The ARD classification plot of NAPP versus NAG pH is shown in **Plate 10**. The plot clearly shows that all samples are classified as NAF.

The NAF samples are further broken down into the classification of NAF and NAF-Acid Consuming (NAF - AC). Two samples are classified as NAF - AC with $<0.5\%$ total S, $\text{pH} \geq 4.5$ and NAPP value of $<-100 \text{ kg H}_2\text{SO}_4/\text{t}$. Due to their excess ANC, these samples are classified as acid consuming. The remaining samples are classed as NAF with a negative NAPP and pH of >4.5 . NAF samples that are essentially devoid of sulphur and ANC are referred to as barren. A barren classification is given to samples which have a total sulphur content less than 0.1% sulphur and ANC less than or equal to $5 \text{ kg H}_2\text{SO}_4/\text{t}$. One sample, PS7 was considered barren with a total S concentration of $<0.1\%$ and an ANC of $4.1 \text{ kg H}_2\text{SO}_4/\text{t}$.

Plate 10
ARD Classification Plot of NAPP versus NAG pH



4.1.4 Water Extractable Elements

To evaluate the potential for leaching of metals, metalloids and other elements of environmental interest from the residual void, surface soil samples were assessed using batch extraction with deionised water using the Australian Standard Leaching Procedure (ASLP). The results show that all the samples tested had an alkaline pH (ASLP) ranging from 8.1 to 9.7. The electrical conductivities (1:5) ranged from 11 to 66 $\mu\text{S}/\text{m}$, indicating that the samples were non-saline.

The static leach testing results presented in **Table 4** show that all metals except mercury were elevated in one or more samples when compared to EA release trigger levels. The mean and median extractable concentrations for aluminium, cadmium, chromium, cobalt, copper, nickel and zinc exceeded the EA release trigger levels for dissolved metals. While all samples contained elevated concentrations of soluble aluminium, three samples (PS5 -PS7) contained particularly high concentrations ranging from 6.6 mg/L to 16.6 mg/L. As the pH of these samples is alkaline, it is most likely that the aluminium is present as colloidal forms rather than the dissolved, biologically available state.

Table 4
Dissolved Metal Concentrations extracted from Void Topsoil Material

Analyte	Aluminium	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Nickel	Zinc	Mercury
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Limit of reporting	0.01	0.001	0.0001	0.001	0.001	0.001	0.001	0.001	0.005	0.0001
EA Trigger Level	0.055	0.013	0.0002	0.001	0.0014	0.0014	0.0034	0.011	0.008	n/a
PS1	1.43	0.006	0.0003	0.067	0.014	0.003	0.006	0.453	0.106	<0.0001
PS2	1.45	0.001	0.0002	0.048	0.008	0.032	0.0005	0.411	0.101	<0.0001
PS3	0.33	0.0005	0.00005	0.004	0.0005	0.029	0.0005	0.011	0.029	<0.0001
PS4	0.3	0.003	0.0002	0.012	0.0005	0.029	0.0005	0.04	0.083	<0.0001
PS5	6.6	0.025	0.0004	0.062	0.023	0.075	0.003	0.365	0.169	<0.0001
PS6	16.6	0.014	0.0005	0.556	0.115	0.081	0.003	1.79	0.597	<0.0001
PS7	9.52	0.003	0.0004	0.054	0.005	0.012	0.009	0.072	0.299	<0.0001
PS8	1.48	0.002	0.0004	0.061	0.001	0.006	0.002	0.053	0.167	<0.0001
Mean	4.714	0.0068	0.0003	0.108	0.0209	0.0334	0.0031	0.3994	0.1939	<0.0001
Median	1.465	0.003	0.00035	0.0575	0.0065	0.029	0.0025	0.2185	0.1365	<0.0001

Note: Values shown in **bold** fall above the relevant EA trigger level.

To evaluate the impacts of the extractable metal concentrations on final void water quality, mean and median metal concentrations extracted across the void material samples were compared against; (a) past void water quality data, and (b) downstream receiving water quality as recorded during the recent void overtopping and release event (February 2019) (**Table 5**).

Under low storage volumes and no flow conditions, void water quality has been found to exhibit elevated concentrations of dissolved aluminium, chromium, copper and nickel. However, under high flow conditions and significant dilution, as observed during the February 2019 release event, aluminium was the only metal recorded above EA trigger levels in both stored void water, and downstream receiving water (**Table 5**).

These findings indicate that at full capacity, with the exception of aluminium, the extractable metal concentrations in stored void water are likely to be sufficiently diluted below trigger

levels in an overtopping scenario. The downstream receiving water quality results indicate further dilution of dissolved metals (including aluminium) is likely due to upstream inputs and the settlement of suspended sediment in overland runoff. Although dissolved aluminium concentrations in the downstream receiving environment remained above the EA trigger level (0.055 mg/L), this exceedance was consistent with concentrations recorded in the upstream receiving environment at this time (AARC 2019) and is considered a reflection of baseline conditions for the catchment. It should be noted also, that mean and median extractable metal/metalloid concentrations in void material fall below the Australian and New Zealand Environment and Conservation Council (ANZECC)² & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) (2000) guideline values for Livestock Drinking Water and the EA contaminant release limits (Table 5).

Table 5
Comparison of Dissolved Metal Concentrations - Extractable Concentrations in Void Material versus Void and Receiving Water Quality

Analyte	Unit	Limit of Reporting	EA Trigger Level*	EA Contaminant Limit#	Full Capacity		No Flow Conditions		High Flow Release Event		
					19/02/2019		18/09/18	13/12/18	18/02/19	19/02/19	
					Void Material - Water Extractable Concentration		Void Water Quality				Mean Receiving Water Quality
					Mean	Median					
Dissolved Metal / Metalloid											
Aluminium	mg/L	0.01	0.055	5	4.7138	1.465	0.13	0.2	0.6	0.395	
Arsenic	mg/L	0.001	0.013	0.5	0.0068	0.003	<0.001	<0.001	<0.001	0.002	
Cadmium	mg/L	0.0001	0.0002	0.01	0.0003	0.00035	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	mg/L	0.001	0.001	1	0.108	0.0575	0.001	0.002	0.001	<0.001	
Cobalt	mg/L	0.001	0.0014	1	0.0209	0.0065	<0.001	<0.001	<0.001	<0.001	
Copper	mg/L	0.001	0.0014	1	0.0334	0.029	0.002	<0.001	0.001	0.001	
Lead	mg/L	0.001	0.0034	0.1	0.0031	0.0025	<0.001	<0.001	<0.001	<0.001	
Nickel	mg/L	0.001	0.011	1	0.3994	0.2185	0.008	0.02	0.005	<0.001	
Zinc	mg/L	0.005	0.008	20	0.1939	0.1365	<0.005	<0.005	<0.005	<0.005	
Mercury	mg/L	0.0001	n/a	n/a	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	

Note: Values shown in **bold blue** shading indicate an exceedance when compared to EA trigger levels.

* EA trigger levels are based on the ANZECC & ARMCANZ (2000) guideline values for Aquatic Ecosystem Protection.

EA contaminant limits are based on the ANZECC & ARMCANZ (2000) guideline values for Livestock Drinking Water Quality.

Based on the results of the surface grab samples and the water quality during the most recent release events (see **Attachment 2**), it is considered that the long-term water quality within the mining void would be similar or better than those reported in the AARC letter dated 14 March 2019. Improvement of water quality would be expected with isolation of the void from overland inflows (as outlined in ATCW report 118284-01) and eliminating inflow of turbulent water carrying suspended sediment.

² ANZECC & ARMCANZ. (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Canberra: Australian and New Zealand Environment & Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand.

5 CLOSURE

We trust that this assessment meets your current requirements.

Yours sincerely,



THOMAS ROSE
Project Engineer
ATC Williams Pty Ltd



LIS BOCZEK
Principal Engineer
ATC Williams Pty Ltd

CERTIFICATE OF ANALYSIS

Work Order : **EB1904433**
Client : **AARC Environmental Solutions Pty Ltd**
Contact : **MS HOLLIE DICK**
Address :
Telephone : **+61 07 3217 8772**
Project : **AML LUCKY BREAK**
Order number :
C-O-C number : **----**
Sampler : **HOLLIE DICK**
Site : **----**
Quote number : **EN/222**
No. of samples received : **8**
No. of samples analysed : **8**

Page : 1 of 6
Laboratory : Environmental Division Brisbane
Contact : Customer Services EB
Address : 2 Byth Street Stafford QLD Australia 4053
Telephone : +61-7-3243 7222
Date Samples Received : 21-Feb-2019 09:35
Date Analysis Commenced : 25-Feb-2019
Issue Date : 04-Mar-2019 16:42



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- ASS: EA013 (ANC) Fizz Rating: 0- None; 1- Slight; 2- Moderate; 3- Strong; 4- Very Strong; 5- Lime.



Analytical Results

Sub-Matrix: DI WATER LEACHATE
 (Matrix: WATER)

Client sample ID

				PS1	PS2	PS3	PS4	PS5
Client sampling date / time				19-Feb-2019 09:45	19-Feb-2019 10:00	19-Feb-2019 10:15	19-Feb-2019 10:18	19-Feb-2019 10:30
Compound	CAS Number	LOR	Unit	EB1904433-001	EB1904433-002	EB1904433-003	EB1904433-004	EB1904433-005
				Result	Result	Result	Result	Result
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	1.43	1.45	0.33	0.30	6.60
Arsenic	7440-38-2	0.001	mg/L	0.006	0.001	<0.001	0.003	0.025
Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0002	<0.0001	0.0002	0.0004
Chromium	7440-47-3	0.001	mg/L	0.067	0.048	0.004	0.012	0.062
Cobalt	7440-48-4	0.001	mg/L	0.014	0.008	<0.001	<0.001	0.023
Copper	7440-50-8	0.001	mg/L	0.003	0.032	0.029	0.029	0.075
Lead	7439-92-1	0.001	mg/L	0.006	<0.001	<0.001	<0.001	0.003
Nickel	7440-02-0	0.001	mg/L	0.453	0.411	0.011	0.040	0.365
Zinc	7440-66-6	0.005	mg/L	0.106	0.101	0.029	0.083	0.169
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001



Analytical Results

Sub-Matrix: DI WATER LEACHATE
 (Matrix: WATER)

Client sample ID

				PS6	PS7	PS8	----	----
Client sampling date / time				19-Feb-2019 10:40	19-Feb-2019 10:50	19-Feb-2019 10:55	----	----
Compound	CAS Number	LOR	Unit	EB1904433-006	EB1904433-007	EB1904433-008	-----	-----
				Result	Result	Result	----	----
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	16.6	9.52	1.48	----	----
Arsenic	7440-38-2	0.001	mg/L	0.014	0.003	0.002	----	----
Cadmium	7440-43-9	0.0001	mg/L	0.0005	0.0004	0.0004	----	----
Chromium	7440-47-3	0.001	mg/L	0.556	0.054	0.061	----	----
Cobalt	7440-48-4	0.001	mg/L	0.115	0.005	0.001	----	----
Copper	7440-50-8	0.001	mg/L	0.081	0.012	0.006	----	----
Lead	7439-92-1	0.001	mg/L	0.003	0.009	0.002	----	----
Nickel	7440-02-0	0.001	mg/L	1.79	0.072	0.053	----	----
Zinc	7440-66-6	0.005	mg/L	0.597	0.299	0.167	----	----
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	PS1	PS2	PS3	PS4	PS5
Client sampling date / time					19-Feb-2019 09:45	19-Feb-2019 10:00	19-Feb-2019 10:15	19-Feb-2019 10:18	19-Feb-2019 10:30
Compound	CAS Number	LOR	Unit		EB1904433-001	EB1904433-002	EB1904433-003	EB1904433-004	EB1904433-005
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		9.0	8.3	8.9	9.0	8.9
EA009: Nett Acid Production Potential									
Net Acid Production Potential	----	0.5	kg H2SO4/t		-21.6	-28.7	-326	-466	-16.5
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm		50	11	66	50	35
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		8.3	7.6	10.1	8.8	7.8
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		21.6	28.7	326	466	16.5
ANC as CaCO3	----	0.1	% CaCO3		2.2	2.9	33.3	47.5	1.7
Fizz Rating	----	0	Fizz Unit		1	1	4	5	1
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		<0.01	<0.01	<0.01	<0.01	<0.01
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		9.7	9.0	8.4	9.2	9.4



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	PS6	PS7	PS8	----	----
Client sampling date / time					19-Feb-2019 10:40	19-Feb-2019 10:50	19-Feb-2019 10:55	----	----
Compound	CAS Number	LOR	Unit		EB1904433-006	EB1904433-007	EB1904433-008	-----	-----
					Result	Result	Result	----	----
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		7.6	7.3	9.4	----	----
EA009: Nett Acid Production Potential									
Net Acid Production Potential	----	0.5	kg H2SO4/t		-13.9	-4.1	-7.7	----	----
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm		55	11	63	----	----
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		8.2	6.9	7.3	----	----
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	----	----
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	0.2	<0.1	----	----
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		13.9	4.1	8.6	----	----
ANC as CaCO3	----	0.1	% CaCO3		1.4	0.4	0.9	----	----
Fizz Rating	----	0	Fizz Unit		1	0	0	----	----
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		<0.01	<0.01	0.03	----	----
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		8.5	8.1	9.5	----	----

Matt Anscomb
Environmental Services and Regulation (North Queensland Compliance)
Department of Environment and Science
Level 10 Flinders Street
Townsville QLD 4810

14 March 2019

RE: Release Investigation for Sconi Mining Operations (EPML00900713) - Lucky Break Project

Dear Matt,

This notification letter is prepared on behalf of Sconi Mining Operations Pty Ltd (Sconi), whom is the Project's Environmental Authority (EA) (EPML00900713) holder. Sconi is providing further written advice to the Department regarding a release event at the Lucky Break Project site. The release event occurred between 8 February 2019 and 2 March 2019, during a heavy and prolonged rainfall event that lead to flooding in the Townsville region.

This letter of further written advice has been prepared in accordance with conditions A12 and A13 of the Project's EA (EPML00900713) as defined below.

- (A12) *The holder of this environmental authority must notify the administering authority by written notification within 24 hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.*
- (A13) *Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following:*
- (a) results and interpretation of any samples taken and analysed;*
 - (b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm;*
 - (c) proposed actions to prevent a recurrence of the emergency or incident.*

Previously Reported Details of Incident (Condition A12)

In accordance with Condition A12 of the EA, AARC on behalf of Sconi Mining Operations Pty Ltd, initially advised of a release incident at the Lucky Break site on February 7 and 8, 2019. The release commenced on 8 February 2019 when mine affected water was released from the sediment dam to the receiving environment.

At the time of the release from the sediment dam, a total of 30 millimeters (mm) rainfall had been recorded in the previous 24 hour period with a cumulative total monthly rainfall of 335.6 mm recorded at the nearest rainfall gauging station - Hillgrove Station (30137). Continuous rainfall was recorded on site between January 26 and February 8 with a total of 384.3 mm of rainfall recorded during that period (source: Spyglass Office rainfall gauge).

The heavy rainfall lead to overtopping from the Dingo Dam stock watering dam into the adjacent mine void. On February 7, the continued rainfall and surface runoff caused overtopping from the mine void to the diversion bunds with mine affected water flowing into the ROM pad area and eventually the sediment dam. The clean water catchment upstream of the Project site was also captured by the diversion bunds and directed to the sediment dam. The sediment dam reached capacity and began releasing to the receiving environment on February 8.

The volume of water released to Snake Creek via overland flow from the sediment dam is unknown as no flow measuring devices are installed at the release point. While Snake Creek was in flood at the time of the release, the flow rate remains unknown due to the lack of stream gauging stations or instream loggers.

Receiving environment water samples were collected from the sediment dam, Dingo Dam, and the ROM Pad, as well as upstream and downstream points in Snake Creek on February 7, 2019. Follow up water sampling was completed by AARC on February 18 and 19. The slow release from the sediment dam was ongoing at this time. Surface water sampling locations are shown in Figure 1.

Advice was provided to the department on 15 February 2019 regarding the ongoing source of release and mitigation measures implemented to prevent future releases. At the time, Dingo Dam was collecting runoff from the upstream clean water catchment (via an adjacent stock water dam) and was overtopping into the residual void. On the morning of 15 February, the pipe between the two stock dams was blocked off and pumping from Dingo Dam commenced in an effort to prevent any further overtopping into the void.

The release from the sediment dam ceased on 2 March 2019 following 14 consecutive days of dry conditions. A moderate rainfall event (17 mm) that occurred on February 18 was likely a contributing factor to the prolonged release period.

Results and Analysis of Sampling Undertaken (Condition A13(a))

Background

Water quality sampling was initially completed at the time of void overtopping (7/02/2019). AARC completed follow-up water sampling (18-19/02/2019) to identify potential impacts on the receiving environment.

Water quality data from both sampling events has been analysed and compared against EA trigger levels and contaminant limits. Water quality within and downstream of the Mining Lease (ML) has been compared to the default trigger values and contaminant limits as defined in the EA. Where quality characteristics in water stored or released from site, or downstream receiving water exceed any of the trigger levels, the downstream results have been compared to the reference site values.

Water quality data collected during each release sampling event is provided in Table 1.

Physico-chemical Parameters

The analysis of pH levels across the Project ML and downstream receiving environment indicates that pH levels at all potentially impacted sites were consistent with those recorded at upstream reference sites. All pH readings fell within the EA trigger level range (6.0 – 8.6).

All field measurements of electrical conductivity (EC) collected in-situ during the follow up sampling fell well below the contaminant release limit of 1000 microSiemens per centimeter ($\mu\text{S}/\text{cm}$), with all mine affected and downstream sites recording EC levels in the range of 89.3 to 173.1 $\mu\text{S}/\text{cm}$. EC levels across the mine affected and downstream sites were generally consistent with levels recorded at upstream reference sites.

Turbidity levels were highest in the residual void or OCP (460.2 nephelometric turbidity units (NTU)), followed by the run of mine (ROM) release point (ROM RL – 313.9 NTU), Dingo Dam (184 NTU), the southern diversion bund (STH BUND – 155.3 NTU) and the sediment dam (91.8 NTU). Turbidity readings in the downstream receiving environment of Snake Creek (29.6 - 30.1 NTU) had returned to near background levels (21.3 – 21.8 NTU) as recorded at the upstream reference sites. Given that no turbidity trigger levels or release limits are defined in the EA, no exceedances were recorded during the follow-up sampling event.

Total and Dissolved Metals

A number of metals were found to be present in higher concentrations than the EA contaminant limits at upstream, mine affected and / or downstream sites during the release event. A description of the release and downstream water quality is provided below in comparison with upstream reference values.

Aluminium

Dissolved aluminium concentrations recorded at all potentially mine impacted sites exceeded the EA trigger level of 0.055 milligrams per litre (mg/L), with values recorded between 0.29 mg/L at LBDS2 (19/02/19) and 4.16 mg/L at ROM RL (7/02/2019). All upstream or reference sites were found to contain dissolved aluminium concentrations above the EA trigger levels, with values falling in the range of 0.35 mg/L to 1.19 mg/L. The highest dissolved aluminium reading from an upstream site was recorded from Dingo Dam on 7 February. These findings indicate aluminium typically has an elevated presence in the waters of Project region while levels were found to be particularly high in Dingo Dam. Results from the follow-up sampling revealed that dissolved aluminium concentrations remained higher in Dingo Dam than mine affected sites such as the OCP, STH BUND, ROM RL and SED DAM.

The analysis of total aluminium concentrations from the initial release event revealed contaminant limit (5 mg/L) exceedances at the upstream Dingo Dam sampling point as well as the ROM RL and SED DAM. Analysis of water quality sampled from the Snake Creek downstream site during the same sampling event revealed total aluminium fell below the contaminant limit. The follow-up water quality sampling revealed one exceedance at the OCP sampling point, where a total aluminium concentration of 5.42 mg/L was recorded. No other sites recorded elevated total aluminium during the follow-up sampling.

Chromium

During the initial release sampling event, dissolved chromium concentrations were found to be elevated at one upstream site (Dingo Dam) and two downstream sites (ROM RL and SED

DAM) when compared to the EA trigger level of 0.001 mg/L. Sampling at the downstream site on Snake Creek recorded a dissolved chromium concentration below detection limits. During the follow-up sampling all upstream and potentially mine impacted sites recorded dissolved chromium concentrations below detection limits.

These results are indicative of a first flush affect whereby the large volume of surface runoff has likely caused an accumulation of dissolved chromium from the chromium rich soils known to occur in the Project region.

Total chromium concentrations were recorded below the EA contaminant limit of 1 mg/L at all sites during both release sampling events.

Cobalt

During the follow-up sampling event, the sediment dam recorded an elevated cobalt level of 0.002 mg/L when compared to the EA trigger level of 0.0014 mg/L. All other water quality samples collected during the initial and follow-up sampling events were found to contain dissolved cobalt levels below detection limits. No impacts were recorded downstream of the release point with cobalt concentrations falling below detection limits in the downstream receiving environment.

Total cobalt concentrations were recorded below the EA contaminant limit of 1 mg/L at all sites during both release sampling events.

Copper

Dissolved copper concentrations were found to be elevated at three downstream sites during the initial release sampling event, when compared to the EA trigger level of 0.0014 mg/L. The ROM RL and Snake Creek Downstream sites both recorded a concentration of 0.003 mg/L. The sediment dam recorded a concentration of 0.002 mg/L, which was consistent with concentrations recorded at upstream sampling points Snake Creek US and Dingo Dam RL. All sites sampled during the follow-up sampling event recorded dissolved copper concentrations at or below the detection limit (0.001 mg/L).

Total copper concentrations were recorded below the EA contaminant limit of 1 mg/L at all sites during both release sampling events.

Nickel

Dissolved nickel concentrations were recorded below the EA trigger level of 0.011 mg/L. One exceedance of the trigger level was recorded at the sediment dam (0.026 mg/L) during the follow-up sampling event. Given that both downstream sampling points on Snake Creek recorded dissolve nickel concentrations below detection limits (0.001 mg/L), no impacts were detected downstream of the release point.

Total nickel concentrations were recorded below the EA contaminant limit of 1 mg/L at all sites during both release sampling events.

No other water quality exceedances were recorded during either of the release sampling events.

In summary, the only metal concentration exceedance noted in the Project's downstream receiving environment was dissolved aluminium. Dissolved aluminium concentrations

recorded at upstream sites on Snake Creek were equally elevated indicating these levels may be indicative of natural concentrations in the region of the Project site. Overall, the release event is not considered to have had detrimental impacts on the Project's receiving environment.

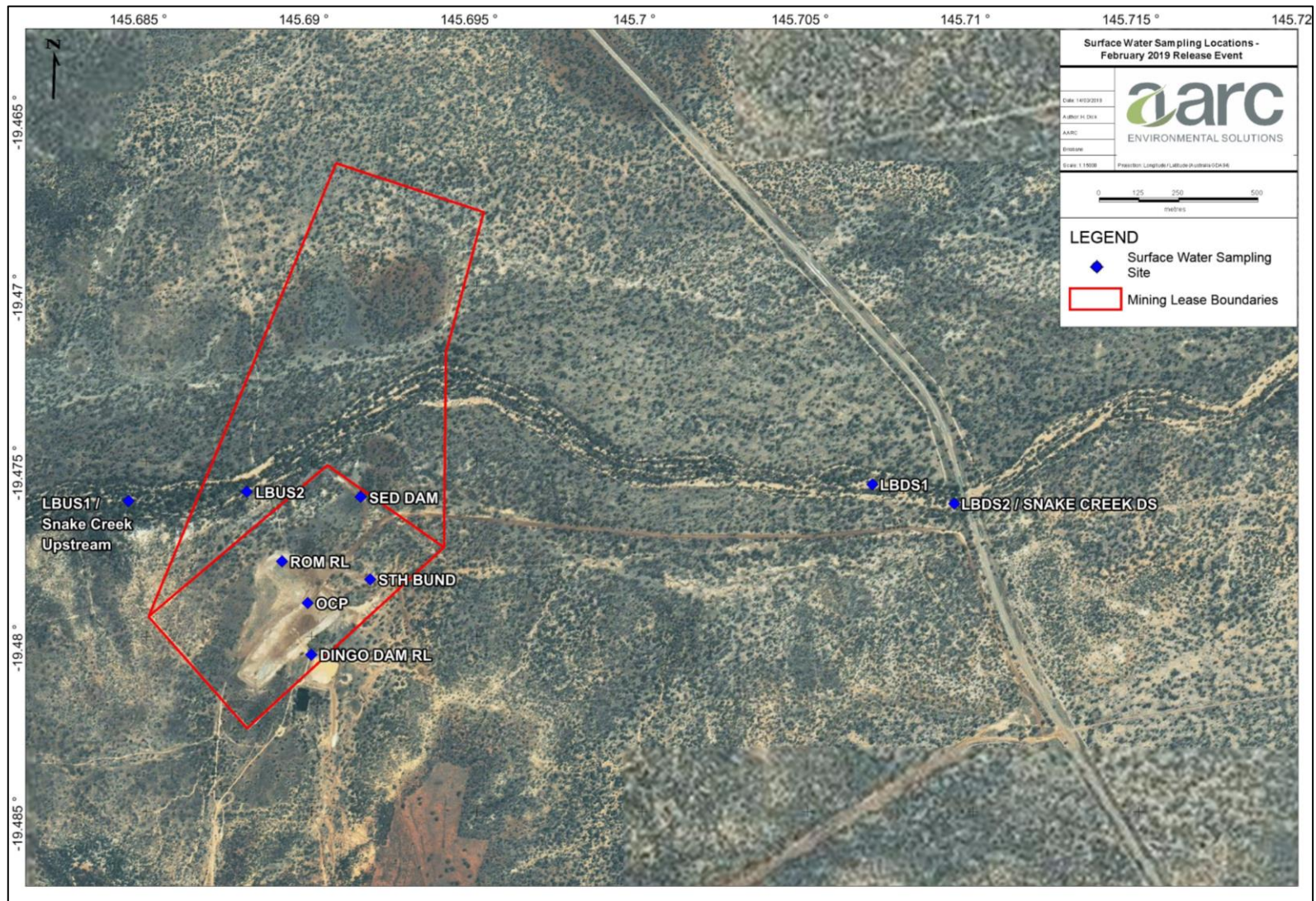


Figure 1 Surface Water Sampling Locations

Table 1 Release Event Water Quality Results and Analysis

Sample Date:			EA Trigger Level	EA contaminant Limit	07/02/2019	07/02/2019	19/02/2019	19/02/2019	19/02/2019	07/02/2019	07/02/2019	07/02/2019	19/02/2019	18/02/2019	18/02/2019	19/02/2019	19/02/2019	19/02/2019
Sample ID:					SNAKE CREEK US	DINGO DAM RL	LBUS1	LBUS2	DINGO DAM RL	ROM RL	SED DAM	SNAKE CREEK DS	STH BUND	OCP	ROM RL	SED DAM	LBDS1	LBDS2
					UPSTREAM / REFERENCE SITES							DOWNSTREAM / IMPACT SITES						
Analyte	Unit	LOR																
In-situ Measurements																		
pH		low	6	6	---	---	7.08	7.26	7.58	---	---	---	7.35	7.52	7.39	7.03	7.27	7.75
		high	8.6	9														
Electrical Conductivity @ 25°C	µS/cm	---	888	1000	---	---	101.1	100.9	91.8	---	---	---	108.9	89.3	111.5	173.1	103	102.7
Turbidity	NTU	---	---	---	---	---	21.8	21.3	184	---	---	---	155.3	460.2	313.9	91.8	29.6	30.1
Total Dissolved Solids	mg/L	---	---	---	---	---	65.7	65.6	27.18	---	---	---	70.79	58.05	72.5	112.5	66.92	66.75
Laboratory Testing																		
pH Value	pH Unit	0.01	---	---	6.75	6.78	6.8	6.94	6.86	6.64	6.72	6.83	6.94	6.87	7.02	7.06	7.14	7.12
Sodium Adsorption Ratio		0.01	---	---	0.77	1.86	1.63	1.63	1.55	1.69	1.2	0.77	1.27	1.55	1.55	1	1.63	1.53
Electrical Conductivity @ 25°C	µS/cm	1	---	---	59	90	108	107	95	68	75	58	119	96	100	183	108	108
Total Dissolved Solids (Calc.)	mg/L	1	---	---	38	58	70	70	62	44	49	38	77	62	65	119	70	70
Total Hardness as CaCO3	mg/L	1	---	---	12	11	18	18	13	4	11	12	20	13	13	48	18	18
Hydroxide Alkalinity as CaCO3	mg/L	1	---	---	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	mg/L	1	---	---	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	mg/L	1	---	---	25	24	31	32	22	16	26	27	35	23	32	64	34	38
Total Alkalinity as CaCO3	mg/L	1	---	---	25	24	31	32	22	16	26	27	35	23	32	64	34	38
Sulfate as SO4 - Turbidimetric	mg/L	1	---	1000	<1	3	<1	<1	2	4	2	<1	2	4	3	2	1	1
Chloride	mg/L	1	---	---	5	12	14	14	14	9	8	5	15	13	13	14	13	13
Fluoride	mg/L	0.1	---	---	<0.1	0.2	0.1	0.1	0.1	0.2	0.1	<0.1	0.1	0.1	0.1	0.2	0.1	0.1
Ammonia as N	mg/L	0.01	---	---	0.06	0.1	0.03	0.03	0.07	0.18	0.11	0.07	0.13	0.06	0.04	0.06	0.04	0.04
Nitrite as N	mg/L	0.01	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	0.01	---	---	0.05	0.34	0.2	0.18	0.01	0.34	0.17	<0.01	<0.01	0.16	0.14	<0.01	0.01	0.01
Nitrite + Nitrate as N	mg/L	0.01	---	---	0.05	0.34	0.2	0.18	0.01	0.34	0.17	<0.01	<0.01	0.16	0.14	<0.01	0.01	0.01
Total Kjeldahl Nitrogen as N	mg/L	0.1	---	---	0.3	0.5	0.5	0.2	0.5	0.7	0.5	0.3	0.6	0.5	0.6	0.9	0.2	0.2
Total Nitrogen as N	mg/L	0.1	---	---	0.4	0.8	0.7	0.4	0.5	1	0.7	0.3	0.6	0.7	0.7	0.9	0.2	0.2
Total Phosphorus as P	mg/L	0.01	---	---	0.03	0.12	0.04	0.01	0.04	0.1	0.08	0.02	0.05	0.08	0.09	0.07	0.01	0.02

Sample Date:			EA Trigger Level	EA contaminant Limit	07/02/2019	07/02/2019	19/02/2019	19/02/2019	19/02/2019	07/02/2019	07/02/2019	07/02/2019	19/02/2019	18/02/2019	18/02/2019	19/02/2019	19/02/2019	19/02/2019
Sample ID:					SNAKE CREEK US	DINGO DAM RL	LBUS1	LBUS2	DINGO DAM RL	ROM RL	SED DAM	SNAKE CREEK DS	STH BUND	OCP	ROM RL	SED DAM	LBDS1	LBDS2
Analyte	Unit	LOR			UPSTREAM / REFERENCE SITES							DOWNSTREAM / IMPACT SITES						
Reactive Phosphorus as P	mg/L	0.01	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Anions	meq/L	0.01	---	---	0.64	0.88	1.01	1.03	0.88	0.66	0.79	0.68	1.16	0.91	1.07	1.72	1.07	1.15
Total Cations	meq/L	0.01	---	---	0.57	0.87	1.11	1.11	0.91	0.52	0.68	0.57	1.09	0.91	0.91	1.83	1.11	1.07
Ionic Balance	%	0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Calcium	mg/L	1	---	---	3	1	4	4	2	<1	1	3	3	2	2	6	4	4
Magnesium	mg/L	1	---	---	1	2	2	2	2	1	2	1	3	2	2	8	2	2
Sodium	mg/L	1	---	---	6	14	16	16	13	9	9	6	13	13	13	16	16	15
Potassium	mg/L	1	---	---	3	2	2	2	3	2	3	3	5	3	3	7	2	2
Dissolved Metals																		
Aluminium	mg/L	0.01	0.055	---	0.53	1.19	0.43	0.35	0.69	4.16	1.06	0.67	0.48	0.6	0.46	0.4	0.5	0.29
Arsenic	mg/L	0.001	0.013	---	0.001	<0.001	0.002	0.002	0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	0.004	0.002	0.002
Cadmium	mg/L	0.0001	0.0002	---	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	0.001	0.001	---	<0.001	0.002	<0.001	<0.001	<0.001	0.004	0.002	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	0.001	0.0014	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
Copper	mg/L	0.001	0.0014	---	0.002	0.002	0.001	<0.001	0.001	0.003	0.002	0.003	0.001	0.001	0.001	<0.001	0.001	0.001
Lead	mg/L	0.001	0.0034	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	mg/L	0.001	0.011	---	<0.001	0.006	<0.001	<0.001	0.004	0.004	0.01	<0.001	0.004	0.005	0.008	0.026	<0.001	<0.001
Zinc	mg/L	0.005	0.008	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	mg/L	0.0001	---	---	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Metals																		
Aluminium	mg/L	0.01	---	5	2.21	7.4	1.73	1.42	2.46	7.08	6.13	1.51	2.47	5.42	4.97	1.68	1.57	1.57
Arsenic	mg/L	0.001	---	0.5	0.002	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.003	0.003
Cadmium	mg/L	0.0001	---	0.01	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	0.001	---	1	0.002	0.029	<0.001	<0.001	0.007	0.023	0.029	0.001	0.007	0.021	0.019	0.006	<0.001	<0.001
Cobalt	mg/L	0.001	---	1	<0.001	0.004	<0.001	<0.001	<0.001	0.003	0.004	<0.001	0.001	0.003	0.004	0.006	<0.001	<0.001
Copper	mg/L	0.001	---	1	0.004	0.011	0.002	0.002	0.004	0.01	0.01	0.004	0.003	0.008	0.007	0.002	0.002	0.003
Lead	mg/L	0.001	---	0.1	0.005	0.005	0.002	0.002	0.001	0.004	0.004	0.003	0.002	0.004	0.004	<0.001	0.002	0.002
Nickel	mg/L	0.001	---	1	0.001	0.063	<0.001	<0.001	0.009	0.017	0.094	<0.001	0.014	0.039	0.046	0.042	<0.001	<0.001
Zinc	mg/L	0.005	---	20	0.007	0.022	<0.005	<0.005	0.011	0.02	0.017	0.007	0.007	0.016	0.015	0.006	<0.005	<0.005
Mercury	mg/L	0.0001	---	---	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Key:

LOR refers to the Limit of Reporting.

xxxx indicates an exceedance of the EA Trigger Level.

xxxx indicates an exceedance of the EA Contaminant Release Limit.

Outcomes of Actions Taken (Condition A13b)

The following Actions were undertaken during the release event:

- a) Water quality sampling was completed both at the time of the release and during a follow-up sampling event; and
- b) The flow of stormwater runoff was redirected to prevent further overtopping of the residual void, thereby minimising environmental harm.

Water quality samples were collected from the upstream and downstream receiving environment and mine affected sampling points including the sediment dam. Mine affected water reaching the sediment dam was likely to be significantly diluted by overland flows from upstream of the mine. Water quality results confirmed that any contaminants sourced from the ML were significantly diluted in the downstream receiving environment.

Throughout the release period, the stormwater diversion bund in the south of the ML and the two dams located adjacent to the ML collected a large volume of stormwater which under the current water management strategy is directed onto the ML and eventually into the sediment dam. To minimise the clean water catchment reaching the residual void, Dingo Dam was isolated from the upstream stock watering dam and excess water was pumped out of Dingo Dam.

Proposed actions to prevent a recurrence (Condition A13(c))

At the time of mine closure and site rehabilitation, a portion of the bund between Dingo Dam and the residual void was constructed as a spillway at the landholder's request (i.e. Spyglass Research Station). The spillway has since eroded to create a significant gully allowing the release of water from Dingo Dam into the residual void.

The rainfall event that occurred at the time of the release was more severe than '1 in 100 year' event and is not likely to be repeated. As with the current release, site conditions will be closely monitored during any future periods of heavy or prolonged rainfall. With assistance from Spyglass personnel, dam levels and site rainfall will be monitored closely. A pump is permanently installed at Dingo Dam and water will be pumped out of the dam as soon as any potential for overtopping is identified. This stormwater management strategy was successfully implemented during the release event to prevent further overtopping from Dingo Dam into the residual void. With the knowledge of the risk and cause of overtopping gained during this release event, a more proactive water management approach will be implemented prior to the dams reaching critical levels.

I trust this notification meets the EA requirements.

Kind regards,



Hollie Dick
Environmental Scientist
AARC Environmental Solutions Pty Ltd
hdick@aacrc.net.au

REPORT

AUSTRALIAN MINES LIMITED

DINGO DAM – HYDROGEOLOGICAL ASSESSMENT

Short Report



4/06/2019

Submitted to:
**Hollie Dick and
Thomas Rose**

Report Number: 19040104-020-R02

Executive Summary

The open pit is located in an area of very low hydraulic permeability resulting in minimal transport potential of water and dissolved solids. Based on current information, seepage potential to outflow points is minimal and would require an extensive time period to migrate through the subsurface.

In the assessment a homogenous composition of the sub-base was assumed, however from core hole logging data and modelling, the area surrounding Dingo Dam is heterogenous. An impermeable intrusive body is present up-gradient from the site, Dingo Dam is located in lateritic material and down-gradient geological formations consist of intrusive bodies with highly weathered material intercalating these formations resulting in low to near-impermeable zones in the subsurface.

Overland flow is the most likely source of impact on the environment and Dingo Dam which can be augmented with culverts to minimise catchment area.

Current understanding of the geological and hydrogeological setting would indicate that flow from Snake Creek into the open pit void is extremely low with overland flow the most likely pathway to connect these bodies.

Contents

1	Introduction.....	1
1.1	Background Information	1
1.1.1	Bore Hole Data	1
2	Site Data.....	2
2.1	Land Surface and Slope.....	2
2.2	Rainfall and Evaporation.....	2
2.3	Soils.....	4
2.4	Local Geology	7
2.4.1	Regional Geological Cross-sections	8
2.4.2	Pit void cross-sectional analysis	10
3	Hydrogeology	13
3.1	Permeability Estimates of Strata Identified.....	13
3.1.1	Drainage Potential of Soils	13
3.1.2	Alluvium (All)	13
3.1.3	Laterite and Saprolite Units (Lfe, Lsi, Wum and Lsap)	14
3.1.4	Intrusives (Amp, Grn and Ser).....	14
3.2	Conceptual Hydrogeological Model	14
3.3	Water Quality Data.....	17
4	Conclusion	18
5	References.....	19
6	Appendix.....	20
6.1	Groundwater Bore Data	20

List of Figures

Figure 2-1	Aerial image of Dingo Dam and Luck Break areas with general slope directions ..	2
Figure 2-2	Averaged daily rainfall, land evaporation and shallow lake evaporation rates (mm/d).....	3
Figure 2-3	Annual rainfall and evaporation values.....	4
Figure 2-4	Cross-cut section of pit zone (complements of AARC 2019).....	5
Figure 2-5	Soil types at Dingo Dam site and Snake Creek.....	5
Figure 2-6	Local surface geology of Dingo Dam Site.....	8
Figure 2-7	Drill hole data points and cross-sections.....	9
Figure 2-8	Cross-section A-A'	9
Figure 2-9	Cross-section B-B'.....	10
Figure 2-10	Detailed cross-sectional model areas	10

Figure 2-11 Cross-sections 1-1' and 2-2'	11
Figure 2-12 Cross-section 3-3' and 4-4'	12
Figure 3-1 Calculated seepage rates and duration in years (labels) to reach seepage target of Alluvium materials.....	16
Figure 3-2 Calculated seepage rates and duration in years (labels) to reach seepage target of Snake Creek	17
Figure 3-3 Piper Diagram of open cut water quality	17

List of Tables

Table 1-1 Summary of bores in 20 km radius of Dingo Dam	1
Table 2-1 Soil class and properties	6
Table 2-2 Generalised soil profiles to a depth of 180 cm	7

1 INTRODUCTION

The Project Site is located on Lucky Break Station, approximately 90 km north of Charters Towers. The tenements include Mining Lease (ML) 10324 with an area of 78.2 ha (Dingo Dam) and ML 10332 which occupies an area of approximately 153 ha (Lucky Break).

The Dingo Dam Pit is approximately 350-400 m long by 50-80 m wide (3.2 ha) with a surveyed depth of less than 12 m from natural surface level to bottom of pit. Pit floor elevation on the north-east is estimated to be located at 335 mAHD while the south-western section is at 336 mAHD. For the purposes of this assessment it will be assumed that the pit floor is flat with a mean elevation of 335 mAHD. Due to the geometry of the pit it will be assumed that a seepage face of 100 m is sufficient to describe the properties of the volume produced in the down-gradient direction.

1.1 Background Information

1.1.1 Bore Hole Data

A twenty-kilometre search radius (DNRM, 2018a) was applied to identify relevant bores, with a total of seven data points identified (Appendix A). These bores are list in Table 1-1, with bores 125281, 166167 and 166783 within a ten-kilometre radius. The three bores were selected due to proximity and higher likelihood to reflect local hydrogeological conditions.

- Bore 166167 had a water strike in a gravel sand layer contact between two clay lenses at a depth of 51 mbgl and is approximately five-kilometres east of the site. A yield of 5.0 L/s were reported but water quality was brackish. Groundwater level was 33 mbgl.
- Bore 125281 had a water strike in basalt at 59 mbgl and is approximately seven-kilometres south-west of the site. It reported a yield of 4.5 L/s and water quality was potable. Groundwater level was 12 mbgl.
- Bore 166783 had a water strike in a gravel-sand layer contact and is at the eastern periphery of the ten-kilometre radius. It reported a yield of 2.5 L/s and water quality was potable. Groundwater level was 17 mbgl. It is located to the east of Bore 166167.

Table 1-1 Summary of bores in 20 km radius of Dingo Dam

Bore ID	Purpose	Geology	Lat	Long	Bore Depth (m)	Aquifer Depth (mbgl)	SWL (m)	Yield (L/s)
125281	Water Supply	Basalt	-19.5695	145.6813	68	59	-12	4.5
166167	Water Supply	Gravel	-19.5179	145.7777	63	51	-33	5.0
166783	Water Supply	Gravel	-19.5171	145.8419	33	24	-17	2.5
166533	Water Supply	Granite	-19.3733	145.6323	32	21	-10	0.3
120100014	Monitoring	Basalt	-19.6649	145.7257	49	32		0.5
166125	Water Supply	Granite	-19.3307	145.6537	43	29	-23	0.1
12010002	Monitoring	Basalt	-19.6654	145.7065	55	34	-26	

Groundwater data indicates that potable groundwater resource is present at the site but that it is located at depths in excess of 50 – 60 mbgl. Potable water supply exists within basalt and

brackish water between clay lenses. In the latter instance it could be present above the basalt layer.

2 SITE DATA

2.1 Land Surface and Slope

Dingo Dam and Lucky Break is bisected by Snake Creek, with the major portion of Lucky Break located to the north of the creek while Dingo Dam is to the south (Figure 2-1). The terrain slope is moderate to low, with an estimated slope of less than 1° or 1.5% for Dingo Dam while Lucky Break indicates a similar profile. General contour slope directions are indicated in Figure 2-1 with the mining lease boundaries of the site included.

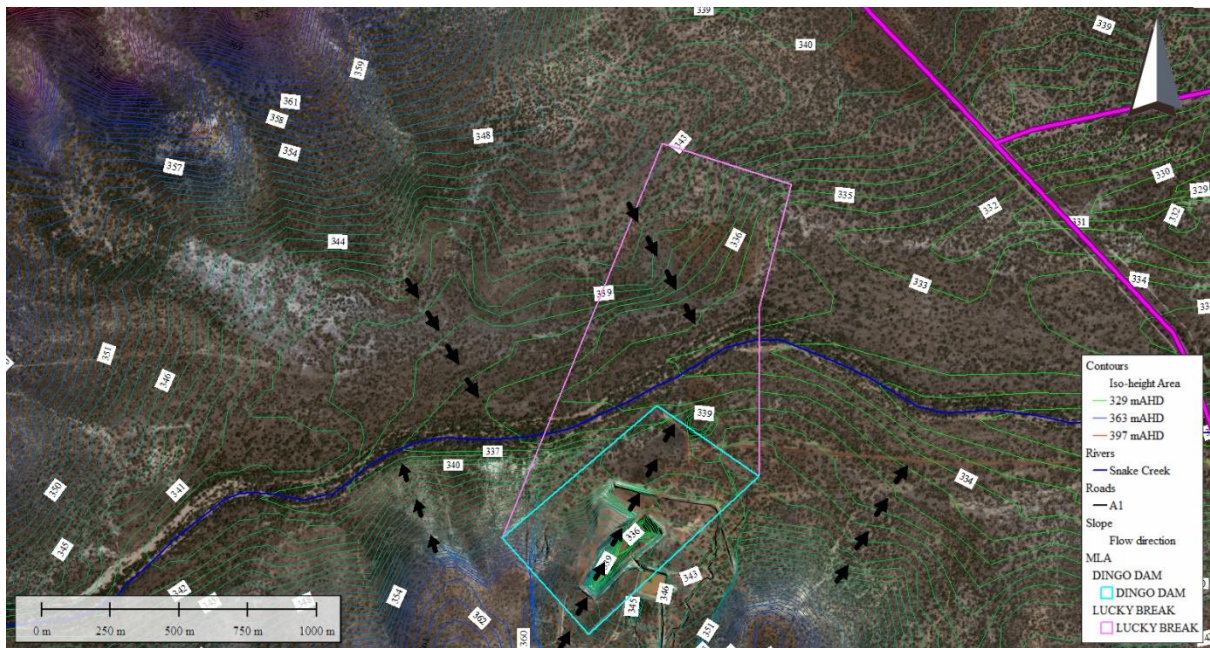


Figure 2-1 Aerial image of Dingo Dam and Luck Break areas with general slope directions

2.2 Rainfall and Evaporation

The Queensland Government Department of Science, Information Technology and Innovation (DSITI) Data Drill system was used to extract SILO (Jeffrey et al., 2001) data for the coordinates -19.45, 145.70 (Lat, Long) with an elevation of 397 m. The Morton data set format was used as it supplies evaporation over shallow lakes and actual evapotranspiration over land (Morton, 1983). Data interval ranged from 1 January 1889 to 31 March 2019.

Average daily rainfall is shown in Figure 2-2 and is accompanied with the average daily evaporation rate over shallow lakes and actual land evaporation. A general deficit is observed on a daily basis for shallow lake evaporation rates compared to rainfall. However, actual land evaporation average values are less than rainfall in January and February with the remainder of the year indicating a substantial difference favouring evaporation.

This trend of increased evaporation rates is propagated to annualised totals (Figure 2-3). The calculated long-term average rainfall is approximately 606 mm/year while evaporation from

land surface is approximately 1216 mm/year. In contrast evaporation from shallow lakes (proxy for Dingo Dam) is in the order of 1851 mm/year. From Figure 2-3 there is limited probability that rainfall will exceed land-based evaporation totals which is significantly less than lake evaporation values. It is considered that on an annual basis, limited potential for long-term storage of water in dam structures would be viable in this area unless enough catchment and storage capacity is available to overcome the deficit.

A water balance model is currently being prepared by ATC Williams but for the purposes of this assessment it will be assumed that no long-term ponding of water captured within the pit is possible and would be available for infiltration for less than 3 days. A similar approach is followed for Snake Creek which will have a limited potential to retain flood levels for more than three consecutive days.

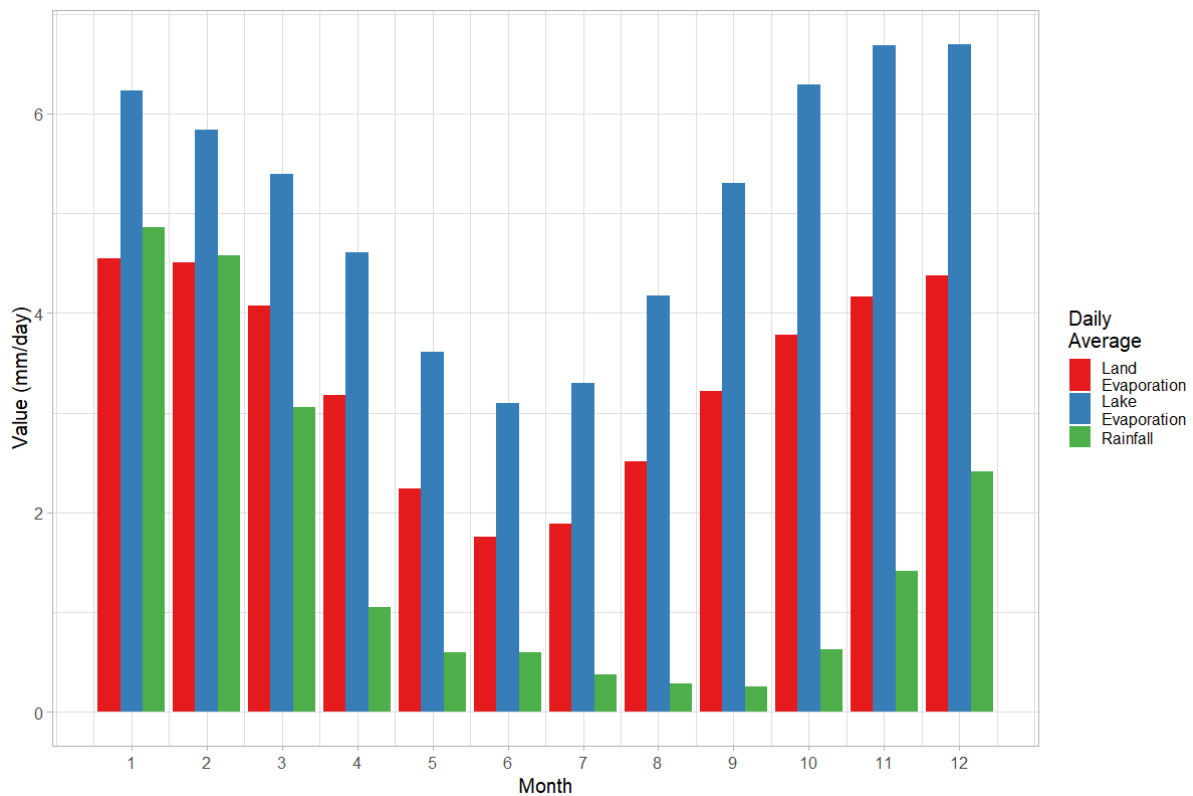


Figure 2-2 Averaged daily rainfall, land evaporation and shallow lake evaporation rates (mm/d)

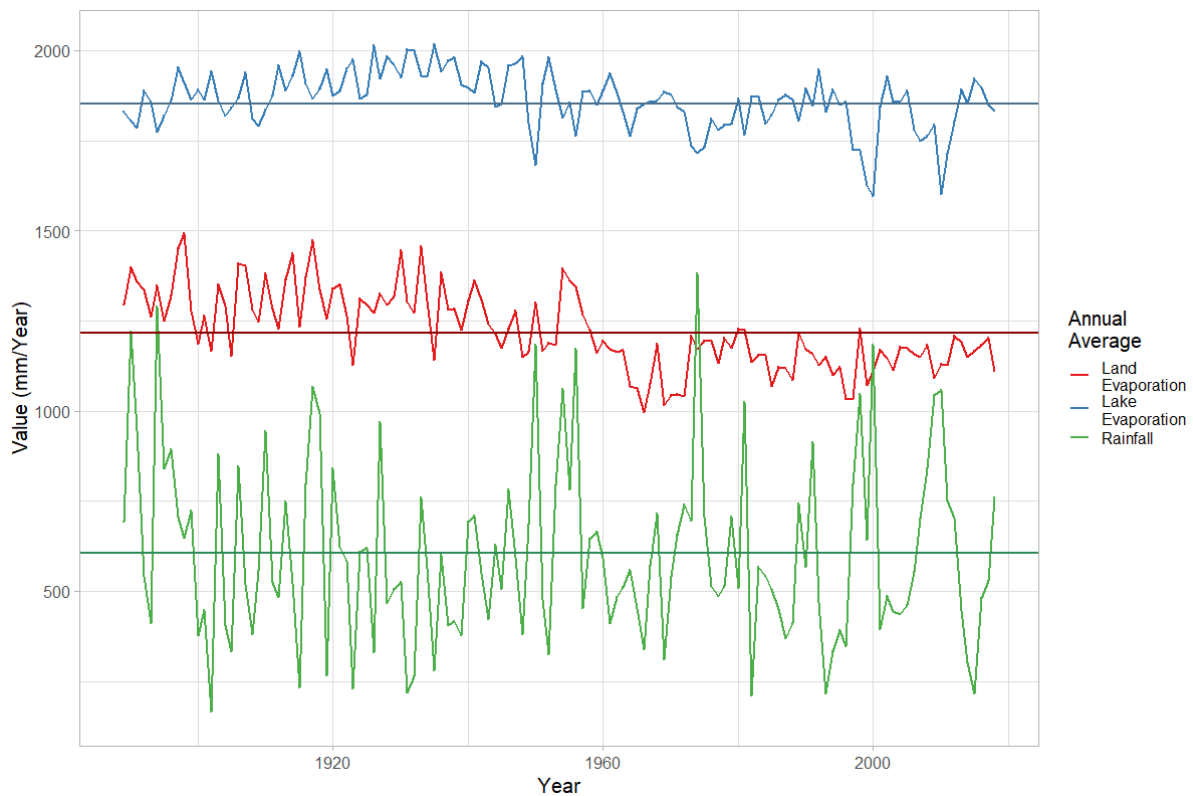


Figure 2-3 Annual rainfall and evaporation values

2.3 Soils

Data for this section is derived from the Dalrymple land resource survey (DNRQ980090) completed in 1999. Permeability of soils were estimates from cumulative infiltration data for soil types in Table 16 of the report as well as guidance from ASRIS spatial database maintained by the CSIRO (ASRIS, 2016). The site is located in an elevated position on a crest line with a gentle slope toward Snake Creek.

Table 2-1 and Table 2-2 presents a summary of soil types available at the site with a spatial distribution of soils shown in Figure 2-5. The Dingo Dam site is generally located within the Corea – CR3t unit which is indicative of a Cainozoic chromosol with an extremely low permeable base layer at an approximate depth of 0.5 m below ground level (mbgl). This massively structured clay layer has a permeability of 9 mm/hr or 216 mm/day infiltration potential (Figure 2-4).



Figure 2-4 Cross-cut section of pit zone (complements of AARC 2019)

In contrast to the Corea soil types, the Conolly – CO4d is located to the west and represents a modern soil with high permeability and minimal depth of soil development. It is a result of weathering and classed as rapidly draining over the underlying bedrock unit. Upgradient, to the south of the site, Pentland – PE1n soil is present which is moderately well drained but has limited deep drainage potential due to clay layers from 0.5 mbgl to 1.5 mbgl.

Down gradient of the site, Cape/Burdekin – CPBU2t, soils are present that are poorly drained and low to moderate infiltration capacity of approximately 60 mm/hr or 1440 mm/day. It is attributed to silty loam or clay that is present in the subsurface although the soil profile is not extensively developed. However, laterite outcrops have been mapped in this soil class zone (Figure 2-5) and would indicate alluvium being washed over a reworked paleo-land surface.

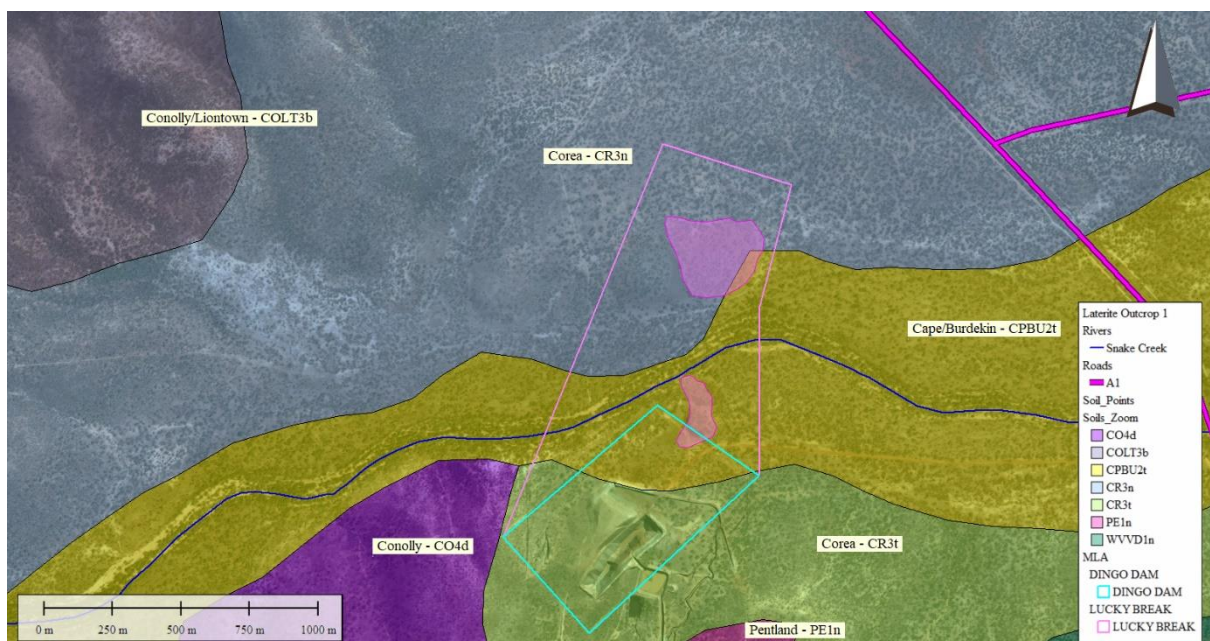


Figure 2-5 Soil types at Dingo Dam site and Snake Creek

Table 2-1 Soil class and properties

Map code	Description	Permeability (mm/hr)
CO4d – Conolly, Moderately inclined (10 - 32%); shallow (50 cm) to hard rock	Shallow grey, brown and yellowish-brown sands on granite. Rudosol – Igneous	1 – 226 (25) 3 – 199 (38)
COLT3b – Conolly/Liontown, Gently inclined (3 - 10%); badlands, badly eroded with steep short slopes	Shallow grey, brown and yellowish-brown sands on granite. Rudosol – Igneous	1 – 145 (19) 3 – 115 (30)
CR3n – Corea, gently inclined (3-10%)	Very dark grey to dark brown sand to sandy loam over massive to structured yellowish-brown clay. Chromosol – Cainozoic	1 – 182 (18) 2 – 122 (42) 3 – 7 (28)
CR3t – Corea, Gently inclined (3 - 10%); short slopes / dissected	Very dark grey to dark brown sand to sandy loam over massive to structured yellowish brown clay. Chromosol – Cainozoic	1 – 206 (18) 2 – 118 (41) 3 – 9 (31)
CPBU2t – Cape/Burdekin, very gently inclined (1 - 3%); short slopes / dissected	Very dark greyish brown silty loam to clay loam over alkaline structured dark brown/yellowish to brown clay/often mottled. Tenosol – Alluvial	1 – 76 (13) 3 – 51 (22) 4 – 49 (80)
PE1n – Pentland, Level (0 - 1%); no apparent limitation	Dark reddish brown to dark brown sandy clay loams grading to earthy red-light clay. Kandosol – Cainozoic	1 – 27 (1) 2 – 18 (20) 3 – 9 (21) 4 – 6 (84)
WVVD1n – Wattle Vale/Victoria Downs, Level (0 - 1%); no apparent limitation	Dark greyish brown loose to firm loamy sand to sandy loam grading to yellowish brown to yellow sandy clay loams. Vertosol – Cainozoic	1 – 112 (21) 3 – 7 (24)

Table 2-2 Generalised soil profiles to a depth of 180 cm

Cape	Burdekin	Pentland	Corea
Conolly	Liontown	Victoria Downs	Wattle Vale

2.4 Local Geology

The surface geological setting of the site is presented in Figure 2-6, with the open pit located in a region dominated by remnants of an ultramafic rock intrusion (sp) from the Argentine Metamorphics from Neoproterozoic – early Palaeozoic age. It consists of serpentinite, minor talc-tremolite schist and clinopyroxenite and has limited water production capacity due to limited fracture networks (DNRM, 2018b).

To the west of the open pit, Whipple Spring Granite (Cgwh) intrusion is present and is defined as a coarse-grained porphyritic biotite granite (Figure 2-6).

To the west and south of the open pit, poorly consolidated sediments (TQa,Qr) of the late tertiary and quaternary age is present. It consists of locally red-brown mottled, poorly consolidated sand, silt, clay, minor gravel; high-level alluvial deposits, generally dissected,

and related to present stream valleys. Due to clay content of this formation, hydraulic conductivity is generally low.

North of the open pit, quaternary age alluvium (Qa) is present which is related to flood-plains and consist of clay, silt, sand and gravel. This zone is expected to act as a receptor for seepage from the open pit, should it occur.

In the far north, colluvium (TQr) is present in the subsurface and consist of clay, silt, sand, and gravel.

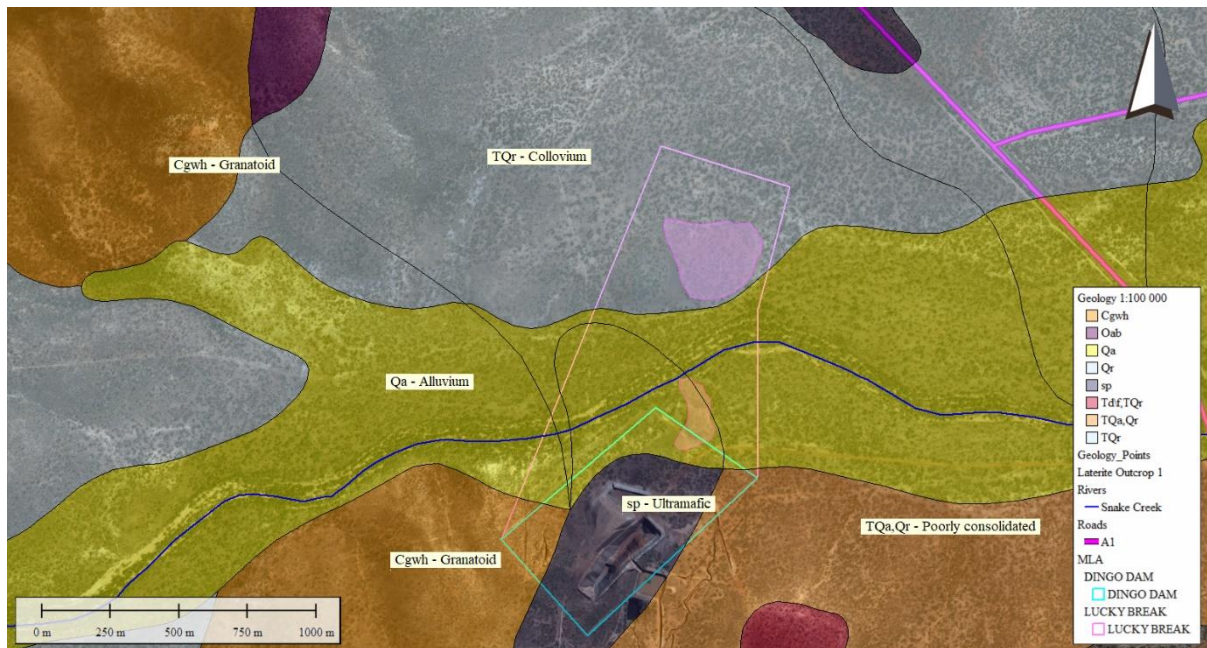


Figure 2-6 Local surface geology of Dingo Dam Site

2.4.1 Regional Geological Cross-sections

Due to the setting of the open pit, a block model was developed in RockWorks and cross-sections that extend down-gradient were prepared (RockWare, 2016). Drill hole data and cross-sections are shown in Figure 2-7. The model was constructed with all the available information to ensure that the greatest number of data points were included in the three-dimensional lithological model. It should be noted that logging data was used without modification and is based on the current understanding and interpretation of the data.

The first cross-section (A-A') is presented in Figure 2-8, the open pit void is approximately located at 0 – 50 m with the embankment in the interval of 50 – 150 m. A bund wall is approximately positioned at 400 m and Snake Creek zone extends from 750 – 1000 m in the cross-section. The model indicates that the Pit Void is located within amphibolite and ferruginous laterite. The embankment is placed on the ferruginous laterite and weathered ultramafic unit material. Snake Creek is in an Alluvium channel deposit and is emplaced in granitoid rock, ferruginous laterite and weathered ultramafic unit material.

Cross-section (B-B') is shown in Figure 2-9 with the open pit void approximately located at 1200 m, embankment at 1000 m, bund at 900 m and Snake Creek zone from 500 – 750 m. The pit void is located on top of a weathered ultramafic unit and is mainly located in

ferruginous laterite. An edge of the pit does seem to extend into alluvium type material to an approximate depth of 340 mAHD.

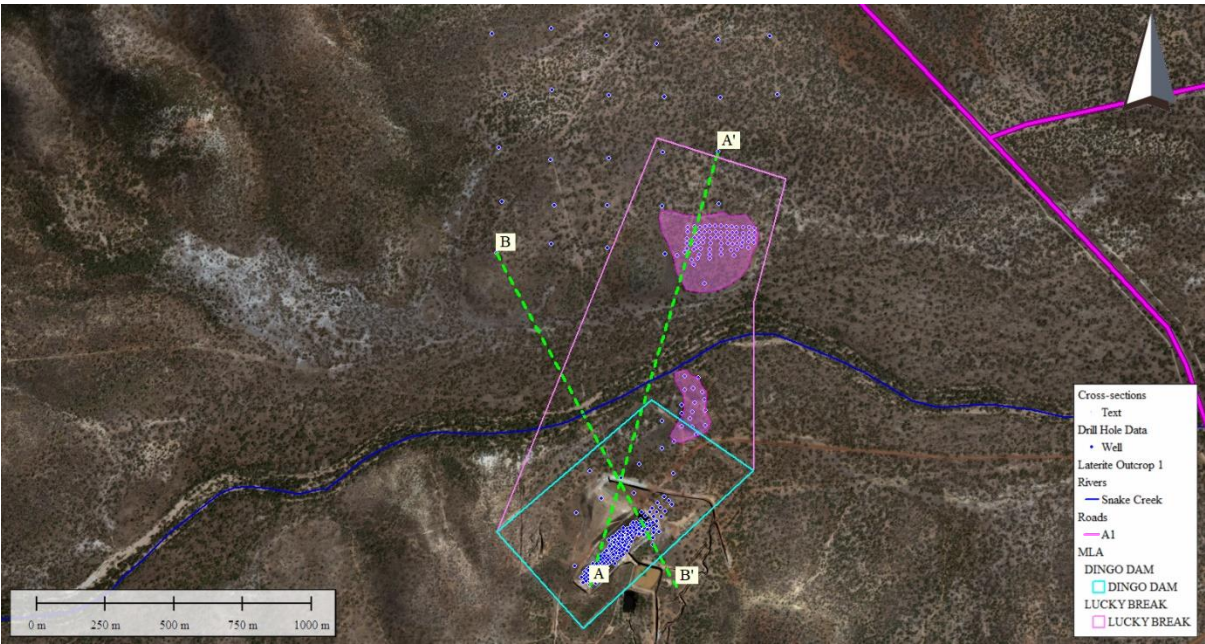


Figure 2-7 Drill hole data points and cross-sections

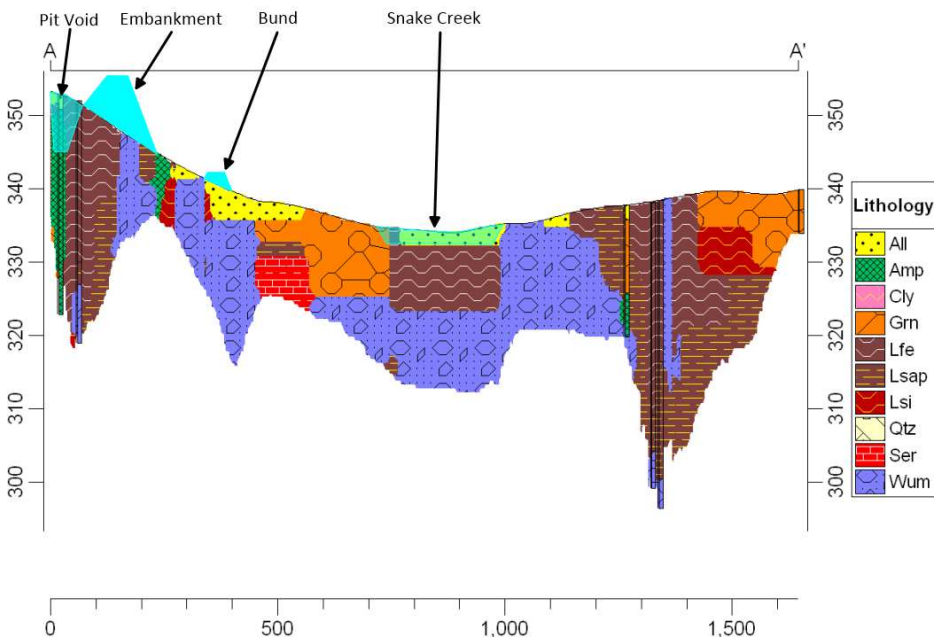


Figure 2-8 Cross-section A-A'

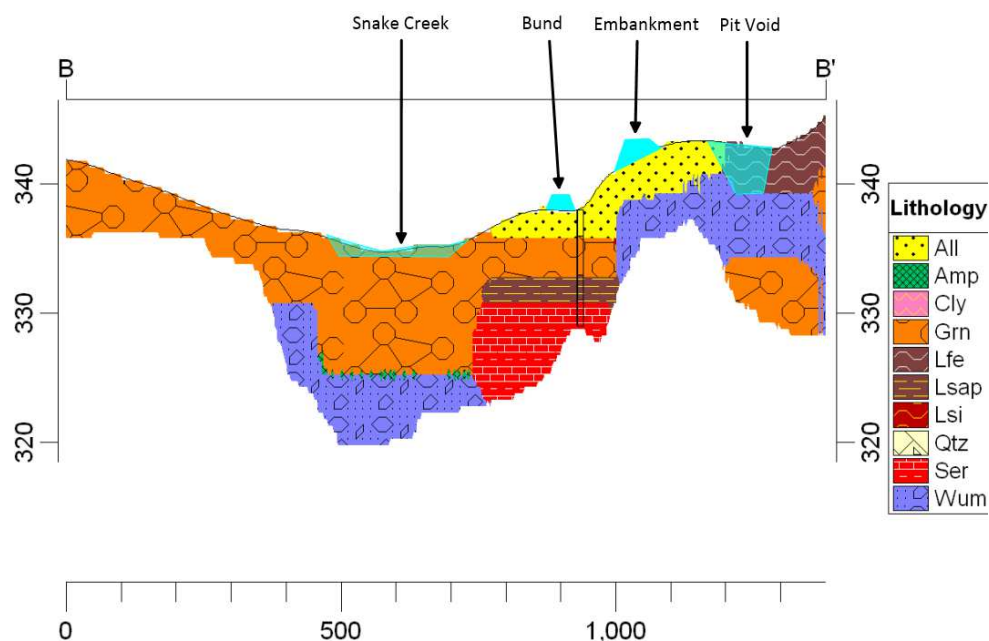


Figure 2-9 Cross-section B-B'

2.4.2 Pit void cross-sectional analysis

In Figure 2-9 a section of the pit void does seem to extend into an alluvium type material. To investigate the extent of this modelled zone, a detailed cross-sectional zone of the pit void area was developed. Cross-sections were selected that included most of the drill core data with four transects selected as shown in Figure 2-10. Three transects were near parallel to the pit main long axis with two crossing the pit and the third running parallel to the down-gradient pit area. The fourth transect is perpendicular to the long axis of the pit.

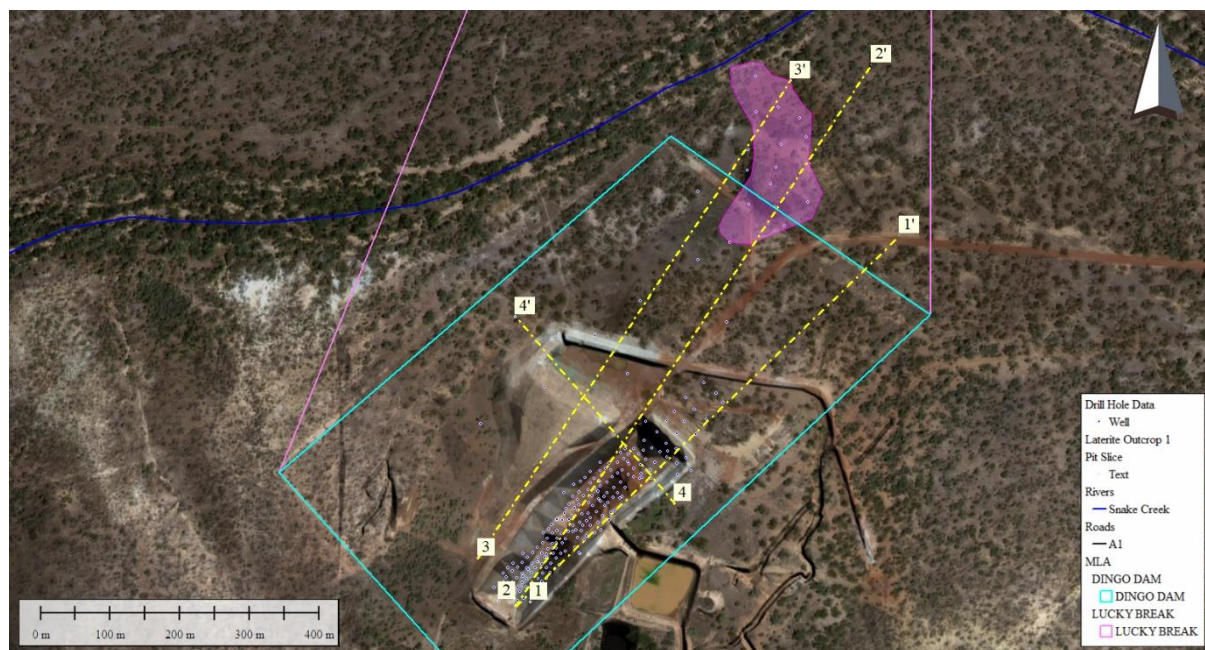


Figure 2-10 Detailed cross-sectional model areas

The four cross-sections are presented in Figure 2-11 and Figure 2-12. Relevant structures were indicated, i.e., pit void, embankments and bund walls.

In Figure 2-11, cross-sections 1-1' and 2-2' are presented with the pit void developed in the ferruginous laterite zone. Down-gradient of the site alluvium type material is present indicating a limited lateral scope before extending into granitoids and ferruginous laterite. No significant sand lenses are observed in the profile, which would be consistent with laterization of the profile.

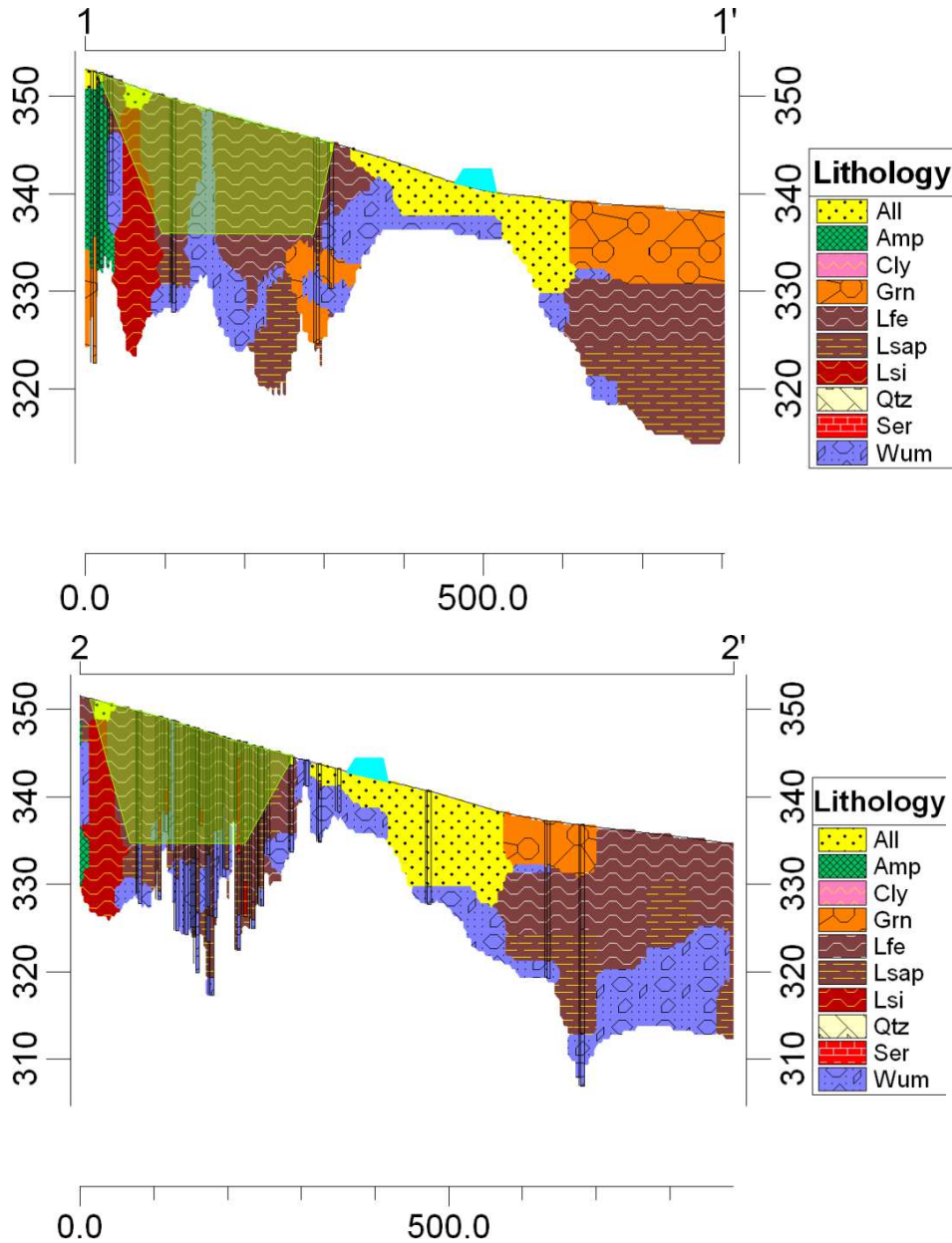


Figure 2-11 Cross-sections 1-1' and 2-2'

Cross-section 3-3' (Figure 2-12) is parallel to the pit long axis but is located approximately 5 to 20 m down-gradient of the pit void. Ferruginous laterite is observed as streamers with weathered ultramafic material present in profile along this cross-section. Limited alluvial material is present on surface which terminates on a granitic intrusion.

Cross-section 4-4' is the perpendicular cross-section that transects the pit void. The pit is developed in the ferruginous laterite and limited alluvial material is recorded in the vicinity

of the cross-section. Instead siliceous laterite is present before transgressing in weathered ultramafic material.

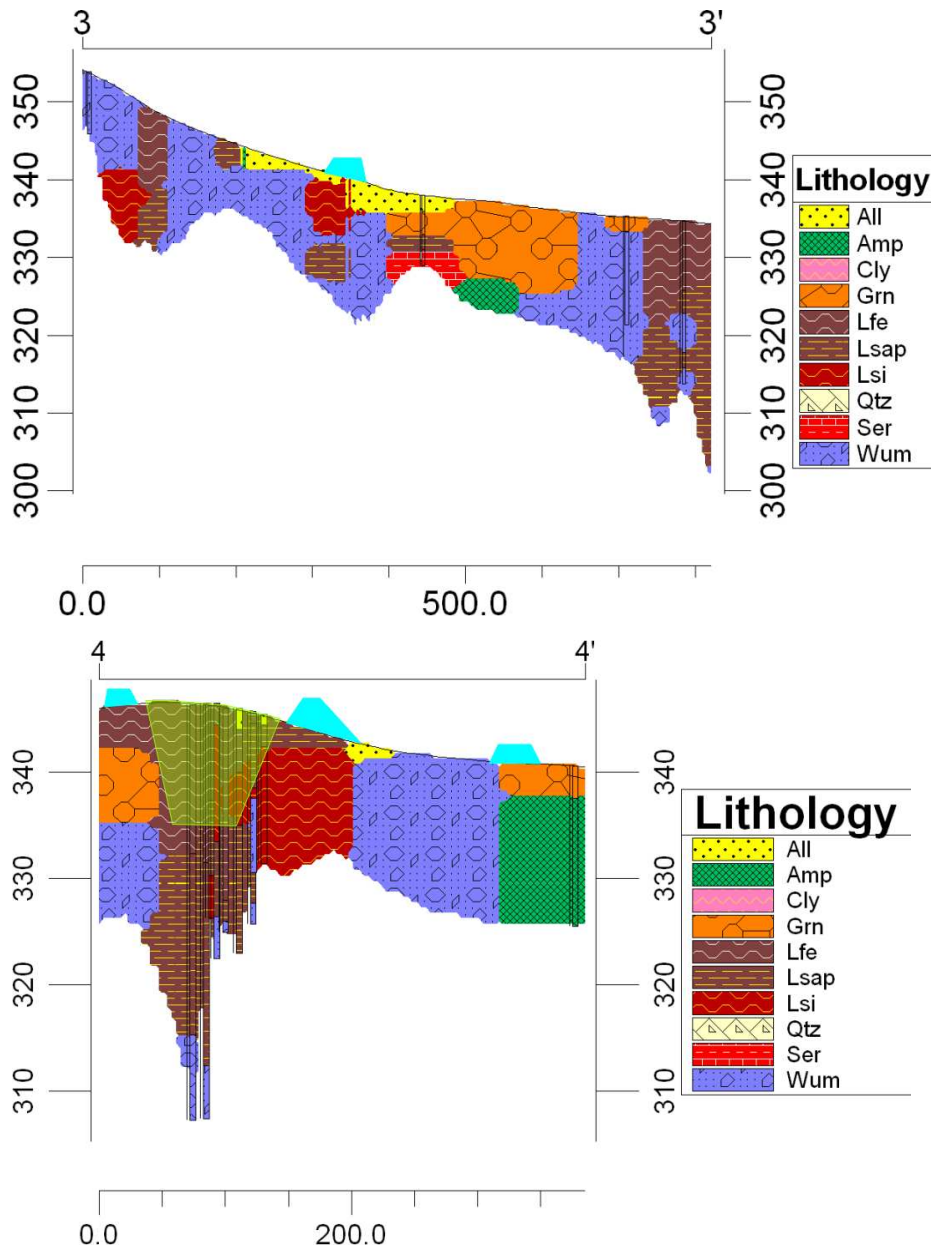


Figure 2-12 Cross-section 3-3' and 4-4'

Material classification is obtained from Lucky Break 5th Annual Report (1102-EPM14392).

- Granite – At Dingo Dam, granite of the Oweenee Granite batholith is present surrounding the lateritised ultramafic forming the prospect area. Pink sandy soil is developed over granitic sub-crop.
- Amphibolite schist – Amphibolite schist is present in the western and northern parts of the prospect area, where it forms small, scattered resistant outcrops and sub-crop. A characteristic dark brown to black soil is associated with this unit. The rock is very fresh, unweathered, fine grained, black-dark grey in colour, hard, dense, magnetic and has a weakly developed schistose texture evident in hand specimen. The

amphibolite schist is of sufficient hardness and quality to be considered for road aggregate material.

- Tertiary Laterite – A laterite terrace or duricrust of Tertiary age is developed over granite to the south of the Dingo Dam prospect. At Dingo Dam, resistant lateritised serpentinite is exposed as low relief within an eroded flood plain associated with Snake and Stockyard Creeks. The original laterite terrace that connected Dingo Dam with the surrounding laterite overlying the granite has been removed by Quaternary-Recent age erosion associated with these creeks.
- Lateritised Serpentinite – Four lateritised serpentinite bodies outcrop within EPM 14392 and are known as: The Dingo Dam, Snake Creek, Circular and Road Cut laterites. The Dingo Dam and Circular laterites occur as distinct low-lying features and sub-surface units characterised by siliceous honeycomb textured rocks. At the Snake and Road Cut Laterite the siliceous outcropping serpentinites form distinct topographic highs which rise between 5 – 10m about the surrounding flat lying alluvial plain. Drilling indicates that the serpentinite units dip moderately to the southeast.
- Widespread scattered sub-crop and outcrops of silica-goethite laterite zones, form hard, resistant, smooth weathered areas at the four identified laterites.

3 HYDROGEOLOGY

3.1 Permeability Estimates of Strata Identified

3.1.1 Drainage Potential of Soils

Soils located in the vicinity of the open pit belong to the Corea group (chromosol) and have a low infiltration potential and transport capability. The upper 0.5 m layer has capability to transport water but below this depth water migration is inhibited due to massive structured clay units. Soil depths is considerable due to underlying lateritic material. Hydraulic conductivity estimates for the unit is split into an upper ($\sim 1 \times 10^{-6}$ m/s or 0.1 m/d) consisting of silt and clay; while the lower clay unit is in the order of 1×10^{-9} m/s or 0.0001 m/d.

In the low-lying areas associated with the Snake Creek system a mixture of Cape/Burdekin soils (Tenosol) are present and represent low to moderate permeability characteristics due to heterogenous clay loam overlying clay units. Depth of soil can reach depths of 1.8 mbgl. Hydraulic conductivity estimates for the upper unit is 2×10^{-5} m/s or 1.7 m/d and the lower unit in the order of 2×10^{-6} m/s or 0.17 m/d. These hydraulic conductivity values are overly conservative due to the presence of laterite outcrops in this zone and potential migration of clay in the upper layer (ASRIS, 2016).

3.1.2 Alluvium (All)

In this assessment alluvium material is assumed to be either associated with Cape/Burdekin soils if located in the Snake Creek area or Corea group due to close association with lateritic transport material.

3.1.3 Laterite and Saprolite Units (Lfe, Lsi, Wum and Lsap)

Laterite formations are generally strongly iron-cemented and acts as an aquitard that restricts downward infiltration of rainfall into the groundwater units underlying these structures. Percolation through these strata can be in the order of hundreds to thousands of years, this type of material enables farmers to maintain surface dams for water storage. The presence of weathered ultramafic material is indicative of a low permeability unit that is intercalated with lateritic or saprolitic units. It has been mapped in a single drill hole log with either unit, and is included in this section for completeness.

Permeability for reworked material that has been mildly compacted is in the order of 1×10^{-7} m/s or 0.01 m/d, while in-situ undisturbed material have permeability values in the order of 1×10^{-9} m/s or 1×10^{-4} m/d (Delleur, 1999; Umar et al., 2015).

3.1.4 Intrusives (Amp, Grn and Ser)

Intrusive material includes amphibolite schist, granite and serpentinite which have presented as fresh rocks in geological analysis. Data would indicate that fracturing is minimal, and the rock units would act as a hydraulic barrier and is classed as an aquitard and forms part of the ultramafic intrusion that underlies the open pit area. Material hydraulic conductivity is estimated to be in the order of 1×10^{-11} m/s or 2×10^{-6} m/d (Delleur, 1999).

3.2 Conceptual Hydrogeological Model

Conceptual setting

- A no-flow barrier consisting of intrusives are present on the up-gradient side of the open pit. It is assumed all subsurface flow would be directed in the direction of Snake Creek.
- No recharge below the open pit to aquifer units are possible due to the intrusive body and in-situ lateritic materials. Water in the open pit can either evaporate or permeate laterally through the subsurface based on hydraulic head.
- The open pit is developed in a low permeability laterite and saprolite zone. Hydraulic conductivity is assumed to be at the upper limit for this type of material, 1×10^{-9} m/s or 1×10^{-4} m/d.
- Pit walls reach and elevation of 347 mAHD and has a depth of 335 mAHD with a permeable wall section of 100 m.
- Flow pathway to Snake Creek is approximately 750 m horizontally from pit wall and is located at an elevation of 335 mAHD.
- Persistent (3 days) flood level within Snake Creek does not extend beyond 338 mAHD, data obtained from Queensland flood maps.
- A potential seepage target, alluvium bed, is present at 50 m down-gradient from the pit wall with the base of the strata located at an elevation of 338 mAHD and extends for 250 m before terminating in a granite formation. Depth of alluvium formation is estimated to be 1-2 m, i.e. ~340 – 338 mAHD.
- Regional groundwater level is estimated to be 30 mbgl.

To evaluate seepage potential from the open pit, steady flow in an unconfined aquifer (Fetter, 2001) is applied.

A summary is provided for clarity.

Darcy's Law ($q' = -Kh \frac{dh}{dx}$) states that the flow per unit width (q' , m²/d) is equal to the product of hydraulic conductivity (K , m/d), head (m or mAHD) and gradient (i , unitless). By integration and applying boundary conditions, discharge per unit length over a sectional length, equates to $q'L = -K \left(\frac{h_2^2 - h_1^2}{2} \right)$. The equation can be rearranged to yield the Dupuit equation $q' = \frac{K(h_1^2 - h_2^2)}{2L}$. It is assumed that surface recharge would not play a role in water table elevation. The latter assumption would indicate a potential water divide between the open pit and Snake Creek or Alluvium bed which is highly unlikely. In this assessment h_1 is the water level in the open pit (origin) and h_2 is the water level in the receptor.

Assessment of scenarios to indicate potential seepage rates and likelihood is provided in the following paragraphs.

1. Water flow from the open pit towards the alluvium layer down-gradient.
It is assumed that the base of the aquifer is located at 320 mAHD and that it forms a continuous layer over the total conceptual model area.

$$q' = \frac{K(h_1^2 - h_2^2)}{2L} = \frac{10^{-4}((347 - 320)^2 - (338 - 320)^2)}{2(50)}$$

$$q' = \frac{10^{-4}(405)}{100} = 4.05 \times 10^{-4} \text{ m}^2/\text{d}$$

Assuming there is a seepage face of 100 m the discharge would be in the order of 0.04 m³/d or 40 l/d into the alluvial base layer. An estimate of flow period to reach the alluvium can be calculated from an average linear velocity (v_x); i.e.,

$$v_x = \frac{Q}{n_e A} = \frac{-Kdh}{n_e dl}$$

$$v_x = \frac{0.04}{0.5 \times 100 \times 18} = 4.4 \times 10^{-5} \text{ m/d}$$

Estimated travel time over a distance of 50 m is 3 044 years.

2. Potential discharge into Snake Creek at Open Pit water elevation of 347 mAHD can be calculated as

$$q' = \frac{K(h_1^2 - h_2^2)}{2L} = \frac{10^{-4}((347 - 320)^2 - (335 - 320)^2)}{2(800)}$$

$$q' = \frac{10^{-4}(405)}{1600} = 3.15 \times 10^{-5} \text{ m}^2/\text{d}$$

Assuming there is a seepage face of 100 m the discharge would be in the order of 0.003 m³/d or 3 l/d into Snake Creek.

An estimate of flow period to reach the alluvium can be calculated from an average linear velocity (v_x); i.e.,

$$v_x = \frac{Q}{n_e A} = \frac{-Kdh}{n_e dl}$$

$$v_x = \frac{0.003}{0.5 \times 800 \times 18} = 3.5 \times 10^{-6} m/d$$

Estimated travel time over a distance of 800 m is 626 223 years.

The calculated values and time frames are presented in Figure 3-1 for alluvium material and Figure 3-2 for Snake Creek.

To evaluate the potential water quality from seepage, would be problematic due to the extensive travel time involved in laterite formations. It is expected that mineralisation process would be dominant resulting in enrichment of dissolved salt content that is obtained from lateritic clays and iron oxide matrix. Water quality parameters presenting to seepage zones on down-gradient areas would resemble background water quality values.

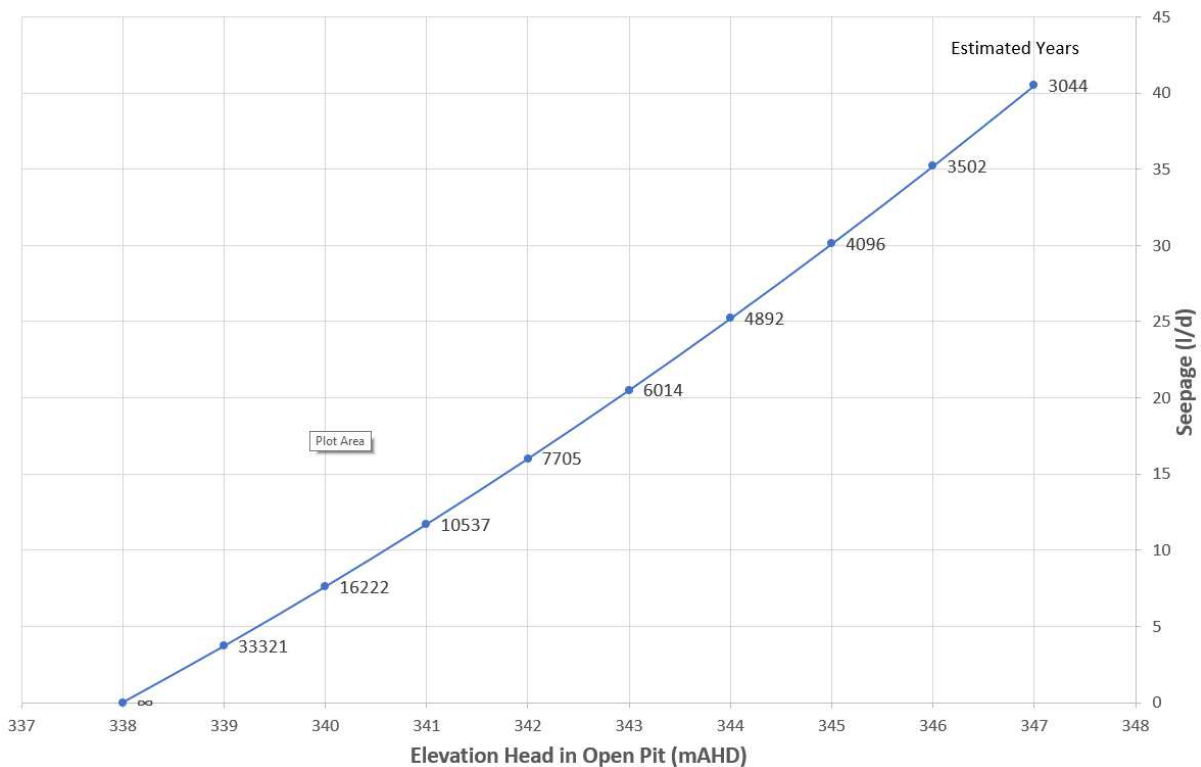


Figure 3-1 Calculated seepage rates and duration in years (labels) to reach seepage target of Alluvium materials

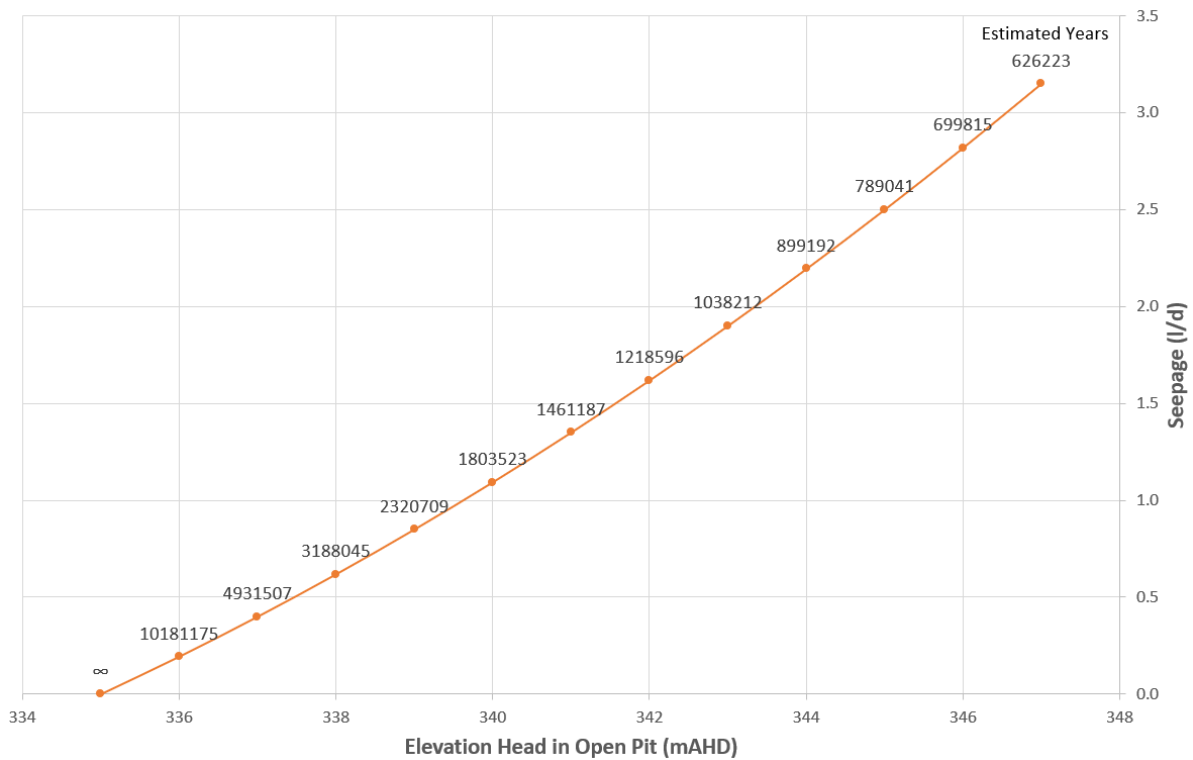


Figure 3-2 Calculated seepage rates and duration in years (labels) to reach seepage target of Snake Creek

3.3 Water Quality Data

Open cut water quality samples were collected on 18 September 2018 and 13 December 2018. A summary of the results is shown in the Piper Diagram (Figure 3-3) with total dissolved solids content reported in the order of 72 – 105 mg/L. The water can be classed as dominant sodium and potassium cationic component with a mixed bicarbonate and chloride anionic character. The water present in the open pit is indicative of rain water from coastal origin that has undergone nominal evaporation to form a mixed water type.

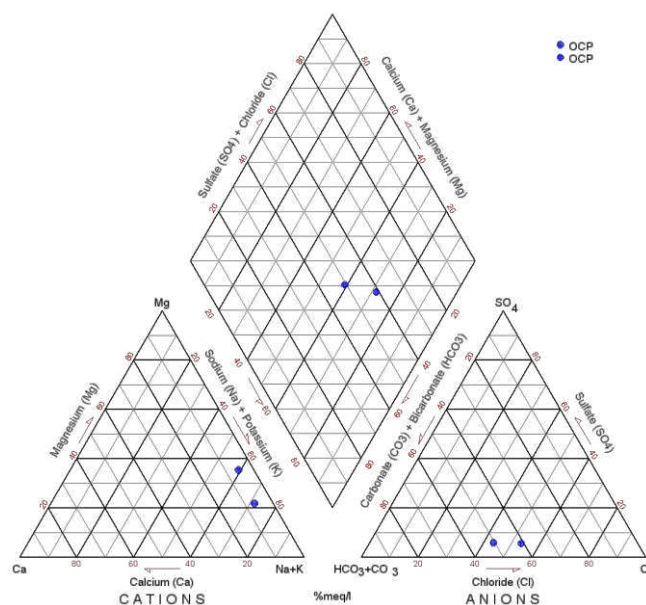


Figure 3-3 Piper Diagram of open cut water quality

In respect to seepage water quality that can be produced, it is probable that the current water quality in the pit and transport timeframes would undergo mineralisation as it migrates through the laterite formation. It will result in a water quality that is more likely to be associated with the interstitial water quality than pit water but is beyond the scope of the current assessment.

4 CONCLUSION

The hydraulic properties of the lateritic and saprolitic material can be associated with undisturbed clay material that has undergone cementation over extended time period since forming in place due to weathering processes.

An assessment of flow volume and duration to two identified target zones in the area of Dingo Dam has been performed, and migration potential of chemical components are highly unlikely.

In the assessment a homogenous composition of the sub-base was assumed, however from core hole logging data and modelling, the area surrounding Dingo Dam is heterogenous. An impermeable intrusive body is present up-gradient from the site, Dingo Dam is located in lateritic material and down-gradient geological formations consist of intrusive bodies with highly weathered material intercalating these formations resulting in low to near-impermeable zones in the subsurface.

Current understanding of the geological and hydrogeological setting would indicate that flow from Snake Creek through the subsurface to the open pit void is extremely low. Similarly, subsurface flow from the open pit to Snake Creek is extremely low due to limited hydraulic head and low permeability zones.

Overland flow is the most likely source of impact on the environment and Dingo Dam seepage potential is low to very low to reach the two identified receptors.

5 REFERENCES

- ASRIS (2016) National soil data provided by the Australian Collaborative Land Evaluation Program ACLEP, endorsed through the National Committee on Soil and Terrain NCST (www.clw.csiro.au/aclep).
- Delleur, J.W. (1999) Handbook of Groundwater Engineering. Springer-Verlag Berlin Heidelberg.
- DNRM (2018a) Groundwater Database - Queensland, in: Natural Resources, M.a.E. (Ed.). Queensland Government, Brisbane.
- DNRM (2018b) Queensland Globe, in: Natural Resources, M.a.E. (Ed.). Queensland Government, Brisbane.
- Fetter, C.W. (2001) Applied hydrogeology, 4th ed. Prentice Hall, Upper Saddle River, N.J.
- Jeffrey, S.J., Carter, J.O., Moodie, K.B. and Beswick, A.R. (2001) Using spatial interpolation to construct a comprehensive archive of Australian climate data External link icon. Environmental Modelling and Software 16, 309-330.
- Morton, F.I. (1983) Operational estimates of areal evapotranspiration and their significance to the science and practice of hydrology. Journal of Hydrology 66, 1-76.
- RockWare (2016) RockWorks17: Integrated geological data management, analysis, and visualization, Colorado.
- Umar, S.Y., Elinwa, A.U. and Matawal, D.S. (2015) Hydraulic Conductivity of Compacted Lateritic Soil Partially Replaced with Metakaolin. Journal of Environment and Earth Science 5, 53-64.

6 APPENDIX

6.1 Groundwater Bore Data

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
125281	Sub-Artesian Facility	Existing	15/04/2005	Ayr	2310 - CHARTERS TOWERS REGIONAL
Details			Location		
Description			Latitude	19-34-10	Basin 1201
Parish	2327 - HILLGROVE		Longitude	145-40-52	Sub-area
Original Name			GIS Latitude	-19.5695259	Lot 1
			GIS Longitude	145.6812373	Plan OC68
			Easting	361670	
Driller Name	BROWN, JOHN EDWARD		Northing	7835621	Map Scale
Drill Company	BROWN DRILL		Zone	55	Map Series
Const Method	ROTARY AIR		Accuracy	GPS	Map No
Bore Line			GPS Accuracy	20	Map Name
D/O File No	520/000(0076	Polygon	Checked	Yes	Prog Section
R/O File No		Equipment			
H/O File No		RN of Bore Replaced			
Log Received Date	16/05/2005	Data Owner			
Roles	Water Supply				

Casing 3 records for RN 125281

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	15/04/2005	1	0.00	67.57	Plastic Casing	5.900	WT - Wall Thickness	140
A	15/04/2005	2	59.00	67.00	Perforated or Slotted Casing	3.000	AP - Aperture Size	140
A	15/04/2005	3	0.00	6.00	Grout			202

Strata Logs 7 records for RN 125281

From Year:

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	2.00	SANDY SOIL
2	2.00	3.00	IRONSTONE
3	3.00	21.00	HARD SANDY CLAY
4	21.00	49.00	BASALT AND CLAY AREAS
5	49.00	59.00	HARD BASALT
6	59.00	63.00	BASALT RUBBLE*
7	63.00	67.57	HARD BASALT

Stratigraphies

0 records for RN 125281

Aquifers

1 records for RN 125281

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	59.00	63.00	BSLT - Basic Volcanic	15/04/2005	-12.00	N	POTABLE	4.50	N	FR	

Pump Tests Part 1

0 records for RN 125281

Pump Tests Part 2

0 records for RN 125281

Bore Conditions

0 records for RN 125281

Elevations

0 records for RN 125281

Water Analysis Part 1

0 records for RN 125281

Water Analysis Part 2

0 records for RN 125281

Water Levels

0 records for RN 125281

Wire Line Logs

0 records for RN 125281

From Year:

Field Measurements	0 records for RN 125281
Special Water Analysis	0 records for RN 125281

From Year:

User Licence and Conditions

Disclaimer

Open Licence (Single Supply)

Permitted use:

- You may use the supplied data for your own purposes (including supply to consultants for a specific consultancy project for you but the consultants must return or destroy the supplied data when the project is finished). You must not sell or distribute the supplied data.
- You must display this copyright notice on any copies of the supplied data however altered, reformatted or redisplayed if you supply to a consultant or copy for back up purposes: "© State of Queensland 2019".
- You may create and distribute hardcopy and digital products based on or containing the supplied data, provided all the following conditions are met:
 - You must display this acknowledgment on the product(s): "Based on or contains data provided by the State of Queensland 2019. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws."
 - You must include metadata with the product(s) you create that use or incorporate the supplied data and the metadata must incorporate as a minimum the metadata provided with this supplied data.

Obligations:

- You must not use the data for direct marketing or in breach of the privacy laws.

Ownership:

The State of Queensland is the owner of the intellectual property rights in and to the supplied data or has the right to make this supplied data available.

Disclaimer and indemnity:

You agree to accept all responsibility and risks associated with the use of the supplied data. The State makes no representations or warranties in relation to the supplied data, and, you agree that, to the extent permitted by law, all warranties relating to accuracy, reliability, completeness, currency or suitability for any particular purpose and all liability for any loss, damage or costs (including consequential damage) incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the supplied data are excluded or limited. You agree to continually indemnify the State of Queensland (and its officers and employees) against any loss, cost, expense, damage and liability of any kind (including consequential damage and liability in negligence) arising directly or indirectly from or related to any claim relating to your use of the supplied data or any product made from the data.

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
166125	Sub-Artesian Facility	Existing	10/08/2014	Ayr	2310 - CHARTERS TOWERS REGIONAL
Details			Location		
Description			Latitude	19-19-50	Basin 1201
Parish	3716 - OWEENEE		Longitude	145-39-13	Sub-area
Original Name	BLUE ROCK BORE		GIS Latitude	-19.33067752	Lot 2
			GIS Longitude	145.65361347	Plan OC66
			Easting	358565	
Driller Name	CALVERT, JOHN		Northing	7862033	Map Scale
Drill Company	FOX DRILLING PTY LTD		Zone	55	Map Series
Const Method	ROTARY AIR		Accuracy	GPS	Map No
Bore Line			GPS Accuracy	4	Map Name
D/O File No	NOR/078820	Polygon	Checked	Yes	Prog Section
R/O File No		Equipment			
H/O File No		RN of Bore Replaced			
Log Received Date	24/08/2014	Data Owner	DNR		
Roles	Water Supply				

Casing 4 records for RN 166125

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	10/08/2014	1	0.00	43.00	Polyvinyl Chloride	5.900	WT - Wall Thickness	125
A	10/08/2014	2	25.00	43.00	Perforated or Slotted Casing	2.000	AP - Aperture Size	125
X	10/08/2014	3	6.00	43.00	Gravel Pack	10.000	GR - Gravel Size	205
X	10/08/2014	4	0.00	6.00	Grout			205

Strata Logs 12 records for RN 166125

From Year:

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	0.10	TOP SOIL
2	0.10	1.00	REDY BROWN SANDY CLAY
3	1.00	3.00	WEATHERED REDY BROWN GRANITE
4	3.00	25.00	BLUE GREY GRANITE
5	25.00	25.50	BROWN FRACTURED GRANITE - MIST @ 25 METRES
6	25.50	29.00	REDY BROWN GRANITE
7	29.00	29.50	FRACTURED GRANITE - WATER @ 29 METRES
8	29.50	34.00	REDY GRANITE & QUARTZ
9	34.00	34.50	FRACTURED - WATER @ 34 METRES
10	34.50	37.00	REDY BROWN GRANITE
11	37.00	37.50	FRACTURED - WATER @ 37 METRES
12	37.50	43.00	REDY BROWN GRANITE

Stratigraphies

0 records for RN 166125

Aquifers

3 records for RN 166125

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	29.00	29.50	GNTE - Acid Intrusive, Granite	10/08/2014	-23.00	N	POTABLE	0.14	Y	XX	
2	34.00	34.50	GNTE - Acid Intrusive, Granite	10/08/2014	-23.00	N	POTABLE	0.32	Y	XX	
3	37.00	37.50	GNTE - Acid Intrusive, Granite	10/08/2014	-23.00	N	POTABLE	0.45	Y	XX	

Pump Tests Part 1

0 records for RN 166125

Pump Tests Part 2

0 records for RN 166125

Report Date: 07/04/2019 16:07

Queensland Government
Groundwater Information
Bore Report

Page: 3 of 4
GWDB8250

From Year:

Bore Conditions	0 records for RN 166125
Elevations	0 records for RN 166125
Water Analysis Part 1	0 records for RN 166125
Water Analysis Part 2	0 records for RN 166125
Water Levels	0 records for RN 166125
Wire Line Logs	0 records for RN 166125
Field Measurements	0 records for RN 166125
Special Water Analysis	0 records for RN 166125

From Year:

User Licence and Conditions

Disclaimer

Open Licence (Single Supply)

Permitted use:

- You may use the supplied data for your own purposes (including supply to consultants for a specific consultancy project for you but the consultants must return or destroy the supplied data when the project is finished). You must not sell or distribute the supplied data.
- You must display this copyright notice on any copies of the supplied data however altered, reformatted or redisplayed if you supply to a consultant or copy for back up purposes: "© State of Queensland 2019".
- You may create and distribute hardcopy and digital products based on or containing the supplied data, provided all the following conditions are met:
 - You must display this acknowledgment on the product(s): "Based on or contains data provided by the State of Queensland 2019. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws."
 - You must include metadata with the product(s) you create that use or incorporate the supplied data and the metadata must incorporate as a minimum the metadata provided with this supplied data.

Obligations:

- You must not use the data for direct marketing or in breach of the privacy laws.

Ownership:

The State of Queensland is the owner of the intellectual property rights in and to the supplied data or has the right to make this supplied data available.

Disclaimer and indemnity:

You agree to accept all responsibility and risks associated with the use of the supplied data. The State makes no representations or warranties in relation to the supplied data, and, you agree that, to the extent permitted by law, all warranties relating to accuracy, reliability, completeness, currency or suitability for any particular purpose and all liability for any loss, damage or costs (including consequential damage) incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the supplied data are excluded or limited. You agree to continually indemnify the State of Queensland (and its officers and employees) against any loss, cost, expense, damage and liability of any kind (including consequential damage and liability in negligence) arising directly or indirectly from or related to any claim relating to your use of the supplied data or any product made from the data.

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
166167	Sub-Artesian Facility	Existing	28/03/2015	Ayr	2310 - CHARTERS TOWERS REGIONAL
Details			Location		
Description			Latitude	19-31-04	Basin 1201
Parish	4011 - RIMBANDA		Longitude	145-46-39	Sub-area
Original Name			GIS Latitude	-19.51791169	Lot 3
			GIS Longitude	145.77763624	Plan CP898336
			Easting	371742	
Driller Name	BROWN, JOHN EDWARD		Northing	7841408	Map Scale
Drill Company	BROWN DRILL		Zone	55	Map Series
Const Method	ROTARY AIR		Accuracy	GPS	Map No
Bore Line			GPS Accuracy	4	Map Name
D/O File No	NOR/078820	Polygon	Checked	Yes	Prog Section
R/O File No		Equipment			
H/O File No		RN of Bore Replaced			
Log Received Date	02/06/2015	Data Owner	DNR		
Roles	Water Supply				

Casing 4 records for RN 166167

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	28/03/2015	1	0.00	63.00	Polyvinyl Chloride	7.650	WT - Wall Thickness	140
A	28/03/2015	2	51.00	63.00	Perforated or Slotted Casing	1.000	AP - Aperture Size	140
X	28/03/2015	3	5.00	6.00	Bentonite Seal			178
X	28/03/2015	4	0.00	5.00	Grout			202

Strata Logs 8 records for RN 166167

From Year:

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	7.00	GRAVELY SANDY CLAY
2	7.00	15.00	CLAY
3	15.00	25.00	MIX SANDY CLAY
4	25.00	29.00	GREY CLAY
5	29.00	31.00	SAND AND GRAVEL
6	31.00	51.00	RED SANDY CLAY
7	51.00	56.00	GRAVEL AND SAND - WATER AT 51 METRES
8	56.00	63.00	CLAY

Stratigraphies

0 records for RN 166167

Aquifers

1 records for RN 166167

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	51.00	56.00	SAGR - Sand and Gravel	28/03/2015	-33.00	N	BRACKISH	5.00	Y	XX	

Pump Tests Part 1

0 records for RN 166167

Pump Tests Part 2

0 records for RN 166167

Bore Conditions

0 records for RN 166167

Elevations

0 records for RN 166167

Water Analysis Part 1

0 records for RN 166167

Water Analysis Part 2

0 records for RN 166167

Water Levels

0 records for RN 166167

Report Date: 07/04/2019 15:43

Queensland Government
Groundwater Information
Bore Report

Page: 3 of 4
GWDB8250

From Year:

Wire Line Logs

0 records for RN 166167

Field Measurements

1 records for RN 166167

Pipe	Date	Depth (m)	Conduct (uS/cm)	pH	Temp (C)	NO3 (mg/L)	DO2 (mg/L)	Eh (mV)	Alkalinity (mV)	Samp	Method	Samp	Source
A	28/03/2015	51.00	2000							AI	Air Lifting	GB	Groundwater - from Bore

Special Water Analysis

0 records for RN 166167

From Year:

User Licence and Conditions

Disclaimer

Open Licence (Single Supply)

Permitted use:

- You may use the supplied data for your own purposes (including supply to consultants for a specific consultancy project for you but the consultants must return or destroy the supplied data when the project is finished). You must not sell or distribute the supplied data.
- You must display this copyright notice on any copies of the supplied data however altered, reformatted or redisplayed if you supply to a consultant or copy for back up purposes: "© State of Queensland 2019".
- You may create and distribute hardcopy and digital products based on or containing the supplied data, provided all the following conditions are met:
 - You must display this acknowledgment on the product(s): "Based on or contains data provided by the State of Queensland 2019. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws."
 - You must include metadata with the product(s) you create that use or incorporate the supplied data and the metadata must incorporate as a minimum the metadata provided with this supplied data.

Obligations:

- You must not use the data for direct marketing or in breach of the privacy laws.

Ownership:

The State of Queensland is the owner of the intellectual property rights in and to the supplied data or has the right to make this supplied data available.

Disclaimer and indemnity:

You agree to accept all responsibility and risks associated with the use of the supplied data. The State makes no representations or warranties in relation to the supplied data, and, you agree that, to the extent permitted by law, all warranties relating to accuracy, reliability, completeness, currency or suitability for any particular purpose and all liability for any loss, damage or costs (including consequential damage) incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the supplied data are excluded or limited. You agree to continually indemnify the State of Queensland (and its officers and employees) against any loss, cost, expense, damage and liability of any kind (including consequential damage and liability in negligence) arising directly or indirectly from or related to any claim relating to your use of the supplied data or any product made from the data.

Report Date: 07/04/2019 15:30

Queensland Government
Groundwater Information
Bore Report

Page: 1 of 4
GWDB8250

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
166533	Sub-Artesian Facility	Existing	28/09/2015	Ayr	2310 - CHARTERS TOWERS REGIONAL
Details			Location		
Description			Latitude	19-22-24	Basin 1201
Parish	6000 - NO LONGER USED		Longitude	145-37-56	Sub-area
Original Name			GIS Latitude	-19.37333333	Lot 2
			GIS Longitude	145.63222222	Plan OC66
			Easting	356355	
Driller Name	PULMAN, MICHAEL		Northing	7857294	Map Scale
Drill Company	DRILL NORTH		Zone	55	Map Series
Const Method	ROTARY AIR		Accuracy	GPS	Map No
Bore Line			GPS Accuracy	5	Map Name
D/O File No	NOR/078820	Polygon	Checked	Yes	Prog Section
R/O File No		Equipment			
H/O File No		RN of Bore Replaced			
Log Received Date	02/12/2015	Data Owner	DNR		
Roles	Water Supply				

Casing 7 records for RN 166533

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	28/09/2015	1	0.00	2.00	Polyvinyl Chloride		WT - Wall Thickness	220
A	28/09/2015	2	0.00	30.00	Polyvinyl Chloride	7.650	WT - Wall Thickness	140
A	28/09/2015	3	30.00	32.00	Perforated or Slotted Casing	1.000	AP - Aperture Size	140
X	28/09/2015	4	19.00	30.00	Gravel Pack			200
X	28/09/2015	5	18.00	19.00	Cement or Grout Plug			200

From Year:

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
X	28/09/2015	6	6.00	18.00	Cuttings or other fill between casing and hole wall			200
X	28/09/2015	7	0.00	6.00	Grout			200

Strata Logs

4 records for RN 166533

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	2.00	SAND
2	2.00	21.00	DECO GRANITE
3	21.00	22.00	BROKEN GRANITE - WATER @ 21 METRES
4	22.00	30.00	GRANITE

Stratigraphies

0 records for RN 166533

Aquifers

1 records for RN 166533

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	21.00	22.00	GNTE - Acid Intrusive, Granite	28/09/2015	-10.00	N	POTABLE	0.25	Y	XX	

Pump Tests Part 1

0 records for RN 166533

Pump Tests Part 2

0 records for RN 166533

Bore Conditions

0 records for RN 166533

Elevations

0 records for RN 166533

Water Analysis Part 1

0 records for RN 166533

From Year:

Water Analysis Part 2	0 records for RN 166533
Water Levels	0 records for RN 166533
Wire Line Logs	0 records for RN 166533
Field Measurements	0 records for RN 166533
Special Water Analysis	0 records for RN 166533

From Year:

User Licence and Conditions

Disclaimer

Open Licence (Single Supply)

Permitted use:

- You may use the supplied data for your own purposes (including supply to consultants for a specific consultancy project for you but the consultants must return or destroy the supplied data when the project is finished). You must not sell or distribute the supplied data.
- You must display this copyright notice on any copies of the supplied data however altered, reformatted or redisplayed if you supply to a consultant or copy for back up purposes: "© State of Queensland 2019".
- You may create and distribute hardcopy and digital products based on or containing the supplied data, provided all the following conditions are met:
 - You must display this acknowledgment on the product(s): "Based on or contains data provided by the State of Queensland 2019. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws."
 - You must include metadata with the product(s) you create that use or incorporate the supplied data and the metadata must incorporate as a minimum the metadata provided with this supplied data.

Obligations:

- You must not use the data for direct marketing or in breach of the privacy laws.

Ownership:

The State of Queensland is the owner of the intellectual property rights in and to the supplied data or has the right to make this supplied data available.

Disclaimer and indemnity:

You agree to accept all responsibility and risks associated with the use of the supplied data. The State makes no representations or warranties in relation to the supplied data, and, you agree that, to the extent permitted by law, all warranties relating to accuracy, reliability, completeness, currency or suitability for any particular purpose and all liability for any loss, damage or costs (including consequential damage) incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the supplied data are excluded or limited. You agree to continually indemnify the State of Queensland (and its officers and employees) against any loss, cost, expense, damage and liability of any kind (including consequential damage and liability in negligence) arising directly or indirectly from or related to any claim relating to your use of the supplied data or any product made from the data.

Queensland Government
Groundwater Information
Bore Report

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
166783	Sub-Artesian Facility	Existing	07/05/2016	Ayr	2310 - CHARTERS TOWERS REGIONAL
Details			Location		
Description			Latitude	19-31-02	Basin 1201
Parish	6000 - NO LONGER USED		Longitude	145-50-31	Sub-area
Original Name	STOCK BORE		GIS Latitude	-19.51708736	Lot 3
			GIS Longitude	145.84184211	Plan CP898336
			Easting	378479	
Driller Name	BROWN, JOHN EDWARD		Northing	7841546	Map Scale
Drill Company	BROWN DRILL		Zone	55	Map Series
Const Method	ROTARY AIR		Accuracy	GPS	Map No
Bore Line			GPS Accuracy	4	Map Name
D/O File No	NOR/078820	Polygon	Checked	Yes	Prog Section
R/O File No		Equipment			
H/O File No		RN of Bore Replaced			
Log Received Date	08/07/2016	Data Owner	DNR		
Roles	Water Supply				

Casing 5 records for RN 166783

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	07/05/2016	1	0.00	33.00	Polyvinyl Chloride	5.900	WT - Wall Thickness	140
A	07/05/2016	2	24.00	33.00	Perforated or Slotted Casing	1.000	AP - Aperture Size	140
X	07/05/2016	3	6.00	33.00	Gravel Pack	5.000	GR - Gravel Size	178
X	07/05/2016	4	5.00	6.00	Bentonite Seal			178
X	07/05/2016	5	0.00	5.00	Grout			178

From Year:

Strata Logs

4 records for RN 166783

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	3.00	CLAY DECO
2	3.00	24.00	GREY CLAY
3	24.00	31.00	SAND & ROCK - WATER @ 24 METRES
4	31.00	33.00	CLAY - WATER

Stratigraphies

0 records for RN 166783

Aquifers

1 records for RN 166783

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	24.00	31.00	SAGR - Sand and Gravel	07/05/2016	-17.00	N	POTABLE	2.50	Y	XX	

Pump Tests Part 1

0 records for RN 166783

Pump Tests Part 2

0 records for RN 166783

Bore Conditions

0 records for RN 166783

Elevations

0 records for RN 166783

Water Analysis Part 1

0 records for RN 166783

Water Analysis Part 2

0 records for RN 166783

Water Levels

0 records for RN 166783

Wire Line Logs

0 records for RN 166783

Field Measurements

0 records for RN 166783

From Year:

Special Water Analysis	0 records for RN 166783
------------------------	-------------------------

From Year:

User Licence and Conditions

Disclaimer

Open Licence (Single Supply)

Permitted use:

- You may use the supplied data for your own purposes (including supply to consultants for a specific consultancy project for you but the consultants must return or destroy the supplied data when the project is finished). You must not sell or distribute the supplied data.
- You must display this copyright notice on any copies of the supplied data however altered, reformatted or redisplayed if you supply to a consultant or copy for back up purposes: "© State of Queensland 2019".
- You may create and distribute hardcopy and digital products based on or containing the supplied data, provided all the following conditions are met:
 - You must display this acknowledgment on the product(s): "Based on or contains data provided by the State of Queensland 2019. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws."
 - You must include metadata with the product(s) you create that use or incorporate the supplied data and the metadata must incorporate as a minimum the metadata provided with this supplied data.

Obligations:

- You must not use the data for direct marketing or in breach of the privacy laws.

Ownership:

The State of Queensland is the owner of the intellectual property rights in and to the supplied data or has the right to make this supplied data available.

Disclaimer and indemnity:

You agree to accept all responsibility and risks associated with the use of the supplied data. The State makes no representations or warranties in relation to the supplied data, and, you agree that, to the extent permitted by law, all warranties relating to accuracy, reliability, completeness, currency or suitability for any particular purpose and all liability for any loss, damage or costs (including consequential damage) incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the supplied data are excluded or limited. You agree to continually indemnify the State of Queensland (and its officers and employees) against any loss, cost, expense, damage and liability of any kind (including consequential damage and liability in negligence) arising directly or indirectly from or related to any claim relating to your use of the supplied data or any product made from the data.

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
12010002	Sub-Artesian Facility	Existing	21/01/1976	Ayr	2310 - CHARTERS TOWERS REGIONAL
Details			Location		
Description			Latitude	19-39-56	Basin 1201
Parish	6000 - NO LONGER USED		Longitude	145-42-24	Sub-area 000
Original Name			GIS Latitude	-19.66548764	Lot
			GIS Longitude	145.70653202	Plan
			Easting	364404	
Driller Name	J.L.DIXON		Northing	7825020	Map Scale
Drill Company	I.W.S.C.		Zone	55	Map Series
Const Method	ROTARY		Accuracy	GPS	Map No V 43604
Bore Line			GPS Accuracy	10	Map Name
D/O File No	Polygon		Checked	Yes	Prog Section
R/O File No	Equipment	AR			
H/O File No	RN of Bore Replaced				
Log Received Date	Data Owner	DNR			
Roles	Sub-Artesian Monitoring				

Casing 2 records for RN 12010002

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	03/07/1975	1	0.00	37.31	Polyvinyl Chloride	3.350	WT - Wall Thickness	60
A	03/07/1975	2	34.31	37.31	Perforated or Slotted Casing	1.000	AP - Aperture Size	1

Strata Logs 34 records for RN 12010002

Rec	Top (m)	Bottom (m)	Strata Description
-----	---------	------------	--------------------

From Year:

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	1.00	TOPSOIL,CLAY AND BOULDERS
2	1.00	2.00	CLAY AND BOULDERS MULTICOLOURED
3	2.00	2.40	BASALT SOFT/HARD
4	2.40	3.40	BASALT
5	3.40	6.40	BASALT WITH WEATHERED BAND
6	6.40	10.50	ROCK DECOMPOSED
7	10.50	11.50	ROCK DECOMPOSED AND WEATHERED
8	11.50	12.50	BASALT WEATHERED
9	12.50	14.10	BASALT WEATHERED AND FRACTURED
10	14.10	15.10	BASALT WEATHERED AND FRACTURED WITH
11			DECOMPOSED BANDS
12	15.10	20.20	BASALT FRACT,DECOMPOSED AND WEATHERED
13	20.20	20.90	CLAY BROWN
14	20.90	21.90	CLAY MULTICOLOURED
15	21.90	22.90	CLAY MULTICOLOURED AND FRACTURED
16			BASALT
17	22.90	23.30	BASALT FRACTURED
18	23.30	24.30	ROCK AND BASALT DECOMPOSED & WEATHERED
19	24.30	30.80	BASALT FRACTURED AND WEATHERED
20	30.80	31.80	BASALT FRACTURED AND WEATHERED WITH
21			HARD BAND
22	31.80	32.40	BASALT DECOMPOSED,FRACTURED AND
23			WEATHERED, WITH CLAYBOUND
24	32.40	38.00	BASALT FRACTURED
25	38.00	39.00	BASALT FRACTURED AND ROCK DECOMPOSED
26	39.00	41.00	ROCK DECOMPOSED

From Year:

Rec	Top (m)	Bottom (m)	Strata Description
27	41.00	41.60	ROCK DECOMPOSED, FRACTURED
28	41.60	43.40	ROCK DECOMPOSED
29	43.40	44.40	ROCK HARD
30	44.40	45.40	ROCK BANDS HARD AND SOFT
31	45.40	53.70	ROCK DECOMPOSED MULTICOLOURED
32	49.80	54.70	ROCK DECOMPOSED MULTICOLOURED WITH
33			HARD BAND
34	54.70	55.30	ROCK DECOMPOSED MULTICOLOURED

Stratigraphies

0 records for RN 12010002

Aquifers

0 records for RN 12010002

Pump Tests Part 1

0 records for RN 12010002

Pump Tests Part 2

0 records for RN 12010002

Bore Conditions

0 records for RN 12010002

Elevations

2 records for RN 12010002

Pipe	Date	Elevation (m)	Precision		Datum	Meas	Point	Survey Source
A	13/07/2015	331.45	SVY	Surveyed	AHD - Aust. Height Datum	R	Reference Point	
X	13/07/2015	331.12	SVY	Surveyed	AHD - Aust. Height Datum	N	Natural Surface	

Water Analysis Part 1

1 records for RN 12010002

Pipe	Date	Rec	Analyst	Analysis No	Depth (m)	Meth	Src	Cond (uS/cm)	pH	Si (mg/L)	Total Ions (mg/L)	Total Solids (mg/L)	Hard	Alk	Fig. of Merit	SAR	RAH
------	------	-----	---------	-------------	-----------	------	-----	--------------	----	-----------	-------------------	---------------------	------	-----	---------------	-----	-----

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Rec	Analyst	Analysis No	Depth (m)	Meth	Src	Cond (uS/cm)	pH	Si (mg/L)	Total Ions (mg/L)	Total Solids (mg/L)	Hard	Alk	Fig. of Merit	SAR	RAH
A	10/05/1982	1	GCL	094349			GB	960	7.6	10	686.20	485.26	309	342	1.8	1.9	0.65

Water Analysis Part 2

1 records for RN 12010002

Pipe	Date	Rec	Na	K	Ca	Mg	Mn	HCO3	Fe	CO3	Cl	F	NO3	SO4	Zn	Al	B	Cu
A	10/05/1982	1	78.0	3.0	53.0	43.0		415.0		1.1	87.0	0.10	0.0	6.0				

Water Levels

1333 records for RN 12010002

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	21/01/1976		-30.48	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	19/04/1976		-30.44	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	05/07/1976		-30.49	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	20/09/1976		-30.38	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	18/04/1977		-30.29	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	24/10/1977		-30.30	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	24/04/1978		-30.30	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	21/05/1979		-30.15	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	28/04/1980		-29.97	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	10/05/1982		-29.21	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	18/07/1983		-29.36	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	23/07/1984		-29.42	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	19/08/1985		-29.61	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	07/07/1986		-29.75	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	31/08/1998		-30.98	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality
A	17/07/2000		-29.94	R	Reference Point		NR	Not Recorded	NR	NR	Not Recorded		130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	23/04/2013	1127	-11.05	R	Reference Point		NR	Not Recorded	DH	MA	Manual/Hand	GWAN	1 Good - Actual Manual Measurements
A	25/07/2013	0950	-11.06	R	Reference Point		NR	Not Recorded	DH	MA	Manual/Hand	GWAN	1 Good - Actual Manual Measurements
A	18/12/2013	1214	-24.43	R	Reference Point		NR	Not Recorded	DH	MA	Manual/Hand	GWAN	1 Good - Actual Manual Measurements
A	29/05/2014		-24.87	R	Reference Point		ACT	Actual	DG	MA	Manual/Hand	GWAN	1 Good - Actual Manual Measurements
A	27/10/2014		-25.24	R	Reference Point		ACT	Actual	DG	MA	Manual/Hand	GWAN	1 Good - Actual Manual Measurements
A	16/04/2015		-25.70	R	Reference Point		ACT	Actual	DG	MA	Manual/Hand	GWAN	1 Good - Actual Manual Measurements
A	07/05/2015	1553	-25.71	R	Reference Point		ACT	Actual	DH	MA	Manual/Hand		1 Good - Actual Manual Measurements
A	20/05/2015	1641	-25.76	R	Reference Point		ACT	Actual	DH	MA	Manual/Hand		1 Good - Actual Manual Measurements
A	16/08/2015	1248	-25.98	R	Reference Point		ACT	Actual	DH	MA	Manual/Hand	GWAN	1 Good - Actual Manual Measurements
A	17/08/2015		-25.97	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/08/2015		-25.98	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/08/2015		-25.99	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/08/2015		-26.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/08/2015		-26.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/08/2015		-26.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/08/2015		-26.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/08/2015		-26.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/08/2015		-26.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/08/2015		-26.01	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/08/2015		-26.00	R	Reference Point		ACT	Actual	DG	MA	Manual/Hand	GWAN	1 Good - Actual Manual Measurements
A	27/08/2015		-26.01	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/08/2015		-26.01	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/08/2015		-26.01	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/08/2015		-26.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/08/2015		-26.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	01/09/2015		-26.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/09/2015		-26.01	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/09/2015		-26.03	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/09/2015		-26.03	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/09/2015		-26.03	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/09/2015		-26.03	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/09/2015		-26.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/09/2015		-26.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/09/2015		-26.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/09/2015		-26.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/09/2015		-26.07	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/09/2015		-26.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/09/2015		-26.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/09/2015		-26.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/09/2015		-26.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/09/2015		-26.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/09/2015		-26.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/09/2015		-26.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/09/2015		-26.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/09/2015		-26.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/09/2015		-26.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/09/2015		-26.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/09/2015		-26.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/09/2015		-26.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/09/2015		-26.07	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	26/09/2015		-26.08	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/09/2015		-26.08	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/09/2015		-26.08	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/09/2015		-26.09	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/09/2015		-26.10	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/10/2015		-26.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/10/2015		-26.12	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/10/2015		-26.12	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/10/2015		-26.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/10/2015		-26.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/10/2015		-26.10	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/10/2015		-26.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/10/2015		-26.12	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/10/2015		-26.12	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/10/2015		-26.12	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/10/2015		-26.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/10/2015		-26.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/10/2015		-26.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/10/2015		-26.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/10/2015		-26.10	R	Reference Point		ACT	Actual	DG	MA	Manual/Hand	GWAN	1 Good - Actual Manual Measurements
A	15/10/2015		-26.12	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/10/2015		-26.12	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/10/2015		-26.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/10/2015		-26.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/10/2015		-26.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	20/10/2015		-26.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/10/2015		-26.12	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/10/2015		-26.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/10/2015		-26.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/10/2015		-26.14	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/10/2015		-26.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/11/2015		-26.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/11/2015		-26.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/11/2015		-26.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/11/2015		-26.14	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/11/2015		-26.16	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/11/2015		-26.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/11/2015		-26.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/11/2015		-26.14	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/11/2015		-26.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/11/2015		-26.14	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/11/2015		-26.16	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/11/2015		-26.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/11/2015		-26.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/11/2015		-26.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/11/2015		-26.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/11/2015		-26.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/11/2015		-26.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/11/2015		-26.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/11/2015		-26.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	26/11/2015		-26.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/11/2015		-26.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/11/2015		-26.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/11/2015		-26.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/11/2015		-26.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/12/2015		-26.20	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/12/2015		-26.21	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/12/2015		-26.21	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/12/2015		-26.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/12/2015		-26.21	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/12/2015		-26.21	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/12/2015		-26.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/12/2015		-26.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/12/2015		-26.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/12/2015		-26.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/12/2015		-26.20	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/12/2015		-26.20	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/12/2015		-26.21	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/12/2015		-26.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/12/2015		-26.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/12/2015		-26.21	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/12/2015		-26.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/12/2015		-26.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/12/2015		-26.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/12/2015		-26.24	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	21/12/2015		-26.25	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/12/2015		-26.24	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/12/2015		-26.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/12/2015		-26.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/12/2015		-26.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/12/2015		-26.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/12/2015		-26.24	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/12/2015		-26.24	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/12/2015		-26.25	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/12/2015		-26.26	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/12/2015		-26.26	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/01/2016		-26.25	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/01/2016		-26.24	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/01/2016		-26.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/01/2016		-26.24	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/01/2016		-26.26	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/01/2016		-26.26	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/01/2016		-26.27	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/01/2016		-26.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/01/2016		-26.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	15/01/2016		-26.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/01/2016		-26.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/01/2016		-26.31	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/01/2016		-26.31	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/01/2016		-26.31	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/01/2016		-26.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/01/2016		-26.28	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/01/2016		-26.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/01/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/01/2016		-26.32	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/02/2016		-26.31	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/02/2016		-26.31	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/02/2016		-26.31	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/02/2016		-26.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/02/2016	0902	-26.31	R	Reference Point		ACT	Actual	DH	MA	Manual/Hand		1 Good - Actual Manual Measurements
A	05/02/2016		-26.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/02/2016		-26.31	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/02/2016		-26.33	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	08/02/2016		-26.34	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/02/2016		-26.34	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/02/2016		-26.34	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/02/2016		-26.34	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/02/2016		-26.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/02/2016		-26.34	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/02/2016		-26.34	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/02/2016		-26.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/02/2016		-26.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/02/2016		-26.34	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/02/2016		-26.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/02/2016		-26.36	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/02/2016		-26.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/02/2016		-26.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/02/2016		-26.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/02/2016		-26.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/02/2016		-26.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/02/2016		-26.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/02/2016		-26.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/02/2016		-26.37	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/02/2016		-26.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/02/2016		-26.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/03/2016		-26.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/03/2016		-26.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/03/2016		-26.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	04/03/2016		-26.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/03/2016		-26.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/03/2016		-26.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/03/2016		-26.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/03/2016		-26.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/03/2016		-26.42	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/03/2016		-26.42	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/03/2016		-26.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/03/2016		-26.42	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/03/2016		-26.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/03/2016		-26.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/03/2016		-26.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/03/2016		-26.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/03/2016		-26.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/03/2016		-26.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/03/2016		-26.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/03/2016		-26.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/03/2016		-26.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/03/2016		-26.42	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/03/2016		-26.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/03/2016		-26.46	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/03/2016		-26.46	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/03/2016		-26.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/03/2016		-26.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/03/2016		-26.46	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	29/03/2016		-26.46	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/03/2016		-26.46	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/03/2016		-26.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/04/2016		-26.46	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/04/2016		-26.47	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/04/2016		-26.47	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/04/2016		-26.46	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/04/2016		-26.47	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/04/2016		-26.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/04/2016		-26.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/04/2016		-26.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/04/2016		-26.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/04/2016		-26.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/04/2016		-26.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/04/2016		-26.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/04/2016		-26.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/04/2016		-26.50	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/04/2016		-26.50	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/04/2016		-26.49	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/04/2016		-26.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/04/2016		-26.49	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/04/2016		-26.50	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/04/2016		-26.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/04/2016		-26.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/04/2016		-26.50	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	23/04/2016		-26.50	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/04/2016		-26.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/04/2016		-26.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/04/2016		-26.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/04/2016		-26.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/04/2016		-26.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/04/2016		-26.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/04/2016		-26.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/05/2016		-26.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/05/2016		-26.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/05/2016		-26.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/05/2016		-26.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/05/2016		-26.53	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/05/2016		-26.53	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/05/2016		-26.53	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/05/2016		-26.53	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/05/2016		-26.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/05/2016		-26.53	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/05/2016		-26.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/05/2016		-26.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/05/2016		-26.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/05/2016		-26.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/05/2016		-26.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/05/2016		-26.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/05/2016		-26.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	18/05/2016		-26.54	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/05/2016		-26.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/05/2016		-26.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/05/2016		-26.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/05/2016		-26.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/05/2016		-26.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/05/2016		-26.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/05/2016		-26.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/05/2016		-26.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/05/2016		-26.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/05/2016		-26.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/05/2016		-26.58	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/05/2016		-26.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/05/2016		-26.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/06/2016		-26.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/06/2016		-26.58	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/06/2016		-26.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/06/2016	1458	-26.54	R	Reference Point		ACT	Actual	DH	MA	Manual/Hand		1 Good - Actual Manual Measurements
A	04/06/2016		-26.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/06/2016		-26.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/06/2016		-26.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/06/2016		-26.58	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/06/2016		-26.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/06/2016		-26.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/06/2016		-26.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	20/06/2016		-26.60	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/06/2016		-26.60	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/06/2016		-26.60	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/06/2016		-26.60	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/06/2016		-26.62	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/06/2016		-26.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/06/2016		-26.62	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/06/2016		-26.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/06/2016		-26.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/06/2016		-26.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/06/2016		-26.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/07/2016		-26.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/07/2016		-26.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/07/2016		-26.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/07/2016		-26.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/07/2016		-26.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/07/2016		-26.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/07/2016		-26.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/07/2016		-26.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/07/2016		-26.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/07/2016		-26.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/07/2016		-26.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/07/2016		-26.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/07/2016		-26.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/07/2016		-26.68	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	15/07/2016		-26.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/07/2016		-26.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/07/2016		-26.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/07/2016		-26.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/07/2016		-26.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/07/2016		-26.68	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/07/2016		-26.68	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/07/2016		-26.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/07/2016		-26.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/07/2016		-26.68	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/07/2016		-26.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/07/2016		-26.68	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/07/2016		-26.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/07/2016		-26.71	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/07/2016		-26.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/07/2016		-26.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/07/2016		-26.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/08/2016		-26.68	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/08/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/08/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/08/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/08/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/08/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/08/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/08/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	12/08/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/08/2016		-26.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/08/2016		-26.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/08/2016		-26.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/08/2016		-26.74	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/08/2016		-26.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/08/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/08/2016		-26.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/08/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/08/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/08/2016		-26.71	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/08/2016		-26.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/08/2016		-26.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/08/2016		-26.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/08/2016		-26.75	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/08/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/08/2016		-26.76	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/08/2016		-26.76	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/08/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/08/2016		-26.76	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/09/2016		-26.74	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/09/2016		-26.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/09/2016		-26.75	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/09/2016		-26.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	06/09/2016		-26.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/09/2016		-26.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/09/2016		-26.76	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/09/2016		-26.75	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/09/2016		-26.76	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/09/2016		-26.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/09/2016		-26.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/09/2016	0814	-26.78	R	Reference Point		ACT	Actual	DH	MA	Manual/Hand	GWAN	1 Good - Actual Manual Measurements
A	18/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/09/2016		-26.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/09/2016		-26.76	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/09/2016		-26.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/09/2016		-26.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/09/2016		-26.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/09/2016		-26.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	30/09/2016		-26.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/10/2016		-26.80	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/10/2016		-26.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/10/2016		-26.80	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/10/2016		-26.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/10/2016		-26.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/10/2016		-26.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/10/2016		-26.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/10/2016		-26.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/10/2016		-26.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/10/2016		-26.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/10/2016		-26.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/10/2016		-26.80	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/10/2016		-26.80	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/10/2016		-26.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/10/2016		-26.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/10/2016		-26.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/10/2016		-26.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/10/2016		-26.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/10/2016		-26.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/10/2016		-26.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/10/2016		-26.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/10/2016		-26.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/10/2016		-26.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/10/2016		-26.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	25/10/2016		-26.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/10/2016		-26.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/10/2016		-26.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/10/2016		-26.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/10/2016		-26.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/10/2016		-26.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/10/2016		-26.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/11/2016		-26.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/11/2016		-26.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/11/2016		-26.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/11/2016		-26.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/11/2016		-26.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/11/2016		-26.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/11/2016		-26.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/11/2016		-26.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/11/2016		-26.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/11/2016		-26.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/11/2016		-26.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/11/2016		-26.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/11/2016		-26.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/11/2016		-26.87	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/11/2016		-26.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/11/2016		-26.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/11/2016		-26.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/11/2016		-26.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	19/11/2016	1236	-26.87	R	Reference Point		ACT	Actual	DH	MA	Manual/Hand		1 Good - Actual Manual Measurements
A	19/11/2016		-26.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/11/2016		-26.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/11/2016		-26.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/11/2016		-26.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/11/2016		-26.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/11/2016		-26.87	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/11/2016		-26.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/11/2016		-26.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/11/2016		-26.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/11/2016		-26.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/11/2016		-26.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/11/2016		-26.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/12/2016		-26.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/12/2016		-26.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/12/2016		-26.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/12/2016		-26.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/12/2016		-26.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/12/2016		-26.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/12/2016		-26.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/12/2016		-26.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/12/2016		-26.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/12/2016		-26.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/12/2016		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/12/2016		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	13/12/2016		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/12/2016		-26.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/12/2016		-26.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/12/2016		-26.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/12/2016		-26.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/12/2016		-26.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/12/2016		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/12/2016		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/12/2016		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/12/2016		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/12/2016		-26.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/12/2016		-26.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/12/2016		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/12/2016		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/12/2016		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/12/2016		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/12/2016		-26.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/12/2016		-26.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/12/2016		-26.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/01/2017		-26.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/01/2017		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/01/2017		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/01/2017		-26.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/01/2017		-26.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/01/2017		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	07/01/2017		-26.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/01/2017		-26.95	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/01/2017		-26.96	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/01/2017		-26.97	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/01/2017		-26.97	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/01/2017		-26.96	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/01/2017		-26.97	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/01/2017		-26.97	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/01/2017		-26.96	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/01/2017		-26.97	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/01/2017		-26.99	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/01/2017		-26.99	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/01/2017		-26.97	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/01/2017		-26.97	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/01/2017		-26.97	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/01/2017		-26.98	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/01/2017		-26.99	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/01/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/01/2017		-26.99	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/01/2017		-26.99	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/01/2017		-26.99	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/01/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/01/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/01/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/01/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	01/02/2017		-27.01	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/02/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/02/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/02/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/02/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/02/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/02/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/02/2017		-27.01	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/02/2017		-27.01	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/02/2017		-27.01	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/02/2017		-27.01	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/02/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/02/2017		-27.00	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/02/2017		-27.02	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/02/2017		-27.02	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/02/2017		-27.03	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/02/2017		-27.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/02/2017		-27.03	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/02/2017		-27.02	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/02/2017		-27.02	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/02/2017		-27.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/02/2017		-27.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/02/2017		-27.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/02/2017		-27.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/02/2017		-27.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	26/02/2017		-27.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/02/2017		-27.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/02/2017		-27.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/03/2017		-27.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/03/2017		-27.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/03/2017		-27.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/03/2017		-27.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/03/2017		-27.04	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/03/2017		-27.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/03/2017		-27.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/03/2017		-27.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/03/2017		-27.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/03/2017		-27.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/03/2017		-27.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/03/2017		-27.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/03/2017		-27.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/03/2017		-27.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/03/2017		-27.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/03/2017		-27.06	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/03/2017		-27.07	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/03/2017		-27.08	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/03/2017		-27.08	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/03/2017	1046	-27.09	R	Reference Point		ACT	Actual	DH	MA	Manual/Hand	GWAN	1 Good - Actual Manual Measurements
A	20/03/2017		-27.08	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/03/2017		-27.07	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	22/03/2017		-27.07	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/03/2017		-27.08	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/03/2017		-27.08	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/03/2017		-27.08	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/03/2017		-27.08	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/03/2017		-27.07	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/03/2017		-27.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/03/2017		-27.05	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/03/2017		-27.09	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/03/2017		-27.10	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/04/2017		-27.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/04/2017		-27.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/04/2017		-27.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/04/2017		-27.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/04/2017		-27.10	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/04/2017		-27.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/04/2017		-27.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/04/2017		-27.12	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/04/2017		-27.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/04/2017		-27.10	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/04/2017		-27.11	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/04/2017		-27.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/04/2017		-27.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/04/2017		-27.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/04/2017		-27.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	16/04/2017		-27.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/04/2017		-27.14	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/04/2017		-27.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/04/2017		-27.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/04/2017		-27.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/04/2017		-27.14	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/04/2017		-27.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/04/2017		-27.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/04/2017		-27.14	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/04/2017		-27.14	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/04/2017		-27.13	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/04/2017		-27.14	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/04/2017		-27.16	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/04/2017		-27.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/04/2017		-27.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/05/2017		-27.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/05/2017		-27.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/05/2017		-27.16	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/05/2017		-27.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/05/2017		-27.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/05/2017		-27.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/05/2017		-27.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/05/2017		-27.16	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/05/2017		-27.15	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/05/2017		-27.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	11/05/2017		-27.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/05/2017		-27.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/05/2017		-27.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/05/2017		-27.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/05/2017		-27.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/05/2017		-27.17	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/05/2017		-27.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/05/2017		-27.19	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/05/2017		-27.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/05/2017		-27.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/05/2017		-27.18	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/05/2017		-27.19	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/05/2017		-27.19	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/05/2017		-27.20	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/05/2017		-27.20	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/05/2017		-27.20	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/05/2017		-27.20	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/05/2017		-27.20	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/05/2017		-27.21	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/05/2017		-27.21	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/05/2017		-27.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/06/2017		-27.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/06/2017		-27.21	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	05/06/2017		-27.21	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/06/2017		-27.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/06/2017		-27.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/06/2017		-27.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/06/2017		-27.22	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/06/2017		-27.24	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/06/2017		-27.24	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/06/2017		-27.24	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/06/2017		-27.25	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/06/2017		-27.24	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/06/2017		-27.23	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/06/2017		-27.25	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/06/2017		-27.25	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/06/2017		-27.25	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/06/2017		-27.25	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	30/06/2017		-27.25	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/07/2017		-27.26	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/07/2017		-27.26	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	60 Data is estimated
A	03/07/2017		-27.26	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/07/2017		-27.26	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/07/2017		-27.26	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/07/2017		-27.25	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/07/2017		-27.25	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/07/2017		-27.26	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/07/2017		-27.27	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/07/2017		-27.28	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/07/2017		-27.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/07/2017		-27.28	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/07/2017		-27.27	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/07/2017		-27.27	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/07/2017		-27.27	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/07/2017		-27.27	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/07/2017		-27.27	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/07/2017		-27.27	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/07/2017		-27.27	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	60 Data is estimated
A	20/07/2017		-27.28	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	60 Data is estimated
A	21/07/2017		-27.28	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/07/2017		-27.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/07/2017		-27.28	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/07/2017		-27.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	25/07/2017		-27.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/07/2017		-27.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/07/2017		-27.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/07/2017		-27.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/07/2017		-27.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/07/2017		-27.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/07/2017		-27.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/08/2017		-27.30	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/08/2017		-27.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/08/2017		-27.29	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/08/2017		-27.32	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/08/2017		-27.32	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/08/2017		-27.33	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/08/2017		-27.33	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/08/2017		-27.34	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/08/2017		-27.33	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/08/2017		-27.33	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/08/2017		-27.34	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	19/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/08/2017		-27.36	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/08/2017		-27.36	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/08/2017		-27.35	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/08/2017		-27.36	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/08/2017		-27.37	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/08/2017		-27.37	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/09/2017		-27.37	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/09/2017		-27.37	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/09/2017		-27.37	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/09/2017		-27.36	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/09/2017		-27.37	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/09/2017		-27.37	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	13/09/2017		-27.36	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/09/2017		-27.37	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/09/2017		-27.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/09/2017		-27.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/09/2017		-27.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/09/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/09/2017		-27.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/09/2017		-27.37	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/09/2017		-27.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/09/2017		-27.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/09/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/09/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/10/2017		-27.38	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	02/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	08/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/10/2017		-27.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/10/2017		-27.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/10/2017		-27.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/10/2017		-27.39	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/10/2017		-27.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/10/2017		-27.43	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/10/2017		-27.42	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/10/2017		-27.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/10/2017		-27.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/10/2017		-27.43	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/10/2017		-27.43	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/10/2017		-27.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	27/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/10/2017		-27.40	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/10/2017		-27.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/10/2017		-27.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	31/10/2017		-27.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/11/2017		-27.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	02/11/2017		-27.41	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	03/11/2017		-27.42	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	04/11/2017		-27.43	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	05/11/2017		-27.43	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	06/11/2017		-27.43	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	07/11/2017		-27.42	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	08/11/2017		-27.43	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	09/11/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	10/11/2017		-27.46	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	11/11/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	12/11/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	13/11/2017		-27.44	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	14/11/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	15/11/2017		-27.44	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	16/11/2017		-27.44	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	17/11/2017		-27.44	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	18/11/2017		-27.43	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	19/11/2017		-27.44	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	20/11/2017		-27.44	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	21/11/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	22/11/2017		-27.44	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	23/11/2017		-27.44	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	24/11/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	25/11/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	26/11/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	27/11/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	28/11/2017		-27.46	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	29/11/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	30/11/2017		-27.44	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	10 Good
A	01/12/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/12/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/12/2017		-27.44	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/12/2017		-27.43	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/12/2017		-27.44	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/12/2017		-27.45	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/12/2017		-27.46	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/12/2017		-27.47	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/12/2017		-27.47	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/12/2017		-27.47	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/12/2017		-27.47	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	22/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/12/2017		-27.49	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/12/2017		-27.49	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/12/2017		-27.49	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/12/2017		-27.49	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/12/2017		-27.50	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/12/2017		-27.50	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/12/2017		-27.49	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	31/12/2017		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/01/2018		-27.47	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/01/2018		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/01/2018		-27.48	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/01/2018		-27.50	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/01/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/01/2018		-27.53	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/01/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/01/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/01/2018		-27.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/01/2018		-27.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/01/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/01/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/01/2018		-27.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/01/2018		-27.49	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/01/2018		-27.49	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	16/01/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/01/2018		-27.53	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/01/2018		-27.54	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/01/2018		-27.53	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/01/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/01/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/01/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/01/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/01/2018		-27.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/01/2018		-27.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/01/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/01/2018		-27.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/01/2018		-27.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/01/2018		-27.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/01/2018		-27.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	31/01/2018		-27.51	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/02/2018		-27.52	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/02/2018		-27.53	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/02/2018		-27.53	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/02/2018		-27.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/02/2018		-27.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	10/02/2018		-27.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/02/2018		-27.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/02/2018		-27.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/02/2018		-27.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/02/2018		-27.54	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/02/2018		-27.55	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/02/2018		-27.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/02/2018		-27.58	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/02/2018		-27.56	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/02/2018		-27.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/02/2018		-27.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/03/2018		-27.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/03/2018		-27.58	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/03/2018		-27.58	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/03/2018		-27.58	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/03/2018		-27.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/03/2018		-27.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality	
A	07/03/2018		-27.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	08/03/2018		-27.58	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	09/03/2018		-27.60	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	10/03/2018		-27.61	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	11/03/2018		-27.61	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	12/03/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	13/03/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	14/03/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	15/03/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	16/03/2018		-27.61	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	17/03/2018		-27.61	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	18/03/2018		-27.61	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	19/03/2018		-27.60	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	20/03/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	21/03/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	22/03/2018		-27.58	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	23/03/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	24/03/2018		-27.60	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	25/03/2018		-27.58	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	26/03/2018		-27.57	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	27/03/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	28/03/2018		-27.61	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	29/03/2018		-27.60	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	30/03/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality
A	31/03/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130	Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	01/04/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/04/2018		-27.60	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/04/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/04/2018		-27.59	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/04/2018		-27.60	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/04/2018		-27.61	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/04/2018		-27.62	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/04/2018		-27.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/04/2018		-27.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/04/2018		-27.62	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/04/2018		-27.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/04/2018		-27.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/04/2018		-27.62	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/04/2018		-27.61	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/04/2018		-27.61	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/04/2018		-27.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/04/2018		-27.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/04/2018		-27.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/04/2018		-27.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/04/2018		-27.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/04/2018		-27.62	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/04/2018		-27.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/04/2018		-27.63	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/04/2018		-27.62	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/04/2018		-27.62	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	26/04/2018		-27.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/04/2018		-27.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/04/2018		-27.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/04/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/04/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/05/2018		-27.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/05/2018		-27.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/05/2018	0951	-27.66	R	Reference Point		ACT	Actual	DH	MA	Manual/Hand		1 Good - Actual Manual Measurements
A	04/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/05/2018		-27.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/05/2018		-27.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/05/2018		-27.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/05/2018		-27.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/05/2018		-27.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/05/2018		-27.64	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/05/2018		-27.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	20/05/2018		-27.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/05/2018		-27.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/05/2018		-27.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/05/2018		-27.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/05/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/05/2018		-27.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/05/2018		-27.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/05/2018		-27.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/05/2018		-27.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/05/2018		-27.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	31/05/2018		-27.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/06/2018		-27.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/06/2018		-27.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/06/2018		-27.65	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/06/2018		-27.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/06/2018		-27.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/06/2018		-27.68	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/06/2018		-27.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/06/2018		-27.68	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/06/2018		-27.68	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/06/2018		-27.68	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/06/2018		-27.68	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/06/2018		-27.66	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/06/2018		-27.67	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	14/06/2018		-27.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/06/2018		-27.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/06/2018		-27.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/06/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/06/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/06/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/06/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/06/2018		-27.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/06/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/06/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/06/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/06/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/06/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/06/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/06/2018		-27.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/06/2018		-27.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/06/2018		-27.71	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/07/2018		-27.71	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/07/2018		-27.71	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/07/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/07/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/07/2018		-27.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/07/2018		-27.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/07/2018		-27.69	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/07/2018		-27.71	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	09/07/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/07/2018		-27.71	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/07/2018		-27.71	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/07/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/07/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/07/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/07/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/07/2018		-27.70	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/07/2018		-27.71	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/07/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/07/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/07/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/07/2018		-27.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/07/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/07/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/07/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/07/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/07/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/07/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/07/2018		-27.71	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/07/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/07/2018		-27.74	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	31/07/2018		-27.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/08/2018		-27.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/08/2018		-27.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	03/08/2018		-27.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/08/2018		-27.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/08/2018		-27.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/08/2018		-27.72	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/08/2018		-27.74	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/08/2018		-27.74	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/08/2018		-27.75	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/08/2018		-27.74	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/08/2018		-27.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/08/2018		-27.74	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/08/2018		-27.76	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/08/2018		-27.76	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/08/2018		-27.75	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/08/2018		-27.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/08/2018		-27.73	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/08/2018		-27.74	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/08/2018		-27.76	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/08/2018		-27.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/08/2018		-27.75	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/08/2018	1445	-27.71	R	Reference Point		ACT	Actual	DH	MA	Manual/Hand		1 Good - Actual Manual Measurements
A	22/08/2018		-27.75	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/08/2018		-27.76	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/08/2018		-27.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/08/2018		-27.76	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/08/2018		-27.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	27/08/2018		-27.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/08/2018		-27.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/08/2018		-27.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/08/2018		-27.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	31/08/2018		-27.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/09/2018		-27.77	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/09/2018		-27.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/09/2018		-27.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/09/2018		-27.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/09/2018		-27.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/09/2018		-27.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/09/2018		-27.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/09/2018		-28.74	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/09/2018		-27.80	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/09/2018		-27.80	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/09/2018		-27.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/09/2018		-27.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/09/2018		-27.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/09/2018		-27.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/09/2018		-27.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/09/2018		-27.78	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/09/2018		-27.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/09/2018		-27.80	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/09/2018		-27.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/09/2018		-27.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	21/09/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/09/2018		-27.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/09/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/09/2018		-27.80	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/09/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/09/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/09/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/09/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/09/2018		-27.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/09/2018		-27.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/10/2018		-27.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/10/2018		-27.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/10/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/10/2018		-27.80	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/10/2018		-27.79	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/10/2018		-27.80	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/10/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/10/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/10/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/10/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/10/2018		-27.80	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/10/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/10/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/10/2018		-27.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/10/2018		-27.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	16/10/2018		-27.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/10/2018		-27.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/10/2018		-27.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/10/2018		-27.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/10/2018		-27.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/10/2018		-27.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/10/2018		-27.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/10/2018		-27.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/10/2018		-27.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/10/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/10/2018		-27.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/10/2018		-27.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/10/2018		-27.81	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/10/2018		-27.82	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/10/2018		-27.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	31/10/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/11/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/11/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/11/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/11/2018		-27.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/11/2018		-27.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/11/2018		-27.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/11/2018		-27.83	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/11/2018		-27.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/11/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	10/11/2018		-27.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/11/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/11/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/11/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/11/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/11/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/11/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/11/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/11/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/11/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/11/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/11/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/11/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/11/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/11/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/11/2018		-27.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/11/2018		-27.84	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/11/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/11/2018		-27.85	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/11/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/11/2018		-27.87	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/12/2018		-27.87	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/12/2018		-27.87	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/12/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/12/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	05/12/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/12/2018		-27.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/12/2018		-27.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/12/2018		-27.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/12/2018		-27.87	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/12/2018		-27.87	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/12/2018		-27.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/12/2018		-27.87	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/12/2018		-27.87	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/12/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/12/2018		-27.87	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/12/2018		-27.86	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/12/2018		-27.87	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/12/2018		-27.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/12/2018		-27.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/12/2018		-27.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/12/2018		-27.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/12/2018		-27.88	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/12/2018		-27.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/12/2018		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/12/2018		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/12/2018		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/12/2018		-27.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/12/2018		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/12/2018		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	30/12/2018		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	31/12/2018		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/01/2019		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/01/2019		-27.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/01/2019		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/01/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/01/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/01/2019		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/01/2019		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/01/2019		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/01/2019		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/01/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/01/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/01/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/01/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/01/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/01/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/01/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/01/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/01/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/01/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/01/2019		-27.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/01/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/01/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/01/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	24/01/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/01/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/01/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/01/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/01/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/01/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/01/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	31/01/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/02/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/02/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/02/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/02/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/02/2019		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/02/2019		-27.89	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/02/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/02/2019		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/02/2019		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/02/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/02/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/02/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/02/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/02/2019		-27.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	15/02/2019		-27.96	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/02/2019		-27.96	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/02/2019		-27.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	18/02/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/02/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/02/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/02/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/02/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/02/2019		-27.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/02/2019		-27.96	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/02/2019		-27.96	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/02/2019		-27.95	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/02/2019		-27.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/02/2019		-27.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	01/03/2019		-27.95	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	02/03/2019		-27.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	03/03/2019		-27.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	04/03/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	05/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	06/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	07/03/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	08/03/2019		-27.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	09/03/2019		-27.95	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	10/03/2019		-27.94	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	11/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	12/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	13/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	14/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Time	Measure (m)	Meas	Point	Remark	Meas	Type	Coll Auth	Coll	Method	Project	Quality
A	15/03/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	16/03/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	17/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	18/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	19/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	20/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	21/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	22/03/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	23/03/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	24/03/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	25/03/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	26/03/2019		-27.92	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	27/03/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	28/03/2019		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	29/03/2019		-27.90	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	30/03/2019		-27.91	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality
A	31/03/2019		-27.93	R	Reference Point		DM	Daily Mean	DH	DL	Data Logger	GWAN	130 Data is of unknown quality

Wire Line Logs

0 records for RN 12010002

Field Measurements

20 records for RN 12010002

Pipe	Date	Depth (m)	Conduct (uS/cm)	pH	Temp (C)	NO3 (mg/L)	DO2 (mg/L)	Eh (mV)	Alkalinity (mV)	Samp Method	Samp Source
A	21/01/1976		920								GB Groundwater - from Bore
A	19/04/1976		890								GB Groundwater - from Bore

Queensland Government
Groundwater Information
Bore Report

From Year:

Pipe	Date	Depth (m)	Conduct (uS/cm)	pH	Temp (C)	NO3 (mg/L)	DO2 (mg/L)	Eh (mV)	Alkalinity (mV)	Samp	Method	Samp	Source
A	05/07/1976		940									GB	Groundwater - from Bore
A	20/09/1976		960									GB	Groundwater - from Bore
A	18/04/1977		980							BA	Bailer - Other	GB	Groundwater - from Bore
A	24/10/1977		1000									GB	Groundwater - from Bore
A	24/04/1978		990									GB	Groundwater - from Bore
A	23/10/1978		1080									GB	Groundwater - from Bore
A	21/05/1979		1100							BA	Bailer - Other	GB	Groundwater - from Bore
A	28/04/1980		1140									GB	Groundwater - from Bore
A	10/05/1982		950							BA	Bailer - Other	GB	Groundwater - from Bore
A	18/07/1983		1000							BA	Bailer - Other	GB	Groundwater - from Bore
A	23/07/1984		1050							BA	Bailer - Other	GB	Groundwater - from Bore
A	19/08/1985		1100							BA	Bailer - Other	GB	Groundwater - from Bore
A	07/07/1986		1230							BA	Bailer - Other	GB	Groundwater - from Bore
A	29/05/2014		1524		27.6					AI	Air Lifting	GB	Groundwater - from Bore
A	27/10/2014		1690		28.1					AI	Air Lifting	GB	Groundwater - from Bore
A	16/04/2015		1745		28.4					AI	Air Lifting	GB	Groundwater - from Bore
A	27/08/2015		1768		27.7					AI	Air Lifting	GB	Groundwater - from Bore
A	15/10/2015		1804		27.8					AI	Air Lifting	GB	Groundwater - from Bore

From Year:

Special Water Analysis	0 records for RN 12010002
------------------------	---------------------------

From Year:

User Licence and Conditions

Disclaimer

Open Licence (Single Supply)

Permitted use:

- You may use the supplied data for your own purposes (including supply to consultants for a specific consultancy project for you but the consultants must return or destroy the supplied data when the project is finished). You must not sell or distribute the supplied data.
- You must display this copyright notice on any copies of the supplied data however altered, reformatted or redisplayed if you supply to a consultant or copy for back up purposes: "© State of Queensland 2019".
- You may create and distribute hardcopy and digital products based on or containing the supplied data, provided all the following conditions are met:
 - You must display this acknowledgment on the product(s): "Based on or contains data provided by the State of Queensland 2019. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws."
 - You must include metadata with the product(s) you create that use or incorporate the supplied data and the metadata must incorporate as a minimum the metadata provided with this supplied data.

Obligations:

- You must not use the data for direct marketing or in breach of the privacy laws.

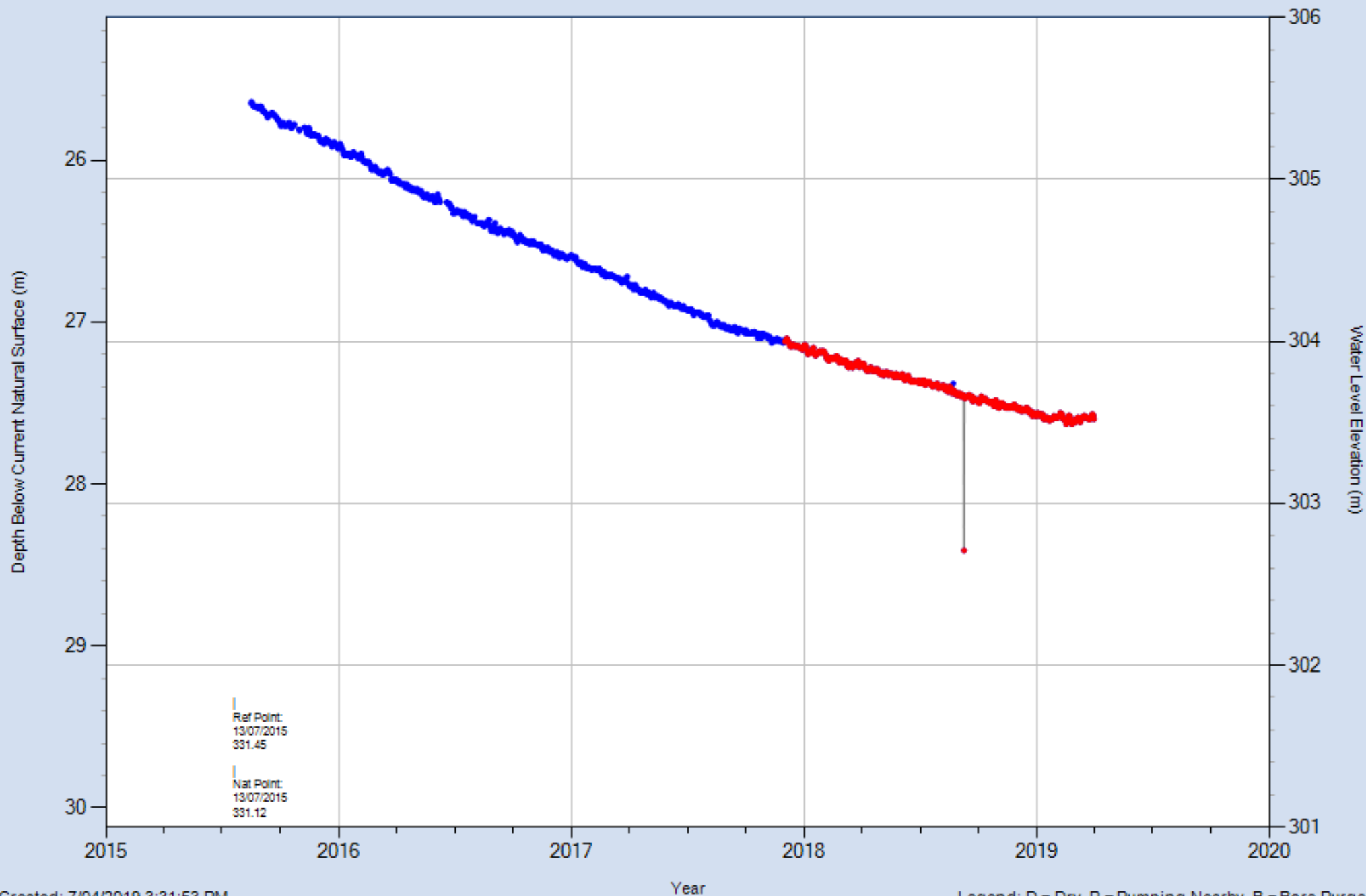
Ownership:

The State of Queensland is the owner of the intellectual property rights in and to the supplied data or has the right to make this supplied data available.

Disclaimer and indemnity:

You agree to accept all responsibility and risks associated with the use of the supplied data. The State makes no representations or warranties in relation to the supplied data, and, you agree that, to the extent permitted by law, all warranties relating to accuracy, reliability, completeness, currency or suitability for any particular purpose and all liability for any loss, damage or costs (including consequential damage) incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the supplied data are excluded or limited. You agree to continually indemnify the State of Queensland (and its officers and employees) against any loss, cost, expense, damage and liability of any kind (including consequential damage and liability in negligence) arising directly or indirectly from or related to any claim relating to your use of the supplied data or any product made from the data.

RN - 12010002 Pipe - A



Open Licence (Single Supply)

Permitted use:

- You may use the supplied data for your own purposes (including supply to consultants for a specific consultancy project for you but the consultants must return or destroy the supplied data when the project is finished). You must not sell or distribute the supplied data.
- You must display this copyright notice on any copies of the supplied data however altered, reformatted or redisplayed if you supply to a consultant or copy for back up purposes: “© State of Queensland 2019”.
- You may create and distribute hardcopy and digital products based on or containing the supplied data, provided all the following conditions are met:
 - You must display this acknowledgment on the product(s): “Based on or contains data provided by the State of Queensland 2019. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.”
 - You must include metadata with the product(s) you create that use or incorporate the supplied data and the metadata must incorporate as a minimum the metadata provided with this supplied data.

Obligations:

- You must not use the data for direct marketing or in breach of the privacy laws.

Ownership:

The State of Queensland is the owner of the intellectual property rights in and to the supplied data or has the right to make this supplied data available.

Disclaimer and indemnity:

You agree to accept all responsibility and risks associated with the use of the supplied data. The State makes no representations or warranties in relation to the supplied data, and, you agree that, to the extent permitted by law, all warranties relating to accuracy, reliability, completeness, currency or suitability for any particular purpose and all liability for any loss, damage or costs (including consequential damage) incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the supplied data are excluded or limited. You agree to continually indemnify the State of Queensland (and its officers and employees) against any loss, cost, expense, damage and liability of any kind (including consequential damage and liability in negligence) arising directly or indirectly from or related to any claim relating to your use of the supplied data or any product made from the data.

**** End of Report. Produced: 7/04/2019 3:31:53 PM ****

Queensland Government
Groundwater Information
Bore Report

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
12010014	Sub-Artesian Facility	Abandoned and Destroyed	14/07/2012	Ayr	2310 - CHARTERS TOWERS REGIONAL
Details			Location		
Description			Latitude	19-39-54	Basin 1201
Parish	2327 - HILLGROVE		Longitude	145-43-32	Sub-area
Original Name	UB7		GIS Latitude	-19.66492832	Lot
			GIS Longitude	145.7256218	Plan
			Easting	366405	
Driller Name	MATT, WILLIAM JOHARN		Northing	7825097	Map Scale
Drill Company	DNR		Zone	55	Map Series
Const Method	ROTARY AIR		Accuracy	GPS	Map No
Bore Line			GPS Accuracy	25	Map Name
D/O File No	Polygon		Checked	Yes	Prog Section
R/O File No	Equipment	NE			
H/O File No	RN of Bore Replaced				
Log Received Date	03/09/2012	Data Owner	DSI		
Roles	Sub-Artesian Monitoring				

Casing 3 records for RN 12010014

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
X	14/07/2012	1	0.00	5.00	Grout			215
X	14/07/2012	2	5.00	5.50	Cuttings or other fill between casing and hole wall			215
X	14/07/2012	3	5.50	49.50	Cuttings or other fill between casing and hole wall			152

Strata Logs 17 records for RN 12010014

From Year:

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	0.10	BROWN CLAYEY SAND SOIL
2	0.10	4.00	GREY BASALT, VESICULAR, WEATHERED, FRACTURED
3	4.00	5.00	RED BROWN CLAY; DECOMPOSED BASALT
4	5.00	7.00	DARK BROWN BASALT, VERY WEATHERED, FRACTURED
5	7.00	13.00	GREY BASALT, MINOR VESICLES, WEAKLY WEATHERED, FRACTURED
6	13.00	21.00	GREY BROWN BASALT, VESICULAR, WEATHERED, FRACTURED, FE STAINING **SOAK
7	21.00	28.00	GREY BROWN BASALT, WEATHERED, FRACTURED, FE STAINING
8	28.00	29.00	BROWN SANDY CLAY
9	29.00	32.00	OFF WHITE SANDY CLAY
10	32.00	33.00	GREY BROWN BASALT, WEATHERED, FRACTURED
11	33.00	35.00	DARK GREY BROWN BASALT, WEAKLY WEATHERED
12	35.00	40.00	GREY BROWN BASALT, WEATHERED, FRACTURED
13	40.00	42.50	BLACK GREY OLIVINE BASALT
14	42.50	44.00	RED BROWN VF-VC SAND & GRAVEL
15	44.00	47.00	RED SANDY CLAY
16	47.00	49.00	LIGHT BROWN SANDY CLAY
17	49.00	49.50	WHITE F-VC SAND & GRAVEL

Stratigraphies

2 records for RN 12010014

Source	Rec	Top (m)	Bottom (m)	Strata Description
DNR	1	0.00	42.50	NULLA BASALT
DNR	2	42.50	49.50	TERTIARY - UNDEFINED

Aquifers

2 records for RN 12010014

Rec	Top (m)	Bottom	Lithology	Date	SWL	Flow	Quality	Yield	Contr	Cond	Formation Name
-----	---------	--------	-----------	------	-----	------	---------	-------	-------	------	----------------

Queensland Government
Groundwater Information
Bore Report

From Year:

		(m)		(m)		(L/s)			
1	13.00		BSLT - Basic Volcanic	N		0.10	N	WZ	NULLA BASALT
2	32.00	40.00	BSLT - Basic Volcanic	N	1604US/C M	0.45	N	WZ	NULLA BASALT

Pump Tests Part 1

0 records for RN 12010014

Pump Tests Part 2

0 records for RN 12010014

Bore Conditions

0 records for RN 12010014

Elevations

1 records for RN 12010014

Pipe	Date	Elevation (m)	Precision		Datum	Meas	Point	Survey Source
X	14/07/2012	338.00	GPS	Global Positioning System	AHD - Aust. Height Datum	N	Natural Surface	WGS 84

Water Analysis Part 1

0 records for RN 12010014

Water Analysis Part 2

0 records for RN 12010014

Water Levels

0 records for RN 12010014

Wire Line Logs

2 records for RN 12010014

Date	Run	Type		Source	Top (m)	Bottom (m)	Operator	Comments
14/07/2012	1	GR	Gamma Ray	DNR	0.00	39.260		RUN WITH CIEL LOG
14/07/2012	1	CIEL	Conductivity Induction Electricity	DNR	0.00	39.260		

Field Measurements

1 records for RN 12010014

Pipe	Date	Depth (m)	Conduct (uS/cm)	pH	Temp (C)	NO3 (mg/L)	DO2 (mg/L)	Eh (mV)	Alkalinity (mV)	Samp	Method	Samp	Source
X	08/07/2012	38.00	1601		28.1					AI	Air Lifting	GB	Groundwater - from

From Year:

Pipe	Date	Depth (m)	Conduct (uS/cm)	pH	Temp (C)	NO3 (mg/L)	DO2 (mg/L)	Eh (mV)	Alkalinity (mV)	Samp Method	Samp Source
Bore											

Special Water Analysis	0 records for RN 12010014
------------------------	---------------------------

From Year:

User Licence and Conditions

Disclaimer

Open Licence (Single Supply)

Permitted use:

- You may use the supplied data for your own purposes (including supply to consultants for a specific consultancy project for you but the consultants must return or destroy the supplied data when the project is finished). You must not sell or distribute the supplied data.
- You must display this copyright notice on any copies of the supplied data however altered, reformatted or redisplayed if you supply to a consultant or copy for back up purposes: "© State of Queensland 2019".
- You may create and distribute hardcopy and digital products based on or containing the supplied data, provided all the following conditions are met:
 - You must display this acknowledgment on the product(s): "Based on or contains data provided by the State of Queensland 2019. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws."
 - You must include metadata with the product(s) you create that use or incorporate the supplied data and the metadata must incorporate as a minimum the metadata provided with this supplied data.

Obligations:

- You must not use the data for direct marketing or in breach of the privacy laws.

Ownership:

The State of Queensland is the owner of the intellectual property rights in and to the supplied data or has the right to make this supplied data available.

Disclaimer and indemnity:

You agree to accept all responsibility and risks associated with the use of the supplied data. The State makes no representations or warranties in relation to the supplied data, and, you agree that, to the extent permitted by law, all warranties relating to accuracy, reliability, completeness, currency or suitability for any particular purpose and all liability for any loss, damage or costs (including consequential damage) incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the supplied data are excluded or limited. You agree to continually indemnify the State of Queensland (and its officers and employees) against any loss, cost, expense, damage and liability of any kind (including consequential damage and liability in negligence) arising directly or indirectly from or related to any claim relating to your use of the supplied data or any product made from the data.

Our Ref: 118284-02-L003-0.docx

7 June 2019

Australian Mine Limited
C/-
AARC Environmental Solutions Ltd
Suite 5, 1 Swann Road
TARINGA QLD 4068

ATTENTION: HOLLIE DICK

Dear Hollie,

LUCKY BREAK PROJECT, DINGO DAM MINING VOID, PIT WALL DESKTOP STABILITY STUDY

1 PROJECT BACKGROUND

The Lucky Break project is an open cut nickel mine located within Mining Lease (ML) 10324 approximately 90 km west of Townsville and 90 km northwest of Charters Towers in northeast Queensland. Two distinct surface outcropping nickel ore bodies (i.e. Dingo Dam and Circular Laterite) are the focus of the project.

Extraction at the mine was undertaken between March and July 2015 by Queensland Nickel Pty Ltd (QNPL) for Metallica Minerals Ltd (MML), a subsidiary of NORNICO Pty Ltd, under the previous Environmental Authority (EA, EPML00900713). After mining ceased the project entered a care and maintenance phase, with the balance of ore reserves in the Dingo Dam deposit left in place for potential later mining by the Lucky Break Project. Rehabilitation was undertaken during this period including removal of infrastructure, re-profiling of the waste dump, reducing batter angles of the residual void, installing stormwater controls, ripping hardstand areas, spreading topsoil and seeding and installing fences.

The current EA holder, Sconi Mining Operations Pty Ltd (SMO), a subsidiary of Australian Mines Ltd (AML) recently acquired the Lucky Break Project, and with AARC Environmental Solutions Ltd (AARC) acting on their behalf, has requested that ATCW provides geotechnical engineering assessment of the stability of the Dingo Dam mining void. For this scope of work, ATCW has undertaken desktop review of available reports, maps and photographs as discussed below.

2 SUMMARY OF REVIEW OF AVAILABLE DOCUMENTATION

AARC provided ATCW with site-specific information for desktop review of the existing geological and hydrogeological conditions at site, which would be anticipated to affect stability in the mining void. The primary sources of information reviewed included:

- Geological Survey of Queensland (1968), 1:250,000 geological series Townsville geological map explanatory notes;
- Geological Survey of Queensland (1997), 1:250,000 geological series Townsville geological map (Sheet SE55-14. 2nd Edition);
- Geological Survey of Queensland (2005), 1:100,000 geological series Ewan geological map (Sheet 8059);
- Internal drilling summary report prepared for MML (Anon., 2005);
- Miscellaneous historical site photographs (Anon., 2008 to 2018);
- Results of geochemical analysis of percussion drill samples by Australian Laboratory Services Pty Ltd (ALS, 2005);
- Resource update report prepared by Computer Aided Geoscience Pty Ltd (CAG, 2006) for MML;
- Detail and Level Survey prepared by Rowlands Surveys Pty Ltd for SMO (2019); and
- Dingo dam hydrogeological assessment prepared by Geosquare Consulting Pty Ltd (GC, 2019).

Other public access data sources including topographical mapping were also accessed for review to complement the above references.

3 REGIONAL TOPOGRAPHY AND GEOLOGY OF DINGO DAM MINING VOID

Available topographical maps indicate that the ML comprises gently undulating hillslopes and minor watercourses with elevations in the order of approximately RL 330 m to 360 m AHD. Local elevations around the Dingo Dam mining void range from approximately RL 350 m in the southwest to RL 340 m AHD in the northeast, with the pit floor indicated to be at approximately RL 335 m to RL 338 m AHD (refer to **Plate 1; Figures 1 to 3**). The void is approximately 400 m long by 80 m wide with batter angles indicated to be in the order of 20° angles based on available survey. The void exists on an unnamed southwest to northeast flowing tributary of the west-east oriented Snake Creek. Stockyard Creek is found to the northeast beyond the ML boundaries.

The Geological Survey of Queensland's geological mapping (GSQ, 1997, 2005) was reviewed to assess the subsurface geology at the ML, and in particular at the pit location. Locally, shallow subsurface cover materials are indicated to comprise Quaternary alluvium, Tertiary duricrust soils and Late Tertiary colluvial clay, silt, sand and gravel mixtures. The regional geology consists of Neoproterozoic to Early Palaeozoic aged basement rocks of the Argentine Metamorphics and these rocks typically comprising mica schist, quartzite, amphibolite, and serpentinite with minor talc-tremolite schist and clinopyroxenite. Early Carboniferous aged rocks of the Whipple Spring Granite are shown to have been intruded into these basement rocks to the west of the site.

At the site of the Dingo Dam mining void, the mapping shows that the underlying rocks are expected to consist predominantly of serpentinite. In terms of structural geology, the mapping (GSQ, 1997, 2005) indicates that there are no geological faults or any other fracture zones locally.

Plate 1 Mining Void Configuration

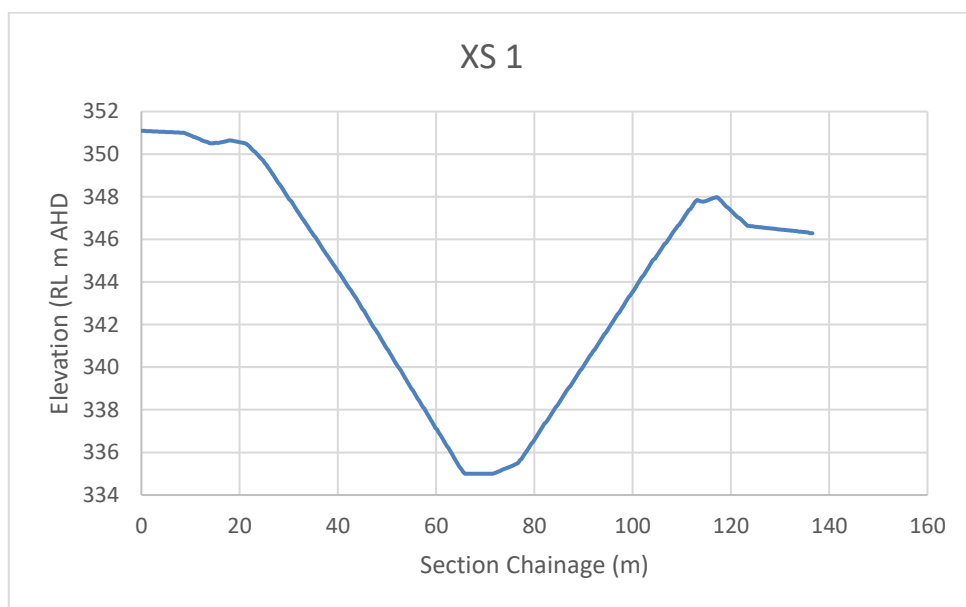
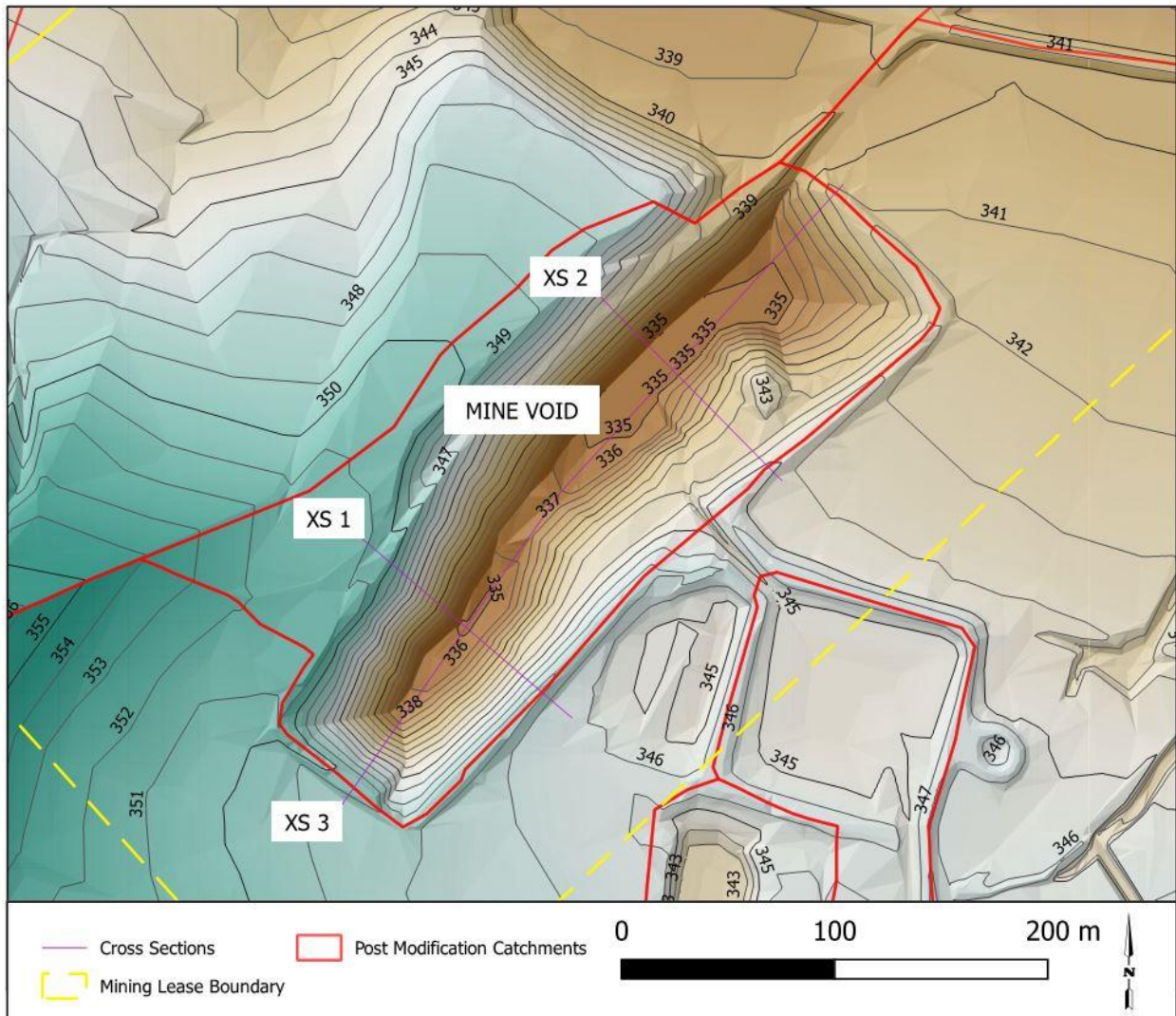


Figure 1: Mining Void Cross Section XS1

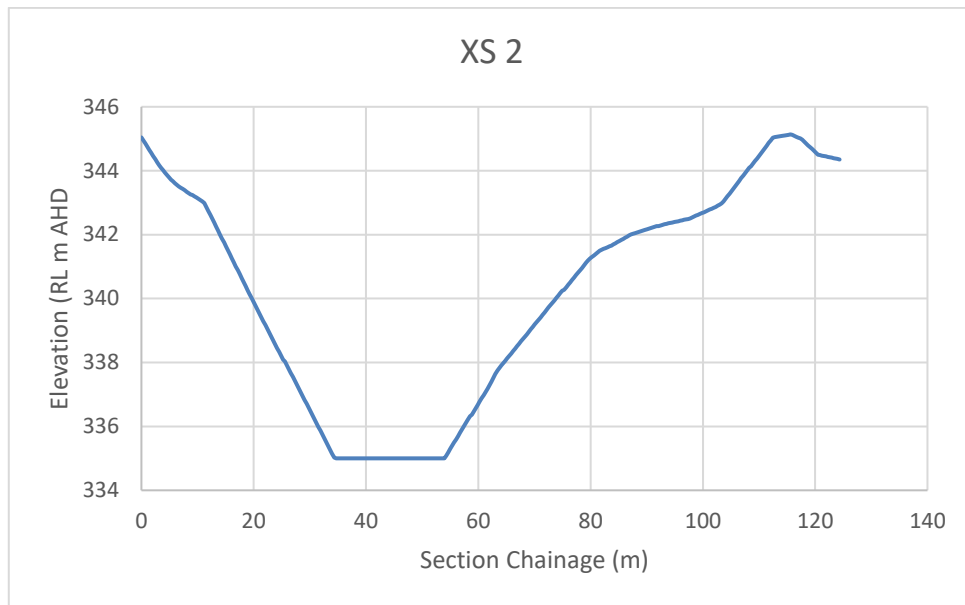


Figure 2: Mining Void Cross Section XS2

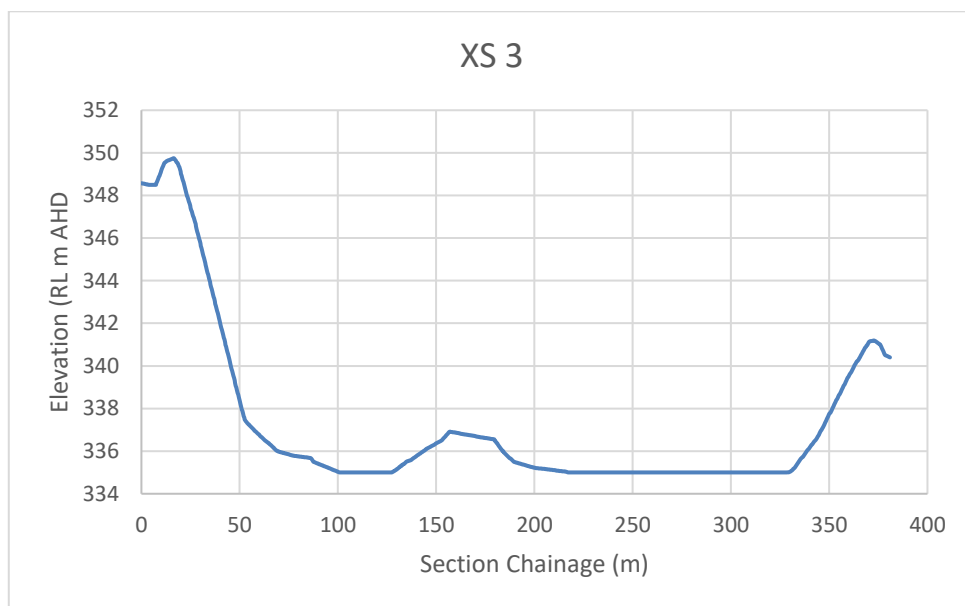


Figure 3: Mining Void Cross Section XS3

4 REVIEW OF HISTORICAL PHOTOGRAPHS

ATCW has undertaken review of a series of photographs supplied by AARC which show conditions during the construction of the Dingo Dam mining void (refer **Plate 2**), conditions shortly after construction and conditions during recent site inspections (refer **Plate 3**). The photographs from the construction period generally suggest that the void was excavated into relatively shallow and weak clay soils underlain by estimated very low to low strength basement rock. The near-vertical benches shown in the photographs (**Plate 2**) appeared relatively stable in dry conditions however it appears that the benches were flattened out into batters (**Plate 3**) at a later stage.

Plate 2
Photographs of site conditions during Dingo Dam mining void construction

Excavation of mining void



Weathered soils and rock at excavation batter



View of benching at excavation batter



Serpentine rock exposed in batter face



Weathered rock and clay exposed in batter



Overview of mining void



Plate 3
Photographs of site conditions at Dingo Dam mining void

Batter slopes at mining void



Batter slopes at mining void (looking NE)



September 2018 void conditions (looking SW)



September 2018 void conditions (looking NE)



Void conditions in December 2018 (looking SW)



Void condition in April 2019 (looking NE)



5 MINING VOID STABILITY ASSESSMENT

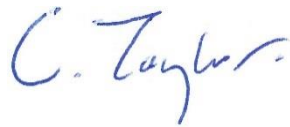
Reference to the photographs from 2018 and 2019 indicate that the mining void becomes water-filled periodically, dependent on weather conditions. Sparse vegetation has established on the batters in the period following construction, however erosion rills on the batter slopes suggest that water is freely draining down the batters.

From a stability perspective, it is considered that there is a very low risk of geotechnical instability affecting the mining void, other than the existing erosion from water flowing into the pit. It is understood that bunding of the mining void is to be undertaken which will further minimise the erosion of the batter. Nonetheless, it would be prudent to encourage additional vegetation to establish on the batters as a control measure to minimise ongoing erosion. Should any slip failures occur in the relatively weak soils and upper portion of the weathered rock, it is likely that this would be a relatively low-angle failure with materials being contained within the mining void. The relatively shallow batter slope angles reduce the risk of toppling or wedge failures in any exposed rock (noting that these conditions were not observed in the photographs).

6 CONCLUDING COMMENTS

We trust that this meets your current requirements.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "C. Taylor".

CHRIS TAYLOR
Senior Engineering Geologist
ATC Williams Pty Ltd

A handwritten signature in blue ink, appearing to read "L. Boczek".

LIS BOCZEK
Principal Engineer
ATC Williams Pty Ltd



REPORT

AUSTRALIAN MINES LTD

LUCKY BREAK PROJECT

**DINGO DAM CONSEQUENCE
CATEGORY ASSESSMENT**

Date: June 2019

Report Number: 118284-02 R001

Document History and Status

Title: Lucky Break - Dingo Dam Consequence Category Assessment
Job Number/Extension: 118284-02
Document Number: 118284-02 R001-0
Project Office: Brisbane
File Path: M:\Synergy\Projects\118\118284 Dingo Dam Lucky Break\02 Residual Void Ass and CCAs\Documents\R01 - CCA\04 Final\118284-02-R001-0.docx
Authors: Andronikus Dreyer
Reviewer: Lis Boczek
Job Manager: Thomas Rose

Rev.	Status	Issued to	Issue Date	Signatures	
				Author	Reviewer
A	Draft	AARC/AML		AD	LB
0	Final	AARC/AML	07/06/2019	AD	LB

IMPORTANT NOTICE

Please refer to our Conditions of Investigation and Report



ATC Williams Pty Ltd
ABN 64 005 931 288
Melbourne T: +61 3 8587 0900 Perth T: +61 8 9213 1600 Brisbane T: +61 7 3352 7222
www.atcwilliams.com.au



Conditions of Report

1. This report has been prepared by us for the purposes stated herein. We do not accept responsibility for the consequences of extrapolation, extension or transference of the findings and recommendations of this report to different sites, cases or conditions.
2. This report is based in part on information which was provided to us by the client and/or others and which is not under our control. We do not warrant or guarantee the accuracy of this information.
3. We believe the conclusions and recommendations contained herein were reasonable and appropriate at the time of issue of the report. However, the user is cautioned that fundamental input assumptions upon which this report is based may change with time. It is the user's responsibility to ensure that input assumptions remain valid.
4. This report must be read in its entirety. This notice constitutes an integral part of the report, and must be reproduced with every copy.
5. This report is prepared solely for the use of the person or company to whom it is addressed. No responsibility or liability to any third party is accepted for any damages howsoever arising out of the use of this report by any third party.
6. Unless specifically agreed otherwise in the contract of engagement, ATC Williams retains Intellectual Property Rights over the contents of this report. The client is granted a licence to use the report for the purposes for which it was commissioned.



ATC Williams Pty Ltd
ABN 64 005 931 288
Melbourne T: +61 3 8587 0900 Perth T: +61 8 9213 1600 Brisbane T: +61 7 3352 7222
www.atcwilliams.com.au



TABLE OF CONTENTS

1	INTRODUCTION.....	2
1.1	Background	2
1.2	Site Layout.....	2
2	WATER MANAGEMENT	4
2.1	Regional Hydrology	4
2.2	Site Storage Configuration.....	5
3	WATER QUALITY	6
3.1	Receiving Environment.....	6
3.2	Environmental Values	7
3.3	Groundwater.....	8
3.4	Water Quality Requirements	9
3.5	Site Water Quality	9
4	CONSEQUENCE CATEGORY ASSESSMENT	10
4.1	Methodology	10
4.2	Adopted Failure Scenarios.....	12
4.3	Consequence Category Assessment	12
5	CONCLUSIONS	17
6	REFERENCES	18

TABLES

Table 1	Summary of Storage Volumes - Site Structures.....	5
Table 2	Significant Values - Downstream Receiving Environment	8
Table 3	Water Quality Conditions - EA Requirements	9
Table 4	Site Water Quality - Dams and Storages.....	9
Table 5	Consequence Category Assessment Criteria ⁷	11
Table 6	Consequence Category Assessment - Mine Void Criteria	13
Table 7	Consequence Category Assessment - Pond Criteria	14
Table 8	Consequence Category Assessment - Sediment Dam Criteria.....	15
Table 9	Consequence Assessment Summary - Dingo Dam	17

PLATES

Plate 1	Dingo Dam Site Location.....	3
Plate 2	Site Layout & Infrastructure	4
Plate 3	Site Layout - Catchment Delineation.....	6

APPENDICES

Appendix A - CCA Certification

1 INTRODUCTION

1.1 Background

Sconi Mining Operations Pty Ltd, a subsidiary of Australian Mines Ltd (AML) owns the Lucky Break project located approximately 120km southwest of Townsville and some 90km northwest of Charters Towers, in Northern Queensland. The Lucky Break project is an open cut nickel mine located on Gregory Development Road, encompassing two Mining Leases (ML) known as Dingo Dam (ML 10324) and Lucky Break (ML 10332). Mining operations were undertaken through use of an open-cut pit method from which approximately 114 thousand tonnes (kt) of ore was extracted, before mining ceased in July 2015. Mining was conducted only on the Dingo Dam ML, with the Lucky Break ML undisturbed. The project operates under Environmental Authority (EA) Permit No. EPML00900713 issued by the Department of Environment and Science (DES), dated 9 March 2018. It is understood that the project is currently in Care and Maintenance following mine closure and previous rehabilitation works.

A consequence category assessment (CCA), with reference to the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (the Manual)*, is required to meet condition D1-3 of the EA. AML have engaged ATC Williams Pty Ltd (ATCW) to conduct the CCA for the Lucky Break Project's structures located within the Dingo Dam ML.

1.2 Site Layout

The project site comprises of two Mining Leases known as Dingo Dam (ML 10324) and Lucky Break (ML 10332). The site location is provided in **Plate 1**, shown below.

The site is currently occupied by the Spyglass Beef Research Station, which is utilised for cattle grazing, however cattle grazing is not currently a land use on the project site. The Spyglass Beef Research Station occupies approximately 38,300 hectares, which encompasses this site.

Key infrastructure associated with the Dingo Dam ML is shown in **Plate 2**, including the following:

- Dingo Dam
- Sediment Dam
- Waste Rock Dump
- Open Cut Pit (referred to as the Mine Void)
- ROM Pad
- Various bunds

Plate 1
Dingo Dam Site Location

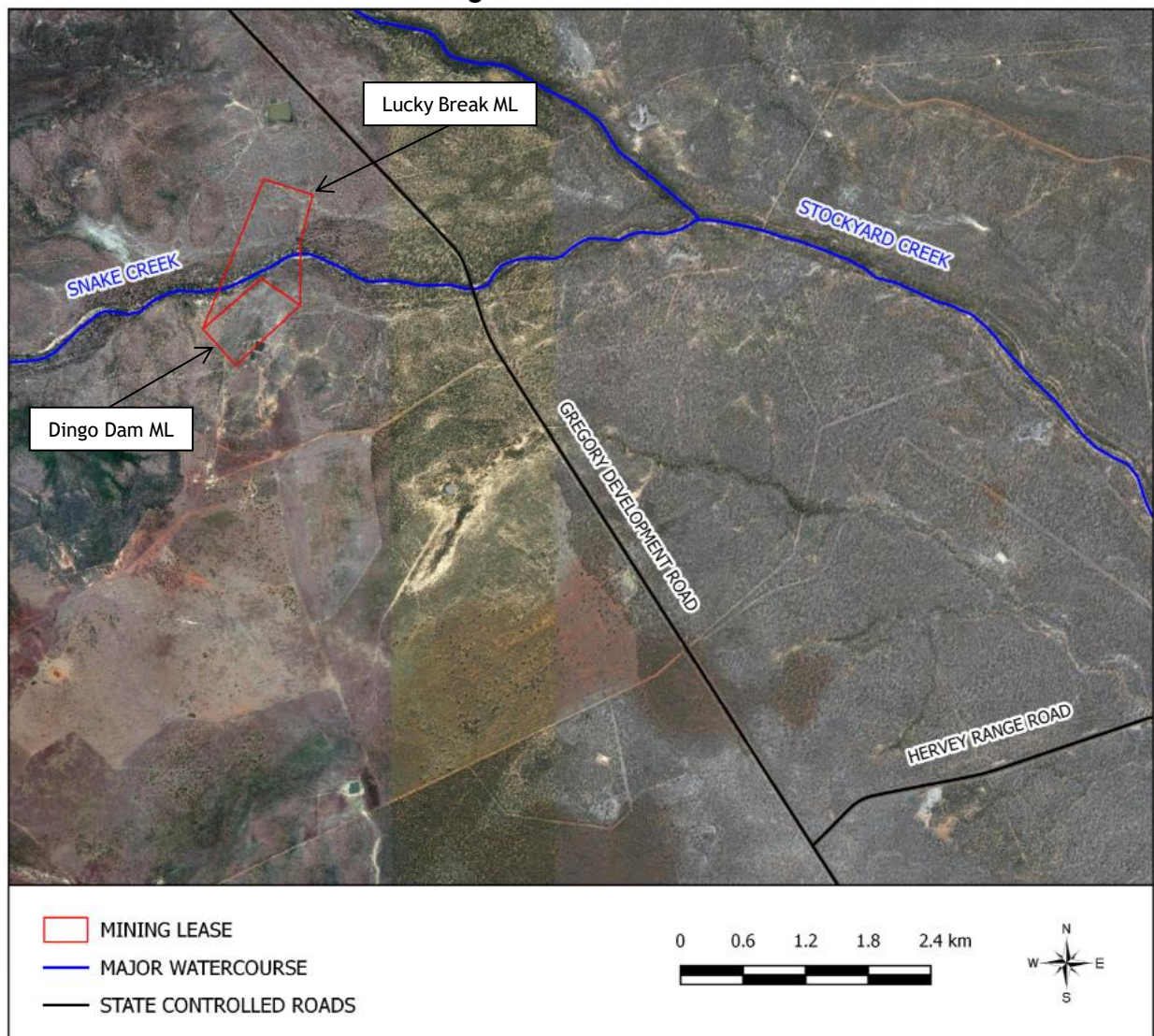
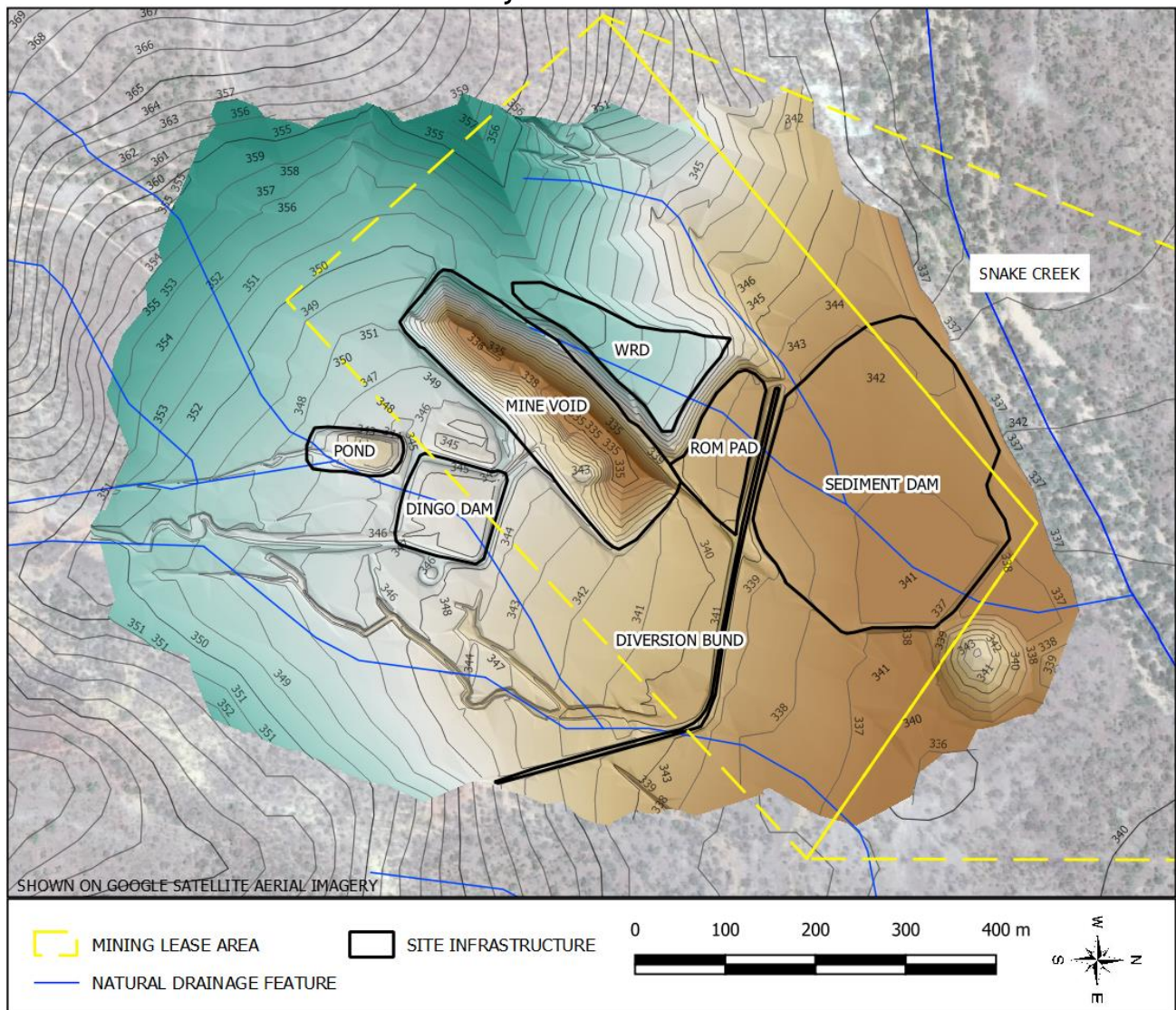


Plate 2
Site Layout & Infrastructure



2 WATER MANAGEMENT

2.1 Regional Hydrology

The Lucky Break Site is located within the north-central section of the Burdekin River catchment, situated within the lower reaches of Snake Creek catchment. Most of the land on the Project Site slopes gently towards Snake Creek. Snake Creek drains to Stockyard Creek less than 5km south-east of the Project Site. Stockyard Creek then drains into the Basalt River approximately 20km further to the south-east. The Basalt River travels a short distance from its confluence with Stockyard Creek before discharging into the Burdekin River.

AARC (2006) describes Snake Creek as highly ephemeral, with no permanent ponds being present in the vicinity of the Project Site. The creek width is variable and is between 10m and 30m wide with the bed consisting of coarse sand interspersed with tall Eucalypts, Melaleucas and Casuarinas.

The downstream use of water flowing in Snake Creek is stock watering. Once the water reaches the Burdekin River it contributes to water allocations for agricultural purposes. The Burdekin Dam is located more than 150km further downstream.

Environmental management issues along Snake Creek are typical of those for the region, including bank erosion, weed infestation and eutrophication due to cattle grazing within the broader catchment.

2.2 Site Storage Configuration

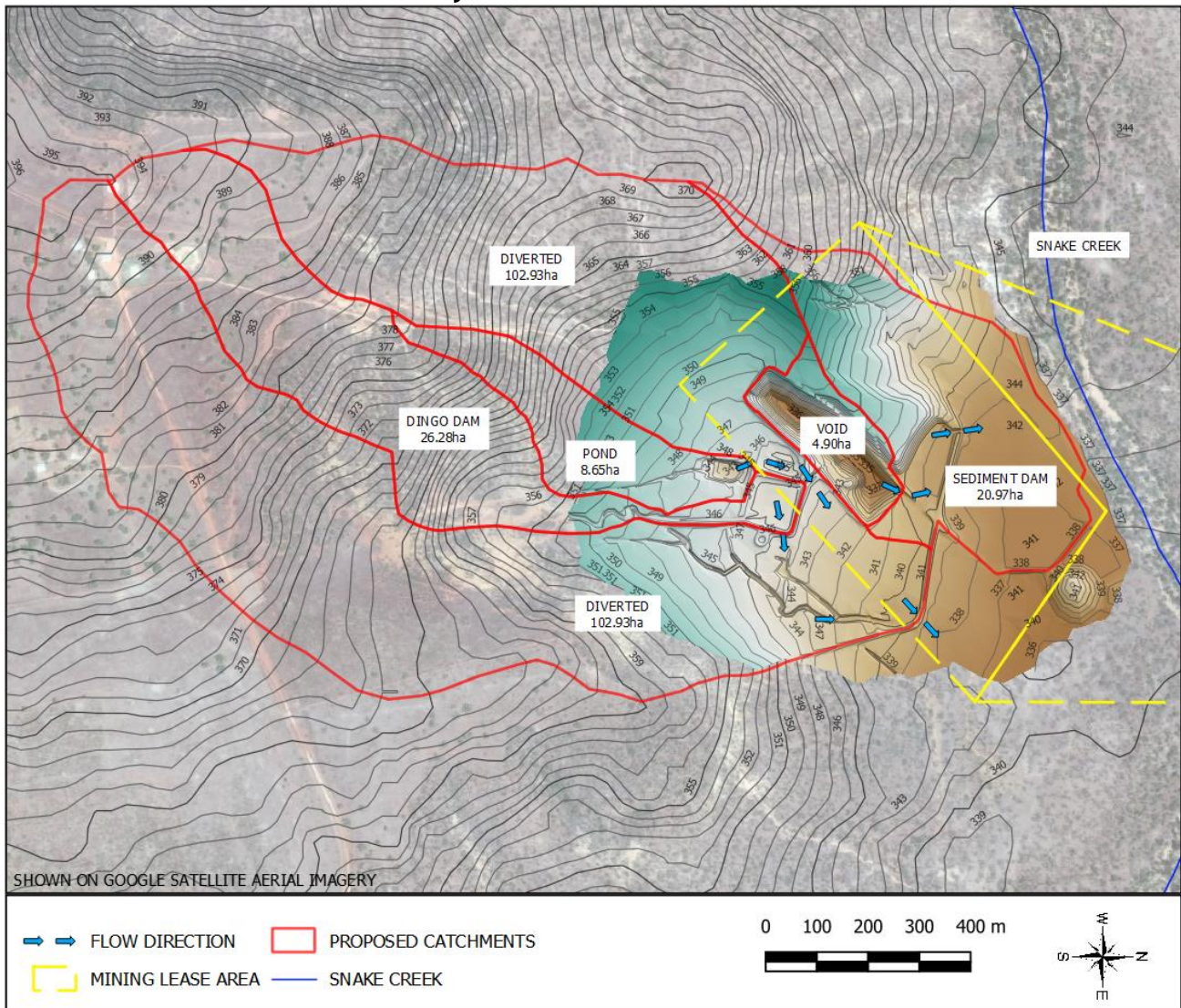
Storage volumes were calculated using the site survey data (provided by client) and are provided for information purposes in **Table 1** along with the post mining use. The estimated volumes shown are to estimated spillway invert of the structure, and assume that various changes to the site configuration have been implemented as discussed in ATCW report 118284-01-1.

Table 1
Summary of Storage Volumes - Site Structures

Storage	Configuration	Spill Invert (RL m)	Volume (ML)	Post Mining Use
Dingo Dam	Embankment	345.0	1.7	Stock water
Mine Void	Excavation	339.4	37.7	No intended use post mining
Sediment Dam	Embankment	337.3	10.3	No intended use post mining
Pond	Excavation	345.7	6.6	No intended use post mining

At the time of mine closure and site rehabilitation, a portion of the bund between Dingo Dam and the residual void was constructed as a spillway at the landholder's request (i.e. Spyglass Research Station). The spillway has since eroded to create a significant gully allowing the release of water from Dingo Dam into the residual void. The proposed catchments (as per ATCW 118284-01-1) for the site structures are shown in **Plate 3**.

Plate 3
Site Layout - Catchment Delineation



3 WATER QUALITY

AARC Environmental Solutions (AARC) prepared a document, namely Environmental Consequence Advice - Lucky Break Project (AARC, 2019), describing the downstream environmental values for consideration when assessing the potential risk of General Environmental Harm in the event of a 'failure to contain - overtopping' for the Mine Void as part of the CCA. Section 3.1 and 3.2 summarise the outcomes from AARC's report.

3.1 Receiving Environment

The Lucky Break Project is located at the Spyglass Beef Research Station, with the regional hydrology described in **Section 2.1**. The area of disturbance and structure of interest is confined to the Dingo Dam Mining Lease (ML) (ML 10324), which is drained via ephemeral drainage features originating within and to the south west of the ML. Runoff from the ML drains to a sandy, ephemeral watercourse known as Snake Creek. From this point, the Basalt River flows 1.2 km downstream before reaching the Burdekin River. The Project's immediate receiving environment (within 5 km) is situated toward the bottom of the Basalt River sub-catchment which flows into the Burdekin River (Blue Range) sub-catchment.

3.2 Environmental Values

Environmental Values listed in The Manual, include the following:

- *High Ecological Values (HEV)* - Required to meet the water quality objectives
- *Matters of National Environmental Significance (MNES)*
- *Matters of State Environmental Significance (MSES)*

AARC (2019) prepared a discussion to aid the CCA of the residual Mine Void structure, identifying the following environmental values.

The Project site lies in a rural landscape and historically has been subject to low intensity cattle grazing with limited exploration and mining activities. Dominant land uses in the Upper Burdekin catchment are grazing on natural pastures (88%) and conservation areas (11%) (NQ Dry Tropics, 2016b).

Water resource values in the catchments downstream of Lucky Break were assessed in accordance with Section 6 of the Environmental Protection (Water) Policy 2009 (EPP Water) and the Burdekin Region Water Quality Improvement Plan 2016 (BWQIP) (NQ Dry Tropics, 2016b). The assessment included a review of water resource condition and analysis of water, assessment of pre-existing land-use and survey of potential end uses for the water resource. While watercourses downstream of the Project are not listed in Schedule 1 of the EPP Water, environmental values have been drafted as part of the BWQIP.

Draft Environmental Values (EV) for the sub-catchment are provided in the BWQIP. EVs of the Basalt River sub-catchment include aquatic ecosystems, stock watering, human consumption, farm and industrial uses, primary, secondary and visual recreation and cultural and spiritual uses.

Waters of the Project's receiving environment and downstream Basalt River sub-catchment are considered to contain Slightly to Moderately Disturbed (SMD) aquatic ecosystem values.

A desktop assessment of Significant Values in the broader region of the Project site identified several Matters of National Environmental Significance (MNES), Matters of State Environmental Significance (MSES) and High Ecological Value (HEV) waters as identified in the EPP Water and BWQIP. MNES, MSES and HEV waters identified within the Project's downstream receiving environment or broader region (within 50 km) are listed in **Table 2** below.

Table 2
Significant Values - Downstream Receiving Environment

Environmental Value	Description	Proximity to Project Site
Matters of National Environmental Significance (MNES)		
Nationally Important wetland	Lake Dalrymple	Approximately 190 km
Listed Threatened Species	29 Threatened species	Possible presence within 50 km radius.
Listed Migratory Species	26 Migratory Species	Possible presence within 50 km radius.
Matters of State Environmental Significance (MSES)		
Regulated Vegetation	Of Concern Regional Ecosystems (RE 9.4.2)	Adjacent and downstream lands.
	Regulated Vegetation intersecting a watercourse	Receiving environment (i.e. Snake Creek).
	Essential Habitat	Squatter Pigeon (<i>Geophaps scripta scripta</i>) habitat within receiving environment
High Ecological Value (HEV) waters		
Burdekin River (Blue Range) sub-catchment	Dalrymple National Park	Approximately 190 km downstream, at the base of the Burdekin River (Blue Range) sub-catchment.

3.3 Groundwater

Geo Square prepared the report, Dingo Dam - Hydrogeological Assessment, on behalf of Australian Mines Limited to address the risk of groundwater infiltration between the open cut pit and the downstream Snake Creek. The outcomes from the *Dingo Dam - Hydrogeological Assessment* are reproduced below.

Soils located in the vicinity of the open pit belong to the Corea group (chromosol) and has a low infiltration potential and transport capability. The upper 0.5 m layer has capability to transport water but below this depth water migration is inhibited due to massive structured clay units. Soil depths is considerable due to underlying lateritic material. Hydraulic conductivity estimates for the unit is split into an upper ($\sim 1 \times 10^{-6}$ m/s or 0.1 m/d) consisting of silt and clay; while the lower clay unit is in the order of 1×10^{-9} m/s (meters per second) or 0.0001 m/d (meters per day).

In the low-lying areas associated with the Snake Creek system a mixture of Cape/Burdekin soils (Tenosol) are present and represent low to moderate permeability characteristics due to heterogenous clay loam overlying clay units. Depth of soil can reach depths of 1.8 mbgl. Hydraulic conductivity estimates for the upper unit is 2×10^{-5} m/s or 1.7 m/d and the lower unit in the order of 2×10^{-6} m/s or 0.17 m/d. These hydraulic conductivity values are overly conservative due to the presence of laterite outcrops in this zone and potential migration of clay in the upper layer (ASRIS, 2016).

The hydraulic properties of the lateritic and saprolitic material can be associated with undisturbed clay material that has undergone cementation over extended time period since forming in place due to weathering processes. An assessment of flow volume and duration to two identified target zones in the area of Dingo Dam has been performed, and migration potential of chemical components are highly unlikely.

3.4 Water Quality Requirements

Water quality requirements specified within the EA, Tables G4 and G6, are summarised in **Table 3**.

Table 3
Water Quality Conditions - EA Requirements

Parameter	Unit	Water Storage Contaminant Limit	Receiving Waters Trigger Level Limit	Receiving Waters Contaminant Limit
Aluminium	mg/L	5	0.055	5
Arsenic	mg/L	0.5	0.013	0.5
Cadmium	mg/L	0.01	0.0002	0.01
Chromium	mg/L	-	0.001	1
Cobalt	mg/L	1	0.0014	1
Copper	mg/L	1	0.0014	1
Electrical Conductivity	µS/cm	5970*	888	1000
Lead	mg/L	0.1	0.0034	0.1
Nickel	mg/L	1	0.011	1
pH	-	4-9	6-8.6	6-9
Sulphate	mg/L	1000		1000
Zinc	mg/L	20	0.008	20

* Contaminant limit based on ANZECC and ARMCANZ (2000) stock water quality guidelines.

3.5 Site Water Quality

Water quality sampling was initially completed at the time of the Mine Void overtopping (7/02/2019). AARC completed follow-up water sampling (18-19/02/2019) to identify potential impacts on the receiving environment. The outcomes from the sampling have been summarised in **Table 4**.

Table 4
Site Water Quality - Dams and Storages

Parameter	Unit	Receiving Waters Trigger Level	Receiving Waters Contaminant Limit	Upstream or Reference Sites	Downstream or Impact Sites
Aluminium	mg/L	0.055	5	0.35 - 1.19	0.29 - 4.16
Arsenic	mg/L	0.013	0.5	<0.001 - 0.002	<0.001 - 0.004
Cadmium	mg/L	0.0002	0.01	<0.001	<0.001
Chromium	mg/L	0.001	1	<0.001 - 0.002	<0.001 - 0.004
Cobalt	mg/L	0.0014	1	<0.001	<0.001 - 0.002
Copper	mg/L	0.0014	1	<0.001 - 0.002	<0.001 - 0.003
EC	µS/cm	888	1000	59 - 108	58 - 183
Lead	mg/L	0.0034	0.1	<0.001	<0.001
Nickel	mg/L	0.011	1	<0.001 - 0.006	<0.001 - 0.026
pH	-	6.0 - 8.6	6.0 - 9.0	6.75 - 6.94	6.64 - 7.14
Sulphate	mg/L		1000	<1.0 - 3.0	<1.0 - 4.0
Zinc	mg/L	0.008	20	<0.005	<0.005

The only metal concentration exceedance noted in the Project's downstream receiving environment was dissolved aluminium. Dissolved aluminium concentrations recorded at upstream sites on Snake Creek were equally elevated indicating these levels may be indicative of natural concentrations in the region of the Project site. AARC (2019) assessed that the release event is not considered to have had detrimental impacts on the Project's receiving environment.

4 CONSEQUENCE CATEGORY ASSESSMENT

4.1 Methodology

Assessment criteria for Consequence Category assessments are based on the following failure event scenarios:

- (a) 'Failure to contain seepage' - Spills or releases to ground and/or groundwater via seepage from the floor and/or sides of the structure.
- (b) 'Failure to contain overtopping' - Spills or releases from the structure that result from loss of containment due to overtopping of the structure.
- (c) 'Dam Break' - Collapse of the structure due to any possible cause.

The basis for assessment of Consequence Category from the *Manual* is reproduced in **Table 5**.

Table 5
Consequence Category Assessment Criteria⁷

Environmental Harm	Consequence Category		
	High	Significant	Low
Harm to Humans	Location such that people are routinely present in the failure path and if present loss of life to greater than 10 people is expected ⁸ . Note: The requirement to consider the location of people in the failure path is only relevant to the 'dam break' scenario.	Location such that people are routinely present in the failure path and if present loss of life to 1 person or greater but less than 10 people is expected ⁸ . Note: The requirement to consider the location of people in the failure path is only relevant to the 'dam break' scenario.	Location such that people are not routinely present in the failure path and loss of life is not expected ⁸ . Note: The requirement to consider the location of people in the failure path is only relevant to the 'dam break' scenario
	Location such that contamination of waters (surface and/or groundwater ⁹) used for human consumption could result in the health of 20 or more people being affected ¹⁰ .	Location such that contamination of waters (surface and/or groundwater ⁹) used for human consumption could result in the health of 10 or more people but less than 20 people being affected ¹⁰ .	Location such that contamination of waters (surface and/or groundwater ⁹) used for human consumption could result in the health of less than 10 people being affected ¹⁰ .
General environmental harm	Location such that: a) Contaminants may be released to areas of MNES, MSES or HEV waters that are not already authorised to be disturbed to at least the same extent under other conditions of this authority subject to any applicable offset commitment (Significant Values); and b) Adverse effects ¹¹ on Significant Values are likely; and c) The adverse effects ¹¹ are likely to cause at least one of the following: i) loss or damage or remedial costs greater than \$50,000,000; or ii) remediation of damage is likely to take 3 years or more; or iii) permanent alteration to existing ecosystems; or iv) the area of damage (including downstream effects) is likely to be at least 5km ² .	Location such that contaminants may be released so that adverse effects ¹¹ (that are not already authorised to be disturbed to at least the same extent under other conditions of the authority subject to any applicable offset commitment) either: a) Would be likely to be caused to Significant Values but those adverse effects ¹¹ would not be likely to meet the thresholds for the High consequence category and instead would be likely to cause at least one of the following: i) loss or damage or remedial costs greater than \$10,000,000 but less than \$50,000,000; or ii) remediation of damage is likely to take more than 6 months but less than 3 years; or iii) significant alteration to existing ecosystems; or iv) the area of damage (including downstream effects) is likely to be at least 1km ² but less than 5km ² . or b) Would be likely to be caused to environmental values classed as slightly or moderately disturbed waters ¹² , wetland of general ecological significance ¹³ , riverine areas, springs or lakes and associated flora and fauna (Moderate Values), and the adverse effects ¹¹ are likely to cause at least one of the following: i) loss or damage or remedial costs greater than \$20,000,000; or ii) remediation of damage is likely to take more than 1 year; or iii) significant alteration to existing ecosystems; or iv) the area of damage (including downstream effects) is likely to be at least 2 km ²	Location such that either: a) Contaminants are unlikely to be released to areas of Significant Values or Moderate Values; or b) Contaminants are likely to be released to those areas, but would be unlikely to meet any of the minimum thresholds specified for the Significant Consequence Category for adverse effects ¹¹ .
General economic loss or property damage	Location such that harm (other than a different category of harm as specified above) to third party assets in the failure path would be expected to require \$10 million or greater in rehabilitation, compensation, repair or rectification costs ¹⁴ .	Location such that harm (other than a different category of harm as specified above) to third party assets in the failure path would be expected to require \$1 million and greater but less than \$10 million in rehabilitation, compensation, repair or rectification costs ¹⁴ .	Location such that harm (other than a different category of harm as specified above) to third party assets in the failure path would be expected to require less than \$1 million in rehabilitation, compensation, repair or rectification costs ¹⁴ .

⁷ To be used for all failure event scenarios

⁸ 'People routinely present in the failure path' could be considered to be people who occupy buildings or other places of occupation that lie within the failure impact zone. For the purposes of this Manual, this should refer to people other than site personnel engaged by the resource operation and located on the tenements and tenure associated with the resource operation; for other ERAs, it would be the 'premises referred to in the authority'. It should be noted that while this is appropriate for the assessment of consequence categories in accordance with this Manual, adherence to the requirements of this Manual does not limit, amend or change in any way, any other requirements to be complied with under relevant health and safety acts or legislation that requires the safety of site personnel to be considered.

⁹ When considering potential impacts on groundwater, it is not envisaged that a full hydrogeological assessment will be required in all cases. Any consideration of potential impacts on groundwater systems should consider the water quality of the potential receiving aquifer as well as the quality of fluid stored in the regulated dam. Existing groundwater drawdown in areas surrounding resource operations (e.g. drawdown as a result of mine pit or underground mine dewatering) can also be considered when assessing the consequence of dam seepage on groundwater systems.

¹⁰ 'An adverse effect on human health means a physiological effect on human health and does not include an impact on the quality of downstream water that merely negatively affects taste and which is unlikely to cause persons to become physically ill.

¹¹ Adverse effects includes chronic and acute effects where an acute effect is on living organism/s which results in severe symptoms that develop rapidly, and a chronic effect is an adverse effect on a living organism/s which develops slowly. In some instances, it may be necessary to carry out or reference existing ecological/toxicological studies to assess the impacts of contaminants on living organisms.

¹² See Water EPP for definitions

¹³ Wetland of general ecological significance' means a wetland shown on a map of referable wetland as a 'general ecologically significant wetland' or 'wetland of other environmental value'.

¹⁴ This does not include the holder's own mine or gas production, on-site industrial or commercial assets, the holder's workers' accommodation, agricultural facilities on the holder's land such as a farm shed or farm dam or infrastructure solely for servicing the holder.

4.2 Adopted Failure Scenarios

Under the above scenarios, several modes of failure are possible as described below:

- Failure to contain seepage is not assessed under this CCA as the structures are pre-existing and therefore exempt from assessment of this criteria.
- A failure to contain scenario means a release from the structure that results from loss of containment due to overtopping of the structure and/or other deficiencies in water management aspects of the storage. Although such a failure mechanism is typically non-flood producing, failure to contain events may involve the release of contaminants, which could endanger environmental values or human life/wellbeing.
- A dam break scenario involves the collapse of a dam due to any possible cause. A dam break does have the potential for flood inducing impacts and rapid release of contaminants, which could endanger environmental values or human life. An embankment dam break could take place via the following failure modes:
 - spillway failure
 - erosion-induced stability failure from flooding
 - piping failure
 - static or seismic stability failure.

4.3 Consequence Category Assessment

The Consequence Category Assessment for the site structures are provided in **Table 6** through to **Table 9**.

Table 6
Consequence Category Assessment - Mine Void Criteria

Environmental Harm	Failure Event		
	Failure to Contain Seepage	Failure to Contain Overtopping	Dam Break
Harm to Humans	Assessment of the 'Failure to contain - seepage' scenario is only required for new structures and does not apply to structures approved prior to development of this version of the Manual.	It is assessed that the location of the Mine Void is such that contamination of waters (surface and/or groundwater) used for human consumption would not result in the health of more than 10 people being affected. Surface water concentrations of the analytes listed in Section 3.5 were of similar concentrations to the upstream reference points, as discussed in AARC (2019). Geo Square (2019) discusses the limited risk for transfer of water between the Mine Void and the downstream Snake Creek, as summarised in Section 3.3. Consequence Category assessed as Low.	Assessment of the 'Failure to contain - dam break' scenario is not considered credible as the structure is located below the surrounding natural surface elevation.
General environmental harm		Summarised from AARC (2019) <i>The potential zone of impact supports Significant Values including regulated vegetation (Of Concern REs, watercourse vegetation and essential habitat), as well as Moderate Values including SMD waters, wetlands of general ecological significance, riverine areas and associated flora and fauna within 3 km.</i> <i>Monitoring prior to and during the February 2019 release event identified copper and aluminium as potential contaminants of concern in the residual void. Overtopping of the void is likely to occur only during extreme local rainfall events ($\geq 1:20$ AEP). During such events, flow in the receiving environment would be high and contaminants would be significantly diluted. Experience from the February 2019 event indicates that water quality within the impact zone would likely remain consistent with background concentrations.</i> <i>In an overtopping event from the residual void, contaminants are likely to be released to areas of Significant or Moderate Values, but are not considered to meet the minimum thresholds specified for the Significant Consequence Category for adverse effects. That is, potential adverse effects to Significant or Moderate Values will likely:</i> • Cause loss, damage or remediation costs (if required) of less than \$10,000,000; and • Result in a remediation period of less than 6 months; and • Alteration of ecosystems is likely to be temporary and insignificant (based on the observations of downstream impacts during the recent overtopping event); and • The extent of damage is likely to be less than 1 km² (up to 3 km downstream and 200 m wide, incorporating stream channels and riparian vegetation). Consequence Category assessed as Low.	
General economic loss or property damage		No identifiable developments or third-party infrastructure are present immediately downstream of the Mine Void, other than the Gregory Development Road crossing. The road crossing has low flow culverts and a broad concrete floodway. It is therefore unlikely that overtopping water would have an economic impact exceeding the limits identified in The Manual. Damage caused to third party assets are expected to be below \$1 million in remedial works, rehabilitation, compensation and repairs. Consequence Category assessed as Low.	
Consequence Category	NA	Low	NA

Table 7
Consequence Category Assessment - Pond Criteria

Environmental Harm	Failure Event		
	Failure to Contain Seepage	Failure to Contain Overtopping	Dam Break
Harm to Humans	Assessment of the 'Failure to contain - seepage' scenario is only required for new structures and does not apply to structures approved prior to development of this version of the Manual.	The Pond is expected to hold runoff from the upstream undisturbed catchment. It is therefore assumed that the water quality would be of a similar level as assessed in AARC (2019), such that contamination of waters (surface and/or groundwater) used for human consumption would not result in the health of more than 10 people being affected. Consequence Category assessed as Low.	Assessment of the 'Failure to contain - dam break' scenario is not considered credible as the structure is located below the surrounding natural surface elevation.
General environmental harm		Overtopping of the Pond is likely to occur only during extreme local rainfall events during which flow in the receiving environment would be high and contaminants would be significantly diluted. AARC (2019) further discusses the impact and provide information to suggest that the overtopping of site structures are unlikely to meet the criteria below. Therefore: - It is not likely that an overtopping event from the Pond would cause an adverse effect to Significant Values for the thresholds for High and Significant consequence categories, including: - damage exceeding \$10 million; - take more than 6 months to remediate; - significantly alter the existing ecosystem; or - affect an area exceeding 1km². - Adverse effects to Moderate Values are not likely to meet the thresholds for Significant consequence categories, including: - damage exceeding \$20 million; - take more than 1 year to remediate; - significantly alter the existing ecosystem; or - affect an area exceeding 2km². Consequence Category assessed as Low.	
General economic loss or property damage		No identifiable developments or third-party infrastructure are present immediately downstream of the Pond, other than the Gregory Development Road crossing. The road crossing has low flow culverts and a broad concrete floodway. It is therefore unlikely that overtopping water would have an economic impact exceeding the limits identified in The Manual. Damage caused to third party assets are expected to be below \$1 million in remedial works, rehabilitation, compensation and repairs. Consequence Category assessed as Low.	
Consequence Category	NA	Low	NA

Table 8
Consequence Category Assessment - Sediment Dam Criteria

Environmental Harm	Failure Event		
	Failure to Contain Seepage	Failure to Contain Overtopping	Dam Break
Harm to Humans	Assessment of the 'Failure to contain - seepage' scenario is only required for new structures and does not apply to structures approved prior to development of this version of the Manual.	The Sediment Dam is expected to hold runoff from the upstream catchment and overflow from upstream structures. It is therefore assumed that the water quality would be of a similar level as assessed in AARC (2019), such that contamination of waters (surface and/or groundwater) used for human consumption would not result in the health of more than 10 people being affected. Consequence Category assessed as Low.	Should the Sediment Dam fail hydraulically or geotechnically due to other forces, water could migrate into the downstream watercourse. People are not routinely present immediately downstream of the Sediment Dam failure path. The Gregory Development Road is located approximately 2km downstream of the dam. It is assumed that a dam break of Sediment Dam would not likely result in a loss of life, due to the attenuation of water within Snake Creek and the wide road crossing resulting in low flow depth over the road. Consequence Category assessed as Low.
General environmental harm		Overtopping of the Sediment Dam is likely to occur only during extreme local rainfall events during which flow in the receiving environment would be high and contaminants would be significantly diluted. AARC (2019) further discusses the impact and provide information to suggest that the overtopping of site structures are unlikely to meet the criteria below. Therefore: - It is not likely that an overtopping event from Sediment Dam would cause an adverse effect to Significant Values for the thresholds for High and Significant consequence categories, including: - damage exceeding \$10 million; - take more than 6 months to remediate; - significantly alter the existing ecosystem; or - affect an area exceeding 1km². - Adverse effects to Moderate Values are not likely to meet the thresholds for Significant consequence categories, including: - damage exceeding \$20 million; - take more than 1 year to remediate; - significantly alter the existing ecosystem; or - affect an area exceeding 2km². Consequence Category assessed as Low.	A dam break of Sediment Dam would likely release a mixture of groundwater, surface runoff and earth material from the structure, which could smother some vegetation and release impacted water to the drainage feature. It is unlikely that a dam break would cause adverse effects to the downstream ecosystem and Environmental Value (EV). The water quality impacts discussed in Section 3.5 are unlikely to result in the designated requirements listed below. Therefore: - It is not likely that a dam break of the Sediment Dam would cause an adverse effect to Significant Values for the thresholds for High and Significant consequence categories, including: - damage exceeding \$10 million; - take more than 6 months to remediate; - significantly alter the existing ecosystem; or - affect an area exceeding 1km². - Adverse effects to Moderate Values are not likely to meet the thresholds for Significant consequence categories, including: - damage exceeding \$20 million; - take more than 1 year to remediate; - significantly alter the existing ecosystem; or - affect an area exceeding 2km². Consequence Category assessed as Low.
General economic loss or property damage		No identifiable developments or third-party infrastructure are present immediately downstream of the Sediment Dam, other than the Gregory Development Road crossing. The road crossing has low flow culverts and a broad concrete floodway. It is therefore unlikely that overtopping water would have an economic impact exceeding the limits identified in The Manual. Damage caused to third party assets are expected to be below \$1 million in remedial works, rehabilitation, compensation and repairs. Consequence Category assessed as Low.	No identifiable developments or third-party infrastructure are present immediately downstream of the Sediment Dam other than Gregory Development Road. It was also assessed that overtopping water would not likely have an economic impact with damage caused to third party assets exceeding \$1 million in remedial works, rehabilitation, compensation and repairs. Consequence Category assessed as Low.
Consequence Category	NA	Low	Low

Table 9
Consequence Category Assessment - Dingo Dam Criteria

Environmental Harm	Failure Event		
	Failure to Contain Seepage	Failure to Contain Overtopping	Dam Break
Harm to Humans		The Dingo Dam is expected to hold runoff from the upstream undisturbed catchment. It is assumed that the water quality would be of a similar level as assessed in AARC (2019), such that contamination of waters (surface and/or groundwater) used for human consumption would not result in the health of more than 10 people being affected. Consequence Category assessed as Low.	Should the Dingo Dam fail hydraulically or geotechnically due to other forces, water could migrate into the downstream watercourse. People are not routinely present immediately downstream of the Dingo Dam failure path. The Gregory Development Road is located approximately 2km downstream of the dam. It is assumed that a dam break of Dingo Dam would not likely result in a loss of life. This is based on the relatively small storage volume and the attenuation of water within Snake Creek and the wide road crossing resulting in low flow depth over the road. Consequence Category assessed as Low.
General environmental harm	Assessment of the 'Failure to contain - seepage' scenario is only required for new structures and does not apply to structures approved prior to development of this version of the Manual.	Overtopping of the Dingo Dam is likely to occur only during rare local rainfall events during which flow in the receiving environment would be high and contaminants would be significantly diluted. AARC (2019) further discusses the impact on downstream environmental value, suggesting that the overtopping of site structures are unlikely to meet the criteria below. Therefore: - It is not likely that an overtopping event from Dingo Dam would cause an adverse effect to Significant Values for the thresholds for High and Significant consequence categories, including: - damage exceeding \$10 million; - take more than 6 months to remediate; - significantly alter the existing ecosystem; or - affect an area exceeding 1km². - Adverse effects to Moderate Values are not likely to meet the thresholds for Significant consequence categories, including: - damage exceeding \$20 million; - take more than 1 year to remediate; - significantly alter the existing ecosystem; or - affect an area exceeding 2km². Consequence Category assessed as Low.	A dam break of Dingo Dam would likely release a mixture of groundwater, surface runoff and earth material from the structure, which could smother some vegetation and release impacted water to the drainage feature. It is unlikely that a dam break would cause adverse effects to the downstream ecosystem and Environmental Value (EV) due to the relatively small storage capacity of the dam. The water quality impacts discussed in Section 3.5 are unlikely to result in the designated requirements listed below. Therefore: - It is not likely that a dam break of the Dingo Dam would cause an adverse effect to Significant Values for the thresholds for High and Significant consequence categories, including: - damage exceeding \$10 million; - take more than 6 months to remediate; - significantly alter the existing ecosystem; or - affect an area exceeding 1km². - Adverse effects to Moderate Values are not likely to meet the thresholds for Significant consequence categories, including: - damage exceeding \$20 million; - take more than 1 year to remediate; - significantly alter the existing ecosystem; or - affect an area exceeding 2km². Consequence Category assessed as Low.
General economic loss or property damage		No identifiable developments or third-party infrastructure are present immediately downstream of the Dingo Dam, other than the Gregory Development Road crossing. The road crossing has low flow culverts and a broad concrete floodway. It is therefore unlikely that overtopping water would have an economic impact exceeding the limits identified in The Manual. Damage caused to third party assets are expected to be below \$1 million in remedial works, rehabilitation, compensation and repairs. Consequence Category assessed as Low.	No identifiable developments or third-party infrastructure are present immediately downstream of the Dingo Dam other than Gregory Development Road. It was also assessed that overtopping water would not likely have an economic impact with damage caused to third party assets exceeding \$1 million in remedial works, rehabilitation, compensation and repairs. Consequence Category assessed as Low.
Consequence Category	NA	Low	Low

5 CONCLUSIONS

The CCA outcomes, as determined in the **Section 3** are summarised in **Table 10**.

Table 10
Consequence Assessment Summary - Dingo Dam

Dam	Failure to Contain Seepage	Failure to Contain Overtopping	Dam Break	Overall Consequence	Regulated Structure, as defined in the Manual (Y/N)
Mine Void	NA	Low	N/A	Low	N
Sediment Dam		Low	Low	Low	N
Pond		Low	N/A	Low	N
Dingo Dam		Low	Low	Low	N

In accordance with the *Manual*, the adopted consequence category for the structure is the highest category determined for the assessed failure event scenarios.

This assessment was based on the proposed site layout and the assessment would need to be reviewed, should site conditions change in any form or if the information relied upon be revised. A Consequence Assessment Certification Form completed by a Registered Professional Engineer of Queensland, meeting the requirements of the definition of “suitably qualified and experienced person”, is included in **Appendix A** of this report.

6 REFERENCES

- [1] DES (ESR/2016/1933), Manual for Assessing Consequence Categories and Hydraulic Performance of Structures, Queensland Government Department of Environment and Heritage Protection, March 2016.
- [2] Water Act (2000), Queensland Government, current as of 25 October 2018. <https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-2000-034>, accessed 12 February 2019.
- [3] Environmental Protection Act (1994), Queensland Government, current as of 1 January 2018. <https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-1994-062>, accessed 12 February 2019.
- [4] Environmental Protection Act (1994) - Environmental Protection (Water) Policy 2009, Queensland Government, current as of 6 December 2016.
- [5] Queensland Government (2017). Regional Ecosystems Descriptions. <https://environment.ehp.qld.gov.au/regional-ecosystems/>, accessed 19 January 2018.
- [6] Department of Environment and Heritage Protection (2018), Environmental authority EPML00900713, Queensland Government, 9 March 2019.
- [7] Geo Square (2019), Dingo Dam - Hydrogeological Assessment 19040104-020-R01, 24 April 2019.
- [8] AARC (2019), Environmental Consequence Advice - Lucky Break Project, 1 May 2019.

Form of Certification (Consequence Assessment)

Name of Registered Professional Engineer providing certification:

Elisabeth Boczek (9232)
on behalf of ATC Williams Pty Ltd

Address of Registered Professional Engineer providing certification:

PO Box 3309
Level 2, 16-20 Edmondstone Street
Newmarket, Queensland 4051, AUSTRALIA

This consequence category assessment was prepared by ATC Williams Pty Ltd and certified by Elisabeth Boczek (RPEQ9232).

Statement of Relevant Experience

I hereby state that I am a Registered Professional Engineer of Queensland and meet the requirements of the definition of 'suitably qualified and experienced person'.

Statement of Certification

All relevant material relied upon by me, including subsidiary certifications of specialist components, where required by the environmental authority, is provided in the attached report *Dingo Dam Consequence Category Assessment*.

I hereby certify that the Consequence Assessment section enclosed in the *Dingo Dam Consequence Category Assessment* for the Lucky Break Project:

- That the consequence category assessment (CCA) has been prepared in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (DES, 2016) and that it is not based on information that I know is false or misleading;
- That I am not the owner, an employee of the owner, the operator, or an employee of the operator of the dam being assessed;
- That the information and analyses included in the assessment are appropriate and sufficiently accurate, and that the assessment has been made from these.

I Elisabeth Boczek, declare that the information provided as part of this certification is true to the best of my knowledge. I acknowledge that it is an offence under section 480 of the Environmental Protection Act 1994 to give the administering authority a document containing information that I know is false, misleading or incomplete in a material particular.

Signature  Date: 06 June 2019