RESTRICTED

REPORT

Iluka Resources Limited

Audit of H2 2019 EMP and IMWP Annual Reports, Douglas Mine Pit 23 by-product disposal site

Submitted to:

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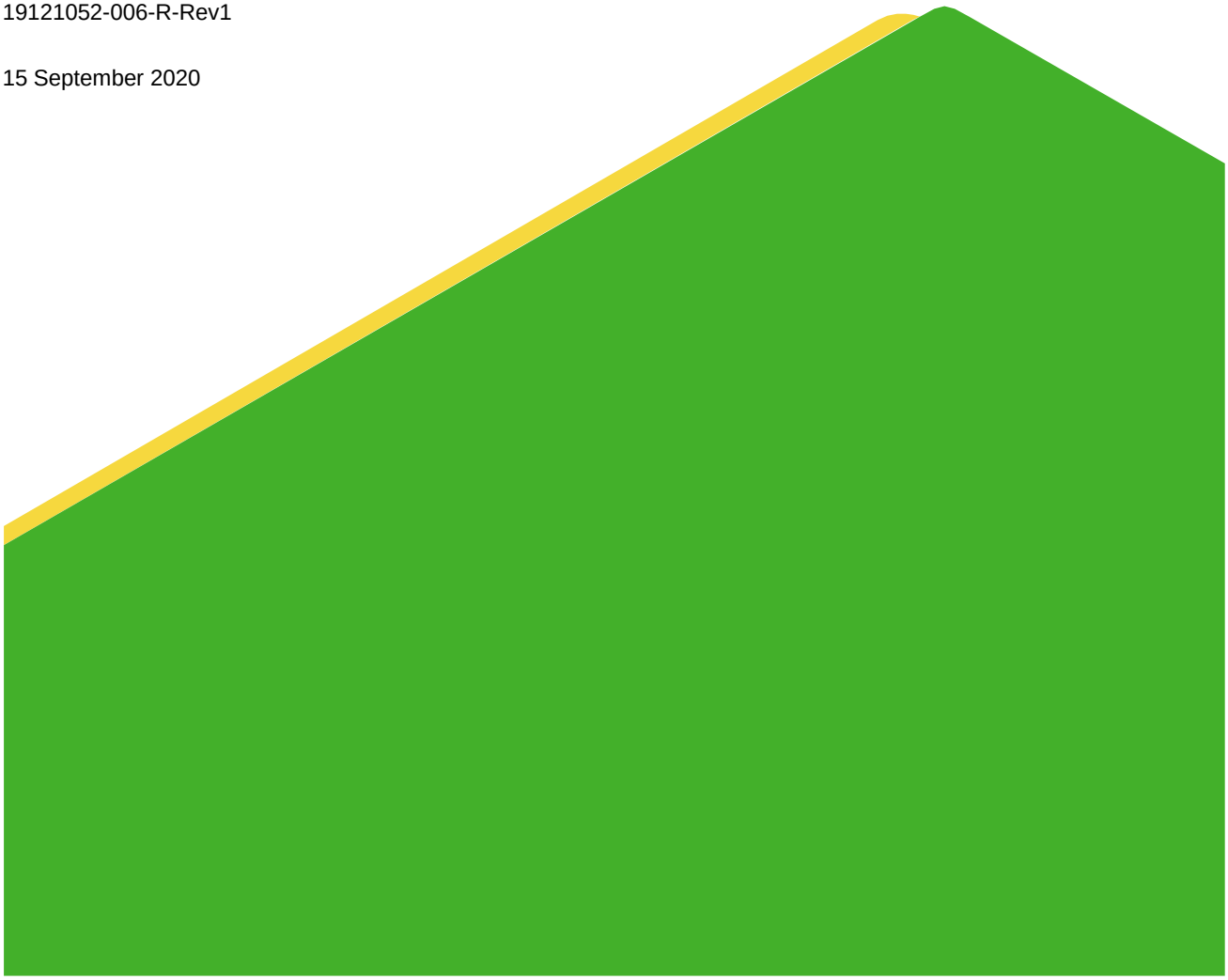

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1.0 INTRODUCTION

Golder Associates Pty Ltd (Golder) was engaged by Iluka Resources Limited (Iluka) to undertake an independent audit of the Annual Reports for the Pit 23 By-products Disposal Facility, located in the municipality of the Horsham Rural City in the Kanagulk area (the site). The independent audit (audit) is a requirement of Planning Permit 15-105 (the planning permit), issued by Horsham Rural City Council (Council). The Annual Reports, prepared by Iluka, provide a summary of the waste acceptance, monitoring and management undertaken at the site during the half year ended 31 December 2019. The two Annual Reports prepared by Iluka for H2 2019 are as follows:

- *Environmental Management Plan and Rehabilitation Performance Report* (EMP Annual Report) H2 2019; and,
- *Incoming Waste Monitoring Plan Annual Report* (IWMP Annual Report) H2 2019.

The EMP Annual Report is audited against the criteria listed in Section 12.2 and 13.2 of Iluka's *Pit 23 Environmental Management Plan* Rev 4 (EMP). Similarly, the IWMP Annual Report is audited against the criteria listed in Section 6 of Iluka's *Pit 23 Incoming Waste Monitoring Plan* Rev 4 (IWMP).

The H2 2019 Annual Reports are provided in APPENDIX C (IWMP) and APPENDIX D (EMP).

The Annual Reports cover the period from 1 July 2019 to 31 December 2019.

2.0 PLANNING PERMIT REQUIREMENTS

Regarding the audit of the IWMP and EMP Annual Reports, the relevant conditions of the planning permit include:

> *14 (e): annual auditing of records to verify compliance with the requirements of the Incoming Waste Monitoring Plan (IWMP).*
>
> *20: The annual performance report must be reviewed by an independent suitably qualified person with expertise in risk management plans in the context of mines and quarries, and is an environmental auditor appointed under the EP Act 1970.*
>
> *31: The permit holder must submit an annual performance statement (within the wider EMP Annual Report).*
>
> *42: The permit holder must prepare an EMP and Rehabilitation performance review report covering its compliance requirements under the various sub-components of the EMP and R&VMP* [Rehabilitation and Vegetation Management Plan] *for provision to a suitably qualified environmental auditor as agreed by the Responsible Authority annually or less frequently as agreed to in writing, by the Responsible Authority.*
>
> *43: The environmental auditor must review the EMP and Rehabilitation performance review report and provide conclusions on the report's content against its key sub-components, and recommendations for any required amendments to the plans ('auditor's review').*

2.1 Methodology

The Annual Reports were audited against the relevant requirements of Section 6 of the IWMP and Section 12.2 and 13.2 of the EMP. Additional documentation was sought from Iluka as needed to provide evidence of compliance with relevant sections of the IWMP and EMP.

Due to the limited activities occurring at the site, a site inspection was not conducted as part of the audit. Assessment was therefore limited to desktop review of the Annual Reports and supporting documentation.

The recommendations of the previous Audit Reports (AECOM, 2017; Golder, 2018, Golder H1 2019) were also considered and a review of Iluka's response to these recommendations is provided in Section 8.0.

The audit of the IWMP Annual Report, EMP Annual Report and actions undertaken regarding previous audit report recommendations assessed compliance according to:

- 'Compliant'. The information indicated that the relevant requirement of the planning permit or plan had been met.
- 'Not Compliant'. The information indicated that the relevant requirement of the planning permit or plan had not been met.
- 'Not Applicable'. The relevant requirement was not applicable due to the operational status of the plant or the Auditor was unable to determine compliance due to the requirement being outside the scope of the audit.

2.2 Incoming Waste Monitoring Plan

The IWMP has been prepared to satisfy the requirements of Condition 14 of the Planning permit, namely:

> *14. Within 90 days of the commencement of this permit operating, an Incoming Waste Monitoring Plan (IWMP) must be submitted to the satisfaction of the responsible authority and the Department of Health and Human Services for approval by the responsible authority. Three copies of the IWMP must be submitted to the responsible authority. When approved by the responsible authority the IWMP will be endorsed and it will then form part of this permit. The IWMP must provide for:*
>
> *a. A monitoring and reporting system for ensuring that materials disposed of to Pit 23 are limited to those permitted under the conditions of this permit;*
>
> *b. Recording of the origin, per load weight and radioactive properties of each incoming load;*
>
> *c. Monitoring to ensure all vehicles transporting waste have fully secured and contained loads and that all waste loads have been transported in compliance with licensed requirements under the Radiation Act 2005;*
>
> *d. Records of any transport incidents or spills and remedial actions taken in the event of such incidents; and*
>
> *e. Annual auditing of records to verify compliance with the requirements of the IWMP.*

This audit has reviewed the IWMP Annual Report against relevant planning permit criteria, and Section 6 of the IWMP.

2.3 Environmental Management Plan

The EMP has been prepared by Iluka to provide a framework for the management and monitoring of disposal operations at Pit 23. The EMP outlines:

- The operational, environmental and legal context for the permitted development;
- The operational methods to be used;
- Environmental issues that could compromise environmental performance if not managed appropriately; and,
- The monitoring program to be used for assessing the environmental performance and impact of Pit 23.

This audit has reviewed the EMP Annual Report against relevant planning permit criteria, and Section 12.2 and 13.2 of the EMP.

2.4 Rehabilitation and Vegetation Management Plan

The *Rehabilitation and Vegetation Management Plan 2017* (RVMP) has been prepared by Iluka to provide a detailed management framework for rehabilitation of Pit 23. The RVMP outlines:

- The end use and rehabilitation objectives for the subject land;
- The methods to be used for rehabilitation and revegetation;
- Key issues that may compromise rehabilitation outcomes; and,
- Completion criteria and further monitoring post completion.

In relation to the audit of the *Rehabilitation and Vegetation Management Plan 2017,* the relevant planning permit requirements are:

> *42: The permit holder must prepare an EMP and Rehabilitation performance review report covering its compliance requirements under the various sub-components of the EMP and RVMP for provision to a suitably qualified environmental auditor as agreed by the Responsible Authority annually or less frequently as agreed to in writing, by the Responsible Authority.*
>
> *43: The environmental auditor must review the EMP and Rehabilitation performance review report and provide conclusions on the report's content against its key sub-components, and recommendations for any required amendments to the plans ('auditor's review').*

As of the writing of this audit, Pit 23 was still accepting material and as such, rehabilitation or revegetation has not yet been undertaken by Iluka. There are therefore no findings regarding the RVMP.

3.0 ENVIRONMENTAL AUDITOR

This audit review was undertaken by Bruce Dawson who is appointed as an Environmental Auditor (Industrial Facilities) under the *Environment Protection Act* 1970.

Bruce has over 30 years' experience in environmental management issues, encompassing industrial planning and assessment, auditing and policy development. Bruce joined Golder in 2010 as a Principal Environmental Consultant leading the development of performance assurance and industry sustainability services in the Melbourne office.

Bruce has extensive experience in assessing environmental performance and impact and associated strategies for effective management of statutory obligations in waste management, industrial operations, land development and infrastructure development.

Bruce was previously employed with the Environment Protection Authority Victoria for 24 years. He was part of EPA's executive leadership team for 8 years, providing a key role in leading operational and policy program areas and lead implementation of EPA's environmental audit program.

Bruce undertakes auditing and assessment of landfill design and construction and risks associated with landfill gas migration. Bruce has extensive experience in development of environmental management plans and environmental policy to reduce environmental impact and compliance risks.

Bruce was supported by the following Golder personnel:

- Stephen Makin, Senior Hydrogeologist,
- Coen Romalis, Environmental Scientist.

4.0 SITE LOCATION

The Douglas Mineral Sands Mine (shown in figure 1) is located in the municipality of the Horsham Rural City in the Kanagulk area. Iluka produces a number of by-products from its heavy mineral processing operation at its mineral separation plant (MSP) in Hamilton. The by-products produced from this processing are transported by truck from the Hamilton site to the Douglas Mine Site, where it is then disposed of in a mining void known as Pit 23. Pit 23 is shown in Figure 1. The IWMP and EMP apply management controls specifically to Pit 23 and its associated operations.

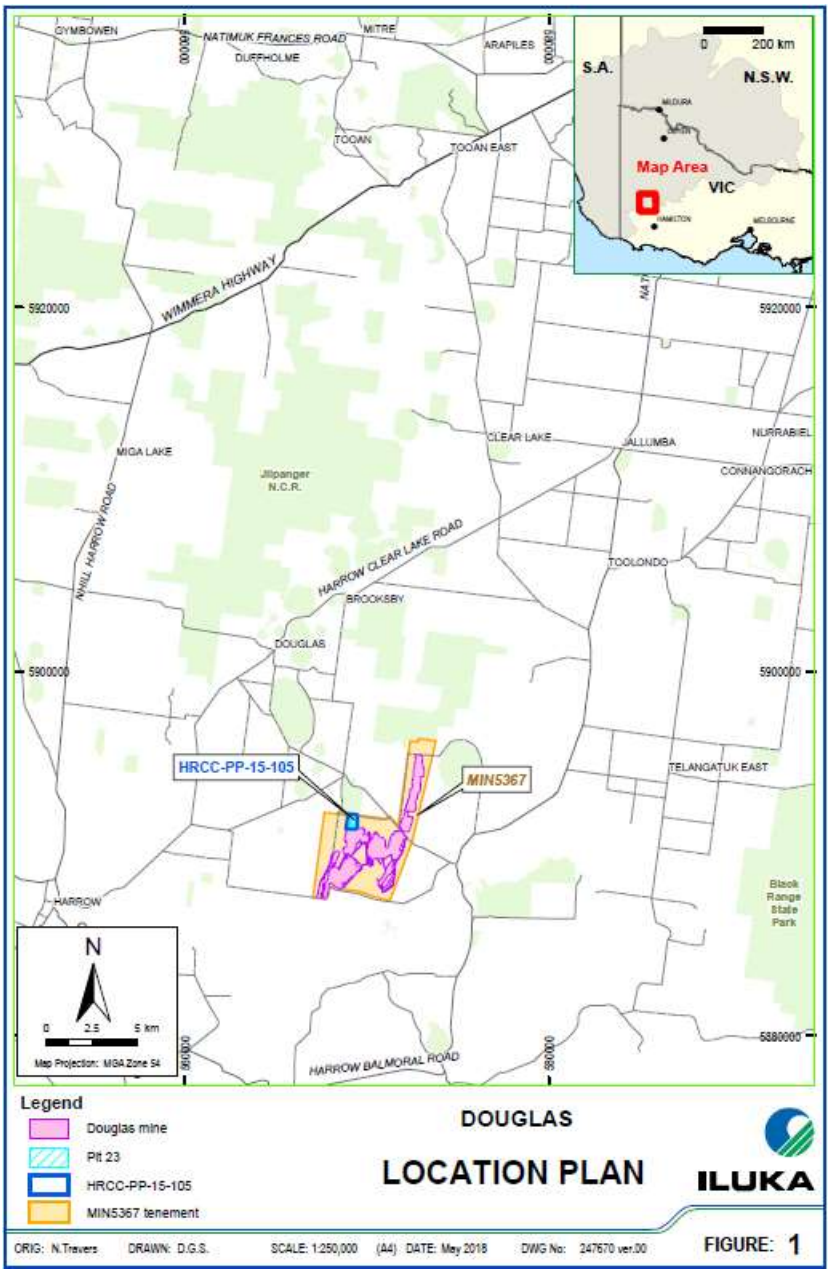

Figure 1: Site Location Plan

5.0 INCOMING WASTE MONITORING PLAN PERFORMANCE REPORT

The Auditor's review of the IWMP Annual Report is attached as APPENDIX A. The review found that the Annual Report is in accordance with Section 6 of the IWMP.

6.0 ENVIRONMENTAL MANAGEMENT PLAN AND REHABILITATION PERFORMANCE REPORT

The Auditor's review of the EMP Annual Report is attached as APPENDIX B. The review found that the Annual Report is generally in accordance with Section 12.2 and 13.2 of the EMP, however, the following comment is made:

- Iluka proposes to install an additional well between GW04 and BW36A, as previously recommended, approximately 130 m from the pit crest, subject to the location providing safe installation and ongoing access. The Auditor agrees with the proposed location for the replacement well.

Previous recommendations to review the EMP have been considered by development of a proposed revised Version 5 EMP. The Auditor's review of this revision will be provided separately.

7.0 REHABILITATION AND VEGETATION MANAGEMENT PLAN

The RVMP reporting requirements are listed in Section 2.4 of this report. Iluka's Annual Report for the RVMP was included in the EMP Annual Report.

Due to the current and continued operation of Pit 23, no actions required by the RVMP were undertaken during the H2 2019 reporting period.

8.0 OTHER PREVIOUS AUDIT FINDINGS

The audit of 2017 Mineral Sands By-product disposal reports (AECOM, 2017) was the first audit of the IWMP and EMP undertaken. Iluka has responded to a number of these recommendations in the 2018 and 2019 reporting periods. Outstanding recommendations from these reports are provided below.

Additionally, the recommendations from the audit of the 2018, and H1 2019 reporting period by Golder (19121052-001-R, Golder, 2018; 19121052-003-R, Golder, 2019), are presented with Iluka's response below.

Table 1: Response to previous audit recommendations.

Previous Audit Recommendation	Observation	Action Completed in H2 2019?	Recommendations
IWMP Performance Report			
Golder, 2018: Due to the infrequent disposal of material Iluka should consider revising the IWMP if it continues to be impracticable to calculate a weekly average for radionuclide properties.	Golder is currently undertaking a review of updated IWMP, EMP and RVMP for Iluka. This recommendation will be incorporated in the update.	Subject to Auditor review of the EMP Rev 5.	
Golder, 2018: As the IWMP will have been in operation for two years as at 17 July 2019, a review should be undertaken during the next reporting period. Iluka has confirmed that a review has commenced.	Golder is currently undertaking a review of updated IWMP, EMP and RVMP for Iluka, as part of the biennial update.	Subject to Auditor review of the EMP Rev 5.	
EMP and RVMP Performance Report:			
Golder, 2018: Future interpretations of results from GW04 should consider whether this well is located down-hydraulic gradient from Pit 23 (i.e. is it on the predicted flow path?).	Groundwater flow contours and numerical model flow paths presented in H1 2019 report indicate that GW04 is not directly down-gradient from Pit 23.	Pending	Golder has been advised by Iluka that installation of an additional bore to replace GW04 has been scheduled for Q4 2020.
Golder, 2019: An additional well between BW36 and GW04 is recommended to be installed, considering that GW04	BW36 (blocked) was decommissioned and replaced with a new well BW36A in a similar location. The spacing between BW36A and GW04 of approximately 600 m is not	Pending	Golder has been advised by Iluka that installation of an additional bore to

may not be located down-hydraulic gradient from Pit 23.	considered to meet the intent of the monitoring network specified by the EMP.		replace GW04 has been scheduled for Q4 2020. The indicative location of the well is approximately 130 m from the pit crest, subject to the location providing safe installation and ongoing access. The Auditor agrees with the proposed location for the replacement well.
Golder, 2018: The EMP listed trigger levels for ion ratios should be reconsidered to identify consistent declining trends in concentration outside a range of natural fluctuation. Resampling for confirmation of exceedances should be conducted within the specified timeframe.	EMP has been revised (Version 5) for application to future monitoring. Auditor comment to be provided separately.	Subject to Auditor review of the EMP Rev 5.	
Golder, 2018: The EMP should be amended to refer to SEPP (Waters) and description of associated beneficial uses and environmental quality objectives updated as required. Iluka should review TDS groundwater monitoring data to ensure the appropriate groundwater segment as described in SEPP (Waters) is identified.	EMP has been revised (Version 5) for application to future monitoring. Auditor comment to be provided separately.	Subject to Auditor review of the EMP Rev 5.	

General Recommendations			
Golder, 2018: The EMP contains a significant amount of background information on the environmental conditions relevant to Pit 23. This information provides useful context on the local conditions and aids in interpretation of monitoring results, however, to assist in the implementation of the EMP, it is recommended that this information be simplified or removed from the EMP (but available to the Auditor undertaking the annual review).	Golder is currently undertaking a review of updated IWMP, EMP and RVMP for Iluka. This recommendation will be incorporated in the update.	Subject to Auditor review of the EMP Rev 5.	
Golder, 2018: The management actions and monitoring requirements in the EMP should be clarified and consolidated to make it easier for Iluka personnel to clearly identify requirements and associated procedures and to ensure the contents of the Annual Report align with the requirements of the EMP.	Golder is currently undertaking a review of updated IWMP, EMP and RVMP for Iluka. This recommendation will be incorporated in the update.	Subject to Auditor review of the EMP Rev 5.	
Golder, 2018: The reporting requirements currently in Section 12.2 of the EMP should be reviewed to ensure they are consistent with all of the relevant monitoring	Golder is currently undertaking a review of updated IWMP, EMP and RVMP for Iluka. This recommendation will be incorporated in the update.	Subject to Auditor review of the EMP Rev 5.	

requirements contained in Sections 7, 8 and 9 of the EMP			

9.0 REFERENCES

Iluka Resources Ltd Planning Permit 15-105 (Pit 23) EMP & Rehabilitation Performance Report H2 2019. (FINAL_Rev0)

Incoming Waste Monitoring Plan Performance Report H2 – 2019.

AECOM Audit of 2017 Mineral Sands By-product Disposal Annual Reports

Golder Associates Audit of 2018 Mineral Sands By-product Disposal Annual Performance Reports (19121052-001-Rev0)

Golder Associates Audit of H1 2019 Mineral Sands By-product Disposal Annual Performance Reports (19121052-003-Rev1)

Incoming Waste Monitoring Plan (Rev 4) 5 April 2017

Environment Management Plan (Rev 4) 6 July 2017

Rehabilitation and Vegetation Management Plan (Rev3) 12 April 2017

Radiation Management Plan- Murray Basin Operations (Rev2) August 2016

Iluka Analytic Sampling Procedures:

Analytical - Analysis using XRF 11/6/15

Analytical - Moisture Determination 10/9/15

Analytical - Sample Preparation - Fusion of Heavy Mineral 4/12/08

Analytical - Sample Preparation - Pulverising Grinding Samples 18/10/14

Analytical - Sample Preparation - Riffle Splitting 23/10/14

Analytical - XRF QA 23/7/18

High Volume Air Sampler, Sampling Procedure 26/7/17

Trucking Procedures:

Work Instruction for Loading of Monazite &Ilmenite CL product at Iluka MSP V8 Kalari P/L 28/09/2015.

Emergency Response Procedure for Non Conductor Magnetics V2 Kalari P/L 8/02/2011.

Work Instruction for unloading MSP rejects at Pit 23 V2 Kalari P/L 13/08/2015.

10.0 IMPORTANT INFORMATION

Your attention is drawn to the document titled - “Important Information Relating to this Report”, which is included in APPENDIX E of this report. The statements presented in that document are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Important Information document does not alter the obligations Golder Associates has under the contract between it and its client.

11.0 CLOSING

If you have any queries about this report, please contact Bruce Dawson on 03 8862 3774 or at bdawson@golder.com.au.

Signature Page

Golder Associates Pty Ltd

Coen Romalis
Environmental Scientist

Bruce Dawson
Principal Environmental Consultant

CER-SLM/BED/cer

https://golderassociates.sharepoint.com/sites/107372/project files/6 deliverables/19121052-006-r h2 2019 annual review/rev1/19121052-006-r-rev1.docx

APPENDIX A

IWMP Annual Report Audit

Table 2: IWMP Annual Report Audit

Source & Requirement	Observations	Compliance	Recommendations
Planning Permit Clause 14. Within 90 days of the commencement of this permit operating, an Incoming Waste Monitoring Plan (IWMP) must be submitted to the satisfaction of the responsible authority and the Department of Health and Human Services for approval by the responsible authority. Three copies of the IWMP must be submitted to the responsible authority. When approved by the responsible authority the IWMP will be endorsed and it will then form part of this permit. The IWMP must provide for:		Compliant	
a) A monitoring and reporting system for ensuring that materials disposed of to Pit 23 are limited to those permitted under the conditions of this permit	Section 3.1 of the IWMP Annual Report provides a spreadsheet summary record stating material to be disposed of is permitted. Two loads of dry reject material, totalling 50 tonnes, were received into pit 23 during the H2 2019 reporting period.	Compliant	
b) Recording the origin, per load weight and radioactive properties of each incoming load.	Section 3.1 of the IWMP Annual Report provides a spreadsheet summary recording the origin and load weight of each material load. Section 3.2 of the IWMP Annual Report provides a summary of the radioactive properties of each material load.	Compliant	

Source & Requirement	Observations	Compliance	Recommendations
c) Monitoring to ensure all vehicles transporting waste have fully secured and contained loads and that all waste loads have been transported in compliance with licensed requirements under the Radiation Act 2005;	*Work instruction for Loading of Monazite and Ilmenite CL product at the Iluka MSP- Hamilton site* identifies that loads are to be secured and contained.	Compliant	
d) Records of any transport incidents or spills and remedial actions taken in the event of such incidents.	Section 3.3.1 of the IWMP Annual Report states that no transport incidents or spillages occurred over H2 2019 period.	Compliant	
e) Annual auditing of records to verify compliance with the requirements of the IWMP	This audit fulfils this requirement	Compliant	
Amendments to the IWMP must be to the satisfaction of the responsible authority and Department of Health and Human Services and must only be made on written approval of the responsible authority.	No amendments to the IWMP were made during H2 2019. The auditor notes that the IWMP is to be updated in 2020 in accordance with the two-year IWMP review stipulated in the IWMP.	NA	
IWMP Section 2 Acceptance Criteria			
Source Site. Disposal into Pit 23 is restricted to materials from the following source sites; ■ the Hamilton MSP; ■ the Douglas mineral sands mine; ■ the Kulwin mineral sands mine site (located 28 kilometres east of Ouyen);	Section 3.1 of the IWMP Annual Report states that two loads of material were received into Pit 23 in the H2 2019 reporting period. Both of these loads were sourced from the Hamilton MSP.	Compliant	

Source & Requirement	Observations	Compliance	Recommendations
■ the Woornack Rownack and Pirro mineral sands mine site (located 20 km southwest of Ouyen); ■ Facilities operated by transport contractors associated with the Port of Portland including the heavy mineral concentrate (HMC) storage and train loading facilities at Hopetoun; and ■ storage facilities in Portland used for storage of the Hamilton MSP products			
Radioactivity. Disposal to Pit 23 is restricted to materials that contain and are contaminated with naturally occurring radioactive material (NORM), which are: ■ mineral by-products from the Hamilton MSP, including gypsum produced at the MSP; ■ used Bag-house dust filter bags (used filter bags); and ■ concrete or steel from the sites listed in Section 2.1 above.	Section 3.1 of the IWMP Annual Report states that only two loads of dry reject material from the Hamilton MSP were disposed to Pit23. Section 3.2 of the IWMP Annual Report provides a summary of the radioactive properties of each material load. Golder notes that the Thorium and Uranium values (ppm) of the dry circuit rejects are significantly lower than those presented in table 1 of the IWMP.	Compliant	
By-products for disposal. The Hamilton MSP by-products to disposed into Pit 23 are; ■ Wet circuit rejects ■ Dry circuit rejects; ■ Gypsum	Section 3.1 of the IWMP Annual Report states that only two loads of dry reject material from the Hamilton MSP were disposed to Pit23.	Compliant	

Source & Requirement	Observations	Compliance	Recommendations
■ Bag hose dust filter bags ■ Contaminated concrete and steel			
Material Description and physical form. Import for disposal into Pit 23 is restricted to the following materials: ■ non-liquid waste by-products associated with or sourced though mineral sands processing undertaken at the Hamilton MSP containing or contaminated with NORM; ■ used dust filter bags from the Hamilton MSP containing or contaminated with NORM; and ■ NORM-contaminated concrete and steel associated with plant and infrastructure from the sites listed in Section 2.1 above	Section 3.1 of the IWMP Annual Report states that only two loads of dry reject material from the Hamilton MSP were disposed to Pit23.	Compliant	
IWMP Section 3. Monitoring			
In accordance with heavy vehicle mass management requirements under Chain of Responsibility legislation administered by the Department of Economic Development, Jobs, Transport and Resources (DEDJTR), the weight of every truck load of material to be disposed of will be measured at the point of loading, or the nearest possible location, prior to transport to the Douglas mine site. The load weight shall be measured by one of the following means;	Section 3.1 of the IWMP Annual Report lists the load weight of each delivery to Pit23. Iluka has advised that a public commercial calibrated weighbridge is used to weigh material disposed into Pit23.	Compliant	

Source & Requirement	Observations	Compliance	Recommendations
■ calibrated weighbridge ■ calibrated on-board weighing systems (such as airbag weightometers) ■ any other mass measurement system or methodology approved by the DEDJTR for demonstrating compliance with heavy vehicle mass management requirement	An extract of the weighbridge logbook, and the calibration records of the weighbridge were reviewed.		
For each individual load, the following information shall be recorded in an electronic data management system: ■ load weight ■ material description ■ radioactive properties, being ▪ concentrations of uranium and thorium in MSP by-products based on the weekly average of the by products produced ▪ measured concentrations of uranium and thorium in used filter bags, concrete and steel	Section 3.1 of the IWMP Annual Report provides information on load weight and material description. No individual load records provided on thorium or uranium concentrations. As disposal was limited to a single day during the H2 reporting period, a single testing sample was used to characterise the radionuclide concentrations.	Compliant	

Source & Requirement	Observations	Compliance	Recommendations
IWMP Section 4 Control of access for disposal			
Prior to transport of materials to be disposed of in Pit 23, vehicles will be checked: ■ for compliance with the ARPANSA Code of Practice for Safe Transport of Radioactive Material; and ■ to confirm and ensure loads are fully secured and contained. Deliveries must enter the site via Elliotts Road and the mine access road shown on the site plan (Figure 2). All vehicles entering the site, including those carrying materials for disposal to Pit 23, must be authorised and must pass through a boom gate that may only be opened with a swipe card issued to authorised personnel or by an authorised Iluka employee at the site office. Each vehicle must then stop at the site office to: ■ provide a record of the load being delivered (origin, material type, load weight); and ■ comply with any site-specific requirements that apply for entering the site. Vehicles carrying materials for disposal for which the required information is not provided or is not in conformance with the permitted use will not be allowed to dispose of their loads to Pit 23.	*Work instruction for Loading of Monazite and Ilmenite CL product at the Iluka MSP- Hamilton site* reviewed. Deliveries were not observed as part of this audit.	NA	

<table>
<tr><th>Source & Requirement</th><th>Observations</th><th>Compliance</th><th>Recommendations</th></tr>
<tr><td colspan="4">IWMP Section 5 Monitoring Program</td></tr>
<tr><td>In order to confirm the presence of NORM within the MSP by-products, Table 2 in the IWMP specifies the samples collected and quantity measurements made:
Table 2: MSP by-product sampling and quantity measurement
<table>
<tr><th></th><th>Sampling Method</th><th>Quantity</th></tr>
<tr><td colspan="3">Wet Circuits Rejects</td></tr>
<tr><td>FPC Sand Tailing</td><td>Automatic Sampler within plant producing daily composite from frequent cuts</td><td>Continuous flow and density measurement to provide daily solids tonnage</td></tr>
<tr><td>FPC Fines</td><td>Manual sample from thickener underflow collected daily</td><td>Continuous density measurement and volume measurement from positive displacement pump operation to provide daily solids tonnage</td></tr>
<tr><td>ZWC Sand Tailings</td><td>Automatic Sampler within plant producing daily composite from frequent cuts</td><td>Continuous flow and density measurement to provide daily solids tonnage</td></tr>
<tr><td colspan="3">Dry Circuits Rejects</td></tr>
<tr><td>PDC Non-Conductor magnetics</td><td>Automatic Sampler within plant producing daily composite from frequent cuts</td><td>Weightometer integrated to provide daily tonnage.</td></tr>
<tr><td>DCC Magnetics</td><td>Automatic Sampler within plant producing daily composite from frequent cuts</td><td>Weightometer integrated to provide daily tonnage.</td></tr>
<tr><td>Gypsum</td><td>Manual sample from bunker collected daily</td><td>Continuous density measurement and volume measurement from positive displacement pump operation to provide daily solids tonnage</td></tr>
</table></td><td>The MSP was not operating during H2 2019, so no data was available.</td><td>NA</td><td></td></tr>
<tr><td>Bag-house dust filter bags.
Prior to transport, sections of used filter bag cloth of approximately 100 x 100 mm will be cut from at least five used filter bags per consignment and each section submitted for analysis</td><td>The MSP was not operating during H2 2019 and the IWMP Annual Report did not identify that filter bags were disposed of during H2 2019, so no data was available.</td><td>NA</td><td></td></tr>
</table>

Source & Requirement	Observations	Compliance	Recommendations
NORM contaminated concrete and steel. The sampling method applied will be dependent on the precise nature of the material and will be developed and applied on a case-by-case basis. Representative samples of each consignment will be collected and submitted for analysis	The MSP was not operating during H2 2019 and the IWMP Annual Report did not identify that concrete and steel were disposed of during H2 2019, so no data was available.	NA	
Mineral separation plant by-products. Analysis of MSP by-products is undertaken as follows: ■ desiccation within the MSP laboratory oven to remove moisture; ■ pulverisation (as required) to produce a fine granular matrix; ■ splitting to produce a representative sample of appropriate size; ■ fusion of the sample to produce a glass bead; and ■ assay of the bead using an X-Ray Fluorescence Spectrophotometer to determine the concentrations of uranium and thorium. The assay results are uploaded into Iluka's production statistics database as are the results of tonnage measurements of the various streams. The data is then used to calculate the uranium and thorium concentrations in each of the wet circuits rejects, dry circuits rejects and gypsum.	Analytical procedures were provided.	Compliant	

Source & Requirement	Observations	Compliance	Recommendations
Analysis of filter bag samples will be undertaken at either Iluka's Hamilton laboratory or an external laboratory to determine the concentrations of uranium and thorium.	Section 3.1 of the IWMP Annual Report states no filter bags were disposed of to Pit 23 during H2 2019 reporting period.	NA	
Samples of NORM contaminated concrete and steel will be analysed at either Iluka's MSP lab or an external laboratory to determine the concentrations of uranium and thorium.	Section 3.1 of the IWMP Annual Report states no concrete or steel was disposed of into Pit 23 during H2 2019 reporting period.	NA	
IWMP Reporting			
All data generated from the monitoring described above will be recorded electronically in a data base managed by Iluka. On an annual basis a report will be prepared showing the following:			
For each load: ■ Source site ■ Load weight ■ Radioactive properties being: ▪ assigned concentration of uranium and thorium in MSP mineral byproducts, based on weekly averages of by-products produced; and ▪ measured concentrations of uranium and thorium in used filter bags, concrete or steel.	Section 3.1 and 3.2 of the IWMP Annual report provides the source, weight and radioactive properties of the received material.	Compliant	

Source & Requirement	Observations	Compliance	Recommendations
For the report period: ■ average concentration of uranium and thorium for the MSP by-products, used filter bags, concrete and steel; ■ total quantities of materials disposed of to Pit 23; and ■ records of any transport incidents or spills and remedial actions taken in the event of such incidents.	Section 3.2 of the IWMP Annual Report provides information on the radioactivity analysis of MSP by-products disposed of in 2018 and total quantity of materials disposed of into Pit 23. Section 3.3 of the IWMP Annual Report states no transport incidents or spillages occurred during the reporting period.	Compliant	
The Annual Report will be provided to a suitably qualified auditor who will complete an audit of the data provided and compliance with this IWMP.	This report is provided in accordance with the requirement of the IWMP.	Compliant	
Copies of the Annual Report and the audit report will be submitted to the Responsible Authority.	As the Auditor understands that Iluka will submit the performance reports and the audit report when complete, compliance with this requirement cannot be verified. Evidence of submission of a previous Audit report was provided to the Auditor.	Compliant	
IWMP Review			
This IWMP shall be reviewed and amended if necessary, to take account of: ■ advances in knowledge and technology pertaining to by-product disposal; included in this report. ■ any significant change in operations; ■ changes in applicable legislation or standards;	A review and update of the IWMP is currently being undertaken and is anticipated to be submitted to the Relevant Authority in H2 2020.	Compliant	The IMWP should be reviewed in the next reporting period. Iluka has confirmed that a review has commenced.

Source & Requirement	Observations	Compliance	Recommendations
■ changes in Iluka's EHS standards; ■ or every two (2) years, which-ever occurs soonest.			
Proposals for amendment of this plan will be prepared to the satisfaction of the Responsible Authority and the Department of Health and Human Services.	No amendments to the IWMP have been submitted in H2 2019. A review and update of the IWMP is currently being undertaken and is anticipated to be submitted to the Relevant Authority in H2 2020.	Compliant	

APPENDIX B

EMP Annual Report Audit

Table 3: EMP Annual Report Audit.

Requirement	Observations	Compliance	Recommendations
EMP Section 12.2			
A review of performance will be completed and an EMP and Rehabilitation Performance Report prepared annually, or less frequently as may be agreed with the Responsible Authority.	The Environmental Management Plan and Rehabilitation Performance Report has been prepared for H2 2019. Section 2.5 of the EMP Annual Report states that due to continued operations within Pit 23, no actions relevant to **rehabilitation and vegetation management** were undertaken in the H2 2019 reporting period.	Compliant	
Each EMP and Rehabilitation Performance Report will include for the period from the previous EMP and Rehabilitation Performance Report:			
■ the total tonnage of materials disposed of;	Section 3 of the EMP Annual Report states that 50 tonnes of wastes were disposed into Pit 23 during the H2 2019 reporting period.	Compliant	
■ the average and maximum number of deliveries of materials for disposal per day; and	The average and maximum number of deliveries per day was not recorded in the EMP Annual Report. However, this information is provided in the IWMP Annual Report. Since disposal only occurred on one day (14th December, 2019), this requirement is not considered to be relevant for the H2 2019 reporting period.	Compliant	
■ the results of all measurements of:			

Requirement	Observations	Compliance	Recommendations
▪ noise levels made in response to a complaint regarding noise;	Section 4.3 of the EMP Annual Report states that because complaints regarding noise levels have not been made, noise monitoring as not been undertaken, as outlined by Section 10.1.4. of the EMP.	Compliant	
▪ PM_{10} concentrations in air at sensitive receptors;	Included in section 4.4 of the EMP Annual Report. There were four exceedances of the concentration PM_{10} limit (0.06 mg/m3). The first exceedance was recorded on the 31st October 2019 at the Rises monitoring station (0.070 mg/m^3). BOM station data indicates the prevailing wind direction during the monitoring event was N/NE, whereas Pit 23 is located to the NW of the Rises monitoring station. However, the upwind monitoring stations of Lyons and Chadwicks recorded lower results of 0.041 mg/m^3 and 0.038 mg/m^3 respectively. While emissions from Pit 23 cannot be confirmed as the specific source of elevated dust levels, the source of emissions giving rise to the exceedance could not be determined. The second exceedance was recorded on the 18th December 2019 at the Lyon's monitoring station (0.064 mg/m^3). With a predominant NW wind direction, the closer downwind monitoring location at 'Chadwicks' did not record elevated PM_{10} concentrations (0.029 mg/m^3). This indicates that the exceedance cannot directly be attributed to Pit 23 activity. The third and fourth exceedances were recorded on the 30th December 2019 at both the Lyon's (0.064 mg/m^3) and the Rises monitoring station (0.079 mg/m^3). This is unlikely to be	Compliant	

	associated with Pit 23 activity as BOM records indicate the prevailing wind direction was S/SE during the monitoring event. The Auditor also notes that the air quality of December 30th was also likely impacted by bushfire events.		
▪ the results of all measurements of groundwater level and quality;	Groundwater monitoring results are included in Section 4.1. Monitoring locations and frequency generally compliant with Table 7 of EMP. Six-monthly water level gauging of all wells was conducted in July 2019, and gauging and collection of field parameters for selected wells was completed monthly as required. Monthly water level gauging results for the blocked well BW36 were reported from July 2019 to October 2019, when it was decommissioned. A gauging result for the replacement well BW36A, installed in October 2019, was reported for December 2019. A sampling round (laboratory analysis) was conducted in July 2019, with additional sampling to follow up trigger actions. Laboratory reports from ALS, EML Chem and SGS were supplied, which demonstrate NATA or equivalent accreditation. Comparison of Cl:SO_4 and Na:Ca ratios were made as required in the EMP. A decrease of more than 10% is a trigger for further investigation. Cl:SO_4 ratios were generally consistent with or higher than previous sampling. There was one result where Na:Ca ratio decreased by more than 10% in July 2019 compared to the previous sampling result. This was at the cross-gradient well GW04. Resampling was	Compliant	Previously recommended changes to EMP trigger values and contingencies should be addressed in updated EMP.

	conducted in August 2019 and September 2019, with similar results to July 2019. We note that the results (between 11.4 and 14.2) are similar to the November 2018 result (14.2) and only the January 2019 result is higher (17.3). All results for GW04 remained within the background range for groundwater reported in the EMP (Table 9: 5.29 to 18.04), and Cl:SO_4 ratios increased between January 2019 and July 2019. Considering also the location of the well, cross-gradient from Pit 23, the change in Na:Ca ratio is unlikely to indicate seepage from Pit 23. This ratio change at GW04 triggered an assessment of other parameters against concentration-based trigger levels. This indicated selenium concentrations at GW04 were above the precautionary trigger level (0.017 mg/L based on literature values), but the concentration was generally consistent between sampling rounds (0.023 to 0.029 mg/L between November 2018 and September 2019). A well-specific precautionary trigger value of 0.0269 mg/L and upper trigger value of 0.0317 mg/L were derived, assuming the results are representative of background conditions. These values are below the selenium concentrations observed at other nearby wells (BW45B, GW01, GW05: 0.035 mg/L to 0.063 mg/L in July 2019), so trigger values are likely to be conservative. Selenium results at GW04 did not exceed the upper trigger value, so an exception report is not required.		
▪ the results of and actions taken in response to monitoring bore audits;	All bores were reported to be in serviceable condition. The blocked well BW36 was decommissioned and replaced with a new well BW36A on 15 October 2019. Iluka proposes to install an additional monitoring well between GW04 and BW36A, as previously recommended.	Compliant	Golder has been advised by Iluka that an additional bore to replace GW04 has been scheduled for Q4 2020. The well is

			proposed to be located approximately 130 m from the pit crest, subject to the location providing safe installation and ongoing access. The Auditor agrees with the proposed location for the replacement well.
▪ environmental radiation monitoring results in accordance with the approved Radiation Management Plan, which will generally include:			
– radon concentration in air;	Results for Radon and Thoron monitoring in air were reported in Section 4.5.1 and did not exceed the reportable level during the reporting period. Sampling program is compliant with the Radiation Management Plan monitoring program (Section 9).	Compliant	
– gross alpha activity concentration of airborne dust; and	Dust monitoring results were reported in Section 4.3.2. There was no reportable level/compliance limit detailed in the EMP Annual Review. A peak value of 0.370 mBq/m^3 was recorded at Rises on 3 July, 2019, which is broadly in line with historical values. Sampling program is compliant with the Radiation Management Plan monitoring program (Section 9).	Compliant	

– radionuclide concentrations in groundwater and surface water	Surface water radionuclide monitoring results were reported in Section 4.2.2.2. There was no exceedance of trigger levels for uranium or radium in surface water samples. Groundwater radionuclide monitoring results were reported in Section 4.1.3.2. A number of trigger level exceedances were reported in groundwater samples for U^{238} but these were concluded to be unrelated to Pit 23, as they typically occurred in up-gradient or cross-gradient wells (GW06, GW07, WRK302, BW28A). U^{238} at a concentration exceeding the upper trigger level (0.2 Bq/L) was detected at down-gradient well GW02 in July 2019 (0.296 Bq/L). Resampling was conducted in January 2020 and March 2020, which reported U^{238} concentrations below the laboratory limit of reporting (<0.025 Bq/L), consistent with previous results. The exceedance in July 2019 was apparently an anomaly and not indicative of an ongoing trend. The average of the exceedance result and the following result was below the precautionary trigger value (0.17 Bq/L), so no further response was required by the EMP.	Compliant	
▪ discussion of any implications of the results of groundwater level monitoring on groundwater flow paths from Pit 23; and	Interpreted groundwater flow contours during the monitoring period were presented in section 5.2 of the H2 2019 Annual Report.	Compliant	
▪ descriptions of any model review and recalibration completed and the results of subsequent model reruns;	An update to the groundwater model was released in September 2019 (EMM, 2019), including water level monitoring results from March 2019. It was concluded that groundwater flow directions were consistent with previous interpretations and models.	Compliant.	

	Permeability assessment (specified in Section 7.6.3 of EMP) for wells installed in 2018 was completed in the monitoring period, with interpreted results included in Table 1. Results ranged from 0.01 m/day to 1.15 m/day. The purpose of permeability testing was to validate or enhance the assumptions made in the numerical groundwater model. The interpreted permeability results are generally within or below the range of permeability applied in the groundwater models (reported as 0.1 m/day to 15 m/day for the Loxton-Parilla Sands aquifer), so model results should be conservative when inferring travel times to groundwater receptors.		
■ the maximum elevation of the upper surface of materials disposed of at the end of the reporting period	Included in Section 5.4 of the EMP Annual Report. As the incoming waste disposed during the H2 2019 reporting period was disposed to a lower level of Pit 23, the maximum elevation remains unchanged at 193m AHD.	Compliant	
■ a detailed discussion of all non-compliant events including progress toward resolution;	Section 5.5 of the EMP Annual Report states that there was one non-compliance during the H2 2019 reporting period relating to the delayed submission of an exception report for the exceedance of surface water parameters. The Auditor has confirmed that the exception report has since been submitted. As discussed above, a number of groundwater quality results exceeded trigger values for one or more of Na:Ca ratio, selenium, U^{238} or Ra^{228}. However, additional sampling indicated that the exceedances were unlikely to be related to seepage from Pit 23.	Compliant	

■ a summary of comments and complaints received and resulting actions;	Section 5.6 of the EMP Annual Report states that no complaints or comments were received during the H2 2019 reporting period.	Compliant	
■ completed actions from the previous year	This is addressed in Section 5.7 of the EMP Annual Report and follows up on the previous H1 reporting period plans for replacement of BW36.	Compliant	
■ plans for the next reporting period; and	This is addressed in Section 5.8 of the EMP Annual Report and is acceptable.	Compliant	Golder has been advised by Iluka that an additional bore to replace GW04 has been scheduled for Q4 2020. The wells is proposed to be located approximately 130 m from the pit crest. The Auditor agrees with the proposed location for the replacement well.
■ discussion on other matters considered relevant by the Responsible Authority or Iluka.	Section 5.9.1 of the EMP Annual Report confirms that the geotechnical audit for 2019 was completed in December. The next geotechnical audit is scheduled for November 2020. Section 5.9.2 states that the review of the Risk Analysis Response Plan (RARP) was undertaken in April 2019. The update of the RARP will be undertaken as part of the review and update of the EMP and the RVMP, which is currently being undertaken and is anticipated to be submitted to the Responsible Authority in 2020.	Compliant	

Deficiencies identified in an EMP and Rehabilitation Performance Report that can be addressed without amendment of this plan will be addressed as soon as practicable.	There was no section discussing this in the Annual Report. The auditor notes that the EMP, IWMP and RVMP are to be updated in 2020, where deficiencies can be addressed in this update.	Compliant	
EMP and Rehabilitation Performance Reports will be subject to review by an independent auditor as described in Section 13.2 of the EMP (Performance Review).	This audit fulfils this requirement.	Compliant	
EMP Section 13.2 Performance Review			
The performance review function is, in part, an audit function in that the selected auditor will be required to audit EMP and Rehabilitation Performance Report to confirm its completeness and accuracy in terms of compliance of the implementation of the plan and compliance with established standards and limits. In addition to these audit functions the selected auditor will be invited to recommend amendments to the EMP to ensure future compliance.	This audit report addresses the requirement.	Compliant	
There are a number of requirements of the expert in this case, including: · EPA auditor accreditation; · independence (from Iluka); · suitable qualifications; · expertise in risk management plans in the context of mines and quarries; and · to the satisfaction of the Responsible Authority.	Iluka has selected Bruce Dawson to undertake the audit as a suitably qualified Auditor appointed under the Environment Protection Act 1970. More information about the auditor is included in Section 3.0 of this report.	Compliant	

It is extremely unlikely that an expert meeting all of these requirements exist, however, an expert may choose to direct the work of others. A scope of works will be prepared and a number of EPA accredited auditors asked to submit proposals for the completion of performance reviews. Iluka will select the best candidate and provide the Responsible Authority with details of the candidate and their proposal for completion of works. The Responsible Authority may indicate its agreement with the candidate selected or request that details of an alternative be provided.			
A copy of the selected auditor's report will be provided to the Responsible Authority with each EMP Annual Report.	As the Auditor understands that Iluka will submit the performance reports and the audit report when complete, compliance with this requirement cannot be verified.	N/A	
Any deficiencies identified or recommendations made by the auditor will be dealt with in accordance with Conditions 44 and 45 of the Permit, which require:			
■ Copies of the EMP and Rehabilitation Performance Report and the auditor's report to be provided to the Responsible Authority with 28 days of receipt of the auditor's report	As the Auditor understands that Iluka will submit the performance reports and the audit report when complete, compliance with this requirement cannot be verified.	NA	
■ A description of steps to be taken, including timeframes, to address any non-compliance and recommendations identified in the EMP and Rehabilitation Performance Report and	As the Auditor understands that Iluka will submit the performance reports and the audit report when complete, compliance with this requirement cannot be verified.	NA	

the auditor's report be provided to the Responsible Authority within 28 days of submission of the EMP and Rehabilitation Performance Report to the Responsible Authority; and			
■ The Responsible Authority to determine whether amendment to the EMP or RVMP is required and the timeframe and conditions under which such amendment is to occur.	EMP and RVMP are currently under review.	NA	

APPENDIX C

Iluka IWMP Annual Report H2 2019

Iluka Resources Limited
Mineral Sands By-Product Disposal

Planning Permit 15-105

Crown Allotments 91, 94, 95, 96
Parish of Telangatuk

Incoming Waste Monitoring Plan

Report H2– 2019

Iluka Ref: UDOCS 0058-1414587248-1099

Contact:
Ian Williams
Environment Superintendent, Murray Basin
Ian.Williams@iluka.com

Document control

Revision	Details of review or changes	Prepared by	Date
A	Draft	S. Alexander	25-03-2020
0	Final	S.Alexander	27/04/2020

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1 Executive Summary

Iluka Resources Limited (Iluka) operates the Pit 23 by-products disposal facility located at the Douglas Mine in the Kanagulk area and within the municipality of the Horsham Rural City. Pursuant to Planning Permit 15-105 issued by Horsham Rural City Council (HRCC), and the subsidiary Pit 23 Incoming Waste Monitoring Plan (IWMP), the Pit 23 facility is approved for the disposal of:

- non-liquid waste by-products associated with or sourced though mineral sands processing undertaken at the Iluka Hamilton Mineral Separation Plant (MSP) containing or contaminated with Naturally Occurring Radioactive Material (NORM);
- used dust filter bags from the Hamilton MSP containing or contaminated with NORM; and
- NORM-contaminated concrete and steel associated with plant and infrastructure from nominated Iluka sites within Victoria.

This report is submitted in accordance with Section 6 of the IWMP and provides a summary of the wastes received into Pit 23 (origin, volumes/weights and radioactive properties) and records of incidents and remedial actions applicable to the reporting period of 1st July 2019 to 31st December 2019.

Key commentary on monitoring outcomes and performance against compliance objectives in the IWMP for the H2 2019 reporting period:

- a total of two (2) loads of MSP By-products were disposed into Pit 23 on the 4th December 2019, totalling 50 tonnes;
- the average concentration for Uranium (U) and Thorium (Th) for the by-product waste received into Pit 23 was 112ppm and 380ppm, respectively; and
- no transport incidents or spillages occurred.

Summary incoming waste data and incident information is provided in Section 3.

2 Introduction

Iluka Resources Limited (Iluka) operates the Pit 23 by-products disposal facility located at the Douglas Mine in the Kanagulk area and within the municipality of the Horsham Rural City (Figure 1 and Figure 2).

Pursuant to Planning Permit 15-105 issued by Horsham Rural City Council (HRCC), and the subsidiary Pit 23 Incoming Waste Monitoring Plan (IWMP), the Pit 23 facility is approved for the disposal of mineral separation by-products and used dust filter bags from the Iluka Hamilton Mineral Separation (MSP) which contain or are contaminated with Naturally Occurring Radioactive Material (NORM), and concrete and steel which contains or is contaminated with NORM associated with plant and infrastructure from nominated Iluka sites within Victoria.

2.1 Planning Permit 15-105

Under the Horsham Planning Scheme the subject land is in the Farming Zone and under the provisions of that zone a permit is required for use and development for Industry (Refuse Disposal). On 25th February 2017 Planning Permit 15-105, (the Permit) was issued by the Horsham Rural City Council as the Responsible Authority to allow:

> *Use and development of the land for the disposal of waste by-products associated with or sourced through mineral sands processing undertaken at the Hamilton Mineral Separation Plant (MSP), including waste by-products and contaminated materials resulting from the processing and transport operations as follows:*
>
> - *By-products from the processing of heavy mineral concentrate at the Hamilton MSP;*
> - *used dust filter bags from the Hamilton MSP; and*
> - *Other chemically inert material contaminated with naturally occurring radioactive material.*
>
> *in accordance with the endorsed plans.*

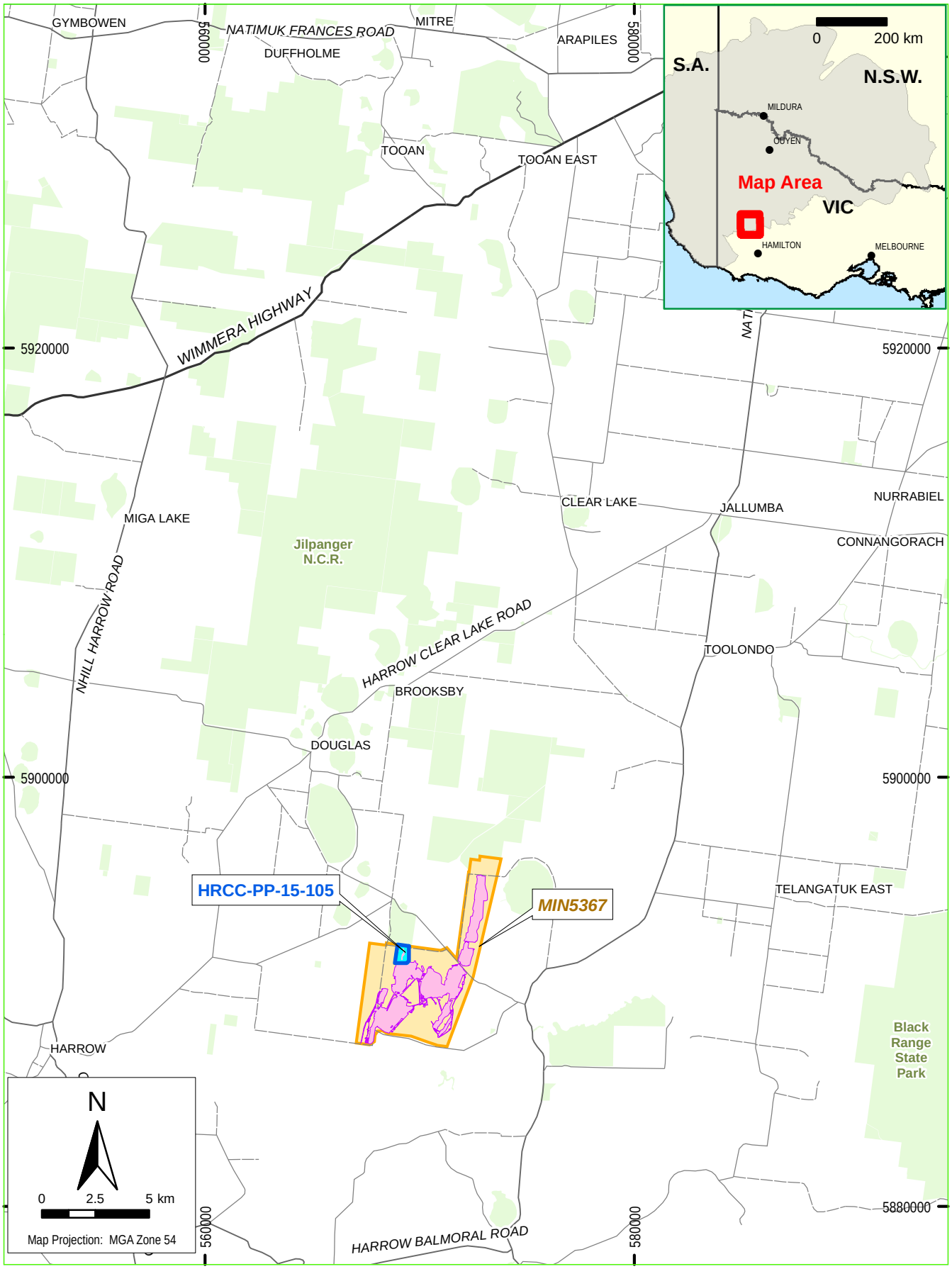
2.2 Commencement of the Permit

Condition 1 of the Permit states:

> *This permit does not come into operation until:*
>
> *a. Iluka has applied to the Department of Economic Development, Jobs, Transport and Resources to vary the 2003 Work Plan to identify a new endues utilisation of Pit 23 and to vary the rehabilitation plan; and*
>
> *b. Iluka has applied to the Minister to surrender part of MIN 5367[1] (Pit 23); and*
>
> *c. The Department of Economic Development, Jobs, Transport and Resources has approved the Work Plan Variation; and*
>
> *d. The Minister has registered the partial surrender of MIN 5367.*
>
> *The permit comes into operation on the same day the Work Plan Variation is approved, and the partial surrender of MIN 5367 is registered.*

The Variation to the 2003 Douglas Mine Work Plan was approved on the 13th April 2017, and the partial surrender of MIN 5367 was registered on 11th May 2017, this being the date of commencement of the Permit.

[1] Iluka Resources Douglas Mine – Mining Licence No. 5367 ('MIN 5367')



Legend

- Douglas mine
- Pit 23
- HRCC-PP-15-105
- MIN5367 tenement

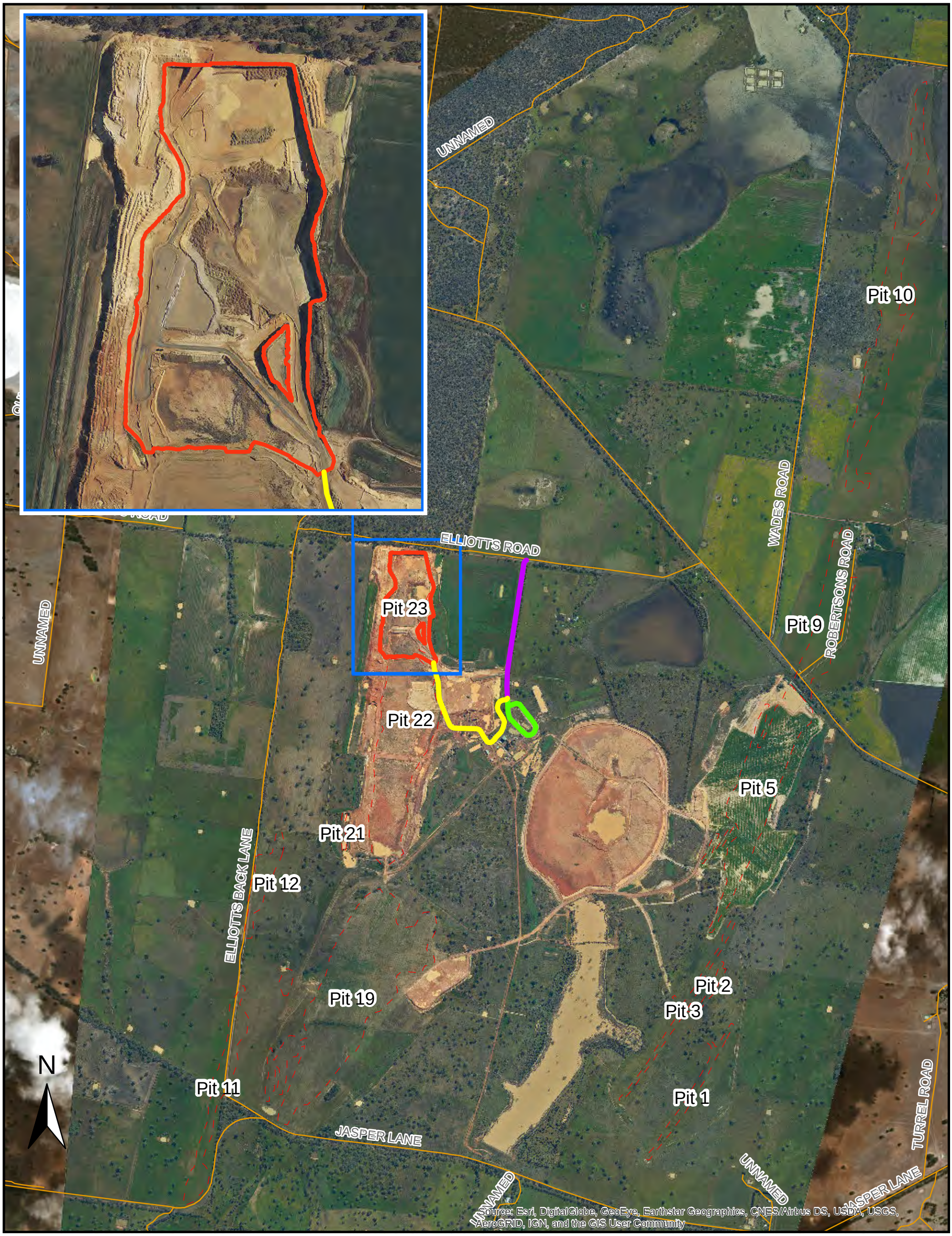
DOUGLAS

LOCATION PLAN

ILUKA

ORIG: N.Travers DRAWN: D.G.S. SCALE: 1:250,000 (A4) DATE: May 2018 DWG No: 247670 ver.00

FIGURE: 1



Legend

- Pit 23 haul road
- Mine Access Road
- Truck wash circuit
- Pit 23 crest
- Pit Crests
- Roads

0 250 500 1,000 1,500 2,000 Meters

LOCATION OF PIT 23

ILUKA

L:\Maps\2018\Unregistered\Douglas\mxd\Pit 23 Annual Report 2017 DRAWN: N. Travers DATE:26/06/2018

FIGURE: **2**

2.3 Endorsed Plans

Conditions 2, 3, 9, 14, 16 and 34 of the Permit relate to various management plans that once approved by the Responsible Authority will be endorsed to form part of the Permit, which includes:

- Incoming Waste Monitoring Plan (IWMP);
- Environmental Management Plan (EMP), incorporating;
    - Groundwater Monitoring and Management Plan (GWMMP);
    - Surface Water Monitoring and Management Plan (SWMMP);
    - Air Quality/Dust Control Plan (AQMP); and
- Rehabilitation and Vegetation Management Plan (R&VMP)

The plans were endorsed by Horsham Rural City Council on 17th July 2017.

2.4 Permit condition requirement for an IWMP

To ensure compliance with the permitted use (Section 2.1) the Permit includes the following condition concerning the requirement for and content of an IWMP:

Incoming Waste Monitoring Plan

14. *Within 90 days of the commencement of this permit operation, an Incoming Waste Management Plan (IWMP) must be prepared to the satisfaction of the Responsible Authority in consultation with the Department of Health and Human Services for the approval by the responsible authority. Three copies of the plan must be provided to the responsible authority. When approved by the responsible authority the IWMP will be endorsed and it will then form part of this permit. The IWMP must provide for*

    a) A monitoring and reporting system for ensuring that materials disposed of to Pit 23 are limited to those approved under the conditions of this permit;

    b) Recording of the origin, per load weight and radioactive properties of each incoming load;

    c) Monitoring to ensure all vehicles transporting waste have fully secured and contained loads and that all waste loads have been transported in compliance with licence requirements under the Radiation Act 2005;

    d) Records of any transport incidents or spill and remedial actions taken in the event of such incidents; and

    e) Annual audits of records to verify compliance with the requirements of the IWMP

2.5 IWMP reporting requirements

Section 6 of the IWMP states the following reporting requirements:

On an annual basis a report will be provided showing the following:

- *For each load:*
    - *source site;*
    - *load weight; and*
    - *material description; and*
- *For the report period:*
    - *radioactivity of by-products on a monthly basis; and*
    - *total quantities of by-products disposed of to Pit 23.*

The annual report will be provided to a suitably qualified auditor who will complete an audit of the data provided and compliance with this IWMP.

Copies of the annual report and the audit report will be submitted to the Responsible Authority.

These reporting requirements are addressed in the following sections.

3 Monitoring Results

3.1 Per load monitoring data

In accordance with Section 6 of the endorsed IWMP, data associated with each load of incoming waste is shown in Table 1. A total of two (2) loads of material were received into Pit 23 in the H2 2019 reporting period.

Table 1: Individual load data for incoming wastes to Pit 23, H2 2019

Date	Week No.	Source site	Location Code	Material Code	Load weight (t)
4/12/19	49	MSP	Pit23	Dry rejects	25
4/12/19	49	MSP	Pit23	Dry rejects	25

3.2 Reporting period monitoring data

In accordance with Section 6 of the endorsed IWMP, the monthly average radioactivity of by-products shall be reported. However, due to the idling of the Hamilton MSP in October 2017 only two loads (totalling 50 Tonnes) of by-product were transported to Pit 23 on the 4th of December 2019. A sample was taken for radionuclide analysis with the results shown in Table 2.

Table 2: Quantities and radioactivity results for disposed MSP by-products, H2 2019

Product	Product (tonnes)	Th (ppm)	U (ppm)
Dry circuit rejects	50	380	112
Wet circuit rejects	0	n/a	n/a
Baghouse dust filter bags	0	n/a	n/a
Total	**50**		

3.3 Incidents and remedial actions

3.3.1 Incidents or spills

No transport incidents or spillages occurred during the reporting period

3.3.2 Remedial actions taken

None required

3.4 Other matters

None identified.

APPENDIX D

Iluka EMP and RVMP Annual Report H2 2019

Iluka Resources Limited
Mineral Sands By-Product Disposal

Planning Permit 15-105

Crown Allotments 91, 94, 95, 96
Parish of Telangatuk

Environmental Management Plan and Rehabilitation Performance Report – H2 2019

Iluka Ref: UDOCS 0058-1414587248-1098

Contact:
Ian Williams
Environment Superintendent, Murray Basin
Ian.williams@iluka.com

Document control

Revision	Details of review or changes	Prepared by	Date created
A	Draft	S. Alexander	25-03-2020
0	Final	S.Alexander	28-04-2020
1	Ammendments as per auditor recommendations	S.Alexander	03/07/2020

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Complementing the IWMP are the endorsed Pit 23 Environmental Management Plan (EMP) which addresses the identification, management and monitoring of environmental risks associated with the approved development and use; and the endorsed Rehabilitation and Vegetation Management Plan (R&VMP) which addresses the future rehabilitation of the Pit 23 facility including infrastructure decommissioning, landform reinstatement and end land use.

This report is submitted in accordance with Section 12.2 of the endorsed Iluka Pit 23 EMP and outlines the results of monitoring and management actions undertaken during the period 1st July 2019 to 31st December 2019.

Key commentary on environmental monitoring outcomes and performance against compliance objectives in the Pit EMP for the H2 2019 reporting period:

- There were no exceedances of applicable limits for radionuclides or any other analytes in groundwater in bores down-gradient of Pit 23 attributable to disposal activities;
- There were no surface water discharges from the Pit 23 disturbance area;
- There were no exceedances of applicable limits for radionuclides or any other analytes in groundwater-fed surface water sites down-gradient of Pit 23 attributable to disposal activities;
- No noise complaints were received;
- There were no exceedances of the PM_{10} limit attributable to Pit 23 operations;
- There were no exceedances of the air concentration limits for radon or thoron;
- Measured concentrations of gross alpha radiation in airborne dust were within the range of historical values; and
- Updated groundwater level contours and flow-paths show no material change from the hydrogeological model contours developed in 2019 by EMM.
- An administrative non-compliance is reported for the late submission of an exception report for the exceedance of water quality parameters at surface water monitoring site DUSW24 and an analogue site DUSW14.

Detailed assessment of compliance, key results and management actions are provided in Section 4 and 5 of the enclosed report.

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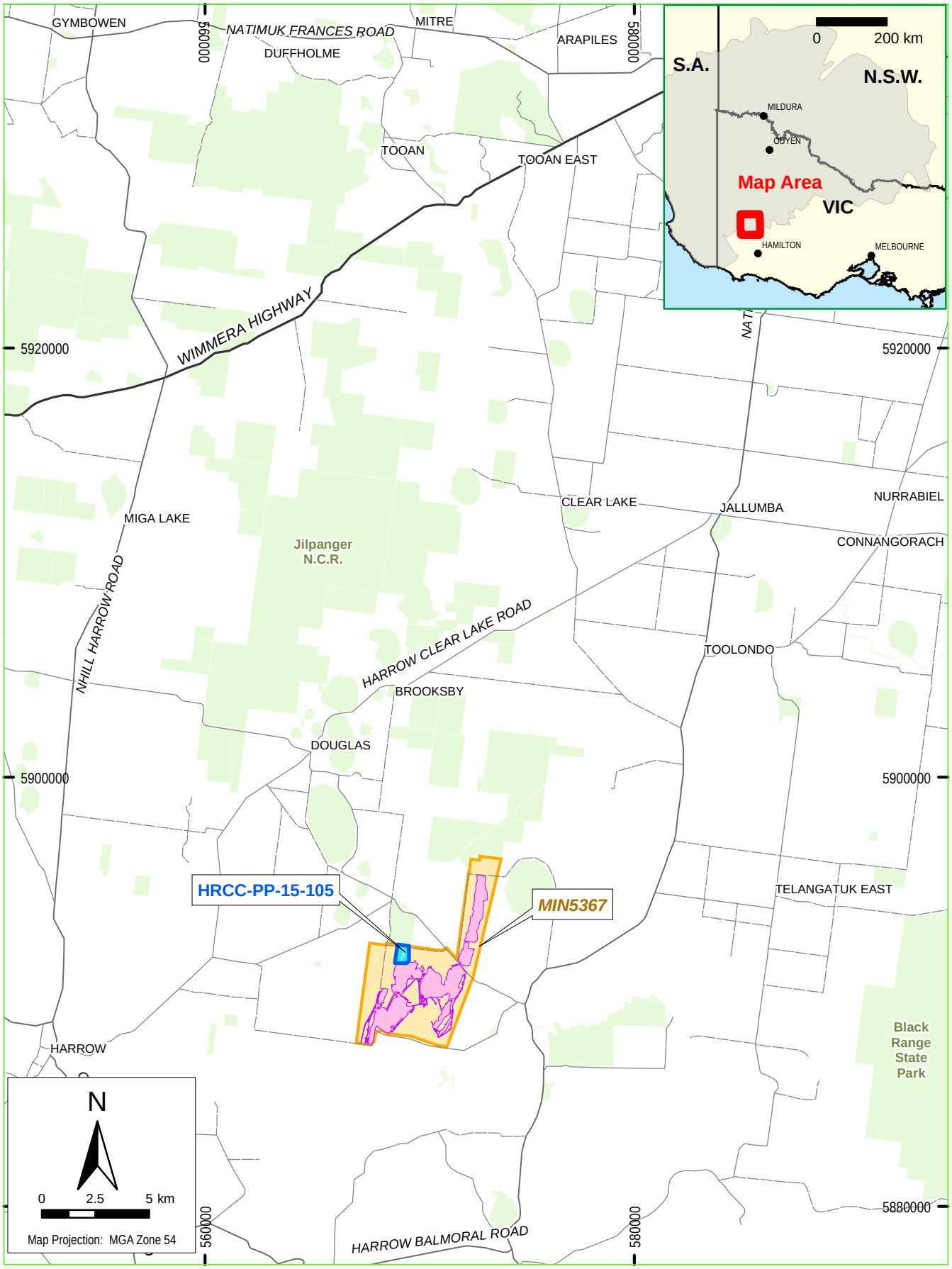

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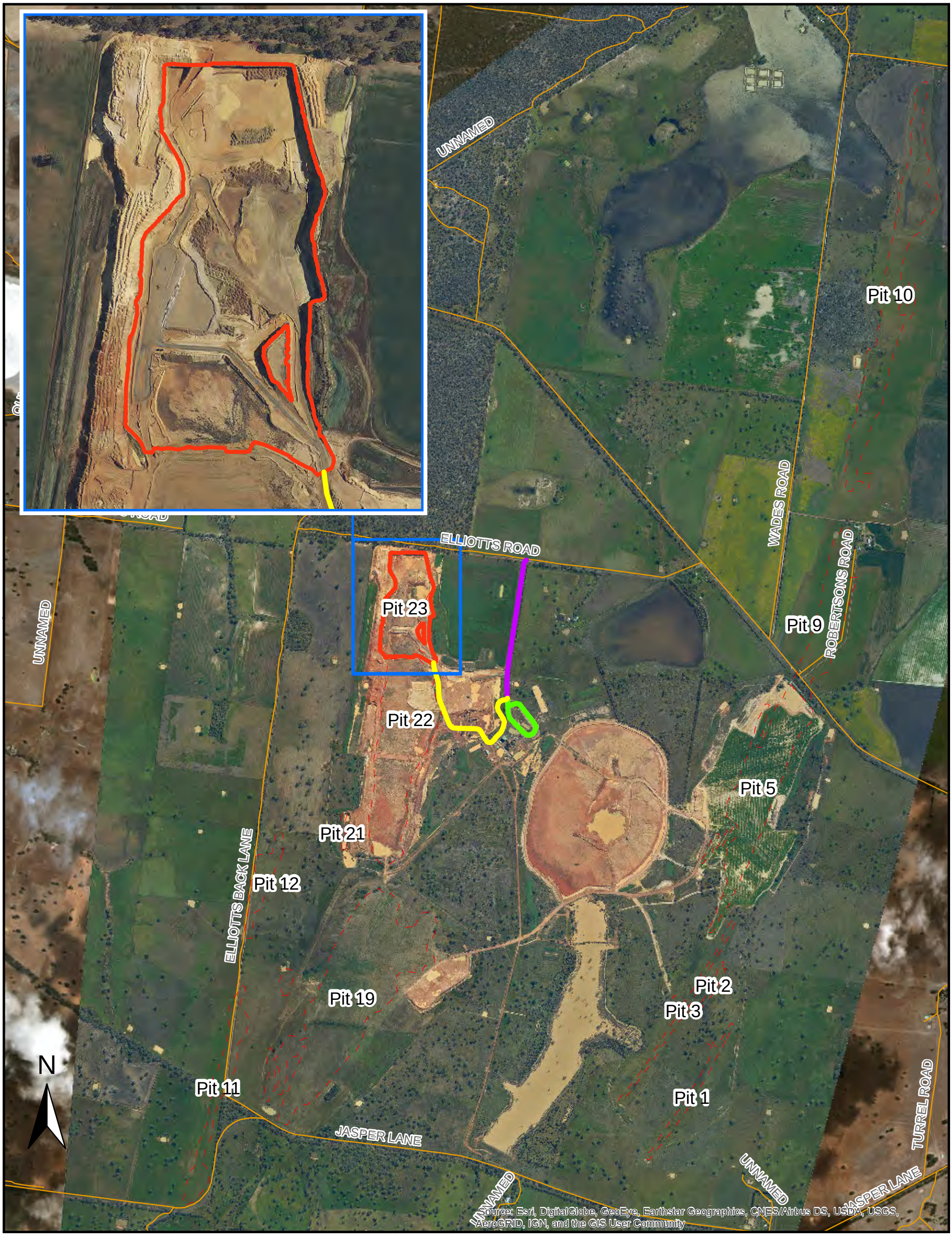
ORIG: N.Travers DRAWN: D.G.S. SCALE: 1:250,000 (A4) DATE: May 2018 DWG No: 247670 ver.00

FIGURE: 1



Legend

- Pit 23 haul road
- Mine Access Road
- Truck wash circuit
- Pit 23 crest
- Pit Crests
- Roads

0 250 500 1,000 1,500 2,000 Meters

LOCATION OF PIT 23

ILUKA

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FIGURE: **2**

2.3 Endorsed Plans

Conditions 2, 3, 9, 14, 16 and 34 of the Permit relate to various management plans that once approved by the Responsible Authority will be endorsed to form part of the Permit, which includes:

- Incoming Waste Monitoring Plan (IWMP);
- Environmental Management Plan (EMP), incorporating;
    - Groundwater Monitoring and Management Plan (GWMMP);
    - Surface Water Monitoring and Management Plan (SWMMP);
    - Air Quality/Dust Control Plan (AQMP); and
- Rehabilitation and Vegetation Management Plan (R&VMP)

The plans were endorsed by Horsham Rural City Council on 17th July 2017.

2.4 Performance reporting

Section 12.2 of the endorsed EMP (Rev 4, July 2017) outlines the routine reporting requirements for the mineral sands by-product disposal operations which are:

> *A review of the performance will be completed and an EMP and Rehabilitation Performance report prepared annually, or less frequently as may be agreed with the Responsible Authority.*
>
> *Each EMP and Rehabilitation Performance Report will include, at least:*
>
> - *for the period from the previous EMP and Rehabilitation Performance Report:*
>   - *the total tonnage of materials disposed of;*
>   - *the average and maximum number of deliveries of materials disposed of per day; and*
>   - *the results of all measurements of:*
>   - *noise levels made in response to a complaint regarding noise;*
>   - *PM10 concentrations in air at sensitive receptors;*
>   - *environmental radiation monitoring results in accordance with the approved Radiation Management Plan, which will generally include:*
>   - *radon concentration in air;*
>   - *gross alpha activity concentration of airborne dust; and*
>   - *radionuclide concentrations in groundwater and surface water;*
>   - *discussion of any implications of the results of groundwater level monitoring on groundwater flow paths from Pit 23; and*
>   - *descriptions of any model review and recalibration completed and the results of subsequent model re-runs;*
> - *the maximum elevation of the upper surface of materials disposed of at the end of the reporting period;*
> - *a detailed discussion of all non-compliant events including progress toward resolution;*
> - *a summary of comments and complaints received and resulting actions;*
> - *plans for the next year; and*
> - *discussion on other matters considered relevant by the Responsible Authority or Iluka.*
>
> *Deficiencies identified in an EMP and Rehabilitation Performance Report that can be addressed without amendment of this plan will be addressed as soon as practicable.*

Per Section 13.2 of the EMP, the EMP and Rehabilitation Performance Reports will be subject to review by an independent auditor prior to submission to the Responsible Authority.

2.5 Rehabilitation and Vegetation Management Plan

Due to continued operations within Pit 23 no actions relevant to rehabilitation and vegetation management were undertaken in the H2 2019 reporting period.

3 Delivery and Disposal of Materials into Pit 23

During the H2 2019 reporting period 50T of wastes were disposed into Pit 23 in accordance with permit requirements.

4 Monitoring Results

4.1 Groundwater

4.1.1 Bore network status

The Pit 23 bore network includes several new monitoring bores installed in 2018 per the recommendations in the independent desktop review of proposed by-product disposal (EES, 2016). The augmented bore network therefore satisfies Condition 28(c) of the Permit. The status of Pit 23 monitoring bore network is given in Table 1.

The blocked monitoring bore (BW36) has been decommissioned and replaced with a new monitoring bore (BW36A) which was installed in October 2019. Consistent with Section 7.6.3 the replacement bore ("BW36A") was installed by a licensed driller pursuant to a '*Licence to Construct Works*' (Works Licence WLE074849) issued by GWM Water. As per Condition 28(d) of the Permit, bore installation was supervised by qualified hydrogeologist.

Permeabilty assessment of newly installed bores as descibed in Section 7.6.3 of the EMP was completed in the reporting period with the results shown in Table 1 below. Permeability results range between 0.01 to 1.15m/day across the newly installed bores. These values are consistant with values used in previous modelling predictions conducted by CDM Smith (2014) and EMM (2019) that utilised a horizontal hydraulic conductivity range of 0.1 to 15m/day thereby no update or review of the groundwater model is required.

Bore locations are provided in Figure 3.

Table 1: Pit 23 bore status and permeability assessment of newly installed bores (as at 31/12/2019)

Well ID	Comment	Status / Condition	Permeability Assessment K, average (m/day)
BORES UP-GRADIENT OF PIT 23			
WRK301		OK	
WRK302		OK	
WRK303		OK	
WRK304		OK	
GW08	Installed 18/10/18	OK	0.05
GW06	Installed 23/5/18	OK	0.22
GW05	Installed 17/10/18	OK	0.18
BORES DOWN-GRADIENT OF PIT 23 (IN PREDICTED FLOW PATH)			
BW36	Decommissioned in October 2019	Blocked	
BW36A	Installed 15/10/19	To replace BW36	0.01

Well ID	Comment	Status / Condition	Permeability Assessment K, average (m/day)
WRK300		OK	
GW01	Installed 23/5/18	OK	0.74
GW02	Installed 17/10/18	OK	0.12
GW03	Installed 17/10/18	OK	0.03
BW5	In predicted flow path	OK	
BORES CROSS-GRADIENT TO PIT 23 FLOW PATH			
GW04*	Installed 18/10/18	OK	1.15
GW07	Installed 23/5/18	OK	0.67
BW28A *		OK	
BW45B	Installed 18/10/18 – replaced BW45	OK	0.92
BORES REPRESENTATIVE OF BACKGROUND			
IWB2	Representative of background	OK	
IWB6	Representative of background	OK	
BW53 (“Puls”)	Representative of background	OK	

* BW28A and GW04 incorrectly referenced in the current endorsed EMP (Rev 4, July 2017) as being down-gradient of Pit 23. Groundwater modelling per CDM Smith (2014) and EMM (2019) indicate that BW28A and GW04 are cross-gradient to the predicted flow path from Pit 23.

Bore Position/Purpose

- Background
- Cross-gradient
- Down-gradient
- Up-gradient
- Pit 23 Crest
- Pit 23 Particle Tracks

Iluka Resources Ltd - Pit 23

Pit 23 Monitoring Bore Network and Groundwater Flow Path

ILUKA

DRAWN: S.Alexander DATE:28-04-2020

FIGURE: **3**

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4.1.2 Standing water levels

In accordance with Section 7.9.1 of the current endorsed EMP (Rev 4, July 2017) groundwater levels are measured on a monthly basis at bores WRK300 – WRK304 inclusive, GW01 to GW08 inclusive and BW36A and BW45B. All other bores (BW5, BW28A, BW53, IWB2 and IWB6) are measured on a biannual basis.

Groundwater level hydrographs for these bores expressed in groundwater elevation (metres above Australian Height Datum, mAHD) are given in Table 2 and Figure 4 – Figure 6. Data includes that obtained during scheduled events and ad-hoc measurements.

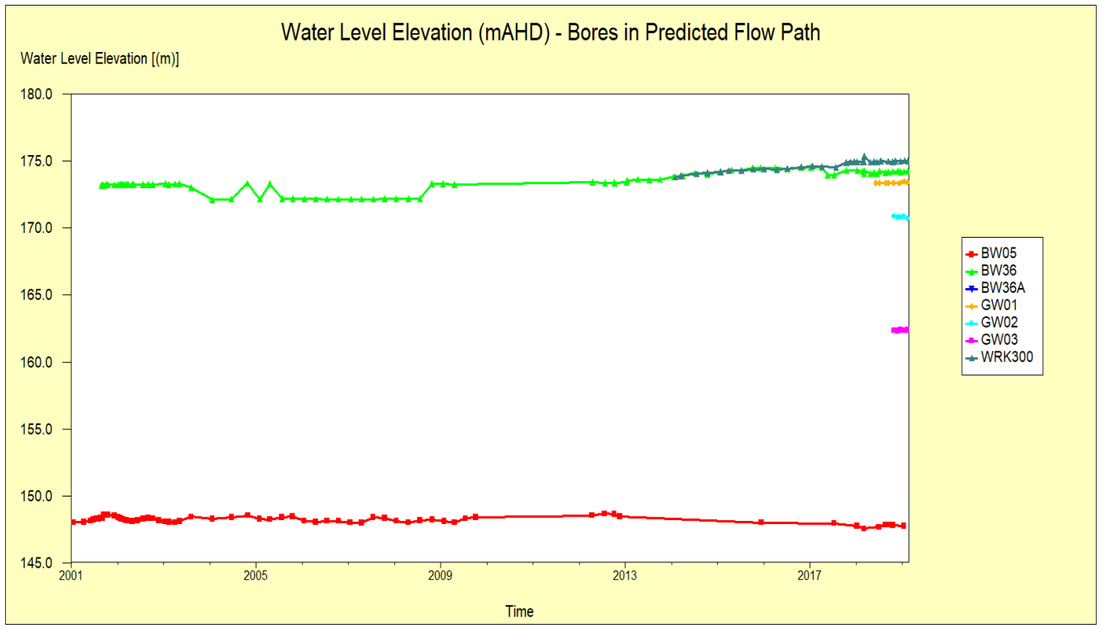
All bores along the predicted flow path (Figure 4) exhibit stable standing water levels in the preceding 24-month period and in comparison to long-term trends; bores up-gradient of Pit 23 (Figure 5) exhibit relatively stable water levels with minor fluctuation.

Table 2: Monitoring bores - standing water Levels (mAHD)

Bore ID	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19
BORES UP-GRADIENT OF PIT 23						
GW05	178.97	178.91	178.98	178.94	178.91	178.95
GW06	176.08	176.21	176.25	176.2	176.22	176.19
GW08	177.69	177.52	177.7	177.65	177.6	177.66
WRK301	178.37	178.12	178.27	178.21	178.17	178.15
WRK302	176.53	176.58	176.59	176.57	176.66	176.68
WRK303	179.79	179.83	179.82	179.84	179.81	179.77
WRK304	180.4	180.24	180.33	180.37	180.42	180.38
BORES DOWN-GRADIENT OF PIT 23 (IN PREDICTED FLOW PLATH)						
WRK300	175.03	175	175.04	174.99	175.01	175.12
BW36	173.59	173.58	173.64	173.72	Decommissioned	
BW36A	Installed October 2019					174.54
GW01	173.405	173.415	173.425	173.405	173.445	173.395
GW02	170.77	170.8	170.83	170.79	170.71	170.78
GW03	162.05	162.09	162.07	162.21	162.12	162.15
BW05	147.68	*	*	*	*	*
BORES CROSS GRADIENT TO PIT 23 FLOW PATH						
BW28A	152.29	*	*	*	*	*
BW45B	177.32	177.35	177.27	177.32	177.35	177.31
GW04	178.4	178.44	178.42	178.36	178.38	178.41
GW07	172.42	172.45	172.37	172.45	172.45	172.42
BORES REPRESENTATIVE OF BACKGROUND						
IWB2	179.82	*	*	*	*	*
IWB6	177.09	*	*	*	*	*
BW53 ("Puls")	175.86	*	*	*	*	*

Notes

- bores are listed according to their position relative to the Pit 23 groundwater flow path
- bores down-gradient (on predicted flow path) are listed in order of their position along the path of flow
- dates marked with an asterisk (*) indicates no scheduled sampling required



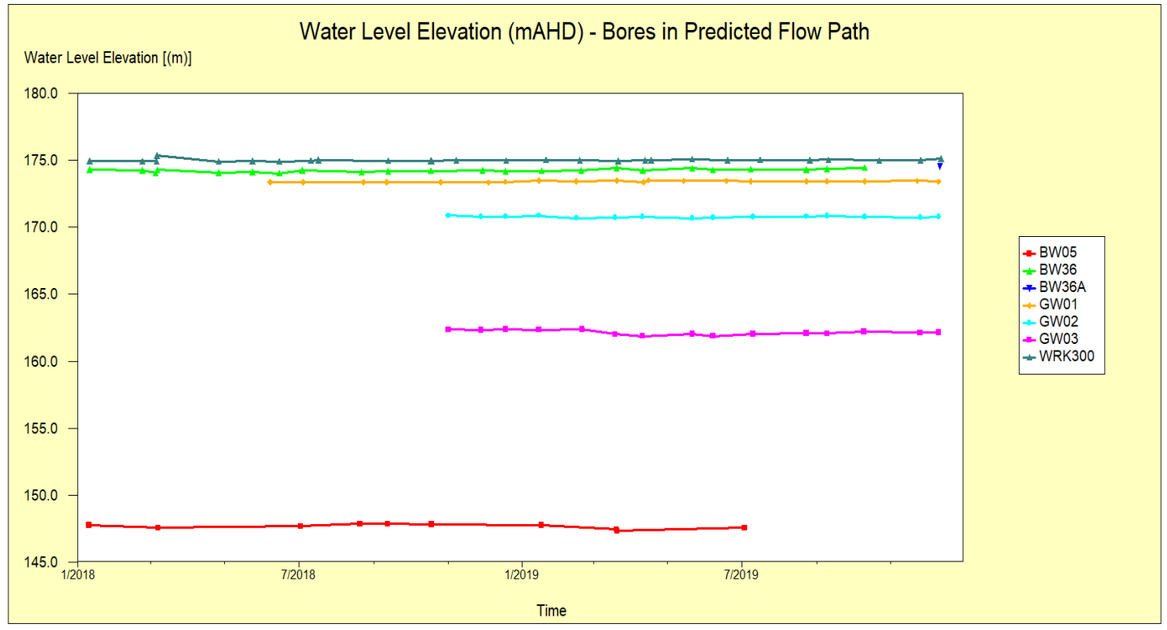
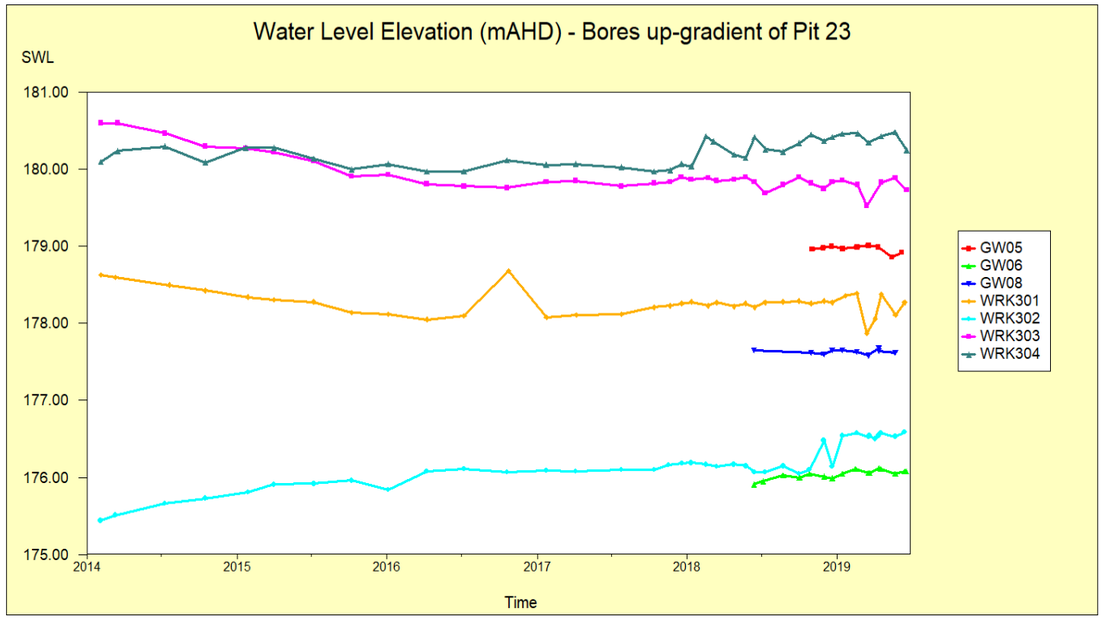


Figure 4: Groundwater elevation (mAHD) – bores in predicted flow path



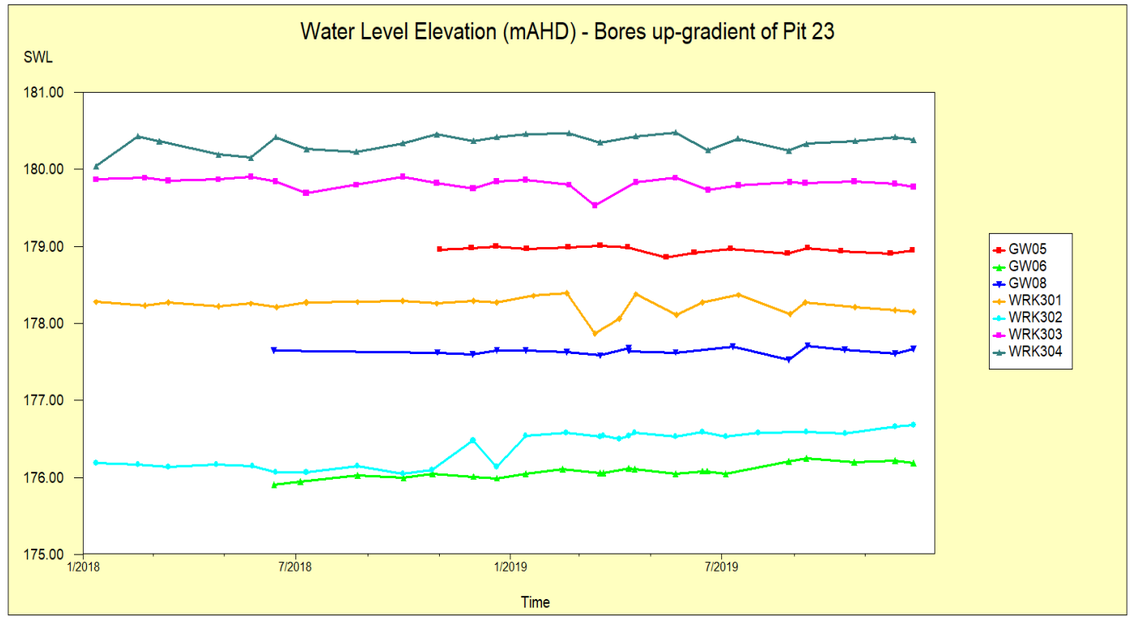


Figure 5: Groundwater elevation (mAHD) – bores up-gradient of Pit 23

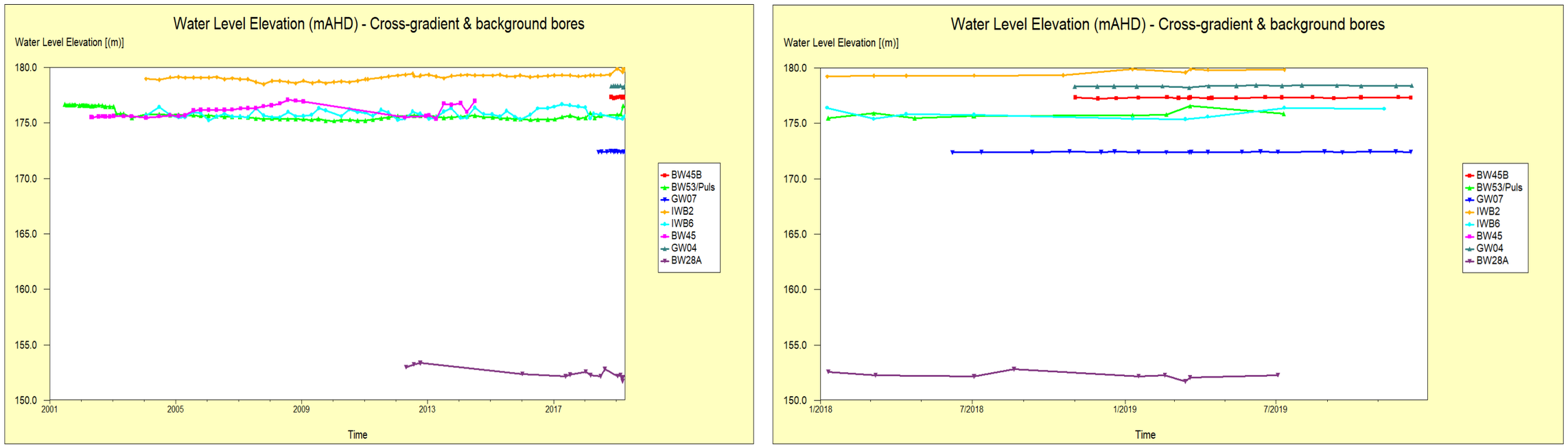


Figure 6: Groundwater elevation (mAHD) – cross-gradient and background bores

4.1.3 Groundwater quality

4.1.3.1 Ionic balance ratios

Per Section 7.9.2 of the current endorsed EMP (Revision 4, July 2017) chloride:sulfate (CL:SO4) and sodium:calcium (Na:Ca) ratios in groundwater are assessed from results obtained during scheduled and/or follow-up groundwater sampling events. Per the EMP, a consecutive reduction in either ratio of >10% applies as a potential indicator of seepage from Pit 23 having arrived in a bore and is a trigger for further investigation. Per the EMP, further investigation would include:

- comparing the timing of the consecutive >10% reduction in ionic ratios with the hydrogeological model predictions;
- comparing the timing of the ionic balance trigger with other analytes (e.g. radionuclides, heavy metals) to identify any corresponding exceedances in those analytes in the same rounds of sampling;
- where such a correlation exists completing a detailed investigation of cause and impact, including possible reviews of hydrogeological or solute transport models.

Calculated Cl:SO4 and Na:Ca for the reporting period are given in Table 3. As above, this includes ratios as determined from the results of scheduled and follow-up sampling.

Reductions of >10% in one or both ratios in consecutive and/or follow-up sampling events occurred on one (1) occasion in the reporting period in a bore (GW04) cross-gradient to Pit 23:

As detailed further in Sections 4.1.3.2 and 4.1.3.3, this ionic balance trigger corresponded with an elevated Selenium result, however this elevated result was detected in a bore cross-gradient (GW04) of the predicted flow path from Pit 23 (**Figure 3**) and, as per Section 7.9.2 of the Pit 23 EMP, is below the precautionary limit based on background values. These observations are not considered to be associated with Pit 23.

Table 3: Groundwater monitoring locations – ionic ratio balance results

Bore ID	Date	CL (mg/L)	SO4 (mg/L)	CL:SO4 (Ratio)	% Red.	Na (mg/L)	Ca (mg/L)	Na:Ca (Ratio)	% Red.	Repeated ratio exceedance?
BORES UP-GRADIENT OF PIT 23										
GW05	28/11/2018	3100	560	5.5	*I.D.*	1800	170	10.6	*I.D.*	
	15/01/2019	3800	790	4.8	13%	2200	200	11	-4%	
	19/02/2019	3700	740	5	10%	2000	180	11.1	-5%	
	8/07/2019	3100	660	4.7	2%	1900	140	13.6	-23%	
GW06	12/06/2018	6600	1500	4.4	*I.D.*	3400	660	5.2	*I.D.*	
	14/01/2019	6700	1700	3.9	10%	3400	630	5.4	-5%	
	21/03/2019	6800	1600	4.3	3%	3400	620	5.5	-6%	
	17/04/2019	7000	1500	4.7	-18%	3500	640	5.5	-1%	
	22/05/2019	6800	1400	4.9	-23%	3400	670	5.1	6%	
	18/06/2019	6800	1500	4.5	-15%	3400	580	5.9	-9%	
	4/07/2019	6800	1500	4.5	-15%	3500	610	5.7	-6%	
GW08	29/11/2018	5300	1100	4.8	*I.D.*	2800	390	7.2	*I.D.*	
	14/01/2019	6600	1300	5.1	-5%	3200	540	5.9	17%	
	18/02/2019	6700	1400	4.8	1%	3300	540	6.1	15%	**Yes (Na:Ca)**
	10/07/2019	6700	1200	5.6	-10%	3600	550	6.5	-10%	

Bore ID	Date	CL (mg/L)	SO4 (mg/L)	CL:SO4 (Ratio)	% Red.	Na (mg/L)	Ca (mg/L)	Na:Ca (Ratio)	% Red.	Repeated ratio exceedance?
WRK301	26/07/2017	3100	640	4.8	*I.D.*	1600	240	6.7	*I.D.*	
	11/01/2018	3100	650	4.8	2%	1700	250	6.8	-2%	
	10/07/2018	3100	480	6.5	-35%	1700	260	6.5	4%	
	21/01/2019	3400	670	5.1	**21%**	1700	290	5.9	10%	
	18/02/2019	3400	690	4.9	**24%**	1700	260	6.5	0%	**Yes (CL:SO4)**
	15/07/2019	3200	570	5.6	-11%	1700	230	7.4	-26%	
WRK302	10/07/2018	6500	1300	5	-15%	3500	520	6.7	8%	
	14/01/2019	6500	1500	4.3	13%	3500	490	7.1	-6%	
	18/02/2019	6700	1400	4.8	**4%**	3300	540	6.1	9%	
	21/03/2019	6600	1500	4.4	12%	3500	490	7.1	-6%	
	17/04/2019	6600	1300	5.1	-2%	3400	530	6.4	5%	
	22/05/2019	6700	1300	5.2	-3%	3500	510	6.9	-2%	
	4/07/2019	6400	1400	4.6	-5%	3600	460	7.8	-10%	
	1/08/2019	6500	1400	4.6	-7%	3400	480	7.1	1%	
WRK303	25/07/2017	2100	570	3.7	*I.D.*	1200	93	12.9	*I.D.*	
	11/01/2018	2100	550	3.8	-4%	1300	97	13.4	-4%	
	10/07/2018	2400	570	4.2	-10%	1400	110	12.7	5%	
	14/01/2019	2500	620	4	4%	1500	130	11.5	9%	
	15/07/2019	2700	570	4.7	-17%	1600	120	13.3	-16%	
WRK304	10/07/2018	2200	640	3.4	0%	1400	93	15.1	-3%	
	14/01/2019	2200	680	3.2	6%	1400	87	16.1	-7%	
	15/07/2019	2400	640	3.8	-16%	1500	94	16	1%	
BORES DOWN-GRADIENT OF PIT 23										
BW05	18/10/2018	8800	800	11	-23%	4900	260	18.8	-11%	
	17/01/2019	8300	960	8.6	17%	4500	290	15.5	35%	
	20/03/2019	8400	890	9.4	10%	4700	260	18.1	**24%**	**Yes (Na:Ca)**
	3/07/2019	8300	860	9.7	-12%	4600	240	19.2	-24%	
BW36	12/07/2017	2200	420	5.2	*I.D.*	1300	74	17.6	*I.D.*	
	10/01/2018	2000	360	5.6	-6%	1200	82	14.6	**17%**	
	6/03/2018	1900	360	5.3	-1%	1100	61	18	**-3%**	
	Bore blocked - replaced with BW36A in Oct 2019									
	11/12/2019	1200	160	7.5	*I.D.*	760	76	10	*I.D.*	
	16/01/2020	1200	90	13.3	-78%	770	69	11.2	-12%	
GW01	7/06/2018	930	110	8.5	*I.D.*	490	82	6	*I.D.*	
	15/01/2019	3400	400	8.5	-1%	1800	65	27.7	-363%	
	20/03/2019	3500	420	8.3	2%	2000	68	29.4	-6%	
	15/04/2019	3700	370	10	-18%	1900	75	25.3	9%	
	14/05/2019	3400	360	9.4	-11%	2100	64	32.8	-18%	
	18/06/2019	3400	420	8.1	5%	1800	56	32.1	-16%	

Bore ID	Date	CL (mg/L)	SO4 (mg/L)	CL:SO4 (Ratio)	% Red.	Na (mg/L)	Ca (mg/L)	Na:Ca (Ratio)	% Red.	Repeated ratio exceedance?
	8/07/2019	3400	400	8.5	0%	1900	58	32.8	-18%	
GW02	28/11/2018	2100	410	5.1	*I.D.*	1300	38	34.2	*I.D.*	
	15/01/2019	2000	330	6.1	-18%	1200	26	46.2	-35%	
	10/07/2019	2300	330	7	-15%	1300	21	61.9	-34%	
GW03	28/11/2018	2900	510	5.7	*I.D.*	1800	190	9.5	*I.D.*	
	15/01/2019	3100	590	5.3	8%	1900	270	7	26%	
	19/02/2019	3500	630	5.6	2%	1800	180	10	-6%	
	10/07/2019	3400	540	6.3	-20%	1900	170	11.2	-59%	
WRK300	10/01/2018	1700	320	5.3	6%	1000	150	6.7	13%	
	6/03/2018	1700	330	5.2	8%	920	130	7.1	8%	
	17/07/2018	1600	290	5.5	-4%	880	140	6.3	6%	
	18/10/2018	1700	310	5.5	-3%	910	130	7	-5%	
	21/01/2019	1800	300	6	-9%	910	150	6.1	3%	
	18/02/2019	1700	330	5.2	7%	910	130	7	-11%	
	21/03/2019	1800	310	5.8	-5%	1000	180	5.6	12%	
	17/04/2019	1800	290	6.2	-13%	970	150	6.5	-3%	
	16/07/2019	1700	300	5.7	6%	990	130	7.6	-26%	
BORES CROSS-GRADIENT OF PIT 23										
BW28A *	20/08/2018	7200	870	8.3	-14%	3600	510	7.1	7%	
	17/01/2019	7100	1000	7.1	9%	3500	540	6.5	2%	
	18/02/2019	7200	1100	6.5	16%	3400	490	6.9	-5%	
	3/07/2019	7100	920	7.7	-9%	3600	500	7.2	-11%	
BW45B	29/11/2018	4800	840	5.7	*I.D.*	2500	290	8.6	*I.D.*	
	17/01/2019	5100	960	5.3	7%	2500	320	7.8	9%	
	6/03/2019	5100	910	5.6	2%	2500	310	8.1	6%	
	20/03/2019	5300	960	5.5	3%	2700	320	8.4	2%	
	15/04/2019	5400	810	6.7	-17%	2600	300	8.7	-1%	
	14/05/2019	5100	870	5.9	-3%	2900	320	9.1	-5%	
	18/06/2019	5300	860	6.2	-8%	2700	290	9.3	-8%	
	8/07/2019	5000	860	5.8	-9%	2800	310	9	-16%	
	14/08/2019	4900	860	5.7	-7%	2600	320	8.1	-4%	
GW04 *	28/11/2018	2700	690	3.9	*I.D.*	1700	120	14.2	*I.D.*	
	15/01/2019	2800	720	3.9	1%	1900	110	17.3	-22%	
	8/07/2019	2800	640	4.4	-13%	1700	120	14.2	18%	
	1/08/2019	3000	570	5.3	-35%	1600	140	11.4	**34%**	**Yes (Na:Ca)**
	12/09/2019	2900	680	4.3	-10%	1700	130	13.1	**24%**	**Yes (Na:Ca)**
GW07	7/06/2018	5500	890	6.2	*I.D.*	3000	460	6.5	*I.D.*	
	17/01/2019	5700	1100	5.2	16%	2900	560	5.2	21%	
	19/02/2019	5700	1000	5.7	8%	2800	410	6.8	-5%	

Bore ID	Date	CL (mg/L)	SO4 (mg/L)	CL:SO4 (Ratio)	% Red.	Na (mg/L)	Ca (mg/L)	Na:Ca (Ratio)	% Red.	Repeated ratio exceedance?
	21/03/2019	5900	990	6.0	4%	3100	440	7.0	-8%	
	3/07/2019	5800	880	6.6	-27%	3100	390	7.9	-53%	
BORES REPRESENTATIVE OF BACKGROUND										
IWB2	18/10/2018	1200	160	7.5	6%	670	11	60.9	-7%	
	10/01/2019	1200	160	7.5	0%	660	11	60	7%	
	11/07/2019	1200	170	7.1	6%	650	9.2	70.7	-18%	
IWB6	3/07/2018	350	200	1.8	3%	300	6.7	44.8	-5%	
	10/01/2019	360	220	1.6	6%	290	6.3	46	-3%	
	11/07/2019	350	190	1.8	-13%	300	6	50	-9%	
BW53 (Puls)	3/07/2018	790	270	2.9	-22%	530	34	15.6	-173%	
	10/01/2019	570	230	2.5	15%	350	37	9.5	39%	
	19/02/2019	860	330	2.6	**11%**	520	43	12.1	**22%**	**Yes (Both)**
	10/07/2019	840	310	2.7	**-9%**	530	29	18.3	**-93%**	

NOTES

- Calculated ratios in green represent values that increase following an initial “>10%” reduction (i.e. no consecutive >10% reduction)
- Calculated ratios in red represent values above the “>10%” reduction threshold (initial identified exceedance).
- Calculated ratios in red highlight represent a confirmed “>10%” reduction in consecutive or follow-up samples
- I.D. = insufficient data to allow calculation of ionic ratio (only one data-point available)
- GW04 has previously been incorrectly referenced as being down gradient of Pit 23. Groundwater modelling and particle tracking per EMM (2019) indicate that GW04 is cross-gradient to the predicted groundwater flow path from Pit 23.
- BW28A is incorrectly referenced in the EMP (Revision 4) as being down-gradient of Pit 23. Groundwater modelling and particle tracking per CDM Smith (2014) and EMM (2019) indicate that BW28A is cross-gradient to the predicted groundwater flow path from Pit 23.

4.1.3.2 Radionuclide concentrations

In accordance with Section 7.6.7 of the EMP, biannual groundwater samples obtained from the monitoring locations are subjected to in-field and laboratory analysis for a suite of target parameters, which includes target radionuclides (Thorium, Uranium, Radium-226, Radium-228 and Uranium-238).

Radionuclide concentrations determined during both scheduled and follow-up sampling are presented in Table 4. Ionic balance ratios are also shown to identify any potential correlation with seepage from Pit 23. In summary:

- several exceedances of the Uranium-238 (U-238) and Radium-228 (Ra-228) upper trigger levels were observed in the reporting period in several bores up-gradient and cross-gradient to Pit 23 (i.e. in bores not on the predicted flow path or which represent local background conditions);
- an elevated result for U-238 was obtained at GW02 however this result is considered to be an outlier given that no prior or proceeding sampling at this location have detected U-238. The result also did not coincide with an exceedance of the ionic trigger ratio and, therefore, this elevated result is not believed to be attributable to seepage from Pit 23; and

- ionic balance ratios showed frequent fluctuation spatially and temporally, and between samples obtained over relatively short time periods, with no correlation to radionuclide concentrations. This suggests that the measured radionuclide concentrations and 'exceedances' are the product of natural variation, consistent with the findings of previous groundwater studies for the greater Douglas site (Jacobs 2014; CDM Smith 2014; EMM 2018).

The long-term trends in Ra-228 and U-238 concentrations verses ionic balance ratios are shown in Figure 7 – Figure 22. Consistent with the above summary, there is no evident correlation between elevated radionuclide concentrations and fluctuation or declining trends in Cl:SO4 or Na:Ca ratios.

It is recognised that this ionic balance ratio 'percentage-reduction' approach to trigger the completion of a groundwater investigation in the current endorsed EMP (Rev 4, July 2017) was based on limited available baseline data at the time of EMP development. This method is thus conservative and overly sensitive to natural variation and is likely to result in 'false flag' exceedances, as demonstrated in the McGlashin Swamp Seepage Exceedances Assessment completed by EMM in the 2018 reporting period (EMM, 2018). That is, the current approach does not consider trend-based change in groundwater chemistry that accounts for seasonality or other influences on groundwater chemistry over a sufficient period of time. Revised site-specific trigger levels for groundwater quality, developed using the now expanded monitoring dataset and applying a trend-based trigger approach across all target analytes per the ANZECC/ARCMANZ (2000) guidelines, will therefore be implemented in the next revision of the EMP (Revision 5).

Table 4: Groundwater radionuclide concentrations vs. ionic balance ratios, 2019

Bore ID	Date	Thorium (mg/L)	Uranium (mg/L)	U-238 (Bq/L)	Ra226 (Bq/L)	Ra228 (Bq/L)	CL:SO4		Na:Ca		Groundwater Travel Time (Years) *
							Ratio	*% Red.*	*Ratio*	*% Red.*	
Precautionary trigger		***n/a***	***0.17***	***0.17***	***4.3***	***1.7***	***n/a***	***n/a***	***n/a***	***n/a***	
Upper trigger		***n/a***	***0.2***	***0.2***	***5.0***	***2.0***	***n/a***	***n/a***	***n/a***	***n/a***	
BORES UP-GRADIENT OF PIT 23											
GW05	15/11/2018	<0.002	<0.002	<0.025	0.05	0.12	5.5	*I.D.*	10.6	*I.D.*	N/A – bores are up-gradient of Pit 23 CL:SO4 and Na:Ca ratios shown to demonstrate natural variation only
	15/01/2019	<0.002	<0.002	<0.025	<0.05	0.09	4.8	13%	11.0	-4%	
	19/02/2019	<0.002	<0.002	<0.025	<0.05	<0.08	5.0	**-10%**	11.1	-5%	
	08/07/2019	<0.002	0.001	<0.025	0.02	<0.08	4.7	2%	13.6	-23%	
GW06	12/06/2018	<0.002	0.072	0.037	0.11	0.14	4.4	*I.D.*	5.1	*I.D.*	
	14/01/2019	<0.002	0.105	**1.3**	0.05	0.22	3.9	10%	5.4	-5%	
	21/03/2019	<0.002	0.071	**0.877**	<0.05	0.09	4.2	3%	5.5	-6%	
	17/04/2019	<0.002	0.089	**1.1**	0.06	0.19	4.7	-18%	5.5	-1%	
	22/05/2019	<0.002	0.079	**0.975**	0.04	0.14	4.9	-23%	5.1	6%	
	18/06/2019	<0.002	0.003	<0.025	0.04	0.2	4.5	-15%	5.9	-9%	
	04/07/2019	<0.002	0.072	**0.889**	0.06	0.17	4.5	-15%	5.7	-6%	
GW08	29/11/2018	<0.002	0.002	0.025	0.09	0.24	4.8	*I.D.*	7.2	*I.D.*	
	14/01/2019	<0.002	0.064	**0.79**	<0.05	<0.08	5.1	-5%	5.9	**17%**	
	18/02/2019	<0.002	0.009	0.111	0.09	0.12	4.8	1%	6.1	**15%**	
	10/07/2019	<0.002	0.024	<0.025	0.04	0.08	5.9	-10%	6.5	**-10%**	
WRK301	10/07/2018	<0.002	0.008	0.049	0.14	0.17	6.5	-35%	6.5	4%	
	21/01/2019	<0.002	0.017	0.21	0.07	0.09	5.0	21%	5.9	10%	
	18/02/2019	<0.002	0.005	0.062	0.05	<0.08	4.9	**24%**	6.5	0%	
	15/07/2019	<0.002	0.008	0.037	0.04	0.11	5.6	**-11%**	7.4	-26%	
WRK302	10/07/2018	<0.002	0.059	0.148	0.19	0.76	5.0	-15%	6.7	8%	
	14/01/2019	<0.002	0.048	**0.593**	0.16	1.01	4.3	**13%**	7.1	-6%	
	18/02/2019	<0.002	0.046	**0.568**	0.31	1.14	4.8	4%	6.1	9%	
	21/03/2019	<0.002	0.116	**1.43**	0.27	0.94	4.4	12%	7.1	-6%	
	17/04/2019	<0.002	0.018	0.222	0.21	1.08	5.1	-2%	6.4	5%	
	22/05/2019	<0.002	<0.002	<0.025	0.12	0.84	5.1	-3%	6.9	-2%	
	04/07/2019	<0.002	0.001	0.086	0.24	0.91	4.6	-5%	7.8	-10%	
	1/08/2019	<0.002	<0.001	**0.728**	0.22	0.92	4.6	-7%	7.1	1%	

Bore ID	Date	Thorium (mg/L)	Uranium (mg/L)	U-238 (Bq/L)	Ra226 (Bq/L)	Ra228 (Bq/L)	CL:SO4		Na:Ca		Groundwater Travel Time (Years) *
							Ratio	*% Red.*	*Ratio*	*% Red.*	
Precautionary trigger		***n/a***	***0.17***	***0.17***	***4.3***	***1.7***	***n/a***	***n/a***	***n/a***	***n/a***	
Upper trigger		***n/a***	***0.2***	***0.2***	***5.0***	***2.0***	***n/a***	***n/a***	***n/a***	***n/a***	
WRK303	10/07/2018	<0.002	<0.002	<0.025	<0.06	<0.09	4.2	-10%	12.7	5%	
	14/01/2019	<0.002	<0.002	<0.025	<0.05	<0.08	4.0	4%	11.5	9%	
	15/07/2019	<0.002	<0.001	<0.025	0.04	<0.08	4.7	-17%	13.3	-16%	
WRK304	10/07/2018	<0.002	<0.002	<0.025	<0.05	<0.08	3.4	0%	15.1	-3%	
	14/01/2019	<0.002	<0.002	<0.025	<0.05	<0.08	3.2	6%	16.1	-7%	
	15/07/2019	<0.002	<0.001	<0.025	0.02	<0.08	3.8	-16%	16.0	1%	
BORES DOWN-GRADIENT OF PIT 23 (IN PREDICTED FLOW PATH)											
BW36	*Bore blocked – replaced in Oct 2019 (BW36A)*						*Bore blocked – replaced in Oct 2019 (BW36A)*				
BW36A	11/12/2019	<0.002	0.002	<0.025	0.07	0.17	7.5	*I.D.*	10.0	*I.D.*	
WRK300	18/10/2018	<0.002	<0.001	*N.S.*	*N.S.*	*N.S.*	5.5	-3%	7.0	-5%	
	21/01/2019	<0.002	<0.002	<0.025	<0.05	<0.08	6.0	-9%	6.1	3%	
	18/02/2019	<0.002	<0.002	<0.025	<0.05	<0.08	5.2	7%	7.0	-11%	36 years
	21/03/2019	<0.002	0.002	<0.025	<0.05	<0.08	5.8	-5%	5.6	12%	
	17/04/2019	<0.002	<0.002	<0.025	0.03	0.09	6.2	-13%	6.5	-3%	
	16/07/2019	<0.002	<0.002	<0.025	0.03	<0.08	5.7	6%	7.6	-26%	
GW01	07/06/2018	<0.002	<0.001	<0.025	<0.05	<0.08	8.4	*I.D.*	6.0	*I.D.*	
	15/01/2019	<0.002	<0.001	<0.025	0.48	1.36	8.5	-1%	27.7	-363%	
	20/03/2019	<0.002	0.001	<0.025	0.48	0.72	8.3	2%	29.4	-6%	
	15/04/2019	<0.002	<0.001	<0.025	0.4	1.2	10.0	-18%	25.3	9%	88 years
	14/05/2019	0.0095	0.009	<0.025	0.47	1.36	9.4	-11%	32.8	-18%	
	18/06/2019	<0.002	<0.002	<0.025	0.46	1.29	8.0	5%	32.1	-16%	
	08/07/2019	<0.002	0.002	<0.025	0.28	0.77	8.5	0%	32.7	-18%	
GW02	28/11/2018	<0.002	<0.001	<0.025	0.05	0.11	5.1	*I.D.*	34.2	*I.D.*	
	15/01/2019	<0.002	<0.001	<0.025	0.05	0.15	6.0	-18%	46.1	-35%	144 years
	10/07/2019	<0.002	<0.001	**0.296**	0.1	0.32	7.0	-15%	61.9	-34%	
	14/01/2020	<0.002	<0.001	<0.025	0.05	0.14	6.2	11%	63.2	-2%	
	3/03/2020	0.004	<0.001	<0.025	0.08	0.27	6.9	1%	70.6	-14%	
GW03	28/11/2018	<0.002	<0.002	0.025	0.07	0.16	5.7	*I.D.*	9.5	*I.D.*	176 years
	15/01/2019	<0.002	<0.002	<0.025	<0.05	<0.08	5.3	8%	7.0	26%	

Bore ID	Date	Thorium (mg/L)	Uranium (mg/L)	U-238 (Bq/L)	Ra226 (Bq/L)	Ra228 (Bq/L)	CL:SO4 Ratio	CL:SO4 % Red.	Na:Ca Ratio	Na:Ca % Red.	Groundwater Travel Time (Years) *
Precautionary trigger		***n/a***	***0.17***	***0.17***	***4.3***	***1.7***	***n/a***	***n/a***	***n/a***	***n/a***	
Upper trigger		***n/a***	***0.2***	***0.2***	***5.0***	***2.0***	***n/a***	***n/a***	***n/a***	***n/a***	
	19/02/2019	<0.002	<0.002	<0.025	<0.05	<0.08	5.6	2%	10.0	**-6%**	
	10/07/2019	<0.002	<0.001	<0.025	0.01	<0.08	6.3	-20%	11.2	-59%	
BW05	18/10/2018	<0.002	0.03	<0.025	<0.05	<0.08	11	-23%	18.8	-11%	
	17/01/2019	<0.002	0.004	0.037	<0.05	<0.08	8.6	17%	15.5	35%	
	20/03/2019	<0.002	0.003	0.049	<0.05	<0.08	9.4	**10%**	18.1	**24%**	500+ years
	03/07/2019	<0.002	0.003	<0.025	0.03	<0.08	9.6	-12%	19.2	-24%	
BORES CROSS-GRADIENT OF PIT 23											
BW28A *	20/08/2018	<0.002	0.005	0.074	0.09	<0.08	8.3	-14%	7.0	7%	
	17/01/2019	<0.002	0.005	**1.48**	0.13	<0.08	7.1	9%	6.5	2%	
	18/02/2019	<0.002	0.005	**0.173**	0.17	<0.08	6.5	**16%**	6.9	-5%	
	03/07/2019	<0.002	0.006	**0.679**	0.13	<0.08	7.7	-9%	7.2	-11%	
BW45B	29/11/2018	<0.002	<0.001	<0.025	0.22	0.86	5.6	*I.D.*	8.6	*I.D.*	
	17/01/2019	<0.002	0.001	<0.025	0.42	**2.4**	5.3	7%	7.8	9%	
	06/03/2019	<0.002	0.001	<0.025	0.45	**2.6**	5.6	2%	8.0	6%	
	20/03/2019	<0.002	0.012	0.037	0.83	**2.77**	5.5	3%	8.4	2%	N/A -
	15/04/2019	<0.002	0.005	**0.667**	0.53	**3.08**	6.7	-17%	8.7	-1%	Bores not on flow path from Pit 23
	14/05/2019	<0.002	0.015	0.099	0.63	**2.94**	5.9	-3%	9.0	-5%	
	18/06/2019	<0.002	0.012	0.222	0.69	**3.4**	6.2	-8%	9.3	-8%	
	8/07/2019	<0.002	0.014	0.148	0.72	**3.18**	5.8	-9%	9.0	-16%	CL:SO4 and Na:Ca ratios shown to demonstrate natural variation only
	14/08/2019	<0.002	0.002	0.025	0.52	**2.2**	5.7	-7%	8.1	-4%	
GW04	28/11/2018	<0.002	<0.002	<0.025	0.07	0.15	3.9	*I.D.*	14.2	*I.D.*	
	15/01/2019	<0.002	<0.002	<0.025	0.09	0.19	3.9	1%	17.3	-22%	
	08/07/2019	<0.002	<0.001	<0.002	0.1	0.2	4.4	-13%	14.2	**18%**	
	1/08/2019	<0.002	<0.001	<0.025	0.13	0.24	5.3	-35%	11.4	**34%**	
	12/09/2019	<0.002	<0.001	<0.025	0.12	0.24	4.3	-10%	13.1	**24%**	
GW07	07/06/2018	<0.002	0.001	<0.025	<0.05	<0.08	6.2	*I.D.*	6.5	*I.D.*	
	17/01/2019	<0.002	<0.001	0.296	0.06	0.32	5.2	16%	5.2	**21%**	
	19/02/2019	<0.002	<0.001	**0.556**	<0.05	0.28	5.7	**8%**	6.8	**-5%**	
	21/03/2019	<0.002	<0.001	<0.025	<0.05	0.12	6.0	4%	7.0	-8%	

Bore ID	Date	Thorium (mg/L)	Uranium (mg/L)	U-238 (Bq/L)	Ra226 (Bq/L)	Ra228 (Bq/L)	CL:SO4		Na:Ca		Groundwater Travel Time (Years) *
							Ratio	*% Red.*	*Ratio*	*% Red.*	
Precautionary trigger		***n/a***	***0.17***	***0.17***	***4.3***	***1.7***	***n/a***	***n/a***	***n/a***	***n/a***	
Upper trigger		***n/a***	***0.2***	***0.2***	***5.0***	***2.0***	***n/a***	***n/a***	***n/a***	***n/a***	
	03/07/2019	<0.002	<0.001	**0.259**	0.06	0.2	6.6	-27%	7.9	-53%	
BORES REPRESENTATIVE OF BACKGROUND											
IWB2	18/10/2018	<0.002	<0.001	<0.025	0.03	<0.08	7.5	6%	60.9	-7%	N/A - Bores not on flow path from Pit 23 Ratios shown to demonstrate range of natural fluctuation only
	10/01/2019	<0.002	<0.001	<0.025	<0.05	0.08	7.5	**0%**	60	7%	
	11/07/2019	<0.002	<0.001	<0.025	0.03	<0.08	7.0	6%	70.6	-18%	
IWB6	03/07/2018	<0.002	<0.001	0.037	<0.05	<0.08	1.7	3%	44.8	-5%	
	10/01/2019	<0.002	<0.001	<0.025	<0.05	<0.08	1.7	6%	46.0	-3%	
	11/07/2019	<0.002	<0.001	<0.025	0.02	<0.08	1.8	-13%	50.0	-9%	
BW53 ("Puls")	03/07/2018	<0.002	<0.001	<0.025	<0.05	0.11	2.9	-22%	15.6	-173%	
	10/01/2019	<0.002	<0.001	<0.025	<0.05	0.19	2.5	**15%**	9.6	**39%**	
	19/02/2019	<0.002	<0.001	<0.025	<0.05	0.16	2.6	**11%**	12.1	**22%**	
	10/07/2019	<0.002	<0.001	<0.025	0.04	0.11	2.7	-9%	18.3	-93%	

NOTES

- < = results below the laboratory limit of detection. These are treated as a negative (-) concentrations in figures presented in this report to allow graphical representation.
- Results highlighted in **orange** indicate an exceedance of the precautionary trigger
- Results highlighted in **pink** indicate an exceedance of the upper trigger
- Calculated ratios in green represent values that increase following an initial ">10%" reduction (i.e. no consecutive >10% reduction)
- Calculated ratios in red represent values above the ">10%" reduction threshold (initial identified exceedance).
- Calculated ratios in red highlight represent a confirmed ">10%" reduction in consecutive or follow-up samples
- N.S. = not sampled / analysed
- I.D. = insufficient data to allow calculation of ionic ratio (only one data-point available)
- Groundwater arrival year is based on groundwater model predictions (particle tracking) per CDM Smith (2015) and EMM (2019), and assumes that groundwater flow originates from Pit 23 immediately on commencement of the first by-product disposal to into Pit 23 (December 2011).
- GW04 is incorrectly referenced in the EMP (Revision 4) as being down gradient of Pit 23. Groundwater modelling and particle tracking per EMM (2019) indicate that GW04 is cross-gradient to the predicted groundwater flow path from Pit 23.
- BW28A is incorrectly referenced in the EMP (Revision 4) as being down-gradient of Pit 23. Groundwater modelling and particle tracking per CDM Smith (2014) and EMM (2019) indicate that BW28A is cross-gradient to the predicted groundwater flow path from Pit 23.

Figure 7: U-238 and ionic balance trends – up-gradient bores (1 of 2)

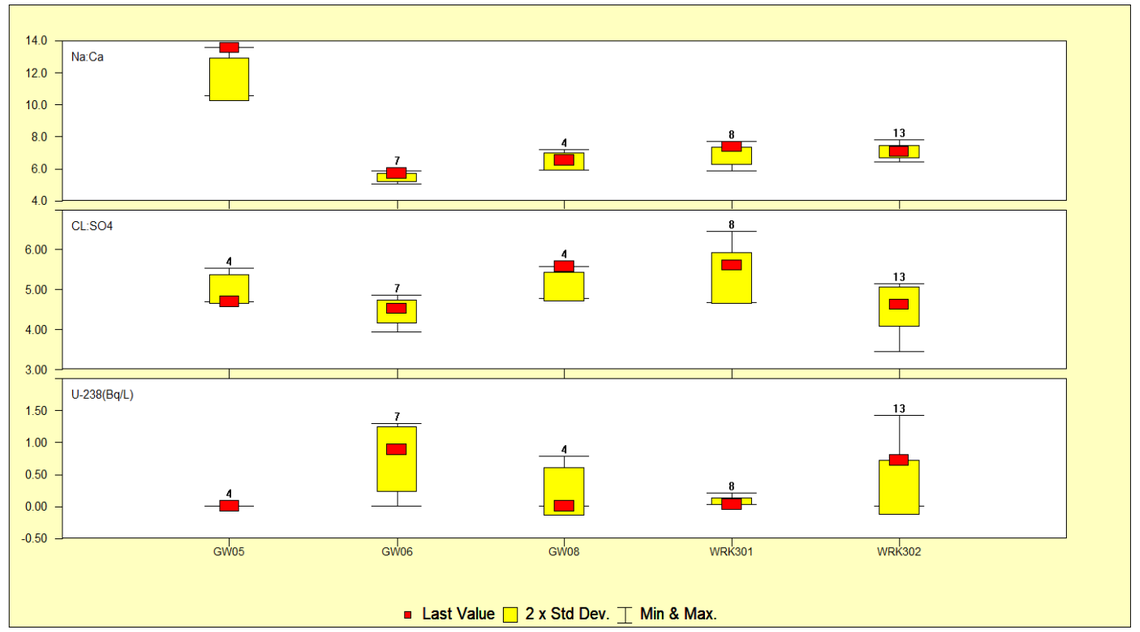


Figure 8: U-238 and ionic balance trends – up-gradient bores (2 of 2)

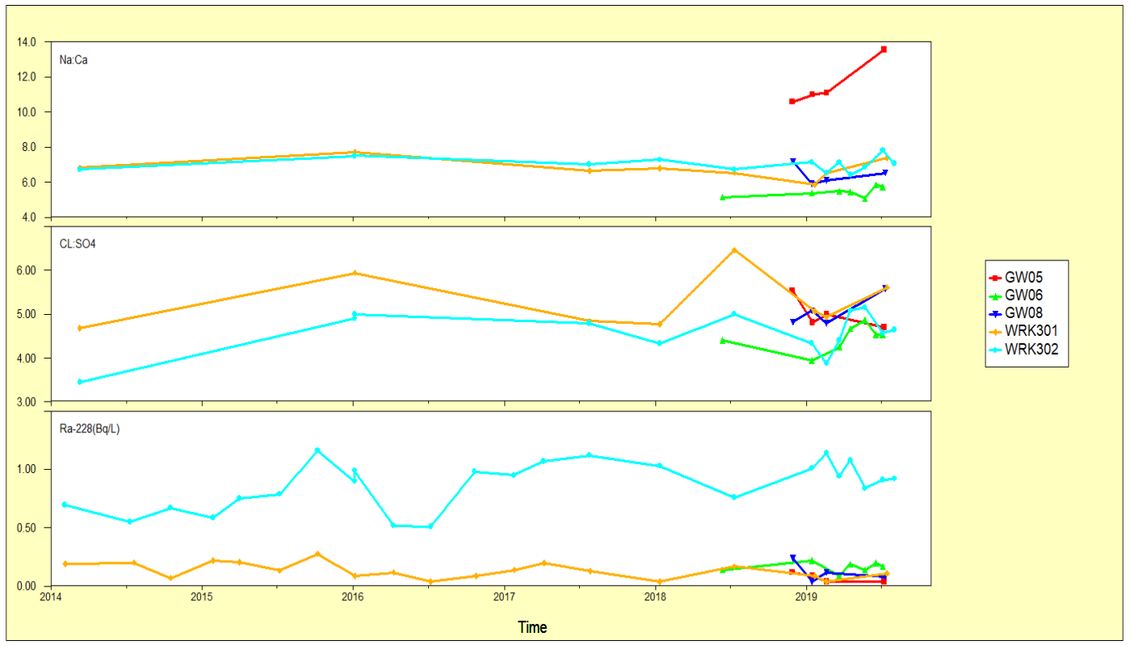


Figure 9: Ra-228 and ionic balance trends – up-gradient bores (1 of 2)

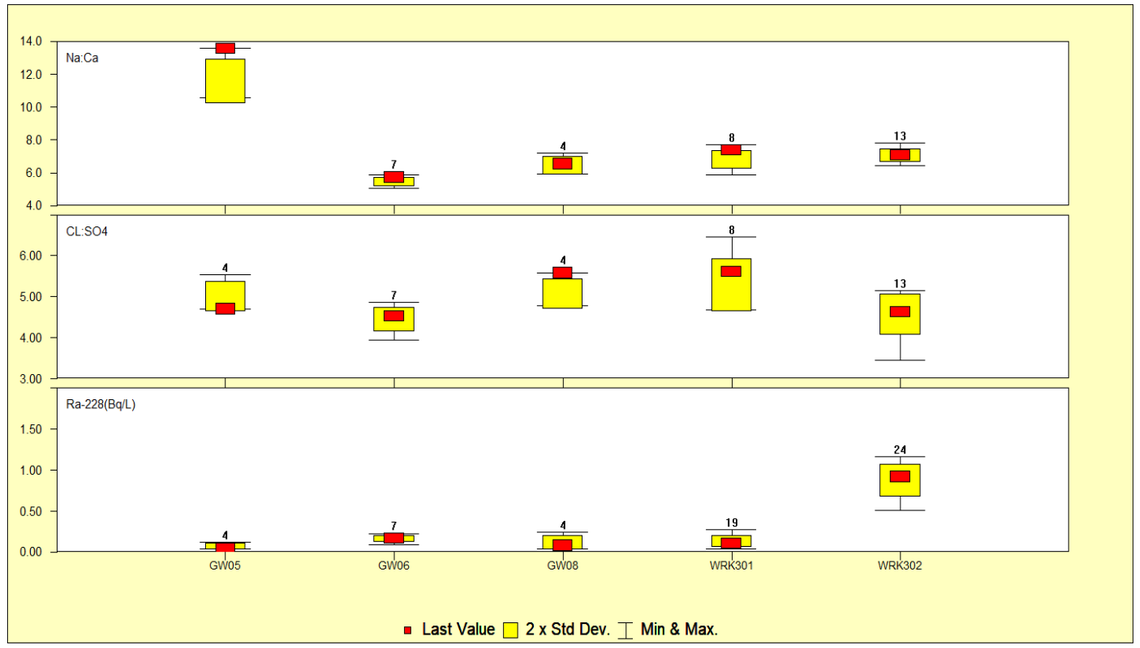


Figure 10: Ra-228 and ionic balance trends – up-gradient bores (2 of 2)

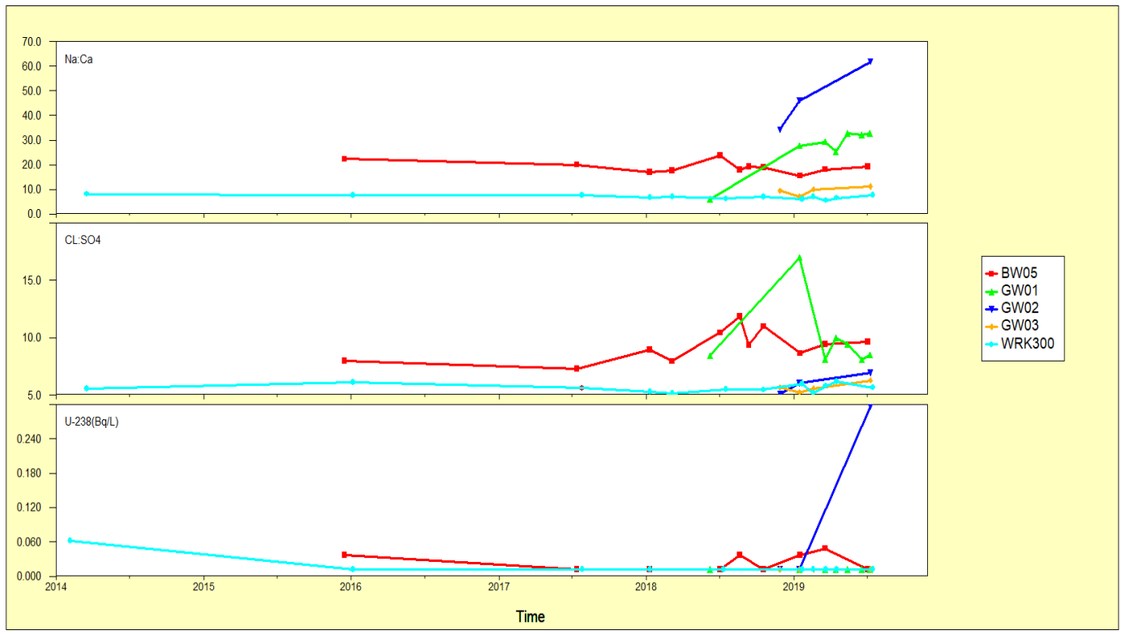


Figure 11: U-238 and ionic balance trends – down-gradient bores (1 of 2)

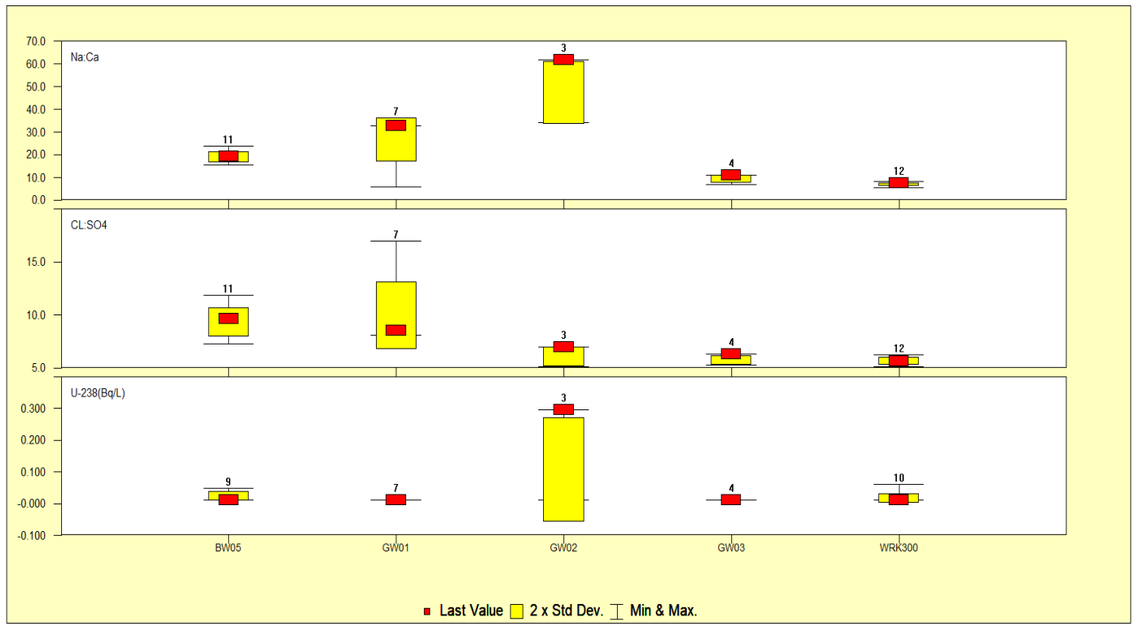


Figure 12: U-238 and ionic balance trends – down-gradient bores (2 of 2)

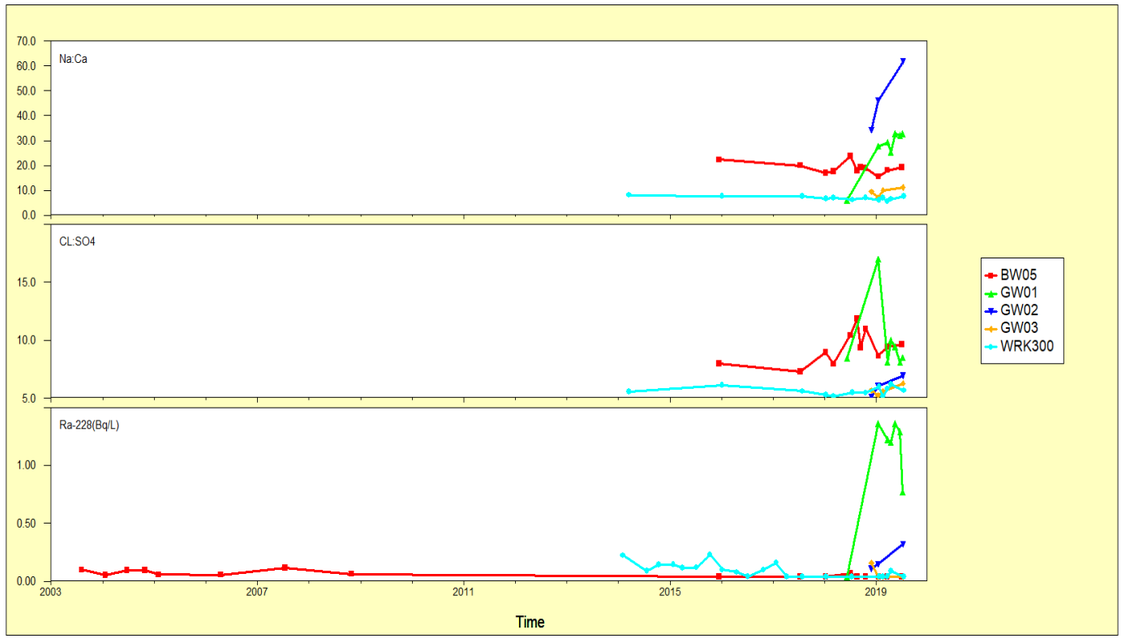


Figure 13: Ra-228 and ionic balance trends – down-gradient bores (1 of 2)

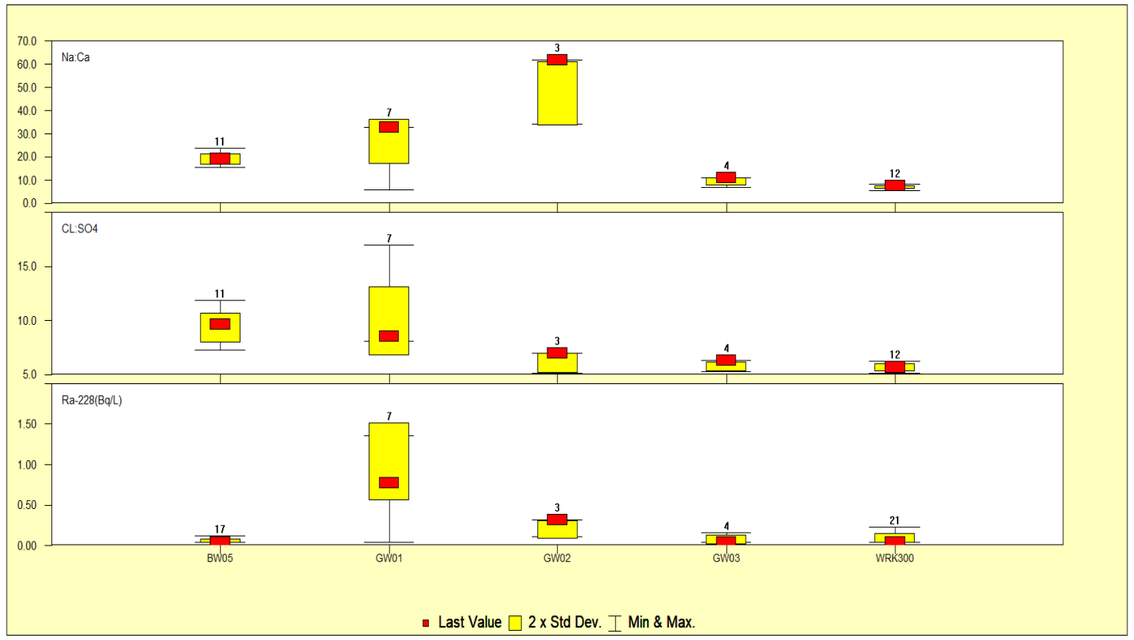


Figure 14: Ra-228 and ionic balance trends – down-gradient bores (2 of 2)

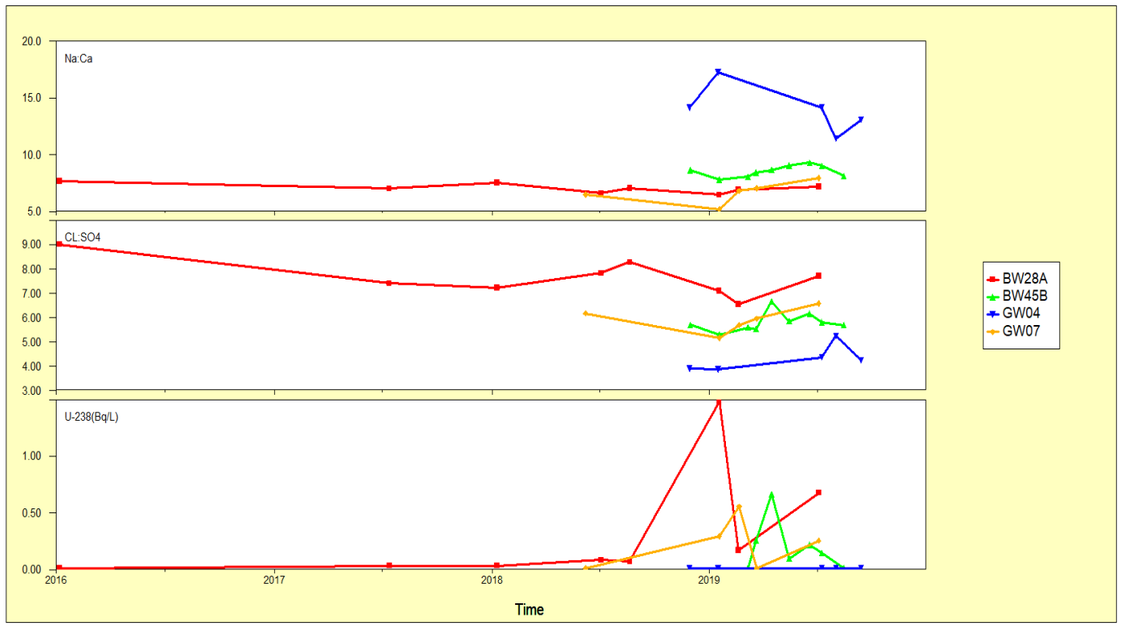


Figure 15: U-238 and ionic balance trends – cross-gradient bores (1 of 2)

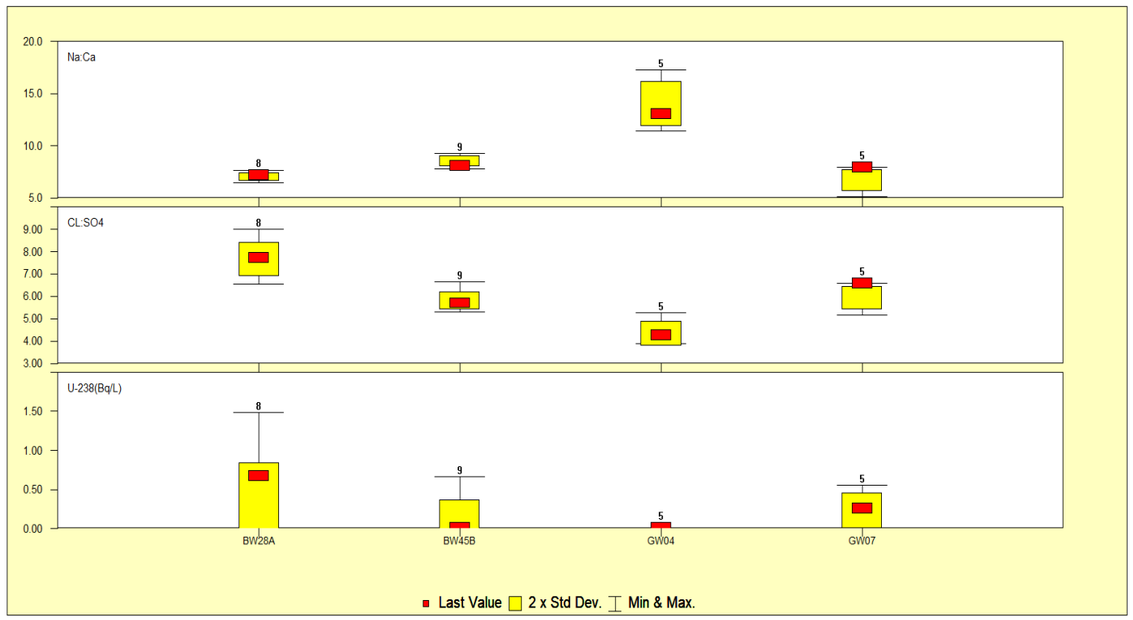


Figure 16: U-238 and ionic balance trends – cross-gradient bores (2 of 2)

Figure 17: Ra-228 and ionic balance trends – cross-gradient bores (1 of 2)

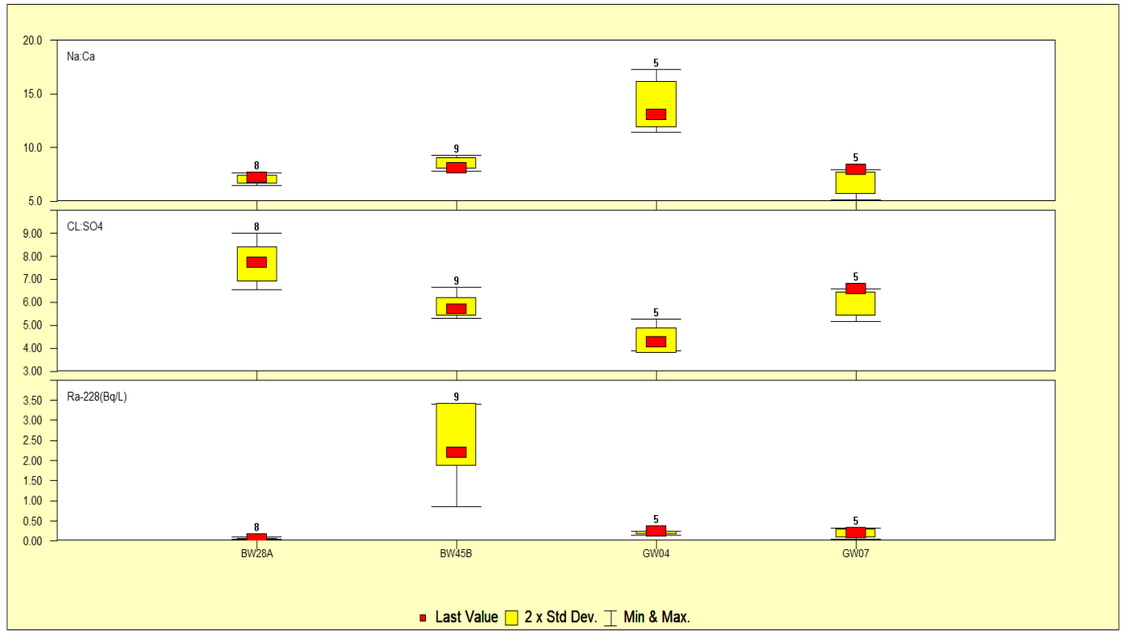


Figure 18: Ra-228 and ionic balance trends – cross-gradient bores (2 of 2)

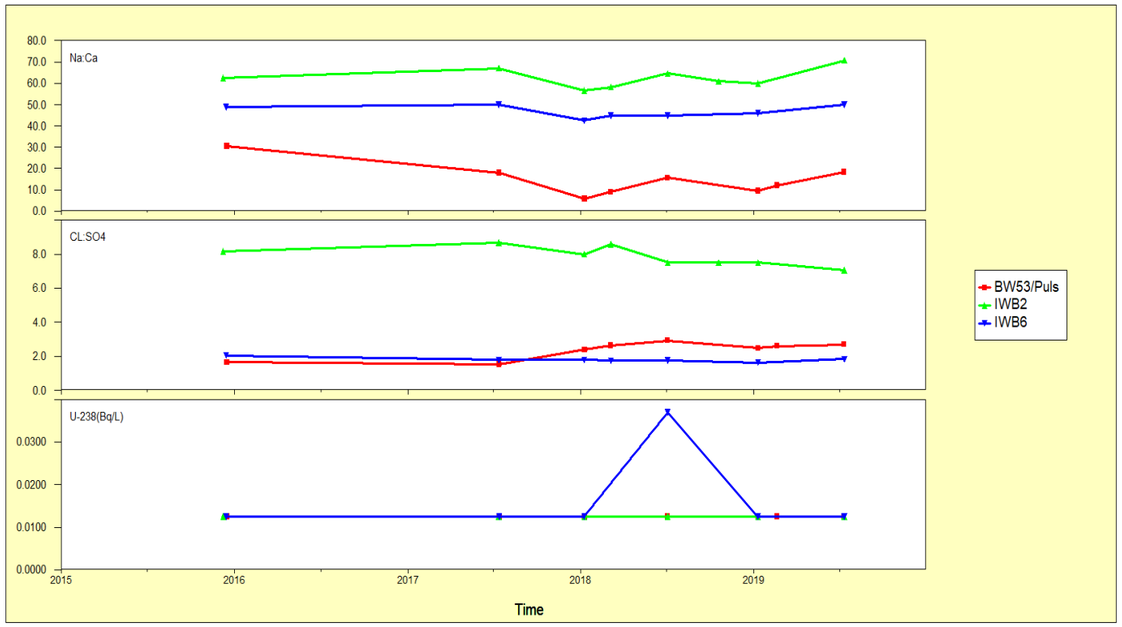


Figure 19: U-238 and ionic balance trends – bores representing background (1 of 2)

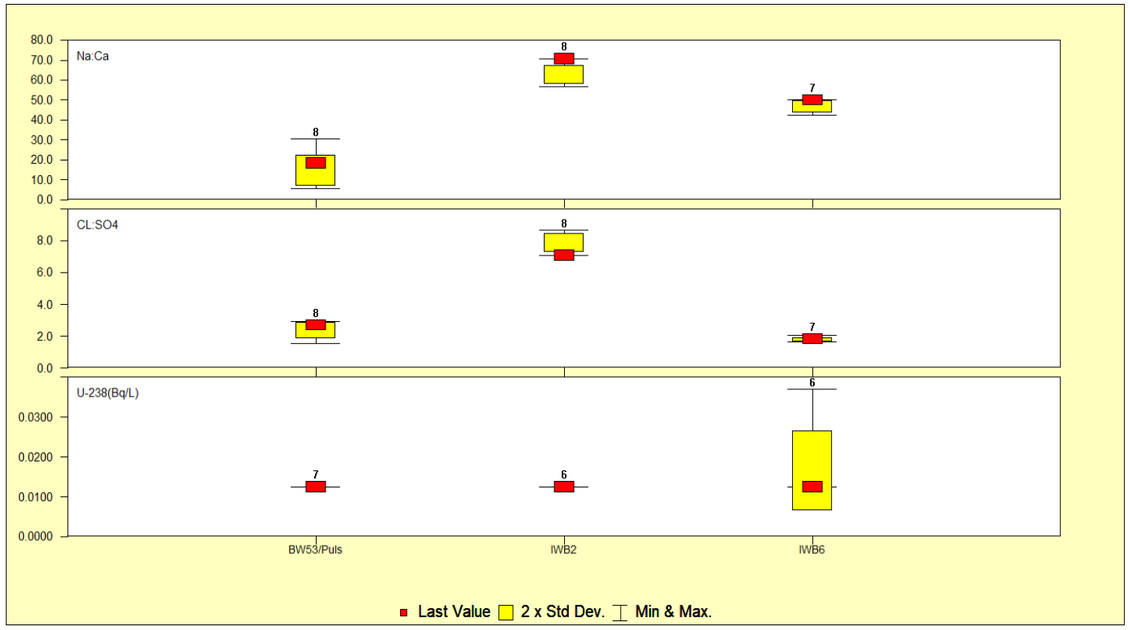


Figure 20: U-238 and ionic balance trends – bores representing background (2 of 2)

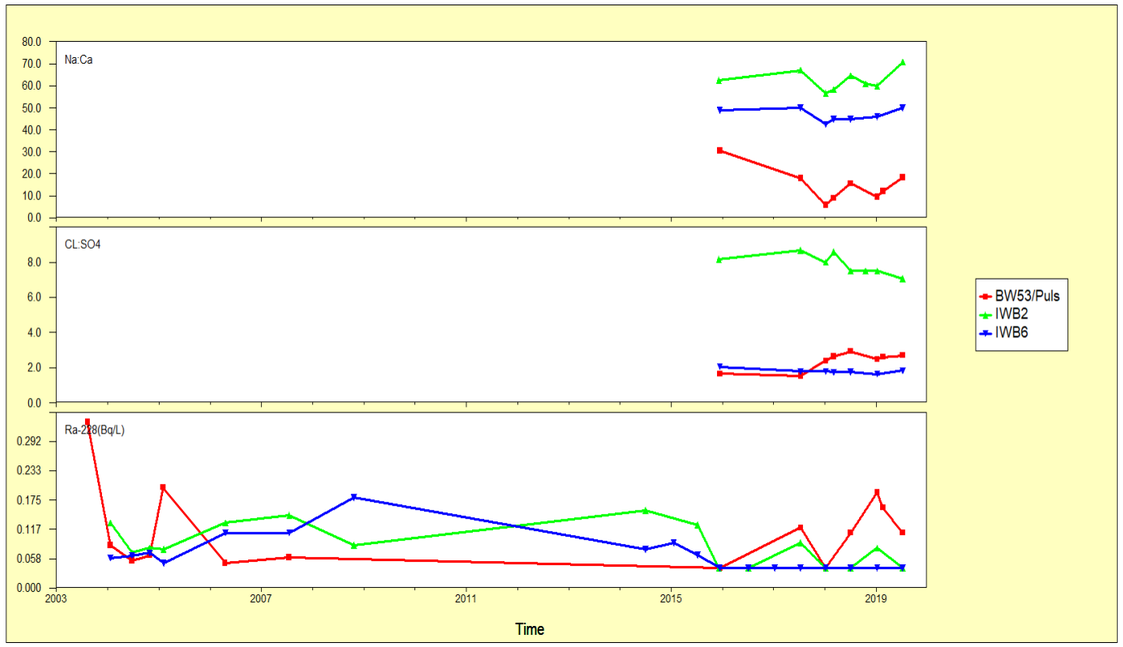


Figure 21: Ra-228 and ionic balance trends – bores representing background (1 of 2)

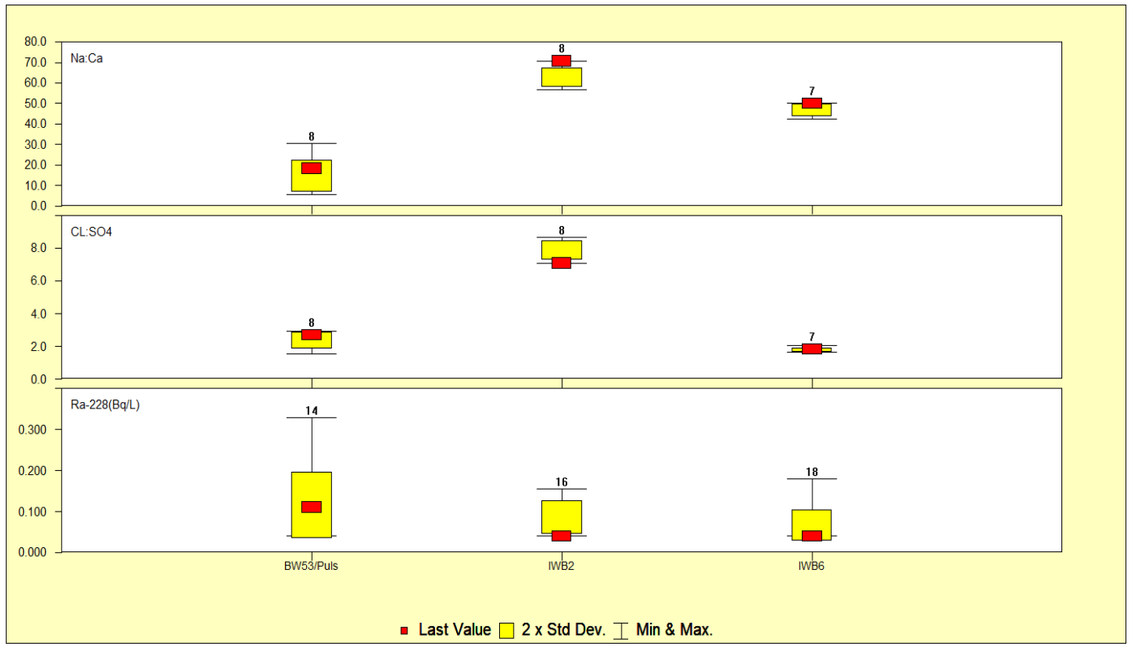


Figure 22: Ra-228 and ionic balance trends – bores representing background (2 of 2)

4.1.3.3 Other analytes

In accordance with Section 7.6.7 of the EMP, biannual groundwater samples obtained from the monitoring locations are subjected to in-field and laboratory analysis for a suite of target parameters.

Analyte concentrations above trigger limits that coincided with ionic balance ratio triggers are presented in Table 5 & Table 6 and Figure 23. In summary:

- sampling detected elevated selenium at GW04 during July, August and September, however this bore is located cross gradient of Pit 23 and not on the predicted flow path from Pit 23;
- sufficient data is available to determine background concentrations for GW04, which is determined as the 75th percentile value based on the mean and standard deviation of the available data. For GW04, the 75th percentile (background) value is higher than the standard SEPP WoV objectives and therefore applies as the upper trigger (background value);
- all results are consistent with historical values and do not indicate seepage from Pit 23.

Table 5: Groundwater quality exceedances vs ionic balance ratios, H2 2019

Bore ID	Date	Selenium (mg/L)	CL:SO4		Na:Ca	
			Ratio	*% Red.*	*Ratio*	*% Red.*
Precautionary trigger		***0.017***	***n/a***	***n/a***	***n/a***	***n/a***
Upper trigger		***0.2***	***n/a***	***n/a***	***n/a***	***n/a***
GW04 **Cross-gradient**	28/11/2018	**0.029**	3.9	ID	14.2	ID
	15/01/2019	**0.023**	3.9	1%	17.3	-22%
	8/07/2019	**0.025**	4.4	-13%	14.2	**18%**
	1/08/2019	**0.024**	5.3	-35%	11.4	**34%**
	2 sample avg.	**0.0245**	*n/a*	*n/a*	*n/a*	*n/a*
	12/09/2019	**0.029**	4.3	-10%	13.1	**24%**
	2 sample avg.	**0.0265**	*n/a*	*n/a*	*n/a*	*n/a*

Table 6:Selenium groundwater trigger levels for GW04, H2 2019

GW04	Se (mg/L)	AVG	Std Dev	Background (av+2SD)	Prec Trigger (85% of b/g)	Upper Trigger	Ion. Bal. Rep. Exceedance ?	2-sample AVG	Comment
28/11/2018	0.029	-	-	-	-	-	No	-	min 5 results reqd for statistical analysis
15/01/2019	0.023	0.026	0.004	-	-	-	No	***0.026***	min 5 results reqd for statistical analysis
8/07/2019	0.025	0.026	0.003	-	-	-	**YES (Na:Ca)**	***0.024***	min 5 results reqd for statistical analysis
1/08/2019	0.024	0.025	0.003	-	-	-	**YES (Na:Ca)**	***0.0245***	min 5 results reqd for statistical analysis
12/09/2019	0.029	0.026	0.003	0.0317	0.0269	0.0317	**YES (Na:Ca)**	***0.0265***	Na:Ca Ratio triggered, Se equal to precautionary trigger

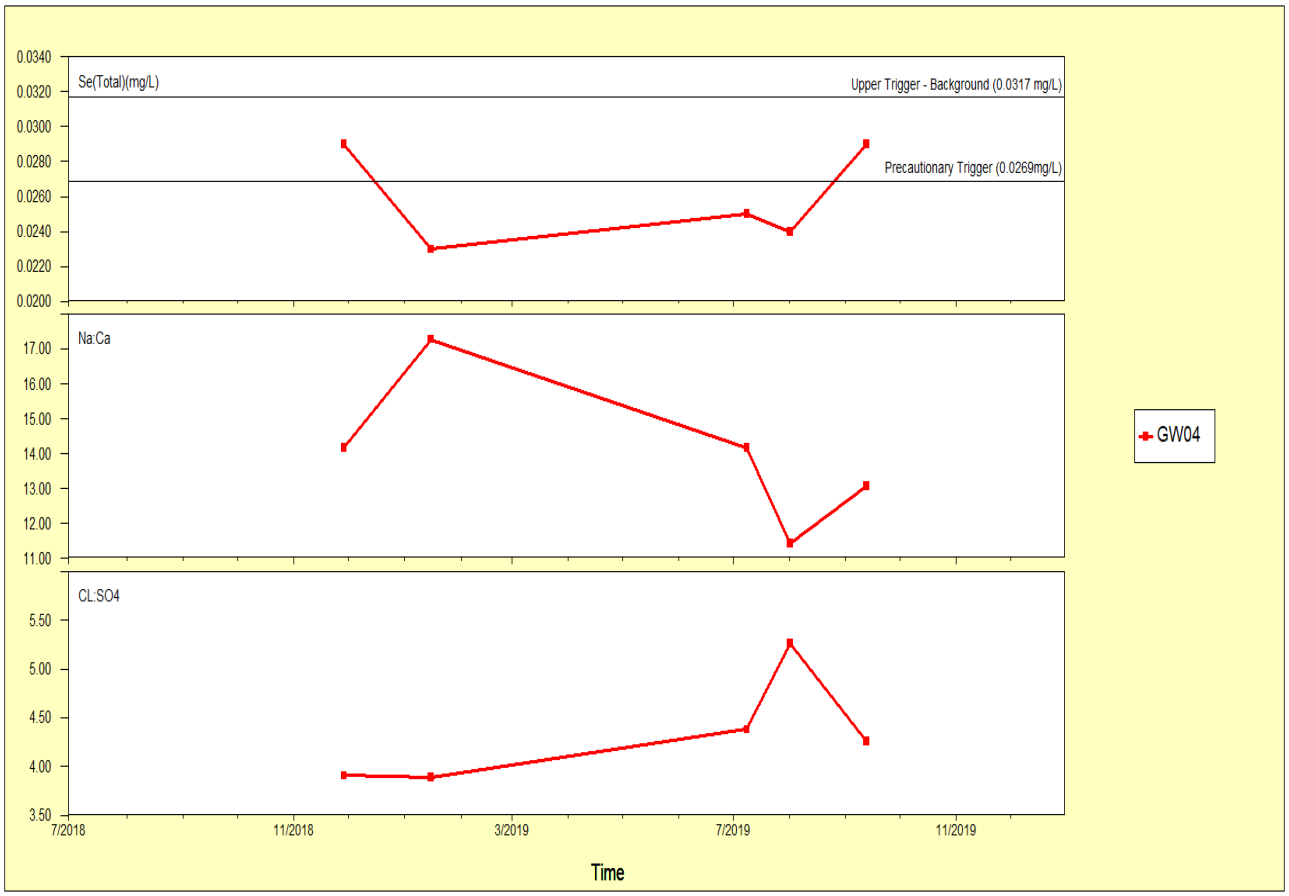


Figure 23: Selenium as compared against ionic balance trends

All groundwater quality monitoring data (laboratory and field data) for the reporting period for all parameters monitored is provided in **Appendix B** and **Appendix C** of this report, respectively.

4.2 Surface water quality

4.2.1 Runoff-fed surface water sites

In accordance with Section 8.7.1 of the EMP, surface water samples must be obtained from nominated runoff-fed surface water monitoring points if a discharge of run-off from the disturbed area of Pit 23 and surrounds occurs.

No discharges occurred during the reporting period and subsequently no follow-up monitoring was required.

4.2.2 Groundwater-fed surface water sites

In accordance with Section 8.7.2 of the EMP, quarterly surface water samples obtained from the nominated groundwater-fed surface water monitoring points down-gradient of Pit 23 (i.e. surface water features receiving groundwater base-flow) are analysed for a suite of target parameters to identify the potential expression of Pit 23 groundwater seepage.

Results obtained for specific parameters are summarised in sections 4.2.2.1 - 4.2.2.3 below.

All surface water quality monitoring data for the reporting period and for all parameters monitored (laboratory and field results) is provided in **Appendix D** and **Appendix E** of this report.

4.2.2.1 Ionic balance ratios

Assessment of potential Pit 23 seepage and expression into surface waters is based on an analysis of Cl:SO4 and Na:Ca ratios obtained from quarterly monitoring, with a consecutive reduction in either ratio of >10% applied as potential indicator of Pit 23 seepage and expression at surface.

Ionic ratio results for nominated surface water monitoring locations in the H2 2019 reporting period are given in **Table 7**. The data presented includes results preceding and following the H2 2019 reporting period to show longer-term trends and to demonstrate the influence of seasonality in both the availability of data (ability to obtain samples) and the influence that this natural variability has on surface water chemistry and hence the calculated ratios. The reliability of ratios calculated from data obtained after a long elapsed period of time (i.e. due to a lack of recent samples), and which suggest a consecutive >10% ratio exceedance, thus need to be interpreted with caution as they are more likely to reflect natural variation than any influence of Pit 23 seepage.

With reference to Table 7, reductions of >10% exceedances in either one or both ratio's occurred at three (3) locations in the reporting period at both along the flow path from Pit 23 and at reference sites located off the flow path from Pit 23:

- Along flow path from Pit 23 (both Cl:SO4 and Na:Ca at DUSW24);
- Analogue/Reference sites (Cl:SO4 at DUSW14 and DUSW22)

Table 7: Surface water monitoring - ionic ratio balance results

Sample Point	Sample Date	CL- (mg/L)	SO4 (mg/L)	CL:SO4 (ratio)	% Red.	Na (mg/L)	Ca (mg/L)	Na:Ca (ratio)	% Red.	Repeated ratio exceedance?
GROUNDWATER-FED SITES ALONG FLOW PATH FROM PIT 23										
DUSW20 (NW drainage line)	26/06/2017	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	12/09/2017	360	61	5.90	*I.D.*	230	27	8.52	*I.D.*	
	11/10/2017	1100	150	7.33	-24%	630	71	8.87	-4%	
	15/01/2018	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	19/06/2018	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	17/07/2018	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	8/08/2018	1100	200	5.50	**25%**	660	52	12.69	-43%	
	12/09/2018	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	17/10/2018	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	8/01/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	9/04/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	14/08/2019	82	36	2.28	**59%**	100	9.3	10.75	**15%**	
	16/09/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	24/10/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	7/01/2020	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
DUSW24 (McGlashin Swamp)	26/06/2017	530	8	66.3	*I.D.*	430	87	4.94	*I.D.*	
	12/09/2017	500	38	13.2	**80%**	330	62	5.32	-8%	
	11/10/2017	530	46	11.5	**83%**	360	69	5.22	2%	
	15/01/2018	970	68	14.3	-24%	690	42	16.43	-215%	
	19/06/2018	2100	57	36.8	-158%	1200	66	18.18	-11%	
	17/07/2018	2100	69	30.4	**17%**	1300	65	20.00	-10%	
	14/08/2018	1900	72	26.4	**13%**	1100	63	17.46	13%	**Yes (CL:SO4)**
	12/09/2018	2000	89	22.5	**15%**	1300	71	18.31	-5%	**Yes (CL:SO4)**
	17/10/2018	2700	130	20.8	8%	1500	92	16.30	11%	
	1/11/2018	3100	130	23.8	-15%	1800	100	18.00	-10%	
	8/01/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	9/04/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*

Sample Point	Sample Date	CL- (mg/L)	SO4 (mg/L)	CL:SO4 (ratio)	% Red.	Na (mg/L)	Ca (mg/L)	Na:Ca (ratio)	% Red.	Repeated ratio exceedance?
	14/08/2019	3300	820	4.02	81%	1900	270	7.04	57%	
	16/09/2019	4700	960	4.9	76%	2600	330	7.88	52%	Yes (Both)
	24/10/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	7/01/2020	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
DUSW5B (White Lake)	26/06/2017	100000	8300	12.0	*I.D.*	53000	1700	31.176	*I.D.*	
	11/09/2017	3200	390	8.2	32%	1800	130	13.846	56%	
	11/10/2017	44000	5200	8.5	30%	23000	1400	16.429	47%	Yes (Both)
	15/01/2018	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	19/06/2018	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	17/07/2018	100000	7000	14.3	-69%	59000	1600	36.88	-124%	
	17/10/2018	120000	9700	12.4	13%	65000	2000	32.50	12%	
	1/11/2018	170000	9400	18.1	-27%	100000	1200	83.33	-126%	
	8/01/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	9/04/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	14/08/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	16/09/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	24/10/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	7/01/2020	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
GROUNDWATER-FED ANALOGUE / REFERENCE SITES (NOT ON PIT 23 FLOW PATH)										
DUSW22 (Shaw's Gully)	26/06/2017	*DNS*	*DNS*	*DNS*	*DNS*	*DNS*	*DNS*	*DNS*	*DNS*	*N/A*
	23/08/2017	190	35	5.4	*I.D.*	110	14	7.86	*I.D.*	
	11/10/2017	1700	180	9.4	-74%	840	91	9.23	-17%	
	15/01/2018	470	17	27.6	-193%	240	27	8.89	4%	
	19/06/2018	3600	410	8.8	68%	1800	160	11.25	-27%	
	17/07/2018	3200	330	9.7	-10%	1700	140	12.14	-8%	
	17/10/2018	2800	280	10.0	-3%	1400	120	11.67	4%	
	8/01/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	9/04/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	2/07/2019	2100	340	6.18	38%	1400	120	11.67	0%	
	1/08/2019	970	160	6.06	39%	550	44	12.5	-&%	Yes (Cl:SO4)
	24/10/2019	740	140	5.29	14%	410	34	12.06	-3%	Yes (Cl:SO4)
	7/01/2020	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
DUSW14 (Costello's Creek)	26/06/2017	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	13/09/2017	190	34	5.59	*I.D.*	130	13	10.00	*I.D.*	
	11/10/2017	1400	260	5.38	4%	850	49	17.35	-73%	
	15/01/2018	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	19/06/2018	1800	310	5.81	-8%	1100	67	16.42	5%	
	17/07/2018	1800	330	5.45	6%	1200	58	20.69	-26%	
	17/10/2018	1600	280	5.71	-5%	1000	50	20.00	3%	
	8/01/2019	2400	350	6.86	-20%	1400	50	28.00	-40%	
	9/04/2019	2200	240	9.17	-34%	1300	49	26.53	5%	
	2/07/2019	2200	360	6.11	33%	1300	74	17.57	34%	
	1/08/2019	1900	340	5.59	39%	1200	44	27.27	-3%	Yes (Cl:SO4)
	24/10/2019	1800	290	6.21	-2%	1200	46	26.09	-48%	
	7/01/2020	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
DUSW45 (Brooksby's Swamp)	8/01/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	9/04/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*
	14/08/2019	5900	2100	2.81	*I.D.*	3400	730	4.66	*I.D.*	
	24/10/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*

Sample Point	Sample Date	CL- (mg/L)	SO4 (mg/L)	CL:SO4 (ratio)	% Red.	Na (mg/L)	Ca (mg/L)	Na:Ca (ratio)	% Red.	Repeated ratio exceedance?
	7/01/2020	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*	*N/A*

NOTES

- Calculated ratios in green represent values that increase following an initial ">10%" reduction (i.e. no consecutive >10% reduction)
- Calculated ratios in red represent values above the ">10%" reduction threshold (initial identified exceedance).
- Calculated ratios in red highlight represent a confirmed ">10%" reduction in consecutive or follow-up samples
- I.D. = insufficient data to allow calculation of ionic ratio (only one data-point available)
- DUSW45 (Brooksby's Swamp) is not required to be monitored under the EMP however samples are collected at this location to aid in understanding of seasonal fluctuations in water quality across the region.

4.2.2.2 Radionuclide concentrations

Section 7.9.1 of the EMP prescribes the locations for surface water monitoring and the monitoring frequency, as summarised in Table 8. These locations are subject to sampling and laboratory analysis for radionuclides (Thorium, Uranium, Radium-226, Radium-228 and Uranium-238).

Radionuclide monitoring results for the reporting period are presented in Figure 24 and Figure 25. The corresponding monitoring data for radionuclides in surface water is provided in **Appendix A**. Note that for concentrations reported as below the laboratory limit of reporting / limit of detection (as indicated by "<") the numerical value is treated as a negative concentration to enable graphical representation in order to demonstrate that sampling for that analyte was undertaken in compliance with the EMP.

The monitoring results for radionuclides in surface water obtained during the reporting period confirm nil exceedances of any precautionary or upper trigger. Further, no off-site discharges from the confines of Pit 23 or immediate area occurred.

Note that long-term data for these surface water monitoring locations is available. The data presented in Figure 24 and Figure 25 represents all available data for the monitoring undertaken at the locations listed in Table 8.

Table 8: Monitoring program – radionuclide concentrations in surface water

Surface water monitoring locations	Frequency
DUSW14 – Costello's Creek DUSW5B – White Lake DUSW24 – McGlashin Swamp DUSW20 – North-west drainage line DUSW22 – Southern Drainage Line	• Quarterly; or • During or following an off-site discharge event (creek and drainage lines only)

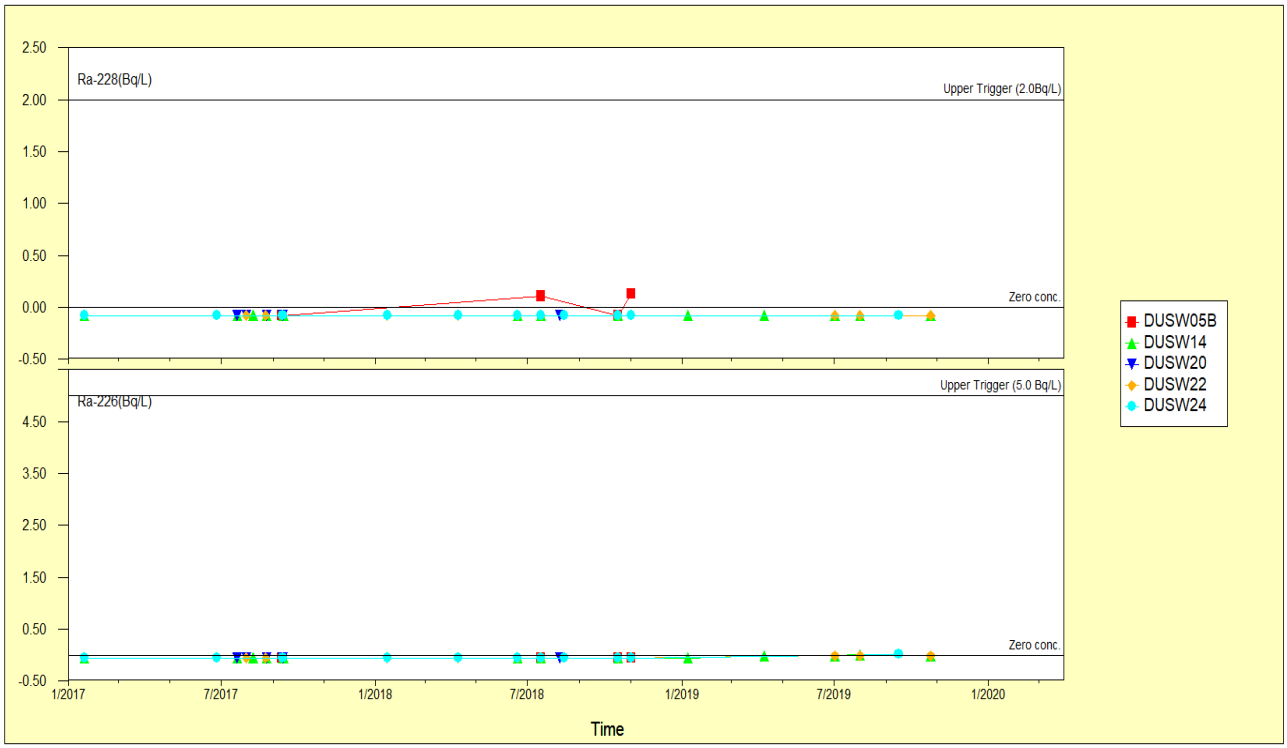


Figure 24: Ra-226 and Ra-228 in surface water

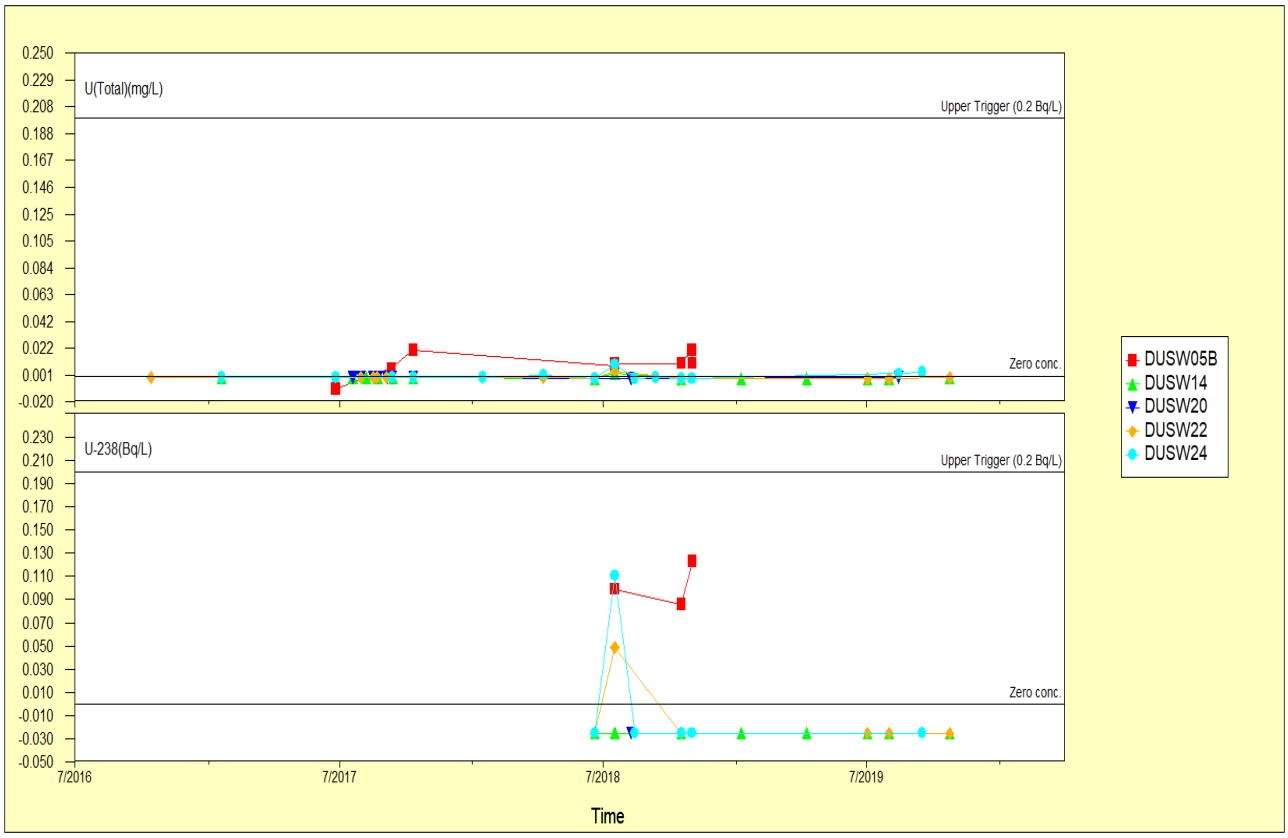


Figure 25: Uranium and U-238 in surface water

4.2.2.3 Other analytes

In accordance with Section 8.7.2 of the EMP, quarterly samples (if available) obtained from the monitoring locations are subjected to in-field and laboratory analysis for a suite of target parameters.

As discussed in Sections 4.2.1 and 4.2.2.1 there have been no runoff or discharges from site throughout the reporting period but three (3) instances where ionic balance ratios were triggered at surface water monitoring locations that may be influenced from groundwater discharge with two of those instances (DUSW24 & DUSW14) recording analyte concentrations above trigger limits which are presented in Table 9 to Table 18.

Where consecutive results show a >10% reduction in the ionic balance at a nominated monitoring location, and may indicate potential seepage from Pit 23, the EMP requires that:

- *the timing of seepage from Pit 23 reaching the monitoring location will be compared with that predicted by the hydrogeological model and if there is variance of more than 10% the model will be recalibrated and the impact assessment re-examined.*
- *the full suite of analysis will be compared with trigger values, defined as follows:*
    - *Precautionary trigger value, set at 85% of the WoV SEPP objective or 85% of the background value, as defined below, whichever is the greater; and*
    - *Upper trigger value, set at the WoV SEPP objective or the background value, as defined below, whichever is the greater.*
- *If the average of the two results is greater than the precautionary trigger value, the following will occur:*
    - *Investigations to determine the cause of the indicated impact;*
    - *Increasing monitoring frequency in order to assess trends and understand processes occurring;*
    - *Possible analytical and/or numerical modelling to help determine the cause of impact.*
- *If the average of the two results is greater than the upper trigger value and exception report, as described in Section 12 of this document, will be prepared and submitted. The exception report will indicate a plan for remediation/prevention that may include any or all of the following:*
    - *Further investigation of the cause, if not adequately understood;*
    - *Detailed impact assessment based on recalibrated models;*
    - *Development and implementation of strategies to prevent future unacceptable results or to mitigate any impacts, potentially including groundwater abstraction immediately adjacent and down-gradient of Pit 23; and*
    - *Reducing or ceasing the disposal of materials to Pit 23 until observations are stabilised and/or at acceptable levels if:*
        - *A change in the sodium/calcium or chloride/sulphate ratios is detected;*
        - *The change is found to due to seepage from Pit 23; and*
        - *The elevated result is assessed to be resulting in an unacceptable impact.*

Consistent with the above process, the following was identified:

- The hydrogeological model developed by CDM Smith (2015) predicted seepage from Pit 23 to reach McGlashin's Swamp (DUSW24) in the year 2160, or at least 143 years later than potentially indicated by the ionic balance trigger levels. An update to the hydrogeological model by EMM (2019) determined that predicted seepage from Pit 23 would reach McGlashin's Swamp in 2225, or at least 204 years later than potentially indicated from this exceedance of the chloride/sulphate and sodium/calcium ionic ratios.

- with respect to full-suite water quality analysis undertaken for sampling point DUSW24 (see Table 9 to Table 18 and **Appendix D**) the following are noted:
    - sufficient data was available to determine background concentrations for these indicators, which are determined as the 75th percentile value based on the mean and standard deviation of the available data. For DUSW24, these 75th percentile (background) values are higher than the standard SEPP WoV objectives, and therefore apply as the upper trigger (background) values for the following step;
    - comparison of the average of the two samples obtained within the reporting period (14/8/19 and 16/9/19) against the 85th percentile precautionary trigger levels and 75th percentile upper limit for DUSW24 indicated an exceedance of the precautionary trigger values for pH and Total Nitrogen and an exceedance of the upper limits for Electrical Conductivity, Copper, Boron, Cadmium and Zinc.
    - field sampling notes reported that obtaining samples on both these dates was extremely difficult due to the shallowness of the lake and required siphoning to collect enough sample for analysis and a probable explanation of evapoconcentration processes influencing the elevated concentrations and not an indication of seepage from Pit 23
- with respect to full-suite water quality analysis undertaken for sampling point DUSW14 (see Table 16 to Table 18 and **Appendix D**) the following are noted:
    - sufficient historical data was available to determine background concentrations for these indicators, which are determined as the 75th percentile value based on the mean and standard deviation of the available data. For DUSW14, these 75th percentile (background) values are higher than the standard SEPP WoV objectives and were included in Table 21 of the Pit23 EMP and therefore apply as the upper trigger (background) values for the following step;
    - comparison of the average of the two samples obtained within the reporting period (2/7/19 and 1/8/19) against the 85th percentile precautionary trigger levels and 75th percentile upper limit for DUSW14 indicated an exceedance of the upper limits for Electrical Conductivity, Total Nitrogen and Turbidity.
- these exceedances were reported to HRCC on 23rd April 2020 by means of an Exception Report in which Iluka indicated that:
    - the findings from the seepage impact investigation commissioned by Iluka to assess similar exceedances at McGlashin's Swamp in the 2017 and 2018 reporting periods, were applicable to the 2019 exceedances. Therefore, the following applies;
        - no evidence existed to suggest groundwater seepage or material transport from Pit 23 via a surface water pathway or groundwater pathway contributed to the exceedances observed at DUSW24;
        - contributing factors of natural evapoconcentration and photosynthesis processes were evident, with similar observations noted in analogue monitoring locations in the region;
        - the difference between predicted seepage rates and expression at DUSW24, as compared to that potentially indicated in the ionic-balance data, is significant and unlikely based on hydraulic conductivity of the underlying lithology; and
        - the findings of prior investigations of groundwater quality risk from Pit 23 by-product disposal (per Jacobs, 2014) and groundwater hydrogeological modelling (CDM Smith 2014, 2015 and EMM 2019) remained valid.

- the investigation also identified that the groundwater trigger levels set within the current endorsed Iluka Pit 23 EMP (Rev 4, July 2017) did not consider natural variation and were overly sensitive to expected fluctuations in water quality.

- The above mentioned investigation was the appropriate mechanism to evaluate the cause of the identified exceedances and that no additional or duplicate investigation was warranted;the frequency of monitoring had been increased to allow improved understanding of observed results and trends, although the site (DUSW24 – McGlashin Swamp) has remained dry since the exceedances were identified; and
- No material disposal into Pit 23 had occurred since May 2018 up to the date of the exceedances in August and September of 2019.

Based on the above it is Iluka's position that :

- no seepage from Pit 23 occurred in the reporting period and that no mitigation measures applied; and
- relevant trigger levels are currently under review for inclusion in the revised Pit 23 EMP (Revision 5) based on the dataset obtained to-date (in process)

Table 9: DUSW24 Surface water monitoring results - pH

DUSW24	pH units	Prec Trigger	Upper Trigger	SEPP WoV WQO	Ion. Bal. Rep. Exceedance?	2-sample AVG	Comment
19/01/2017	8.57	-	-	**8.3**	-	-	
26/06/2017	8.91	-	-	**8.3**	-	-	
12/09/2017	8.61	-	-	**8.3**	-	-	
11/10/2017	9.61	-	-	**8.3**	-	-	
15/01/2018	10.4	**8.17**	**9.61**	**8.3**	-	*10.01*	
9/04/2018	8.76	**8.02**	**9.44**	**8.3**	-	*9.58*	
19/06/2018	9.07	**7.94**	**9.34**	**8.3**	-	*8.92*	
17/07/2018	9.4	**8.03**	**9.45**	**8.3**	-	*9.24*	
14/08/2018	9.7	**8.17**	**9.61**	**8.3**	**Yes (Cl:S04)**	*9.55*	pH above precautionary
12/09/2018	9.7	**8.23**	**9.68**	**8.3**	**Yes (Cl:S04)**	*9.70*	pH above upper trigger
17/10/2018	9.8	**8.25**	**9.70**	**8.3**	**Yes (Na:Ca)**	*9.75*	, pH above upper trigger
1/11/2018	9.2	**8.25**	**9.70**	**8.3**	-	*9.50*	
14/08/2019	9.8	**8.25**	**9.70**	**8.3**	**Yes (Both)**	*9.50*	pH above precautionary trigger
16/09/2019	9.5	**8.25**	**9.70**	**8.3**	**Yes (Both)**	*9.65*	pH above precautionary trigger

Table 10: DUSW24 Surface water monitoring results – Total Nitrogen

DUSW24	TN (mg/L)	Prec Trigger	Upper Trigger	SEPP WoV WQO	Ion. Bal. Rep. Exceedance?	2-sample AVG	Comment
19/01/2017	1.2	-	-	**0.9**	-	-	
26/06/2017	5	-	-	**0.9**	-	-	
12/09/2017	2.8	-	-	**0.9**	-	-	

11/10/2017	3	-	-	**0.9**	-	-	
15/01/2018	4.6	**3.91**	**4.60**	**0.9**	-	*3.80*	
9/04/2018	11	**4.17**	**4.90**	**0.9**	-	*7.80*	
19/06/2018	6.1	**4.72**	**5.55**	**0.9**	-	*8.55*	
17/07/2018	6.1	**5.19**	**6.10**	**0.9**	-	*6.10*	
14/08/2018	5.6	**5.19**	**6.10**	**0.9**	**Yes (Cl:S04)**	*5.85*	TN above precautionary
12/09/2018	7.2	**5.19**	**6.10**	**0.9**	**Yes (Cl:S04)**	*6.40*	TN above upper trigger
17/10/2018	6.1	**5.19**	**6.10**	**0.9**	**Yes (Na:Ca)**	*6.65*	TN above upper trigger
1/11/2018	7.3	**5.42**	**6.38**	**0.9**	-	*6.70*	
14/08/2019	4	**5.19**	**6.10**	**0.9**	**Yes (Both)**	*5.65*	TN above precautionary trigger
16/09/2019	7.9	**5.89**	**6.93**	**0.9**	**Yes (Both)**	*5.95*	TN above precautionary trigger

Table 11: DUSW24 Surface water monitoring results – Electrical Conductivity

DUSW24	**EC (uS/cm)**	Prec Trigger	Upper Trigger	SEPP WoV WQO	Ion. Bal. Rep. Exceedance?	2-sample AVG	Comment
19/01/2017	1500	-	-	**1500**	-	-	
26/06/2017	2530	-	-	**1500**	-	-	
12/09/2017	2120	-	-	**1500**	-	-	
11/10/2017	2290	-	-	**1500**	-	-	
15/01/2018	3710	**2151**	**2530**	**1500**	-	*3000*	
9/04/2018	8336	**2903**	**3415**	**1500**	-	*6023*	
19/06/2018	6900	**4509**	**5305**	**1500**	-	*7618*	
17/07/2018	6800	**5801**	**6825**	**1500**	-	*6850*	
14/08/2018	6200	**5780**	**6800**	**1500**	**Yes (Cl:S04)**	*6500*	EC above precautionary
12/09/2018	6700	**5759**	**6775**	**1500**	**Yes (Cl:S04)**	*6450*	EC above precautionary
17/10/2018	8700	**5823**	**6850**	**1500**	**Yes (Na:Ca)**	*7700*	EC above upper trigger
1/11/2018	10000	**6170**	**7259**	**1500**	-	*9350*	
14/08/2019	11000	**7086**	**8336**	**1500**	**Yes (Both)**	*10500*	EC above upper trigger
16/09/2019	15000	**7318**	**8609**	**1500**	**Yes (Both)**	*13000*	EC above upper trigger

Table 12: DUSW24 Surface water monitoring results – Copper

DUSW24	Cu (mg/L)	Prec Trigger	Upper Trigger	SEPP WoV WQO	Ion. Bal. Rep. Exceedance?	2-sample AVG	Comment
19/01/2017	0.001	-	-	**0.0018**	-	-	
26/06/2017	0.001	-	-	**0.0018**	-	-	
12/09/2017	0.002	-	-	**0.0018**	-	-	

11/10/2017	0.001	-	-	**0.0018**	-	-	
15/01/2018	0.003	**0.0017**	**0.0020**	**0.0018**	-	*0.0020*	
9/04/2018	0.002	**0.0017**	**0.0020**	**0.0018**	-	*0.0025*	
19/06/2018	0.002	**0.0017**	**0.0020**	**0.0018**	-	*0.0020*	
17/07/2018	0.001	**0.0017**	**0.0020**	**0.0018**	-	*0.0015*	
14/08/2018	0.001	**0.0017**	**0.0020**	**0.0018**	**Yes (Cl:S04)**	*0.0010*	Cu below precautionary
12/09/2018	0.003	**0.0017**	**0.0020**	**0.0018**	**Yes (Cl:S04)**	*0.0020*	Cu above precautionary
17/10/2018	0.002	**0.0017**	**0.0020**	**0.0018**	**Yes (Na:Ca)**	*0.0025*	Cu above upper trigger
1/11/2018	0.001	**0.0017**	**0.0020**	**0.0018**	-	*0.0015*	
14/08/2019	0.003	**0.0017**	**0.0020**	**0.0018**	**Yes (Both)**	*0.0020*	Cu above precautionary trigger
16/09/2019	0.003	**0.0023**	**0.0028**	**0.0018**	**Yes (Both)**	*0.0030*	Cu above upper trigger

Table 13: DUSW24 Surface water monitoring results – Boron

DUSW24	B (mg/L)	Prec Trigger	Upper Trigger	SEPP WoV WQO	Ion. Bal. Rep. Exceedance?	2-sample AVG	Comment
26/06/2017	1.60	-	-	**0.68**	-	-	
12/09/2017	1.20	-	-	**0.68**	-	-	
11/10/2017	1.10	-	-	**0.68**	-	-	
15/01/2018	1.70	-	-	**0.68**	-	-	
9/04/2018	2.90	**1.4450**	**1.7000**	**0.68**	-	*2.3000*	
17/07/2018	1.90	**1.5725**	**1.8500**	**0.68**	-	*1.9000*	
14/08/2018	1.50	**1.5300**	**1.8000**	**0.68**	**Yes (Cl:S04)**	*1.7000*	B above precautionary
12/09/2018	1.80	**1.5513**	**1.8250**	**0.68**	**Yes (Cl:S04)**	*1.6500*	B above precautionary
17/10/2018	2.00	**1.6150**	**1.9000**	**0.68**	**Yes (Na:Ca)**	*1.9000*	B above precautionary
1/11/2018	2.30	**1.6788**	**1.9750**	**0.68**	-	*2.1500*	
14/08/2019	2.00	**1.7000**	**2.0000**	**0.68**	**Yes (Both)**	*2.1500*	B above upper trigger
16/09/2019	2.20	**1.7425**	**2.0500**	**0.68**	**Yes (Both)**	*2.1000*	B above upper trigger

Table 14: DUSW24 Surface water monitoring results – Cadmium

DUSW24	Cd (mg/L)	Prec Trigger	Upper Trigger	SEPP WoV WQO	Ion. Bal. Rep. Exceedance?	2-sample AVG	Comment
26/06/2017	0.0002	-	-	**0.0004**	-	-	
12/09/2017	0.0002	-	-	**0.0004**	-	-	
11/10/2017	0.0002	-	-	**0.0004**	-	-	

15/01/2018	0.0002	-	-	**0.0004**	-	-	
9/04/2018	0.0002	**0.00017**	**0.00020**	**0.0004**	-	*0.0002*	
19/06/2018	0.0002	**0.00017**	**0.00020**	**0.0004**		*0.0002*	
17/07/2018	0.0002	**0.00017**	**0.00020**	**0.0004**	-	*0.0002*	
14/08/2018	0.0002	**0.00017**	**0.00020**	**0.0004**	**Yes (Cl:S04)**	*0.0002*	Cd below SEPP
12/09/2018	0.0002	**0.00017**	**0.00020**	**0.0004**	**Yes (Cl:S04)**	*0.0002*	Cd below SEPP
17/10/2018	0.0002	**0.00017**	**0.00020**	**0.0004**	**Yes (Na:Ca)**	*0.0002*	Cd below SEPP
1/11/2018	0.0002	**0.00017**	**0.00020**	**0.0004**	-	*0.0002*	
14/08/2019	0.0002	**0.00017**	**0.00020**	**0.0004**	**Yes (Both)**	*0.0002*	Cd below SEPP
16/09/2019	0.0012	**0.00017**	**0.00020**	**0.0004**	**Yes (Both)**	*0.0007*	Cd above SEPP
Result in green represent less than values i.e.0.0002 = <0.0002							

Table 15: DUSW24 Surface water monitoring results – Zinc

DUSW24	Zn (mg/L)	Prec Trigger	Upper Trigger	SEPP WoV WQO	Ion. Bal. Rep. Exceedance?	2-sample AVG	Comment
26/06/2017	0.0010	-	-	**0.0150**	-	-	
12/09/2017	0.0050	-	-	**0.0150**	-	-	
11/10/2017	0.0020	-	-	**0.0150**	-	-	
15/01/2018	0.0040	-	-	**0.0150**	-	-	
9/04/2018	0.0080	**0.0043**	**0.0050**	**0.0150**	-	*0.0060*	
19/06/2018	0.0010	**0.0040**	**0.0048**	**0.0150**		*0.0045*	
17/07/2018	0.0030	**0.0038**	**0.0045**	**0.0150**	-	*0.0030*	
14/08/2018	0.0030	**0.0036**	**0.0043**	**0.0150**	**Yes (Cl:S04)**	*0.0030*	Zn below SEPP
12/09/2018	0.0070	**0.0043**	**0.0050**	**0.0150**	**Yes (Cl:S04)**	*0.0050*	Zn below SEPP
17/10/2018	0.0070	**0.0055**	**0.0065**	**0.0150**	**Yes (Na:Ca)**	*0.0070*	Zn below SEPP
1/11/2018	0.0340	**0.0060**	**0.0070**	**0.0150**	-	*0.0205*	
14/08/2019	0.0060	**0.0060**	**0.0070**	**0.0150**	**Yes (Both)**	*0.0200*	Zn above SEPP
16/09/2019	0.0540	**0.0060**	**0.0070**	**0.0150**	**Yes (Both)**	*0.0300*	Zn above SEPP
Result in green represent less than values i.e.0.001 = <0.001							

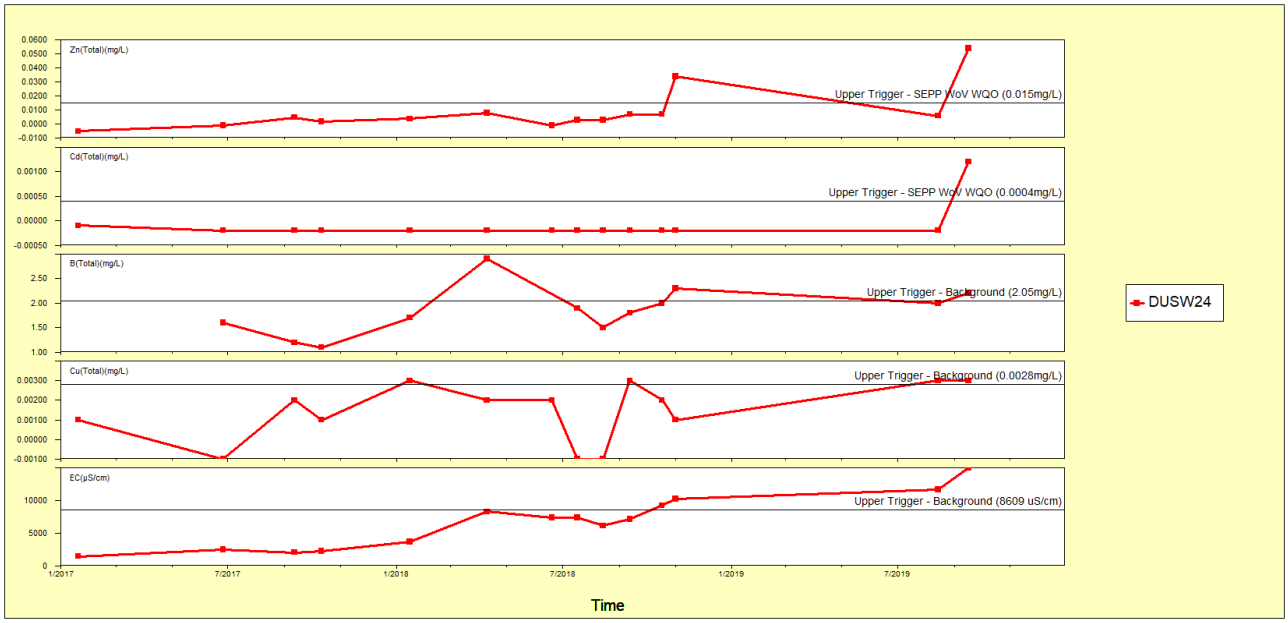


Figure 26: Electrical conductivity, Copper, Boron, Cadmium and Zinc in surface water (DUSW24)

Table 16: DUSW14 Surface water monitoring results – Electrical Conductivity

DUSW14	EC (uS/cm)	Prec Trigger	Upper Trigger	SEPP WoV WQO	Ion. Bal. Rep. Exceedance?	2-sample AVG	Comment
20/07/2017	1776	**5157**	**6067**	**1500**	-	-	
8/08/2017	520	**5157**	**6067**	**1500**	-	-	
24/08/2017	284	**5157**	**6067**	**1500**	-	-	
13/09/2017	825	**5157**	**6067**	**1500**	-	-	
11/10/2017	4860	**5157**	**6067**	**1500**	-	*2842.5*	
19/06/2018	6400	**5157**	**6067**	**1500**	-	*5630*	
17/07/2018	6300	**5157**	**6067**	**1500**	-	*6350*	
17/10/2018	6000	**5157**	**6067**	**1500**	-	*6150*	
8/01/2019	8000	**5157**	**6067**	**1500**	-	*7000*	
9/04/2019	7400	**5157**	**6067**	**1500**	-	*7700*	
2/07/2019	7300	**5157**	**6067**	**1500**	**Yes (Both)**	*7350*	EC above upper trigger
1/08/2019	6500	**5157**	**6067**	**1500**	**Yes (Cl:S04)**	*6900*	EC above upper trigger
24/10/2019	6500	**5157**	**6067**	**1500**	-	*6500*	

Table 17: DUSW24 Surface water monitoring results – Turbidity

DUSW14	Turbidity NTU	Prec Trigger	Upper Trigger	SEPP WoV WQO	Ion. Bal. Rep. Exceedance?	2-sample AVG	Comment
20/07/2017	115	**14**	**17**	**20**	-	-	

8/08/2017	47	**14**	**17**	**20**	-	*81*	
24/08/2017	39	**14**	**17**	**20**	-	*43*	
13/09/2017	69	**14**	**17**	**20**	-	*54*	
11/10/2017	32	**14**	**17**	**20**	-	*50.5*	
19/06/2018	18	**14**	**17**	**20**	-	*25*	
17/07/2018	26	**14**	**17**	**20**	-	*22*	
17/10/2018	28	**14**	**17**	**20**	-	*27*	
8/01/2019	25	**14**	**17**	**20**	-	*26.5*	
9/04/2019	25	**14**	**17**	**20**	-	*25*	
2/07/2019	24	**14**	**17**	**20**	**Yes (Both)**	*24.5*	NTU above upper trigger
1/08/2019	18	**14**	**17**	**20**	**Yes (Cl:S04)**	*21*	NTU upper trigger
24/10/2019	25	**14**	**17**	**20**	-	*21.5*	

Table 18: DUSW24 Surface water monitoring results – Total Nitrogen

DUSW14	TN (mg/L)	Prec Trigger	Upper Trigger	SEPP WoV WQO	Ion. Bal. Rep. Exceedance?	2-sample AVG	Comment
20/07/2017	0.78	**0.79**	**0.93**	**0.9**	-	-	
8/08/2017	1.5	**0.79**	**0.93**	**0.9**	-	*1.14*	
24/08/2017	1.6	**0.79**	**0.93**	**0.9**	-	*1.55*	
13/09/2017	1	**0.79**	**0.93**	**0.9**	-	*1.3*	
11/10/2017	0.84	**0.79**	**0.93**	**0.9**	-	*0.92*	
19/06/2018	1.2	**0.79**	**0.93**	**0.9**	-	*1.02*	
17/07/2018	1.1	**0.79**	**0.93**	**0.9**	-	*1.15*	
17/10/2018	0.82	**0.79**	**0.93**	**0.9**	-	*0.96*	
8/01/2019	1.1	**0.79**	**0.93**	**0.9**	-	*0.96*	
9/04/2019	1.1	**0.79**	**0.93**	**0.9**	-	*1.1*	
2/07/2019	1.2	**0.79**	**0.93**	**0.9**	**Yes (Both)**	*1.15*	TN above upper trigger
1/08/2019	0.96	**0.79**	**0.93**	**0.9**	**Yes (Cl:S04)**	*1.08*	TN above upper trigger
24/10/2019	0.86	**0.79**	**0.93**	**0.9**	-	*0.91*	

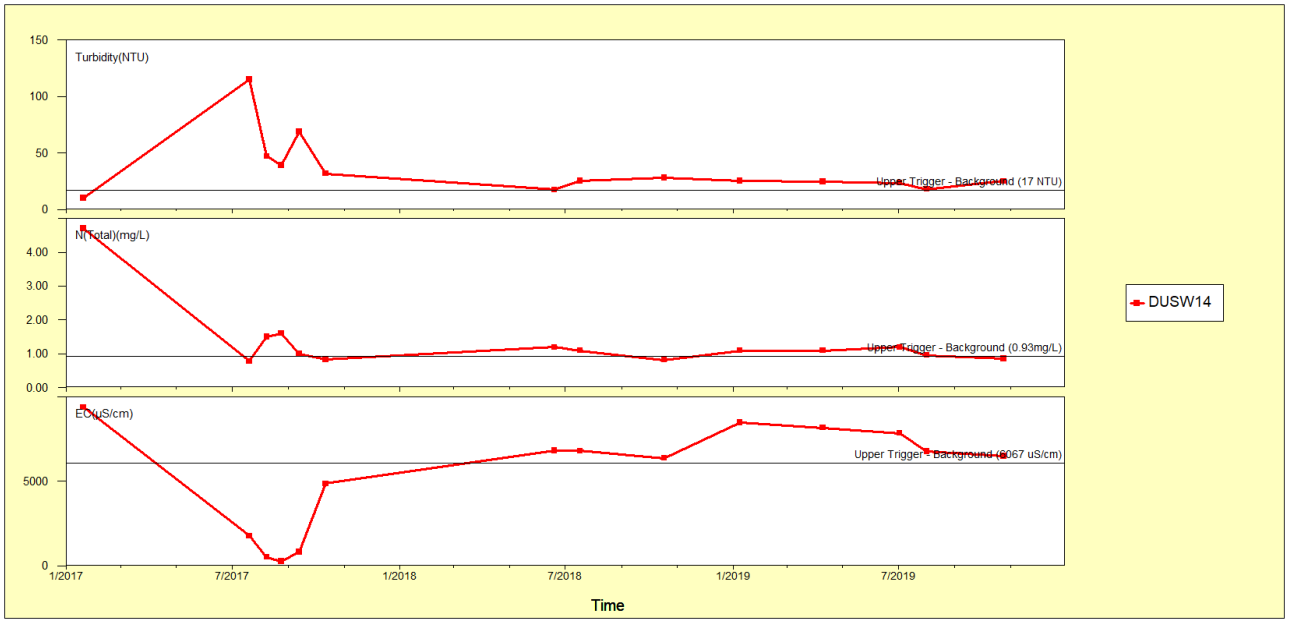


Figure 27: Electrical conductivity, Total Nitrogen and Turbidity in surface water (DUSW14)

4.3 Noise

In accordance with Section 10.1.4 of the endorsed EMP, noise level measurements will be undertaken in the unlikely event that noise complaints are received.

No noise related complaints were received during the reporting period, and hence no noise levels measurements were undertaken.

4.4 PM_{10} concentrations in air

In accordance with Sections 9.6 and 10.1.4 of the endorsed EMP, the concentration of PM_{10} dust in air at the Lyon's and Chadwick's residences is measured using high volume ('hi-vol') air samplers on a one-in-six day monitoring cycle. The location of these hi-vol air samplers relative to Pit 23 are shown in Figure 29.

12-month rolling results for PM_{10} compared to daily rainfall are shown in Figure 28. Results adhere to the expected year-on-year pattern of lower airborne PM_{10} concentrations in winter months.

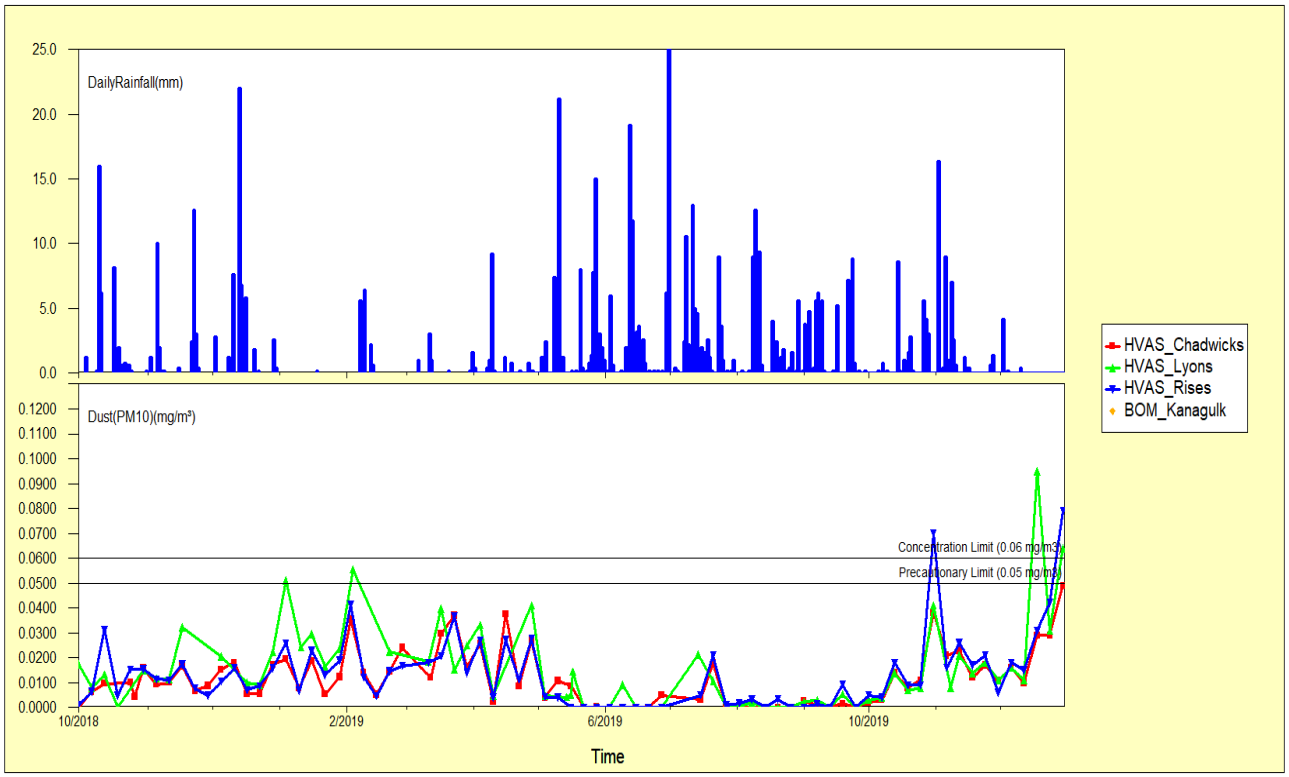


Figure 28: PM_{10} dust concentrations at neighbouring residences vs. daily rainfall

Two results above the PM_{10} concentration limit (0.06 mg/m^3) were recorded at the Lyons residence in H2 2019, on the 18th and 30th December 2019.

Per Section 9.6 of the Pit 23 EMP, where an exceedance of a precautionary or upper concentration limit has occurred Iluka is to determine whether the elevated result is associated with Pit 23. This determination requires comparison between measured PM_{10} concentrations at the Chadwick's and Lyon's residences per the method outlined in Table 24 of the EMP, shown below:

Table 19: Elevated PM10 association with Pit 23 matrix

Location	If measured concentration is		Associated?
Chadwick's	> Trigger Level	> Lyon's	Yes
Chadwick's	> Trigger Level	< Lyon's	No
Lyon's	> Trigger Level	> Chadwick's	No
Lyon's	> Trigger Level	< Chadwick's	Yes

Assessment of the two H2 2019 concentration exceedances observed at the Lyon's residence based on the above protocol is given in Table 20 below.

Based on this assessment, and with reference to field monitoring notes and weather data from the Kanagulk BOM station (Station # 079097) on these dates, neither exceedance was associated with Pit 23.

In both instances the measured PM_{10} concentrations at the Chadwick's residence, which is sited upwind of the Lyon's property and closer to the Pit 23 facility, were lower than those measured at Lyon's residence and below the precautionary and upper concentration limits at the same point in time. This is supported by field monitoring records and wind data which indicate dust sources un-related to Pit 23 use and development.

Two results above the PM_{10} concentration limit (0.06mg/m^3) were also recorded during the reporting period at the Rises residence on the 31st October and 30th December 2019 both of which were not

associated with Pit 23 based on assessment of weather data from the Kanagulk BOM station as shown if Table 20 below.

Table 20: PM_{10} exceedance assessment, H2 2019

Date	Measured Concentration (mg/m^3)			Associated?	Comment
	Lyon's	Chadwick's	Rises		
31/10/19	0.041	0.038	0.070	No	BOM station indicates winds prevailing from the N/NE during the monitoring event (Pit 23 is sited to NW of Rises residence).
18/12/19	0.095	0.029	0.031	No	Sheep activity and third-party harvesting in vicinity of hi-volume air sampler unit during monitoring event.
30/12/19	0.064	0.049	0.079	No	BOM station indicates winds prevailing from the S/SE during the monitoring event (Pit 23 is sited to W/NW of Lyon's and Rises residence's).

Pit 10
Chadwicks
Pit 23
Pit 9
Lyons
Pit 22
Pit 5
Pit 21
Pit 12
Pit 2
Pit 19
Pit 3
Pit 11
Pit 1
The Rises
N
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- PM10 monitoring
- Pit 23 crest
- Pit Crests

0 500 1,000 2,000 3,000 4,000 Meters

AIR QUALITY MONITORING LOCATIONS (PM10 - Hi Vols)

ILUKA

L:\Maps\2018\Unregistered\Douglas\mxd\Pit 23 Annual Report 2017

DRAWN: N. Travers

DATE:26/06/2018

FIGURE: **29**

4.5 Radiation monitoring – other

It is a requirement of the Iluka Radiation Management Licence 300042022 that works relating to the minerals sands by-product disposal into Pit 23 are conducted in accordance with a Radiation Management Plan (RMP) and a Radioactive Waste Management Plan (RWMP), including the monitoring programs under those plans, to ensure that radiation doses are below the prescribed limit.

Radiation monitoring relevant to this performance report includes:

- Radon concentrations in air;
- Gross alpha activity concentration of airborne dust; and
- Radionuclide concentrations in groundwater and surface water.

Results for radon concentrations in air and gross alpha activity concentration of airborne dust are detailed below. Results for radionuclides in groundwater and surface water are detailed in Sections 4.1.3.2 and 4.2.2.2, respectively.

4.5.1 Radon concentrations in air

Monitoring of radon concentrations in air is undertaken at four locations within and immediately adjacent to Pit 23 and at two residences east of Pit 23 (Chadwick's) and south of Pit 23 (Rises). Radon monitoring is undertaken using Landauer "Radtrak2" radon/thoron track etch detectors and the newer Rapidos High Sensitivity ("Rapidos HS") radon detectors (Figure 30).

The Rapidos HS detectors were implemented in Q4 2018 for side-by-side comparison with the existing Radtrak2 detectors, with initial results from the Rapidos HS detectors indicating that airborne radon levels are significantly lower than those indicated by the less sensitive Radtrak2 detectors, and therefore provide a more accurate measure of actual airborne radon levels in the vicinity of Pit 23 and at local residences. This side-by-side comparison will continue through 2020 to allow for meaningful statistical comparison of radon data between units over time.

No high-sensitivity thoron detectors are available and thoron monitoring will continue using the Radtrack2 detectors.

Radon and Thoron monitoring results for the reporting period are presented in Table 21 and Table 22, and also in Figure 31 and Figure 32.

All measured radon and thoron levels in the 2019 reporting period were well below the reportable levels irrespective of the detectors used.

Figure 30: Radon and thoron detectors

Table 21: Radon concentrations within Pit 23 for 2019

Location	Radon concentration in air (Bq/m^3)					Rapidos High Sensitivity			
	Reportable level	Jan19 To Apr19	Apr19 To Jul19	Jul19 To Sep19	Oct19 To Dec19	Jan19 To Apr19	Apr19 To Jul19	Jul19 To Sep19	Oct19 To Dec19
Pit 23 East	**100**	25 +/- 10	15 +/- 6	<15	<15	5 ± 6	8 ± 4	<7	11 ± 7
Pit 23 North	**100**	18 +/- 10	<15	<15	<15	<5	<5	<7	<8
Pit 23 West	**100**	15 +/- 8	<15	<15	<20	<5	<6	<7	<8
Pit 23 South	**100**	-	<15	<15	<15	<5	7 ± 4	<7	<7
Chadwick's	**100**	22 +/- 10	<15	<15	<15	6 ± 6	7 ± 4	<7	8 ± 7
Rises	**100**	<15	<15	<15	<15	7 ± 6	8 ± 4	<7	<7

Table 22: Thoron concentrations within Pit 23 for 2019

Location	Thoron concentration in air (Bq/m^3) *Radtrak2 Detectors*								
	Reportable level	Dec17 To Mar18	Mar18 To Jun18	Jun18 To Sep18	Oct18 To Jan19	Jan19 To Apr19	Apr19 To Jul19	Jul19 To Sep19	Oct19 To Dec19
Pit 23 East	**1000**	285 +/- 52	72 +/- 30	77 +/- 32	40 +/- 20	67 ± 32	34 ± 20	58 ± 26	100 ± 36
Pit 23 North	**1000**	41 +/- 36	<30	<40	<20	42 ± 28	<30	<30	<40
Pit 23 West	**1000**	50 +/- 32	55 +/- 32	<40	132 +/- 32	119 ± 32	68 ± 22	66 ± 26	83 ± 40
Pit 23 South	**1000**	115 +/- 34	103 +/- 36	92 +/- 34	162 +/- 28	-	138 ± 30	115 ± 30	133 ± 38
Chadwick's	**1000**	<30	<40	<40	21 +/- 16	<30	<30	<30	<40
Rises	**1000**	<30	<40	<40	<20	36 ± 28	<30	<30	<40

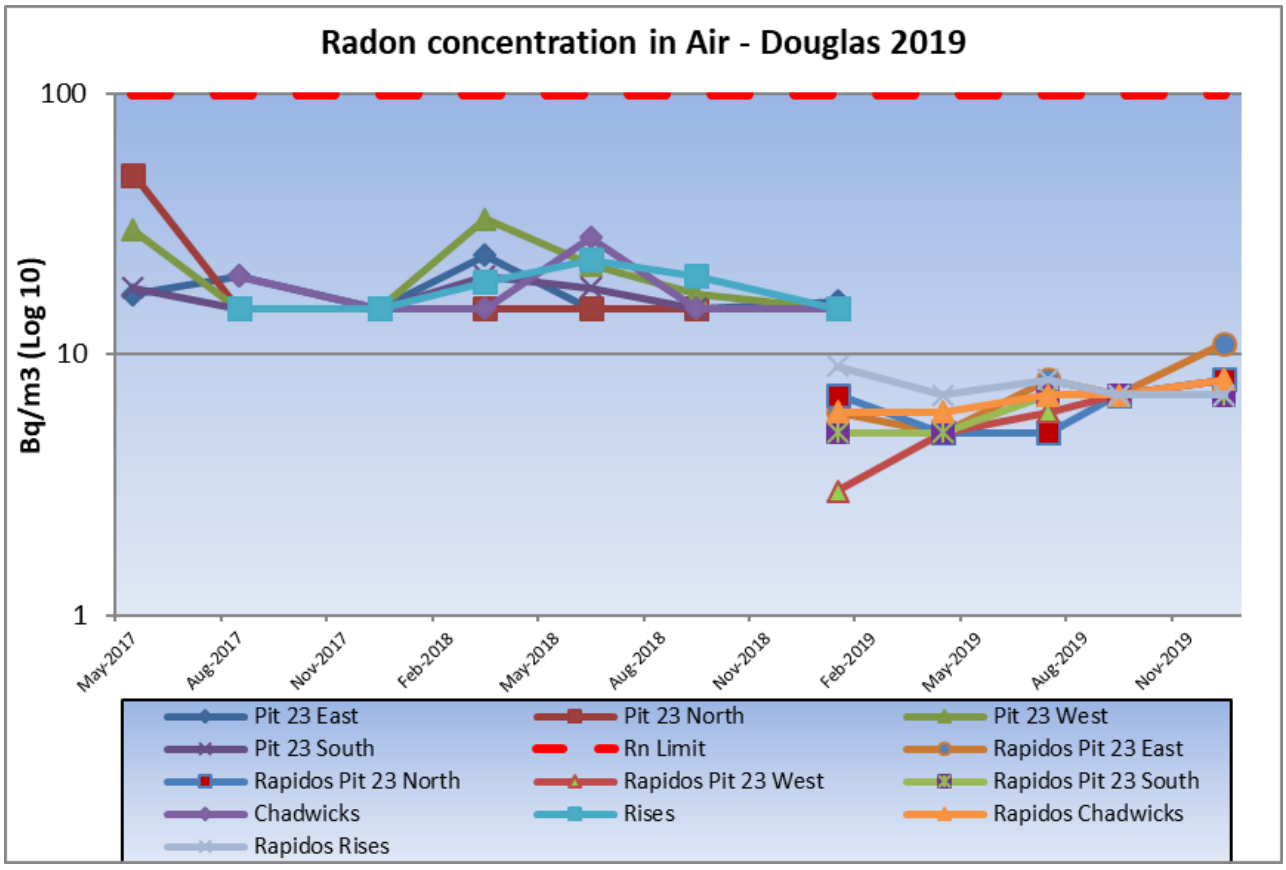


Figure 31: Radon concentration in air, 2019

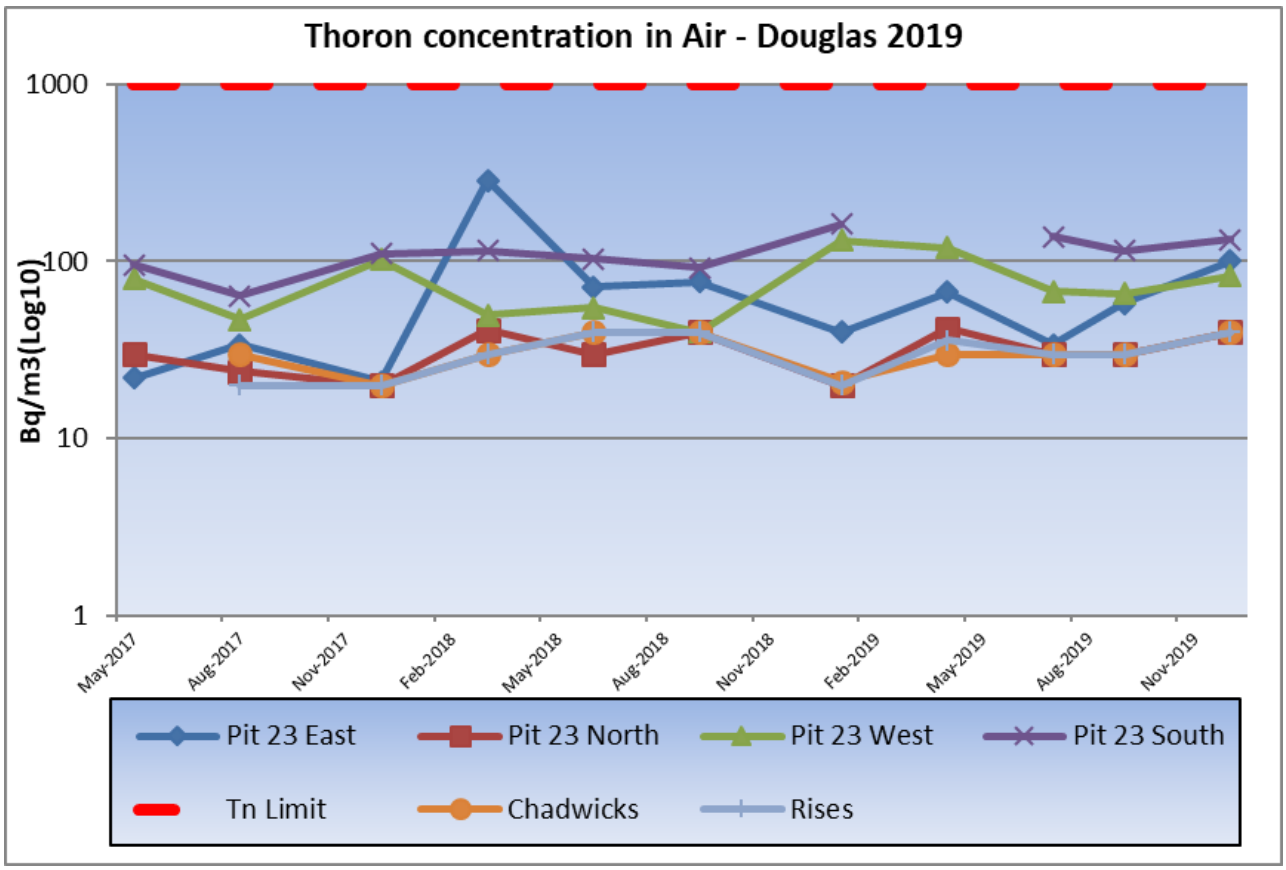


Figure 32: Thoron concentration in air, 2019

4.5.2 Gross alpha concentrations in airborne dust

As noted in Section 4.4, sampling for airborne particulates in PM_{10} dust is conducted using high volume (hi-vol) air samplers located at the Chadwick's, Lyons and Rises residences (see Figure 29).

On a quarterly basis hi-vol units are run for a continuous 96 hour period for purposes of monitoring gross alpha concentration in air, which represents a total air sample volume of approximately 6,000 m^3. The filters are weighed to determine the total dust loading in mg/m^3 and then analysed for gross alpha activity expressed as millibequerels/m^3 (mBq/m^3).

The results for the monitoring period are in line with historical values and are shown in Table 23 and Figure 33.

Table 23: Gross Alpha radiation in PM_{10} dust

Location	Run Date	Sample / Filter No.	Air Volume (m^3)	Activity Conc (mBq/m^3)
Chadwick's	03/07/2019	200519Q3	6022	0.368
Lyon's	03/07/2019	200519Q4	6238	0.368
Rises	03/07/2019	200519Q2	6236	0.370
Chadwick's	25/10/2019	200919GF9	6052	0.070
Lyon's	08/11/2019	200919GF14	6093	<0.065
Rises	25/10/2019	200919GF7	6086	0.104

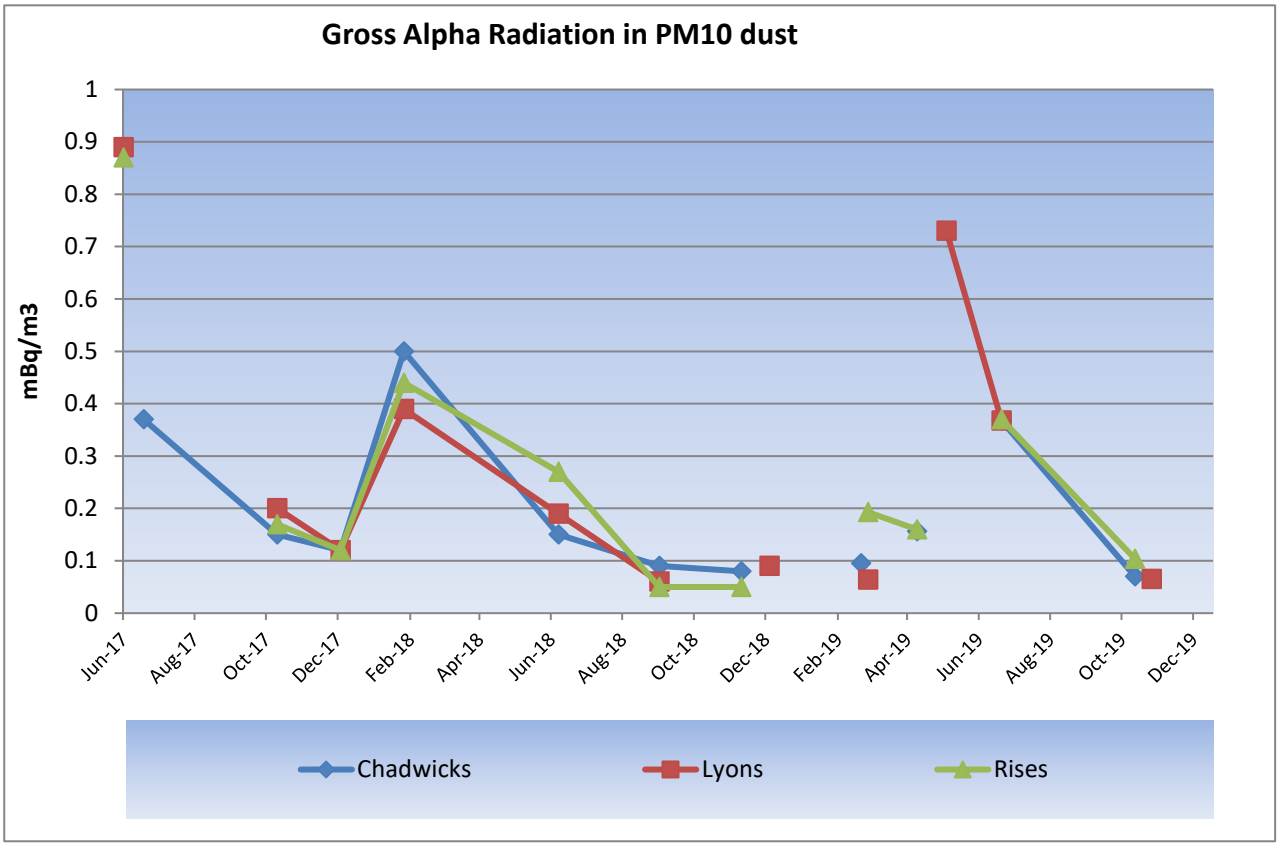


Figure 33: Gross Alpha Radiation in PM10 Dust

5 Management Actions

5.1 Monitoring bore audits

In accordance with Section 7.6.2 of the EMP, audits of the monitoring bore network are undertaken on monthly or bi-annually and outcomes reported annually within this EMP and Rehabilitation Performance Report.

Bore integrity (e.g. physical condition, blocked/dry or poor yield) is assessed as part of the groundwater monitoring program.

As per Section 4.1.1 of this report, all bores are in serviceable condition with the exception of BW36 which is blocked and was replaced with BW36A in October 2019.

5.2 Groundwater flow paths from Pit 23

In accordance with Section 7.9.1 of the EMP, groundwater levels measured at bores WRK300 – WRK304 inclusive, GW1 to GW7 inclusive, GW9, BW36 and BW45 are used to construct groundwater contours in the area of Pit 23 and surrounds and infer groundwater flow paths from Pit 23, with these levels and flow paths compared with the groundwater levels and flow paths predicted by the hydrogeological model.

Groundwater level contours are provided in Figure 34 (EMM 2019; EMM 2019). This compares the 2019 modelled contours per EMM (2019), and interpreted groundwater contours as at December 2019 including standing water level data for new monitoring bores installed in 2018 and 2019. From these December 2019 contours it is confirmed that:

- groundwater contours and flow-paths are consistent with the 2019 modelled contours and prior year contours; and
- groundwater flow from Pit 23 is still to the north and north-west.

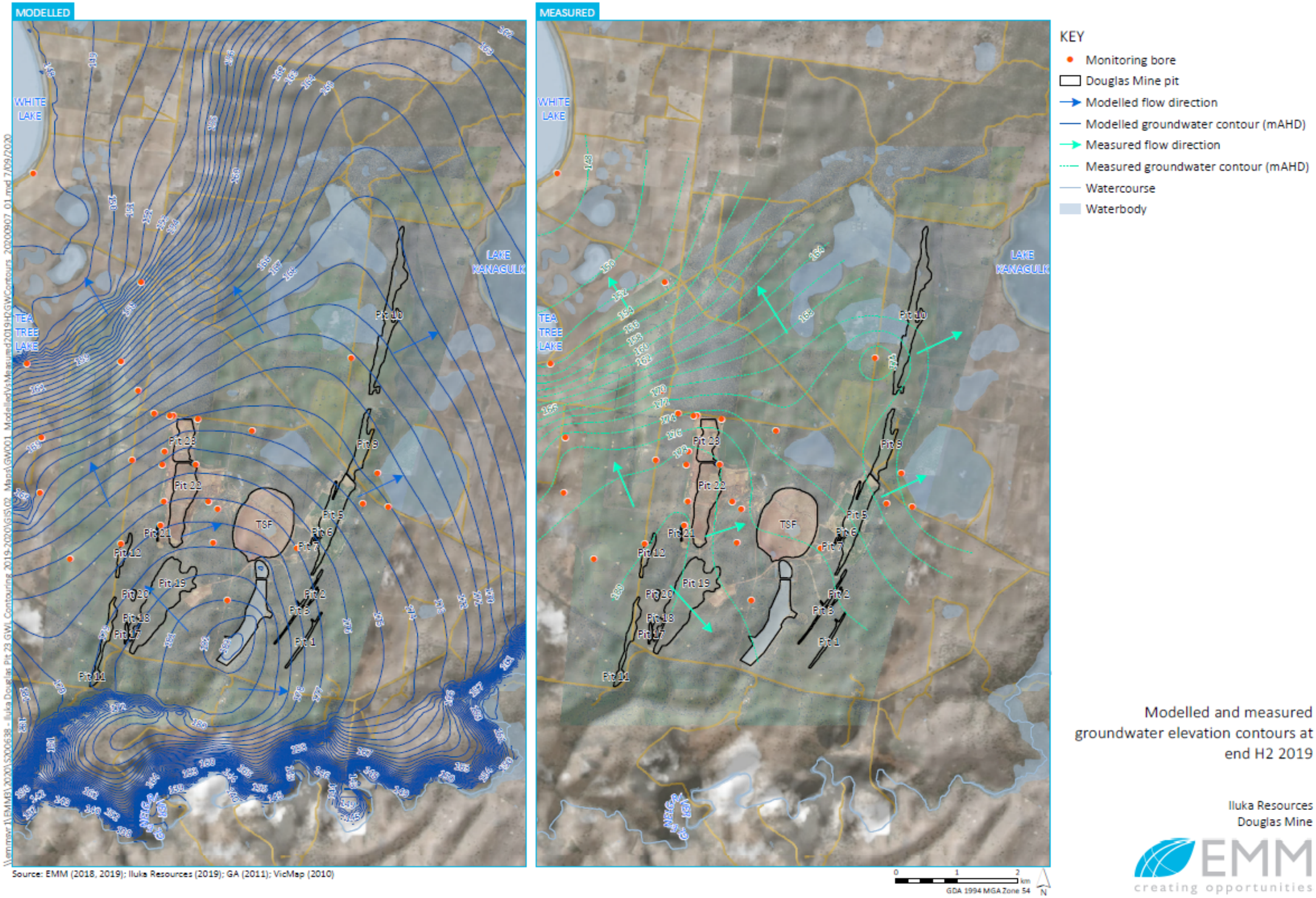


Figure 34: 2019 vs 2019 interpreted groundwater contours (EMM 2019; EMM 2019)

5.3 Groundwater model review and recalibration

Sections 7.10 and 8.7.2 of the endorsed EMP outlines the circumstances that will trigger a review and recalibration of the hydrogeological model.

An update of the Douglas Mine (inclusive Pit 23) hydrogeological model was commissioned through EMM Consulting in December 2018 in response to the potential groundwater seepage impacts identified during surface water monitoring at McGlashin's Swamp in the 2017 reporting period. This also satisfied the commitment for a review of the model within two (2) years of the Planning Permit being granted.

Whilst complimentary seepage impact investigation (EMM, 2018) determined that the observed exceedances were associated with natural phenomena and un-related to Pit 23, a review and update of the groundwater model was required in accordance with the Pit 23 EMP.

Preliminary findings of the 2019 groundwater model update were presented to the Responsible Authority and Pit 23 Technical Reference Group (TRG) by Iluka and EMM Consulting personnel at a meeting held at the HRCC Council Chambers on 23rd May 2019. The final modelling report was completed and provided to the Responsible Authority in Q3 2019.

This modelling will be used to validate existing model predictions on the groundwater flow path and groundwater flow rates from the Pit 23 facility, and to inform updates to groundwater-related content with the next iteration of the Pit 23 Environmental Management Plan (EMP, Rev 5).

5.4 Maximum surface level of disposed materials in Pit 23

In accordance with Section 7.9.1 of the EMP, the maximum elevation of the upper surface of materials disposed of at the end of the reporting period must be reported.

The Pit 23 void consists of an upper and lower disposal area; all loads for 2019 were placed in the lower disposal area with no use of the upper disposal area.

Accordingly, the survey undertaken on the 8th of December 2017 confirming the upper surface of materials deposited in Pit 23 (i.e. the elevation of capped material in the upper disposal area) remains unchanged at 193 mAHD.

5.5 Non-compliances

The following administrative non-compliance is declared:

- Submission of an exception report for an exceedance of surface water parameters above established upper trigger levels was not completed within the timeframe specified in the currently endorsed EMP.

5.6 Comments and complaints received

No complaints or comments were received in 2019.

5.7 H2 2019 Completed Actions

The following actions were implemented:

- Installation of a replacement bore BW36A and decommissioning of BW36 which was blocked by tree roots thereby prevening sampling; and
- Permeability assessment completed for the newly installed monitoring bores GW01-GW08, BW36A and BW45B.

5.8 2020 Proposed Actions

The following actions are planned in 2020:

- submission of the updated Pit 23 Incoming Waste Monitoring Plan (IWMP) and Environmental Management Plan (EMP) as required by the default two-year review periods stipulated within these plans. The updated EMP will include outcomes of the updated groundwater modelling completed by EMM in 2019;
- Submission of the updated Rehabilitation and Vegetation Management Plan (R&VMP) has been withheld to 2020 to coincide with a complimentary mine closure assessment and development of closure criteria for the adjacent Douglas Mine (MIN5367). This will ensure that the Pit 23 and Douglas closure objectives and completion criteria are in alignment; and
- Installation of an additional monitoring bore (GW04A) between GW04 and BW36A to be located as close as possible to the pit crest whilst ensuring that the bore can be installed and accessed safely within the down gradient flow path of Pit 23.

5.9 Other matters

5.9.1 Annual geotechnical audit

In accordance with Section 10.5.2 and 10.5.3 of the EMP, geotechnical audits are completed on an annual basis with the last audit completed in December 2019 (AMC Consultants, 2019).

The next audit is scheduled for November 2020.

5.9.2 Pit 23 Risk Register annual review

Per Section 6 of the EMP, the Pit 23 Risk Analysis and Response Plan (RARP) was developed by AECOM Australia Pty Ltd who recommended that the Pit 23 Risk Register (contained as Appendix A of the RARP) be reviewed annually at the time when EMP and Rehabilitation Performance Reports are developed.

Reviews of the Pit 23 RARP risk register were conducted in December 2018 and presented in the prior 2018 EMP and Rehabilitation Performance Report submitted to the Responsible Authority on 3rd June 2019.

A review of the Pit 23 RARP risk register was undertaken in April 2019 as part of the review and update of the Environmental Management Plan (EMP) and Rehabilitation and Vegetation Management Plan (R&VMP) which will be submitted to the Responsible Authority in 2020.

6 References

ANZECC/ARMCANZ (2000) *National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Australian and New Zealand Environment and Conservation Council and Agricultural and Resource Management Council of Australia and New Zealand, Canberra, Australian Capital Territory, October 2000.

CDM Smith (2014) Douglas Mine Site Hydrogeological Modelling. Completed on behalf of Iluka Resources, November 2014

CDM Smith (2015) Douglas Mine – Particle Tracking of Seepage Water. Completed on behalf of Iluka Resources, February 2015

EMM (2018) Pit 23 Groundwater – Assessment of Seepage Indicator Exceedances, November 2018 (Report S180265, Rev 2 Final), issued for Iluka Resources Ltd

EMM (2019) *Groundwater Model Update and Predictive Scenario Modelling – Douglas Mine*. Prepared by EMM Consulting for Iluka Resources Ltd, September 2019.

EES (2016) *Independent Desktop Review For The Continuation Of Mineral By-Products Disposal Into Pit 23 At Iluka's Douglas Mine Site, Northwest Victoria No. 215071v2 dated April 2016.* Prepared by Environmental Earth Sciences, Melbourne, Victoria. (TRIM T18729).

AMC Consultants (2019) Douglas Mine Pit 23 Geotechnical Audit & Risk Assessment, 10th December 2019.

7 Appendices

Appendix A: Monitoring Data (Lab) – Radiation – Surface Water

Surface water ID	Date	Thorium (mg/L)	Uranium (mg/L)	U238 (Bq/L)	Ra226 (Bq/L)	Ra228 (Bq/L)
Precautionary trigger		*n/a*	*0.17*	*0.17*	*4.3*	*1.7*
Upper trigger		*n/a*	*0.2*	*0.2*	*5*	*2*
Q3 2019						
DUSW05B	2/07/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*
DUSW05B	14/08/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*
DUSW14	2/07/2019	<0.002	0.001	<0.025	<0.01	<0.08
DUSW14	1/08/2019	<0.002	<0.001	<0.025	0.01	<0.08
DUSW20	2/07/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*
DUSW20	14/08/2019	0.005	<0.001	<0.025	0.01	<0.08
DUSW22	2/07/2019	<0.002	<0.001	<0.025	<0.01	<0.08
DUSW22	1/08/2019	<0.002	<0.001	<0.025	<0.01	<0.08
DUSW24	14/08/2019	<0.002	0.002	<0.025	0.01	<0.08
DUSW24	16/09/2019	<0.002	0.003	<0.025	0.02	<0.08
DUSW45	2/07/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*
DUSW45	14/08/2019	<0.002	0.036	1.69	<0.01	<0.08
Q4 2019						
DUSW05B	24/10/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*
DUSW14	24/10/2019	<0.002	<0.001	<0.025	<0.01	<0.08
DUSW20	24/10/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*
DUSW22	24/10/2019	<0.002	<0.001	<0.025	<0.01	<0.08
DUSW24	24/10/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*
DUSW45	24/10/2019	*DRY*	*DRY*	*DRY*	*DRY*	*DRY*

Appendix B: Monitoring Data (Lab) – Groundwater

Variable	Unit	Sample Point	Date	Result
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_GW07	3/07/2019	110
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_BW05	3/07/2019	460
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_BW28A	3/07/2019	410
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK302	4/07/2019	100
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_GW06	4/07/2019	180
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_GW01	8/07/2019	8
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_BW45B	8/07/2019	*1*
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_GW05	8/07/2019	67
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_GW04	8/07/2019	24
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_GW03	10/07/2019	160
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_GW02	10/07/2019	37
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_GW08	10/07/2019	170
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	100
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_IWB6	11/07/2019	13
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_IWB2	11/07/2019	27
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK301	15/07/2019	350
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK303	15/07/2019	44
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK304	15/07/2019	38
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK300	16/07/2019	250
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_GW04	1/08/2019	27
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK302	1/08/2019	100
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_BW45B	14/08/2019	1
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_GW04	12/09/2019	24
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_PZ_BW36A	11/12/2019	230
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_GW07	3/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_BW05	3/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_GW06	4/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_GW01	8/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_GW05	8/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_GW04	8/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_GW03	10/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_GW02	10/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_GW08	10/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK300	16/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_GW04	1/08/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_GW04	12/09/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_GW01	8/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0

Variable	Unit	Sample Point	Date	Result
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_GW05	8/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_GW04	8/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_GW03	10/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_GW02	10/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_GW08	10/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_WRK300	16/07/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_GW04	1/08/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_GW04	12/09/2019	0
Alkalinity (Hydroxide) as CaCO3	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_GW07	3/07/2019	110
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_BW05	3/07/2019	460
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_BW28A	3/07/2019	410
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_WRK302	4/07/2019	100
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_GW06	4/07/2019	180
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_GW01	8/07/2019	8
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_BW45B	8/07/2019	*1*
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_GW05	8/07/2019	67
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_GW04	8/07/2019	24
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_GW03	10/07/2019	160
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_GW02	10/07/2019	37
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_GW08	10/07/2019	170
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	100
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_IWB6	11/07/2019	13
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_IWB2	11/07/2019	27
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_WRK301	15/07/2019	350
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_WRK303	15/07/2019	44
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_WRK304	15/07/2019	38
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_WRK300	16/07/2019	250
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_GW04	1/08/2019	27
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_WRK302	1/08/2019	100
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_BW45B	14/08/2019	1
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_GW04	12/09/2019	24
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_PZ_BW36A	11/12/2019	230
Aluminium (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.02
Aluminium (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.26
Aluminium (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.01
Aluminium (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.42
Aluminium (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.21
Aluminium (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	2.5
Aluminium (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	6.5
Aluminium (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.05
Aluminium (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.04
Aluminium (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.06
Aluminium (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.05

Variable	Unit	Sample Point	Date	Result
Aluminium (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	*0.01*
Aluminium (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.38
Aluminium (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.25
Aluminium (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.04
Aluminium (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.79
Aluminium (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.04
Aluminium (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.12
Aluminium (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.01*
Aluminium (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.04
Aluminium (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.35
Aluminium (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	1.5
Aluminium (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.01
Aluminium (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.19
Ammonia Nitrogen	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.17
Ammonia Nitrogen	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.44
Ammonia Nitrogen	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.62
Ammonia Nitrogen	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.25
Ammonia Nitrogen	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.32
Ammonia Nitrogen	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.01
Ammonia Nitrogen	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.41
Ammonia Nitrogen	mg/L	DG_A_I_PZ_GW05	8/07/2019	*0.004*
Ammonia Nitrogen	mg/L	DG_A_I_PZ_GW04	8/07/2019	*0.004*
Ammonia Nitrogen	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.03
Ammonia Nitrogen	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.029
Ammonia Nitrogen	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.34
Ammonia Nitrogen	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	10
Ammonia Nitrogen	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.051
Ammonia Nitrogen	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.004*
Ammonia Nitrogen	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.11
Ammonia Nitrogen	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.017
Ammonia Nitrogen	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.088
Ammonia Nitrogen	mg/L	DG_A_I_PZ_WRK300	16/07/2019	0.15
Ammonia Nitrogen	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.016
Ammonia Nitrogen	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.11
Ammonia Nitrogen	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.26
Ammonia Nitrogen	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.004
Ammonia Nitrogen	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.18
Anions (Total)	meq/L	DG_A_I_PZ_GW07	3/07/2019	180
Anions (Total)	meq/L	DG_A_I_PZ_BW05	3/07/2019	260
Anions (Total)	meq/L	DG_A_I_PZ_BW28A	3/07/2019	230
Anions (Total)	meq/L	DG_A_I_PZ_WRK302	4/07/2019	210
Anions (Total)	meq/L	DG_A_I_PZ_GW06	4/07/2019	230
Anions (Total)	meq/L	DG_A_I_PZ_GW01	8/07/2019	100
Anions (Total)	meq/L	DG_A_I_PZ_BW45B	8/07/2019	160
Anions (Total)	meq/L	DG_A_I_PZ_GW05	8/07/2019	100
Anions (Total)	meq/L	DG_A_I_PZ_GW04	8/07/2019	92
Anions (Total)	meq/L	DG_A_I_PZ_GW03	10/07/2019	110
Anions (Total)	meq/L	DG_A_I_PZ_GW02	10/07/2019	73
Anions (Total)	meq/L	DG_A_I_PZ_GW08	10/07/2019	220
Anions (Total)	meq/L	DG_A_I_PZ_BW53/Puls	10/07/2019	32
Anions (Total)	meq/L	DG_A_I_PZ_IWB6	11/07/2019	15
Anions (Total)	meq/L	DG_A_I_PZ_IWB2	11/07/2019	38

Variable	Unit	Sample Point	Date	Result
Anions (Total)	meq/L	DG_A_I_PZ_WRK301	15/07/2019	110
Anions (Total)	meq/L	DG_A_I_PZ_WRK303	15/07/2019	88
Anions (Total)	meq/L	DG_A_I_PZ_WRK304	15/07/2019	81
Anions (Total)	meq/L	DG_A_I_PZ_WRK300	16/07/2019	60
Anions (Total)	meq/L	DG_A_I_PZ_GW04	1/08/2019	96
Anions (Total)	meq/L	DG_A_I_PZ_WRK302	1/08/2019	210
Anions (Total)	meq/L	DG_A_I_PZ_BW45B	14/08/2019	160
Anions (Total)	meq/L	DG_A_I_PZ_GW04	12/09/2019	96
Anions (Total)	meq/L	DG_A_I_PZ_BW36A	11/12/2019	42
Arsenic (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.001
Arsenic (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.009
Arsenic (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.66
Arsenic (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.005
Arsenic (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.005
Arsenic (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.011
Arsenic (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.008
Arsenic (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.01
Arsenic (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.006
Arsenic (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.027
Arsenic (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.001
Arsenic (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.002
Arsenic (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.01
Arsenic (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.019
Arsenic (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.001
Arsenic (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.005
Arsenic (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.002
Arsenic (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.008
Arsenic (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.001*
Arsenic (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.004
Arsenic (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.004
Arsenic (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.006
Arsenic (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.006
Arsenic (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.06
Barium (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.023
Barium (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.031
Barium (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.085
Barium (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.023
Barium (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.021
Barium (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.045
Barium (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.023
Barium (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.055
Barium (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.019
Barium (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.022
Barium (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.041
Barium (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.006
Barium (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.054
Barium (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.023
Barium (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.002
Barium (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.02
Barium (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.036
Barium (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.029
Barium (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	0.003

Variable	Unit	Sample Point	Date	Result
Barium (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.023
Barium (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.024
Barium (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.038
Barium (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.02
Barium (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.34
Boron (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	1.5
Boron (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	1.2
Boron (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.8
Boron (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	1.8
Boron (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	1.7
Boron (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.08
Boron (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.94
Boron (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.72
Boron (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.52
Boron (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.29
Boron (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.12
Boron (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	1.3
Boron (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.21
Boron (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.06
Boron (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.07
Boron (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.59
Boron (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.49
Boron (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.6
Boron (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	0.02
Boron (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.5
Boron (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	1.8
Boron (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	1
Boron (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.53
Boron (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.07
Cadmium (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	*0.0002*

Variable	Unit	Sample Point	Date	Result
Cadmium (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	*0.0002*
Calcium	mg/L	DG_A_I_PZ_GW07	3/07/2019	390
Calcium	mg/L	DG_A_I_PZ_BW05	3/07/2019	240
Calcium	mg/L	DG_A_I_PZ_BW28A	3/07/2019	500
Calcium	mg/L	DG_A_I_PZ_WRK302	4/07/2019	460
Calcium	mg/L	DG_A_I_PZ_GW06	4/07/2019	610
Calcium	mg/L	DG_A_I_PZ_GW01	8/07/2019	58
Calcium	mg/L	DG_A_I_PZ_BW45B	8/07/2019	310
Calcium	mg/L	DG_A_I_PZ_GW05	8/07/2019	140
Calcium	mg/L	DG_A_I_PZ_GW04	8/07/2019	120
Calcium	mg/L	DG_A_I_PZ_GW03	10/07/2019	170
Calcium	mg/L	DG_A_I_PZ_GW02	10/07/2019	21
Calcium	mg/L	DG_A_I_PZ_GW08	10/07/2019	550
Calcium	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	29
Calcium	mg/L	DG_A_I_PZ_IWB6	11/07/2019	6
Calcium	mg/L	DG_A_I_PZ_IWB2	11/07/2019	9.2
Calcium	mg/L	DG_A_I_PZ_WRK301	15/07/2019	230
Calcium	mg/L	DG_A_I_PZ_WRK303	15/07/2019	120
Calcium	mg/L	DG_A_I_PZ_WRK304	15/07/2019	94
Calcium	mg/L	DG_A_I_PZ_WRK300	16/07/2019	130
Calcium	mg/L	DG_A_I_PZ_GW04	1/08/2019	140
Calcium	mg/L	DG_A_I_PZ_WRK302	1/08/2019	480
Calcium	mg/L	DG_A_I_PZ_BW45B	14/08/2019	320
Calcium	mg/L	DG_A_I_PZ_GW04	12/09/2019	130
Calcium	mg/L	DG_A_I_PZ_BW36A	11/12/2019	76
Cations (Total)	meq/L	DG_A_I_PZ_GW07	3/07/2019	180
Cations (Total)	meq/L	DG_A_I_PZ_BW05	3/07/2019	250
Cations (Total)	meq/L	DG_A_I_PZ_BW28A	3/07/2019	230
Cations (Total)	meq/L	DG_A_I_PZ_WRK302	4/07/2019	210
Cations (Total)	meq/L	DG_A_I_PZ_GW06	4/07/2019	220
Cations (Total)	meq/L	DG_A_I_PZ_GW01	8/07/2019	110
Cations (Total)	meq/L	DG_A_I_PZ_BW45B	8/07/2019	160
Cations (Total)	meq/L	DG_A_I_PZ_GW05	8/07/2019	100
Cations (Total)	meq/L	DG_A_I_PZ_GW04	8/07/2019	94
Cations (Total)	meq/L	DG_A_I_PZ_GW03	10/07/2019	110
Cations (Total)	meq/L	DG_A_I_PZ_GW02	10/07/2019	73
Cations (Total)	meq/L	DG_A_I_PZ_GW08	10/07/2019	230
Cations (Total)	meq/L	DG_A_I_PZ_BW53/Puls	10/07/2019	31
Cations (Total)	meq/L	DG_A_I_PZ_IWB6	11/07/2019	15
Cations (Total)	meq/L	DG_A_I_PZ_IWB2	11/07/2019	37
Cations (Total)	meq/L	DG_A_I_PZ_WRK301	15/07/2019	110
Cations (Total)	meq/L	DG_A_I_PZ_WRK303	15/07/2019	86
Cations (Total)	meq/L	DG_A_I_PZ_WRK304	15/07/2019	80
Cations (Total)	meq/L	DG_A_I_PZ_WRK300	16/07/2019	60
Cations (Total)	meq/L	DG_A_I_PZ_GW04	1/08/2019	90
Cations (Total)	meq/L	DG_A_I_PZ_WRK302	1/08/2019	210
Cations (Total)	meq/L	DG_A_I_PZ_BW45B	14/08/2019	160
Cations (Total)	meq/L	DG_A_I_PZ_GW04	12/09/2019	91
Cations (Total)	meq/L	DG_A_I_PZ_BW36A	11/12/2019	45
Chloride	mg/L	DG_A_I_PZ_GW07	3/07/2019	5800
Chloride	mg/L	DG_A_I_PZ_BW05	3/07/2019	8300
Chloride	mg/L	DG_A_I_PZ_BW28A	3/07/2019	7100

Variable	Unit	Sample Point	Date	Result
Chloride	mg/L	DG_A_I_PZ_WRK302	4/07/2019	6400
Chloride	mg/L	DG_A_I_PZ_GW06	4/07/2019	6800
Chloride	mg/L	DG_A_I_PZ_GW01	8/07/2019	3400
Chloride	mg/L	DG_A_I_PZ_BW45B	8/07/2019	5000
Chloride	mg/L	DG_A_I_PZ_GW05	8/07/2019	3100
Chloride	mg/L	DG_A_I_PZ_GW04	8/07/2019	2800
Chloride	mg/L	DG_A_I_PZ_GW03	10/07/2019	3400
Chloride	mg/L	DG_A_I_PZ_GW02	10/07/2019	2300
Chloride	mg/L	DG_A_I_PZ_GW08	10/07/2019	6700
Chloride	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	840
Chloride	mg/L	DG_A_I_PZ_IWB6	11/07/2019	350
Chloride	mg/L	DG_A_I_PZ_IWB2	11/07/2019	1200
Chloride	mg/L	DG_A_I_PZ_WRK301	15/07/2019	3200
Chloride	mg/L	DG_A_I_PZ_WRK303	15/07/2019	2700
Chloride	mg/L	DG_A_I_PZ_WRK304	15/07/2019	2400
Chloride	mg/L	DG_A_I_PZ_WRK300	16/07/2019	1700
Chloride	mg/L	DG_A_I_PZ_GW04	1/08/2019	3000
Chloride	mg/L	DG_A_I_PZ_WRK302	1/08/2019	6500
Chloride	mg/L	DG_A_I_PZ_BW45B	14/08/2019	4900
Chloride	mg/L	DG_A_I_PZ_GW04	12/09/2019	2900
Chloride	mg/L	DG_A_I_PZ_BW36A	11/12/2019	1200
Chromium (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.011
Chromium (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.002
Chromium (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.002
Chromium (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	*0.001*
Chromium (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	*0.001*
Chromium (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.006
Chromium (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.005
Chromium (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.004
Chromium (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.004
Chromium (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	*0.001*
Chromium (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	*0.001*
Chromium (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	*0.001*
Chromium (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.003
Chromium (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.006
Chromium (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.001*
Chromium (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.002
Chromium (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.005
Chromium (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.025
Chromium (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.001*
Chromium (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.003
Chromium (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.003
Chromium (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.003
Chromium (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.003
Chromium (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.008
Cobalt (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.019
Cobalt (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	*0.001*
Cobalt (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.031
Cobalt (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.032
Cobalt (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.002
Cobalt (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.06
Cobalt (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.03

Variable	Unit	Sample Point	Date	Result
Cobalt (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.011
Cobalt (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.013
Cobalt (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.013
Cobalt (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.019
Cobalt (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.002
Cobalt (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.001
Cobalt (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.002
Cobalt (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.002
Cobalt (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.001
Cobalt (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	*0.001*
Cobalt (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.001
Cobalt (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.001*
Cobalt (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.012
Cobalt (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.03
Cobalt (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.036
Cobalt (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.013
Cobalt (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.021
Copper (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	*0.001*
Copper (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.004
Copper (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	*0.001*
Copper (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.009
Copper (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.002
Copper (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.003
Copper (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.007
Copper (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	*0.001*
Copper (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.001
Copper (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.001
Copper (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.002
Copper (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.02
Copper (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.001
Copper (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.001
Copper (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.001*
Copper (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.001
Copper (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	*0.001*
Copper (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.003
Copper (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.001*
Copper (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.006
Copper (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.004
Copper (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.02
Copper (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.004
Copper (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.006
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW07	3/07/2019	18000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW05	3/07/2019	24000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW28A	3/07/2019	21000
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK302	4/07/2019	20000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW06	4/07/2019	20000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW01	8/07/2019	11000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW45B	8/07/2019	16000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW05	8/07/2019	10000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	8/07/2019	9400
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW03	10/07/2019	11000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW02	10/07/2019	7700

Variable	Unit	Sample Point	Date	Result
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW08	10/07/2019	21000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW53/Puls	10/07/2019	3600
Electrical Conductivity	µS/cm	DG_A_I_PZ_IWB6	11/07/2019	1700
Electrical Conductivity	µS/cm	DG_A_I_PZ_IWB2	11/07/2019	4200
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK301	15/07/2019	11000
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK303	15/07/2019	8900
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK304	15/07/2019	8100
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK300	16/07/2019	6200
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	1/08/2019	9500
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK302	1/08/2019	20000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW45B	14/08/2019	15000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	12/09/2019	9500
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW36A	11/12/2019	4600
Fluoride	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.43
Fluoride	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.59
Fluoride	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.54
Fluoride	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.64
Fluoride	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.29
Fluoride	mg/L	DG_A_I_PZ_GW01	8/07/2019	1.8
Fluoride	mg/L	DG_A_I_PZ_BW45B	8/07/2019	2.2
Fluoride	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.2
Fluoride	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.16
Fluoride	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.27
Fluoride	mg/L	DG_A_I_PZ_GW02	10/07/2019	*0.1*
Fluoride	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.22
Fluoride	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.13
Fluoride	mg/L	DG_A_I_PZ_IWB6	11/07/2019	*0.1*
Fluoride	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.17
Fluoride	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.59
Fluoride	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.28
Fluoride	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.3
Fluoride	mg/L	DG_A_I_PZ_WRK300	16/07/2019	0.36
Fluoride	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.22
Fluoride	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.62
Fluoride	mg/L	DG_A_I_PZ_BW45B	14/08/2019	1.2
Fluoride	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.16
Fluoride	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.67
Iron (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.03
Iron (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.86
Iron (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	7.7
Iron (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.02
Iron (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.09
Iron (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.07
Iron (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.14
Iron (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.53
Iron (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.06
Iron (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	3.4
Iron (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.43
Iron (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.05
Iron (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.89
Iron (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	1.7
Iron (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.02

Variable	Unit	Sample Point	Date	Result
Iron (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.17
Iron (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.02
Iron (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.04
Iron (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.01*
Iron (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.03
Iron (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.01
Iron (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.1
Iron (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.05
Iron (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	4.5
Lead (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.008
Lead (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.001
Lead (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.015
Lead (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.001
Lead (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.008
Lead (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.002
Lead (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.001
Magnesium	mg/L	DG_A_I_PZ_GW07	3/07/2019	300
Magnesium	mg/L	DG_A_I_PZ_BW05	3/07/2019	450
Magnesium	mg/L	DG_A_I_PZ_BW28A	3/07/2019	540
Magnesium	mg/L	DG_A_I_PZ_WRK302	4/07/2019	400
Magnesium	mg/L	DG_A_I_PZ_GW06	4/07/2019	490
Magnesium	mg/L	DG_A_I_PZ_GW01	8/07/2019	230
Magnesium	mg/L	DG_A_I_PZ_BW45B	8/07/2019	310
Magnesium	mg/L	DG_A_I_PZ_GW05	8/07/2019	150
Magnesium	mg/L	DG_A_I_PZ_GW04	8/07/2019	150
Magnesium	mg/L	DG_A_I_PZ_GW03	10/07/2019	210
Magnesium	mg/L	DG_A_I_PZ_GW02	10/07/2019	170
Magnesium	mg/L	DG_A_I_PZ_GW08	10/07/2019	510
Magnesium	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	69
Magnesium	mg/L	DG_A_I_PZ_IWB6	11/07/2019	20
Magnesium	mg/L	DG_A_I_PZ_IWB2	11/07/2019	92
Magnesium	mg/L	DG_A_I_PZ_WRK301	15/07/2019	250
Magnesium	mg/L	DG_A_I_PZ_WRK303	15/07/2019	150
Magnesium	mg/L	DG_A_I_PZ_WRK304	15/07/2019	110
Magnesium	mg/L	DG_A_I_PZ_WRK300	16/07/2019	130

Variable	Unit	Sample Point	Date	Result
Magnesium	mg/L	DG_A_I_PZ_GW04	1/08/2019	160
Magnesium	mg/L	DG_A_I_PZ_WRK302	1/08/2019	400
Magnesium	mg/L	DG_A_I_PZ_BW45B	14/08/2019	320
Magnesium	mg/L	DG_A_I_PZ_GW04	12/09/2019	150
Magnesium	mg/L	DG_A_I_PZ_BW36A	11/12/2019	92
Manganese (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.016
Manganese (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.12
Manganese (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	1.9
Manganese (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.019
Manganese (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.033
Manganese (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.01
Manganese (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.048
Manganese (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.31
Manganese (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.046
Manganese (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	2.1
Manganese (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.71
Manganese (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.066
Manganese (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.05
Manganese (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.011
Manganese (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.008
Manganese (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.09
Manganese (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.041
Manganese (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.036
Manganese (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	0.009
Manganese (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.066
Manganese (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.019
Manganese (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.069
Manganese (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.033
Manganese (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	3.2
Mercury (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.0001
Mercury (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.0002
Mercury (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.0001
Mercury (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	*0.0001*

Variable	Unit	Sample Point	Date	Result
Mercury (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	*0.0001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.002
Molybdenum (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.002
Molybdenum (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.005
Molybdenum (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.006
Nickel (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.021
Nickel (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	*0.001*
Nickel (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.013
Nickel (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.023
Nickel (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.018
Nickel (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.035
Nickel (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.046
Nickel (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.008
Nickel (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.009
Nickel (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.007
Nickel (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.008
Nickel (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.009
Nickel (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.003
Nickel (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.002
Nickel (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.003
Nickel (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.017
Nickel (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.004
Nickel (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.004
Nickel (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.001*
Nickel (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.008
Nickel (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.022
Nickel (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.044
Nickel (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.009
Nickel (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.037
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.54
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.89
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.3

Variable	Unit	Sample Point	Date	Result
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.35
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.23
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_GW01	8/07/2019	2.8
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.5
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_GW05	8/07/2019	2.3
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_GW04	8/07/2019	3.4
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_GW03	10/07/2019	1.7
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_GW02	10/07/2019	7.8
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.26
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	3.2
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_IWB6	11/07/2019	8.8
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_IWB2	11/07/2019	4.8
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.2
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_WRK303	15/07/2019	2
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_WRK304	15/07/2019	2.4
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_WRK300	16/07/2019	1.4
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_GW04	1/08/2019	3.1
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.47
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.15
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_GW04	12/09/2019	3.6
Nitrate-Nitrogen	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.95
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_GW07	3/07/2019	*0.001*
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_BW05	3/07/2019	*0.001*
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.039
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_WRK302	4/07/2019	*0.001*
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.024
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_GW01	8/07/2019	*0.001*
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.005
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.03
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.022
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.024
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.013
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.006
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.026
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.051
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.001*
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.024
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_WRK303	15/07/2019	*0.001*
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.023
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_WRK300	16/07/2019	0.037
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.12
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.034
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.016
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.009
Nitrite-Nitrogen	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.011
pH	pH units	DG_A_I_PZ_GW07	3/07/2019	6.8
pH	pH units	DG_A_I_PZ_BW05	3/07/2019	7.2
pH	pH units	DG_A_I_PZ_BW28A	3/07/2019	6.7
pH	pH units	DG_A_I_PZ_WRK302	4/07/2019	6.2
pH	pH units	DG_A_I_PZ_GW06	4/07/2019	6.7
pH	pH units	DG_A_I_PZ_GW01	8/07/2019	5.1
pH	pH units	DG_A_I_PZ_BW45B	8/07/2019	4.7

Variable	Unit	Sample Point	Date	Result
pH	pH units	DG_A_I_PZ_GW05	8/07/2019	6
pH	pH units	DG_A_I_PZ_GW04	8/07/2019	5.7
pH	pH units	DG_A_I_PZ_GW03	10/07/2019	6.5
pH	pH units	DG_A_I_PZ_GW02	10/07/2019	5.7
pH	pH units	DG_A_I_PZ_GW08	10/07/2019	6.2
pH	pH units	DG_A_I_PZ_BW53/Puls	10/07/2019	6.9
pH	pH units	DG_A_I_PZ_IWB6	11/07/2019	5.9
pH	pH units	DG_A_I_PZ_IWB2	11/07/2019	5.6
pH	pH units	DG_A_I_PZ_WRK301	15/07/2019	6.9
pH	pH units	DG_A_I_PZ_WRK303	15/07/2019	6.4
pH	pH units	DG_A_I_PZ_WRK304	15/07/2019	6.4
pH	pH units	DG_A_I_PZ_WRK300	16/07/2019	6.7
pH	pH units	DG_A_I_PZ_GW04	1/08/2019	6.3
pH	pH units	DG_A_I_PZ_WRK302	1/08/2019	6
pH	pH units	DG_A_I_PZ_BW45B	14/08/2019	5.5
pH	pH units	DG_A_I_PZ_GW04	12/09/2019	6.1
pH	pH units	DG_A_I_PZ_BW36A	11/12/2019	6.9
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.005
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_BW05	3/07/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.04
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.056
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.02
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.006
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.005
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.005
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.008
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_GW02	10/07/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.004
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	1.5
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.005
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.01
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.007
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.008
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.01
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	0.006
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.006
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.011
Phosphorus (Ortho)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.014
Radium 226	Bq/L	DG_A_I_PZ_GW07	3/07/2019	0.06
Radium 226	Bq/L	DG_A_I_PZ_BW05	3/07/2019	0.03
Radium 226	Bq/L	DG_A_I_PZ_BW28A	3/07/2019	0.13
Radium 226	Bq/L	DG_A_I_PZ_WRK302	4/07/2019	0.24
Radium 226	Bq/L	DG_A_I_PZ_GW06	4/07/2019	0.06
Radium 226	Bq/L	DG_A_I_PZ_GW01	8/07/2019	0.28
Radium 226	Bq/L	DG_A_I_PZ_BW45B	8/07/2019	0.72
Radium 226	Bq/L	DG_A_I_PZ_GW05	8/07/2019	0.02
Radium 226	Bq/L	DG_A_I_PZ_GW04	8/07/2019	0.1
Radium 226	Bq/L	DG_A_I_PZ_GW03	10/07/2019	0.01
Radium 226	Bq/L	DG_A_I_PZ_GW02	10/07/2019	0.1

Variable	Unit	Sample Point	Date	Result
Radium 226	Bq/L	DG_A_I_PZ_GW08	10/07/2019	0.04
Radium 226	Bq/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.04
Radium 226	Bq/L	DG_A_I_PZ_IWB6	11/07/2019	0.02
Radium 226	Bq/L	DG_A_I_PZ_IWB2	11/07/2019	0.03
Radium 226	Bq/L	DG_A_I_PZ_WRK301	15/07/2019	0.04
Radium 226	Bq/L	DG_A_I_PZ_WRK303	15/07/2019	0.04
Radium 226	Bq/L	DG_A_I_PZ_WRK304	15/07/2019	0.02
Radium 226	Bq/L	DG_A_I_PZ_WRK300	16/07/2019	0.03
Radium 226	Bq/L	DG_A_I_PZ_GW04	1/08/2019	0.13
Radium 226	Bq/L	DG_A_I_PZ_WRK302	1/08/2019	0.22
Radium 226	Bq/L	DG_A_I_PZ_BW45B	14/08/2019	0.52
Radium 226	Bq/L	DG_A_I_PZ_GW04	12/09/2019	0.12
Radium 226	Bq/L	DG_A_I_PZ_BW36A	11/12/2019	0.07
Radium 228	Bq/L	DG_A_I_PZ_GW07	3/07/2019	0.2
Radium 228	Bq/L	DG_A_I_PZ_BW05	3/07/2019	*0.08*
Radium 228	Bq/L	DG_A_I_PZ_BW28A	3/07/2019	*0.08*
Radium 228	Bq/L	DG_A_I_PZ_WRK302	4/07/2019	0.91
Radium 228	Bq/L	DG_A_I_PZ_GW06	4/07/2019	0.17
Radium 228	Bq/L	DG_A_I_PZ_GW01	8/07/2019	0.77
Radium 228	Bq/L	DG_A_I_PZ_BW45B	8/07/2019	3.18
Radium 228	Bq/L	DG_A_I_PZ_GW05	8/07/2019	*0.08*
Radium 228	Bq/L	DG_A_I_PZ_GW04	8/07/2019	0.2
Radium 228	Bq/L	DG_A_I_PZ_GW03	10/07/2019	*0.08*
Radium 228	Bq/L	DG_A_I_PZ_GW02	10/07/2019	0.32
Radium 228	Bq/L	DG_A_I_PZ_GW08	10/07/2019	0.08
Radium 228	Bq/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.11
Radium 228	Bq/L	DG_A_I_PZ_IWB6	11/07/2019	*0.08*
Radium 228	Bq/L	DG_A_I_PZ_IWB2	11/07/2019	*0.08*
Radium 228	Bq/L	DG_A_I_PZ_WRK301	15/07/2019	0.11
Radium 228	Bq/L	DG_A_I_PZ_WRK303	15/07/2019	*0.08*
Radium 228	Bq/L	DG_A_I_PZ_WRK304	15/07/2019	*0.08*
Radium 228	Bq/L	DG_A_I_PZ_WRK300	16/07/2019	*0.08*
Radium 228	Bq/L	DG_A_I_PZ_GW04	1/08/2019	0.24
Radium 228	Bq/L	DG_A_I_PZ_WRK302	1/08/2019	0.92
Radium 228	Bq/L	DG_A_I_PZ_BW45B	14/08/2019	2.2
Radium 228	Bq/L	DG_A_I_PZ_GW04	12/09/2019	0.24
Radium 228	Bq/L	DG_A_I_PZ_BW36A	11/12/2019	0.17
Selenium (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.007
Selenium (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.008
Selenium (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.006
Selenium (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.016
Selenium (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.011
Selenium (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.063
Selenium (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.047
Selenium (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.035
Selenium (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.025
Selenium (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	*0.001*
Selenium (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.002
Selenium (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.014
Selenium (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.001
Selenium (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.003
Selenium (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.001*

Variable	Unit	Sample Point	Date	Result
Selenium (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.006
Selenium (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.019
Selenium (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.012
Selenium (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.001*
Selenium (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.024
Selenium (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.018
Selenium (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.011
Selenium (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.029
Selenium (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.009
Silver (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	*0.001*
Sodium	mg/L	DG_A_I_PZ_GW07	3/07/2019	3100
Sodium	mg/L	DG_A_I_PZ_BW05	3/07/2019	4600
Sodium	mg/L	DG_A_I_PZ_BW28A	3/07/2019	3600
Sodium	mg/L	DG_A_I_PZ_WRK302	4/07/2019	3600
Sodium	mg/L	DG_A_I_PZ_GW06	4/07/2019	3500
Sodium	mg/L	DG_A_I_PZ_GW01	8/07/2019	1900
Sodium	mg/L	DG_A_I_PZ_BW45B	8/07/2019	2800
Sodium	mg/L	DG_A_I_PZ_GW05	8/07/2019	1900
Sodium	mg/L	DG_A_I_PZ_GW04	8/07/2019	1700
Sodium	mg/L	DG_A_I_PZ_GW03	10/07/2019	1900
Sodium	mg/L	DG_A_I_PZ_GW02	10/07/2019	1300
Sodium	mg/L	DG_A_I_PZ_GW08	10/07/2019	3600
Sodium	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	530
Sodium	mg/L	DG_A_I_PZ_IWB6	11/07/2019	300
Sodium	mg/L	DG_A_I_PZ_IWB2	11/07/2019	650
Sodium	mg/L	DG_A_I_PZ_WRK301	15/07/2019	1700
Sodium	mg/L	DG_A_I_PZ_WRK303	15/07/2019	1600
Sodium	mg/L	DG_A_I_PZ_WRK304	15/07/2019	1500
Sodium	mg/L	DG_A_I_PZ_WRK300	16/07/2019	990

Variable	Unit	Sample Point	Date	Result
Sodium	mg/L	DG_A_I_PZ_GW04	1/08/2019	1600
Sodium	mg/L	DG_A_I_PZ_WRK302	1/08/2019	3400
Sodium	mg/L	DG_A_I_PZ_BW45B	14/08/2019	2600
Sodium	mg/L	DG_A_I_PZ_GW04	12/09/2019	1700
Sodium	mg/L	DG_A_I_PZ_BW36A	11/12/2019	760
Sulfate	mg/L	DG_A_I_PZ_GW07	3/07/2019	880
Sulfate	mg/L	DG_A_I_PZ_BW05	3/07/2019	860
Sulfate	mg/L	DG_A_I_PZ_BW28A	3/07/2019	920
Sulfate	mg/L	DG_A_I_PZ_WRK302	4/07/2019	1400
Sulfate	mg/L	DG_A_I_PZ_GW06	4/07/2019	1500
Sulfate	mg/L	DG_A_I_PZ_GW01	8/07/2019	400
Sulfate	mg/L	DG_A_I_PZ_BW45B	8/07/2019	860
Sulfate	mg/L	DG_A_I_PZ_GW05	8/07/2019	660
Sulfate	mg/L	DG_A_I_PZ_GW04	8/07/2019	640
Sulfate	mg/L	DG_A_I_PZ_GW03	10/07/2019	540
Sulfate	mg/L	DG_A_I_PZ_GW02	10/07/2019	330
Sulfate	mg/L	DG_A_I_PZ_GW08	10/07/2019	1200
Sulfate	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	310
Sulfate	mg/L	DG_A_I_PZ_IWB6	11/07/2019	190
Sulfate	mg/L	DG_A_I_PZ_IWB2	11/07/2019	170
Sulfate	mg/L	DG_A_I_PZ_WRK301	15/07/2019	570
Sulfate	mg/L	DG_A_I_PZ_WRK303	15/07/2019	570
Sulfate	mg/L	DG_A_I_PZ_WRK304	15/07/2019	640
Sulfate	mg/L	DG_A_I_PZ_WRK300	16/07/2019	300
Sulfate	mg/L	DG_A_I_PZ_GW04	1/08/2019	570
Sulfate	mg/L	DG_A_I_PZ_WRK302	1/08/2019	1400
Sulfate	mg/L	DG_A_I_PZ_BW45B	14/08/2019	860
Sulfate	mg/L	DG_A_I_PZ_GW04	12/09/2019	680
Sulfate	mg/L	DG_A_I_PZ_BW36A	11/12/2019	160
Thorium (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	*0.002*
Thorium (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	*0.002*

Variable	Unit	Sample Point	Date	Result
Thorium (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	*0.002*
Total Dissolved Solids	mg/L	DG_A_I_PZ_GW07	3/07/2019	11000
Total Dissolved Solids	mg/L	DG_A_I_PZ_BW05	3/07/2019	15000
Total Dissolved Solids	mg/L	DG_A_I_PZ_BW28A	3/07/2019	13000
Total Dissolved Solids	mg/L	DG_A_I_PZ_WRK302	4/07/2019	13000
Total Dissolved Solids	mg/L	DG_A_I_PZ_GW06	4/07/2019	14000
Total Dissolved Solids	mg/L	DG_A_I_PZ_GW01	8/07/2019	6700
Total Dissolved Solids	mg/L	DG_A_I_PZ_BW45B	8/07/2019	11000
Total Dissolved Solids	mg/L	DG_A_I_PZ_GW05	8/07/2019	6500
Total Dissolved Solids	mg/L	DG_A_I_PZ_GW04	8/07/2019	5800
Total Dissolved Solids	mg/L	DG_A_I_PZ_GW03	10/07/2019	6500
Total Dissolved Solids	mg/L	DG_A_I_PZ_GW02	10/07/2019	4400
Total Dissolved Solids	mg/L	DG_A_I_PZ_GW08	10/07/2019	13000
Total Dissolved Solids	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	2000
Total Dissolved Solids	mg/L	DG_A_I_PZ_IWB6	11/07/2019	1100
Total Dissolved Solids	mg/L	DG_A_I_PZ_IWB2	11/07/2019	2300
Total Dissolved Solids	mg/L	DG_A_I_PZ_WRK301	15/07/2019	6700
Total Dissolved Solids	mg/L	DG_A_I_PZ_WRK303	15/07/2019	5200
Total Dissolved Solids	mg/L	DG_A_I_PZ_WRK304	15/07/2019	4700
Total Dissolved Solids	mg/L	DG_A_I_PZ_WRK300	16/07/2019	3500
Total Dissolved Solids	mg/L	DG_A_I_PZ_GW04	1/08/2019	6200
Total Dissolved Solids	mg/L	DG_A_I_PZ_WRK302	1/08/2019	13000
Total Dissolved Solids	mg/L	DG_A_I_PZ_BW45B	14/08/2019	10000
Total Dissolved Solids	mg/L	DG_A_I_PZ_GW04	12/09/2019	5500
Total Dissolved Solids	mg/L	DG_A_I_PZ_BW36A	11/12/2019	3000
Uranium (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.021
Uranium (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	*0.002*
Uranium (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.003
Uranium (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.055
Uranium (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.006
Uranium (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.007
Uranium (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.001
Uranium (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.072
Uranium (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.003
Uranium (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.002
Uranium (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.014
Uranium (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.001
Uranium (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	*0.002*
Uranium (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	*0.002*
Uranium (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.024
Uranium (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.001
Uranium (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	*0.002*
Uranium (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.002
Uranium (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.002*
Uranium (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.003

Variable	Unit	Sample Point	Date	Result
Uranium (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.008
Uranium (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	*0.002*
Uranium (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	*0.002*
Uranium (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.002*
Uranium (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	*0.002*
Uranium (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.059
Uranium (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.002
Uranium (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.002
Uranium (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	*0.002*
Uranium (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	*0.001*
Uranium (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	*0.002*
Uranium (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.002
Uranium 238	Bq/L	DG_A_I_PZ_GW07	3/07/2019	0.259
Uranium 238	Bq/L	DG_A_I_PZ_BW05	3/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_BW28A	3/07/2019	0.679
Uranium 238	Bq/L	DG_A_I_PZ_WRK302	4/07/2019	0.086
Uranium 238	Bq/L	DG_A_I_PZ_GW06	4/07/2019	0.889
Uranium 238	Bq/L	DG_A_I_PZ_GW01	8/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_BW45B	8/07/2019	0.148
Uranium 238	Bq/L	DG_A_I_PZ_GW05	8/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_GW04	8/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_GW03	10/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_GW02	10/07/2019	0.296
Uranium 238	Bq/L	DG_A_I_PZ_GW08	10/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_BW53/Puls	10/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_IWB6	11/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_IWB2	11/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_WRK301	15/07/2019	0.037
Uranium 238	Bq/L	DG_A_I_PZ_WRK303	15/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_WRK304	15/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_WRK300	16/07/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_GW04	1/08/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_WRK302	1/08/2019	0.728
Uranium 238	Bq/L	DG_A_I_PZ_BW45B	14/08/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_GW04	12/09/2019	*0.025*
Uranium 238	Bq/L	DG_A_I_PZ_BW36A	11/12/2019	*0.025*
Zinc (Total)	mg/L	DG_A_I_PZ_GW07	3/07/2019	0.005
Zinc (Total)	mg/L	DG_A_I_PZ_BW05	3/07/2019	*0.001*
Zinc (Total)	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0.005
Zinc (Total)	mg/L	DG_A_I_PZ_WRK302	4/07/2019	0.02
Zinc (Total)	mg/L	DG_A_I_PZ_GW06	4/07/2019	0.01
Zinc (Total)	mg/L	DG_A_I_PZ_GW01	8/07/2019	0.012
Zinc (Total)	mg/L	DG_A_I_PZ_BW45B	8/07/2019	0.022
Zinc (Total)	mg/L	DG_A_I_PZ_GW05	8/07/2019	0.004
Zinc (Total)	mg/L	DG_A_I_PZ_GW04	8/07/2019	0.002
Zinc (Total)	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.012
Zinc (Total)	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.016

Variable	Unit	Sample Point	Date	Result
Zinc (Total)	mg/L	DG_A_I_PZ_GW08	10/07/2019	0.012
Zinc (Total)	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.012
Zinc (Total)	mg/L	DG_A_I_PZ_IWB6	11/07/2019	0.01
Zinc (Total)	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.004
Zinc (Total)	mg/L	DG_A_I_PZ_WRK301	15/07/2019	0.019
Zinc (Total)	mg/L	DG_A_I_PZ_WRK303	15/07/2019	0.003
Zinc (Total)	mg/L	DG_A_I_PZ_WRK304	15/07/2019	0.063
Zinc (Total)	mg/L	DG_A_I_PZ_WRK300	16/07/2019	0.004
Zinc (Total)	mg/L	DG_A_I_PZ_GW04	1/08/2019	0.034
Zinc (Total)	mg/L	DG_A_I_PZ_WRK302	1/08/2019	0.024
Zinc (Total)	mg/L	DG_A_I_PZ_BW45B	14/08/2019	0.043
Zinc (Total)	mg/L	DG_A_I_PZ_GW04	12/09/2019	0.007
Zinc (Total)	mg/L	DG_A_I_PZ_BW36A	11/12/2019	0.014
Results that are italicised are equal to less than values i.e. *0.001* = <0.001				

Appendix C: Monitoring Data (Field) – Groundwater

Variable	Unit	Sample Point	Date	Result
Dissolved Oxygen	mg/L	DG_A_I_PZ_BW05	3/07/2019	0.1
Dissolved Oxygen	mg/L	DG_A_I_PZ_BW28A	3/07/2019	0
Dissolved Oxygen	mg/L	DG_A_I_PZ_BW36A	11/12/2019	4.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_BW45B	8/07/2019	2
Dissolved Oxygen	mg/L	DG_A_I_PZ_BW45B	14/08/2019	1.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_BW45B	9/09/2019	4.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_BW45B	11/10/2019	4.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_BW45B	25/11/2019	3.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_BW45B	10/12/2019	4.7
Dissolved Oxygen	mg/L	DG_A_I_PZ_BW53/Puls	10/07/2019	0.1
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW01	8/07/2019	5
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW01	23/08/2019	5.3
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW01	9/09/2019	4.8
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW01	10/10/2019	6.7
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW01	22/11/2019	5.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW01	10/12/2019	5.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW02	10/07/2019	0.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW02	23/08/2019	0.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW02	9/09/2019	2.2
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW02	10/10/2019	1.5
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW02	25/11/2019	3.3
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW02	10/12/2019	4.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW03	10/07/2019	0.2
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW03	23/08/2019	1.1
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW03	9/09/2019	0.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW03	10/10/2019	0.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW03	25/11/2019	1
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW03	10/12/2019	0.5
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW04	8/07/2019	5.5
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW04	1/08/2019	1.8
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW04	12/09/2019	6.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW04	11/10/2019	6.8
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW04	22/11/2019	6.5
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW04	11/12/2019	6.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW05	8/07/2019	3.7
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW05	26/08/2019	1
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW05	12/09/2019	5.3
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW05	11/10/2019	5.3
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW05	22/11/2019	6.9
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW05	11/12/2019	6
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW06	4/07/2019	8
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW06	4/07/2019	8
Dissolved Oxygen	%	DG_A_I_PZ_GW06	4/07/2019	92
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW06	27/08/2019	7.2
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW06	11/09/2019	7.5
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW06	22/10/2019	8.1
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW06	26/11/2019	7.5
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW06	12/12/2019	7.7
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW07	3/07/2019	7.9
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW07	28/08/2019	7.7

Variable	Unit	Sample Point	Date	Result
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW07	19/09/2019	7.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW07	22/10/2019	7.8
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW07	22/11/2019	7.9
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW07	10/12/2019	8
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW08	10/07/2019	2.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW08	27/08/2019	4.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW08	12/09/2019	2.7
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW08	14/10/2019	4
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW08	26/11/2019	4.2
Dissolved Oxygen	mg/L	DG_A_I_PZ_GW08	12/12/2019	3.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_IWB2	11/07/2019	0.2
Dissolved Oxygen	mg/L	DG_A_I_PZ_IWB6	11/07/2019	1.9
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK300	16/07/2019	2
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK300	26/08/2019	1
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK300	10/09/2019	5.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK300	22/10/2019	1.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK300	25/11/2019	2
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK300	12/12/2019	1.8
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK301	15/07/2019	1.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK301	28/08/2019	1.5
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK301	10/09/2019	3.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK301	23/10/2019	1.5
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK301	26/11/2019	1.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK301	12/12/2019	3
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK302	4/07/2019	4.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK302	4/07/2019	4.4
Dissolved Oxygen	%	DG_A_I_PZ_WRK302	4/07/2019	57
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK302	1/08/2019	4.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK302	11/09/2019	4.4
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK302	14/10/2019	4.8
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK302	26/11/2019	6.8
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK302	12/12/2019	6.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK303	15/07/2019	6.6
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK303	28/08/2019	9.7
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK303	10/09/2019	6.9
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK303	22/10/2019	9
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK303	26/11/2019	8.3
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK303	12/12/2019	8.9
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK304	15/07/2019	10.2
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK304	27/08/2019	10.1
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK304	11/09/2019	9.9
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK304	23/10/2019	10.5
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK304	26/11/2019	10.8
Dissolved Oxygen	mg/L	DG_A_I_PZ_WRK304	12/12/2019	10.8
Dissolved Oxygen Field	%	DG_A_I_PZ_BW05	3/07/2019	1
Dissolved Oxygen Field	%	DG_A_I_PZ_BW28A	3/07/2019	0
Dissolved Oxygen Field	%	DG_A_I_PZ_BW36A	11/12/2019	40
Dissolved Oxygen Field	%	DG_A_I_PZ_BW45B	8/07/2019	23
Dissolved Oxygen Field	%	DG_A_I_PZ_BW45B	14/08/2019	9
Dissolved Oxygen Field	%	DG_A_I_PZ_BW45B	9/09/2019	55
Dissolved Oxygen Field	%	DG_A_I_PZ_BW45B	11/10/2019	48
Dissolved Oxygen Field	%	DG_A_I_PZ_BW45B	25/11/2019	46

Variable	Unit	Sample Point	Date	Result
Dissolved Oxygen Field	%	DG_A_I_PZ_BW45B	10/12/2019	56
Dissolved Oxygen Field	%	DG_A_I_PZ_BW53/Puls	10/07/2019	6
Dissolved Oxygen Field	%	DG_A_I_PZ_GW01	8/07/2019	57
Dissolved Oxygen Field	%	DG_A_I_PZ_GW01	23/08/2019	60
Dissolved Oxygen Field	%	DG_A_I_PZ_GW01	9/09/2019	59
Dissolved Oxygen Field	%	DG_A_I_PZ_GW01	10/10/2019	75
Dissolved Oxygen Field	%	DG_A_I_PZ_GW01	22/11/2019	61
Dissolved Oxygen Field	%	DG_A_I_PZ_GW01	10/12/2019	61
Dissolved Oxygen Field	%	DG_A_I_PZ_GW02	10/07/2019	8
Dissolved Oxygen Field	%	DG_A_I_PZ_GW02	23/08/2019	3
Dissolved Oxygen Field	%	DG_A_I_PZ_GW02	9/09/2019	24
Dissolved Oxygen Field	%	DG_A_I_PZ_GW02	10/10/2019	16
Dissolved Oxygen Field	%	DG_A_I_PZ_GW02	25/11/2019	39
Dissolved Oxygen Field	%	DG_A_I_PZ_GW02	10/12/2019	39
Dissolved Oxygen Field	%	DG_A_I_PZ_GW03	10/07/2019	6
Dissolved Oxygen Field	%	DG_A_I_PZ_GW03	23/08/2019	6
Dissolved Oxygen Field	%	DG_A_I_PZ_GW03	9/09/2019	6
Dissolved Oxygen Field	%	DG_A_I_PZ_GW03	10/10/2019	6
Dissolved Oxygen Field	%	DG_A_I_PZ_GW03	25/11/2019	10
Dissolved Oxygen Field	%	DG_A_I_PZ_GW03	10/12/2019	10
Dissolved Oxygen Field	%	DG_A_I_PZ_GW04	8/07/2019	60
Dissolved Oxygen Field	%	DG_A_I_PZ_GW04	1/08/2019	15
Dissolved Oxygen Field	%	DG_A_I_PZ_GW04	12/09/2019	81
Dissolved Oxygen Field	%	DG_A_I_PZ_GW04	11/10/2019	84
Dissolved Oxygen Field	%	DG_A_I_PZ_GW04	22/11/2019	82
Dissolved Oxygen Field	%	DG_A_I_PZ_GW04	11/12/2019	79
Dissolved Oxygen Field	%	DG_A_I_PZ_GW05	8/07/2019	31
Dissolved Oxygen Field	%	DG_A_I_PZ_GW05	26/08/2019	10
Dissolved Oxygen Field	%	DG_A_I_PZ_GW05	12/09/2019	62
Dissolved Oxygen Field	%	DG_A_I_PZ_GW05	11/10/2019	57
Dissolved Oxygen Field	%	DG_A_I_PZ_GW05	22/11/2019	79
Dissolved Oxygen Field	%	DG_A_I_PZ_GW05	11/12/2019	72
Dissolved Oxygen Field	%	DG_A_I_PZ_GW06	4/07/2019	92
Dissolved Oxygen Field	%	DG_A_I_PZ_GW06	27/08/2019	88
Dissolved Oxygen Field	%	DG_A_I_PZ_GW06	11/09/2019	86
Dissolved Oxygen Field	%	DG_A_I_PZ_GW06	22/10/2019	83
Dissolved Oxygen Field	%	DG_A_I_PZ_GW06	26/11/2019	88
Dissolved Oxygen Field	%	DG_A_I_PZ_GW06	12/12/2019	88
Dissolved Oxygen Field	%	DG_A_I_PZ_GW07	3/07/2019	92
Dissolved Oxygen Field	%	DG_A_I_PZ_GW07	28/08/2019	91
Dissolved Oxygen Field	%	DG_A_I_PZ_GW07	19/09/2019	95
Dissolved Oxygen Field	%	DG_A_I_PZ_GW07	22/10/2019	88
Dissolved Oxygen Field	%	DG_A_I_PZ_GW07	22/11/2019	93
Dissolved Oxygen Field	%	DG_A_I_PZ_GW07	10/12/2019	95
Dissolved Oxygen Field	%	DG_A_I_PZ_GW08	10/07/2019	41
Dissolved Oxygen Field	%	DG_A_I_PZ_GW08	27/08/2019	46
Dissolved Oxygen Field	%	DG_A_I_PZ_GW08	12/09/2019	38
Dissolved Oxygen Field	%	DG_A_I_PZ_GW08	14/10/2019	48
Dissolved Oxygen Field	%	DG_A_I_PZ_GW08	26/11/2019	49
Dissolved Oxygen Field	%	DG_A_I_PZ_GW08	12/12/2019	42
Dissolved Oxygen Field	%	DG_A_I_PZ_IWB2	11/07/2019	11
Dissolved Oxygen Field	%	DG_A_I_PZ_IWB6	11/07/2019	28

Variable	Unit	Sample Point	Date	Result
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK300	16/07/2019	22
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK300	26/08/2019	7
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK300	10/09/2019	47
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK300	22/10/2019	32
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK300	25/11/2019	23
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK300	12/12/2019	22
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK301	15/07/2019	16
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK301	28/08/2019	15
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK301	10/09/2019	22
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK301	23/10/2019	23
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK301	26/11/2019	26
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK301	12/12/2019	26
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK302	4/07/2019	57
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK302	1/08/2019	50
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK302	11/09/2019	50
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK302	14/10/2019	47
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK302	26/11/2019	78
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK302	12/12/2019	76
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK303	15/07/2019	69
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK303	28/08/2019	97
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK303	10/09/2019	80
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK303	22/10/2019	94
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK303	26/11/2019	95
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK303	12/12/2019	98
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK304	15/07/2019	106
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK304	27/08/2019	107
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK304	11/09/2019	110
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK304	23/10/2019	115
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK304	26/11/2019	120
Dissolved Oxygen Field	%	DG_A_I_PZ_WRK304	12/12/2019	121
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW05	3/07/2019	24000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW05	3/07/2019	24000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW28A	3/07/2019	21000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW28A	3/07/2019	21000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW36A	11/12/2019	4600
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW45B	8/07/2019	16000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW45B	8/07/2019	16000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW45B	14/08/2019	15000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW45B	14/08/2019	15000
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW45B	9/09/2019	16949
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW45B	11/10/2019	16872
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW45B	25/11/2019	16903
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW45B	10/12/2019	16567
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW53/Puls	10/07/2019	3600
Electrical Conductivity	µS/cm	DG_A_I_PZ_BW53/Puls	10/07/2019	3600
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW01	8/07/2019	11000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW01	8/07/2019	11000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW01	23/08/2019	12102
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW01	9/09/2019	11399
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW01	10/10/2019	11335
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW01	22/11/2019	11458
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW01	10/12/2019	11261

Variable	Unit	Sample Point	Date	Result
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW02	10/07/2019	7700
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW02	10/07/2019	7700
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW02	23/08/2019	8036
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW02	9/09/2019	8014
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW02	10/10/2019	7842
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW02	25/11/2019	7946
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW02	10/12/2019	7760
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW03	10/07/2019	11000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW03	10/07/2019	11000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW03	23/08/2019	11994
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW03	9/09/2019	11851
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW03	10/10/2019	11797
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW03	25/11/2019	11740
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW03	10/12/2019	11633
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	8/07/2019	9400
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	8/07/2019	9400
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	1/08/2019	9500
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	1/08/2019	9500
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	12/09/2019	9500
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	12/09/2019	9500
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	11/10/2019	10130
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	22/11/2019	10236
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW04	11/12/2019	10138
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW05	8/07/2019	10000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW05	8/07/2019	10000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW05	26/08/2019	10055
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW05	12/09/2019	10766
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW05	11/10/2019	10828
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW05	22/11/2019	10580
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW05	11/12/2019	10052
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW06	4/07/2019	20000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW06	4/07/2019	20000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW06	4/07/2019	21684
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW06	27/08/2019	22033
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW06	11/09/2019	21951
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW06	22/10/2019	21882
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW06	26/11/2019	21886
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW06	12/12/2019	21650
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW07	3/07/2019	18000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW07	3/07/2019	18000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW07	28/08/2019	19024
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW07	19/09/2019	18817
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW07	22/10/2019	18931
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW07	22/11/2019	18767
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW07	10/12/2019	18669
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW08	10/07/2019	21000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW08	10/07/2019	21000
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW08	27/08/2019	22037
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW08	12/09/2019	22078
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW08	14/10/2019	22086
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW08	26/11/2019	22096
Electrical Conductivity	µS/cm	DG_A_I_PZ_GW08	12/12/2019	21773

Variable	Unit	Sample Point	Date	Result
Electrical Conductivity	µS/cm	DG_A_I_PZ_IWB2	11/07/2019	4200
Electrical Conductivity	µS/cm	DG_A_I_PZ_IWB2	11/07/2019	4200
Electrical Conductivity	µS/cm	DG_A_I_PZ_IWB6	11/07/2019	1700
Electrical Conductivity	µS/cm	DG_A_I_PZ_IWB6	11/07/2019	1700
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK300	16/07/2019	6200
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK300	16/07/2019	6200
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK300	26/08/2019	6807
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK300	10/09/2019	6524
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK300	22/10/2019	6469
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK300	25/11/2019	6548
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK300	12/12/2019	6499
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK301	15/07/2019	11000
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK301	15/07/2019	11000
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK301	28/08/2019	11833
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK301	10/09/2019	11267
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK301	23/10/2019	11645
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK301	26/11/2019	11301
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK301	12/12/2019	11378
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK302	4/07/2019	20000
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK302	4/07/2019	20000
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK302	4/07/2019	21134
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK302	1/08/2019	20000
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK302	1/08/2019	20000
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK302	11/09/2019	21495
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK302	14/10/2019	21495
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK302	26/11/2019	21414
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK302	12/12/2019	20982
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK303	15/07/2019	8900
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK303	15/07/2019	8900
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK303	28/08/2019	10278
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK303	10/09/2019	9882
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK303	22/10/2019	10092
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK303	26/11/2019	10132
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK303	12/12/2019	10039
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK304	15/07/2019	8100
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK304	15/07/2019	8100
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK304	27/08/2019	9648
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK304	11/09/2019	8625
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK304	23/10/2019	8603
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK304	26/11/2019	8784
Electrical Conductivity	µS/cm	DG_A_I_PZ_WRK304	12/12/2019	8772
pH	pH units	DG_A_I_PZ_BW05	3/07/2019	7.2
pH	pH units	DG_A_I_PZ_BW05	3/07/2019	6.85
pH	pH units	DG_A_I_PZ_BW28A	3/07/2019	6.7
pH	pH units	DG_A_I_PZ_BW28A	3/07/2019	6.34
pH	pH units	DG_A_I_PZ_BW36A	11/12/2019	6.9
pH	pH units	DG_A_I_PZ_BW36A	11/12/2019	6.67
pH	pH units	DG_A_I_PZ_BW45B	8/07/2019	4.7
pH	pH units	DG_A_I_PZ_BW45B	8/07/2019	4.65
pH	pH units	DG_A_I_PZ_BW45B	14/08/2019	5.5
pH	pH units	DG_A_I_PZ_BW45B	14/08/2019	5.03
pH	pH units	DG_A_I_PZ_BW45B	9/09/2019	4.73

Variable	Unit	Sample Point	Date	Result
pH	pH units	DG_A_I_PZ_BW45B	11/10/2019	4.84
pH	pH units	DG_A_I_PZ_BW45B	25/11/2019	4.85
pH	pH units	DG_A_I_PZ_BW45B	10/12/2019	5.02
pH	pH units	DG_A_I_PZ_BW53/Puls	10/07/2019	6.9
pH	pH units	DG_A_I_PZ_BW53/Puls	10/07/2019	6.8
pH	pH units	DG_A_I_PZ_GW01	8/07/2019	5.1
pH	pH units	DG_A_I_PZ_GW01	8/07/2019	4.84
pH	pH units	DG_A_I_PZ_GW01	23/08/2019	4.99
pH	pH units	DG_A_I_PZ_GW01	9/09/2019	4.8
pH	pH units	DG_A_I_PZ_GW01	10/10/2019	4.81
pH	pH units	DG_A_I_PZ_GW01	22/11/2019	4.96
pH	pH units	DG_A_I_PZ_GW01	10/12/2019	4.99
pH	pH units	DG_A_I_PZ_GW02	10/07/2019	5.7
pH	pH units	DG_A_I_PZ_GW02	10/07/2019	5.38
pH	pH units	DG_A_I_PZ_GW02	23/08/2019	5.33
pH	pH units	DG_A_I_PZ_GW02	9/09/2019	5.3
pH	pH units	DG_A_I_PZ_GW02	10/10/2019	5.28
pH	pH units	DG_A_I_PZ_GW02	25/11/2019	5.36
pH	pH units	DG_A_I_PZ_GW02	10/12/2019	5.41
pH	pH units	DG_A_I_PZ_GW03	10/07/2019	6.5
pH	pH units	DG_A_I_PZ_GW03	10/07/2019	6.05
pH	pH units	DG_A_I_PZ_GW03	23/08/2019	6
pH	pH units	DG_A_I_PZ_GW03	9/09/2019	6
pH	pH units	DG_A_I_PZ_GW03	10/10/2019	6.03
pH	pH units	DG_A_I_PZ_GW03	25/11/2019	6
pH	pH units	DG_A_I_PZ_GW03	10/12/2019	6.09
pH	pH units	DG_A_I_PZ_GW04	8/07/2019	5.7
pH	pH units	DG_A_I_PZ_GW04	8/07/2019	5.5
pH	pH units	DG_A_I_PZ_GW04	1/08/2019	6.3
pH	pH units	DG_A_I_PZ_GW04	1/08/2019	5.4
pH	pH units	DG_A_I_PZ_GW04	12/09/2019	6.1
pH	pH units	DG_A_I_PZ_GW04	12/09/2019	5.44
pH	pH units	DG_A_I_PZ_GW04	11/10/2019	5.46
pH	pH units	DG_A_I_PZ_GW04	22/11/2019	5.48
pH	pH units	DG_A_I_PZ_GW04	11/12/2019	5.52
pH	pH units	DG_A_I_PZ_GW05	8/07/2019	6
pH	pH units	DG_A_I_PZ_GW05	8/07/2019	5.93
pH	pH units	DG_A_I_PZ_GW05	26/08/2019	5.97
pH	pH units	DG_A_I_PZ_GW05	12/09/2019	5.85
pH	pH units	DG_A_I_PZ_GW05	11/10/2019	5.86
pH	pH units	DG_A_I_PZ_GW05	22/11/2019	5.89
pH	pH units	DG_A_I_PZ_GW05	11/12/2019	5.89
pH	pH units	DG_A_I_PZ_GW06	4/07/2019	6.7
pH	pH units	DG_A_I_PZ_GW06	4/07/2019	6.35
pH	pH units	DG_A_I_PZ_GW06	4/07/2019	6.35
pH	pH units	DG_A_I_PZ_GW06	27/08/2019	6.22
pH	pH units	DG_A_I_PZ_GW06	11/09/2019	6.26
pH	pH units	DG_A_I_PZ_GW06	22/10/2019	6.34
pH	pH units	DG_A_I_PZ_GW06	26/11/2019	6.33
pH	pH units	DG_A_I_PZ_GW06	12/12/2019	6.36
pH	pH units	DG_A_I_PZ_GW07	3/07/2019	6.8
pH	pH units	DG_A_I_PZ_GW07	3/07/2019	6.4

Variable	Unit	Sample Point	Date	Result
pH	pH units	DG_A_I_PZ_GW07	28/08/2019	6.04
pH	pH units	DG_A_I_PZ_GW07	19/09/2019	6.22
pH	pH units	DG_A_I_PZ_GW07	22/10/2019	6.35
pH	pH units	DG_A_I_PZ_GW07	22/11/2019	6.4
pH	pH units	DG_A_I_PZ_GW07	10/12/2019	6.43
pH	pH units	DG_A_I_PZ_GW08	10/07/2019	6.2
pH	pH units	DG_A_I_PZ_GW08	10/07/2019	6.07
pH	pH units	DG_A_I_PZ_GW08	27/08/2019	5.95
pH	pH units	DG_A_I_PZ_GW08	12/09/2019	5.99
pH	pH units	DG_A_I_PZ_GW08	14/10/2019	6.03
pH	pH units	DG_A_I_PZ_GW08	26/11/2019	6.06
pH	pH units	DG_A_I_PZ_GW08	12/12/2019	6.08
pH	pH units	DG_A_I_PZ_IWB2	11/07/2019	5.6
pH	pH units	DG_A_I_PZ_IWB2	11/07/2019	5.37
pH	pH units	DG_A_I_PZ_IWB6	11/07/2019	5.9
pH	pH units	DG_A_I_PZ_IWB6	11/07/2019	5.34
pH	pH units	DG_A_I_PZ_WRK300	16/07/2019	6.7
pH	pH units	DG_A_I_PZ_WRK300	16/07/2019	6.67
pH	pH units	DG_A_I_PZ_WRK300	26/08/2019	6.7
pH	pH units	DG_A_I_PZ_WRK300	10/09/2019	6.35
pH	pH units	DG_A_I_PZ_WRK300	22/10/2019	6.3
pH	pH units	DG_A_I_PZ_WRK300	25/11/2019	6.3
pH	pH units	DG_A_I_PZ_WRK300	12/12/2019	6.37
pH	pH units	DG_A_I_PZ_WRK301	15/07/2019	6.9
pH	pH units	DG_A_I_PZ_WRK301	15/07/2019	6.84
pH	pH units	DG_A_I_PZ_WRK301	28/08/2019	6.83
pH	pH units	DG_A_I_PZ_WRK301	10/09/2019	6.8
pH	pH units	DG_A_I_PZ_WRK301	23/10/2019	6.84
pH	pH units	DG_A_I_PZ_WRK301	26/11/2019	6.85
pH	pH units	DG_A_I_PZ_WRK301	12/12/2019	6.87
pH	pH units	DG_A_I_PZ_WRK302	4/07/2019	6.2
pH	pH units	DG_A_I_PZ_WRK302	4/07/2019	5.82
pH	pH units	DG_A_I_PZ_WRK302	4/07/2019	5.82
pH	pH units	DG_A_I_PZ_WRK302	1/08/2019	6
pH	pH units	DG_A_I_PZ_WRK302	1/08/2019	5.7
pH	pH units	DG_A_I_PZ_WRK302	11/09/2019	5.75
pH	pH units	DG_A_I_PZ_WRK302	14/10/2019	5.84
pH	pH units	DG_A_I_PZ_WRK302	26/11/2019	5.83
pH	pH units	DG_A_I_PZ_WRK302	12/12/2019	5.82
pH	pH units	DG_A_I_PZ_WRK303	15/07/2019	6.4
pH	pH units	DG_A_I_PZ_WRK303	15/07/2019	5.85
pH	pH units	DG_A_I_PZ_WRK303	28/08/2019	5.71
pH	pH units	DG_A_I_PZ_WRK303	10/09/2019	5.72
pH	pH units	DG_A_I_PZ_WRK303	22/10/2019	5.79
pH	pH units	DG_A_I_PZ_WRK303	26/11/2019	5.73
pH	pH units	DG_A_I_PZ_WRK303	12/12/2019	5.78
pH	pH units	DG_A_I_PZ_WRK304	15/07/2019	6
pH	pH units	DG_A_I_PZ_WRK304	15/07/2019	6.4
pH	pH units	DG_A_I_PZ_WRK304	27/08/2019	5.91
pH	pH units	DG_A_I_PZ_WRK304	11/09/2019	5.9
pH	pH units	DG_A_I_PZ_WRK304	23/10/2019	5.94
pH	pH units	DG_A_I_PZ_WRK304	26/11/2019	5.98

Variable	Unit	Sample Point	Date	Result
pH	pH units	DG_A_I_PZ_WRK304	12/12/2019	6.02
Redox Potential (Eh)	mV	DG_A_I_PZ_BW05	3/07/2019	60
Redox Potential (Eh)	mV	DG_A_I_PZ_BW28A	3/07/2019	42
Redox Potential (Eh)	mV	DG_A_I_PZ_BW36A	11/12/2019	-25
Redox Potential (Eh)	mV	DG_A_I_PZ_BW45B	8/07/2019	166
Redox Potential (Eh)	mV	DG_A_I_PZ_BW45B	14/08/2019	178
Redox Potential (Eh)	mV	DG_A_I_PZ_BW45B	9/09/2019	264
Redox Potential (Eh)	mV	DG_A_I_PZ_BW45B	11/10/2019	247
Redox Potential (Eh)	mV	DG_A_I_PZ_BW45B	25/11/2019	275
Redox Potential (Eh)	mV	DG_A_I_PZ_BW45B	10/12/2019	236
Redox Potential (Eh)	mV	DG_A_I_PZ_BW53/Puls	10/07/2019	-65
Redox Potential (Eh)	mV	DG_A_I_PZ_GW01	8/07/2019	166
Redox Potential (Eh)	mV	DG_A_I_PZ_GW01	23/08/2019	185
Redox Potential (Eh)	mV	DG_A_I_PZ_GW01	9/09/2019	247
Redox Potential (Eh)	mV	DG_A_I_PZ_GW01	10/10/2019	286
Redox Potential (Eh)	mV	DG_A_I_PZ_GW01	22/11/2019	245
Redox Potential (Eh)	mV	DG_A_I_PZ_GW01	10/12/2019	254
Redox Potential (Eh)	mV	DG_A_I_PZ_GW02	10/07/2019	135
Redox Potential (Eh)	mV	DG_A_I_PZ_GW02	23/08/2019	164
Redox Potential (Eh)	mV	DG_A_I_PZ_GW02	9/09/2019	237
Redox Potential (Eh)	mV	DG_A_I_PZ_GW02	10/10/2019	290
Redox Potential (Eh)	mV	DG_A_I_PZ_GW02	25/11/2019	284
Redox Potential (Eh)	mV	DG_A_I_PZ_GW02	10/12/2019	234
Redox Potential (Eh)	mV	DG_A_I_PZ_GW03	10/07/2019	85
Redox Potential (Eh)	mV	DG_A_I_PZ_GW03	23/08/2019	53
Redox Potential (Eh)	mV	DG_A_I_PZ_GW03	9/09/2019	65
Redox Potential (Eh)	mV	DG_A_I_PZ_GW03	10/10/2019	102
Redox Potential (Eh)	mV	DG_A_I_PZ_GW03	25/11/2019	104
Redox Potential (Eh)	mV	DG_A_I_PZ_GW03	10/12/2019	90
Redox Potential (Eh)	mV	DG_A_I_PZ_GW04	8/07/2019	135
Redox Potential (Eh)	mV	DG_A_I_PZ_GW04	1/08/2019	162
Redox Potential (Eh)	mV	DG_A_I_PZ_GW04	12/09/2019	220
Redox Potential (Eh)	mV	DG_A_I_PZ_GW04	11/10/2019	329
Redox Potential (Eh)	mV	DG_A_I_PZ_GW04	22/11/2019	222
Redox Potential (Eh)	mV	DG_A_I_PZ_GW04	11/12/2019	229
Redox Potential (Eh)	mV	DG_A_I_PZ_GW05	8/07/2019	122
Redox Potential (Eh)	mV	DG_A_I_PZ_GW05	26/08/2019	414
Redox Potential (Eh)	mV	DG_A_I_PZ_GW05	12/09/2019	161
Redox Potential (Eh)	mV	DG_A_I_PZ_GW05	11/10/2019	301
Redox Potential (Eh)	mV	DG_A_I_PZ_GW05	22/11/2019	196
Redox Potential (Eh)	mV	DG_A_I_PZ_GW05	11/12/2019	192
Redox Potential (Eh)	mV	DG_A_I_PZ_GW06	4/07/2019	130
Redox Potential (Eh)	mV	DG_A_I_PZ_GW06	4/07/2019	130
Redox Potential (Eh)	mV	DG_A_I_PZ_GW06	27/08/2019	410
Redox Potential (Eh)	mV	DG_A_I_PZ_GW06	11/09/2019	255
Redox Potential (Eh)	mV	DG_A_I_PZ_GW06	22/10/2019	304
Redox Potential (Eh)	mV	DG_A_I_PZ_GW06	26/11/2019	205
Redox Potential (Eh)	mV	DG_A_I_PZ_GW06	12/12/2019	213
Redox Potential (Eh)	mV	DG_A_I_PZ_GW07	3/07/2019	133
Redox Potential (Eh)	mV	DG_A_I_PZ_GW07	28/08/2019	45
Redox Potential (Eh)	mV	DG_A_I_PZ_GW07	19/09/2019	225
Redox Potential (Eh)	mV	DG_A_I_PZ_GW07	22/10/2019	226

Variable	Unit	Sample Point	Date	Result
Redox Potential (Eh)	mV	DG_A_I_PZ_GW07	22/11/2019	193
Redox Potential (Eh)	mV	DG_A_I_PZ_GW07	10/12/2019	209
Redox Potential (Eh)	mV	DG_A_I_PZ_GW08	10/07/2019	123
Redox Potential (Eh)	mV	DG_A_I_PZ_GW08	27/08/2019	255
Redox Potential (Eh)	mV	DG_A_I_PZ_GW08	12/09/2019	197
Redox Potential (Eh)	mV	DG_A_I_PZ_GW08	14/10/2019	236
Redox Potential (Eh)	mV	DG_A_I_PZ_GW08	26/11/2019	180
Redox Potential (Eh)	mV	DG_A_I_PZ_GW08	12/12/2019	202
Redox Potential (Eh)	mV	DG_A_I_PZ_IWB2	11/07/2019	223
Redox Potential (Eh)	mV	DG_A_I_PZ_IWB6	11/07/2019	167
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK300	16/07/2019	107
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK300	26/08/2019	585
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK300	10/09/2019	150
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK300	22/10/2019	296
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK300	25/11/2019	194
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK300	12/12/2019	188
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK301	15/07/2019	105
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK301	28/08/2019	131
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK301	10/09/2019	170
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK301	23/10/2019	365
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK301	26/11/2019	183
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK301	12/12/2019	234
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK302	4/07/2019	132
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK302	4/07/2019	132
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK302	1/08/2019	152
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK302	11/09/2019	254
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK302	14/10/2019	257
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK302	26/11/2019	198
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK302	12/12/2019	218
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK303	15/07/2019	148
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK303	28/08/2019	194
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK303	10/09/2019	217
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK303	22/10/2019	300
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK303	26/11/2019	215
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK303	12/12/2019	228
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK304	15/07/2019	131
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK304	27/08/2019	255
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK304	11/09/2019	249
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK304	23/10/2019	210
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK304	26/11/2019	206
Redox Potential (Eh)	mV	DG_A_I_PZ_WRK304	12/12/2019	226
Standing Water Level	mAHD	DG_A_I_PZ_BW05	3/07/2019	147.68
Standing Water Level	mAHD	DG_A_I_PZ_BW28A	3/07/2019	177.62
Standing Water Level	mAHD	DG_A_I_PZ_BW36	8/07/2019	173.59
Standing Water Level	mAHD	DG_A_I_PZ_BW36	23/08/2019	173.58
Standing Water Level	mAHD	DG_A_I_PZ_BW36	9/09/2019	173.64
Standing Water Level	mAHD	DG_A_I_PZ_BW36	10/10/2019	173.72
Standing Water Level	mAHD	DG_A_I_PZ_BW53/Puls	10/07/2019	176.59
Standing Water Level	mAHD	DG_A_I_PZ_GW01	8/07/2019	173.405
Standing Water Level	mAHD	DG_A_I_PZ_GW01	23/08/2019	173.415
Standing Water Level	mAHD	DG_A_I_PZ_GW01	9/09/2019	173.425
Standing Water Level	mAHD	DG_A_I_PZ_GW01	10/10/2019	173.405

Variable	Unit	Sample Point	Date	Result
Standing Water Level	mAHD	DG_A_I_PZ_GW01	22/11/2019	173.445
Standing Water Level	mAHD	DG_A_I_PZ_GW01	10/12/2019	173.395
Standing Water Level	mAHD	DG_A_I_PZ_GW06	4/07/2019	176.054
Standing Water Level	mAHD	DG_A_I_PZ_GW06	11/09/2019	176.254
Standing Water Level	mAHD	DG_A_I_PZ_GW06	22/10/2019	176.204
Standing Water Level	mAHD	DG_A_I_PZ_GW06	26/11/2019	176.224
Standing Water Level	mAHD	DG_A_I_PZ_GW06	12/12/2019	176.194
Standing Water Level	mAHD	DG_A_I_PZ_GW07	3/07/2019	172.416
Standing Water Level	mAHD	DG_A_I_PZ_GW07	28/08/2019	172.446
Standing Water Level	mAHD	DG_A_I_PZ_GW07	19/09/2019	172.366
Standing Water Level	mAHD	DG_A_I_PZ_GW07	22/10/2019	172.446
Standing Water Level	mAHD	DG_A_I_PZ_GW07	22/11/2019	172.446
Standing Water Level	mAHD	DG_A_I_PZ_GW07	10/12/2019	172.416
Standing Water Level	mAHD	DG_A_I_PZ_IWB2	11/07/2019	-12.09
Standing Water Level	mAHD	DG_A_I_PZ_IWB6	11/07/2019	-1.61
Standing Water Level	mAHD	DG_A_I_PZ_WRK301	15/07/2019	178.37
Standing Water Level	mAHD	DG_A_I_PZ_WRK301	28/08/2019	178.12
Standing Water Level	mAHD	DG_A_I_PZ_WRK301	10/09/2019	178.27
Standing Water Level	mAHD	DG_A_I_PZ_WRK301	23/10/2019	178.21
Standing Water Level	mAHD	DG_A_I_PZ_WRK301	26/11/2019	178.17
Standing Water Level	mAHD	DG_A_I_PZ_WRK301	12/12/2019	178.15
Standing Water Level	mAHD	DG_A_I_PZ_WRK302	4/07/2019	176.53
Standing Water Level	mAHD	DG_A_I_PZ_WRK302	1/08/2019	176.58
Standing Water Level	mAHD	DG_A_I_PZ_WRK302	11/09/2019	176.59
Standing Water Level	mAHD	DG_A_I_PZ_WRK302	14/10/2019	176.57
Standing Water Level	mAHD	DG_A_I_PZ_WRK302	26/11/2019	176.66
Standing Water Level	mAHD	DG_A_I_PZ_WRK302	12/12/2019	176.68
Standing Water Level	mAHD	DG_A_I_PZ_WRK304	15/07/2019	180.4
Standing Water Level	mAHD	DG_A_I_PZ_WRK304	27/08/2019	180.24
Standing Water Level	mAHD	DG_A_I_PZ_WRK304	11/09/2019	180.33
Standing Water Level	mAHD	DG_A_I_PZ_WRK304	23/10/2019	180.37
Standing Water Level	mAHD	DG_A_I_PZ_WRK304	26/11/2019	180.42
Standing Water Level	mAHD	DG_A_I_PZ_WRK304	12/12/2019	180.38
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW05	3/07/2019	5.2
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW28A	3/07/2019	4.4
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW36	8/07/2019	27.23
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW36	23/08/2019	27.24
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW36	9/09/2019	27.18
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW36	10/10/2019	27.1
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW36A	11/12/2019	26.19
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW45B	8/07/2019	19.93
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW45B	14/08/2019	19.9
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW45B	9/09/2019	19.98
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW45B	11/10/2019	19.93
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW45B	25/11/2019	19.9
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW45B	10/12/2019	19.94
Standing Water Level (mBTOC)	m	DG_A_I_PZ_BW53/Puls	10/07/2019	10.27
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW01	8/07/2019	19.11
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW01	23/08/2019	19.1
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW01	9/09/2019	19.09
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW01	10/10/2019	19.11
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW01	22/11/2019	19.07

Variable	Unit	Sample Point	Date	Result
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW01	10/12/2019	19.12
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW02	10/07/2019	15.61
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW02	23/08/2019	15.58
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW02	9/09/2019	15.55
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW02	10/10/2019	15.59
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW02	25/11/2019	15.67
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW02	10/12/2019	15.6
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW03	10/07/2019	10.37
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW03	23/08/2019	10.33
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW03	9/09/2019	10.35
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW03	10/10/2019	10.21
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW03	25/11/2019	10.3
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW03	10/12/2019	10.27
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW04	8/07/2019	23.84
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW04	1/08/2019	23.8
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW04	12/09/2019	23.82
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW04	11/10/2019	23.88
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW04	22/11/2019	23.86
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW04	11/12/2019	23.83
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW05	8/07/2019	21.33
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW05	26/08/2019	21.39
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW05	12/09/2019	21.32
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW05	11/10/2019	21.36
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW05	22/11/2019	21.39
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW05	11/12/2019	21.35
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW06	4/07/2019	13.46
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW06	4/07/2019	13.46
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW06	27/08/2019	13.3
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW06	11/09/2019	13.26
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW06	22/10/2019	13.31
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW06	26/11/2019	13.29
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW06	12/12/2019	13.32
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW07	3/07/2019	16.43
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW07	28/08/2019	16.4
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW07	19/09/2019	16.48
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW07	22/10/2019	16.4
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW07	22/11/2019	16.4
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW07	10/12/2019	16.43
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW08	10/07/2019	13.28
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW08	27/08/2019	13.45
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW08	12/09/2019	13.27
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW08	14/10/2019	13.32
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW08	26/11/2019	13.37
Standing Water Level (mBTOC)	m	DG_A_I_PZ_GW08	12/12/2019	13.31
Standing Water Level (mBTOC)	m	DG_A_I_PZ_IWB2	11/07/2019	12.09
Standing Water Level (mBTOC)	m	DG_A_I_PZ_IWB6	11/07/2019	1.61
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK300	16/07/2019	24.59
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK300	26/08/2019	24.62
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK300	10/09/2019	24.58
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK300	22/10/2019	24.63
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK300	25/11/2019	24.61
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK300	12/12/2019	24.5

Variable	Unit	Sample Point	Date	Result
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK301	15/07/2019	18.41
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK301	28/08/2019	18.66
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK301	10/09/2019	18.51
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK301	23/10/2019	18.57
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK301	26/11/2019	18.61
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK301	12/12/2019	18.63
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK302	4/07/2019	13.75
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK302	4/07/2019	13.75
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK302	1/08/2019	13.7
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK302	11/09/2019	13.69
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK302	14/10/2019	13.71
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK302	26/11/2019	13.62
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK302	12/12/2019	13.6
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK303	15/07/2019	20.61
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK303	28/08/2019	20.57
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK303	10/09/2019	20.58
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK303	22/10/2019	20.56
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK303	26/11/2019	20.59
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK303	12/12/2019	20.63
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK304	15/07/2019	18.67
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK304	27/08/2019	18.83
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK304	11/09/2019	18.74
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK304	23/10/2019	18.7
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK304	26/11/2019	18.65
Standing Water Level (mBTOC)	m	DG_A_I_PZ_WRK304	12/12/2019	18.69
Temperature	°C	DG_A_I_PZ_BW05	3/07/2019	17.2
Temperature	°C	DG_A_I_PZ_BW28A	3/07/2019	18.1
Temperature	°C	DG_A_I_PZ_BW36A	11/12/2019	25
Temperature	°C	DG_A_I_PZ_BW45B	8/07/2019	18.6
Temperature	°C	DG_A_I_PZ_BW45B	14/08/2019	15
Temperature	°C	DG_A_I_PZ_BW45B	9/09/2019	18.3
Temperature	°C	DG_A_I_PZ_BW45B	11/10/2019	18.5
Temperature	°C	DG_A_I_PZ_BW45B	25/11/2019	18.8
Temperature	°C	DG_A_I_PZ_BW45B	10/12/2019	19.1
Temperature	°C	DG_A_I_PZ_BW53/Puls	10/07/2019	16.1
Temperature	°C	DG_A_I_PZ_GW01	8/07/2019	17.9
Temperature	°C	DG_A_I_PZ_GW01	23/08/2019	15.1
Temperature	°C	DG_A_I_PZ_GW01	9/09/2019	17.9
Temperature	°C	DG_A_I_PZ_GW01	10/10/2019	18.2
Temperature	°C	DG_A_I_PZ_GW01	22/11/2019	18.6
Temperature	°C	DG_A_I_PZ_GW01	10/12/2019	18.8
Temperature	°C	DG_A_I_PZ_GW02	10/07/2019	18.4
Temperature	°C	DG_A_I_PZ_GW02	23/08/2019	16.5
Temperature	°C	DG_A_I_PZ_GW02	9/09/2019	18.5
Temperature	°C	DG_A_I_PZ_GW02	10/10/2019	20
Temperature	°C	DG_A_I_PZ_GW02	25/11/2019	19.4
Temperature	°C	DG_A_I_PZ_GW02	10/12/2019	19.8
Temperature	°C	DG_A_I_PZ_GW03	10/07/2019	16.8
Temperature	°C	DG_A_I_PZ_GW03	23/08/2019	15.3
Temperature	°C	DG_A_I_PZ_GW03	9/09/2019	18.7
Temperature	°C	DG_A_I_PZ_GW03	10/10/2019	18.3
Temperature	°C	DG_A_I_PZ_GW03	25/11/2019	19.2

Variable	Unit	Sample Point	Date	Result
Temperature	°C	DG_A_I_PZ_GW03	10/12/2019	18.9
Temperature	°C	DG_A_I_PZ_GW04	8/07/2019	18.5
Temperature	°C	DG_A_I_PZ_GW04	1/08/2019	15.6
Temperature	°C	DG_A_I_PZ_GW04	12/09/2019	18.6
Temperature	°C	DG_A_I_PZ_GW04	11/10/2019	18.3
Temperature	°C	DG_A_I_PZ_GW04	22/11/2019	18.9
Temperature	°C	DG_A_I_PZ_GW04	11/12/2019	19
Temperature	°C	DG_A_I_PZ_GW05	8/07/2019	18.9
Temperature	°C	DG_A_I_PZ_GW05	26/08/2019	15
Temperature	°C	DG_A_I_PZ_GW05	12/09/2019	19.7
Temperature	°C	DG_A_I_PZ_GW05	11/10/2019	18.6
Temperature	°C	DG_A_I_PZ_GW05	22/11/2019	18.9
Temperature	°C	DG_A_I_PZ_GW05	11/12/2019	19.7
Temperature	°C	DG_A_I_PZ_GW06	4/07/2019	17.3
Temperature	°C	DG_A_I_PZ_GW06	27/08/2019	17.4
Temperature	°C	DG_A_I_PZ_GW06	11/09/2019	17.6
Temperature	°C	DG_A_I_PZ_GW06	22/10/2019	17.9
Temperature	°C	DG_A_I_PZ_GW06	26/11/2019	17.7
Temperature	°C	DG_A_I_PZ_GW06	12/12/2019	17.7
Temperature	°C	DG_A_I_PZ_GW07	3/07/2019	19
Temperature	°C	DG_A_I_PZ_GW07	28/08/2019	17.9
Temperature	°C	DG_A_I_PZ_GW07	19/09/2019	19.8
Temperature	°C	DG_A_I_PZ_GW07	22/10/2019	19.4
Temperature	°C	DG_A_I_PZ_GW07	22/11/2019	19.2
Temperature	°C	DG_A_I_PZ_GW07	10/12/2019	19.4
Temperature	°C	DG_A_I_PZ_GW08	10/07/2019	17.2
Temperature	°C	DG_A_I_PZ_GW08	27/08/2019	16.2
Temperature	°C	DG_A_I_PZ_GW08	12/09/2019	20
Temperature	°C	DG_A_I_PZ_GW08	14/10/2019	19.6
Temperature	°C	DG_A_I_PZ_GW08	26/11/2019	18.5
Temperature	°C	DG_A_I_PZ_GW08	12/12/2019	17.7
Temperature	°C	DG_A_I_PZ_IWB2	11/07/2019	17.5
Temperature	°C	DG_A_I_PZ_IWB6	11/07/2019	17.1
Temperature	°C	DG_A_I_PZ_WRK300	16/07/2019	13.5
Temperature	°C	DG_A_I_PZ_WRK300	26/08/2019	13.2
Temperature	°C	DG_A_I_PZ_WRK300	10/09/2019	18.7
Temperature	°C	DG_A_I_PZ_WRK300	22/10/2019	22
Temperature	°C	DG_A_I_PZ_WRK300	25/11/2019	20.5
Temperature	°C	DG_A_I_PZ_WRK300	12/12/2019	19.5
Temperature	°C	DG_A_I_PZ_WRK301	15/07/2019	17
Temperature	°C	DG_A_I_PZ_WRK301	28/08/2019	13.1
Temperature	°C	DG_A_I_PZ_WRK301	10/09/2019	18.3
Temperature	°C	DG_A_I_PZ_WRK301	23/10/2019	22.1
Temperature	°C	DG_A_I_PZ_WRK301	26/11/2019	18.4
Temperature	°C	DG_A_I_PZ_WRK301	12/12/2019	21
Temperature	°C	DG_A_I_PZ_WRK302	4/07/2019	17.1
Temperature	°C	DG_A_I_PZ_WRK302	1/08/2019	17.1
Temperature	°C	DG_A_I_PZ_WRK302	11/09/2019	17.3
Temperature	°C	DG_A_I_PZ_WRK302	14/10/2019	17.2
Temperature	°C	DG_A_I_PZ_WRK302	26/11/2019	17.2
Temperature	°C	DG_A_I_PZ_WRK302	12/12/2019	17.3
Temperature	°C	DG_A_I_PZ_WRK303	15/07/2019	18.5

Variable	Unit	Sample Point	Date	Result
Temperature	°C	DG_A_I_PZ_WRK303	28/08/2019	13.3
Temperature	°C	DG_A_I_PZ_WRK303	10/09/2019	18.1
Temperature	°C	DG_A_I_PZ_WRK303	22/10/2019	19.3
Temperature	°C	DG_A_I_PZ_WRK303	26/11/2019	18.7
Temperature	°C	DG_A_I_PZ_WRK303	12/12/2019	19.1
Temperature	°C	DG_A_I_PZ_WRK304	15/07/2019	16.9
Temperature	°C	DG_A_I_PZ_WRK304	27/08/2019	14.4
Temperature	°C	DG_A_I_PZ_WRK304	11/09/2019	18.4
Temperature	°C	DG_A_I_PZ_WRK304	23/10/2019	19.1
Temperature	°C	DG_A_I_PZ_WRK304	26/11/2019	17.7
Temperature	°C	DG_A_I_PZ_WRK304	12/12/2019	18.4
Temperature (Water)	°C	DG_A_I_PZ_GW06	4/07/2019	17.3
Temperature (Water)	°C	DG_A_I_PZ_WRK302	4/07/2019	17.1

Appendix D: Monitoring Data (Lab) – Surface water

Variable	Unit	Sample Point	Date	Result
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW17	2/07/2019	74
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW19	2/07/2019	66
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW14	2/07/2019	210
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW14	1/08/2019	170
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW14	24/10/2019	230
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW24	14/08/2019	110
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW24	16/09/2019	53
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW20	14/08/2019	120
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW22	2/07/2019	84
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW22	1/08/2019	100
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW22	24/10/2019	120
Alkalinity (Bicarbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW45	14/08/2019	11
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW24	14/08/2019	67
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW24	16/09/2019	90
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0
Alkalinity (Carbonate) as CaCO3	mg/L	DG_A_I_SW_DUSW45	14/08/2019	6
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0
Alkalinity (Hydroxide) as OH	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_SW_DUSW17	2/07/2019	74
Alkalinity (Total) as CaCO3	mg/L	DG_A_I_SW_DUSW19	2/07/2019	66
Aluminium (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.01
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	70
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	5.4
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	8.6
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.12
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.15
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.2
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.08
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.2
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	41
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.02
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.08

Variable	Unit	Sample Point	Date	Result
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.09
Aluminium (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	6.2
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.26
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.097
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW19	26/08/2019	0.51
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.078
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.11
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.21
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.12
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.08
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.21
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW20	14/08/2019	*0.01*
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.1
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.082
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.063
Ammonia Nitrogen	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.15
Anions (Total)	meq/L	DG_A_I_SW_DUSW17	2/07/2019	4.4
Anions (Total)	meq/L	DG_A_I_SW_DUSW19	2/07/2019	7
Anions (Total)	meq/L	DG_A_I_SW_DUSW14	2/07/2019	74
Anions (Total)	meq/L	DG_A_I_SW_DUSW14	1/08/2019	65
Anions (Total)	meq/L	DG_A_I_SW_DUSW14	24/10/2019	62
Anions (Total)	meq/L	DG_A_I_SW_DUSW24	14/08/2019	110
Anions (Total)	meq/L	DG_A_I_SW_DUSW24	16/09/2019	150
Anions (Total)	meq/L	DG_A_I_SW_DUSW20	14/08/2019	5.4
Anions (Total)	meq/L	DG_A_I_SW_DUSW22	2/07/2019	69
Anions (Total)	meq/L	DG_A_I_SW_DUSW22	1/08/2019	33
Anions (Total)	meq/L	DG_A_I_SW_DUSW22	24/10/2019	26
Anions (Total)	meq/L	DG_A_I_SW_DUSW45	14/08/2019	210
Antimony (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.002
Antimony (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.001*
Antimony (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	*0.001*
Arsenic (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.024
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.003
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.004
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.001
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.001
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.002
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.008
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.013
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.014

Variable	Unit	Sample Point	Date	Result
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.001
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.001
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.001
Arsenic (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.012
Barium (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.05
Barium (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.34
Barium (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.067
Barium (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.076
Barium (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.08
Barium (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.056
Barium (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.06
Barium (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.19
Barium (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.21
Barium (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.046
Barium (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.077
Barium (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.021
Barium (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.022
Barium (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.054
Beryllium (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.003
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	*0.001*
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	*0.001*
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.001*
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.001*
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.001
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.001
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.001*
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.001*
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.001*
Beryllium (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	*0.001*
Boron (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.12
Boron (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.2
Boron (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.16
Boron (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.15
Boron (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.34
Boron (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.27
Boron (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.26
Boron (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	2
Boron (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	2.2
Boron (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.22
Boron (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.17
Boron (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.18
Boron (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.17
Boron (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	2.4
Cadmium (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	*0.0002*

Variable	Unit	Sample Point	Date	Result
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.0012
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.0002*
Cadmium (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	*0.0002*
Calcium	mg/L	DG_A_I_SW_DUSW17	2/07/2019	13
Calcium	mg/L	DG_A_I_SW_DUSW19	2/07/2019	14
Calcium	mg/L	DG_A_I_SW_DUSW14	2/07/2019	74
Calcium	mg/L	DG_A_I_SW_DUSW14	1/08/2019	57
Calcium	mg/L	DG_A_I_SW_DUSW14	24/10/2019	46
Calcium	mg/L	DG_A_I_SW_DUSW24	14/08/2019	270
Calcium	mg/L	DG_A_I_SW_DUSW24	16/09/2019	330
Calcium	mg/L	DG_A_I_SW_DUSW20	14/08/2019	9.3
Calcium	mg/L	DG_A_I_SW_DUSW22	2/07/2019	120
Calcium	mg/L	DG_A_I_SW_DUSW22	1/08/2019	44
Calcium	mg/L	DG_A_I_SW_DUSW22	24/10/2019	34
Calcium	mg/L	DG_A_I_SW_DUSW45	14/08/2019	730
Cations (Total)	meq/L	DG_A_I_SW_DUSW17	2/07/2019	5.2
Cations (Total)	meq/L	DG_A_I_SW_DUSW19	2/07/2019	7
Cations (Total)	meq/L	DG_A_I_SW_DUSW14	2/07/2019	70
Cations (Total)	meq/L	DG_A_I_SW_DUSW14	1/08/2019	64
Cations (Total)	meq/L	DG_A_I_SW_DUSW14	24/10/2019	61
Cations (Total)	meq/L	DG_A_I_SW_DUSW24	14/08/2019	110
Cations (Total)	meq/L	DG_A_I_SW_DUSW24	16/09/2019	150
Cations (Total)	meq/L	DG_A_I_SW_DUSW20	14/08/2019	5.9
Cations (Total)	meq/L	DG_A_I_SW_DUSW22	2/07/2019	67
Cations (Total)	meq/L	DG_A_I_SW_DUSW22	1/08/2019	32
Cations (Total)	meq/L	DG_A_I_SW_DUSW22	24/10/2019	24
Cations (Total)	meq/L	DG_A_I_SW_DUSW45	14/08/2019	210
Chloride	mg/L	DG_A_I_SW_DUSW17	2/07/2019	68
Chloride	mg/L	DG_A_I_SW_DUSW19	2/07/2019	140
Chloride	mg/L	DG_A_I_SW_DUSW14	2/07/2019	2200
Chloride	mg/L	DG_A_I_SW_DUSW14	1/08/2019	1900
Chloride	mg/L	DG_A_I_SW_DUSW14	24/10/2019	1800
Chloride	mg/L	DG_A_I_SW_DUSW24	14/08/2019	3300
Chloride	mg/L	DG_A_I_SW_DUSW24	16/09/2019	4700
Chloride	mg/L	DG_A_I_SW_DUSW20	14/08/2019	82
Chloride	mg/L	DG_A_I_SW_DUSW22	2/07/2019	2100
Chloride	mg/L	DG_A_I_SW_DUSW22	1/08/2019	970
Chloride	mg/L	DG_A_I_SW_DUSW22	24/10/2019	740
Chloride	mg/L	DG_A_I_SW_DUSW45	14/08/2019	5900
Chromium (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Chromium (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.14
Chromium (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.012
Chromium (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.018
Chromium (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.003
Chromium (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.002
Chromium (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.001
Chromium (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.004

Variable	Unit	Sample Point	Date	Result
Chromium (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	*0.001*
Chromium (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.051
Chromium (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.003
Chromium (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.002
Chromium (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.001
Chromium (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.009
Cobalt (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.017
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.001
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.002
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.002
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.001*
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.001*
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.001
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.009
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.001*
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.001*
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.001*
Cobalt (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.004
Copper (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Copper (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.016
Copper (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.002
Copper (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.003
Copper (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Copper (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	*0.001*
Copper (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.001*
Copper (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.003
Copper (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.003
Copper (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.013
Copper (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.001
Copper (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.001*
Copper (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.001
Copper (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.01
Cyanide (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	*0.004*
Cyanide (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	*0.004*
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW17	2/07/2019	440
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW17	24/10/2019	460
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW19	2/07/2019	750
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW19	12/09/2019	710
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW19	24/10/2019	740
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW26	2/07/2019	210
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW26	24/10/2019	340
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW14	2/07/2019	7300
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW14	1/08/2019	6500
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW14	24/10/2019	6500
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW24	14/08/2019	11000
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW24	16/09/2019	15000
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW20	14/08/2019	970
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW22	2/07/2019	8800
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW22	1/08/2019	3500
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW22	24/10/2019	2900

Variable	Unit	Sample Point	Date	Result
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW45	14/08/2019	20000
Fluoride	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.46
Fluoride	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.4
Fluoride	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.26
Fluoride	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.26
Fluoride	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.23
Fluoride	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.27
Fluoride	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.24
Fluoride	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.24
Fluoride	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.33
Fluoride	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.54
Fluoride	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.46
Fluoride	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.28
Iron (Soluble)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.02
Iron (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	95
Iron (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	6.6
Iron (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	9.7
Iron (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	1.4
Iron (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	3.1
Iron (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	2.7
Iron (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.1
Iron (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.05
Iron (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	31
Iron (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.46
Iron (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.81
Iron (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.61
Iron (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	4.4
Lead (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.03
Lead (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.002
Lead (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.003
Lead (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.002
Lead (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.018
Lead (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.001*
Lead (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.007
Magnesium	mg/L	DG_A_I_SW_DUSW17	2/07/2019	13
Magnesium	mg/L	DG_A_I_SW_DUSW19	2/07/2019	11
Magnesium	mg/L	DG_A_I_SW_DUSW14	2/07/2019	120
Magnesium	mg/L	DG_A_I_SW_DUSW14	1/08/2019	100
Magnesium	mg/L	DG_A_I_SW_DUSW14	24/10/2019	100
Magnesium	mg/L	DG_A_I_SW_DUSW24	14/08/2019	170
Magnesium	mg/L	DG_A_I_SW_DUSW24	16/09/2019	220
Magnesium	mg/L	DG_A_I_SW_DUSW20	14/08/2019	8.4
Magnesium	mg/L	DG_A_I_SW_DUSW22	2/07/2019	21
Magnesium	mg/L	DG_A_I_SW_DUSW22	1/08/2019	69
Magnesium	mg/L	DG_A_I_SW_DUSW22	24/10/2019	57

Variable	Unit	Sample Point	Date	Result
Magnesium	mg/L	DG_A_I_SW_DUSW45	14/08/2019	310
Manganese (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.002
Manganese (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.12
Manganese (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.019
Manganese (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.022
Manganese (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.19
Manganese (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.33
Manganese (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.26
Manganese (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.018
Manganese (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.089
Manganese (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.25
Manganese (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.082
Manganese (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.013
Manganese (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.014
Manganese (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.21
Mercury (diss) (mg/L)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.0001*
Mercury (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	*0.0001*
Molybdenum (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.001
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.005
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.01
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.001
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.001*
Molybdenum (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.008
Nickel (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.001
Nickel (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.027
Nickel (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.003
Nickel (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.004
Nickel (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Nickel (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.002
Nickel (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.001
Nickel (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.003
Nickel (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.004

Variable	Unit	Sample Point	Date	Result
Nickel (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.02
Nickel (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.011
Nickel (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.002
Nickel (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.002
Nickel (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.008
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.44
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW17	24/10/2019	0.65
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.84
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW19	26/08/2019	0.45
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.13
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW19	24/10/2019	0.11
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW26	2/07/2019	0.59
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW26	24/10/2019	0.69
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.45
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.28
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.005*
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.005*
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW24	16/09/2019	*0.005*
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW20	14/08/2019	*0.005*
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.089
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.08
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.005*
Nitrate-Nitrogen	mg/L	DG_A_I_SW_DUSW45	14/08/2019	*0.005*
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.037
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW17	24/10/2019	0.002
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.029
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW19	26/08/2019	*0.001*
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.002
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW19	24/10/2019	0.001
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW26	2/07/2019	0.04
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW26	24/10/2019	0.005
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.062
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.043
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.001*
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.001*
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW24	16/09/2019	*0.001*
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.011
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.019
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.025
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.001*
Nitrite-Nitrogen	mg/L	DG_A_I_SW_DUSW45	14/08/2019	*0.001*
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	1.1
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW17	24/10/2019	0.65
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	1.6
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW19	26/08/2019	1.3
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	1
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW19	24/10/2019	0.99
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW26	2/07/2019	2
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW26	24/10/2019	0.72
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	1.2
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.96
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.86

Variable	Unit	Sample Point	Date	Result
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	4
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	7.9
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	1.4
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.61
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.74
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.72
Nitrogen (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	1.1
pH	pH units	DG_A_I_SW_DUSW17	2/07/2019	7.2
pH	pH units	DG_A_I_SW_DUSW17	24/10/2019	7.4
pH	pH units	DG_A_I_SW_DUSW19	2/07/2019	7.4
pH	pH units	DG_A_I_SW_DUSW19	12/09/2019	7.9
pH	pH units	DG_A_I_SW_DUSW19	24/10/2019	7.3
pH	pH units	DG_A_I_SW_DUSW26	2/07/2019	7.7
pH	pH units	DG_A_I_SW_DUSW26	24/10/2019	7.6
pH	pH units	DG_A_I_SW_DUSW14	2/07/2019	7.6
pH	pH units	DG_A_I_SW_DUSW14	1/08/2019	7
pH	pH units	DG_A_I_SW_DUSW14	24/10/2019	6.7
pH	pH units	DG_A_I_SW_DUSW24	14/08/2019	9.8
pH	pH units	DG_A_I_SW_DUSW24	16/09/2019	9.5
pH	pH units	DG_A_I_SW_DUSW20	14/08/2019	7.4
pH	pH units	DG_A_I_SW_DUSW22	2/07/2019	7.4
pH	pH units	DG_A_I_SW_DUSW22	1/08/2019	7.6
pH	pH units	DG_A_I_SW_DUSW22	24/10/2019	7
pH	pH units	DG_A_I_SW_DUSW45	14/08/2019	8.7
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.019
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.08
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.1
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.004*
Phosphorus (Ortho)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.007
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.024
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW17	24/10/2019	0.15
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.048
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW19	26/08/2019	0.076
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.082
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW19	24/10/2019	0.048
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW26	2/07/2019	0.11
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW26	24/10/2019	0.12
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.031
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.035
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.036
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.11
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.26
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.34
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.023
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.021

Variable	Unit	Sample Point	Date	Result
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.018
Phosphorus (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.024
Potassium	mg/L	DG_A_I_SW_DUSW17	2/07/2019	3.8
Potassium	mg/L	DG_A_I_SW_DUSW19	2/07/2019	5
Potassium	mg/L	DG_A_I_SW_DUSW14	2/07/2019	8
Potassium	mg/L	DG_A_I_SW_DUSW14	1/08/2019	7.2
Potassium	mg/L	DG_A_I_SW_DUSW14	24/10/2019	8.8
Potassium	mg/L	DG_A_I_SW_DUSW24	14/08/2019	89
Potassium	mg/L	DG_A_I_SW_DUSW24	16/09/2019	120
Potassium	mg/L	DG_A_I_SW_DUSW20	14/08/2019	7.9
Potassium	mg/L	DG_A_I_SW_DUSW22	2/07/2019	14
Potassium	mg/L	DG_A_I_SW_DUSW22	1/08/2019	7
Potassium	mg/L	DG_A_I_SW_DUSW22	24/10/2019	5.7
Potassium	mg/L	DG_A_I_SW_DUSW45	14/08/2019	74
Selenium (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.016
Selenium (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	*0.001*
Selenium (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Selenium (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Selenium (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.001
Selenium (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.001*
Selenium (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.001*
Selenium (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.002
Selenium (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.002
Selenium (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.001*
Selenium (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.001*
Selenium (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.001*
Selenium (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.001
Silver (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.001*
Silver (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	*0.001*
Sodium	mg/L	DG_A_I_SW_DUSW17	2/07/2019	78
Sodium	mg/L	DG_A_I_SW_DUSW19	2/07/2019	120
Sodium	mg/L	DG_A_I_SW_DUSW14	2/07/2019	1300
Sodium	mg/L	DG_A_I_SW_DUSW14	1/08/2019	1200
Sodium	mg/L	DG_A_I_SW_DUSW14	24/10/2019	1200
Sodium	mg/L	DG_A_I_SW_DUSW24	14/08/2019	1900
Sodium	mg/L	DG_A_I_SW_DUSW24	16/09/2019	2600
Sodium	mg/L	DG_A_I_SW_DUSW20	14/08/2019	100
Sodium	mg/L	DG_A_I_SW_DUSW22	2/07/2019	1400
Sodium	mg/L	DG_A_I_SW_DUSW22	1/08/2019	550
Sodium	mg/L	DG_A_I_SW_DUSW22	24/10/2019	410
Sodium	mg/L	DG_A_I_SW_DUSW45	14/08/2019	3400

Variable	Unit	Sample Point	Date	Result
Strontium (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.15
Strontium (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.15
Strontium (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.13
Strontium (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.97
Strontium (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.73
Strontium (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.71
Strontium (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	9.5
Strontium (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	11
Strontium (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.099
Strontium (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	1.6
Strontium (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.5
Strontium (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.48
Strontium (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	7.7
Sulfate	mg/L	DG_A_I_SW_DUSW17	2/07/2019	45
Sulfate	mg/L	DG_A_I_SW_DUSW19	2/07/2019	87
Sulfate	mg/L	DG_A_I_SW_DUSW14	2/07/2019	360
Sulfate	mg/L	DG_A_I_SW_DUSW14	1/08/2019	340
Sulfate	mg/L	DG_A_I_SW_DUSW14	24/10/2019	290
Sulfate	mg/L	DG_A_I_SW_DUSW24	14/08/2019	820
Sulfate	mg/L	DG_A_I_SW_DUSW24	16/09/2019	960
Sulfate	mg/L	DG_A_I_SW_DUSW20	14/08/2019	36
Sulfate	mg/L	DG_A_I_SW_DUSW22	2/07/2019	340
Sulfate	mg/L	DG_A_I_SW_DUSW22	1/08/2019	160
Sulfate	mg/L	DG_A_I_SW_DUSW22	24/10/2019	140
Sulfate	mg/L	DG_A_I_SW_DUSW45	14/08/2019	2100
Thallium (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.002
Thallium (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.001*
Thallium (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	*0.001*
Tin (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Tin (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.003
Tin (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	*0.001*
Tin (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Tin (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Tin (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	*0.001*
Tin (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.001*
Tin (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.001*
Tin (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.002
Tin (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.002
Tin (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.001*
Tin (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	*0.001*
Tin (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.001*

Variable	Unit	Sample Point	Date	Result
Tin (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	*0.001*
Titanium (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.003
Titanium (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.16
Titanium (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.02
Titanium (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.067
Titanium (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	*0.001*
Titanium (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.001
Titanium (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.001
Titanium (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.001
Titanium (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.002
Titanium (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.52
Titanium (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	*0.001*
Titanium (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.001
Titanium (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.001
Titanium (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.15
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW17	2/07/2019	1900
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW17	24/10/2019	3600
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW19	2/07/2019	570
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW19	24/10/2019	610
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW26	2/07/2019	1800
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW26	24/10/2019	3200
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW14	2/07/2019	4300
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW14	1/08/2019	3700
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW14	24/10/2019	3700
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW24	14/08/2019	7500
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW24	16/09/2019	9800
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW20	14/08/2019	840
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW22	2/07/2019	5600
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW22	1/08/2019	2200
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW22	24/10/2019	1800
Total Dissolved Solids	mg/L	DG_A_I_SW_DUSW45	14/08/2019	15000
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.61
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW17	24/10/2019	*0.01*
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.72
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW19	26/08/2019	0.84
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.86
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW19	24/10/2019	0.88
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW26	2/07/2019	1.4
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW26	24/10/2019	0.029
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.69
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.64
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.86
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW24	14/08/2019	4
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW24	16/09/2019	7.9
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW20	14/08/2019	1.4
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.5
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.64
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.72
Total Kjeldahl Nitrogen	mg/L	DG_A_I_SW_DUSW45	14/08/2019	1.1
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.48
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.87
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW19	26/08/2019	0.45

Variable	Unit	Sample Point	Date	Result
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.51
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.32
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW14	24/10/2019	*0.006*
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW24	14/08/2019	*0.006*
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW24	16/09/2019	*0.01*
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW20	14/08/2019	*0.016*
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.11
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.1
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.006*
Total Oxidised Nitrogen as N	mg/L	DG_A_I_SW_DUSW45	14/08/2019	*0.006*
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW17	2/07/2019	290
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW17	24/10/2019	44
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW19	2/07/2019	4
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW19	24/10/2019	48
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW26	2/07/2019	71
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW26	24/10/2019	24
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW14	2/07/2019	12
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW14	1/08/2019	13
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW14	24/10/2019	16
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW24	14/08/2019	11
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW24	16/09/2019	10
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW20	14/08/2019	3
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW22	2/07/2019	4
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW22	1/08/2019	2
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW22	24/10/2019	2
Total Suspended Solids	mg/L	DG_A_I_SW_DUSW45	14/08/2019	29
Turbidity	NTU	DG_A_I_SW_DUSW17	2/07/2019	2200
Turbidity	NTU	DG_A_I_SW_DUSW17	24/10/2019	2800
Turbidity	NTU	DG_A_I_SW_DUSW19	2/07/2019	72
Turbidity	NTU	DG_A_I_SW_DUSW19	12/09/2019	150
Turbidity	NTU	DG_A_I_SW_DUSW26	2/07/2019	1800
Vanadium (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.19
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.011
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.02
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.002
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.001
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.001
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.008
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.005
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.083
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.001
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.001
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	*0.001*
Vanadium (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.028
Zinc (diss.)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	*0.001*
Zinc (Total)	mg/L	DG_A_I_SW_DUSW17	2/07/2019	0.049
Zinc (Total)	mg/L	DG_A_I_SW_DUSW19	2/07/2019	0.006
Zinc (Total)	mg/L	DG_A_I_SW_DUSW19	12/09/2019	0.008
Zinc (Total)	mg/L	DG_A_I_SW_DUSW14	2/07/2019	0.01
Zinc (Total)	mg/L	DG_A_I_SW_DUSW14	1/08/2019	0.017
Zinc (Total)	mg/L	DG_A_I_SW_DUSW14	24/10/2019	0.008

Variable	Unit	Sample Point	Date	Result
Zinc (Total)	mg/L	DG_A_I_SW_DUSW24	14/08/2019	0.006
Zinc (Total)	mg/L	DG_A_I_SW_DUSW24	16/09/2019	0.054
Zinc (Total)	mg/L	DG_A_I_SW_DUSW20	14/08/2019	0.11
Zinc (Total)	mg/L	DG_A_I_SW_DUSW22	2/07/2019	0.011
Zinc (Total)	mg/L	DG_A_I_SW_DUSW22	1/08/2019	0.022
Zinc (Total)	mg/L	DG_A_I_SW_DUSW22	24/10/2019	0.009
Zinc (Total)	mg/L	DG_A_I_SW_DUSW45	14/08/2019	0.009

Results that are italicised are equal to less than values i.e. *0.001* = <0.001

Appendix E: Monitoring Data (Field) – Surface water

Variable	Unit	Sample Point	Date	Result
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW17	2/07/2019	10.8
Dissolved Oxygen	%	DG_A_I_SW_DUSW17	2/07/2019	95
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW17	24/10/2019	8.6
Dissolved Oxygen	%	DG_A_I_SW_DUSW17	24/10/2019	86
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW19	2/07/2019	11.5
Dissolved Oxygen	%	DG_A_I_SW_DUSW19	2/07/2019	103
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW19	26/08/2019	10.8
Dissolved Oxygen	%	DG_A_I_SW_DUSW19	26/08/2019	101
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW19	12/09/2019	10.8
Dissolved Oxygen	%	DG_A_I_SW_DUSW19	12/09/2019	103
Dissolved Oxygen	%	DG_A_I_SW_DUSW19	24/10/2019	99
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW19	24/10/2019	8.7
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW26	2/07/2019	11
Dissolved Oxygen	%	DG_A_I_SW_DUSW26	2/07/2019	100
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW26	24/10/2019	7.5
Dissolved Oxygen	%	DG_A_I_SW_DUSW26	24/10/2019	83
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW14	2/07/2019	13.3
Dissolved Oxygen	%	DG_A_I_SW_DUSW14	2/07/2019	113
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW14	1/08/2019	7.3
Dissolved Oxygen	%	DG_A_I_SW_DUSW14	1/08/2019	66
Dissolved Oxygen	%	DG_A_I_SW_DUSW14	24/10/2019	117
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW14	24/10/2019	11.5
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW24	14/08/2019	10.6
Dissolved Oxygen	%	DG_A_I_SW_DUSW24	14/08/2019	93
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW24	16/09/2019	20.4
Dissolved Oxygen	%	DG_A_I_SW_DUSW24	16/09/2019	209
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW20	14/08/2019	4.9
Dissolved Oxygen	%	DG_A_I_SW_DUSW20	14/08/2019	42
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW22	2/07/2019	10
Dissolved Oxygen	%	DG_A_I_SW_DUSW22	2/07/2019	91
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW22	1/08/2019	11.2
Dissolved Oxygen	%	DG_A_I_SW_DUSW22	1/08/2019	99
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW22	24/10/2019	9.8
Dissolved Oxygen	%	DG_A_I_SW_DUSW22	24/10/2019	97
Dissolved Oxygen	mg/L	DG_A_I_SW_DUSW45	14/08/2019	11.5
Dissolved Oxygen	%	DG_A_I_SW_DUSW45	14/08/2019	120
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW17	2/07/2019	467
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW17	24/10/2019	493
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW19	2/07/2019	834
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW19	26/08/2019	528
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW19	12/09/2019	766
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW19	24/10/2019	792
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW26	2/07/2019	227
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW26	24/10/2019	371
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW14	2/07/2019	7839
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW14	1/08/2019	6752
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW14	24/10/2019	6905
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW24	14/08/2019	11725
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW24	16/09/2019	16151
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW20	14/08/2019	1008

Variable	Unit	Sample Point	Date	Result
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW22	2/07/2019	9443
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW22	1/08/2019	3705
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW22	24/10/2019	3171
Electrical Conductivity	µS/cm	DG_A_I_SW_DUSW45	14/08/2019	21196
pH	pH units	DG_A_I_SW_DUSW17	2/07/2019	7.88
pH	pH units	DG_A_I_SW_DUSW17	24/10/2019	8
pH	pH units	DG_A_I_SW_DUSW19	2/07/2019	7.85
pH	pH units	DG_A_I_SW_DUSW19	26/08/2019	7.46
pH	pH units	DG_A_I_SW_DUSW19	12/09/2019	7.95
pH	pH units	DG_A_I_SW_DUSW19	24/10/2019	8.03
pH	pH units	DG_A_I_SW_DUSW26	2/07/2019	7.96
pH	pH units	DG_A_I_SW_DUSW26	24/10/2019	8.15
pH	pH units	DG_A_I_SW_DUSW14	2/07/2019	7.53
pH	pH units	DG_A_I_SW_DUSW14	1/08/2019	6.85
pH	pH units	DG_A_I_SW_DUSW14	24/10/2019	7.28
pH	pH units	DG_A_I_SW_DUSW24	14/08/2019	9.86
pH	pH units	DG_A_I_SW_DUSW24	16/09/2019	9.57
pH	pH units	DG_A_I_SW_DUSW20	14/08/2019	7.4
pH	pH units	DG_A_I_SW_DUSW22	2/07/2019	6.96
pH	pH units	DG_A_I_SW_DUSW22	1/08/2019	7.41
pH	pH units	DG_A_I_SW_DUSW22	24/10/2019	7.88
pH	pH units	DG_A_I_SW_DUSW45	14/08/2019	8.54
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW17	2/07/2019	133
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW17	24/10/2019	129
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW19	2/07/2019	124
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW19	24/10/2019	410
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW26	2/07/2019	138
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW26	24/10/2019	283
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW14	2/07/2019	138
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW14	1/08/2019	42
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW14	24/10/2019	314
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW24	14/08/2019	141
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW24	16/09/2019	184
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW20	14/08/2019	136
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW22	2/07/2019	122
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW22	1/08/2019	148
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW22	24/10/2019	230
Redox Potential (Eh)	mV	DG_A_I_SW_DUSW45	14/08/2019	162
Temperature (Water)	°C	DG_A_I_SW_DUSW17	2/07/2019	8.7
Temperature (Water)	°C	DG_A_I_SW_DUSW17	24/10/2019	19
Temperature (Water)	°C	DG_A_I_SW_DUSW19	2/07/2019	9.8
Temperature (Water)	°C	DG_A_I_SW_DUSW19	26/08/2019	11.6
Temperature (Water)	°C	DG_A_I_SW_DUSW19	12/09/2019	12.4
Temperature (Water)	°C	DG_A_I_SW_DUSW19	24/10/2019	20.8
Temperature (Water)	°C	DG_A_I_SW_DUSW26	2/07/2019	10.2
Temperature (Water)	°C	DG_A_I_SW_DUSW26	24/10/2019	17.3
Temperature (Water)	°C	DG_A_I_SW_DUSW14	2/07/2019	11.6
Temperature (Water)	°C	DG_A_I_SW_DUSW14	1/08/2019	9.7
Temperature (Water)	°C	DG_A_I_SW_DUSW14	24/10/2019	15.5
Temperature (Water)	°C	DG_A_I_SW_DUSW24	14/08/2019	9.8
Temperature (Water)	°C	DG_A_I_SW_DUSW24	16/09/2019	13
Temperature (Water)	°C	DG_A_I_SW_DUSW20	14/08/2019	8.4

Variable	Unit	Sample Point	Date	Result
Temperature (Water)	°C	DG_A_I_SW_DUSW22	2/07/2019	9.1
Temperature (Water)	°C	DG_A_I_SW_DUSW22	1/08/2019	9.2
Temperature (Water)	°C	DG_A_I_SW_DUSW22	24/10/2019	14.9
Temperature (Water)	°C	DG_A_I_SW_DUSW45	14/08/2019	10.9
Turbidity	NTU	DG_A_I_SW_DUSW19	2/07/2019	59
Turbidity	NTU	DG_A_I_SW_DUSW19	26/08/2019	111
Turbidity	NTU	DG_A_I_SW_DUSW19	12/09/2019	112
Turbidity	NTU	DG_A_I_SW_DUSW19	24/10/2019	129
Turbidity	NTU	DG_A_I_SW_DUSW26	24/10/2019	924
Turbidity	NTU	DG_A_I_SW_DUSW14	2/07/2019	23.6
Turbidity	NTU	DG_A_I_SW_DUSW14	1/08/2019	18.1
Turbidity	NTU	DG_A_I_SW_DUSW14	24/10/2019	25.1
Turbidity	NTU	DG_A_I_SW_DUSW24	14/08/2019	9.1
Turbidity	NTU	DG_A_I_SW_DUSW24	16/09/2019	3.1
Turbidity	NTU	DG_A_I_SW_DUSW20	14/08/2019	227
Turbidity	NTU	DG_A_I_SW_DUSW22	2/07/2019	3.9
Turbidity	NTU	DG_A_I_SW_DUSW22	1/08/2019	13
Turbidity	NTU	DG_A_I_SW_DUSW22	24/10/2019	6.4
Turbidity	NTU	DG_A_I_SW_DUSW45	14/08/2019	262

APPENDIX E

Important Information

The document ("Report") to which this page is attached and which this page forms a part of, has been issued by Golder Associates Pty Ltd ("Golder") subject to the important limitations and other qualifications set out below.

This Report constitutes or is part of services ("Services") provided by Golder to its client ("Client") under and subject to a contract between Golder and its Client ("Contract"). The contents of this page are not intended to and do not alter Golder's obligations (including any limits on those obligations) to its Client under the Contract.

This Report is provided for use solely by Golder's Client and persons acting on the Client's behalf, such as its professional advisers. Golder is responsible only to its Client for this Report. Golder has no responsibility to any other person who relies or makes decisions based upon this Report or who makes any other use of this Report. Golder accepts no responsibility for any loss or damage suffered by any person other than its Client as a result of any reliance upon any part of this Report, decisions made based upon this Report or any other use of it.

This Report has been prepared in the context of the circumstances and purposes referred to in, or derived from, the Contract and Golder accepts no responsibility for use of the Report, in whole or in part, in any other context or circumstance or for any other purpose.

The scope of Golder's Services and the period of time they relate to are determined by the Contract and are subject to restrictions and limitations set out in the Contract. If a service or other work is not expressly referred to in this Report, do not assume that it has been provided or performed. If a matter is not addressed in this Report, do not assume that any determination has been made by Golder in regards to it.

At any location relevant to the Services conditions may exist which were not detected by Golder, in particular due to the specific scope of the investigation Golder has been engaged to undertake. Conditions can only be verified at the exact location of any tests undertaken. Variations in conditions may occur between tested locations and there may be conditions which have not been revealed by the investigation and which have not therefore been taken into account in this Report.

Golder accepts no responsibility for and makes no representation as to the accuracy or completeness of the information provided to it by or on behalf of the Client or sourced from any third party. Golder has assumed that such information is correct unless otherwise stated and no responsibility is accepted by Golder for incomplete or inaccurate data supplied by its Client or any other person for whom Golder is not responsible. Golder has not taken account of matters that may have existed when the Report was prepared but which were only later disclosed to Golder.

Having regard to the matters referred to in the previous paragraphs on this page in particular, carrying out the Services has allowed Golder to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by Golder or otherwise made available to Golder. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Report. This Report is based upon the information and other circumstances that existed and were known to Golder when the Services were performed and this Report was prepared. Golder has not considered the effect of any possible future developments including physical changes to any relevant location or changes to any laws or regulations relevant to such location.

Where permitted by the Contract, Golder may have retained subconsultants affiliated with Golder to provide some or all of the Services. However, it is Golder which remains solely responsible for the Services and there is no legal recourse against any of Golder's affiliated companies or the employees, officers or directors of any of them.

By date, or revision, the Report supersedes any prior report or other document issued by Golder dealing with any matter that is addressed in the Report.

Any uncertainty as to the extent to which this Report can be used or relied upon in any respect should be referred to Golder for clarification

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