Construction & Operation Groundwater Monitoring Program

Coffs Harbour Bypass

Report prepared for –
Transport for NSW

29 March 2023
BPE21058-R04 (Rev. 5)

Quality information

Revision history

Item	Description
Revision	Revision 5
Description	Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program
Date	29 March 2023
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Distribution

Report Status	No. of copies	Format	Distributed to	Date
Original	1	PDF	Transport for NSW	16 June 2022
Original	1	PDF	Ballpark Environmental	16 June 2022
Revision 1	1	PDF	Transport for NSW	24 August 2022
Revision 1	1	PDF	Ballpark Environmental	24 August 2022
Revision 2	1	PDF	Transport for NSW	8 September 2022
Revision 2	1	PDF	Ballpark Environmental	8 September 2022
Revision 3	1	PDF	Transport for NSW	17 November 2022
Revision 3	1	PDF	Ballpark Environmental	17 November 2022
Revision 4	1	PDF	Transport for NSW	20 January 2023
Revision 4	1	PDF	Ballpark Environmental	20 January 2023
Revision 5	1	PDF	Transport for NSW	29 March 2023
Revision 5	1	PDF	Ballpark Environmental	29 March 2023

29 March 2023

Our ref: BPE21058-R04 (Rev. 5)

Your ref: 21.0000137075.0901

Transport for NSW
Coffs Harbour Bypass
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Sent via email: Jarred.KOHLER@transport.nsw.gov.au

Attention: Jarred Kohler – A/Project Manager/Engineer, Coffs Harbour Bypass

Dear Jarred,

RE: Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program

Ballpark Environmental Pty Ltd is pleased to present this construction and operation Groundwater Monitoring Program (GWMP) prepared for the Coffs Harbour Bypass (CHB).

The GWMP details the methods and sites to be monitored to collect information on groundwater levels and quality from nominated monitoring wells within the CHB study area during the construction and following operational phases of the CHB project. Revision 5 of the GWMP incorporates comments received from the Department of Planning and Environment, the relevant Stakeholder Agencies, and has been endorsed as appropriate by the Environmental Representative.

We trust that this construction and operation GWMP meets with your requirements. If you require further information or assistance, please do not hesitate to contact us on (02) 6658 0585.

For and on behalf of Ballpark Environmental Pty Ltd

Andrew Ballard
Principal Environmental Scientist
Certified Environmental Practitioner

Joel Parkin
Associate Environmental Engineer

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Abbreviations

Acronym	Description
AHD	Australian Height Datum
BoM	Bureau of Meteorology
CHB	Coffs Harbour Bypass
Ch	Chainage (m), measured from south to north along the CHB alignment.
°C	Temperature reported in degrees Celsius
CEMP	Construction Environmental Management Plan
CoC	Chain of Custody
Council	Coffs Harbour City Council
CSSI	Critical State Significant Infrastructure
DG	Down Gradient
DO	Dissolved oxygen
EC	Electrical conductivity
EPA	NSW Environment Protection Authority
EPBC	*Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act)
EPL	Environment Protection Licence under the POEO Act
ER	Environmental Representative
GRT	Gatelys Road Tunnel
GDE	Groundwater dependent ecosystem
GME	Groundwater monitoring event
GWMP	Groundwater monitoring program
OUA	On Upgrade Alignment
pH	pH units
LOR	Laboratory limit of reporting. This is the laboratory's minimum concentration (mg/L) of a parameter at which the concentration can be reported at a 99% confidence level.
MCoA	Minister's conditions of approval, issued on 2 November 2020
Minister	NSW Minister for Planning and Public Spaces
mg/kg	Milligrams per kilogram
mg/L	Milligrams per litre
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimeter

Acronym	Description
NATA	National Association of Testing Authorities
NTU	Nephelometric turbidity units
RHT	Roberts Hill Tunnel
SLT	Shepards Lane Tunnel
SWL	Standing water level
TBA	To be advised
TDS	Total dissolved solids
TfNSW	Transport for New South Wales
UG	Up Gradient
WQM	Water quality meter

Executive Summary

The Coffs Harbour Bypass (CHB) will involve the construction of a 4-lane divided motorway in a 14km bypass of Coffs Harbour from south of Englands Road to the south of Coffs Harbour, then through foothills and three ridgelines to the west of the city to Korora Hill in the north with a 2km upgrade of the existing highway between Korora Hill and Sapphire. The CHB alignment to the west of Coffs Harbour will require the construction of several large road cuttings and three short tunnels through the ridges at Roberts Hill (~190m length), Shephards Lane (~360m length), and Gatelys Road (~450m length).

Groundwater present along the CHB alignment may be impacted by construction of the new motorway, especially at each of the tunnels and priority cuttings. TfNSW is currently collecting baseline information on the existing groundwater conditions prior to the start of the CHB project construction phase. The baseline pre-construction monitoring findings will inform the groundwater monitoring program during the subsequent construction and operational phases of the CHB project.

The Ministers Conditions of Approval (MCoA) commit Transport for New South Wales (TfNSW) to the development and implementation of this construction Groundwater Monitoring Program (GWMP) for the CHB project.

Table 1 summarises the MCoA conditions applicable to management of groundwater on the CHB project, timing for implementation, and reference to the relevant section of this GWMP, where applicable.

Table 1: Groundwater management MCoA conditions, timing, and document reference

Condition / Action	Document Reference
C13 Construction Monitoring Programs	
The Construction Monitoring Programs in Table 4 must be prepared in consultation with relevant government agencies identified for each to compare actual performance of construction of the CSSI against the performance predicted in documents listed in Condition A1 or in the CEMP. c) Surface & Ground Water Quality Relevant Government Agencies: EPA, DPI Agriculture, DPI Fisheries, DPIE Water Group, Council	Refer to this GWMP
C14 Each Construction Monitoring Program must provide:	
a) Details of the baseline data available	Section 6 and separate pre-construction groundwater monitoring data reports.
b) Details of baseline data to be obtained and when	Complete, refer to Ballpark Environmental 2023, see Appendix C

Condition / Action	Document Reference
c) Details of all monitoring of the project to be undertaken	Section 7
d) The parameters of the project to be monitored	Section 7.2
e) The frequency of monitoring to be undertaken	Section 7.3
f) The location of monitoring	Section 7.1 & Appendix A
g) The reporting of monitoring results	Section 8
h) Procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory	Section 9
i) Any consultation to be undertaken in relation to the monitoring programs.	Section 10 & Appendix B
C15 Consultation with relevant agencies	
The Construction Monitoring Program must be developed in consultation with relevant government agencies as identified in Condition C13 of this approval and must include information requested by an agency to be included in a Construction Monitoring Programs during such consultation. Details of all information requested by an agency including copies of all correspondence from those agencies, must be provided with the relevant Construction Monitoring Program.	Section 10 & Appendix B
C16 Endorsement of Groundwater Construction Monitoring Program by the Environmental Representative	
The Construction Monitoring Programs must be endorsed by the ER and then submitted to the Planning Secretary for approval at least one month before the commencement of construction.	TBA

1. Introduction

This construction and operation Groundwater Monitoring Program (GWMP) has been prepared to address the requirements of the Coffs Harbour Bypass project approval conditions, the TfNSW revised environmental management measures, and current NSW legislation and guidelines for the management of groundwater.

As part of the early works underway for the CHB project Transport for NSW (TfNSW) has engaged Ballpark Environmental Pty Ltd to prepare this GWMP. The GWMP will be delivered in the following three phases:

Phase 1 – Pre-Construction (June 2021 to January 2023)

Phase 2 – Construction (4-5 years)

Phase 3 – Operational, (post construction) (3 years, or a shorter period if it can be demonstrated that there is no detrimental impacts).

The purpose of the construction and operation GWMP is to plan how and what groundwater data will be collected for the CHB project during its construction and operational phases. The GWMP documents each of the monitoring wells to be monitored, sampling procedures, and parameters to be measured to assess groundwater levels and quality at locations of proposed tunnels and priority cuttings on the CHB project.

1.1. Overview – Coffs Harbour Bypass

The Coffs Harbour Bypass (CHB) will involve the construction of a 14-kilometre bypass of the Coffs Harbour urban area, from Englands Road roundabout in the south to Sapphire in the north, see Figure 1.

The Coffs Harbour Bypass project received Ministerial Approval under section 5.19 of the *Environmental Planning & Assessment Act 1979* on 2 November 2020. The CHB is identified as Critical State Significant Infrastructure (CSSI), and the approval included the following project description.

> "The construction and operation of a new multi lane road from north of the Sawtell Road interchange to Sapphire, and includes:
>
> - A new four-lane divided highway with three grade-separated interchanges at Englands Road (southern), Coramba Road (central) and Korora Hill (northern);
> - Three tunnels through ridges, at Roberts Hill (approximately 190m long), Shephards Lane (approximately 360m long) and Gatelys Road approximately 450m long);
> - Structures to pass over local roads and creeks, and a bridge over the North Coast Railway;
> - Tie-ins and modifications to the existing road network, to enable local road connections;
> - Pedestrian and cycling facilities, a shared path tying into the existing shared path on Solitary Islands Way, and a new pedestrian bridge to replace the existing Luke Bowen footbridge;

- A new Korora Public School bus interchange and a formalised bus stop at Coramba Road; and
- Noise attenuation measures, fauna connectivity structures and ancillary work."

1.2. Groundwater Monitoring Objectives

The primary objective of the groundwater monitoring program is to assess the impact of the CHB highway upgrade on groundwater in the CHB study area.

Additional objectives of the groundwater monitoring program for each of the three phases of the project are as follows, (TfNSW 2019):

Phase 1 – Pre-Construction

- Establish baseline groundwater conditions,
- Identify parameters for monitoring during construction.

Phase 2 - Construction

- Demonstrate compliance with approvals and other monitoring requirements for the project,
- Procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory.

Phase 3 - Operational

- The parameters of the project to be monitored,
- Evaluation of site stabilisation and determination of new groundwater conditions,
- Groundwater monitoring during this phase would be undertaken for a period of three years, or before if it can be proved that no impact has occurred.

Figure 1: Coffs Harbour Bypass Study Area
Source: TfNSW

2. Approval Conditions & Commitments

The Ministers Conditions of Approval (MCoA), Commonwealth approval conditions, and the TfNSW revised environmental measures that apply to the management of groundwater on the CHB project are discussed in the following section.

2.1. Minister's Conditions of Approval

The Coffs Harbour Bypass project received Ministerial Approval on 2 November 2020. The Minister's Conditions of Approval (MCoA) which apply to groundwater and to groundwater monitoring for the CHB project is summarised in Table 2.

Table 2: MCoA applicable to groundwater monitoring for the CHB

Condition	MCoA
Part C - Construction Monitoring Programs	
C13	The Construction Monitoring Programs in Table 4 must be prepared in consultation with relevant government agencies identified for each to compare actual performance of construction of the CSSI against the performance predicted in documents listed in Condition A1 or in the CEMP. c) Surface & Ground Water Quality Relevant Government Agencies: EPA, DPI Agriculture, DPI Fisheries, DPIE Water Group, Council
C14	Each Construction Monitoring Program must provide: a) Details of the baseline data available; b) Details of baseline data to be obtained and when; c) Details of all monitoring of the project to be undertaken; d) The parameters of the project to be monitored; e) The frequency of monitoring to be undertaken; f) The location of monitoring; g) The reporting of monitoring results; h) Procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory; and i) Any consultation to be undertaken in relation to the monitoring programs.

Condition	MCoA
C15	The Construction Monitoring Programs must be developed in consultation with relevant government agencies as identified in Condition C13 of this approval and must include information requested by an agency to be included in a Construction Monitoring Programs during such consultation. Details of all information requested by an agency including copies of all correspondence from those agencies, must be provided with the relevant Construction Monitoring Program.
C16	The Construction Monitoring Programs must be endorsed by the ER and then submitted to the Planning Secretary for approval at least one month before the commencement of construction.
C17	Construction must not commence until the Planning Secretary has approved all of the required Construction Monitoring Programs, and all relevant baseline data for the specific construction activity has been collected.
C18	The Construction Monitoring Programs, as approved by the Planning Secretary including any minor amendments approved by the ER must be implemented for the duration of construction and for any longer period set out in the monitoring program or specified by the Planning Secretary, whichever is the greater.
C19	The results of the Construction Monitoring Programs must be submitted to the Planning Secretary, and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.
Part D – Operational Monitoring Program	
D6	The Operational Monitoring Programs in Table 6 must be prepared in consultation with the relevant authorities identified for each Operational Monitoring Program to compare actual operational performance against predicted performance. These programs must be submitted to the Planning Secretary for information. The monitoring program must be implemented. a) Surface & Ground Water Quality Relevant Government Agencies: EPA, DPI Fisheries, DPIE Water Group, Council
D7	Each Operational Monitoring Program must include: a) Details of baseline data; b) Details of all monitoring of the project to be undertaken; c) The parameters of the project to be monitored;

Condition	MCoA
	d) The frequency and lifespan of monitoring to be undertaken; e) The location of monitoring; f) The reporting of monitoring and analysis results against relevant criteria; g) Details of the methods that will be employed to analyse the monitoring data; h) Procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory; and i) Any consultation to be undertaken in relation to the monitoring programs.

Part E – Key Issue Conditions, Groundwater

E110	Operational groundwater inflows into each tunnel must be no greater than one litre per second across any given kilometre (1L/s/km). Compliance with this condition cannot be determined by averaging groundwater inflows across the length of the tunnel(s)[1].
E111	The Proponent must identify and commit to the implementation of 'make good' provisions for groundwater users in the event of a material decline in water supply levels, quality and quantity from existing registered bores associated with groundwater changes from either construction and/or ongoing operational dewatering caused by the CSSI[2].

2.2. Conditions of Approval – Commonwealth

Commonwealth approval (Ref No. 2017/8005) for the CHB Project was granted under sections 130(1) and 133(1) of the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act). Approval was granted by the Commonwealth Minister for the Environment on 8 December 2020.

To compensate for impacts on protected matters the approval conditions require implementation of conditions provided in the MCoA which include reference to conditions C13(c) and C14 of Part C (see section 2.1), where they relate to monitoring,

[1] Note. Estimation and monitoring of groundwater inflows form a component of the Tunnelling SWTC and associated construction methodology.

[2] Note: MCoA E111 requirements are addressed in the Contractors Construction Soil and Water Management Plan.

managing, avoiding, mitigating, offsetting, recording, or reporting on, impacts to protected matters. For the CHB project protected matters are listed threatened species and communities, including known habitat for the Koala (*Phascolarctos cinereus*) and the Giant Barred Frog (*Mixophyes iterates*). Compliance with the Commonwealth approval conditions requires the preparation and approval of this construction and operation GWMP.

2.3. Revised Environmental Management Measures

The CHB Environmental Impact Statement (TfNSW 2019) identified a range of environmental outcomes and management measures to be undertaken to avoid or reduce the environmental impacts of this project.

Following exhibition of the EIS and the public submissions received TfNSW has reviewed the issues raised and revised the environmental management measures for this project. The measures relevant to groundwater management for the project are summarised in Table 3.

Table 3: Revised environmental management measures for groundwater on the CHB

ID	Environmental Management Measures	Responsibility	Timing	Relevant Management Document or process reference
Water Quality Monitoring Program				
SW01	A Water Quality Monitoring Program will be prepared and implemented prior to and during construction and operation to identify whether the project is resulting in adverse impacts on water quality and assess compliance with statutory requirements and project targets. Monitoring will continue for a period of three years following construction, or before it can be proved that no impact has occurred. The monitoring program will be prepared in accordance with the Guideline for Construction Water Quality Monitoring (RTA n.d.) and details provided in Chapter 19, Surface water quality of the EIS.	TfNSW	Prior to and during construction and operation.	Surface Water Quality Monitoring Program
Prevention of groundwater impacts from cuttings, tunnels, and embankments				
GW01	Stockpiles containing PASS or ASS treatment areas will be lined and bunded in accordance with the Guidelines for the Management of Acid Sulfate Materials (RTA 2005) to	Contractor	During Construction	Construction Soil and Water Management Sub Plan

ID	Environmental Management Measures	Responsibility	Timing	Relevant Management Document or process reference
	prevent leachate contaminating groundwater.			
GW02	Additional groundwater monitoring standpipes will be included for Type A cuts for alluvial aquifers along the project and in the areas around the major embankments to supplement existing data.	TfNSW	Prior to construction[3]	Construction and Operational Groundwater Monitoring Program
GW03	Captured groundwater from tunneling will be treated using temporary water treatment plants and transferred to storage dams for reuse during construction as a source of non-potable water.	Contractor	During Construction	Construction Soil and Water Management Sub Plan, Construction Water Reuse Plan
GW04	Unless used as a source of non-potable water for the project, groundwater captured by cuttings and tunnels will be returned into the aquifer down gradient and within the same catchment from where it was intercepted where reasonable and feasible.	Contractor	During Construction	Detailed Design
GW05	Engineering measures for long-term management of groundwater inflow to cuttings and tunnels will be designed and constructed to ensure groundwater is recharged down gradient of the cutting or tunnel from where it is captured and within the same catchment where reasonable and feasible. This will be facilitated by, but not limited to,	Contractor	During detailed design	Detailed Design

[3] Note that TfNSW has now satisfied measure GW02 through the installation of additional groundwater monitoring well locations, see section 7.1 Monitoring locations.

ID	Environmental Management Measures	Responsibility	Timing	Relevant Management Document or process reference
	absorption trenches, infiltration galleries/pits, sediment basins and grassed swales.			
GW06	Where groundwater recharge down gradient of the cutting or tunnel is not reasonable and feasible, measures will be designed and implemented that transfer seepage water downstream via water quality basins before being discharged into a downstream drainage channel or creek, within the same catchment.	Contractor	During detailed design and during construction	Detailed Design
GW07	Additional geotechnical and hydrogeological investigations and modelling will be carried out for the Gatelys Road tunnel during detailed design to improve predictions of likely groundwater inflows, inform construction methodologies and develop engineering measures to reduce groundwater ingress where inflow rates are still anticipated to exceed 1 L/s per kilometre. Investigations and modelling will be undertaken in consultation with Water Group, DPIE.	Contractor	During detailed design	Detailed Design
GW08	Monitoring of groundwater levels and quality will be included in the Water Quality Monitoring SW01.	TfNSW	Prior to and during construction and operation.	Construction and Operational Groundwater Monitoring Program
GW09	Monitoring of seepage into cuttings will be carried out and evaluated against the predictions of the numerical modelling undertaken during detailed design.	Contractor	During construction	Detailed Design
GW10	Major embankments will be designed to enable distributed flow of surface water to prevent ponding.	Contractor	During detailed design	Detailed Design

ID	Environmental Management Measures	Responsibility	Timing	Relevant Management Document or process reference
GW11	Additional ground truthing and site inspections will be undertaken for potentially impacted groundwater bores/supply wells (including supply well GW068986), springs, Jordans Creek *(near Cut 20),* and agricultural dams within and immediately surrounding the zone of drawdown. The purpose of the ground truthing and site inspections is to confirm predicted impacts and develop make good provisions where required in consultation with affected property owners.	TfNSW	During detailed design	Groundwater Management Plan – see Appendix F of Construction Soil Water Management Plan
GW12	Sites used for stockpiles, washdown areas, refueling and chemical storage will be located away from areas of shallow groundwater or appropriately lined and bunded to protect groundwater.	Contractor	Prior to and during construction	Ancillary Site Establishment Management Plan

3. Regional Setting & Layout

3.1. Study Area

The CHB study area and project alignment is presented in Figure 1 and extends from south of Englands Road to Sapphire in the north.

The area supports a productive agricultural hinterland, including the southern limits of Australia's banana plantations and nationally significant blueberry plantations. Other unique features include the proximity of the Great Dividing Range, the visual connection to the coastline and the proximity to the regional city of Coffs Harbour. The region also supports a diverse range of native vegetation communities and provides connectivity for important areas of flora and fauna habitat, including Ulidarra National Park, Korora Nature Reserve, and the Boambee State Forest. There are significant natural areas nearby to the CHB study area including the Solitary Islands Marine Park, (TfNSW 2019).

Within the CHB study area is the proposed construction and operational footprints of the CHB project and an allowance for areas which may be indirectly impacted because of changes to groundwater standing water levels, (TfNSW 2019).

3.2. Topography

The CHB project is located within 6 kilometers of the Coffs Harbour coastline. The project will extend from the floodplains of the North Boambee Creek, south of Coffs Harbour, through three ridgelines to the west of the city (Roberts Hill, Shephards Lane

and Gatelys Road) to an area characterised by the rolling hills at Korora, to coastal plains at Sapphire, north of Coffs Harbour, (TfNSW 2019).

The CHB project extends from relatively flat, alluvial areas in the south with elevation between 5-10m Australian height datum (AHD) to the Roberts Hill ridgeline which rises to about 85m AHD. North of the Roberts Hill ridgeline, the project traverses through foothill areas, generally parallel to the catchment ridgelines which vary between about 25m AHD and 70m AHD. The Shephards Lane and Gatelys Road ridgelines rise to 165m AHD and 145m AHD respectively. North of the Gatelys Road ridgeline the project topography decreases to around 40m AHD at the current Pacific Highway alignment, past Pine Brush Creek to an elevation of about 25m AHD, (TfNSW 2019).

3.3. Climate

The CHB project is located on the mid-north coast of NSW, approximately 530km north of Sydney and 390km south of Brisbane. The Bureau of Meteorology (BoM) describes the Coffs Harbour locality as sub-tropical with warm to very warm wet summers and cool to mild dry winters.

For the GWMP there is rainfall data available from the following BoM and CHB automatic weather stations (AWS):

- Coffs Harbour Airport (BoM Station No. 59151), from August 2013 to present, 3.6km east of the CHB project.
- Englands Road AWS, from 20 April 2020 to present, (located in south of CHB project)
- Roselands Drive AWS, from 1 April 2020 to present, (located in south central portion of CHB project)
- Mackays Road AWS, from 1 April 2020 to present, (located in north central portion of CHB project)
- Seaview Close AWS, from 23 April 2020 to present, (located in north of CHB project).

The rainfall data for the Coffs Harbour MO and Coffs Harbour weather stations is summarised in Table 4. The Coffs Harbour Airport has been excluded due to the limited amount of data available, (TfNSW 2019).

Table 4: Summary of rainfall statistics for CHB project

BoM weather station	Mean annual rainfall (mm)	Highest monthly average (mm)	Lowest monthly average (mm)
Coffs Harbour MO	1,699	March, 235	September, 60
Coffs Harbour	1,651	March, 232	September, 68

Source. TfNSW (2019), *Coffs Harbour Bypass Environmental Impact Statement*

3.4. Regional Geology

The CHB project is situated within the New England Orogen in eastern Australia. The 1:250,000 Metallogenic Map of NSW (Dorrigo-Coffs Harbour) indicates the project is

underlain by two geological rock units, the Carboniferous aged Coramba Beds and the Brooklana Formation of the Coffs Harbour sequence.

The mapped Coramba Beds extend beyond the southern end of the project to just north of the North Coast Rail Line; north of this point the project is underlain by the Brooklana Formation. Geological mapping indicates the rock units comprise of:

- Coramba Beds – lithofeldspathic wacke, minor siltstone, siliceous siltstone, mudstone, metabasalt, chert and jasper, rare calcareous material.
- Brooklana Formation – thinly bedded siliceous mudstone and siltstone with rare lithofeldspathic wacke, locally chert, jasper, magnetite-bearing chert and metabasalt.

Further detailed descriptions of the geological setting along the CHB project are provided in the TfNSW (2019), *Coffs Harbour Bypass Environmental Impact Statement*.

3.5. Regional Hydrogeology

Three groundwater bearing strata have been identified within the CHB project which include the following, (TfNSW 2019):

- Shallow surficial deposits, comprising of relatively thin colluvial and residual soil horizons, comprising clays, silts and gravels that overlie the Coramba Beds and the Brooklana Formation in the hill slopes and foothill areas. The distribution of these surficial materials is highly variable. This unit is unlikely to act as a single groundwater body, instead presenting as a series of disconnected local perched systems.
- Alluvial deposits, occur along drainage lines which interfinger topographically higher areas. The alluvial units are separated into a shallow up-river alluvial aquifer and a coastal floodplain alluvial aquifer. The boundary of the latter coastal floodplain alluvial aquifer is defined by the tidal limit of waterways and is located further to the east and outside the CHB study area.

  Recharge to the up-river alluvial aquifer is from both direct recharge from rainfall into the aquifer and from direct connection (interflow) between the alluvial deposits and surface water within creek lines. The estimated travel time between groundwater and creek ranges from days to months. Groundwater recharge to alluvium and surface water from the underlying fractured bedrock is likely to be low; the impact on in-stream values from fractured bedrock is low according to the local water sharing plans.
- Fractured bedrock, comprising the Coramba Beds and the Brooklana Formation. Groundwater in these units is in the geological structures that include faults, shear zones, joint sets, and cleavage planes. The fractured bedrock aquifer forms part of a larger regional groundwater source known as the New England Fold Belt Coast groundwater source. The bedrock has a low permeability except where the rock has undergone significant weathering. Groundwater storage, permeability and flow within the rock mass is principally within secondary defects (joints, fractures, faults) and weathered zones.

  The fractured bedrock aquifer is recharged via rainfall infiltration from the overlying surficial deposits or directly to the bedrock at outcrop in the upper reaches of the

catchment which extends far to the west of the CHB project. Groundwater within the bedrock within the CHB study area forms part of a shallower, more local system, where recharge and flow paths are less connected to the regional scale system. Compared to the alluvial aquifers, groundwater movement within the fractured bedrock is slow and may take years to decades or longer from the point of recharge to discharge.

Groundwater flows in the shallow fractured bedrock are generally expected to follow the topographical features of the study area which are broadly towards the east, except locally at the ridge lines. Groundwater flow within the deeper bedrock is less likely to be affected by local topographic variation with flow anticipated to be eastwards towards the coast, potentially exhibiting strong vertical gradients.

4. Groundwater Environment & Risks

4.1. CHB Project Elements

The CHB project will involve major highway construction elements which have the potential to impact on the local hydrogeological environment, (TfNSW 2019). They include:

- Construction of three short, drained tunnels through ridges at Roberts Hill (~190m), Shephards Lane (~360m), and Gatelys Road (~450m).
- A series of drained cuttings and embankments along the alignment.
- Structures to pass over local roads and creeks as well as a bridge over the North Coast Railway.

4.2. Potential Groundwater Issues

Groundwater impacts include risks to a variety of receptors which include groundwater users (groundwater extracted from bores for stock and domestic supplies, irrigation needs or municipal reserves) and the natural environment, which require sufficient groundwater supply and quality to maintain function, (TfNSW 2019).

During construction, including construction of the highway tunnels, cuttings, embankments and bridge footings, the following potential risks to groundwater include:

- Risk to water supply quantity because of interruption of groundwater flow or changes in groundwater level (either through changes in permeability or impedance in flow or due to changes in supply or discharge because of groundwater interception for instance, in cuts and tunnels).
- Risk to water supply quality from anthropogenic (contamination) or natural sources (salinity and acid sulfate materials) which may be altered or affected by the project.
- Risk to water supply and quality to the natural environment (for example, baseflow to creeks, streams, and waterways) occurring because of ponding in areas of fill, or drainage in areas of cut or tunnels.

- Risk to groundwater dependent ecosystems and vegetation which may be dependent on groundwater supply.
- Risks due to settlement caused by changes in groundwater levels caused by interception of groundwater flow.

4.3. Groundwater Assessment

Cuttings and drained tunnels have the potential to impact groundwater levels where their depth extends below the existing groundwater standing water level. The three tunnels and major cuttings are located within the foothills and ridgelines to the west of Coffs Harbour.

Where seepage from groundwater into excavations occurs during construction, and into permanent drainage systems during operation, groundwater levels will be lowered (drawdown) in the area surrounding the major cuttings and tunnels. Seepage which enters the cuttings and tunnels is also captured, and without remedial measures will be prevented from flowing along its natural course. The extent of drawdown and seepage rates into the cuttings/tunnels will depend on the depth below groundwater levels which the elements extend, the length over which seepage occurs and the local hydrogeological conditions at each of the cuttings.

To evaluate the potential impacts associated with each cutting and tunnel along the alignment the proposed mainline elevations were compared to groundwater level information obtained from geotechnical investigations and publicly available information, (TfNSW 2019).

The range of groundwater levels at each cutting and tunnel was evaluated, with an average level determined over the period of monitoring. The average groundwater level was compared to the mainline elevation to assess the maximum potential drawdown which could occur at each cutting/tunnel. Based on the assessment each of the cuttings and tunnels were classified in three types based on the following, (TfNSW 2019):

Type A (moderate to high impact)
Where the design level of the cutting or tunnel is predicted to be below the groundwater table. This may lead to localised lowering of water levels around the tunnel or cutting sides which may:

- Affect groundwater flow rates and discharges down gradient potentially affecting groundwater dependent ecosystems (GDEs) or other groundwater users if present within the zone of influence of the element.
- Have more than a minimal impact on nearby water supply works as defined by the NSW Aquifer Interference Policy.
- Cause engineering mitigations to be implemented during construction or operation of the upgrade, for example drainage blankets constructed beneath pavement, pressure reduction drainage in cut batters.

Type B (negligible to low impact)
Where the design level of the cutting or tunnel is within 5m of the groundwater table, where there is not expected to be an adverse impact to the groundwater regime, and engineering mitigation measures are not expected to be required.

Fluctuation in groundwater levels may lead to interception of the water table with the element during wet periods although this effect is likely to only be for short periods of time. Type B cuts may impact on design and construction but are unlikely to affect nearby waterworks or GDEs if any (for example where the groundwater level rises to the grade level after large rainfall events).

Type C (no impact)
Where groundwater levels are greater than 5m below the design cut level with no anticipated impact.

The results of this assessment indicate that for the CHB project there are:

- Three Type A tunnels
- Seven Type A cuttings
- Twelve Type B cuttings
- Five Type C cuttings.

The below Figures 2-1 to 2-6 shows the cutting locations, types, and inferred groundwater flow directions for the CHB project (TfNSW 2019).

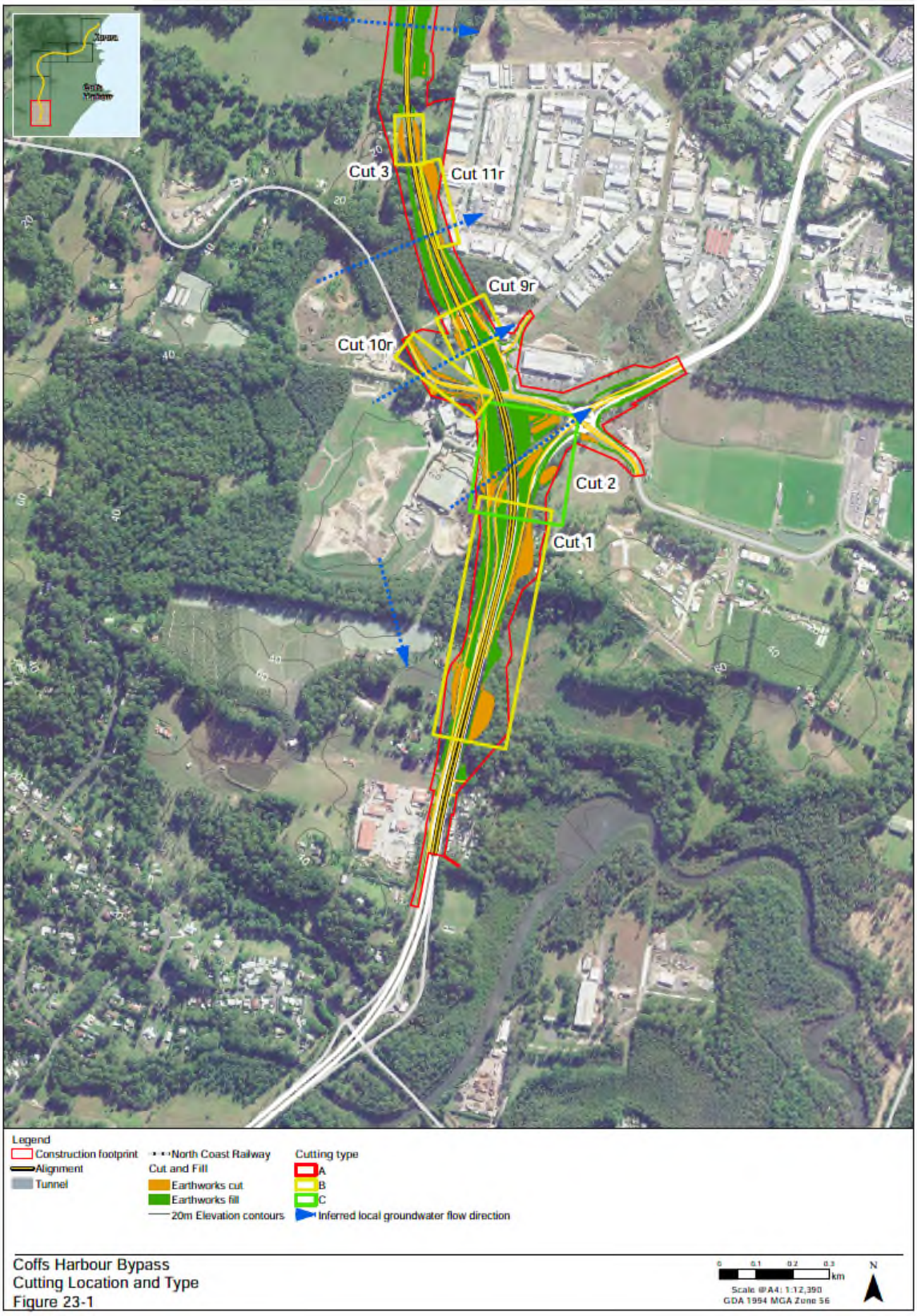


Figure 2-1: Cutting location and type - Coffs Harbour Bypass
Source. TfNSW (2019), *Coffs Harbour Bypass Environmental Impact Statement*

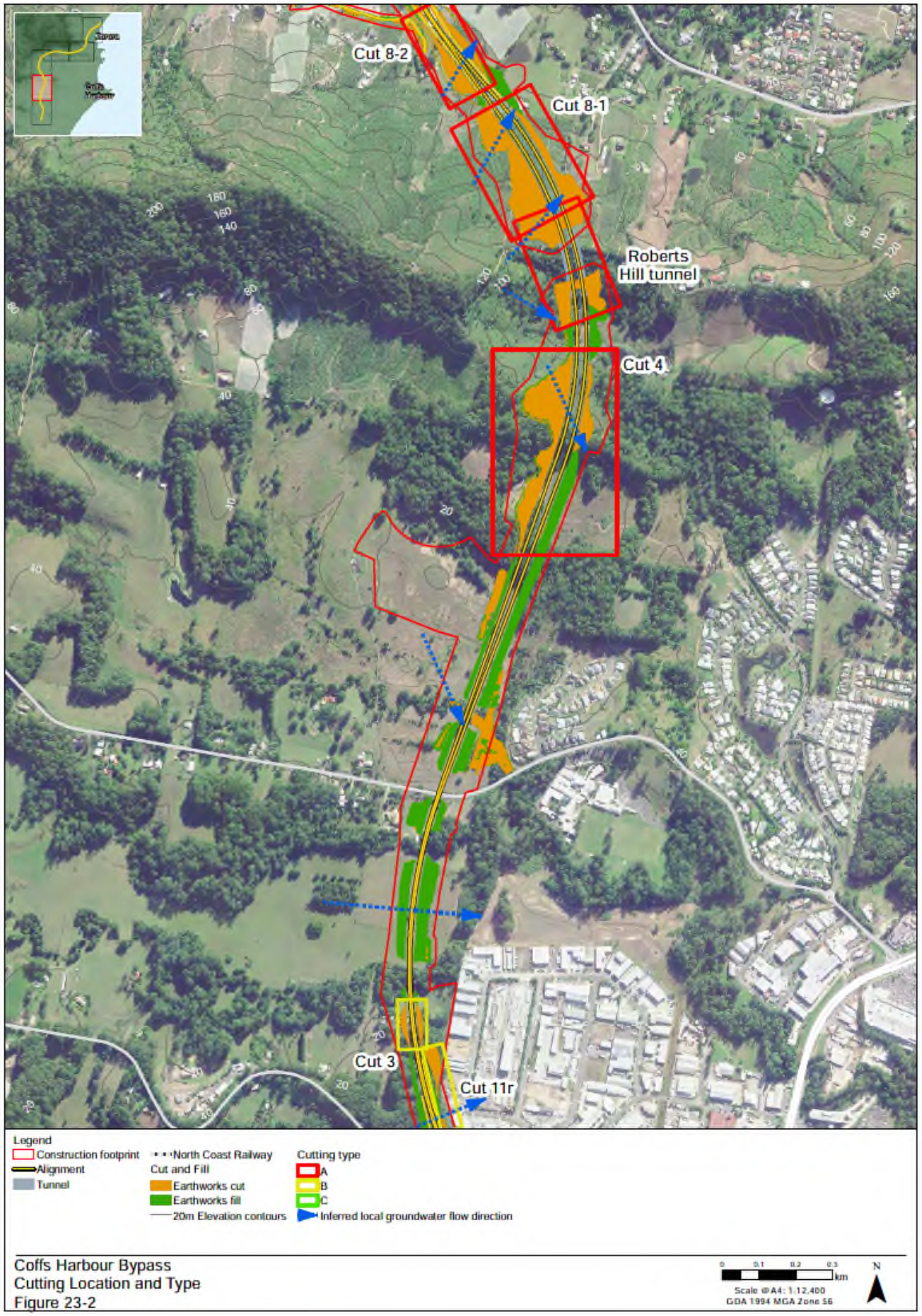


Figure 2-2: Cutting location and type - Coffs Harbour Bypass
Source. TfNSW (2019), *Coffs Harbour Bypass Environmental Impact Statement*

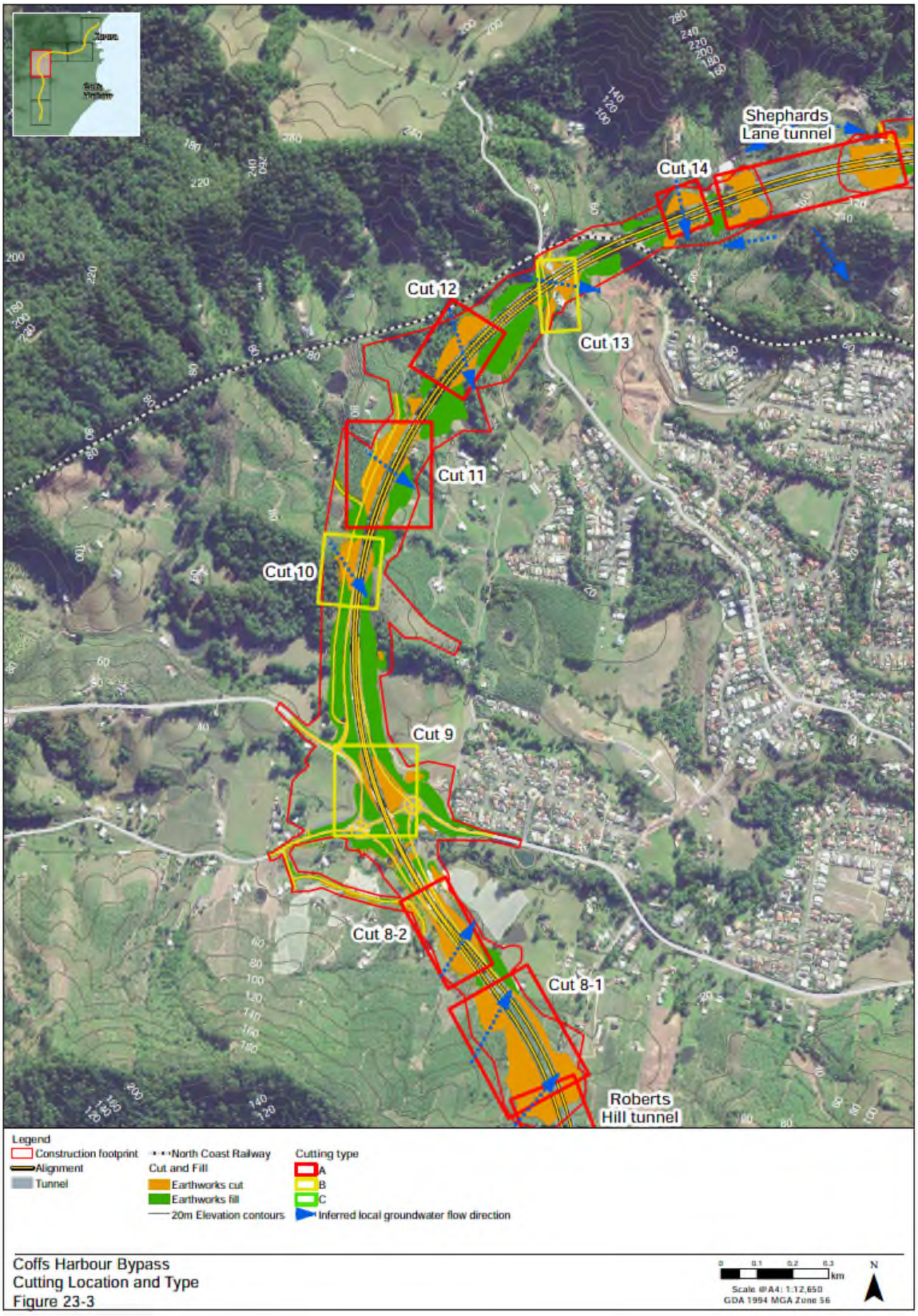


Figure 2-3: Cutting location and type - Coffs Harbour Bypass
Source. TfNSW (2019), *Coffs Harbour Bypass Environmental Impact Statement*

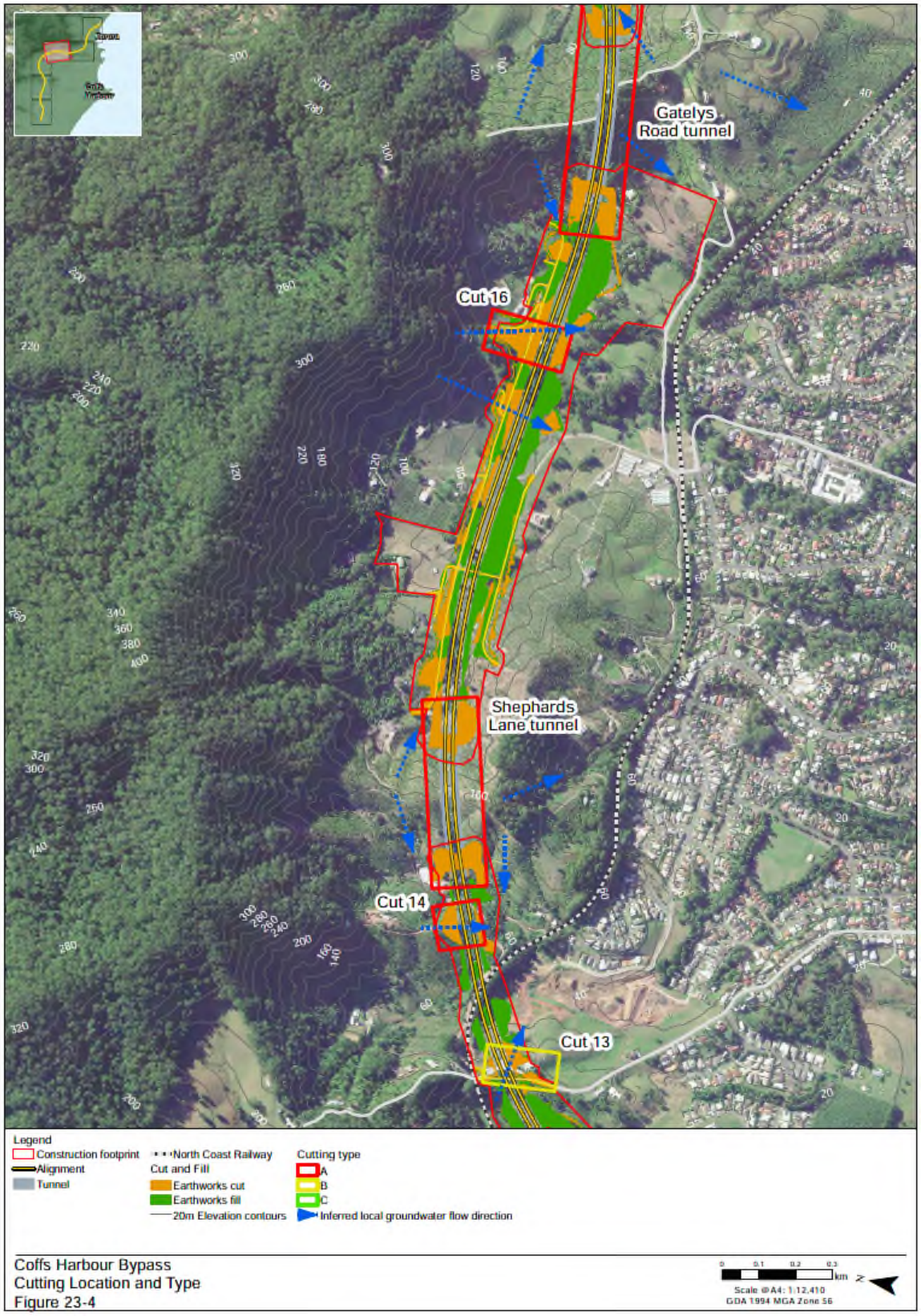


Figure 2-4: Cutting location and type - Coffs Harbour Bypass
Source. TfNSW (2019), *Coffs Harbour Bypass Environmental Impact Statement*

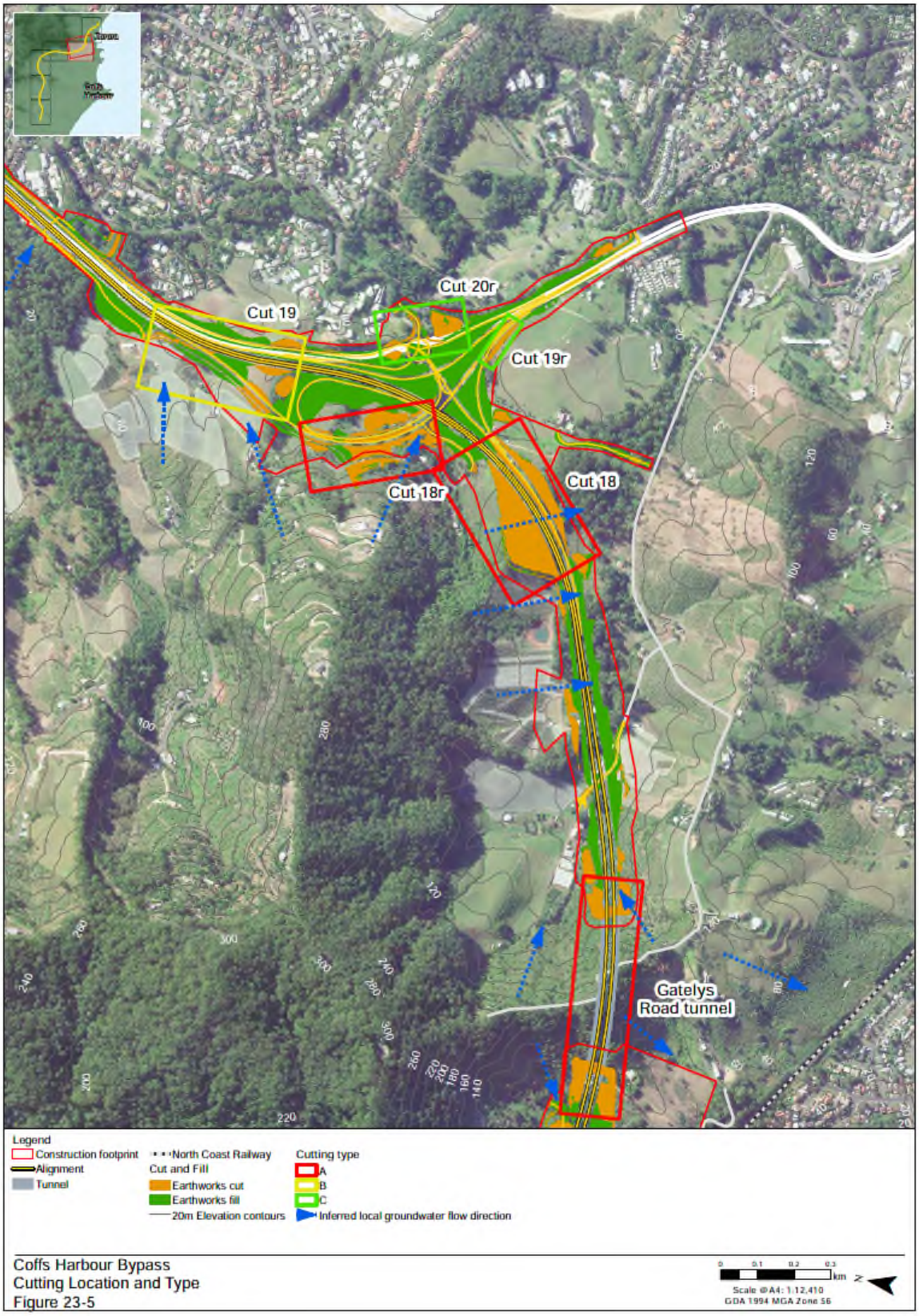


Figure 2-5: Cutting location and type - Coffs Harbour Bypass
Source. TfNSW (2019), *Coffs Harbour Bypass Environmental Impact Statement*

Figure 2-6: Cutting location and type - Coffs Harbour Bypass
Source. TfNSW (2019), *Coffs Harbour Bypass Environmental Impact Statement*

5. Updates to the GWMP

The GWMP will adopt an adaptive approach to identify and implement improvement opportunities and to ensure the GWMP continues to meet its objectives. The GWMP is a working document and will be subject to ongoing review throughout each of the phases of the CHB project.

An updated interpretative report was prepared following the conclusion of the Phase 1 – Pre-Construction Groundwater Monitoring Program in January 2023, (Ballpark Environmental 2023). The statistical analyses included in this report will be used to update the P80 and P20 trigger values for construction and operation phase.

Similarly, this adaptive approach will continue for the duration of the CHB project construction and operational phases so that the GWMP remains effective. Where an annual interpretative report identifies an opportunity for improvement, or areas where the monitoring program may be refined the GWMP may be reviewed and updated. This will ensure that the groundwater monitoring program outlined within this GWMP remains effective and capable of meeting the monitoring program objectives.

Any recommended change will be presented to TfNSW, the CHB Environmental Representative, and to the relevant agencies for review and approval prior to implementation.

6. Summary of Pre-Construction Monitoring

Pre-Construction groundwater monitoring has recently been completed and includes 5 monitoring events undertaken in the period from June 2021 to January 2023.

The purpose of the pre-construction groundwater monitoring program is to collect pre-construction baseline information on groundwater levels and groundwater quality for the CHB project.

Following the initial 4 rounds of monitoring a factual groundwater data report was prepared, (Ballpark Environmental 2021b, 2022a, 2022b, & 2022c). Each data report includes summary data tables and individual hydrographs for each available monitoring well in that round.

At the completion of the 5th monitoring event in January 2023 an updated Interpretative Report was prepared, (Ballpark Environmental 2023), see Appendix C. The Interpretative Report includes:

- An overview of the groundwater monitoring program including; introduction and background to the purpose of the program, and project approval conditions and commitments.
- The objectives of the GWMP.
- Methodology, providing detail on each of the groundwater monitoring well locations, figures and GPS coordinates, fieldwork including groundwater sampling methods and the storage and handling of samples for laboratory analysis.
- Plots of the standing water levels recovered from the HOBO data loggers for each monitoring well.

- Groundwater quality results, including presentation of groundwater quality data in summary tables.
- Analysis and discussion of groundwater monitoring findings.
- Supporting information, including site plans, tables, figures, photographs, laboratory certificates of analysis, and other relevant information.

7. Monitoring Program

7.1. Monitoring Locations

TfNSW has installed a series of groundwater monitoring wells during the previous geotechnical investigations to inform the design of this project. These monitoring wells have been installed using a risk-based approach based on the classifications applied to each of the tunnels and cuttings into one of the three types (A, B or C) discussed in section 4.3. In addition, to address environmental management measure GW02 TfNSW has also installed additional monitoring wells near alluvial aquifers and areas near major fill embankments. These additional monitoring wells will be monitored during the construction phase, see environmental management measure GW08.

During construction and operation up to 56 groundwater well locations will be monitored on a quarterly basis for this GWMP. Table 5 provides details on the well location for each of the monitoring wells.

It is likely that access arrangements to monitoring well locations will change during the construction phase depending upon liaison with the principal contractor and TfNSW, see section 7.4.2.

Table 5: Construction and operation groundwater monitoring locations

Cutting/ Tunnel	Type	Well Location ID	Chainage	Description	Well Status	Pre-Construction Monitoring Sampling Status				Comment
						Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	
Cut 1	B	BHH101	10300	UG	Lost	Uploaded	Uploaded	Lost – Well Destroyed		BHH101 – Monitoring well was lost during landholder earthworks at this site in early 2022. This well was installed for concept design purposes in a Type B cutting and there is no corresponding down gradient well location for assessment. Therefore this location has been removed from GWMP.
	A/E	BHH106	12950	UG	Installed	No Access	No Access	Logger Installed	Uploaded	BHH106 – well was installed for concept design purposes and is located on a small cut no corresponding down gradient location for assessment purposes. For this location only summary data and a hydrograph will be produced following each round as there is no corresponding comparison well available.
Cut 4	A	BH1056	13200	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH1056 – down gradient location to be monitored for Cut 4 during construction and operational phases of monitoring. BH1058 – upgradient location to be monitored for Cut 4 during construction and operation phases of monitoring.
		BH1058	13300	UG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
	A/E	BH1059	13400	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH1059 – well was installed for concept design purposes and is located to the northeast of Cut 4 on the embankment of a large farm dam on the CHB project boundary. For this location only summary data and a hydrograph will be produced following each round as there is no corresponding comparison well available.
Roberts Hill Tunnel	A	BHH110	13600	OUA	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BHH110 – on current preliminary design plans the location will be lost during construction of southern portal to Roberts Hill Tunnel. Data will be collected until the location is lost during construction. BH2001 – down gradient location to be monitored for the southern portal of RHT during construction and operational phases of monitoring. BH2002 – upgradient location to be monitored for the southern portal of RHT during construction and operation phases of monitoring. BHH111 – down gradient location to be monitored for RHT during construction and operational phases of monitoring. BHH113 – upgradient location to be monitored for RHT during construction and operational phases of monitoring. BH2003 – upgradient location to be monitored for the northern portal for RHT during construction and operational phases of monitoring. BHN2.1-015 – down gradient location to be monitored for the northern portal for RHT during construction and operational phases of monitoring.
		BH2001	13600	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BH2002	13650	UG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BHH111	13700	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BHH113	13700	UG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BH2003	13730	UG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BHN2.1-015	13800	DG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	

Cutting/ Tunnel	Type	Well Location ID	Chainage	Description	Well Status	Pre-Construction Monitoring Sampling Status				Comment
						Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	
	A/E	BH2004	13850	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2004 – located approximately 130m to the east of the project boundary and was installed to monitor potential drawdown during construction of the Roberts Hill Tunnel. For this location only summary data and a hydrograph will be produced following each round as there is no corresponding comparison well available.
Cut 8-1	A	BHH115	13900	UG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	BHH115 – upgradient location for Cut 8.1 and will be lost during construction. An alternate upgradient location will be needed, data will be collected until the monitoring location is lost/ or replaced.
		BH2006	14000	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2006 – down gradient location for Cut 8-1 to be monitored during construction and operational phases of monitoring.
Cut 8-2	A	BHH119	14250	UG	Installed	Missing Logger	Logger Installed	Uploaded	Uploaded	BHH119 – upgradient location to be monitored for Cut 8.2 during construction and operational phase of monitoring.
		BH2008	14350	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2008 – down gradient location to be monitored for Cut 8.2 during construction and operation phases of monitoring.
	A/E	BH2015	14600	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2015 & BH2016 – – wells were installed for concept design purposes and are in low-lying area to the south of Coffs Creek. For these locations only summary data and a hydrograph will be produced following each round as there is no corresponding comparison well available.
		BH2016	14600	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
Cut 10	B	BH2027	15450	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2027 – down gradient location to be monitored for Cut 10 during construction and operation phases of monitoring.
		BH2029	15450	UG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2029 – upgradient location to be monitored for Cut 10 during construction and post construction.
	A/E	BH2030	15500	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2030 – – well was installed for concept design purposes and is located to the northeast of Cut 10 on the embankment of a large farm dam on the CHB project boundary. For this location only summary data and a hydrograph will be produced following each round as there is no corresponding comparison well available.
Cut 11	A	BHH125	14770	DG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	BHH125 – down gradient location to be monitored for Cut 11 during construction and operation phases of monitoring.
		BHH127	14770	UG	Installed	Uploaded	Uploaded	Failed/ New logger installed	Uploaded	BHH127 – upgradient location to be monitored for Cut 11 during construction and post construction.
Cut 12	A	BHN/H2.1-024	16070	DG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	BHN/H2.1-024 – down gradient location to be monitored for Cut 12 during construction and post construction.
		BHN2.1-025	16150	UG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	BHN2.1-025 – upgradient location to be monitored for Cut 12 during construction and operation phases of monitoring.
Cut 13	B	BHN2.1-026	16400	DG	Lost	Lost	Lost	Lost	New Logger Installed / Uploaded	BHN2.1-026 – down gradient location has been located and a logger was installed in the 4th round of groundwater monitoring. The location will be monitored for Cut 13 during construction and post construction.

Cutting/ Tunnel	Type	Well Location ID	Chainage	Description	Well Status	Pre-Construction Monitoring Sampling Status				Comment
						Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	
		BHH131	16400	DG	Installed	Replacement for BHN2.1-026	Missing Logger	New logger installed	Uploaded	BHH131 – data was collected during 5th round of monitoring and then this logger will be removed as this well location will be lost during construction. Therefore this location has been removed from GWMP. BHH2.1-031 – upgradient location to be monitored for Cut 13 during construction and post construction. BHH132 – Monitoring well was lost during earthworks at this site in late 2022. There is an alternative upgradient well, BHH2.1-031, nearby to this location. Therefore this well has been removed from GWMP.
		BHH132	16400	OUA	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BHH2.1-031	16400	UG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	
Cut 14	A	BHN2.1-044	16800	DG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	BHN2.1-044 – down gradient location to be monitored for Cut 14 during construction and post construction. BHH2.1-047 – upgradient location to be monitored for Cut 14 during construction and operation phases of monitoring.
		BHH2.1-047	16800	UG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	
Shephards Lane Tunnel	A	BH2034	17000	UG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2035 – down gradient location to be monitored for the western portal of SLT during construction and operation phases of monitoring. BH2034 – upgradient location to be monitored for the western portal of SLT during construction and operational phases of monitoring. BHH139 – location was lost prior to the start of the pre-construction program and has been removed from the GWMP. BHH140 – down gradient location to be monitored for the southern portal of SLT during construction and operation phases of monitoring. BHH141 – location was lost prior to the start of the pre-construction program and has been removed from the GWMP. BHH142 – upgradient location to be monitored for SLT during construction and operational phases of monitoring. Elevated pH and EC parameters observed during pre-construction monitoring. BHH144 – Data will be collected until the location is lost during construction. BH2036 – down gradient location approximately 200m to the south of the project boundary and installed to monitor drawdown potential during construction and operation phase of the SLT. BH2037 – upgradient location approximately 200m to the north of the project boundary and installed to monitor drawdown potential during construction and operational phase of the SLT. BH2038 – down gradient location to be monitored for the eastern portal of SLT during construction and operation phases of monitoring. BH2039 – upgradient location to be monitored for the eastern portal of SLT during construction and operational phases of monitoring.
		BH2035	17000	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BHH139	17100	OUA	Lost	Lost – Well Destroyed				
		BHH140	17170	DG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	
		BHH141	17170	OUA	Lost	Lost – Well Destroyed				
		BHH142	17170	UG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	
		BHH144	17220	OUA	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BH2036 (GW303812)	17200	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BH2037	17200	UG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BH2038	17290	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BH2039	12300	UG	Installed	Uploaded	Uploaded	Uploaded	Damaged / Well Repaired	

Cutting/ Tunnel	Type	Well Location ID	Chainage	Description	Well Status	Pre-Construction Monitoring Sampling Status				Comment
						Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	
	A/E	BH2040	17500	UG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2040 – Monitoring well was lost during earthworks at this site in late 2022. This well was installed for concept design purposes and was located on a small cut to the east of SLT with no corresponding down gradient location for assessment purposes. Therefore this location has been removed from GWMP.
	A/E	BH2046	18200	UG	Installed	Uploaded	Uploaded	Uploaded	Lost – Well Destroyed	BH2046 – well was installed for concept design purposes and is located upgradient to the north of the project boundary with no corresponding down gradient location for assessment purposes. Monitoring well was found to have been destroyed by earthworks during the June 2022 round. Therefore this location has been removed from the GWMP.
Cut 16	A	BH2047	18400	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2047 – down gradient location to be monitored for Cut 16 during construction and operational phases of monitoring. BH2049 – upgradient location to be monitored for Cut 16 during construction and operational phases of monitoring. Note this monitoring well was dry during 2021 pre-construction monitoring rounds.
		BH2049	18400	UG	Installed	Groundwater Well Dry		Uploaded	Uploaded	
	A/E	BH2050	18600	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2050 – – well was installed for concept design purposes and is located down gradient to the south of the project boundary with no corresponding upgradient location for assessment purposes. For this location only summary data and a hydrograph will be produced following each round as there is no corresponding comparison well available.
Gatelys Road Tunnel	A	BH2051	18900	UG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH2051 – upgradient location to be monitored for the western portal of GRT during construction and operational phases of monitoring. BH2052 – down gradient location to be monitored for the western portal of GRT during construction and operation phases of monitoring. BHH150 – upgradient location to be monitored for GRT during construction and operational phases of monitoring. BHH153 – down gradient location to be monitored for the GRT during construction and operation phases of monitoring. BH2053 – upgradient location approximately 200m to the north of the project boundary and installed to monitor drawdown potential during construction of the GRT. BH3002 – down gradient location approximately 200m to the south of the project boundary and installed to monitor drawdown potential during construction of the GRT. BHH154 – upgradient location to be monitored for the eastern portal of GRT during construction and operational phases of monitoring. No access during the pre-construction monitoring rounds from the northern side of the project boundary. BH3001 – down gradient location to be monitored for the eastern portal of GRT during construction and operation phases of monitoring. No access during the pre-construction monitoring rounds from the northern side of the project boundary.
		BH2052	18900	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BH2053	18950	UG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
		BHH150	19090	UG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	
		BHH153	19200	DG	Installed	No Logger Installed	Logger Installed	Uploaded	Uploaded	
		BHH154	19300	OUA	Installed	Missing Logger	No Access	No Access	Well Damaged / Logger Installed & Well Repaired	
		BH3001	19300	UG	Installed	Hold	Hold	No Access	Uploaded	
		BH3002	19300	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	

Cutting/ Tunnel	Type	Well Location ID	Chainage	Description	Well Status	Pre-Construction Monitoring Sampling Status				Comment
						Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	
		BH3003	19500	UG	Installed	Hold	Hold	No Access	Installed Logger	BH3003 – upgradient location approximately 200m to the north of the project boundary and installed to monitor drawdown potential during construction of the GRT.
	A/E	BH3004	19550	UG	Installed	Hold	Hold	No Access	Uploaded	BH3004 & BH3005 – – wells were installed for concept design purposes and are in low lying area to the east of GRT. For these locations only summary data and a hydrograph will be produced following each round as there is no corresponding comparison well available.
		BH3005	19550	UG	Installed	Hold	Hold	No Access	Uploaded	
	A/E	BH3014	20250	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH3014 & BH3015 – – wells were installed for concept design purposes are in low lying area to the south of Cut 18. For these locations only summary data and a hydrograph will be produced following each round as there is no corresponding comparison well available. .
		BH3015	20250	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	
Cut 18	A	BH3016	20300	UG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH3016 – upgradient location to be monitored for Cut 18 during construction and operation phases of monitoring.
		BH3020	20500	DG	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH3020 – down gradient location to be monitored for Cut 18 during construction and post construction.
Cut 19	C	BH3044	21300	OUA	Installed	Uploaded	Uploaded	Uploaded	Uploaded	BH3044 – Monitoring well was lost during earthworks at this site in late 2022. This well was installed for concept design purposes and is located to the northwest of Cut 19 no corresponding location for assessment purposes. Design requirement has been fulfilled and no further monitoring is required. Therefore this location has been removed from GWMP.
Cut 5a	B	BH3059	30070	OUA	Installed	Hold	Hold	No Logger – Groundwater Well Dry		BH3059 – well was installed for concept design purposes and is located upgradient to the north of the project boundary with no corresponding down gradient location for assessment purposes. Note this monitoring well was dry during 2022 pre-construction monitoring rounds and no logger has been installed at this location. Therefore this location has been removed from GWMP.

Notes:

OUA – On Upgrade Alignment
DG – Down Gradient
UG – Up Gradient
Type A – Moderate to high impact
Type B – Negligible to low impact
Type C – No impact
A/E – Alluvial or embankment
RHT – Roberts Hill Tunnel
SLT – Shephards Lane Tunnel
GRT – Gatelys Road Tunnel

Uploaded – Data collected from HOBO water level logger
Installed Logger – A HOBO water level logger was installed at this location
No Logger – A HOBO water level logger was not installed at this location
Hold – No access to this location at time of monitoring round
Lost – Monitoring well has been damaged/lost and is no longer available
Damaged – Monitoring well was damaged but has now been repaired.

7.2. Groundwater Quality

Each groundwater monitoring round will include the collection of water samples from monitoring well locations and *in-situ* monitoring for groundwater quality physico-chemical indicators using a calibrated water quality meter (WQM), see Table 6.

Table 6: Groundwater quality indicators

Quality Indicators / Locations	Parameter	Unit	Analysis
Groundwater Physico-chemical Indicators *(Up to 56 monitoring wells per round)*	pH	pH Units	*In-situ*
	Conductivity (EC)	(mS/cm)	*In-situ*
	Dissolved Oxygen (DO)	(mg/L)	*In-situ*
	Temperature	°C	*In-situ*
	Turbidity	(NTU)	*In-situ*

7.3. Monitoring Duration

The groundwater monitoring program for the CHB project is to be undertaken for the following periods:

- Pre-construction phase, a minimum of 12 months to January 2023. Refer to the Pre-Construction Groundwater Monitoring Program – Interpretative Report, Coffs Harbour Bypass (Ballpark Environmental 2023), see Appendix C.
- Construction phase, for the duration of the construction period.
- Operational phase, a minimum of three years following construction, or before it can be proved that no impact has occurred.

The frequency of each round of groundwater monitoring is summarised in Table 7.

Table 7: Frequency of groundwater monitoring rounds

Parameter	Pre-Construction Phase	Construction Phase	Operational Phase
Groundwater Level Data Automatic water level data loggers are set to take readings at 6 hourly intervals (equivalent to 4 readings per 24 hour period), with up to 3 months period between downloads.)	Quarterly	Quarterly	Quarterly
Groundwater Physico-chemical Indicators Water sample to be collected from each well and physico-chemical indicators recorded in the field using a WQM.	Quarterly	Quarterly	Quarterly

7.4. Methodology

7.4.1. Preparation of Construction and Operation Groundwater Monitoring Program

This construction and operation GWMP has been prepared for the construction and operational phases of the CHB project.

The draft Groundwater Monitoring Program has been provided to TfNSW for review. Once any feedback and comments have been received from relevant government agencies and the Environmental Representative, an updated and final GWMP will be prepared and provided to TfNSW for approval.

Any written comments received on the draft construction and operation GWMP will be detailed in Section 10 and copies of the correspondence will be provided in Appendix B.

The delivery of the construction and operation groundwater monitoring program will then be undertaken in accordance with this approved GWMP.

7.4.2. Principal Contractor and Landholder Communications

Prior to the start of each round of groundwater monitoring a minimum of 1 week's prior notice will be provided to the TfNSW access team who will then notify the construction principal contractor and affected landholders and confirm if access to monitoring well locations within the project and on adjacent private properties is approved.

For each round of sampling the following details will be provided to TfNSW:

- Monitoring well locations
- APO Number/s (or Lot/DP)
- Dates of work
- Type of work and equipment proposed to be used
- Type of access required (access point to property, walking or vehicle access)
- Any other additional or site-specific information

The contractor will maintain a Communications Register for all contact made with affected landholders during fieldwork for the CHB project. Any incidents or landowner complaints received by the contractor will be promptly reported to TfNSW Project Manager (within 24 hours of receipt) and TfNSW shall be kept informed on the incident, any relevant issues involved, and agreed actions to resolve the incident, as required.

If a landholder does not agree to allow or restricts access to their property, then the contractor will work with the TfNSW Project Manager to identify suitable alternative sites and/or arrangements for this monitoring program.

7.4.3. Pre-Monitoring Tasks

Weather Data

Daily records of rainfall and barometric pressure are to be obtained from each of the four CHB Project AWS and this information included in each report.

Calibration Field Instruments

The field Water Quality Meter (WQM) used during groundwater monitoring works is to be calibrated as per the manufacturer's requirements prior to each monitoring round and calibration checks are to be completed at the start of each day of sampling. The meter is to be calibrated for pH, electrical conductivity (EC), dissolved oxygen (DO) and turbidity (NTU).

7.5. Groundwater Monitoring Methodology

7.5.1. Safety & Communication

Prior to the start of each day's fieldwork a toolbox meeting will be held and any site-specific safety issues, i.e., forecast inclement weather conditions, noted. The project specific safe work method statement (SWMS) will also be reviewed by the fieldwork team and copies of these documents will be available electronically on the dedicated fieldwork tablet.

7.5.2. Measurement of groundwater standing water levels

Observations will be made of each well location upon arrival and noted on the field sheets. Photographs of any damage or attempt to access the well by others since the last monitoring event will be recorded.

Prior to collection of water samples for *in-situ* measurement or downloading HOBO water level data loggers each monitoring well will be gauged by measuring depth to standing water with an electronic dip meter. The measured SWL will be recorded electronically on the field sheet.

7.5.3. Collection of groundwater quality data

A representative groundwater sample will be collected from each well for *in-situ* testing of physico-chemical parameters in accordance with the standards identified in section 7.5.6.

Groundwater physico-chemical water quality will be measured in the field during each monitoring event using a calibrated WQM. These measurements will be recorded electronically on the field sheet for each groundwater sample location.

7.5.4. Downloading of water level data loggers

For each monitoring event the contractor will retrieve the dedicated HOBO water level data logger and transfer data using a compatible shuttle. At the completion of the monitoring event the shuttle will be downloaded, and data collected from each well will be stored in an MS Excel spreadsheet.

At the completion of each round of groundwater monitoring the field level data for each of the monitoring wells will be corrected for barometric pressure and converted to a Standing Water Level (SWL). The SWL is then corrected to provide a measurement as level m AHD, based on design survey levels. This converted data will then be used to plot the SWL over time for each monitoring well.

7.5.5. Monitoring Fieldwork Records

Experienced personnel appropriately trained in groundwater sample collection and monitoring will undertake the groundwater monitoring program. The names of sampling personnel are to be recorded on field sampling forms during each monitoring round. An electronic field sample record will be completed for each groundwater sample location to be monitored. The field sample record sheet will include the following details:

- Sample location name / number
- GPS coordinates of the sample location
- Name of field personnel
- Date and time of sampling
- Water level details including depth to water and total depth within groundwater monitoring wells
- Completion of risk assessment to access well location
- Condition of monitoring well location and if locked / secure
- Climate observations at time of sampling
- Sample equipment used and HOBO setup details
- Field water quality parameter measurements
- Any unusual visual and olfactory observations

7.5.6. Sampling Standards

The potential for significant variability exists within each of the groundwater monitoring locations. The source of this variability may be natural, or it may be because of sampling error – i.e., where the sample collection process has influenced the observed pollutant concentration or groundwater level.

To reduce the risk of sampling error, all sampling would be undertaken in accordance with the following standards:

- Australian Standard AS/NZS 5667.11: 1998 *Water quality – Sampling Part 11: Guidance on sampling groundwaters*
- Australian Standard AS/NZS 5667.1 1998: *Water quality – Sampling Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples*; and
- *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (EPA, 2004).

7.5.7. Panama Disease Decontamination Procedures

The CHB alignment is through areas of former and existing banana plantations. Panama disease is a soil pathogen which infects the root system of banana plants initially and then colonises the whole plant. Panama disease is readily spread by soil and water and is present in the Coffs Harbour region.

In consultation with the NSW Department of Primary Industries (Agriculture), TfNSW has developed a Panama Disease Procedure which applies to all contractors undertaking activities on former and existing banana plantations. Contractors will follow and comply with TfNSW Panama Disease Management Procedures during groundwater monitoring fieldwork activities.

7.5.8. Unexpected Finds Procedure

If during fieldwork activities for the groundwater monitoring program unexpected finds or potential heritage items are discovered, then the contractor will follow the TfNSW Unexpected Heritage Items Procedure.

8. Data Analysis & Interpretation

Groundwater level data (hydrology) and water quality sampling will be undertaken during the construction and operational phases of the CHB project at the nominated timing provided in Table 8, see section 7.3.

The collected groundwater level data and water quality will be summarised in a factual data report to be prepared following each quarterly round of monitoring.

For the type A/E locations which are single wells with no corresponding comparison well available data analysis will include preparation of a hydrograph and summary statistics, including mean, median, standard deviation, minimum, maximum, number of observations, see Table 5.

For all other monitoring well locations where sufficient current and historical data is available, summary statistics will be provided for these monitoring locations. Statistical values including mean, median, standard deviation, minimum, maximum, number of observations, and 80th percentile will be provided.

The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018), provide guidance for the development of monitoring programs and assessment of water quality.

The Water Quality Guidelines advocates that for physical and chemical (non-toxicant) parameters, the median quality values of fresh and marine waters should be lower than the 80th percentile of concentration values of a suitable reference site (above the 20th percentile for parameters such as dissolved oxygen where low values are the problem). Thus the 80th and 20th percentiles from the baseline monitoring (pre-construction monitoring) have been adopted in this GWMP as trigger values.

For the groundwater level and water quality data there are 2 sets of data that can be used as suitable reference sites these include:

- The pre-construction groundwater level and water quality data established from baseline monitoring
- The upper gradient groundwater monitoring well locations upgradient of the construction works areas.

The pre-construction data provides an indication of baseline conditions and the degree of variation for each monitoring locations for both groundwater level data and water quality parameter for existing conditions. This provides the initial baseline data for

comparison with the construction/operational phase groundwater quality sampling results.

However, it is noted there will likely be different climatic factors such as rainfall and drought and potentially land use changes across the project phases that will produce variations from the baseline data, particularly in respect to groundwater quality data. Therefore, the baseline data for groundwater level data and water quality from the pre-construction phase shall be supplemented with data collected from upgradient monitoring locations over the construction and operational phases to provide a more robust baseline data set.

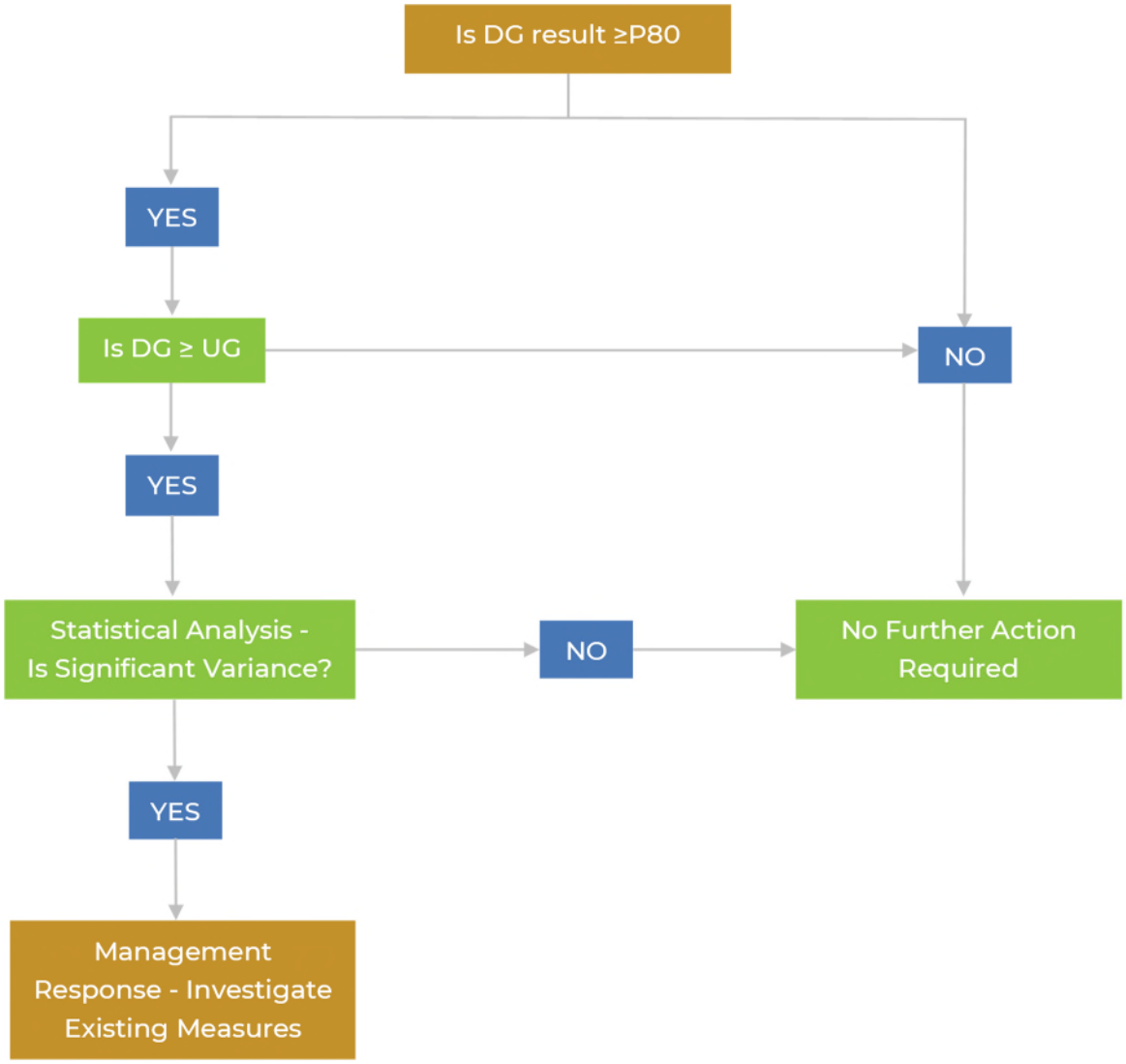
8.1. Comparison of Sampling Data and Baseline Data

Comparison of sampling data with baseline data will utilise 80th percentile values from baseline data for trigger values (ANZG 2018) and comparison of upgradient and down gradient data at each cut or tunnel location.

The following approach, which is represented in the flow chart in Figure 3, shall be adopted when assessing groundwater data collected for each sampling event during the construction and operational phases:

- Step 1 - Compare down gradient construction/operational sampling result with the corresponding 80th percentile figure (P80 figures) from the baseline data (see Note 1 further below regarding the use of P20 figures for some parameters):
    - If down gradient groundwater data is greater than the corresponding P80 baseline figure, this highlights a possibility of the CHB project impacting on the groundwater hydrology or water quality requiring further investigation as per the following steps (refer also to example control chart in Figure 4);
    - If a down gradient data is less than or equal to the corresponding P80 baseline figure, then no further action is required with respect to the subject parameter.
- Step 2 - If a down gradient groundwater hydrology or water quality data is greater than the corresponding P80 baseline figure, then compare the down gradient and upgradient data at that location for that event:
    - If the down gradient sampling result is greater than the up-gradient result (see Note 2 further below with respect to DO, pH, temperature, and EC) then this further highlights a possibility of the CHB project impacting on hydrology and/or water quality requiring further investigation as per the following steps (refer also to example control chart in Figure 4);
    - If down gradient data is less than or equal to the up-gradient result, then no further action is required with respect to the subject parameter or groundwater level data.
- If a down gradient groundwater hydrology or water quality data is greater than the corresponding upgradient figure, then undertake statistical analysis of the data to assess for significant variations.
    - If the statistical analysis shows significant variations in data, then this further highlights a possibility of the CHB project impacting on hydrology and/or water quality requiring investigation of existing control measures. TfNSW shall be notified of the issue within 24 hours of the contractor completing the statistical analysis;

- If the statistical analysis shows there are no significant variations, then no further action is required with respect to the subject parameter or groundwater level data.



Note: UG – upgradient monitoring location, DG – down gradient monitoring location

Figure 3: Procedure for comparison of sample data to baseline data

Note 1. 20th percentile figure (P20 figures) should be utilised for the following parameters"

- Dissolved Oxygen (DO) – utilise P20 figures instead of the P80 figures;
- pH – utilise both P80 and P20 figures;
- Electrical Conductivity (EC) – utilise both P80 and P20 figures;
- Temperature – no comparison required;
- Turbidity – no comparison required.

Note 2. For DO, pH, and EC, the following lists the criteria for further investigation when comparing the down gradient and up-gradient locations sampling results:

- Dissolved Oxygen (DO) - if the down gradient sampling result is less than the up-gradient result, this highlights a possibility of the CHB project impacting on groundwater quality requiring investigation of existing water quality control measures. If a down gradient sampling result is greater than the up-gradient result, then no further action is required with respect to DO;
- pH and Electrical Conductivity (EC) – if the difference between the down gradient up-gradient result is greater than the standard deviation (Std Dev) from the baseline data, this highlights a possibility of the CHB project impacting on groundwater quality requiring investigation of existing water quality control measures. If the difference is less than the standard deviation, then no further action is required with respect to the subject parameter; and
- Temperature & Turbidity – no comparison required.

The technique for comparing sampling results and baseline data/trigger values will use either tabulated results or control charts (or a combination of both). An example of the use of control charts for the comparison of down gradient sampling results with the corresponding 80th percentile figure (P80 figures) from the baseline data is shown in Figure 4.

In the example provided the monthly results for a test parameter for a monitoring location are graphed in a control chart. The results at the down gradient or 'impact' site are compared to the trigger value (P80 figures) from the baseline data. It is noted that the baseline data shall be continually adjusted/ supplemented with data collected from up-gradient monitoring locations over the construction and operational phases of the CHB project.

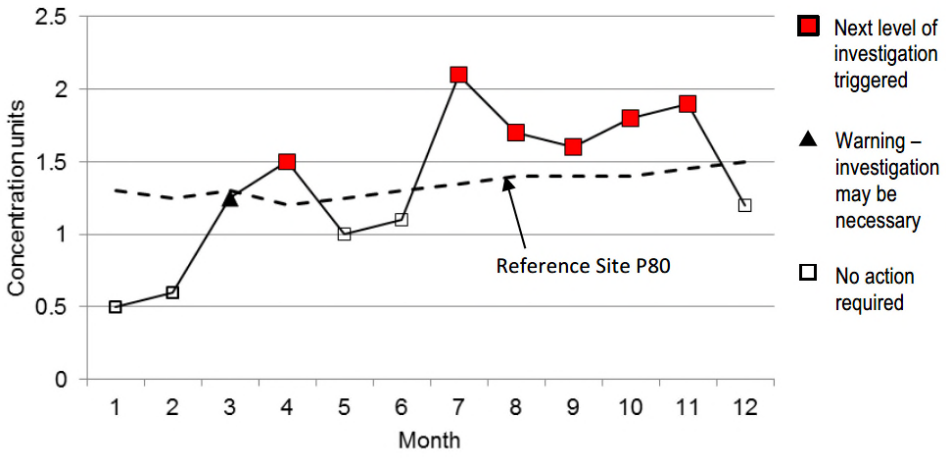


Figure 4: Example of a Control Chart & it's Interpretation

8.2. Data Reports

During the construction and operational phases of the CHB project a factual data report will be prepared following the completion of each round of quarterly groundwater monitoring. The data report will provide copies of the corrected groundwater level data

(MS Excel file), SWL plots (hydrographs) with local rainfall for each monitoring well, and groundwater quality physico-chemical and laboratory data collected during that round of monitoring. Any results of interest from each monitoring round will be highlighted and discussed.

8.3. Interpretative Reports

A more comprehensive annual interpretative report will be prepared for the groundwater monitoring program each year during the construction and operational phases of the CHB project. Each annual interpretative report will analyse the data collected in the preceding 12 months and detail the findings.

Annual groundwater monitoring interpretative reports will be forwarded to the CHB Environmental Representative, the relevant stakeholder agencies, and the Planning Secretary of the Department of Planning and Environment for information in accordance with condition C19 of the Minister's Conditions of Approval (MCoA) – refer to Section 2.1 and Table 2 in this GWMP.

The interpretative report will include:

- An overview of the groundwater monitoring program including; introduction and background to the purpose of the program, and project approval conditions and commitments.
- The objectives of the GWMP.
- Methodology, providing detail on each of the groundwater monitoring well locations, figures and GPS coordinates, fieldwork including groundwater sampling methods and the storage and handling of samples for laboratory analysis.
- Plots of the standing water levels recovered from the HOBO data loggers for each monitoring well.
- Groundwater quality results, including presentation of groundwater quality data in summary tables and control charts.
- Analysis and discussion of groundwater monitoring findings and highlighting any results of interest or compliance exceedances.
- Recommendations for the future conduct of the groundwater monitoring program during construction and operational phases of the CHB project.
- Supporting information, including site plans, tables, figures, photographs, laboratory certificates of analysis, and other relevant information.

In addition to reviewing the data collected in the preceding year the annual interpretative report would also report on any gradual trends and changes in groundwater condition. This review will provide early detection of potential impacts and allow management actions to be triggered to address these.

9. Management Actions

This section provides an overview of potential contingency and management measures that may be implemented if adverse groundwater impacts are identified. The following contingency measures are largely based on potential measures outlined in the environmental impact assessment for the project. It is noted that alternative measures may be more suitable. This would be determined when adverse impacts are identified and in full consideration of relevant factors and site-specific circumstances.

Management responses to a potential pollution issue identified during the groundwater monitoring program includes the ability to undertake additional water quality sampling and analysis in circumstances where required. This mechanism is intended to facilitate additional investigation of potential groundwater impacts following significant incidents or where triggered by an anomaly in physico-chemical parameter testing. Triggers for additional testing include:

1. Significant incidents that may potentially cause potential groundwater contamination.

2. Change in physical and olfactory characteristics of the groundwater in monitoring wells identified during fieldwork program.

3. Where statistical analyses of physico-chemical parameters indicate significant exceedance of the 80th percentile pH and electrical conductivity reference data, outside of natural parameter fluctuations.

Analytes selected for testing would be selected based on the nature of any incident that involves fuel or chemical spills (as per item 1 above) or applicable parameters based on any suspected water quality impacts identified in sampling testing or analysis (items 2 and 3 above)

An additional round of groundwater quality testing for a suite of likely potential contaminants will be undertaken prior to the formal commencement of construction, see Table 8. The results from this additional testing will supplement the pre-construction baseline data for the project and assess if any of these parameters are pre-existing in groundwater prior to construction commencement.

A revised pre-construction interpretative report will present the findings from this additional groundwater monitoring.

Table 8: Groundwater quality testing parameters for additional pre-construction monitoring round

Parameter
Major Ions (calcium, magnesium, sodium, potassium, chloride, sulfate, carbonate, & bicarbonate)
Dissolved Metals (arsenic, cadmium, chromium (total), copper, iron, lead, manganese, mercury, nickel & zinc)
Nutrients (nitrite as N, nitrate as N, reactive phosphorus, & ammonia)

Parameter
Benzene, toluene, ethylbenzene, xylene & naphthalene (BTEXN)
Total recoverable hydrocarbons (TRH)
Polycyclic aromatic hydrocarbons (PAH)
Organochlorine pesticides (OCP)
Organophosphate pesticides (OPP)
Semi-volatile organic hydrocarbons (SVOC)
Volatile organic compounds (VOC)

9.1. Construction Phase – Groundwater Water Management Actions

The implementation of this GWMP will play an important role in the management of potential environmental risks associated with groundwater impacts. The management actions detailed in this section relate to where the GWMP has identified a potential impact during construction. Management actions for all other environmental impacts are covered by the CEMP and operational environmental management systems.

It is likely that any observed impacts on groundwater hydrology would be difficult to attribute to the construction and operation of the CHB upgrade. Other factors including variability in local rainfall patterns are likely to play a greater role in any observed changes. Therefore any observed changes in groundwater hydrology will require more detailed further investigations before definitive conclusions are made.

The preferred mitigation measures and detailed form of the engineering mitigation solution would be subject to ongoing development of the detailed design.

Impacts on groundwater quality may potentially manifest in changes in seepage and surface water quality in runoff collected in down gradient sediment basins. The maintenance of these water quality measures, including sediment basins, by the contractor will form a key component of the CHB project mitigation measures. The measures will address the relevant MCoA, and the safeguards detailed in the project EIS and submission report, (TfNSW 2019).

Construction activities will also be managed to meet water quality objectives in the project's Environmental Protection Licence (EPL) conditions. The measures will be formulated at the detailed design stage as part of the construction soil and water sub plan within the CEMP which will be submitted for approval by the Department of Planning, Industry and Environment. The plan will include requirements for water quality monitoring at the outlet of the sediment basins.

The CHB project will be designed and constructed to avoid or minimise any detrimental impacts on groundwater during construction. However, if the CHB project was found to have had a detrimental impact on groundwater supply or condition which has impacted on other groundwater users TfNSW must comply with MCoA E111 "to identify and commit to the implementation of 'make good' provisions for groundwater users in the

event of a material decline in water supply levels, quality and quantity from existing registered bores associated with groundwater changes from either construction and/or ongoing operational dewatering caused by the CSSI." Note that the MCoA E111 and revised environmental management measure GW11 requirements are addressed in the Contractors Groundwater Management Plan – see Appendix F of Construction Soil and Water Management Plan.

9.2. Operational Phase – Groundwater Management Actions

The groundwater monitoring program will continue following construction of the CHB project for a period of 3 years, or a shorter period if it can be demonstrated that there are no detrimental impacts.

The CHB project will be designed and constructed to avoid or minimise any detrimental impacts on groundwater following construction. However, if the CHB project was found to have had a detrimental impact on groundwater supply or condition which has impacted on other groundwater users TfNSW must comply with MCoA E111 "to identify and commit to the implementation of 'make good' provisions for groundwater users in the event of a material decline in water supply levels, quality and quantity from existing registered bores associated with groundwater changes from either construction and/or ongoing operational dewatering caused by the CSSI." Note that the MCoA E111 and revised environmental management measure GW11 requirements are addressed in the Contractors Groundwater Management Plan – see Appendix F of Construction Soil and Water Management Plan.

The type or duration of any make good provisions is not specified, and if required this will be negotiated by TfNSW and the affected groundwater users.

10. Consultation

The MCoA for the CHB project require that the construction and operation GWMP is developed in consultation with the following stakeholder agencies; EPA, DPI Agriculture, DPI Fisheries, DPIE Water Group, and Council.

10.1. Consultation undertaken during development of the construction and operation GWMP

The MCoA for the CHB project require that the GWMP is developed in consultation with the following relevant stakeholder agencies; EPA, DPI Agriculture, DPI Fisheries, DPIE Water Group, and Council. A draft of the GWMP was circulated by TfNSW to each of the stakeholder agencies for review and comment.

Coffs Harbour Council advised on 24 June 2022 that they had no comments on the draft GWMP, see Appendix B.

DPI Agriculture and the EPA advised on 7 July 2022 that they had no comments on the draft GWMP, see Appendix B.

DPE Water Group responded on the 29 August 2022 that they had no comments on the draft GWMP, see Appendix B. Additional comments have since been received in November 2022 from DPE Water Group and have been addressed below and correspondence provided in Appendix B.

Comments on the draft GWMP were received from DPI Fisheries and each of the issues raised has been summarised below and response provided, including any amendment to the GWMP.

Submission
DPI Fisheries

Issue Description

Section 3 – Regional Setting & Layout.
The study area includes both catchments and waters of the Solitary Islands Marine Park. The monitoring program does not currently acknowledge the marine park. Groundwater health and connectivity is critical for marine park values and delivery of legislative requirements.

The marine park includes all estuaries north from and including Coffs Creek within the study area. These estuaries all form part of the habitat protection zone of the marine park. Under the Marine Estate Management (Management Rules) Regulation 1999, the objects of a habitat protection zone are:

(a) to provide a high level of protection for biological diversity, habitat, ecological processes, natural features, and cultural features (both Aboriginal and non-Aboriginal) in the zone, and
(b) where consistent with paragraph (a), to provide opportunities for recreational and commercial activities (including fishing), scientific research, educational activities, and other activities, so long as they are ecologically sustainable and do not have a significant impact on any fish populations or on any other animals, plants or habitats.

These areas are subject to a higher level of environmental protection than other estuaries in NSW, and construction activities are subject to special legislative consent and advice requirements.

It would be appreciated if the monitoring program could acknowledge the Solitary Islands Marine Park in section 3 'Regional Setting & Layout'.

Response

Noted – the Solitary Islands Marine Park has been referenced in Section 3 Regional Setting & Layout of the GWMP.

Issue Description

Section 1.2 – Groundwater Monitoring Objectives.
In light of the comments above against section 3, the monitoring program should also assess the potential impact of any changes to groundwater on estuarine connectivity and health, including any potential impact on delivery of marine park habitat protection zone objects.

Response

Noted - the Coffs Harbour Bypass SSI 7666 Approval Conditions require the Proponent to prepare a Construction Water Quality Review document prior to construction that will consider the outputs of the Groundwater Monitoring Program and Surface Water Monitoring Programs and specifically address the requirement to develop strategies to minimise potential impacts to sensitive receiving environments including the Solitary Islands Marine Park.

This document is to be prepared prior to formal construction commencement and will address Marine Park Management objectives, see excerpt below:

CONSTRUCTION WATER QUALITY REVIEW (CHB CoA – Appendix B)

The Construction Water Quality review must address the following:

1. Describe the existing surface water quality for any waterway likely to be affected by the construction activities.

2. State the ambient Water Quality Objectives and environmental values for the receiving waters relevant to the project. These refer to the community's agreed environmental values and human uses endorsed by the NSW Government as goals for ambient waters (http://www.environment.nsw.gov.au/ieo/index.htm).

3. State the indicators and associated guideline values or criteria for the identified environmental values. This information should be sourced from the ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

4. Identify and estimate the quality and quantity of all pollutants that may be introduced into the water cycle by source and discharge point and describe the nature and degree of impact that any discharge(s) may have on the receiving environment.

5. Demonstrate that all practical measures to avoid or minimise water pollution and protect human health and the environment from harm will be implemented.

6. Identify sensitive receiving environments (including the Solitary Islands Marine Park) and develop a strategy to avoid or minimise impacts to these environments.

7. Assess the significance of any identified impacts including consideration of the relevant ambient water quality outcomes. Demonstrate how the proposal will be designed and operated to:

> i. Protect the NSW Water Quality Objectives for receiving waters where they are currently being achieved; and
>
> ii. Contribute towards achievement of the NSW Water Quality Objectives over time where they are not currently being achieved.

8. Include details of a construction stage surface water quality monitoring program.

Submission
DPE Water Group

Issue Description

Recommendation 1.1 a.

Baseline data and proposed trigger values for groundwater quality

Response

TfNSW has collected 12 months of baseline groundwater information. The groundwater monitoring program has been developed to be consistent with *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (*ANZG 2018). TfNSW consider that 12 months baseline data is adequate to enable quantitative analysis and meets requirements of ANZG 2018 and consistent with current and previous monitoring programs implemented on TfNSW SSI projects.

This position is also supported by the baseline data which provides the initial data set for quantitative analysis at commencement of construction, which do not remain static throughout the construction and operational phases of monitoring. Section 8 of the Construction and Operational Groundwater Monitoring Program describes in detail how base line parameters will be measured over time i.e.: *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018), provide guidance for the development of monitoring programs and assessment of water quality. The Guidelines advocate that for physical and chemical (non-toxicant) parameters, the median quality values of fresh and marine waters should be lower than the 80th percentile of concentration values of a suitable reference site (above the 20th percentile for parameters such as dissolved oxygen where low values are the problem). Thus the 80th and 20th percentiles from the baseline monitoring (pre-construction monitoring) have been adopted in this GWMP as trigger values. For the groundwater level and water quality data there are two sets of data that can be used as suitable reference sites, these include:*

- *The pre-construction groundwater level and water quality data established from baseline monitoring*
- *The upper gradient groundwater monitoring well locations upgradient of the construction works areas.*

The pre-construction data provides an indication of baseline conditions and the degree of variation for each monitoring locations for both groundwater level data and water quality parameter for existing conditions. This provides the initial baseline data for comparison with the construction/operational phase groundwater quality sampling results. However, it is noted there will likely be different climatic factors such as rainfall and drought and potentially land use changes across the project phases that will produce variations from the baseline data, particularly in respect to groundwater quality data. Therefore, the baseline data for groundwater level data and water quality from the preconstruction phase shall be supplemented with data collected from upgradient monitoring locations over the construction and operational phases to provide a more robust baseline data set.

Issue Description

Recommendation 1.1 b.

Baseline data, trigger levels and trigger action response plans (TARPS) for groundwater levels.

Response

TfNSW advise that the FGJV will review the pre-construction groundwater monitoring program data and then details how the Soil and Water Management Plan, including a groundwater management plan, will address these requirements.

The interpretative report prepared for the pre-construction groundwater monitoring program, see Appendix C, includes hydrographs and statistical analysis outputs which include downgradient P80 values for each of the tunnels and priority cuttings. This information is available for ongoing assessment and interpretation by the FGJV.

Issue Description

Recommendation 1.3.

That the SWMP include a commitment to mitigating measures GW07 and GW11 referred to in Table 6-1 of the Submissions Report (Volume 2 – Chapter 4-8) and provide detail on how these measures will be implemented to prevent and manage groundwater impacts during construction.

Response

The FGJV will address the mitigating measures through the detailed design process and the groundwater management plan which forms part of the Construction Soil and Water Management Plan.

10.2. Consultation with Environmental Representative undertaken during development of the GWMP

Condition C16 of the MCoA for the CHB project require that the GWMP is reviewed and endorsed by the Environmental Representative (ER) before submission to the Planning Secretary for approval. A revised draft (Revision 1) of the GWMP which included amendments made following consultation with stakeholder agencies was provided to the ER for review and endorsement.

The ER has reviewed and endorsed the GWMP as being appropriate, see Appendix B.

11. References

ANZG (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. www.waterquality.gov.au/anz-guidelines/about/how-to-use

Australian Standard AS/NZS 5667.11 (1998). *Water quality – Sampling Part 11: Guidance on sampling groundwaters*.

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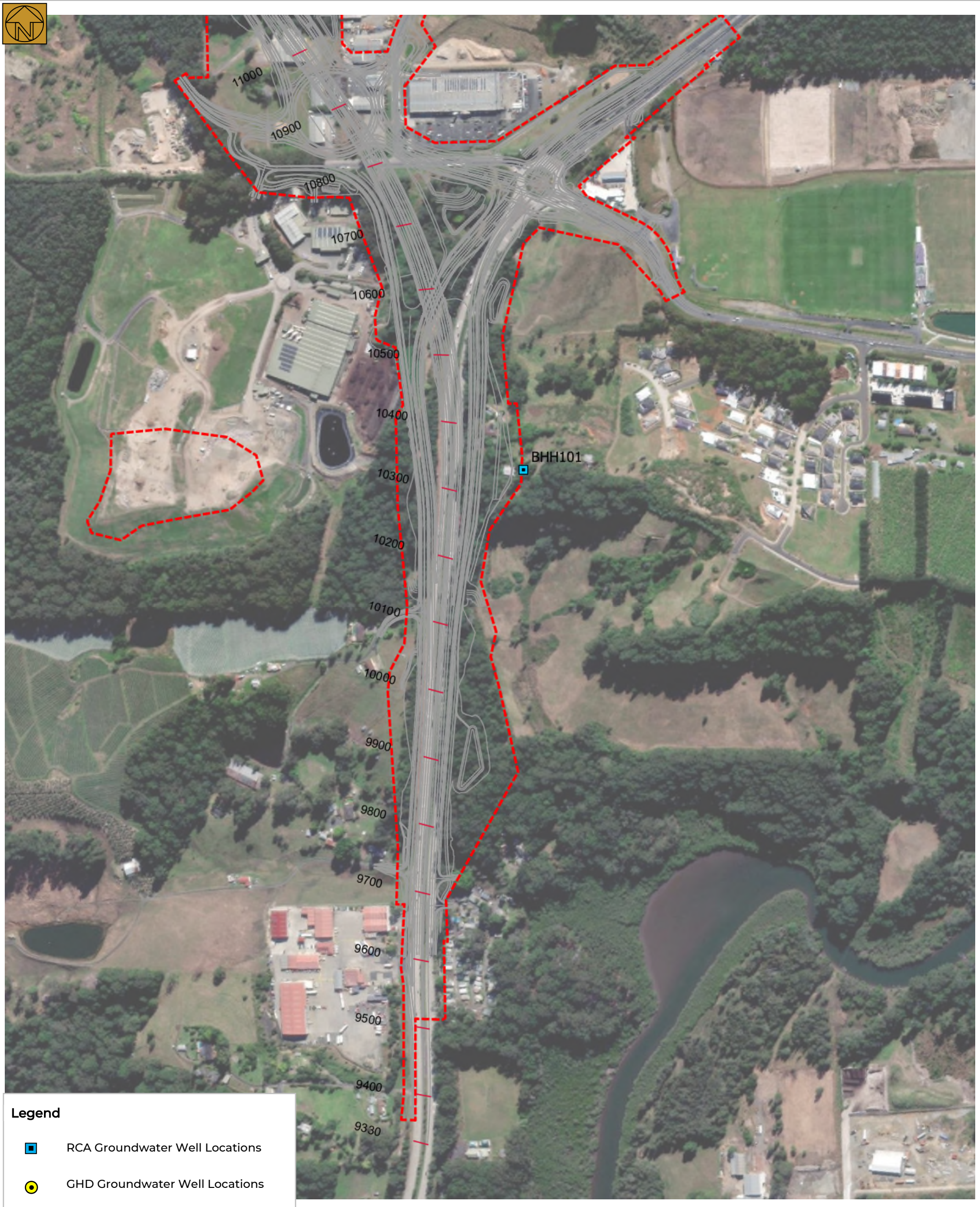
TFNSW (2020a). *Coffs Harbour Bypass Submissions Report Volumes 1 – 3.*

TFNSW (2020b). *Coffs Harbour Bypass Amendment Report Volumes 1 – 6.*

Appendix A

Groundwater Monitoring Well Location Plans

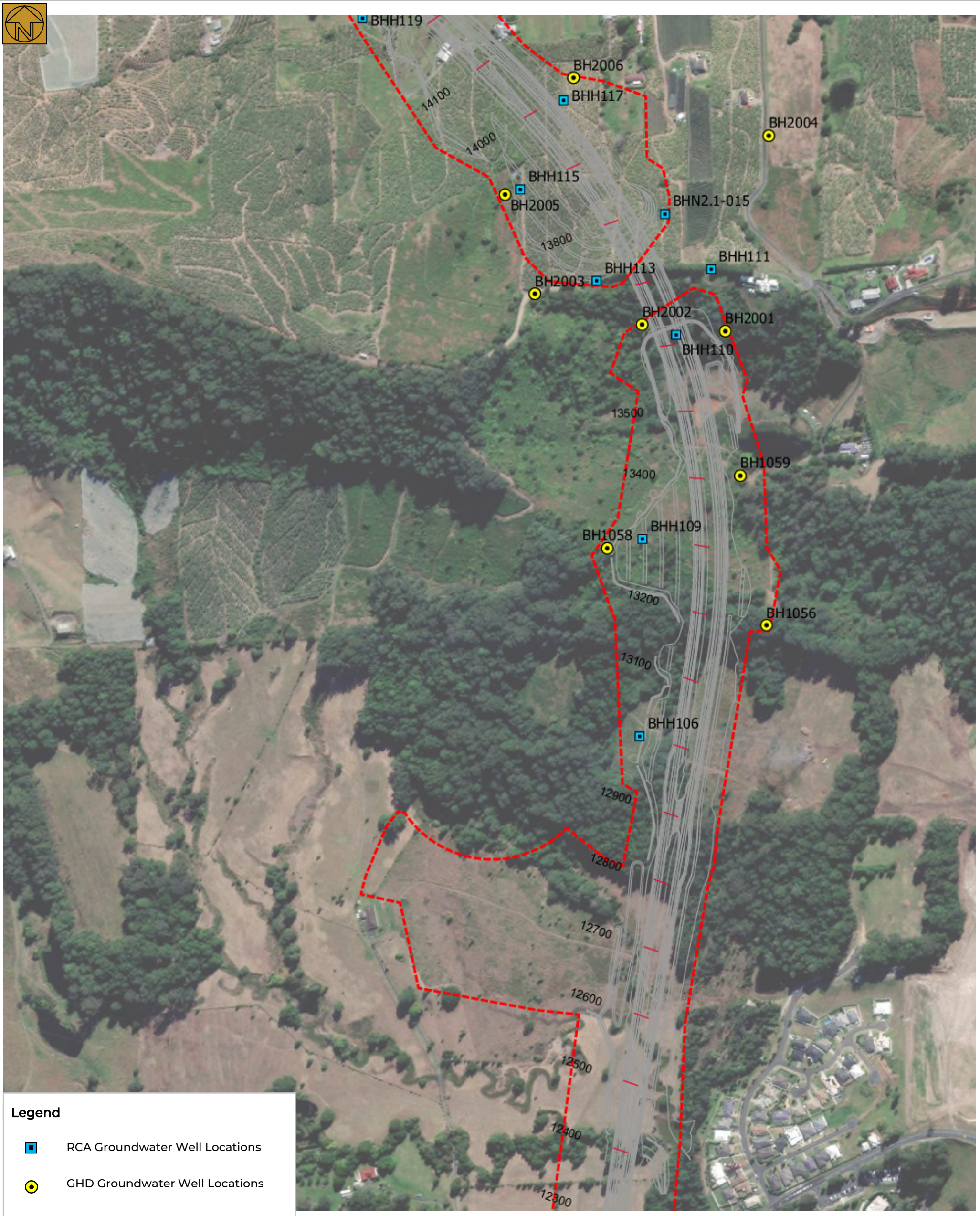


Legend

- RCA Groundwater Well Locations
- GHD Groundwater Well Locations

Plans sourced from TFNSW

Client:	Transport for NSW	BALLPARK ENVIRONMENTAL		Drawn:	JP
Project:	Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program			Approved:	AB
				Date:	29 March 2023
Title:	Groundwater Monitoring Well Location Plan			Scale:	NTS
project no:	BPE21058-R04	Figure no:	Figure 3 Sheet 1 of 10	Original Size:	A3



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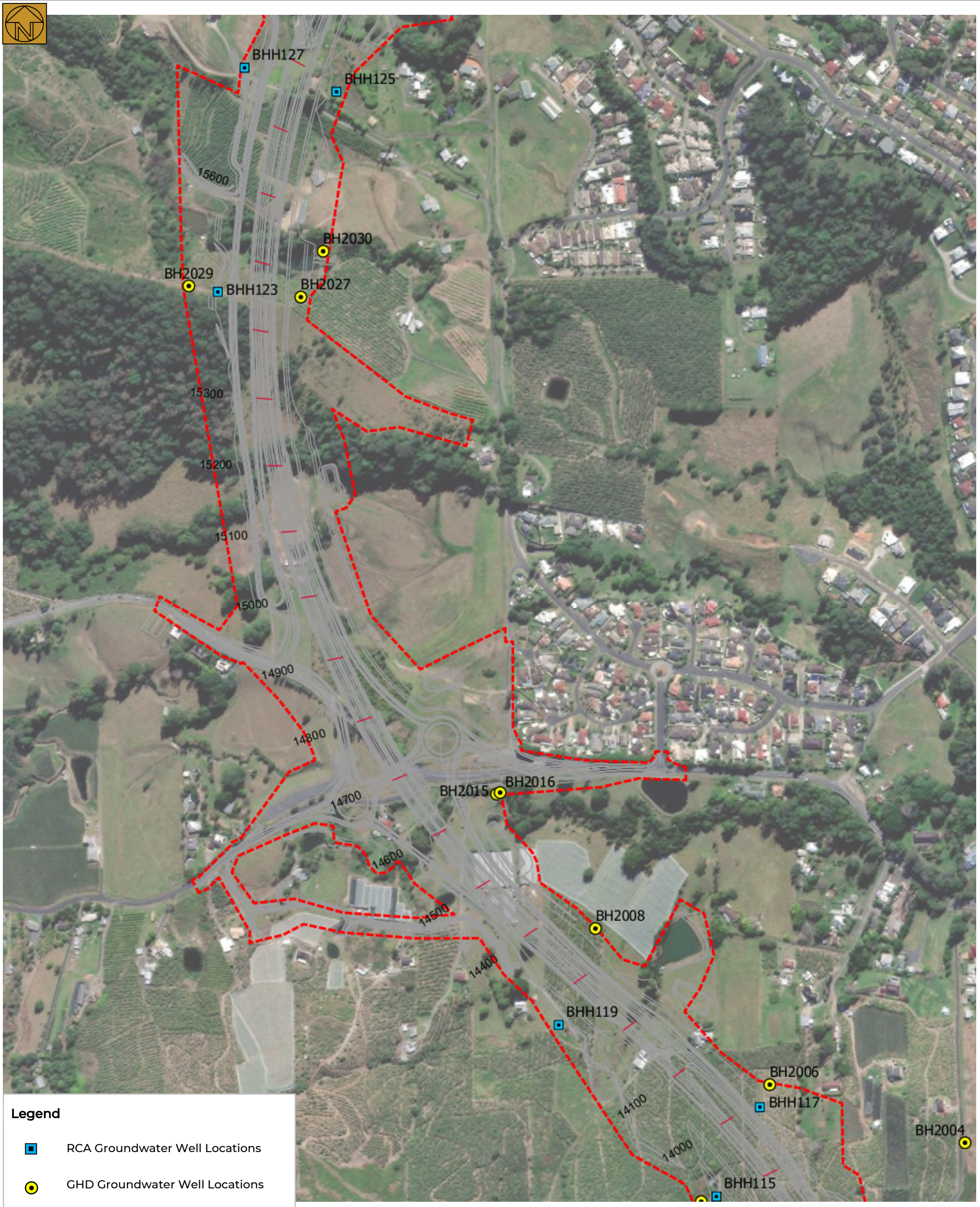
Project:	Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program			Approved:	AB
				Date:	29 March 2023
Title:	Groundwater Monitoring Well Location Plan			Scale:	NTS
project no:	BPE21058-R04	Figure no:	Figure 3 Sheet 2 of 10	Original Size:	A3



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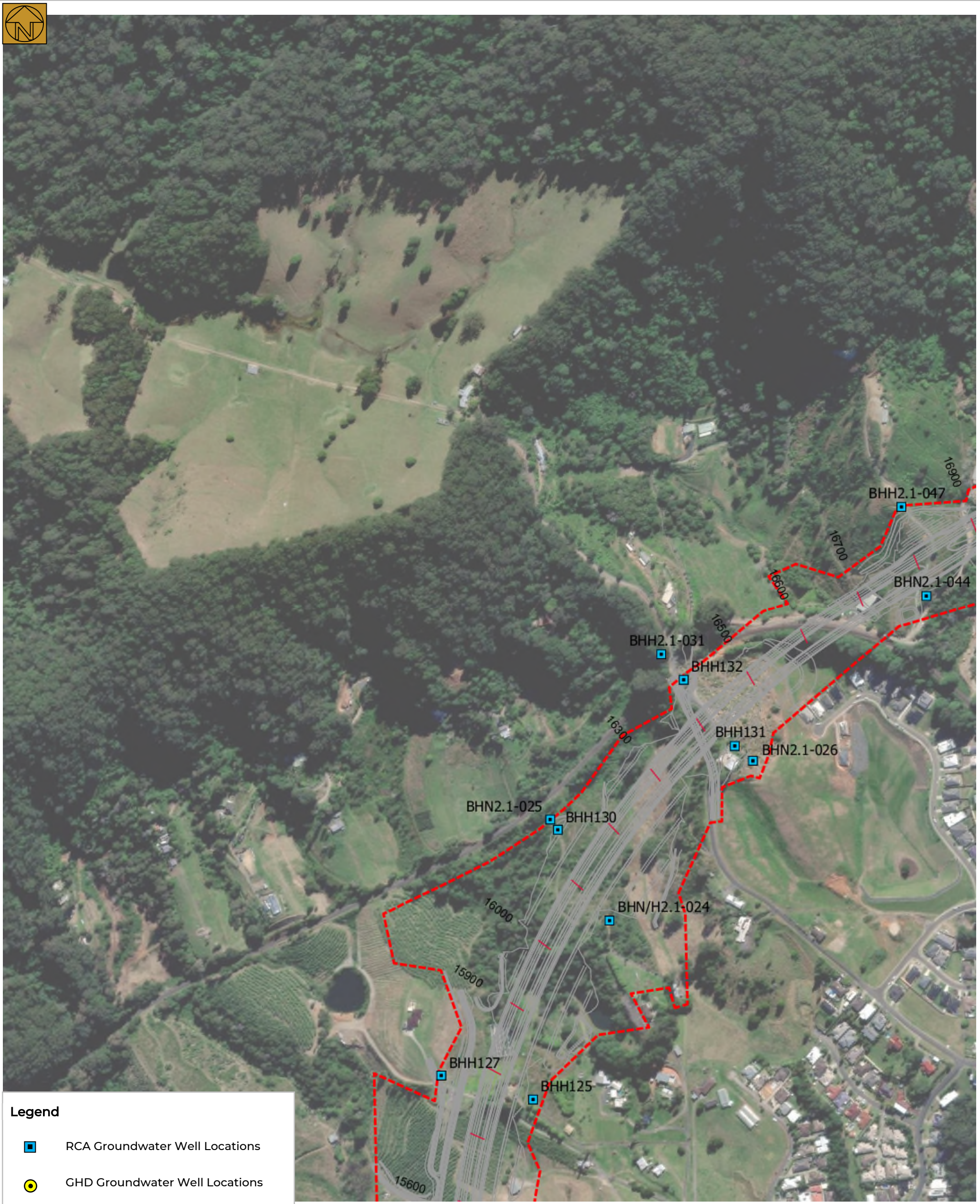
Project:	Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program			Approved:	AB
				Date:	29 March 2023
Title:	Groundwater Monitoring Well Location Plan			Scale:	NTS
project no:	BPE21058-R04	Figure no:	Figure 3 Sheet 3 of 10	Original Size:	A3

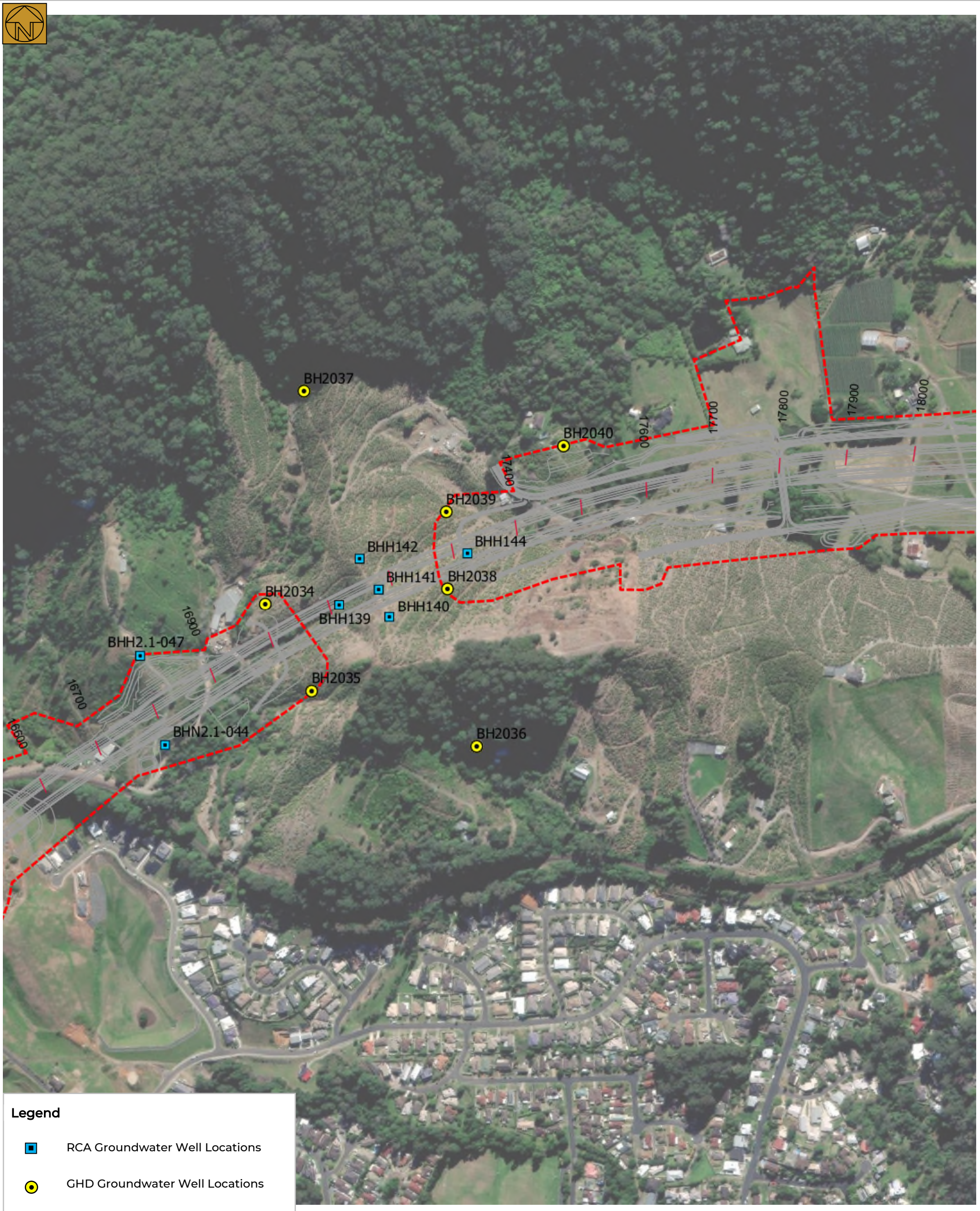


Legend

- RCA Groundwater Well Locations
- GHD Groundwater Well Locations

Plans sourced from TFNSW

Client:	Transport for NSW	BALLPARK ENVIRONMENTAL		Drawn:	JP
Project:	Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program			Approved:	AB
				Date:	29 March 2023
Title:	Groundwater Monitoring Well Location Plan			Scale:	NTS
project no:	BPE21058-R04	Figure no:	Figure 3 Sheet 4 of 10	Original Size:	A3

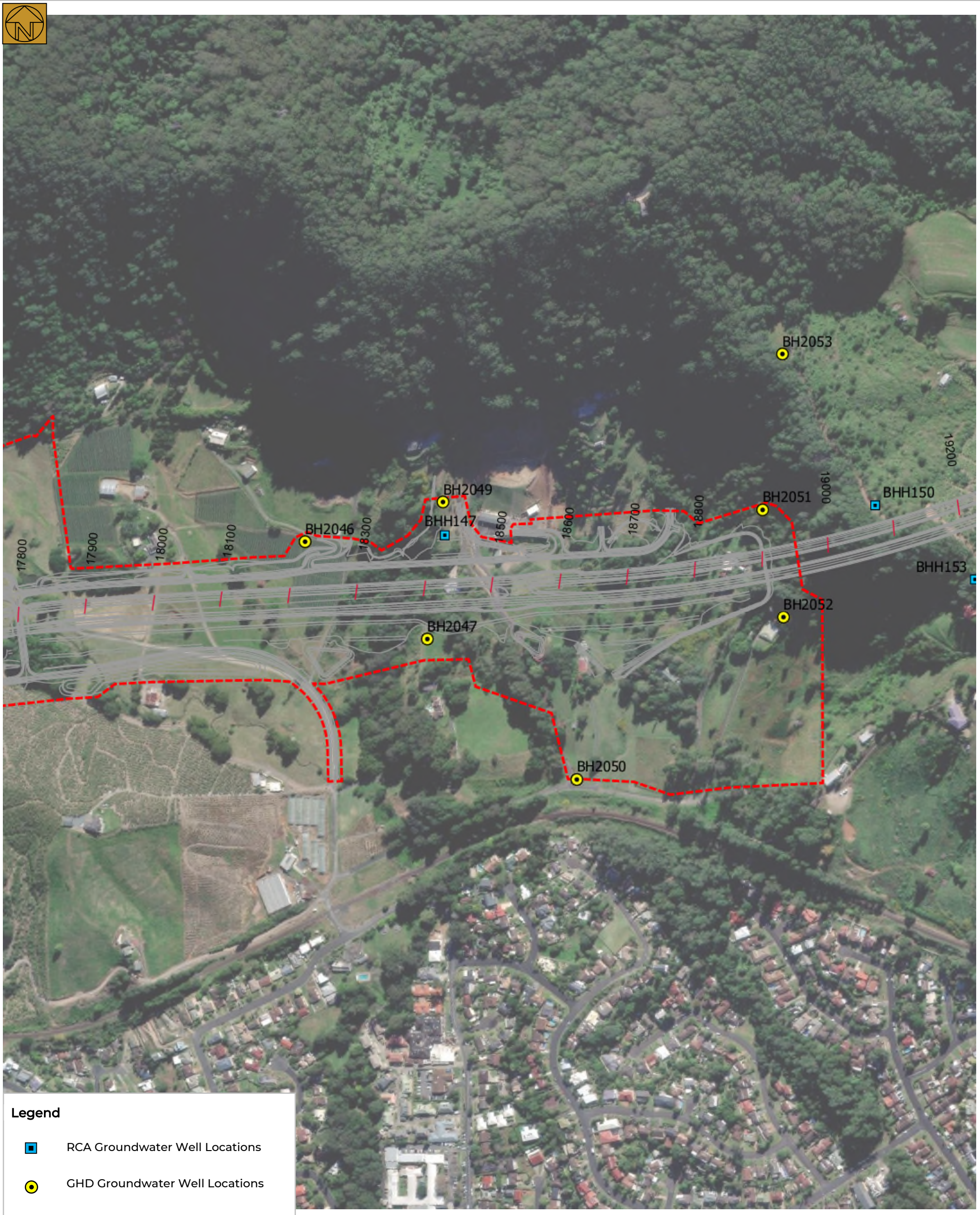


Legend

- RCA Groundwater Well Locations
- GHD Groundwater Well Locations

Plans sourced from TFNSW

Client:	Transport for NSW	BALLPARK ENVIRONMENTAL		Drawn:	JP
Project:	Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program			Approved:	AB
				Date:	29 March 2023
Title:	Groundwater Monitoring Well Location Plan			Scale:	NTS
project no:	BPE21058-R04	Figure no:	Figure 3 Sheet 5 of 10	Original Size:	A3



Legend

- RCA Groundwater Well Locations
- GHD Groundwater Well Locations

Plans sourced from TFNSW

Client:	Transport for NSW	BALLPARK ENVIRONMENTAL		Drawn:	JP
Project:	Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program			Approved:	AB
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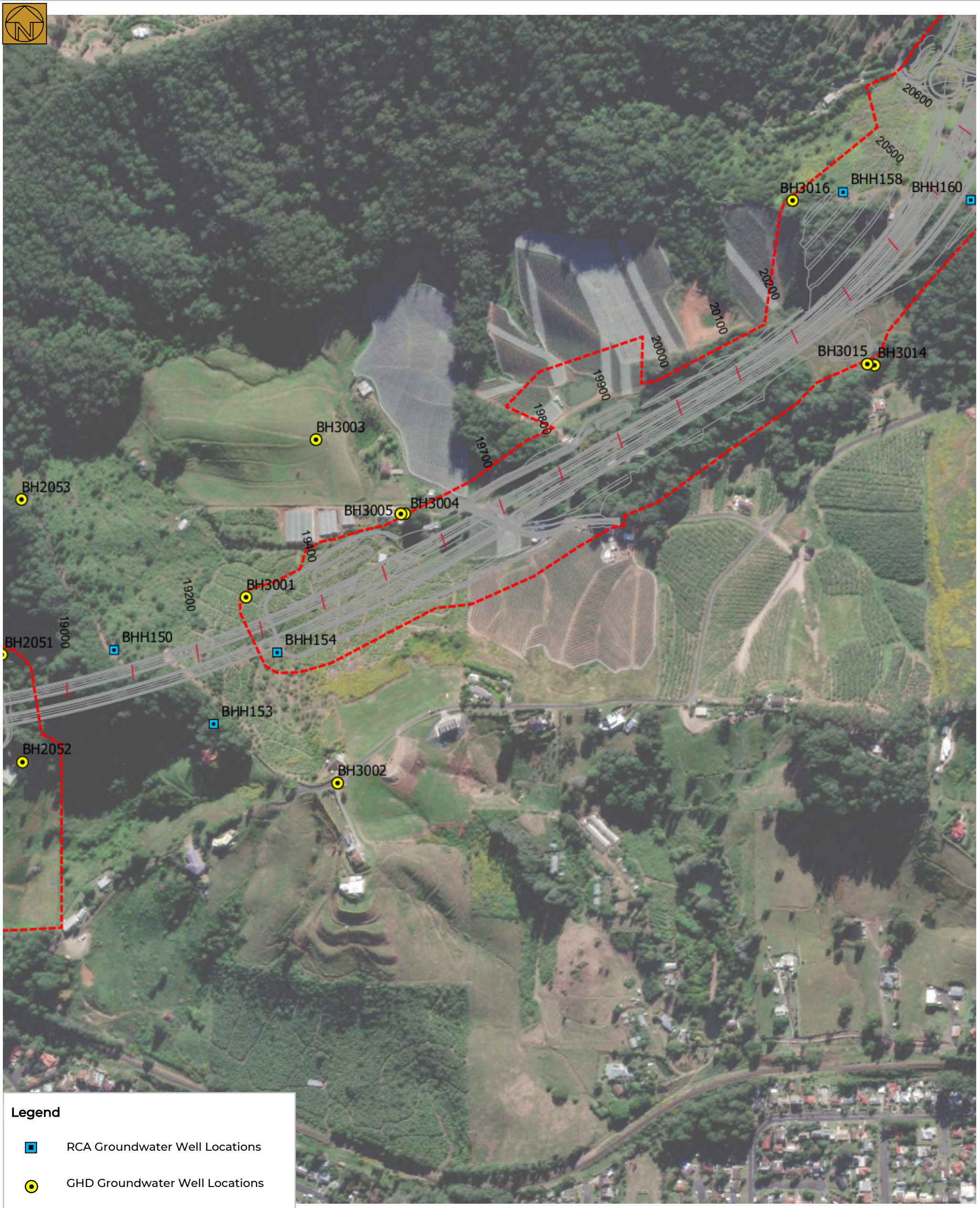
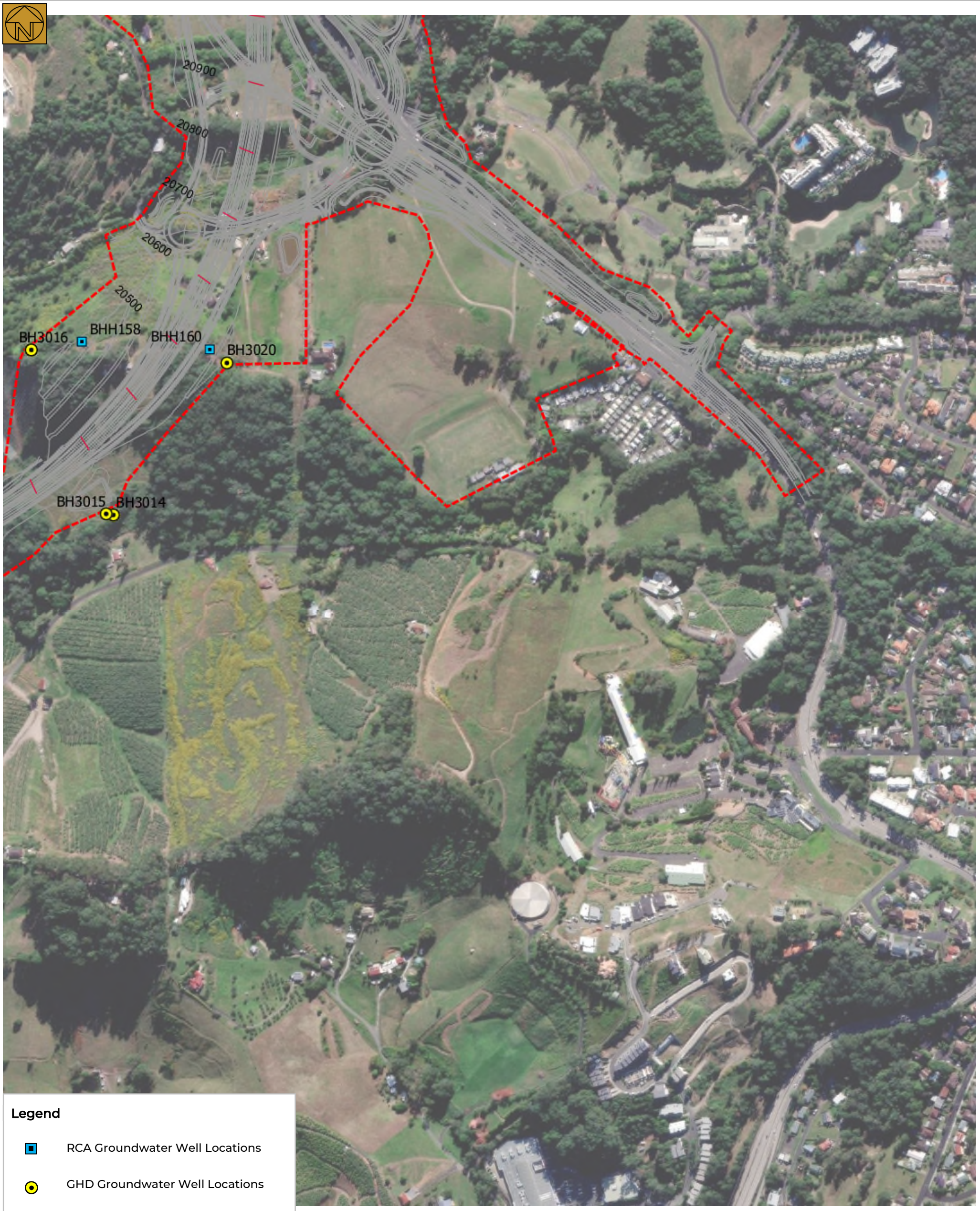
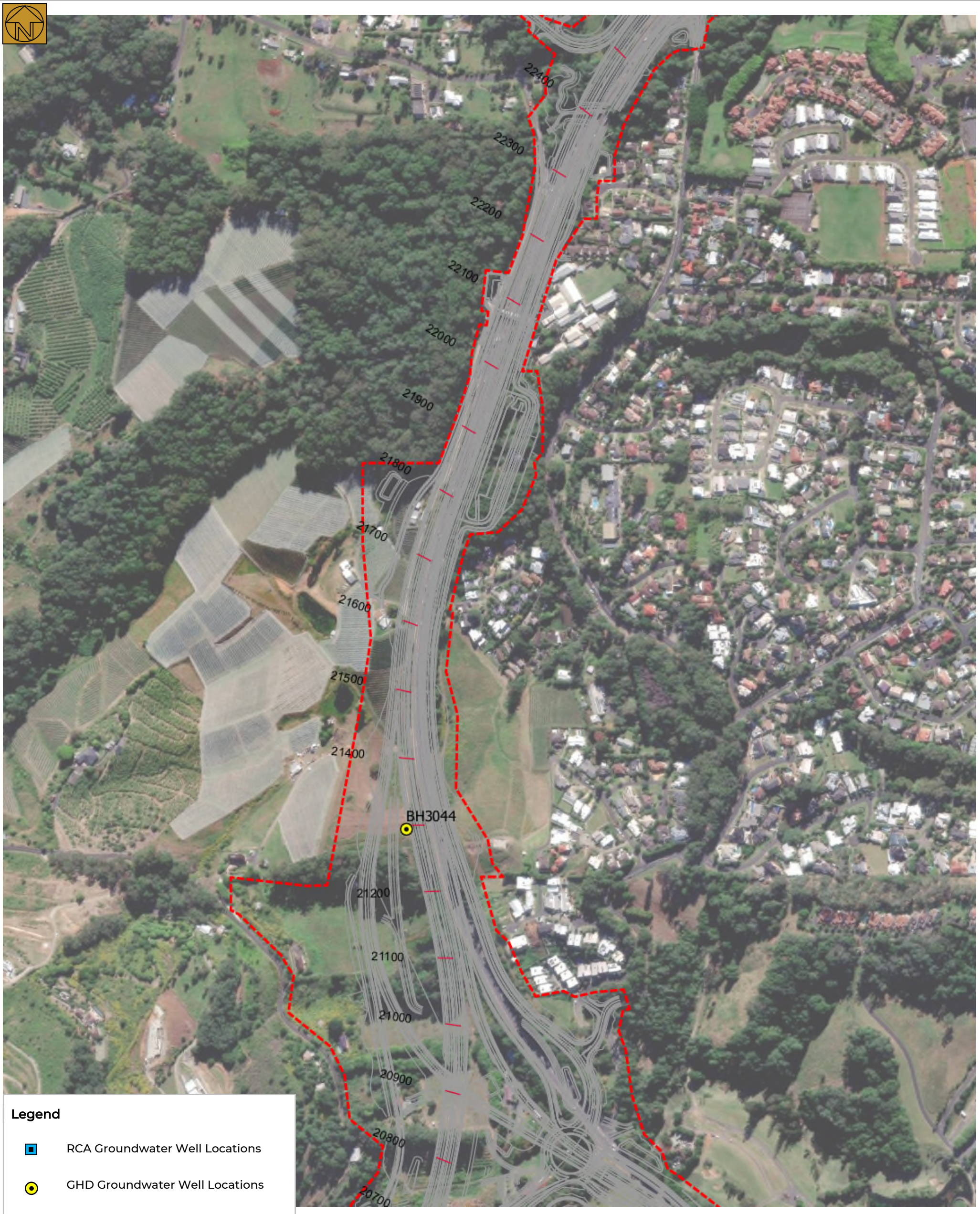


Client:	Transport for NSW	BALLPARK ENVIRONMENTAL		Drawn:	JP
Project:	Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program			Approved:	AB
				Date:	29 March 2023
Title:	Groundwater Monitoring Well Location Plan			Scale:	NTS
project no:	BPE21058-R04	Figure no:	Figure 3 Sheet 7 of 10	Original Size:	A3



Client:	Transport for NSW	BALLPARK ENVIRONMENTAL		Drawn:	JP
Project:	Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program			Approved:	AB
				Date:	29 March 2023
Title:	Groundwater Monitoring Well Location Plan			Scale:	NTS
project no:	BPE21058-R04	Figure no:	Figure 3 Sheet 8 of 10	Original Size:	A3



Client:	Transport for NSW	BALLPARK ENVIRONMENTAL		Drawn:	JP
Project:	Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program			Approved:	AB
				Date:	29 March 2023
Title:	Groundwater Monitoring Well Location Plan			Scale:	NTS
project no:	BPE21058-R04	Figure no:	Figure 3 Sheet 9 of 10	Original Size:	A3

Legend

- RCA Groundwater Well Locations
- GHD Groundwater Well Locations

Plans sourced from TFNSW

Client:	Transport for NSW	BALLPARK ENVIRONMENTAL		Drawn:	JP
Project:	Coffs Harbour Bypass – Construction and Operation Groundwater Monitoring Program			Approved:	AB
				Date:	29 March 2023
Title:	Groundwater Monitoring Well Location Plan			Scale:	NTS
project no:	BPE21058-R04	Figure no:	Figure 3 Sheet 10 of 10	Original Size:	A3

Appendix B
Stakeholder Comments

Mick Browne

From: Darren Swift <Darren.Swift@epa.nsw.gov.au>
Sent: Thursday, 7 July 2022 2:05 PM
To: Mick Browne; Benjamin Lewin
Cc: Scott King
Subject: RE: Coffs Harbour Bypass - Construction and Operation Groundwater Monitoring Program

Hi Mick,

EPA have no comment on the Groundwater Monitoring Program.

Thanks,

Darren Swift
Senior Operations Officer
Regulatory Operations
NSW Environment Protection Authority
D 02 6640 2526 **M** 0476 859 331
E darren.swift@epa.nsw.gov.au

www.epa.nsw.gov.au@NSW_EPA

I am working on Gumbaynggirr Country. I acknowledge and respect the Traditional Custodians of the land on which I work and live.

From: Benjamin Lewin <Benjamin.Lewin@epa.nsw.gov.au>
Sent: Thursday, 23 June 2022 4:02 PM
To: Darren Swift <Darren.Swift@epa.nsw.gov.au>
Cc: Scott King <Scott.King@epa.nsw.gov.au>
Subject: FW: Coffs Harbour Bypass - Construction and Operation Groundwater Monitoring Program

Hi Swifty,

Can you please have a look at this over the next fortnight and respond. I'll create a MS Teams Task to account for the work item.

Mick Browne

From: Selina Stillman <selina.stillman@dpi.nsw.gov.au>
Sent: Thursday, 7 July 2022 3:05 PM
To: Mick Browne
Subject: RE: HPE CM: Coffs Harbour Bypass - Construction and Operation Groundwater Monitoring Program

Hi Mick,

Thank you for the opportunity to review the Groundwater Monitoring Program for Coffs Harbour Bypass. DPI Agriculture has no amendments to the document.

Regards,
Selina

Selina Stillman | Agricultural Land Use Planning Officer
Department of Primary Industries | Agriculture
Wollongbar Primary Industries Institute | 1243 Bruxner Highway | Wollongbar NSW 2477
M: 0412 424397 | E:selina.stillman@dpi.nsw.gov.au
W: http://www.dpi.nsw.gov.au/land-and-water/land-use/lup

PLAN, RESOURCE, GROW

From: Mick Browne <mick.browne@transport.nsw.gov.au>
Sent: Thursday, 23 June 2022 3:15 PM
To: NRAR Service Desk Mailbox <nrar.servicedesk@dpie.nsw.gov.au>; Benjamin Lewin <Benjamin.Lewin@epa.nsw.gov.au>; Selina Stillman <selina.stillman@dpi.nsw.gov.au>; Jonathan Yantsch <jonathan.yantsch@dpi.nsw.gov.au>; Sally Whitelaw <sally.whitelaw@chcc.nsw.gov.au>
Cc: Scott Lawrence <Scott.LAWRENCE@transport.nsw.gov.au>
Subject: HPE CM: Coffs Harbour Bypass - Construction and Operation Groundwater Monitoring Program

Good Afternoon,
Transport for NSW are currently preparing the environmental management documents for delivery of the Coffs Harbour Bypass, in accordance with the project approval conditions, project stakeholders are invited to provide feedback on the management plans and programs. Your agency has been nominated to review the Construction and Operational Groundwater Monitoring Program attached, should you have any comments on the program please use the attached comments table. Please note that submission of comments is required by the 7th of July 2022 to meet approval progression timeframes.
Should you have any questions, please feel free to contact me.

Thanks and Regards,

Mick Browne

From: Sally Whitelaw <sally.whitelaw@chcc.nsw.gov.au>
Sent: Friday, 24 June 2022 10:51 AM
To: Mick Browne
Subject: RE: Coffs Harbour Bypass - Construction and Operation Groundwater Monitoring Program

Hi Mick,

I have no comments on this one.

Regards,
Sally Whitelaw
Team Leader Biodiversity, Coastal & Flooding
Local Planning | Coffs Harbour City Council
P: 02 6648 4673 | 02 6648 4000
E: sally.whitelaw@chcc.nsw.gov.au | W: www.coffsharbour.nsw.gov.au | @coffscouncil

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From: Mick Browne <mick.browne@transport.nsw.gov.au>
Sent: Thursday, 23 June 2022 3:15 PM
To: NRAR Service Desk Mailbox <nrar.servicedesk@dpie.nsw.gov.au>; Benjamin Lewin <Benjamin.Lewin@epa.nsw.gov.au>; Selina Stillman <selina.stillman@dpi.nsw.gov.au>; Jonathan Yantsch <jonathan.yantsch@dpi.nsw.gov.au>; Sally Whitelaw <sally.whitelaw@chcc.nsw.gov.au>
Cc: Scott Lawrence <Scott.LAWRENCE@transport.nsw.gov.au>
Subject: Coffs Harbour Bypass - Construction and Operation Groundwater Monitoring Program

Good Afternoon,
Transport for NSW are currently preparing the environmental management documents for delivery of the Coffs Harbour Bypass, in accordance with the project approval conditions, project stakeholders are invited to provide feedback on the management plans and programs. Your agency has been nominated to review the Construction and Operational Groundwater Monitoring Program attached, should you have any comments on the program please use the attached comments table. Please note that submission of comments is required by the 7th of July 2022 to meet approval progression timeframes.
Should you have any questions, please feel free to contact me.

Thanks and Regards,

Department of Planning and Environment

Contact: Department of Planning and Environment—Water
Phone: 1800 633 362
Email: waterlicensing.servicedesk@dpie.nsw.gov.au

Our ref: DOC22/240926, V15/3875-5#27

29 August 2022

Attention: Mick Browne

Email: mick.browne@transport.nsw.gov.au

Dear Mick,

Re: Coffs Harbour Bypass (SSI-7666) – Surface Water Monitoring Program & Groundwater Monitoring Program

Thank you for giving the Department of Planning and Environment—Water the opportunity to review Coffs Harbour Bypass (SSI-7666) – Surface Water Monitoring Program & Groundwater Monitoring Program.

Department of Planning and Environment—Water (Licencing & Approvals) have no comments on the Surface Water Quality Monitoring Program and the Construction & Operation Groundwater Monitoring Program.

From the 15th November 2021, the Licencing & Approvals team (previously with NRAR) no longer co-ordinate the response from the groundwater and surface water teams. This matter should be referred to the water assessments team to ensure the groundwater comments are addressed in the Construction & Operation Groundwater Monitoring Program if it has not been done so already. Their contact is water.assessments@dpie.nsw.gov.au

Should you have any further queries in relation to this submission please do not hesitate to contact the Department of Planning and Environment – Water at waterlicensing.servicedesk@dpie.nsw.gov.au.

Yours Sincerely

Jeremy Morice
Manager (West)
Licensing and Approvals
Department of Planning and Environment—Water

Department of Planning and Environment

Our ref: OUT22/19072

Scott Lawrence

Transport for NSW

Email: Scott.Lawrence@transport.nsw.gov.au

31 October 2022

Subject: Coffs Harbour Bypass **(SSI – 7666) – Soil and Water Management Plan**

Dear Scott

I refer to your request for advice sent on 12 October 2022 to the Department of Planning and Environment (DPE) Water about the above matter.

DPE Water has reviewed the Soil and Water Management Plan (SWMP) and considers the plan inadequate to address the relevant conditions of approval and previous comments by DPE Water dated 8 April 2022 (our ref DOC22/85044) on the Groundwater Monitoring Program (Appendix D of the SWMP). The key concerns relate to:

- insufficient baseline data to inform the development of trigger levels in the Trigger Action Response Plan.
- no commitment or detail on mitigating measures to limit groundwater discharge from cuts and tunnels to a maximum of 1L/s/km.
- a water census of private bores/wells and springs potentially impacted by the project and the development of make good provisions is yet to be undertaken.

Please see attachment A for more detail.

Should you have any further queries in relation to this submission please do not hesitate to contact DPE Water Assessments water.assessments@dpie.nsw.gov.au. or to the following coordinating officer within DPE Water:

Tim Baker – Senior Project Officer
E: Tim.Baker@dpie.nsw.gov.au
M: 0428 162 097

Yours sincerely

E Rogers

Liz Rogers
Manager, Assessments, Knowledge Division
Department of Planning and Environment: Water

Attachment A

Detailed advice regarding the Coffs Harbour Bypass (SSI - 7666) – Soil and Water Management Plan

1.0 Groundwater Monitoring and Management

1.1 Recommendation

That the Groundwater Monitoring Program (GWMP) is updated with the results and findings of the pre-construction interpretive monitoring report, including:

a. baseline data and proposed trigger levels for groundwater quality and;

b. baseline data, trigger levels and trigger action response plans (TARPs) for groundwater levels.

1.2 Explanation

Baseline data is still being collated to develop percentile triggers related to groundwater quality and levels, and the trigger action response plans related to groundwater are presented with insufficient detail. The GWMP does not include trigger levels for groundwater levels and it is unclear how changes in water level data will be interpreted or responded to. It is understood Transport for NSW has committed to updating the trigger values following release of the interpretive report for the Phase 1 – Pre-Construction Groundwater Monitoring Program

1.3 Recommendation

That the SWMP include a commitment to mitigating measures GW07 and GW11 referred to in Table 6-1 of the Submissions Report (Volume 2 – Chapter 4-8) and provide detail on how these measures will be implemented to prevent and manage groundwater impacts during construction.

1.4 Explanation

Condition C2 of approval SSI-7666 requires the CEMP to provide details of how the construction activities are to be carried out to meet the performance outcomes of the EIS, Submissions Report and Amendment report. As the SWMP is a subplan of the CEMP Condition C2 is applicable to its content. Mitigating measure GW07 refers to completing additional hydrogeological investigations and modelling to aid in managing groundwater inflows to not exceed 1L/s/km. GW11 refers to completing additional assessments of potentially impacted bores/wells, springs and dams to confirm predicted impacts and to develop make good provisions. Further information is required to address these satisfactorily.

End Attachment A

info@ballparkenv.com.au

From: Mick Browne <mick.browne@transport.nsw.gov.au>
Sent: Thursday, 8 September 2022 9:45 AM
To: Andrew Ballard
Subject: FW: CHB - Groundwater Monitoring Program - Rev 1 Endorsement

Hi Andrew,
As discussed, please see ER endorsement of the CHB Construction and Operation Groundwater Monitoring Program.

Thanks and Regards,

Mick Browne

Coffs Harbour Bypass

M: 0437 018 941 | **E:** mick.browne@transport.nsw.gov.au
Level 2 / No 76 Victoria Street Grafton NSW 2460
PO BOX 546 Grafton NSW 2460

Regional Project Delivery
Infrastructure and Place
Transport for NSW

I acknowledge the traditional owners and custodians of the land in which I work and pay my respects to Elders past, present and future.

From: Duncan Thomson <duncan@geolink.net.au>
Sent: Wednesday, 7 September 2022 1:38 PM
To: Mick Browne <mick.browne@transport.nsw.gov.au>
Cc: Scott Lawrence <Scott.LAWRENCE@transport.nsw.gov.au>; Shayne Walker <Shayne.WALKER@transport.nsw.gov.au>
Subject: CHB - Groundwater Monitoring Program - Rev 1 Endorsement

Hi Mick

In my capacity as Environmental Representative, I have reviewed the CHB Construction & Operation Groundwater Monitoring Program (Revision 1, 24 August 2022, prepared by Ballpark Environmental) and endorse it as being appropriate.

Regards

Duncan Thomson
Director | Environmental Engineer

GeoLINK

Quality solutions. Sustainable future.
P 02 6687 7666 | **M** 0419 237 075
W www.geolink.net.au

OFFICIAL

OFFICIAL

CHB Management Plan Review Comment Summary

Project:	Coffs Harbour Bypass
Report title:	Draft Groundwater Monitoring Program
Revision No:	5
Document Number:	
Reviewer:	Nicole Strehling, Marine Park Manager, Solitary Islands Marine Park, DPI Fisheries
Author:	TfNSW
Date:	August 2022

Item	Document reference	Comment	Author response	Status (Open/Closed)
1	3.	**Comment:** The study area includes both catchments and waters of the Solitary Islands Marine Park. The monitoring program does not currently acknowledge the marine park. Groundwater health and connectivity is critical for marine park values and delivery of legislative requirements. The marine park includes all estuaries north from and including Coffs Creek within the study area. These estuaries all form part of the habitat protection zone of the marine park. Under the Marine Estate Management (Management Rules) Regulation 1999, the objects of a habitat protection zone are: (a) to provide a high level of protection for biological diversity, habitat, ecological processes, natural features and cultural features (both Aboriginal and non-Aboriginal) in the zone, and (b) where consistent with paragraph (a), to provide opportunities for recreational and commercial activities (including fishing), scientific research, educational activities and other activities, so long as they are		

		ecologically sustainable and do not have a significant impact on any fish populations or on any other animals, plants or habitats. These areas are subject to a higher level of environmental protection than other estuaries in NSW, and construction activities are subject to special legislative consent and advice requirements. **Recommendation:** It would be appreciated if the monitoring program could acknowledge the Solitary Islands Marine Park in section 3 'Regional Setting & Layout'.	TfNSW Response – Noted, the Solitary Islands Marine Park has been referenced in Section 3.	Closed
2	1.2	**Recommendation:** In light of the comments above against section 3, the monitoring program should also assess the potential impact of any changes to groundwater on estuarine connectivity and health, including any potential impact on delivery of marine park habitat protection zone objects.	TfNSW response – Noted, the Coffs Harbour Bypass SSI 7666 Approval Conditions require the Proponent to prepare a Construction Water Quality Review document prior to construction that will consider the outputs of the Groundwater Monitoring Program and Surface Water Monitoring Programs and specifically address the requirement to develop strategies to minimise potential impacts to sensitive receiving environments including the Solitary Islands Marine Park. This document is to be prepared prior to formal	Closed

CHB Management Plan Review Comment Summary

			construction commencement and will address Marine Park Management objectives. Please see excerpt below for your reference.	

CHB Conditions of Approval - Appendix B Water Quality Review (Provided for DPI Fisheries Information)

CONSTRUCTION WATER QUALITY REVIEW (CHB CoA – Appendix B)

The Construction Water Quality review must address the following:

1. Describe the existing surface water quality for any waterway likely to be affected by the construction activities.

2. State the ambient Water Quality Objectives and environmental values for the receiving waters relevant to the project. These refer to the community's agreed environmental values and human uses endorsed by the NSW Government as goals for ambient waters (http://www.environment.nsw.gov.au/ieo/index.htm).

3. State the indicators and associated guideline values or criteria for the identified environmental values. This information should be sourced from the ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

4. Identify and estimate the quality and quantity of all pollutants that may be introduced into the water cycle by source and discharge point and describe the nature and degree of impact that any discharge(s) may have on the receiving environment.

5. Demonstrate that all practical measures to avoid or minimise water pollution and protect human health and the environment from harm will be implemented.

6. Identify sensitive receiving environments (including the Solitary Islands Marine Park) and develop a strategy to avoid or minimise impacts to these environments.

7. Assess the significance of any identified impacts including consideration of the relevant ambient water quality outcomes. Demonstrate how the proposal will be designed and operated to:

    i. Protect the NSW Water Quality Objectives for receiving waters where they are currently being achieved; and

    ii. Contribute towards achievement of the NSW Water Quality Objectives over time where they are not currently being achieved.

8. Include details of a construction stage surface water quality monitoring program.

Appendix C

Pre-Construction Groundwater Monitoring Program – Interpretative Report, Coffs Harbour Bypass (Ballpark Environmental 2023)

Ballpark Environmental
BPE21058-R04 (Rev. 5)
29 March 2023

Groundwater Monitoring Program – Interpretative Report

Coffs Harbour Bypass

Report prepared for –
Transport for NSW

29 March 2023
BPE21058-R09 (Rev. 2)

Quality information

Revision history

Item	Description
Revision	Revision 2
Description	Coffs Harbour Bypass –Groundwater Monitoring Program, Interpretative Report
Date	29 March 2023
Authors	Joel Parkin – Associate Environmental Engineer, Andrew Ballard – Principal Environmental Scientist, CEnvP
Technical Reviewer	Andrew Ballard - Principal Environmental Scientist, CEnvP

Distribution

Report Status	No. of copies	Format	Distributed to	Date
Original	1	PDF	Transport for NSW	18 August 2022
Original	1	PDF	Ballpark Environmental Pty Ltd	18 August 2022
Revision 1	1	PDF	Transport for NSW	20 January 2023
Revision 1	1	PDF	Ballpark Environmental Pty Ltd	20 January 2023
Revision 2	1	PDF	Transport for NSW	29 March 2023
Revision 2	1	PDF	Ballpark Environmental Pty Ltd	29 March 2023

29 March 2023

Our ref: BPE21058-R09 (Rev. 2)

Your ref: 21.0000137075.0901

Transport for NSW
Coffs Harbour Bypass
PO Box 6070
COFFS HARBOUR PLAZA NSW 2450

Sent via email: Jarred.KOHLER@transport.nsw.gov.au

Attention: Jarred Kohler – Project Manager, Coffs Harbour Bypass

Dear Jarred,

RE: Coffs Harbour Bypass – Pre-Construction Groundwater Monitoring Program, Interpretative Report

Ballpark Environmental Pty Ltd is pleased to present the updated Interpretative Report for the Groundwater Monitoring Program (GWMP) prepared for the Coffs Harbour Bypass (CHB) project. Revision 2 of the Interpretative Report includes the data, laboratory results, and findings from an additional round of pre-construction groundwater monitoring undertaken in January 2023.

The updated Interpretative Report summarises the data collected, including hydrographs of groundwater levels at each monitoring well, for the 5 rounds of pre-construction groundwater monitoring undertaken between July 2021 and January 2023 for the CHB project.

We trust that this updated Interpretative Report meets with your requirements. If you require further information or assistance, please do not hesitate to contact us on (02) 6658 0585

For and on behalf of Ballpark Environmental Pty Ltd

Andrew Ballard
Principal Environmental Scientist
Certified Environmental Practitioner

Joel Parkin
Associate Environmental Engineer

Table of Contents

Tables

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Appendices

Abbreviations

Acronym	Description
AHD	Australian Height Datum
BoM	Bureau of Meteorology
BTEXN	Benzene, toluene, ethylbenzene, xylene, & naphthalene compounds
CHB	Coffs Harbour Bypass
Ch	Chainage (m), measured from south to north along the CHB alignment.
°C	Temperature reported in degrees Celsius
CoC	Chain of Custody
DG	Down Gradient
DO	Dissolved oxygen
EC	Electrical conductivity
GME	Groundwater monitoring event
GWMP	Groundwater monitoring program
OCP	Organochlorine pesticides
OPP	Organophosphorus pesticides
OUA	On Upgrade Alignment
pH	pH units
LOR	Laboratory limit of reporting. This is the laboratory's minimum concentration (mg/L) of a parameter at which the concentration can be reported at a 99% confidence level.
mAHD	Metres Australian Height Datum
MCoA	Minister's conditions of approval, issued on 2 November 2020
Minister	NSW Minister for Planning and Public Spaces
mg/kg	Milligrams per kilogram
mg/L	Milligrams per litre
mS/cm	Millisiemens per centimeter
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimeter
NATA	National Association of Testing Authorities
NTU	Nephelometric turbidity units
PAH	Polycyclic aromatic hydrocarbons
SVOC	Semi volatile organic compounds

Acronym	Description
SWL	Standing water level
TDS	Total dissolved solids
TfNSW	Transport for New South Wales
TRH	Total recoverable hydrocarbons
UG	Up Gradient
WQM	Water quality meter
VOC	Volatile organic compounds

1. Introduction

This Interpretative Report has been prepared following the completion of an 18-month pre-construction monitoring program undertaken from July 2021 to January 2023 for the CHB project. The collected data and findings from this baseline pre-construction monitoring will inform the groundwater monitoring program during the subsequent construction and operational phases of the CHB project.

1.1. Project Overview

The Coffs Harbour Bypass (CHB) will involve the construction of a 4-lane divided motorway in a 14km bypass of Coffs Harbour from south of Englands Road to the south of Coffs Harbour, then through foothills and three ridgelines to the west of the city to Korora Hill in the north with a 2km upgrade of the existing highway between Korora Hill and Sapphire, see Figure 1.

The CHB alignment to the west of Coffs Harbour will require the construction of several large road cuttings and three short tunnels through the ridges at Roberts Hill (~190m length), Shephards Lane (~360m length), and Gatelys Road (~450m length). Groundwater present along the CHB alignment may be impacted by construction of the new motorway, especially at each of the tunnels and priority cuttings. Transport for New South Wales (TfNSW) has developed and implemented a Groundwater Monitoring Program (GWMP) for the CHB project. The GWMP will be delivered in the following three phases:

Phase 1 – Pre-Construction (18 months)

Phase 2 – Construction (4-5 years)

Phase 3 – Operational, (post construction) (3 years, or a shorter period if it can be demonstrated that there are no detrimental impacts).

As part of the early works underway for the CHB project TfNSW engaged Ballpark Environmental Pty Ltd to undertake Phase 1 of the GWMP. A groundwater monitoring program was developed and finalised in September 2021 which details how and what groundwater data will be collected for the CHB project (Ballpark Environmental 2021a).

The GWMP provides details on each of the monitoring wells, sampling procedures, and parameters to be measured to assess groundwater levels and quality at locations of proposed tunnels and priority cuttings on the CHB, which was presented in report ref. BPE21058-R01 Rev.2, dated 30 September 2021.

A total of 4 groundwater monitoring events (GME) were undertaken in September 2021, December 2021, March 2022 and June 2022 and the results presented in 4 separate data reports, report ref. BPE21058-R05, dated 25 November 2021, BPE21058-R06, dated 17 February 2022, BPE21058-R07, dated 8 April 2022, and BPE21058-R08, dated 20 July 2022 respectively.

An additional GME was undertaken in January 2023 which also included the collection of water samples from each available monitoring well for laboratory analyses for a broad testing suite to screen for the presence of potential pre-existing contaminants of concern.

This updated interpretative report has been prepared following the completion of the 5th GME for the Phase 1 Pre-Construction and includes:

- An overview of the groundwater monitoring program including; introduction and background to the purpose of the program, and project approval conditions and commitments applicable to groundwater.
- The objectives of the GWMP.
- Methodology, providing details on each of the groundwater monitoring well locations, chainage, easting and northing coordinates, fieldwork including groundwater sampling methods and the storage and handling of samples for laboratory analysis.
- Plots of the standing water levels recovered from the HOBO® data loggers for each monitoring well relative to Australian Height Datum (AHD).
- Groundwater quality results, including presentation of *in-situ* physico chemical groundwater quality data with calculated P80 and P20 values and summary statistics.
- Groundwater quality results provided in a summary table of laboratory testing of selected wells at each of the 3 tunnel locations undertaken to inform the detailed design of the CHB project.
- Groundwater laboratory results for an additional round of monitoring undertaken in January 2023.
- Analysis and discussion of groundwater monitoring findings and recommendations for the future conduct of the groundwater monitoring program during construction and operational phases of the CHB project.

1.2. Groundwater Monitoring Objectives

The primary objective of the groundwater monitoring program is to assess the impact of the CHB highway upgrade on groundwater in the CHB study area.

Additional objectives of the groundwater monitoring program for each of the three phases of the project are as follows (TfNSW 2019):

Phase 1 – Pre-Construction

- Establish baseline groundwater conditions.
- Identify parameters for monitoring during construction.

Phase 2 - Construction

- Demonstrate compliance with approvals and other monitoring requirements for the project.
- Procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory.

Phase 3 - Operational

- The parameters of the project to be monitored.

- Evaluation of site stabilisation and determination of new groundwater conditions.
- Groundwater monitoring during this phase would be undertaken for a period of three years, or before if it can be proved that no impact has occurred.

This interpretative report has been prepared following completion of the Phase 1 – Pre-Construction groundwater monitoring program.

Figure 1: Coffs Harbour Bypass Study Area
Source: TfNSW

2. Approval Conditions & Commitments

The Ministers Conditions of Approval (MCoA), Commonwealth approval conditions and the TfNSW revised environmental measures that apply to the management of groundwater on the CHB project are detailed below and are the same as provided in the Coffs Harbour Bypass Construction and Operation Groundwater Monitoring Program.

2.1. Minister's Conditions of Approval

The Coffs Harbour Bypass project received Ministerial Approval on 2 November 2020. The Minister's Conditions of Approval (MCoA) which apply to groundwater and to groundwater monitoring for the CHB project is summarised in Table 1.

Table 1: MCoA applicable to groundwater monitoring for the CHB

Condition	MCoA
Part C - Construction Monitoring Programs	
C13	The Construction Monitoring Programs in Table 4 must be prepared in consultation with relevant government agencies identified for each to compare actual performance of construction of the CSSI against the performance predicted in documents listed in Condition A1 or in the CEMP. c) Surface & Ground Water Quality Relevant Government Agencies: EPA, DPI Agriculture, DPI Fisheries, DPIE Water Group, Council
C14	Each Construction Monitoring Program must provide: a) Details of the baseline data available; b) Details of baseline data to be obtained and when; c) Details of all monitoring of the project to be undertaken; d) The parameters of the project to be monitored; e) The frequency of monitoring to be undertaken; f) The location of monitoring; g) The reporting of monitoring results; h) Procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory; and i) Any consultation to be undertaken in relation to the monitoring programs.

Condition	MCoA
C15	The Construction Monitoring Programs must be developed in consultation with relevant government agencies as identified in Condition C13 of this approval and must include information requested by an agency to be included in a Construction Monitoring Programs during such consultation. Details of all information requested by an agency including copies of all correspondence from those agencies, must be provided with the relevant Construction Monitoring Program.
C16	The Construction Monitoring Programs must be endorsed by the ER and then submitted to the Planning Secretary for approval at least one month before the commencement of construction.

Part D – Operational Monitoring Program

D6	The Operational Monitoring Programs in Table 6 must be prepared in consultation with the relevant authorities identified for each Operational Monitoring Program to compare actual operational performance against predicted performance. These programs must be submitted to the Planning Secretary for information. The monitoring program must be implemented. a) Surface & Ground Water Quality Relevant Government Agencies: EPA, DPI Fisheries, DPIE Water Group, Council
D7	Each Operational Monitoring Program must include: a) Details of baseline data; b) Details of all monitoring of the project to be undertaken; c) The parameters of the project to be monitored; d) The frequency and lifespan of monitoring to be undertaken; e) The location of monitoring; f) The reporting of monitoring and analysis results against relevant criteria; g) Details of the methods that will be employed to analyse the monitoring data; h) Procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory; and i) Any consultation to be undertaken in relation to the monitoring programs.

Condition	MCoA
Part E – Key Issue Conditions, Groundwater	
E110	Operational groundwater inflows into each tunnel must be no greater than one litre per second across any given kilometre (1L/s/km). Compliance with this condition cannot be determined by averaging groundwater inflows across the length of the tunnel(s)[1].
E111	The Proponent must identify and commit to the implementation of 'make good' provisions for groundwater users in the event of a material decline in water supply levels, quality and quantity from existing registered bores associated with groundwater changes from either construction and/or ongoing operational dewatering caused by the CSSI[2].

2.2. Conditions of Approval – Commonwealth

Commonwealth approval (Ref No. 2017/8005) for the CHB Project was granted under sections 130(1) and 133(1) of the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act). Approval was granted by the Commonwealth Minister for the Environment on 8 December 2020.

To compensate for impacts on protected matters the approval conditions require implementation of conditions provided in the MCoA which include reference to conditions C13(c) and C14 of Part C (see section 2.1). They relate to monitoring, managing, avoiding, mitigating, offsetting, recording, or reporting on impacts to protected matters. For the CHB project, protected matters are listed threatened species and communities, including known habitat for the Koala (*Phascolarctos cinereus*) and the Giant Barred Frog (*Mixophyes iterates*). Compliance with the Commonwealth approval conditions requires the preparation and approval of a construction and operation GWMP[3].

2.3. Revised Environmental Management Measures

The CHB Environmental Impact Statement (TfNSW 2019) identified a range of environmental outcomes and management measures to be undertaken to avoid or reduce the environmental impacts of this project.

[1] Note. Estimation and monitoring of groundwater inflows form a component of the Tunnelling SWTC and associated construction methodology.

[2] Note: MCOA E111 requirements are to be addressed in the Contractors Construction Soil and Water Management Plan.

[3] Note: A draft Construction and Operation Groundwater Monitoring Program has been prepared and is currently under review by the relevant Government agencies.

Following exhibition of the EIS and the public submissions received, TfNSW has reviewed the issues raised and revised the environmental management measures for this project. The measures relevant to groundwater management for the project are summarised in Table 2.

Table 2: Revised environmental management measures for groundwater on the CHB

ID	Environmental Management Measures	Responsibility	Timing	Relevant Management Document or process reference
Water Quality Monitoring Program				
SW01	A Water Quality Monitoring Program will be prepared and implemented prior to and during construction and operation to identify whether the project is resulting in adverse impacts on water quality and assess compliance with statutory requirements and project targets. Monitoring will continue for a period of three years following construction, or before it can be proved that no impact has occurred. The monitoring program will be prepared in accordance with the Guideline for Construction Water Quality Monitoring (RTA n.d.) and details provided in Chapter 19, Surface water quality of the EIS.	TfNSW	Prior to and during construction and operation.	Surface Water Quality Monitoring Program
Prevention of groundwater impacts from cuttings, tunnels, and embankments				
GW01	Stockpiles containing PASS or ASS treatment areas will be lined and bunded in accordance with the Guidelines for the Management of Acid Sulfate Materials (RTA 2005) to prevent leachate contaminating groundwater.	Contractor	During Construction	Construction Soil and Water Management Sub Plan

ID	Environmental Management Measures	Responsibility	Timing	Relevant Management Document or process reference
GW02	Additional groundwater monitoring standpipes will be included for Type A cuts for alluvial aquifers along the project and in the areas around the major embankments to supplement existing data.	TfNSW	Prior to construction[4]	Construction and Operational Groundwater Monitoring Program
GW03	Captured groundwater from tunneling will be treated using temporary water treatment plants and transferred to storage dams for reuse during construction as a source of non-potable water.	Contractor	During Construction	Construction Soil and Water Management Sub Plan, Construction Water Reuse Plan
GW04	Unless used as a source of non-potable water for the project, groundwater captured by cuttings and tunnels will be returned into the aquifer down gradient and within the same catchment from where it was intercepted where reasonable and feasible.	Contractor	During Construction	Detailed Design
GW05	Engineering measures for long-term management of groundwater inflow to cuttings and tunnels will be designed and constructed to ensure groundwater is recharged downgradient of the cutting or tunnel from where it is captured and within the same catchment where reasonable and feasible. This will be facilitated by, but not limited to, absorption trenches, infiltration galleries/pits, sediment basins and grassed swales.	Contractor	During detailed design	Detailed Design

[4] Note that TfNSW has now satisfied measure GW02 through the installation of additional groundwater monitoring well locations, see section 3.1 Monitoring locations.

ID	Environmental Management Measures	Responsibility	Timing	Relevant Management Document or process reference
GW06	Where groundwater recharge downgradient of the cutting or tunnel is not reasonable and feasible, measures will be designed and implemented that transfer seepage water downstream via water quality basins before being discharged into a downstream drainage channel or creek, within the same catchment.	Contractor	During detailed design and during construction	Detailed Design
GW07	Additional geotechnical and hydrogeological investigations and modelling will be carried out for the Gatelys Road tunnel during detailed design to improve predictions of likely groundwater inflows, inform construction methodologies and develop engineering measures to reduce groundwater ingress where inflow rates are still anticipated to exceed 1 L/s per kilometre. Investigations and modelling will be undertaken in consultation with Water Group, DPIE.	Contractor	During detailed design	Detailed Design
GW08	Monitoring of groundwater levels and quality will be included in the Water Quality Monitoring SW01.	TfNSW	Prior to and during construction and operation.	Construction and Operational Groundwater Monitoring Program
GW09	Monitoring of seepage into cuttings will be carried out and evaluated against the predictions of the numerical modelling undertaken during detailed design.	Contractor	During construction	Construction Soil and Water Management Sub Plan and associated appendices
GW10	Major embankments will be designed to enable distributed flow of surface water to prevent ponding.	Contractor	During detailed design	Detailed Design
GW11	Additional ground truthing and site inspections will be undertaken for potentially impacted groundwater bores/supply wells (including supply well GW068986), springs, Jordans Creek *(near Cut 20),* and agricultural	TfNSW	During detailed design	Construction Soil and Water Management Sub Plan and

ID	Environmental Management Measures	Responsibility	Timing	Relevant Management Document or process reference
	dams within and immediately surrounding the zone of drawdown. The purpose of the ground truthing and site inspections is to confirm predicted impacts and develop make good provisions where required in consultation with affected property owners.			associated appendices
GW12	Sites used for stockpiles, washdown areas, refueling and chemical storage will be located away from areas of shallow groundwater or appropriately lined and bunded to protect groundwater.	Contractor	Prior to and during construction	Ancillary Site Establishment Management Plan

3. Groundwater Monitoring Program

3.1. Monitoring Locations

The GWMP involves monitoring of SWL in up to 64 groundwater well locations using HOBO water level data loggers with the data collected during quarterly monitoring rounds. Table 3 provides details on the location for each of the monitoring wells and their status during each GME.

During the Phase 1 – Pre-construction groundwater monitoring program, the number of available wells for monitoring has varied for the following reasons:

- During the earlier monitoring rounds access to some monitoring well locations were not available due to property acquisition processes which were underway during 2021 and early 2022 or boreholes had not yet been drilled for conversion to groundwater monitoring wells, these locations are shown in Table 3 as being on Hold.
- A total of 7 wells were lost during the monitoring program, they include:
    - BHH139 and BHH141 at Shepards Lane Tunnel which had been destroyed prior to the start of the pre-construction program and have been removed from the GWMP.
    - BHH101 at Cut 1 which was available for the initial two monitoring rounds and then found to have been destroyed by subdivision earthworks during March 2022 round. This well was installed for concept design purposes in a Type B cutting and there is no corresponding down gradient well location for assessment. Therefore this location has been removed from the construction and operation GWMP.
    - BH2046 which was available for 3 rounds and then found to have been destroyed by earthworks during the June 2022 round. This well was

installed for concept design purposes and is located upgradient to the north of the project boundary with no corresponding down gradient location for assessment purposes. Therefore this location has been removed from the construction and operation GWMP.

  - BHH132 at Cut 13 which was available for the initial 4 monitoring rounds and was then found to have been destroyed by earthworks during 5th round in January 2023. There is an alternative upgradient well (BHH2.1-031) nearby and therefore this location has been removed from the construction and operation GWMP.

  - BH2040 which was available for the initial 4 rounds and then found to have been destroyed by earthworks during the January 2023 round. This well was installed for concept design purposes and is located upgradient to the north of the project boundary with no corresponding down gradient location for assessment purposes. Therefore this location has been removed from the construction and operation GWMP.

  - BH3044 which was available for the initial 4 rounds and then found to have been destroyed by earthworks during the January 2023 round. This well was installed for concept design purposes with no corresponding down gradient location for assessment purposes. Therefore this location has been removed from the construction and operation GWMP.

- At Cut 13 the monitoring well BHN2.1-026 was not available for the initial 3 rounds of monitoring as it had been buried under a collapsed track embankment. The spoil has since been removed, the monitoring well located, and was available for the June 2022 and January 2023 monitoring rounds.

- Several wells were found to have been damaged, however were able to be repaired during the pre-construction monitoring program. To the north of Shephards Lane Tunnel at BH2039 in the June 2022 round, the gatic cover was found to have been removed by landowner track works and the original HOBO logger was lost. This well was able to be repaired and a new gatic cover and HOBO logger has since been installed. Similarly, north of Gatelys Road Tunnel, BHH154 the gatic cover and HOBO logger were found to have been removed. During the June 2022 round a new HOBO logger was installed and a new gatic cover has since been installed. It is noted that many of the groundwater monitoring well locations have been installed within former farm tracks. These wells will require appropriate signage and protection measures to avoid damage during future construction activities.

Table 3: GWMP monitoring well locations

Cutting/ Tunnel	Type	Well Location ID	Chainage	Easting	Northing	Description	Pre-Construction Monitoring Sampling Status				
							Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	Round 5 (Jan 23)
Cut 1	B	BHH101	10300	508158	6645263	UG	Uploaded	Uploaded	Lost – Well Destroyed		
	A/E	BHH106	12950	508084	6647877	UG	Hold	Hold	Logger Installed	Uploaded	Uploaded
Cut 4	A	BH1056	13200	508299	6648001	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH1058	13300	508090	6648158	UG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
	A/E	BH1059	13400	508303	6648226	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
Roberts Hill Tunnel	A	BHH110	13600	508250	6648448	OUA	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2001	13600	508322	6648439	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2002	13650	508204	6648472	UG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded

Cutting/ Tunnel	Type	Well Location ID	Chainage	Easting	Northing	Description	Pre-Construction Monitoring Sampling Status				
							Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	Round 5 (Jan 23)
		BHH111	13700	508319	6648533	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BHH113	13700	508150	6648548	UG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2003	13730	508057	6648547	UG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BHN2.1-015	13800	508268	6648626	DG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded
	A/E	BH2004	13850	508440	6648710	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
Cut 8-1	A	BHH115	13900	508042	6648699	UG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded
		BH2006	14000	508174	6648849	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
Cut 8-2	A	BHH119	14250	507885	6648994	UG	Missing Logger	Logger Installed	Uploaded	Uploaded	Uploaded
		BH2008	14350	507966	6649123	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
	A/E	BH2015	14600	507860	6649345	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded

Cutting/ Tunnel	Type	Well Location ID	Chainage	Easting	Northing	Description	Pre-Construction Monitoring Sampling Status				
							Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	Round 5 (Jan 23)
		BH2016	14600	507866	6649347	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
Cut 10	B	BH2027	15450	507717	6650120	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2029	15450	507558	6650168	UG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
	A/E	BH2030	15500	507762	6650180	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
Cut 11	A	BHH125	14770	507826	6650407	DG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded
		BHH127	14770	507700	6650468	UG	Uploaded	Uploaded	Failed/ New logger installed	Uploaded	Uploaded
Cut 12	A	BHN/H2.1-024	16070	507987	6650645	DG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded
		BHN2.1-025	16150	507930	6650808	UG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded
Cut 13	B	BHN2.1-026	16400	508240	6650836	DG	Lost	Lost	Lost	New Logger Installed / Uploaded	Uploaded

Cutting/ Tunnel	Type	Well Location ID	Chainage	Easting	Northing	Description	Pre-Construction Monitoring Sampling Status				
							Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	Round 5 (Jan 23)
		BHH131	16440	508217	6650862	DG	Replacement for BHN2.1-026	Missing Logger	New logger installed	Uploaded	Uploaded
		BHH132	16400	508162	6650972	OUA	Uploaded	Uploaded	Uploaded	Uploaded	Lost – Well Destroyed
		BHH2.1-031	16400	508137	6651016	UG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded
Cut 14	A	BHN2.1-044	16800	508538	6651026	DG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded
		BHH2.1-047	16800	508527	6651162	UG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded
Shephard Lane Tunnel	A	BH2034	17000	508723	6651203	UG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2035	17000	508765	6651063	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BHH139	17100	508829	6651181	OUA	Lost – Well Destroyed				
		BHH140	17170	508899	6651149	DG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded

Cutting/ Tunnel	Type	Well Location ID	Chainage	Easting	Northing	Description	Pre-Construction Monitoring Sampling Status				
							Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	Round 5 (Jan 23)
		BHH141	17170	508891	6651192	OUA	Lost – Well Destroyed				
		BHH142	17170	508872	6651242	UG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded
		BHH144	17220	509030	6651219	OUA	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2036 - GW303812	17200	508989	6650936	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2037	17200	508839	6651501	UG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2038	17290	508991	6651173	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2039	12300	509011	6651286	UG	Uploaded	Uploaded	Uploaded	Damaged / Well Repaired	Uploaded
	A/E	BH2040	17500	509200	6651348	UG	Uploaded	Uploaded	Uploaded	Uploaded	Lost – Well Destroyed

Cutting/ Tunnel	Type	Well Location ID	Chainage	Easting	Northing	Description	Pre-Construction Monitoring Sampling Status				
							Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	Round 5 (Jan 23)
Cut 16	A/E	BH2046	18200	509943	6651284	UG	Uploaded	Uploaded	Uploaded	Lost – Well Destroyed	
	A	BH2047	18400	510092	6651108	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2049	18400	510154	6651302	UG	Groundwater Well Dry	Groundwater Well Dry	Uploaded	Uploaded	Uploaded
	A/E	BH2050	18600	510269	6650862	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
Gatelys Road Tunnel	A	BH2051	18900	510614	6651201	UG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2052	18900	510614	6651039	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH2053	18950	510686	6651421	UG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BHH150	19090	510778	6651176	UG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded

Cutting/ Tunnel	Type	Well Location ID	Chainage	Easting	Northing	Description	Pre-Construction Monitoring Sampling Status				
							Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	Round 5 (Jan 23)
		BHH153	19200	510902	6651041	DG	No Logger Installed	Logger Installed	Uploaded	Uploaded	Uploaded
		BHH154	19300	511014	6651126	OUA	Missing Logger	Hold	Hold	Well Damaged / Logger Installed & Well Repaired	Uploaded
		BH3001	19300	510984	6651216	UG	Hold	Hold	Hold	Uploaded	Uploaded
		BH3002	19300	511065	6650920	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH3003	19500	511130	6651425	UG	Hold	Hold	Hold	Installed Logger	Uploaded
	A/E	BH3004	19550	511238	6651292	UG	Hold	Hold	Hold	Uploaded	Uploaded
		BH3005	19550	511232	6651293	UG	Hold	Hold	Hold	Uploaded	Uploaded
	A/E	BH3014	20250	511961	6651375	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH3015	20250	511951	6651379	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded

Cutting/ Tunnel	Type	Well Location ID	Chainage	Easting	Northing	Description	Pre-Construction Monitoring Sampling Status				
							Round 1 (Sep 21)	Round 2 (Dec 21)	Round 3 (Mar 22)	Round 4 (Jun 22)	Round 5 (Jan 23)
Cut 18	A	BH3016	20300	511889	6651637	UG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
		BH3020	20500	512168	6651563	DG	Uploaded	Uploaded	Uploaded	Uploaded	Uploaded
Cut 19	C	BH3044	21300	512296	6652354	OUA	Uploaded	Uploaded	Uploaded	Uploaded	Lost – Well Destroyed
Cut 5a	B	BH3059	30070	513261	6653784	OUA	Hold	Hold	No Logger - Dry		

Notes:

OUA – On Upgrade Alignment
DG – Down Gradient
UG – Up Gradient
Type A – Moderate to high impact
Type B – Negligible to low impact
Type C – No impact
A/E – Alluvial or embankment
RHT – Roberts Hill Tunnel
SLT – Shephards Lane Tunnel
GRT – Gatelys Road Tunnel

Uploaded – Data collected from HOBO water level logger
Installed Logger – A HOBO water level logger was installed at this location
No Logger – A HOBO water level logger was not installed at this location
Hold – No access to this location at time of monitoring round
Lost – Monitoring well has been damaged/lost and is no longer available
Damaged – Monitoring well was damaged but has now been repaired

3.2. Groundwater Monitoring Methodology

Fieldwork for the groundwater monitoring rounds followed the methodology detailed in the GWMP and summarised in Table 4.

Table 4: Groundwater Monitoring Methodology

Activity	Detail / Comments
Access	Access to monitoring well locations, including those on private property, was coordinated with TfNSW access team prior to the start of fieldwork. The TfNSW access team then notified affected landholders and confirmed if access to private properties with monitoring wells to be monitored was approved.
Panama Disease Decontamination Procedures	The CHB alignment is through areas of former and existing banana plantations. Panama disease is a soil pathogen which infects the root system of banana plants initially and then colonises the whole plant. Panama disease is readily spread by soil and water and is present in the Coffs Harbour region. Ballpark Environmental followed the TfNSW Panama Disease Procedure during groundwater monitoring fieldwork activities. Decontamination included a wash down of boots and the field vehicle, and the details recorded. A summary of these decontamination records was provided to TfNSW following completion of each groundwater monitoring round.
Measurement of standing water levels (SWL)	Prior to collection of water samples for *in-situ* measurement or downloading HOBO water level data loggers the monitoring well was gauged by measuring depth to standing water with an electronic dip meter and the measured SWL recorded.
Download water level loggers	Groundwater level data was retrieved from each monitoring well which had a HOBO water level data logger installed and the data transferred using a compatible HOBO shuttle. At the completion of the monitoring round the data on the shuttle was then downloaded. Data collected from each well is stored in an MS Excel spreadsheet and copies of this data have been provided to TfNSW with each data report.
Physico chemical data collection	A representative groundwater sample was collected from each well for *in-situ* testing of physico chemical parameters. Groundwater physico chemical water quality was then measured in the field using a calibrated water quality meter (WQM). The data was recorded electronically on the field sheet for each groundwater sample location. The results of physico chemical monitoring are provided in Table LR1.

Activity	Detail / Comments
Groundwater quality samples	A total of 18 monitoring well locations at the 3 tunnels were sampled for laboratory analysis of groundwater quality. Groundwater quality samples were collected in new, laboratory supplied containers while wearing a new pair of disposable nitrile gloves. Metals samples were filtered *in-situ* using a new disposable 0.45 µm filter. The samples were then kept on ice in a chilled insulated container and at completion of each day transferred to a refrigerator. Samples were then couriered at the completion of the monitoring round to the laboratory under chain of custody protocol. Water samples were received by the laboratory within the required holding times. The results of groundwater quality testing are provided in Table LR2.
QA/QC Samples	To measure the accuracy and precision of the data generated by the field and laboratory procedures for the GWMP, additional samples were collected and analysed for quality assurance / quality control (QA/QC) purposes. For each monitoring round two intra-laboratory duplicate water samples and one inter-laboratory triplicate water sample were collected and analysed. The results for the QA/QC samples are presented and discussed for each monitoring round in their respective data reports.
Groundwater screening samples	A total of 55 monitoring well locations were sampled in the 5th GME in January 2023 for laboratory analysis for screening purposes to assess background pre-existing concentrations of a broad suite of parameters, refer to Table LR4. Groundwater quality samples were collected in new, laboratory supplied containers while wearing a new pair of disposable nitrile gloves. Metals samples were filtered *in-situ* using a new disposable 0.45 µm filter. The samples were then kept on ice in a chilled insulated container until couriered to the laboratory under chain of custody protocol. Water samples were received by the laboratory within the required holding times. The results of groundwater screening testing are provided in Table LR4.
Hydrographs	At the completion of the groundwater monitoring round the field level data for each of the monitoring wells was corrected for barometric pressure and converted to a Standing Water Level (SWL). For this interpretative report the water level data for each well has been corrected to mAHD and used to plot changes in SWL over time for each of the available 58 monitoring wells, see Appendix B.

4. Results

4.1. Rainfall Records

The CHB project is located on the mid-north coast of NSW, approximately 530km north of Sydney and 390km south of Brisbane. The Bureau of Meteorology (BoM) describes the Coffs Harbour locality as sub-tropical with warm to very warm wet summers and cool to mild dry winters.

For the GWMP there is rainfall data available from the following BoM and CHB automatic weather stations (AWS):

- Coffs Harbour Airport (BoM Station No. 59151), from August 2013 to present, 3.6km east of the CHB project.
- Englands Road AWS, from 20 April 2020 to present, (located in south of CHB project)
- Roselands Drive AWS, from 1 April 2020 to present, (located in south central portion of CHB project)
- Mackays Road AWS, from 1 April 2020 to present, (located in north central portion of CHB project)
- Seaview Close AWS, from 23 April 2020 to present, (located in north of CHB project).

The daily rainfall totals for each of these stations is shown for April 2020 to December 2020 in Figure 2, January to December 2021 in Figure 3, and January 2022 to January 2023 in Figure 4.

For this interpretative report the hydrographs have been prepared with rainfall data sourced from the CHB AWS as follows:

- Englands Road AWS – Cut 1, Ch10,300 to Cut 9, Ch14,800
- Roselands Drive AWS – Cut 9, Ch14,800 to Cut 16, Ch8,500
- Mackays Road AWS – Cut 16, Ch18,500 to Cut 5a, Ch23,000
- Seaview Close AWS – (Not used as no groundwater monitoring wells nearby)

4.2. Groundwater Quality

4.2.1. Physico Chemical Measurements

The *in-situ* physico chemical data collected during each of the 5 GMEs is summarised in Table LR1. Note that physico chemical measurements were not collected by GHD during the gauging and downloading of HOBO logger data in the 1st GME round, in the monitoring wells previously installed by them.

Where a minimum of 3 rounds of data are available summary statistics have been provided in Table LR1 including; number of observations, mean, median, standard deviation, minimum, maximum, 80th and 20th percentile values.

4.2.2. Groundwater Quality Results

The laboratory test results for the groundwater quality monitoring undertaken at each of the three tunnels are summarised in Table LR2. Copies of the laboratory reports for each monitoring round have been provided previously in each of the respective data reports.

4.2.3. Groundwater Screening Results

During the 5th round of pre-construction groundwater monitoring a water sample was collected from each of the available monitoring wells for laboratory testing.

Groundwater Screening QA/QC

Groundwater samples were transported under chain of custody conditions and in chilled insulated containers to Eurofins-MGT Sydney and Melbourne laboratories which are NATA accredited for the analysis performed. A copy of the chain of custody is included with the laboratory test results in Appendix C.

The laboratories conducted internal quality control using laboratory duplicates, spikes, and method blanks. Analytical methods used for the laboratory testing are also indicated on the laboratory report sheets. The results of laboratory quality control testing are within acceptable limits.

For QA/QC purposes three duplicate and two triplicate groundwater samples were also collected. The Relative Percent Difference (RPD) results between the primary and duplicate samples and the primary and triplicate sample are summarised in Table LR3.

In total there were 3 reported exceedances of the relative percentage difference (RPD) 50% control limit, including; arsenic (BH2050/QC18) reporting an RPD 67%, bicarbonate and total alkalinity (BH2015/QC16) reporting an RPD 187%, see Table LR3.

Based on the results it is assessed that the field and laboratory methods are appropriate, and that the data obtained is usable and considered to reasonably represent the concentrations at the sampling points at the time of sampling.

Groundwater Screening Laboratory Results

The laboratory results for the groundwater screening testing are summarised in Table LR4. Copies of the laboratory reports for this testing are provided in Appendix C.

4.3. Groundwater Standing Water Levels (SWLs)

Details on the manually measured standing water levels (SWL) in each of the wells monitored by Ballpark Environmental are provided in Table LR1.

Hydrographs for each of the available 58 groundwater monitoring locations have been prepared showing SWL corrected to mAHD and plotted against TfNSW AWS rainfall data. The hydrographs are presented in Appendix B.

5. Discussion

5.1. Rainfall

As described above, Coffs Harbour has a sub-tropical climate with majority of rainfall occurring during warm to wet summers and autumn periods. The cooler winter and early spring months are the driest periods with lower rainfall. The EIS prepared for the CHB project provides rainfall summary data for the Coffs Harbour MO and Coffs Harbour weather stations, see Table 5. The nearby BoM Coffs Harbour Airport station was excluded due to the limited amount of data available, (TfNSW 2019).

Table 5: Summary of rainfall statistics for CHB project

BoM weather station	Mean annual rainfall (mm)	Highest monthly average (mm)	Lowest monthly average (mm)
Coffs Harbour MO	1,699	March, 235	September, 60
Coffs Harbour	1,651	March, 232	September, 68

Source. TfNSW (2019), *Coffs Harbour Bypass Environmental Impact Statement*

The pre-construction groundwater monitoring program undertaken for the CHB project coincided with a wetter than normal 'La Nina' period with the highest rainfall totals recorded in the period from October 2021 to May 2022. A breakdown of the recorded rainfall totals for each quarter from July 2021 to December 2022 at the BoM Coffs Airport and the 4 TfNSW AWS is provided in Table 6. Rainfall totals for this period were greater than 3,400mm with most of this rain occurring in the summer and early autumn period of 2022, see Table 6.

The pre-construction groundwater monitoring program has coincided with a prolonged period of wet weather with rainfall more than 50% above the average for Coffs Harbour. The data collected shows groundwater standing water levels in most monitoring wells having responded rapidly and increased after each significant rain event and then decreased during drier weather. Refer to the discussion below and hydrographs provided in Appendices A & B.

Table 6: Breakdown of rainfall totals by quarters recorded during the pre-construction groundwater monitoring program for the CHB project

Weather Station	Rainfall (mm)						
	Quarter 1 – Jul - Sep 2021	Quarter 2 – Oct – Dec 2021	Quarter 3 – Jan – Mar 2022	Quarter 4 – Apr – Jun 2022	Quarter 5 – Jul – Sep 2022	Quarter 6 – Oct – Dec 2022	Rainfall Total (mm), Jul 2021 to Dec 2022
BoM Coffs Airport	87	772	1,442	354	512	373	3,540
Englands Road AWS	55	666	1,713	414	583	442	3,873
Roselands AWS	90	681	1,501	332	582	430	3,616
Mackays Rd AWS	95	779	1,484	419	523	408	3,708
Seaview Cl AWS	116	774	1,307	378	503	408	3,486

5.2. Groundwater Levels & Physico chemical

During the pre-construction phase groundwater standing water levels in most of the monitoring wells were found to respond with rapid rises after significant rainfall events. To assess these changes paired hydrographs have been prepared to compare differences in observed SWL at both upgradient and downgradient monitoring well locations for priority cuttings and tunnels, see Appendix A.

The 'La Nina' wet weather event observed over the summer and autumn quarters was the main influence on groundwater SWL and is discussed further for each of the priority cuttings and tunnels in Table 7 below.

As detailed in section 8 of the Construction and Operation GWMP during the construction and operational phases of the CHB project the GWMP will assess changes in SWL, and physico chemical parameters based on the approach provided in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018), (Ballpark Environmental 2023).

The Water Quality Guidelines advocates that for physical and chemical (non-toxicant) parameters, the median quality values of fresh waters should be lower than the 80th percentile of concentration values for a suitable reference site (above the 20th percentile for parameters such as dissolved oxygen where low values are the problem). Thus the 80th and 20th percentiles from the baseline monitoring (pre-construction monitoring) have been adopted for the GWMP as trigger values.

For the groundwater level and water quality data there are 2 sets of data that can be used as suitable reference sites these include:

- The pre-construction groundwater level and water quality data established from baseline monitoring.

- The groundwater monitoring well locations upgradient of the construction works areas.

The pre-construction data provides an indication of baseline conditions and the degree of variation for each monitoring location for both groundwater level data and water quality parameter for existing conditions. This provides the initial baseline data for comparison with the construction/operational phase groundwater quality sampling results.

Also, it is likely that different climatic factors such as rainfall and drought and potentially land use changes across the construction and operational phases will produce variations from the baseline data, particularly in respect to groundwater quality data.

Therefore, the baseline data for groundwater level data and water quality from the pre-construction phase shall be supplemented with data collected from upgradient monitoring locations over the construction and operational phases to provide a more robust baseline data set.

Step 1 of the adopted process for assessing groundwater data collected for each sampling event during the construction and operational phases will require comparison of the down gradient construction/operational sampling result with the corresponding 80th percentile figure (P80 figures) from the baseline data. See Note 1 provided below for further requirements regarding the use of P20 figures for some physico chemical parameters[5].

If down gradient groundwater data is observed to be greater than the corresponding P80 baseline figure, this highlights a possibility of the CHB project impacting on the groundwater hydrology or water quality requiring further investigation using the subsequent steps detailed in the Construction and Operation GWMP.

If the down gradient monitoring well data is less than or equal to the corresponding P80 baseline figure, then no further action is required with respect to changes in SWL or the subject physico chemical parameter.

To support this assessment the relevant percentile values have been calculated for SWL and physico chemical parameters and provided in Table 7, and SWL 80th percentiles are shown on the paired hydrographs for down gradient wells in Appendix A.

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[5] Note 1. 20th percentile figure (P20 figures) should be utilised for the following physico chemical parameters"

- Dissolved Oxygen (DO) – utilise P20 figures instead of the P80 figures;
- pH – utilise both P80 and P20 figures;
- Electrical Conductivity (EC) – utilise both P80 and P20 figures;
- Temperature – no comparison required;
- Turbidity – no comparison required.

Table 7: Discussion of Groundwater SWL and Physico-chemical observations for priority cuttings and tunnels

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
Cut 4	BH1058 (UG) & BH1056 (DG) Refer to Pair Hydrographs App A – Cut 4	BH1058 (UG) • Data range from Jul 2021 to Jan 2023 for both monitoring wells. • Has remained relatively stable over the previous 18 months at around ~56mAHD. Minimal influence on SWL following significant rainfall events. BH1056 (DG) • June to late October 2021 remained stable between RL 20m & RL 22m at similar level to the P80 value of 20.89mAHD. • The down gradient location BH1056 has responded with rapid rises in SWL following large rainfall (>50mm) events in the period from Nov 2021 to November 2022. • Following large rainfall event, the SWLs have declined to a more stable levels and in January 2023 was ~20mAHD.	Data is available for last 4 rounds of monitoring. The calculated percentile values for downgradient well BH1056 are as follows: • DO 1.62 mg/L (P20) • EC 266.6 (P80) & 227 (P20) µs/cm • pH 6.29 (P80) & 6.15 (P20) These values are based on limited dataset of 4 values and are expected to change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
RHT	Southern Portal BH2001 (UG), BH2002 (DG) & BHH110 (DG) Refer to Hydrographs App A – Southern Portal RHT	BHH110 (DG) • Data range is from Jul 2017 to Jan 2023. • Two hydrographs for the southern portal RHT. • The long term (5yr) data shows rapid response to large rainfall events and a fast recovery to a more stable SWL at or near the P80 value 42.6mAHD. • During the dry period of late 2019 SWLs were below the above P80 value. • BH2001 is at a similar RL to BHH110 and showed similar response following rainfall. BH2001 (UG) & BH2002 (DG) • Data range is from Jul 2021 to Jan 2023 for both wells. • Comparison of BH2001 & BH2002 both show large fluctuations from significant rainfall events with rapid response and similar decline in SWLs. • BH2002 and BHH110 which are down gradient of BH2001, following the 2 large rainfall events SWLs in Feb 2021 and Mar 2021 peaked above the UG BH2001.	For downgradient well BHH110 data is available for each of 5 rounds of monitoring. The calculated percentile values for BHH110 are as follows: • DO 3.35 mg/L (P20) • EC 354.6 (P80) & 250.84 (P20) µs/cm • pH 6.34 (P80) & 6.12 (P20) For downgradient well BH2002 data is available for 5 rounds of monitoring. The calculated percentile values for downgradient well BH2002 are as follows: • DO 4.09 mg/L (P20) • EC 407.8 (P80) & 182.6 (P20) µs/cm • pH 6.23 (P80) & 5.87 (P20) These values are based on limited dataset and are expected to change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
	Central RHT BHH113 (UG) & BHH111 (DG) Refer to Hydrographs App A – Central RHT	Data range is from Jul 2017 to Jan 2023 for both wells. BHH113 (UG) • The long term (5yr) data shows rapid response to large rainfall events and a similar recovery to a more stable SWL. BHH111 (DG) • The long term (5yr) data shows rapid response to large rainfall events and a similar recovery to a more stable SWL at or near the P80 value 53.1mAHD.	For downgradient well BHH111 data is available for each of 5 rounds of monitoring. The calculated percentile values for BHH111 are as follows: • DO 2.36 mg/L (P20) • EC 668.4 (P80) & 320.92 (P20) µs/cm • pH 6.74 (P80) & 6.45 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.
	Northern Portal RHT BH2003 (UG) & BHN2.1-015 (DG) Refer to Hydrographs App A – Northern Portal RHT	BH2003 (UG) • Available data range is from Jul 2021 to Jan 2023. • Data shows a rapid increase in SWL from significant rainfall events and then a steady decline in SWLs. BHN2.1-015 (DG) • Data range is from Dec 2021 to Jan 2023. • Similar rapid response with increasing SWL following significant rainfall. The SWL appear to quickly decrease after rain events. • Note that the current SWL in January 2023 has dropped below the P80 value of 55.2mAHD at this DG location. • The available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	For downgradient well BHN2.1-015 data is available for each of 5 round of monitoring. The calculated percentile values for BHN2.1-015 are as follows: • DO 4.13 mg/L (P20) • EC 336.6 (P80) & 228 (P20) µs/cm • pH 5.83 (P80) & 5.6 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
Cut 8.1	RHT Drawdown Wells BH2003 (UG) & BH2004 (DG) Refer to Hydrographs App A – RHT Drawdown Wells	BH2003 (UG) & BH2004 (DG) • Data range is from Jul 2021 to Jan 2023 in both locations. • Data shows a rapid increase in SWL from significant rainfall events and then a steady decrease in SWLs for both wells. • Note that the current SWL for BH2004 in January 2023 has dropped below the P80 value of 34.1mAHD at this DG location. • The available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	For downgradient well BH2004 data is available for last 4 rounds of monitoring. The calculated percentile values for downgradient well BH2004 are as follows: • DO 5.5 mg/L (P20) • EC 235.2 (P80) & 163.46 (P20) µs/cm • pH 6.02 (P80) & 5.58 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.
	BHH115 (UG) & BH2006 (DG) Refer to Pair Hydrographs App A – Cut 8.1	BHH115 (UG) • Available data range is from Dec 2021 to Jan 2023. • Data shows a rapid increase in SWL from significant rainfall events and then varying rates of recovery as SWL decrease. BH2006 (DG) • Data range is from Jul 2021 to Jan 2023. • Note that the current SWL for BH2006 in January 2023 has dropped below the P80 value of 37.1mAHD at this DG location. • The available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	For downgradient well BH2006 data is available for last 4 rounds of monitoring. The calculated percentile values for BH2006 are as follows: • DO 1.66 mg/L (P20) • EC 726 (P80) & 512.2 (P20) µs/cm • pH 6.91 (P80) & 6.65 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
Cut 8.2	BHH119 (UG) & BH2008 (DG) Refer to Pair Hydrographs App A – Cut 8.2	BHH119 (UG) • Data range is from Dec 2021 to Jan 2023. • Data shows a rapid increase in SWL from significant rainfall events and then a steady decline in SWLs. BH2008 (DG) • Data range is from Jul 2021 to Jan 2023. • Note that the current SWL for BH2008 in January 2023 has dropped below the P80 value of 31.9mAHD at this DG location. • The available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	For downgradient well BH2008 data is available for the last 4 rounds of monitoring. The calculated percentile values for BH2008 are as follows: • DO 5.15 mg/L (P20) • EC 197.4 (P80) & 135.92 (P20) µs/cm • pH 5.99 (P80) & 5.8 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.
Cut 10	BH2029 (UG) & BH2027 (DG) Refer to Pair Hydrographs App A – Cut 10	BH2029 (UG) • Data range is from Jul 2021 to Jan 2023 in both locations. • BH2029 has shown a gradual increase in SWL following the above average rainfall which has occurred since late Oct 2021. • Shows minimal variations / fluctuation in SWL following significant rainfall events. BH2027 (DG) • During the dry period in Aug to Oct 2021 SWLs were below the P80 value 31.3mAHD. • Note that the current SWL for BH2027 in January 2023 has dropped below the P80 value at this DG location. • The available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	Data is available for last 4 rounds of monitoring. The calculated percentile values for downgradient well BH2027 are as follows: • DO 2 mg/L (P20) • EC 265.16 (P80) & 150.24 (P20) µs/cm • pH 6.05 (P80) & 5.72 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
		• Data shows a rapid increase in SWL from significant rainfall events and then varying rates of recovery as SWL decline.	
Cut 11	BHH127 (UG) & BHH125 (DG) Refer to Pair Hydrographs App A – Cut 11	BHH127 (UG) • Data range is from Jul 2017 to Jan 2023. • Data shows a rapid increase in SWL from significant rainfall events and then varying rates of recovery as SWL decline. BHH125 (DG) • Data range is from Dec 2021 to Jan 2023. A logger was installed in this well during the 3rd round of monitoring in Dec 2021. • From the limited available data the current SWL in January 2023 has dropped below the P80 value of 45.4mAHD at this DG location. • Note that the available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	For downgradient well BHH125 data is available for each of 5 rounds of monitoring. The calculated percentile values for BHH125 are as follows: • DO 4.99 mg/L (P20) • EC 374.8 (P80) & 193.02 (P20) µs/cm • pH 6.12 (P80) & 5.27 (P20) These values are based on limited dataset from 5 rounds of monitoring and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
Cut 12	BHN2.1-025 (UG) & BHN2.1-024 (DG) Refer to Pair Hydrographs App A – Cut 12	BHN2.1-025 (UG) & BHN2.1-024 (DG) • Data range is from Dec 2021 to Jan 2023 in both locations. • Data shows a rapid increase in SWL from significant rainfall events and then a steady decline in SWLs for both wells. • In January 2023 BHN2.1-024 SWL has dropped below the P80 value of 41.8mAHD in the DG location. • Note that the available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	For downgradient well BHN2.1-024 data is available for each of 5 rounds of monitoring. The calculated percentile values for BHN2.1-024 are as follows: • DO 1.62 mg/L (P20) • EC 450 (P80) & 153.46 (P20) µs/cm • pH 6.22 (P80) & 5.89 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.
Cut 13	BHN2.1-031 (UG), BHN2.1-026 (DG) & BHH131 (DG) Refer to Pair Hydrographs App A – Cut 11	BHN2.1-031 (UG) • Data range is from Dec 2021 to Jan 2023. • Data shows a rapid increase in SWL from significant rainfall events and followed by a rapid decrease in SWLs. BHN2.1-026 (DG) & BHH131 (DG) • Two hydrographs have been prepared for Cut 13, see Appendix A. • Data range for BHN2.1-026 is from Dec 2021 to Jan 2023 and the P80 value is 70.2mAHD. • Data range for BHH131 is from Jul 2017 to Jan 2023, with a 4-month data gap in the period December 2021 to April 2022. The P80 value is 68.4mAHD at this DG location.	For downgradient well BHN2.1-026 data is available only for the last 2 rounds of monitoring in June 2022 and January 2023 and is insufficient to calculate percentile values. For downgradient well BHH131 data is available for 3 rounds of monitoring. The calculated percentile values for BHH131 are as follows: • DO 5.99 mg/L (P20) • EC 173.5 (P80) & 147.04 (P20) µs/cm • pH 5.84 (P80) & 5.71 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
		• Long term BHN2.1-026 will replace BHH131, which will be lost during construction. • Both locations are at similar elevation and show similar rapid response and decline following large rainfall events.	project. Other summary statistics for each well are provided in Table LR1.
Cut 14	BHN2.1-044 (UG) & BHN2.1-047 (DG) Refer to Pair Hydrographs App A – Cut 14	BHN2.1-044 (UG) • Data range is from Dec 2021 to Jan 2023 in both locations. • Data shows a rapid increase in SWL from significant rainfall events and then a steady decrease. BHN2.1-047 (DG) • Data shows a modest increase in SWL from significant rainfall events and then a slow decline in SWL. • The current SWL in Jan 2023 was below the P80 value 68.5mAHD at this DG location. • Note that the available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	For downgradient well BHN2.1-047 data is available for each of 5 rounds of monitoring. The calculated percentile values for BHN2.1-047 are as follows: • DO 4.9 mg/L (P20) • EC 251.2 (P80) & 121.32 (P20) µs/cm • pH 6.08 (P80) & 5.34 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.
SLT	Southern Portal, BH2035 (UG) & BH2034 (DG)	BH2035 (UG) • Data range is from Jul 2021 to Jan 2023 in both locations. • Data shows a rapid increase in SWL from significant rainfall events and then a steady decline. BH2034 (DG) • Data shows a rapid increase in SWL following significant rainfall events and then a rapid decrease.	For downgradient well BH2034 data is available for each of 5 rounds of monitoring. The calculated percentile values for BH2034 are as follows: • DO 6.64 mg/L (P20) • EC 249.8 (P80) & 136.5 (P20) µs/cm • pH 6.48 (P80) & 6.11 (P20)

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
	Refer to Pair Hydrographs App A – SLT Southern Portal	• The current SWL in Jan 2023 was below the P80 value 91.8mAHD at this DG location. • Note that the available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.
	Central, BHH142 (UG) & BHH140 (DG) Refer to Pair Hydrographs App A – SLT Central	BHH142 (UG) • Data range is from Dec 2021 to Jan 2023 in both locations. • An attempt to improve the observed water quality in this monitoring well by purging was made on 10 Mar 2022. The hydrograph shows a slow recovery and the SWL did not stabilise till around 5 May 2022, some 2 months later. Therefore the SWL data in this period should be excluded from any data interpretation for design purposes. BHH140 (DG) • Data shows a rapid increase in SWL following significant rainfall events and then a steady decrease. • The current SWL in Jan 2023 was below the P80 value 118.2mAHD at this DG location. • Note that the available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	The upgradient well BHH142 is an angled borehole located on the ridgeline crest of the Shephards Lane tunnel which has reported elevated pH (pH ~12) and saline conductivity values (~1,920 µs/cm) which are unusual when compared to other nearby monitoring wells at the SLT location. The likely cause of these unusual results is associated with the original construction and poor development of this well to purge and remove drillers grout due to its depth (53.7m below ground surface). An attempt to purge and develop this well was made in March 2022 but was unsuccessful and did not improve well water quality. For downgradient well BHH140 data is available for each of 5 rounds of monitoring. The calculated percentile values for BHH140 are as follows: • DO 2.99 mg/L (P20) • EC 259.4 (P80) & 110.28 (P20) µs/cm • pH 6.8 (P80) & 6.48 (P20)

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
			These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.
	Northern Portal, BHH144 (UG), BH2038 (UG), & BH2039 (DG) Refer to Pair Hydrographs App A – SLT Southern Portal	BHH144 (UG) & BH2038 (UG) • Data range is from Jul 2017 to Jan 2023 for BHH144 and Jul 2021 to Jan 2023 for BH2038. • Data shows a rapid increase in SWL from significant rainfall events and then a steady decrease. BH2039 (DG) • Data range is Jul 2021 to Jan 2023 for BH2039. • This monitoring location was damaged by landholder track earthworks sometime after March 2022 and the original HOBO logger was lost. • A replacement HOBO logger has since been installed in July 2022 and this monitoring well has been repaired. • Available data shows a rapid increase in SWL from significant rainfall events and then a steady decrease. • The current SWL in Jan 2023 was above the P80 value of 87.7mAHD at this DG location.	For downgradient well BH2039 data is available for each of 5 rounds of monitoring. The calculated percentile values for BH2039 are as follows: • DO 3.93 mg/L (P20) • EC 299 (P80) & 202.32 (P20) µs/cm • pH 8.32 (P80) & 7.02 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.
	SLT Drawdown Wells, BH2037 (UG) & BH2036 (DG) (GW303812)	BH2037 (UG) & BH2036 (DG) • Data range is from Jul 2021 to Jan 2023 for both monitoring wells. • Data shows a moderate increase in SWL from significant rainfall events and then a steady decrease.	Data is available for last 4 rounds of monitoring. The calculated percentile values for downgradient well BH2036 are as follows: • DO 3.2 mg/L (P20) • EC 387.8 (P80) & 321.2 (P20) µs/cm • pH 6.99 (P80) & 6.69 (P20)

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
		• For BH2036 the current SWL in Jan 2023 was near the P80 value of 78.6mAHD at this DG location. • Note that the available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	These values are based on limited dataset from 4 rounds of monitoring and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.
Cut 16	BH2049 (UG) & BH2047 (DG)	BH2049 (UG) • A HOBO logger was installed for the period from Jul 2021 to Jan 2023, however, SWL has been below the level of the logger for most of this period. These periods are shown as no data on the hydrograph. • Note, the HOBO logger was reinstalled to a greater depth at this well location in September 2022 to improve data collection. • The available data shows a rapid increase in SWL from significant rainfall events in Mar 2022 and then a rapid decrease. BH2047 (DG) • Data shows a steady increase in SWL following significant rainfall events and then a steady decrease. • For BH2047 the current SWL in Jan 2023 was near the P80 value of 53.1mAHD at this DG location. • Note that the available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	Data is available for last 4 rounds of monitoring. The calculated percentile values for downgradient well BH2047 are as follows: • DO 3.78 mg/L (P20) • EC 223.28 (P80) & 176.3 (P20) µs/cm • pH 6.54 (P80) & 6.25 (P20) These values are based on limited dataset from 4 rounds of monitoring and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
Gatelys Road Tunnel	Southern Portal, BH2051 (UG) BH2052 (DG)	BH2051 (UG) & BH2052 (DG) • Data range is from Jul 2021 to Jan 2023 in both locations. • Data shows a rapid increase in SWL from significant rainfall events and then a steady decrease in SWLs for both wells.	For downgradient well BH2052 data is available for each of 5 rounds of monitoring. The calculated percentile values for BH2052 are as follows: • DO 2.77 mg/L (P20) • EC 335.6 (P80) & 227.2 (P20) µs/cm • pH 6.54 (P80) & 6.37 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.
	Central, BHH150 (UG) BHH153 (DG)	BHH150 (UG) & BHH153 (DG) • Data range is from Dec 2021 to Jan 2023 in both locations. • Data shows a rapid increase in SWL from significant rainfall events and then a steady decrease in SWLs for both wells. • For BHH153 the current SWL in Jan 2023 was below the P80 value of 108.7mAHD at this DG location. • Note that the available data shows influence of the prolonged wet weather during early 2022 and this P80 value may not be representative for SWL during average rainfall years.	For downgradient well BHH153 data is available for each of 5 rounds of monitoring. The calculated percentile values for BHH153 are as follows: • DO 1.67 mg/L (P20) • EC 646.2 (P80) & 609.4 (P20) µs/cm • pH 7.22 (P80) & 6.98 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
	Northern Portal, BH3001 (UG) BHH154 (DG)	BH3001 (UG) & BHH154 (DG) • Note. There was no access to the northern portal at GRT due to ongoing landholder negotiations. These wells were only available during the 4th and 5th round of monitoring. • Data shows a rapid increase in SWL from significant rainfall events and then a steady decrease in SWLs for both wells. • For BH3001 data from Sept 2022 to Jan 2023 was lost following well damage.	Due to insufficient baseline data, limited to the last 2 rounds of monitoring, there are no available percentile values for this location.
	GRT Drawdown, BH2053 (UG) BH3002 (DG)	BH2053 (UG) • Data range from Jul 2021 to Jan 2023 for both wells. • SWL has remained relatively stable over the previous 12 months at around ~152mAHD. Minimal influence on SWL following significant rainfall events. BH3002 (DG) • Data shows a rapid increase in SWL from significant rainfall events followed by a rapid decrease. • For BH3002 the current SWL in Jan 2023 was marginally above the P80 value of 116.3mAHD at this DG location.	Data is available for last 4 rounds of monitoring. The calculated percentile values for downgradient well BH3002 are as follows: • DO 2.97 mg/L (P20) • EC 220 (P80) & 190.52 (P20) µs/cm • pH 6.06 (P80) & 5.94 (P20) These values are based on limited dataset from 4 rounds of monitoring and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.

Cut/ Tunnel	Monitoring Wells	SWL Observations / Discussion	Physico Chemical Observations / Discussions
Cut 18	BH3016 (UG) BH3020 (DG)	BH3016 (UG) & BH3020 (DG) • Data range is from Jul 2021 to Jan 2023 in both locations. • Data shows a steady increase in SWL from significant rainfall events and then a moderate decrease in SWLs for both wells.	Data is available for last 4 rounds of monitoring. The calculated percentile values for downgradient well BH3020 are as follows: • DO 6.04 mg/L (P20) • EC 476.8 (P80) & 348.6 (P20) µs/cm • pH 6.86 (P80) & 6.42 (P20) These values are based on limited dataset and will change as additional data is collected during the construction phase of the CHB project. Other summary statistics for each well are provided in Table LR1.

5.3. Groundwater Quality at Tunnels

Groundwater quality data was collected during the pre-construction phase at each of the 3 tunnel locations to inform the detailed design process currently underway. Groundwater samples collected during each groundwater monitoring round were analysed by a NATA accredited laboratory for the following parameters:

- Total dissolved solids,
- Major Cations, including calcium, chloride, magnesium, potassium, sodium, sulfate, bicarbonate, and carbonate, and
- Filtered Metals including arsenic, cadmium, copper, lead, mercury, nickel, zinc, manganese, aluminium, and iron.

The laboratory test results for the groundwater quality monitoring are summarised in Table LR2. Summary statistics have been prepared using the available data from each of the 3 tunnels and are also presented in Table LR2. Note that for individual parameters reported at or below the laboratory's LOR and with less than 5 discrete results, no summary statistics are provided.

Following completion of the detailed design process and the start of the construction phase of the CHB project, no further monitoring of these groundwater quality parameters is required and has not been included in the Construction and Operation GWMP (Ballpark Environmental 2023).

5.4. Groundwater Screening Testing

During the 5th round of pre-construction monitoring water samples were collected from each of the available monitoring wells for laboratory testing. These samples were analysed for a broad analytical suite, see Table LR4, to provide information on groundwater background concentrations for the CHB project.

The laboratory test results for the groundwater screening samples are summarised in Table LR4.

6. Conclusion & Recommendations

The pre-construction groundwater monitoring program was undertaken generally in accordance with the requirements of the GWMP (Ballpark Environmental 2021a). Baseline data on groundwater standing water levels, and physico chemical parameters has been collected during the period from July 2021 to January 2023 from the available monitoring well locations installed for the CHB project. Laboratory analysis for groundwater quality parameters was undertaken for each of the 3 tunnel locations.

It is noted that minor data gaps exist at some monitoring well locations due to issues with landholder access, HOBO logger instrumentation issues, and damage to monitoring wells. Except for the limited physico-chemical data available from Cut 13 downgradient well locations and the Gately's Road tunnel locations which did not become accessible until the 4th round of monitoring in June 2022 the available data overall satisfies the project approval requirements for baseline groundwater monitoring.

The pre-construction groundwater monitoring program coincided with a wetter than normal 'La Nina' period with the highest rainfall totals recorded from October 2021 to May 2022. Rainfall record totals were greater than 50% above the average annual rainfall for Coffs Harbour.

This interpretative report presents a summary of the pre-construction groundwater monitoring activities and the baseline data that has been collected for the CHB project. At the time of preparing this interpretative report the design levels of cuttings and tunnels had not yet been finalised. The baseline groundwater monitoring information will be used to inform the detailed design process currently underway.

During the construction and operational phases of the CHB project, the trigger values (i.e. P80 & P20 values) developed from the baseline data will be used to assess changes in SWL and physico chemical parameters (Ballpark Environmental 2023). The available SWL data shows influence of the prolonged wet weather during early 2022.

The following recommendations are provided for consideration and implementation for the groundwater monitoring program during the construction and operational phases of the CHB project:

1. Replacement of well BHH142 on the ridgeline crest of the Shephards Lane tunnel with a new vertical monitoring well. BHH142 is an angled borehole which has reported elevated pH (pH ~12) and saline conductivity values (~1.9mS/cm) which are unusual when compared to other nearby monitoring wells. The likely cause of these results is associated with the original construction and poor development of this well to remove drillers grout due to its depth (53.7m below ground surface). Attempts to purge and develop this well have been unsuccessful with no improvement observed. Therefore, if a monitoring well is to remain in this location, then the drilling of a new vertical borehole and establishment of a new monitoring well is recommended.

2. Installation of some flush mounted monitoring well locations in access and farm tracks are at greater risk of damage during the upcoming construction phase. To avoid potential damage or loss of these monitoring well locations it is recommended that protective measures are implemented prior to the start of construction works.

7. Close

Ballpark Environmental has prepared this Interpretative Report for the groundwater monitoring program undertaken for Phase 1 – Pre-Construction of the CHB project.

We draw your attention to Section 7 Limitations, which outlines limitations associated with interpreting groundwater monitoring data and drawing conclusions based on the data.

8. Limitations

The findings contained in this interpretative report are the result of discrete/specific methodologies used in accordance with normal practices and standards. To the best of our knowledge, they represent a reasonable interpretation of the current groundwater conditions at the time of sampling and analysis. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.

In preparing this interpretative report, the approved GWMP and current guidelines for assessment and management of groundwater were followed. This work has been conducted in good faith in accordance with Ballpark Environmental understanding of the client's brief and general accepted practice for environmental consulting.

This interpretative report was prepared for TfNSW, with the objective to assess the impact of the CHB highway upgrade on groundwater in the CHB study area. Additional objectives of the groundwater monitoring program for Phase 1 – Pre-Construction are as follows:

- Supplement and confirm baseline groundwater conditions,
- Identify parameters for monitoring during construction.

The work was conducted, and the interpretative report has been prepared, in response to specific instructions from the client to whom this interpretative report is addressed, within the time and budgetary requirements of the client, and in reliance on certain data and information made available to Ballpark Environmental. The analyses, evaluations, opinions, and conclusions presented in this interpretative report are based on those instructions, requirements, data, or information, and they could change if such instructions etc. are in fact inaccurate or incomplete.

No warranty, expressed or implied, is made as to the information and professional advice included in this interpretative report. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to the particular situation.

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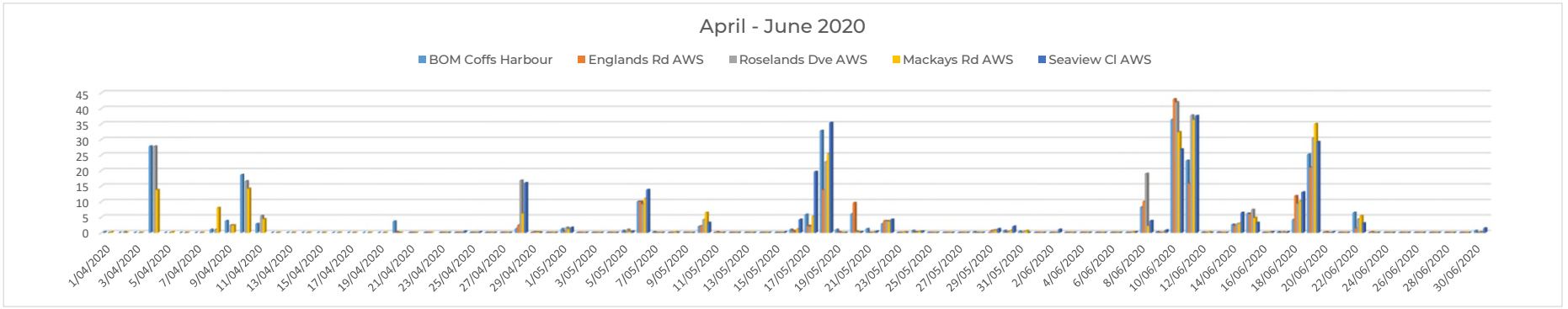
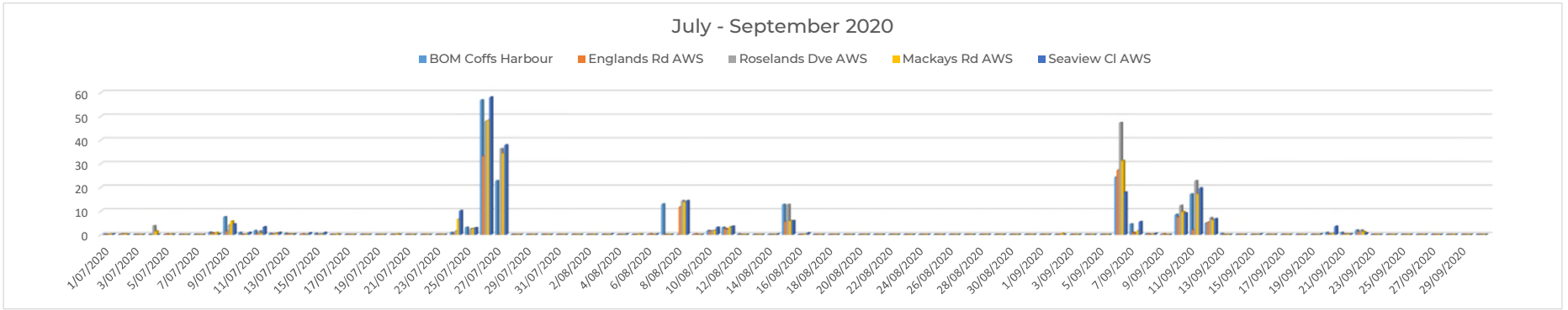
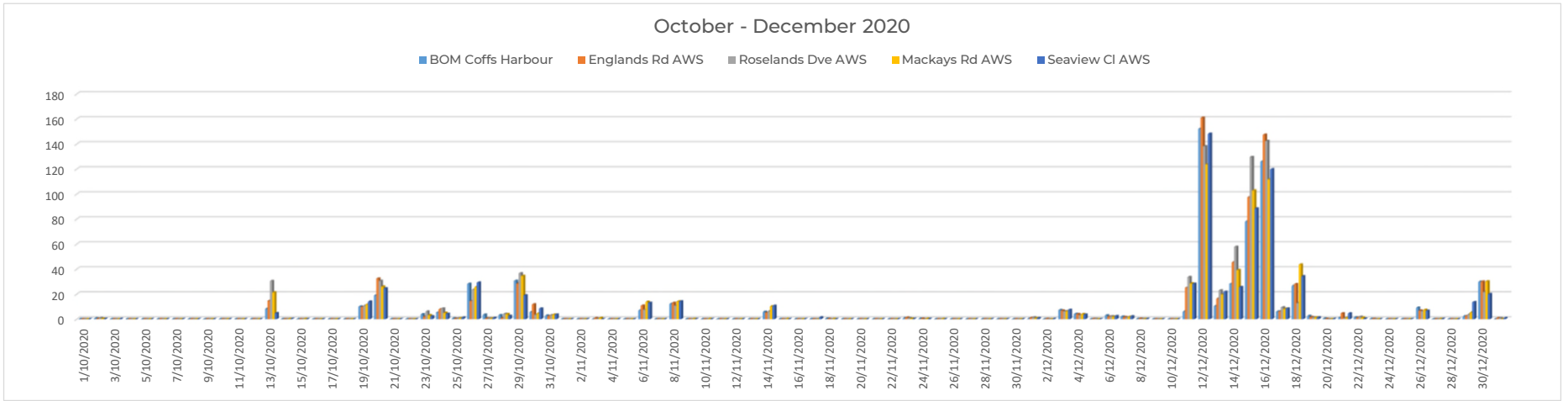
Figures







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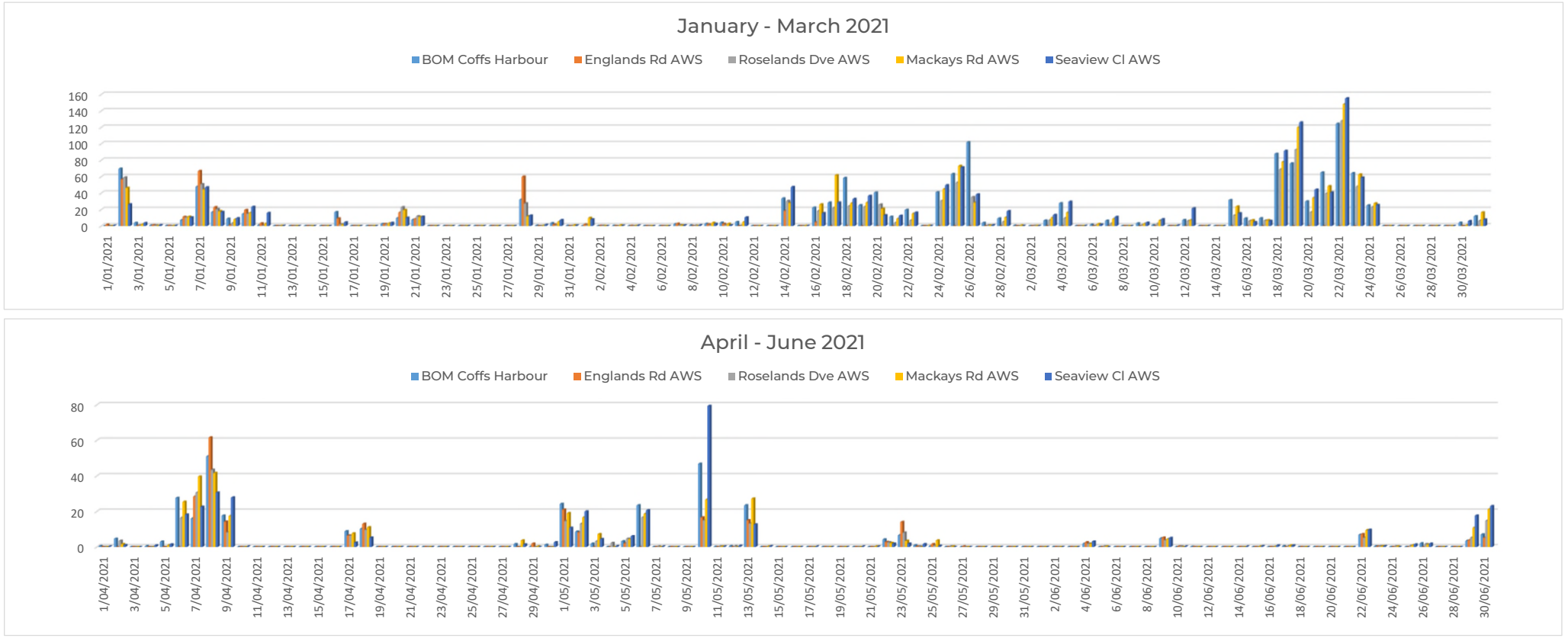

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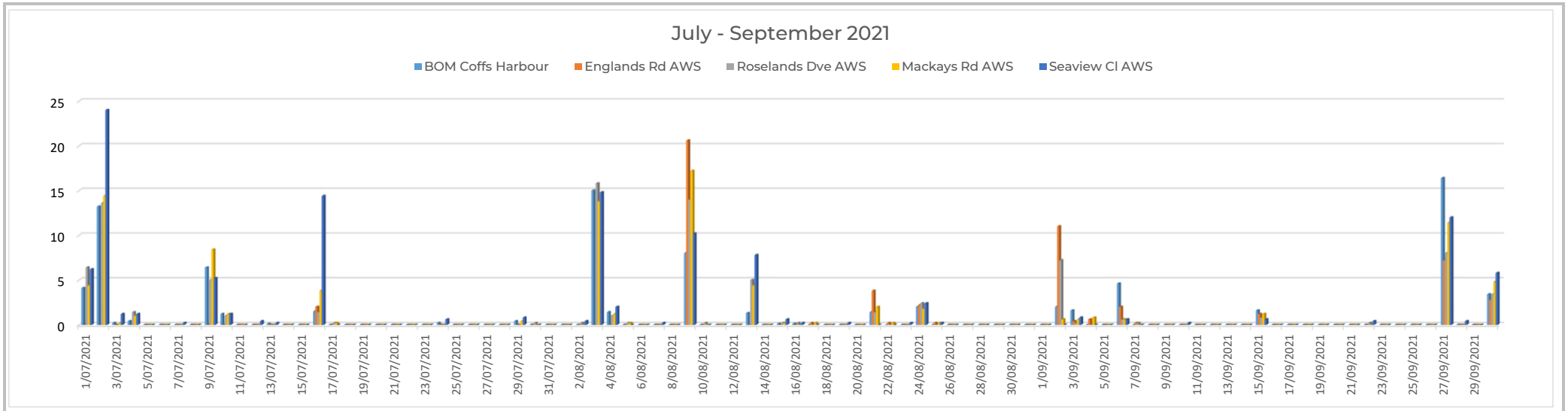

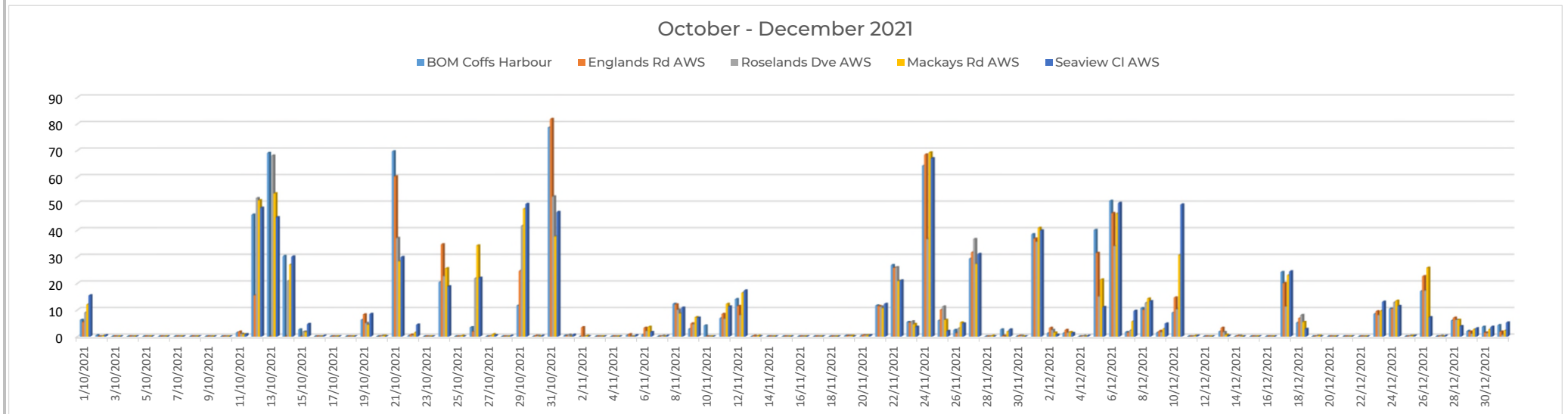

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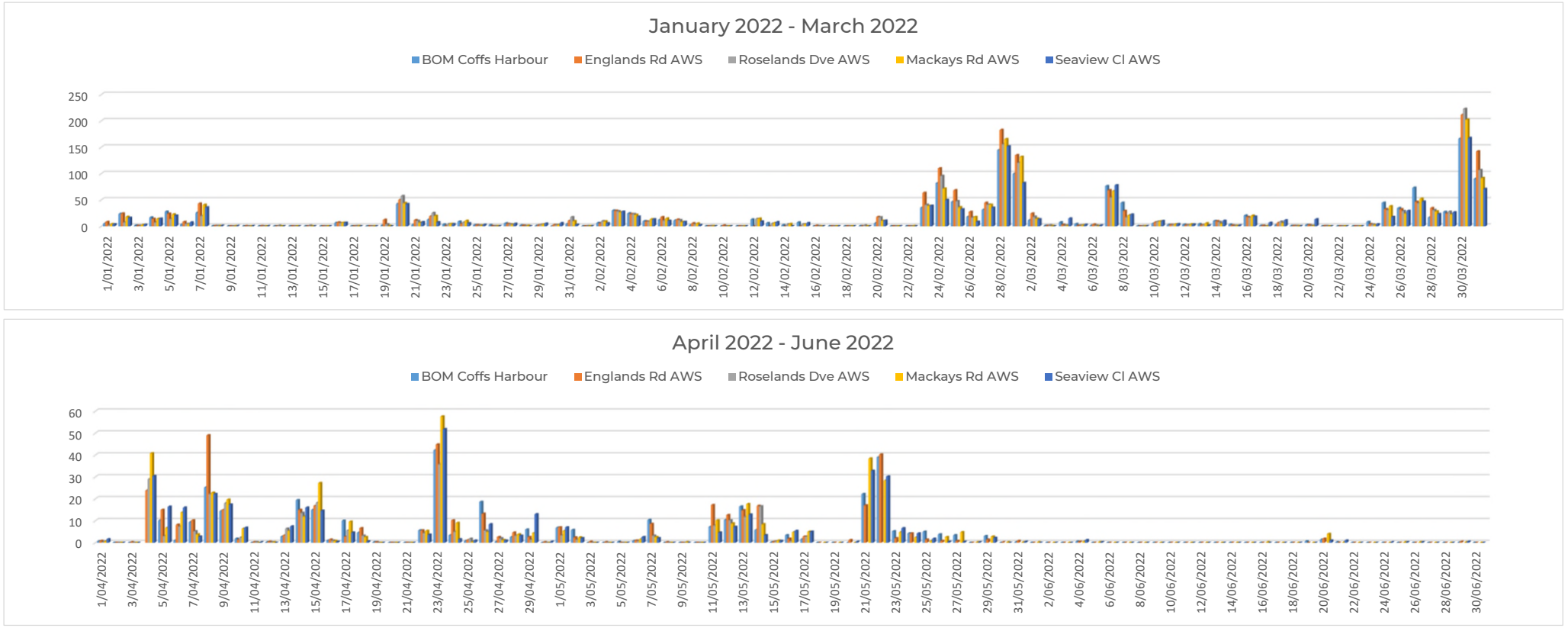

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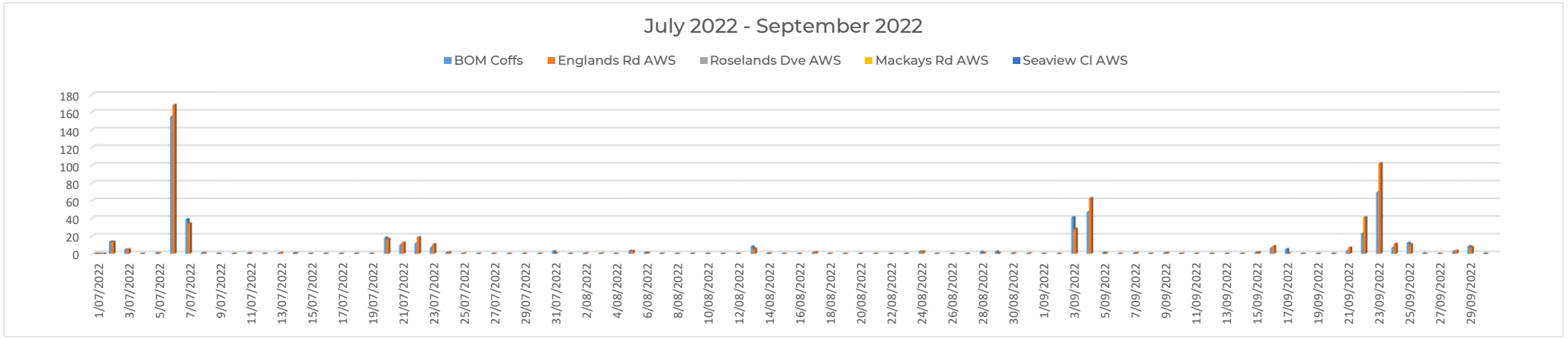

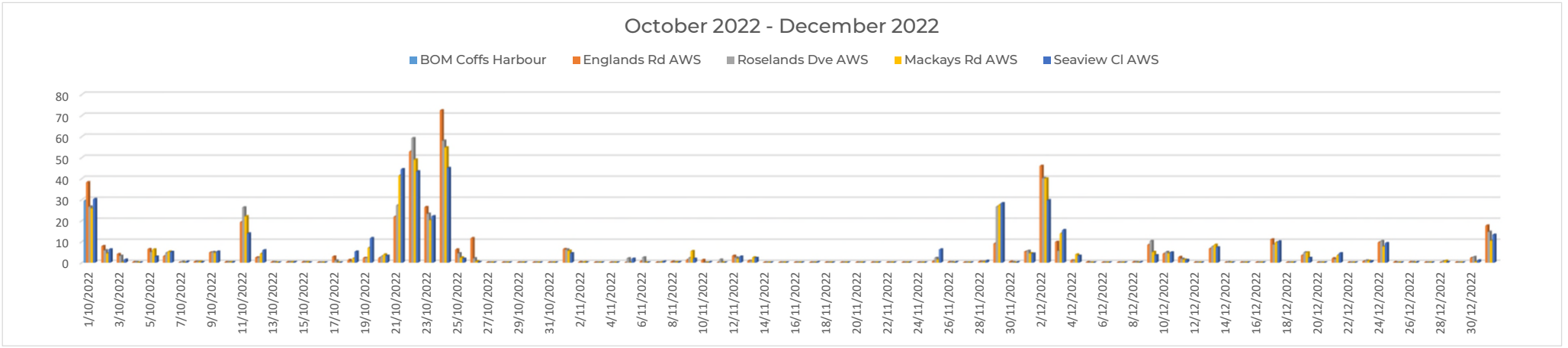

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Table LR1 - Summary of Physico Chemical Groundwater Results

Borehole	Date Sampled	Standing Water Level (mbgs)	Dissolved Oxygen (mg/L)	Electrical Conductivity (µS/cm)	pH (pH units)	Temperature (°C)	Turbidity (NTU)
Cut 8-2 - BH2008 (DG) & BHH119 (UG)							
BH2008	3-Jan-23	9.22	4.97	129.8	5.69	22.9	78.2
BH2008	15-Jun-22	8.88	5.27	140	6.02	20.4	105
BH2008	15-Mar-22	8.35	5.33	228	5.88	21.8	23.5
BH2008	14-Dec-21	8.2	6.83	177	5.97	218.2	58.1
Statistics							
Observation			4	4	4	4	4
Mean			5.60	168.70	5.89	70.83	66.20
Median			5.3	158.5	5.925	22.35	68.15
Standard Deviation			0.83	44.43	0.15	98.26	34.34
Minimum			4.97	129.8	5.69	20.4	23.5
Maximum			6.83	228	6.02	218.2	105
80th Percentile			5.93	197.40	5.99	101.02	88.92
20th Percentile			5.15	135.92	5.80	21.24	44.26
BHH119	3-Jan-23	8.27	1.8	517	6.42	22.8	22.4
BHH119	15-Jun-22	7.47	1.72	562	6.77	19.1	7.48
BHH119	15-Mar-22	6.5	1.61	548	6.75	22.4	7.88
BHH119	14-Dec-21	5.72	1.69	544	6.87	21.8	21.3
BHH119	7-Sep-21	8.22	2.1	661	6.91	21.1	18.6
Statistics							
Observation			5	5	5	5	5
Mean			1.78	566.40	6.74	21.44	15.53
Median			1.72	548.00	6.77	21.80	18.60
Standard Deviation			0.19	55.34	0.19	1.46	7.30
Minimum			1.6	517.0	6.4	19.1	7.5
Maximum			2.1	661	6.91	22.8	22.4
80th Percentile			1.86	581.80	6.88	22.48	21.52
20th Percentile			1.67	538.60	6.68	20.70	7.80
Alluvial - BH2015 & BH2016							
BH2015	4-Jan-23	1.72	2.55	241	5.59	21.7	8
BH2015	15-Jun-22	1.49	2.82	193.9	5.66	20.3	17.5
BH2015	15-Mar-22	1.09	2.9	158.1	5.96	23.3	6.47
BH2015	14-Dec-21	1.19	2.06	116.5	5.47	22.7	67.9
Statistics							
Observation			4	4	4	4	4
Mean			2.58	177.38	5.67	22.00	24.97
Median			2.685	176	5.625	22.2	12.75
Standard Deviation			0.38	52.91	0.21	1.31	29.03
Minimum			2.06	116.5	5.47	20.3	6.47
Maximum			2.9	241	5.96	23.3	67.9
80th Percentile			2.85	212.74	5.78	22.94	37.66
20th Percentile			2.35	141.46	5.54	21.14	7.39
BH2016	4-Jan-23	1.38	5.7	737	6.46	22	8.17
BH2016	15-Jun-22	1.03	3.92	701	5.73	19.7	10.6
BH2016	15-Mar-22	0.46	2.15	784	6.9	23.1	6.67
BH2016	14-Dec-21	0.64	2.83	593	7.1	22.7	41
Statistics							
Observation			4	4	4	4	4
Mean			3.65	703.75	6.55	21.88	16.61
Median			3.375	719	6.68	22.35	9.385
Standard Deviation			1.55	81.28	0.61	1.52	16.34
Minimum			2.15	593	5.73	19.7	6.67
Maximum			5.7	784	7.1	23.1	41
80th Percentile			4.63	755.80	6.98	22.86	22.76
20th Percentile			2.56	657.80	6.17	21.08	7.57

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Table LR2 - Summary of Laboratory Results for Groundwater Quality Samples

All results in mg/l, unless otherwise stated.

Borehole	Chainage	Date of Sampling	Metals										Alkali Metals				Alkalinity (speciated)				Chloride	Sulphate (as SO4)	Total Dissolved Solids
			Aluminium	Arsenic	Cadmium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Zinc	Calcium	Magnesium	Potassium	Sodium	Bicarbonate (CaCO3)	Carbonate (CaCO3)	Hydroxide Alkalinity (as CaCO3)	Total Alkalinity (as CaCO3)			
Roberts Hill Tunnel																							
BH2001	13600	14-Jun-22	< 0.05	< 0.001	< 0.0002	0.007	< 0.05	< 0.001	0.1	< 0.0001	0.002	0.008	3.4	4.3	2.2	25	97	< 10	< 20	97	38	21	250
BH2001	13600	15-Mar-22	< 0.05	< 0.001	< 0.0002	< 0.001	0.87	< 0.001	0.64	< 0.0001	< 0.001	< 0.005	17	10	2.7	37	130	< 10	< 20	130	37	25	230
BH2001	13600	07-Dec-21	< 0.05	< 0.001	< 0.0002	< 0.001	0.68	< 0.001	0.69	< 0.0001	< 0.001	< 0.005	16	11	2.5	45	92	< 10	-	-	45	38	270
BH2001	13600	13-Sep-21	-	< 0.001	< 0.0002	< 0.001	< 0.001	< 0.001	-	< 0.0001	< 0.001	< 0.005	16	11	2.3	44	36	< 10	-	-	32	25	260
BH2002	13650	14-Jun-22	< 0.05	< 0.001	< 0.0002	< 0.001	2.2	0.001	0.63	< 0.0001	< 0.001	0.07	17	11	2.1	44	33	< 10	< 20	33	21	11	120
BH2002	13650	15-Mar-22	< 0.05	< 0.001	0.0003	0.018	< 0.05	< 0.001	0.046	< 0.0001	0.002	0.013	4.5	3.7	2	15	30	< 10	< 20	30	19	12	88
BH2002	13650	07-Dec-21	< 0.05	< 0.001	< 0.0002	0.002	< 0.05	< 0.001	0.035	< 0.0001	0.002	0.007	5.2	7.4	4.6	26	67	< 5	-	-	24	23	210
BH2002	13650	13-Sep-21	-	< 0.001	< 0.0002	0.006	< 0.001	< 0.001	-	< 0.0001	0.002	< 0.005	9.4	8.4	2.9	34	67	< 5	-	-	29	24	160
BHH111	13700	14-Jun-22	< 0.05	0.002	< 0.0002	0.004	0.24	0.003	3.4	< 0.0001	0.003	0.21	43	9.3	3.6	38	100	< 10	< 20	100	44	54	270
BHH111	13700	15-Mar-22	< 0.05	< 0.001	0.0003	0.004	< 0.05	< 0.001	0.056	< 0.0001	0.002	0.011	7.1	4.4	2.9	18	60	< 10	< 20	60	37	9	150
BHH111	13700	08-Dec-21	< 0.05	0.001	< 0.0002	0.011	< 0.05	< 0.001	1.3	< 0.0001	0.004	0.01	43	9.1	3.7	30	110	< 10	-	-	38	92	240
BHH111	13700	13-Sep-21	-	0.002	< 0.0002	0.026	< 0.001	< 0.001	-	< 0.0001	0.003	0.009	60	16	4.7	36	200	< 5	-	-	33	48	420
BH2003	13720	14-Jun-22	< 0.05	0.005	< 0.0002	< 0.001	4.2	0.002	1.1	< 0.0001	< 0.001	0.084	40	14	7	45	200	< 10	< 20	200	33	< 5	280
BH2003	13720	15-Mar-22	< 0.05	0.003	0.0004	< 0.001	3.6	< 0.001	1.1	< 0.0001	< 0.001	< 0.005	28	10	6	51	210	< 10	< 20	210	34	24	290
BHH2003	13720	07-Dec-21	< 0.05	0.001	< 0.0002	< 0.001	0.41	< 0.001	0.99	< 0.0001	< 0.001	< 0.005	46	15	8.4	47	230	< 10	-	-	39	12	290
BHH2003	13720	13-Sep-21	-	0.004	< 0.0002	< 0.001	< 0.001	< 0.001	-	< 0.0001	0.001	< 0.005	43	14	7.9	41	170	< 5	-	-	28	40	340
BHH115	13900	14-Jun-22	0.23	0.002	< 0.0002	0.001	1.7	< 0.001	0.084	< 0.0001	0.005	0.013	4.9	3.1	9	13	63	< 10	< 20	63	8.4	< 5	110
BHH115	13900	15-Mar-22	0.2	0.007	0.0004	0.01	0.87	0.002	0.085	< 0.0001	0.016	0.036	11	2	9	11	70	< 10	< 20	70	11	< 5	110
BHH115	13900	07-Dec-21	0.27	0.004	< 0.0002	0.016	0.37	0.002	0.051	< 0.0001	0.004	0.017	9.2	4	7.2	21	63	< 10	-	-	17	18	110
BHH115	13900	13-Sep-21	-	0.003	< 0.0002	< 0.001	< 0.001	< 0.001	-	< 0.0001	< 0.001	0.011	49	9.1	2.9	44	150	< 5	-	-	47	35	360
BHN2.1-015	13780	14-Jun-22	< 0.05	< 0.001	< 0.0002	0.006	< 0.05	< 0.001	0.039	< 0.0001	0.007	0.026	2.4	9.3	1.9	19	< 20	< 10	< 20	< 20	13	39	150
BHN2.1-015	13780	15-Mar-22	0.06	< 0.001	0.0003	0.009	< 0.05	0.001	0.053	< 0.0001	0.007	0.024	5.9	5.1	2.5	9.7	< 20	< 10	< 20	< 20	9.5	41	170
BHN2.1-0.15	13780	13-Dec-21	< 0.05	< 0.001	< 0.0002	0.008	< 0.05	< 0.001	0.056	< 0.0001	0.006	0.021	3.1	9.8	2.4	16	< 20	< 10	-	-	13	63	140
BHN2.1-0.15	13780	13-Sep-21	-	< 0.001	< 0.0002	0.007	< 0.001	< 0.001	-	< 0.0001	0.008	0.02	2.7	10	2	21	9.4	< 5	-	-	11	47	180
Statistics*																							
Observation			18	24	24	24	24	24	18	24	24	24	24	24	24	24	24	24	12	12	24	24	24
Mean			NA	0.002	NA	0.01	0.65	0.0008	0.58	NA	0.003	0.025	20.28	8.79	4.27	30.45	92.39	NA	NA	84.42	27.54	29.52	216.58
Median			NA	0	NA	0.004	0.025	0.0005	0.09	NA	0.002	0.011	14	9	3	32	69	NA	NA	66.5	31	24.5	220
Standard Deviation			NA	0.002	NA	0.007	1.15	0.0007	0.84	NA	0.004	0.044	18.35	3.89	2.48	13.19	69	NA	NA	67.1	12.35	21.5	89.16
Minimum			< 0.05	< 0.001	< 0.0002	< 0.001	< 0.001	< 0.001	0.04	< 0.0001	< 0.001	< 0.005	2	2	2	10	9.4	< 5	< 20	10	8	2.5	88
Maximum			0.27	0.007	0.0004	0.026	4.2	0.003	3.4	< 0.0001	0.016	0.21	60	16	9	51	230	< 10	< 20	210	47	92	420
80th Percentile			NA	0.003	NA	0.009	0.87	0.001	1.06	NA	0.005	0.025	43.0	11.0	7.1	44.0	158	NA	NA	124	38.0	43.4	284
20th Percentile			NA	0.001	NA	0.001	0.03	0.0005	0.05	NA	0.001	0.003	5	4	2	17	32	NA	NA	30.6	13	11.6	132

Notes:

NA Not applicable

\- Parameter not analysed

* Summary statistics have been prepared where there are 5 discrete samples greater then the laboratory's LOR. Half the value of the LOR was used for summary statistics

Table LR2 - Summary of Laboratory Results for Groundwater Quality Samples

All results in mg/l, unless otherwise stated.

Borehole	Chainage	Date of Sampling	Metals										Alkali Metals				Alkalinity (speciated)						
			Aluminium	Arsenic	Cadmium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Zinc	Calcium	Magnesium	Potassium	Sodium	Bicarbonate (CaCO3)	Carbonate (CaCO3)	Hydroxide Alkalinity (as CaCO3)	Total Alkalinity (as CaCO3)	Chloride	Sulphate (as SO4)	Total Dissolved Solids
Shephards Lane Tunnel																							
BH2034	17000	15-Jun-22	< 0.05	< 0.001	< 0.0002	0.01	< 0.05	< 0.001	0.006	< 0.0001	0.001	0.035	2.7	2.5	1.3	17	23	< 10	< 20	23	8.6	8.5	110
BH2034	17000	16-Mar-22	< 0.05	< 0.001	< 0.0002	0.001	< 0.05	< 0.001	< 0.005	< 0.0001	0.001	0.009	4.1	3.2	1.8	10	22	< 10	< 20	22	8.9	12	130
BH2034	17000	09-Dec-21	< 0.05	< 0.001	< 0.0002	< 0.001	< 0.05	< 0.001	< 0.005	< 0.0001	0.003	0.007	3.2	2.8	1.5	19	< 20	< 10	-	-	12	23	74
BH2034	17000	13-Sep-21	-	< 0.001	< 0.0002	0.001	< 0.001	< 0.001	-	< 0.0001	0.019	0.011	3	2.5	1.4	17	28	< 5	-	-	8.5	12	90
BH2035	17000	15-Jun-22	< 0.05	0.006	< 0.0002	< 0.001	3.8	< 0.001	2.5	< 0.0001	0.002	0.025	60	18	2.5	41	260	< 10	< 20	260	33	< 5	340
BH2035	17000	16-Mar-22	< 0.05	0.005	< 0.0002	< 0.001	4.1	< 0.001	2.7	< 0.0001	< 0.001	< 0.005	65	14	3.2	35	410	< 10	< 20	410	34	< 5	400
BH2035	17000	09-Dec-21	< 0.05	0.005	< 0.0002	< 0.001	2.6	< 0.001	2.2	< 0.0001	0.003	< 0.005	72	21	3.2	48	230	15	-	-	40	16	370
BH2035	17000	13-Sep-21	-	0.009	< 0.0002	< 0.001	< 0.001	< 0.001	-	< 0.0001	0.011	0.007	45	17	2.3	38	210	< 5	-	-	28	< 2	320
BHH142	17180	15-Jun-22	4	< 0.001	< 0.0002	< 0.001	0.06	< 0.001	0.006	< 0.0001	0.002	0.042	140	< 0.5	9.8	57	60	270	< 20	330	28	13	510
BHH142	17180	16-Mar-22	4.2	< 0.001	< 0.0002	0.005	< 0.05	< 0.001	< 0.005	< 0.0001	0.003	0.005	2.2	< 0.5	6.9	34	< 20	100	390	490	28	12	460
BHH142	17180	09-Dec-21	3	< 0.001	< 0.0002	0.001	0.21	< 0.001	0.17	< 0.0001	< 0.001	< 0.005	200	< 0.5	15	64	< 20	80	-	-	21	16	1200
BHH142	17180	13-Sep-21	-	< 0.001	< 0.0002	0.007	< 0.001	< 0.001	-	< 0.0001	< 0.001	0.007	190	< 0.5	12	53	< 5	59	-	-	9.1	5.3	1300
BHH140	17180	15-Jun-22	< 0.05	< 0.001	< 0.0002	0.053	< 0.05	< 0.001	0.015	< 0.0001	0.005	0.042	10	< 0.5	1.5	5.7	40	< 10	< 20	40	2.8	< 5	49
BHH140	17180	16-Mar-22	< 0.05	< 0.001	< 0.0002	0.001	< 0.05	< 0.001	< 0.005	< 0.0001	0.001	0.011	13	0.6	1.4	3.4	42	< 10	< 20	42	1.1	< 5	53
BHH140	17180	09-Dec-21	< 0.05	0.001	< 0.0002	0.001	< 0.05	< 0.001	0.037	< 0.0001	< 0.001	0.009	4.1	4	1.4	25	35	< 10	-	-	20	12	190
BHH140	17180	13-Sep-21	-	0.002	< 0.0002	0.002	< 0.001	< 0.001	-	< 0.0001	< 0.001	0.021	5.9	3.2	1.2	21	43	< 5	-	-	13	5.3	72
BH2038	17280	15-Jun-22	< 0.05	0.001	< 0.0002	0.002	< 0.05	< 0.001	< 0.005	< 0.0001	0.001	0.006	2.7	2.4	1.5	20	21	< 10	< 20	21	9.4	12	110
BH2038	17280	16-Mar-22	0.28	0.003	< 0.0002	0.008	< 0.05	< 0.001	0.01	< 0.0001	0.001	0.005	4.4	1.7	3	31	39	< 10	< 20	39	8.2	34	210
BH2038	17280	09-Dec-21	< 0.05	0.002	< 0.0002	0.001	< 0.05	< 0.001	0.014	< 0.0001	< 0.001	0.008	9.2	4.9	4	24	33	< 10	-	-	13	26	110
BH2038	17280	13-Sep-21	-	0.008	< 0.0002	< 0.001	< 0.001	< 0.001	-	< 0.0001	< 0.001	0.012	22	6.1	1.5	24	90	< 5	-	-	16	15	130
BH2039	17300	15-Jun-22	< 0.05	0.002	< 0.0002	0.004	< 0.05	< 0.001	0.006	< 0.0001	0.002	0.023	14	3.9	2.9	22	50	< 10	< 20	50	10	14	140
BH2039	17300	16-Mar-22	< 0.05	0.002	< 0.0002	< 0.001	< 0.05	< 0.001	< 0.005	< 0.0001	< 0.001	0.013	19	3.3	2.2	13	90	< 10	< 20	90	10	17	160
BH2039	17300	09-Dec-21	< 0.05	0.001	< 0.0002	< 0.001	< 0.05	< 0.001	0.014	< 0.0001	< 0.001	< 0.005	23	3.8	2.4	25	75	< 10	-	-	15	30	110
BH2039	17300	13-Sep-21	-	0.002	< 0.0002	< 0.001	< 0.001	< 0.001	-	< 0.0001	< 0.001	0.005	19	3.4	2.1	20	74	< 5	-	-	9.9	16	150
Statistics			17	23																			
Observation			18	24	24	24	24		18	24	24	24	24	24	24	24	24		24	12	24	24	24
Mean			NA	0.002	NA	0.004	NA		0.43	NA	0.003	0.01	6.2	4.98	3.58	27.80	79.5		NA	151.4	16.15	13.4	282.8
Median			NA	0.001	NA	0.001	NA		0.008	NA	0.001	0.009	3.4	3.2	2	24	41		NA	46	13	12	145
Standard Deviation			NA	0.003	NA	0.011	NA		0.94	NA	0.004	0.01	6.2	6	3.65	15.83	99		NA	172.3	10.46	9	326.4
Minimum			< 0.05	< 0.001	< 0.0002	< 0.001	< 0.001		< 0.001	< 0.0001	< 0.001	< 0.005	2	< 0.5	1.2	3.4	3		< 5	21	1	< 5	49
Maximum			4.2	0.009	0.0004	0.053	< 0.05		2.7	< 0.0001	0.019	0.04	21	21	15	64	410		< 10	490	40	34	1300
80th Percentile			NA	0.004	NA	0.004	NA		0.12	NA	0.003	0.02	9.26	5.38	3.5	39.2	90		NA	316	28.0	17	382
20th Percentile			NA	0.001	NA	0.001	NA		0.003	NA	0.001	0.005	2.50	0.46	1	17	22		NA	26.2	9	5	102

Notes:

NA Not applicable

\- Parameter not analysed

* Summary statistics have been prepared where there are 5 discrete samples greater then the laboratory's LOR. Half the value of the LOR was used for summary statistics

Table LR2 - Summary of Laboratory Results for Groundwater Quality Samples
All results in mg/l, unless otherwise stated.

Borehole	Chainage	Date of Sampling	Metals										Alkali Metals				Alkalinity (speciated)						
			Aluminium	Arsenic	Cadmium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Zinc	Calcium	Magnesium	Potassium	Sodium	Bicarbonate (CaCO3)	Carbonate (CaCO3)	Hydroxide Alkalinity (as CaCO3)	Total Alkalinity (as CaCO3)	Chloride	Sulphate (as SO4)	Total Dissolved Solids
Gatelys Road Tunnel																							
BH2051	18900	16-Jun-22	< 0.05	0.005	< 0.0002	< 0.001	0.17	< 0.001	0.43	< 0.0001	< 0.001	0.029	59	8.2	1.3	42	200	< 10	< 20	200	37	16	300
BH2051	18900	17-Mar-22	< 0.05	0.006	< 0.0002	< 0.001	0.09	< 0.001	0.44	< 0.0001	< 0.001	< 0.005	41	7.7	2.3	33	250	< 10	< 20	250	38	6.1	300
BH2051	18900	13-Dec-21	< 0.05	0.005	< 0.0002	< 0.001	0.06	< 0.001	0.43	< 0.0001	< 0.001	< 0.005	69	8.7	2.5	47	230	11	-	-	50	10	170
BH2051	18900	14-Sep-21	-	0.009	< 0.0002	< 0.001	< 0.001	< 0.001	-	< 0.0001	< 0.001	< 0.005	63	8.2	1.9	40	200	< 5	-	-	34	18	360
BH2052	18920	16-Jun-22	< 0.05	0.002	< 0.0002	0.002	< 0.05	< 0.001	0.035	< 0.0001	0.002	0.015	8.3	4	1.4	30	46	< 10	< 20	46	21	16	160
BH2052	18920	17-Mar-22	< 0.05	0.001	< 0.0002	< 0.001	< 0.05	< 0.001	0.043	< 0.0001	0.003	0.014	9.2	4.3	1.9	24	76	< 10	< 20	76	16	22	170
BH2052	18920	13-Dec-21	< 0.05	0.002	< 0.0002	< 0.001	0.07	< 0.001	0.12	< 0.0001	0.005	0.01	31	6.8	2.4	44	120	< 10	-	-	27	42	220
BH2052	18920	14-Sep-21	-	0.003	< 0.0002	0.002	< 0.001	< 0.001	-	< 0.0001	0.01	0.022	21	5.5	2.3	33	88	< 5	-	-	20	23	190
BHH150	19180	20-Jun-22	< 0.05	< 0.001	< 0.0002	< 0.001	0.06	< 0.001	0.65	< 0.0001	0.002	0.019	43	10	18	67	290	< 10	< 20	290	32	< 5	360
BHH150	19180	17-Mar-22	< 0.05	< 0.001	< 0.0002	< 0.001	< 0.05	< 0.001	0.44	0.0001	0.002	0.006	25	6.1	22	62	290	< 10	< 20	290	36	< 5	290
BHH150	19180	13-Dec-21	< 0.05	< 0.001	< 0.0002	< 0.001	< 0.05	< 0.001	0.006	0.0001	< 0.001	< 0.005	5.1	4.2	34	110	200	11	-	-	41	30	390
BHH150	19180	14-Sep-21	-	0.001	< 0.0002	< 0.001	< 0.001	< 0.001	-	0.0001	< 0.001	< 0.005	3.6	3.8	33	98	150	57	-	-	28	20	420
BHH153	19200	20-Jun-22	< 0.05	< 0.001	< 0.0002	< 0.001	< 0.05	< 0.001	0.5	< 0.0001	0.003	< 0.005	62	14	1.6	44	210	< 10	< 20	210	59	< 5	330
BHH153	19200	17-Mar-22	< 0.05	< 0.001	< 0.0002	< 0.001	0.22	< 0.001	0.54	< 0.0001	< 0.001	< 0.005	56	11	2.3	33	240	< 10	< 20	240	56	< 5	310
BHH153	19200	13-Dec-21	< 0.05	< 0.001	< 0.0002	< 0.001	0.18	< 0.001	0.48	< 0.0001	< 0.001	< 0.005	64	12	1.8	40	250	< 10	-	-	70	14	340
BHH153	19200	14-Sep-21	-	0.001	< 0.0002	< 0.001	< 0.001	< 0.001	-	< 0.0001	< 0.001	< 0.005	67	13	1.7	40	210	< 5	-	-	48	8	310
BHH154	19300	21-Jun-22	< 0.05	0.001	< 0.0002	0.001	0.53	< 0.001	0.69	< 0.0001	< 0.001	< 0.005	34	6.5	3.1	30	110	< 10	< 20	110	27	24	200
BH3001	19300	21-Jun-22	0.08	< 0.001	< 0.0002	0.005	< 0.05	< 0.001	0.11	< 0.0001	0.002	0.049	3.4	6.3	3.3	11	< 20	< 10	< 20	< 20	10	19	98
Statistics																							
Observation			14	18	18	18	18	18	14	1	18	18	18	18	18	18	18	18	10	10	18	18	18
Mean			NA	0.002	NA	NA	0.09	NA	0.35	NA	0.002	0.011	36.9	7.8	7.6	46.0	176.11	NA	NA	172.2	36.1	15.5	273.2
Median			NA	0.001	NA	NA	0.03	NA	0.44	NA	0.001	0.003	37.5	7.3	2.3	40.0	200	NA	NA	205	35	16	300
Standard Deviation			NA	0.002	NA	NA	0.13	NA	0.24	NA	0.002	0.013	24.4	3.1	11.1	24.7	83.44	NA	NA	103.26	15.8	10.78	91.5
Minimum			< 0.05	< 0.001	< 0.0002	< 0.0002	< 0.001	< 0.001	0.006	< 0.0001	< 0.001	< 0.005	3	4	1	11	10	< 5	< 5	< 20	10	< 5	98
Maximum			17	22	< 0.0002	0.005	0.53	< 0.001	0.69	< 0.0001	0.01	0.05	69	14	34	110	290	57	0	290	70	42	420
80th Percentile			NA	0.004	NA	NA	0.14	NA	0.52	NA	0.003	0.017	62.6	10.6	12.1	56	246	NA	NA	258	49.2	22.6	352
20th Percentile			NA	0.001	NA	NA	0.01	NA	0.08	NA	0.001	0.003	8.66	4.78	1.74	31.2	96.8	NA	NA	70	23.4	3.9	178

Notes:

NA Not applicable

\- Parameter not analysed

* Summary statistics have been prepared where there are 5 discrete samples greater then the laboratory's LOR. Half the value of the LOR was used for summary statistics

Table LR3: Results of Quality Control Groundwater Screening Samples

Sample ID **Material** **Date of Sampling**	**Primary Sample** BH2015 Water 4-Jan-23	**Duplicate Sample** QC15 Water 4-Jan-23	**RPD (%)** %RPD between BH2015 and QC15	**Primary Sample** BH2015 Water 4-Jan-23	**Triplicate Sample** QC16 Water 4-Jan-23	**RPD (%)** %RPD between BH2015 and QC16	**Primary Sample** BH2050 Water 5-Jan-23	**Duplicate Sample** QC17 Water 5-Jan-23	**RPD (%)** %RPD between BH2050 and QC17	**Primary Sample** BH2050 Water 5-Jan-23	**Triplicate Sample** QC18 Water 5-Jan-23	**RPD (%)** %RPD between BH2050 and QC18	**Primary Sample** BH3014 Water 9-Jan-23	**Duplicate Sample** QC19 Water 9-Jan-23	**RPD (%)** %RPD between BH3014 and QC19
Metals															
Arsenic	< 0.001	< 0.001	NA	< 0.001	< 0.001	NA	0.001	0.001	0	0.001	0.002	**67**	< 0.001	< 0.001	NA
Cadmium	< 0.0002	< 0.0002	NA	< 0.0002	< 0.0002	NA	< 0.0002	< 0.0002	NA	< 0.0002	< 0.0002	NA	< 0.0002	< 0.0002	NA
Chromium	< 0.001	< 0.001	NA	< 0.001	< 0.001	NA	< 0.001	< 0.001	NA	< 0.001	< 0.001	NA	< 0.001	< 0.001	NA
Copper	0.13	0.12	8	0.13	0.15	14	0.25	0.25	0	0.25	0.27	8	< 0.001	< 0.001	NA
Iron	< 0.05	< 0.05	NA	< 0.05	< 0.05	Inconsistent	< 0.05	< 0.05	NA	< 0.05	< 0.05	NA	< 0.05	< 0.05	NA
Lead	< 0.001	< 0.001	NA	< 0.001	< 0.001	NA	< 0.001	< 0.001	NA	< 0.001	< 0.001	NA	< 0.001	< 0.001	NA
Manganese	0.41	0.4	2	0.41	0.51	22	0.006	0.006	0	0.006	< 0.005	NA	0.014	0.016	13
Mercury	< 0.0001	< 0.0001	NA	< 0.0001	< 0.0001	NA	< 0.0001	< 0.0001	NA	< 0.0001	< 0.0001	NA	< 0.0001	< 0.0001	NA
Nickel	< 0.001	< 0.001	NA	< 0.001	0.001	Inconsistent	< 0.001	< 0.001	NA	< 0.001	< 0.001	NA	0.001	0.001	0
Zinc	0.007	0.006	15	0.007	0.007	0	0.006	0.006	0	0.006	0.007	15	0.005	0.005	0
Alkali Metals															
Calcium	9.2	9	2	9.2	6.3	37	19	19	0	19	17	11	2.4	2.3	4
Magnesium	9	6.9	26	9	6.1	38	3.4	3.5	3	3.4	3.6	6	2.4	2.4	0
Potassium	9.6	8.4	13	9.6	7.7	22	1.5	1.5	0	1.5	1.6	6	1.1	1.1	0
Sodium	20	20	0	20	14	35	49	50	2	49	40	20	19	18	5
Alkalinity (speciated)															
Bicarbonate (CaCO3)	46	45	2	46	1400	**187**	110	180	48	110	110	0	< 20	74	NA
Carbonate (CaCO3)	< 10	< 10	NA	< 10	< 10	NA	< 10	< 10	NA	< 10	< 10	NA	< 10	< 10	NA
Hydroxide Alkalinity (as CaCO3)	< 20	< 20	NA	< 20	< 20	NA	< 20	< 20	NA	< 20	< 20	NA	< 20	< 20	NA
Total Alkalinity (as CaCO3)	46	45	2	46	1400	**187**	110	180	48	110	110	0	< 20	74	NA
Ammonia (as N)	< 0.01	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01	< 0.01	NA	< 0.01	0.06	NA	< 0.01	< 0.01	NA
Chloride	14	15	7	14	16	13	26	26	0	26	30	14	15	16	6
Nitrate	11	11	0	11	11	0	0.92	0.92	0	0.92	0.91	1	0.73	0.81	10
Nitrite	0.02	< 0.02	NA	0.02	0.02	0	< 0.02	< 0.02	NA	< 0.02	< 0.02	NA	< 0.02	< 0.02	NA
Phosphorus Reactive (as P)	< 0.05	< 0.05	NA	< 0.05	0.08	NA	< 0.05	< 0.05	NA	< 0.05	0.1	NA	0.02	0.03	40
Sulphate (as SO4)	9.6	11	14	9.6	13	30	19	19	0	19	26	31	12	14	15
BTEXN															
Benzene	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
Toluene	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
Ethylbenzene	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
Xylene	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
Naphthalene	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
Total Recoverable Hydrocarbons (TRH)															
TRH >C10-C16	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	0.07	NA
TRH >C10-C16 less Naphthalene (F2)	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	0.07	NA
TRH >C10-C40 (total)	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
TRH >C16-C34	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
TRH >C34-C40	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
TRH C6-C10	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
TRH C6-C10 less BTEX (F1)	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
Organochlorine pesticides (OCP)	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
Organophosphorus pesticides (OPP)	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
Polycyclic Aromatic Hydrocarbons (PAH)	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
Semivolatile Organics (SVOC)	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA
Volatile Organics (VOC)	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA	< LOR	< LOR	NA

Notes:

Value RPD exceeds control limit of 50%

NA At least one sample has concentration below laboratory's Limit of Reporting (LOR)

Table LR4: Summary of Laboratory Results for Groundwater Screening Samples

Sample ID	BHH106	BH1056	BH1058	BH1059	BHH110	BH2001	BH2002	BHH111	BHH113	BH2003	BHN2.1-05	BH2004	BHH115	BH2006	BHH119	BH2008	BH2015	BH2016	BH2027
Material	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Date of Sampling	3-Jan-23	3-Jan-23	3-Jan-23	3-Jan-23	3-Jan-23	3-Jan-23	3-Jan-23	5-Jan-23	5-Jan-23	5-Jan-23	3-Jan-23	3-Jan-23	3-Jan-23	3-Jan-23	3-Jan-23	3-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23
Metals																			
Arsenic	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	0.009	< 0.001	< 0.001	0.01	0.002	0.002	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Copper	0.013	0.001	0.006	0.011	0.013	< 0.001	0.008	0.003	0.011	< 0.001	0.024	0.049	0.011	0.002	0.12	0.016	0.13	0.32	0.002
Iron	0.2	< 0.05	< 0.05	< 0.05	< 0.05	1.1	< 0.05	0.06	< 0.05	5.7	< 0.05	< 0.05	0.4	< 0.05	0.6	< 0.05	< 0.05	< 0.05	< 0.05
Lead	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Manganese	0.01	0.054	0.032	0.49	0.2	0.61	0.009	1.3	0.008	0.82	0.037	0.057	0.028	0.12	0.56	0.011	0.41	0.53	0.017
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	0.021	< 0.001	0.001	0.003	0.006	< 0.001	< 0.001	0.001	0.002	< 0.001	0.009	0.007	0.01	0.002	0.22	< 0.001	< 0.001	0.099	0.013
Zinc	0.091	0.008	0.013	0.011	0.008	< 0.005	0.009	< 0.005	< 0.005	< 0.005	0.012	0.068	0.072	< 0.005	0.08	< 0.005	0.007	0.048	0.011
Alkali Metals																			
Calcium	8	5.5	5.3	1	5.3	18	10	37	6.2	38	2.8	2.4	11	8	36	0.6	9.2	87	4.5
Magnesium	2.9	6.5	1.3	2.7	5.8	12	2.5	8.2	5.6	14	11	6.2	1.8	16	9	1	9	14	5.3
Potassium	3.6	4.5	1.6	1.3	2.4	2.6	1.7	3.7	2.2	6.9	2.1	1.8	9.7	5.5	6.6	< 0.5	9.6	4.2	2.2
Sodium	41	39	15	24	35	52	16	48	40	45	30	17	9.5	130	77	31	20	61	13
Alkalinity (speciated)																			
Bicarbonate (CaCO3)	58	78	21	< 20	48	88	< 20	76	29	160	< 20	< 20	33	180	270	< 20	46	290	120
Carbonate (CaCO3)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	58	78	21	< 20	48	88	< 20	76	29	160	< 20	< 20	33	180	270	< 20	46	290	120
Ammonia (as N)	< 0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01	< 0.01	0.03	< 0.01	0.15	< 0.01	< 0.01	0.59	< 0.01	0.56	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	7.7	16	7.1	23	18	29	13	32	22	23	11	12	10	27	28	14	14	91	9.9
Nitrate & Nitrite (as N)	0.46	0.67	0.26	0.14	1.2	< 0.05	0.61	< 0.05	1.9	< 0.05	4.9	3.8	0.75	1.1	< 0.05	1.2	11	0.13	0.85
Nitrate	0.45	0.67	0.26	0.13	1.2	< 0.02	0.61	0.02	1.9	< 0.02	4.9	3.8	0.73	1	< 0.02	1.2	11	0.12	0.85
Nitrite	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02	< 0.02	< 0.02
Phosphorus Reactive (as P)	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	21	15	7.4	7.7	13	22	18	60	31	5	49	16	4.6	88	46	17	9.6	10	17
BTEXN																			
Benzene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Toluene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Ethylbenzene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Xylene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Naphthalene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Total Recoverable Hydrocarbons (TRH)																			
TRH >C10-C16	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	0.21	< LOR	< LOR	< LOR	0.05	< LOR	< LOR	0.11	< LOR	< LOR	< LOR	0.07
TRH >C10-C16 less Naphthalene (F2)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	0.21	< LOR	< LOR	< LOR	0.05	< LOR	< LOR	0.11	< LOR	< LOR	< LOR	0.07
TRH >C10-C40 (total)	< LOR	0.1	< LOR	< LOR	< LOR	< LOR	0.2	0.21	< LOR	< LOR	< LOR	0.45	0.1	< LOR	0.11	< LOR	< LOR	< LOR	0.47
TRH >C16-C34	< LOR	0.1	< LOR	< LOR	< LOR	< LOR	0.2	< LOR	< LOR	< LOR	< LOR	0.4	0.1	< LOR	< LOR	< LOR	< LOR	< LOR	0.4
TRH >C34-C40	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
TRH C6-C10	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
TRH C6-C10 less BTEX (F1)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Organochlorine pesticides (OCP)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< 0.1	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Organophosphorus pesticides (OPP)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< 0.02	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Polycyclic Aromatic Hydrocarbons (PAH)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< 0.02	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Semivolatile Organics (SVOC)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< 0.02	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Volatile Organics (VOC)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR

Notes: <LOR Concentration is below the laboratory limit of reporting

Table LR4: Summary of Laboratory Results for Groundwater Screening Samples

Sample ID	BH2029	BH2030	BHH125	BHH127	BHN2.1-024	BHN2.1-025	BHH131	BHN2.1-026	BHH2.1-031	BHN2.1-044	BHH2.1-047	BH2034	BH2035	BHH140	BHH142	BHH144	BH2037	BH2038	BH2039
Material	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Date of Sampling	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	4-Jan-23	5-Jan-23	5-Jan-23	5-Jan-23	5-Jan-23
Metals																			
Arsenic	< 0.001	0.002	0.002	0.01	0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001	0.003	0.003
Cadmium	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0003	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Copper	< 0.001	0.012	0.035	0.004	0.043	0.046	2.6	0.033	0.094	0.008	0.016	0.005	< 0.001	0.055	0.005	0.007	0.003	0.11	0.004
Iron	0.38	0.22	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.71	< 0.05	< 0.05	1.7	< 0.05	< 0.05	< 0.05	< 0.05	0.28	< 0.05
Lead	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Manganese	0.35	0.66	< 0.005	0.007	4.6	0.24	0.011	0.02	0.34	0.54	0.02	< 0.005	1.5	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.021
Mercury	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	0.002	0.002	< 0.001	0.002	0.06	0.007	0.007	0.007	0.046	0.001	0.004	< 0.001	0.001	0.004	0.009	0.001	0.008	0.001	0.003
Zinc	< 0.005	< 0.005	0.006	< 0.005	0.071	0.009	0.01	0.014	0.064	< 0.005	0.021	0.006	< 0.005	0.014	0.012	0.009	0.024	0.006	< 0.005
Alkali Metals																			
Calcium	19	11	4.9	2.6	1.2	3.2	1.2	0.7	5.4	16	0.5	3.1	65	7.7	120	1.6	6.3	7.1	13
Magnesium	8.2	6.8	3.6	4.2	5.1	7.5	3.6	3.3	4.1	15	3.6	2.3	16	1.5	< 0.5	2.2	2.2	2.6	2.4
Potassium	3.9	2.5	2	2.3	1.4	1.4	1.1	0.8	1.6	4.6	1.8	1.2	2.6	1.2	16	1.5	2.6	5.4	3.2
Sodium	67	26	38	56	21	32	25	9.7	33	48	16	19	47	15	64	23	20	15	14
Alkalinity (speciated)																			
Bicarbonate (CaCO3)	220	63	42	48	30	140	22	< 20	< 20	140	< 20	< 20	230	24	< 20	< 20	28	24	40
Carbonate (CaCO3)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	49	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	220	63	42	48	30	140	22	< 20	< 20	140	< 20	< 20	230	24	57	< 20	28	24	40
Ammonia (as N)	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.1	0.01	0.13	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	32	15	9.7	16	6.4	9.1	12	7.1	45	11	6.2	7.9	28	7	19	10	15	8	6.4
Nitrate & Nitrite (as N)	< 0.05	< 0.05	0.87	2	0.28	0.09	3.7	1.7	< 0.05	< 0.05	0.43	3.4	< 0.05	2.7	3.3	4	1.1	1.7	0.86
Nitrate	< 0.02	0.02	0.86	2	0.28	0.09	3.7	1.7	< 0.02	< 0.02	0.43	3.4	< 0.02	2.7	1.6	4	1.1	1.7	0.86
Nitrite	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	1.7	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus Reactive (as P)	< 0.05	< 0.05	0.28	1.9	< 0.05	0.06	0.12	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	0.08	0.05
Sulphate (as SO4)	48	5.6	24	35	32	41	16	11	4.6	21	24	12	< 2	5	30	11	6.7	9.1	12
BTEXN																			
Benzene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Toluene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Ethylbenzene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Xylene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Naphthalene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Total Recoverable Hydrocarbons (TRH)																			
TRH >C10-C16	< LOR	< LOR	0.1	< LOR	0.2	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
TRH >C10-C16 less Naphthalene (F2)	< LOR	< LOR	0.1	< LOR	0.2	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
TRH >C10-C40 (total)	< LOR	< LOR	1.8	< LOR	3.9	< LOR	< LOR	< LOR	< LOR	0.2	< LOR	< LOR	< LOR	0.5	0.2	< LOR	< LOR	< LOR	0.2
TRH >C16-C34	< LOR	< LOR	1.2	< LOR	2.7	< LOR	< LOR	< LOR	< LOR	0.2	< LOR	< LOR	< LOR	0.5	0.2	< LOR	< LOR	< LOR	0.2
TRH >C34-C40	< LOR	< LOR	0.5	< LOR	1	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
TRH C6-C10	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
TRH C6-C10 less BTEX (F1)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Organochlorine pesticides (OCP)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Organophosphorus pesticides (OPP)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Polycyclic Aromatic Hydrocarbons (PAH)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Semivolatile Organics (SVOC)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Volatile Organics (VOC)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR

Notes: <LOR Concentration is below the laboratory limit of reporting

Table LR4: Summary of Laboratory Results for Groundwater Screening Samples

Sample ID	BH2050	BH2036	BH2047	BH2051	BH2052	BH2053	BHH150	BHH153	BH3002	BH3014	BH3015	BH3016	BH3020	BH3003	BH3004	BH3005	BHH154
Material	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Date of Sampling	5-Jan-23	9-Jan-23	9-Jan-23	9-Jan-23	9-Jan-23	9-Jan-23	9-Jan-23	9-Jan-23	9-Jan-23	9-Jan-23	9-Jan-23	9-Jan-23	9-Jan-23	10-Jan-23	10-Jan-23	10-Jan-23	10-Jan-23
Metals																	
Arsenic	0.001	< 0.001	0.001	0.004	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Copper	0.25	0.002	0.01	< 0.001	0.002	0.002	< 0.001	< 0.001	0.066	< 0.001	0.036	0.001	0.001	< 0.001	0.007	0.019	0.003
Iron	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.62
Lead	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Manganese	0.006	0.018	0.15	0.12	0.008	0.029	0.82	0.51	0.014	0.014	0.006	0.087	< 0.005	< 0.005	< 0.005	0.01	0.69
Mercury	< 0.0001	< 0.0001	0.0007	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	< 0.001	< 0.001	0.01	0.006	0.002	0.002	< 0.001	< 0.001	0.008	0.001	0.07	0.021	0.006	< 0.001	< 0.001	< 0.001	< 0.001
Zinc	0.006	< 0.005	0.01	0.01	0.012	0.01	< 0.005	< 0.005	0.018	0.005	0.015	0.013	0.012	0.009	< 0.005	< 0.005	< 0.005
Alkali Metals																	
Calcium	19	56	11	60	9.5	7.4	52	64	2.1	2.4	39	90	20	2.9	8.3	4.3	33
Magnesium	3.4	5.9	5.7	7.4	5.6	8.2	10	12	5.9	2.4	3.9	10	4.3	3.2	4	3.9	6.3
Potassium	1.5	1.3	1	1.1	2.2	2.4	8.6	1.5	2.2	1.1	2.3	3.1	1.4	1.6	3.2	2.8	3
Sodium	49	36	38	44	31	60	57	47	18	19	38	46	46	19	26	27	33
Alkalinity (speciated)																	
Bicarbonate (CaCO3)	110	180	76	180	51	< 20	330	290	< 20	< 20	130	240	61	< 20	47	21	110
Carbonate (CaCO3)	< 10	16	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	110	190	76	180	51	< 20	340	290	< 20	< 20	130	240	61	< 20	47	21	110
Ammonia (as N)	< 0.01	< 0.01	0.05	< 0.01	< 0.01	< 0.01	1.5	0.19	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.16
Chloride	26	34	16	32	19	120	26	59	10	15	25	57	50	12	26	35	26
Nitrate & Nitrite (as N)	0.93	< 0.05	0.11	< 0.05	1	0.13	< 0.05	< 0.05	4.3	0.73	1.3	0.11	< 0.05	2.4	0.23	0.42	0.07
Nitrate	0.92	0.04	0.1	< 0.02	1	0.12	< 0.02	0.02	4.3	0.73	1.3	0.11	0.02	2.4	0.22	0.42	0.06
Nitrite	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus Reactive (as P)	< 0.05	0.05	0.1	0.04	0.1	0.08	0.14	0.05	100	0.02	0.04	0.06	0.05	0.08	0.03	0.04	0.04
Sulphate (as SO4)	19	12	20	24	17	250	13	6.7	24	12	21	29	15	17	8.1	10	29
BTEXN																	
Benzene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Toluene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Ethylbenzene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Xylene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Naphthalene	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Total Recoverable Hydrocarbons (TRH)																	
TRH >C10-C16	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	0.08	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	0.06	< LOR	< LOR	0.07
TRH >C10-C16 less Naphthalene (F2)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	0.08	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	0.06	< LOR	< LOR	0.07
TRH >C10-C40 (total)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	0.2	< LOR	< LOR	0.1	< LOR	0.16	< LOR	< LOR	< LOR
TRH >C16-C34	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	0.2	< LOR	< LOR	0.1	< LOR	0.1	< LOR	< LOR	< LOR
TRH >C34-C40	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
TRH C6-C10	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
TRH C6-C10 less BTEX (F1)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Organochlorine pesticides (OCP)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Organophosphorus pesticides (OPP)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Polycyclic Aromatic Hydrocarbons (PAH)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Semivolatile Organics (SVOC)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR
Volatile Organics (VOC)	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR	< LOR

Notes: <LOR Concentration is below the laboratory limit of reporting

Photographs

Photograph 1, shows example of gatic cover installed at ground level in a banana plantation track. Location shown is BHH142 on ridgeline above Shephards Lane tunnel, view towards the northeast.

Photograph 2, shows example of a locked monument cover at location BHH150, on the ridgeline to the west of the Gatelys Road tunnel.

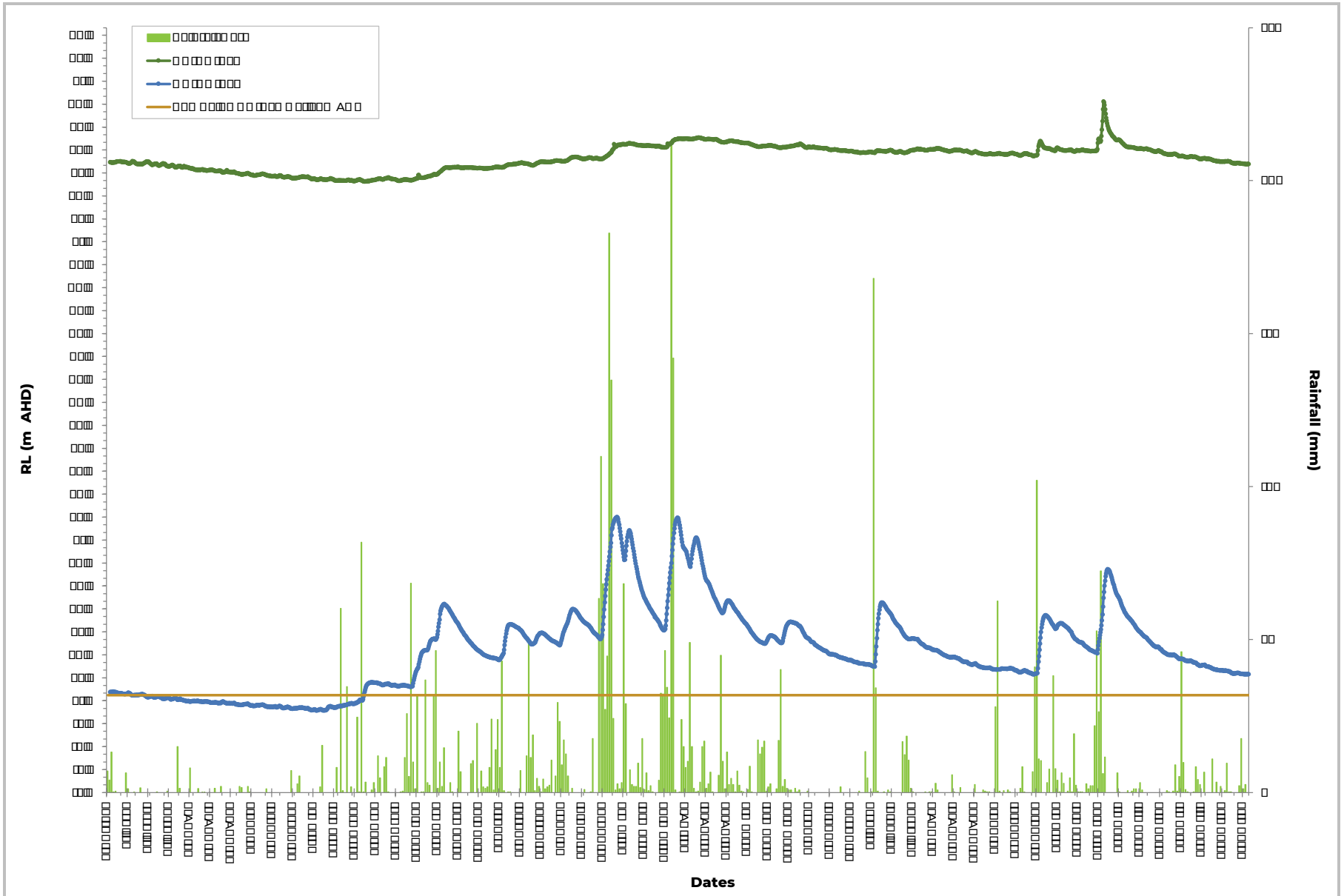
Photograph 3, shows the use of an electronic dip meter to measure the depth to standing water at location BHH131, view is towards the east.

Photograph 4, shows an example of a well repair for location BH2038, to the southeast of the Shephards lane tunnel.

Photograph 5, shows example of Panama disease decontamination undertaken of field vehicle using a Path X disinfectant spray. Location is the gravel wash down pad constructed to the north of Gatelys Road tunnel.

Appendix A

Groundwater Hydrograph Pairs for Cuttings and Tunnels



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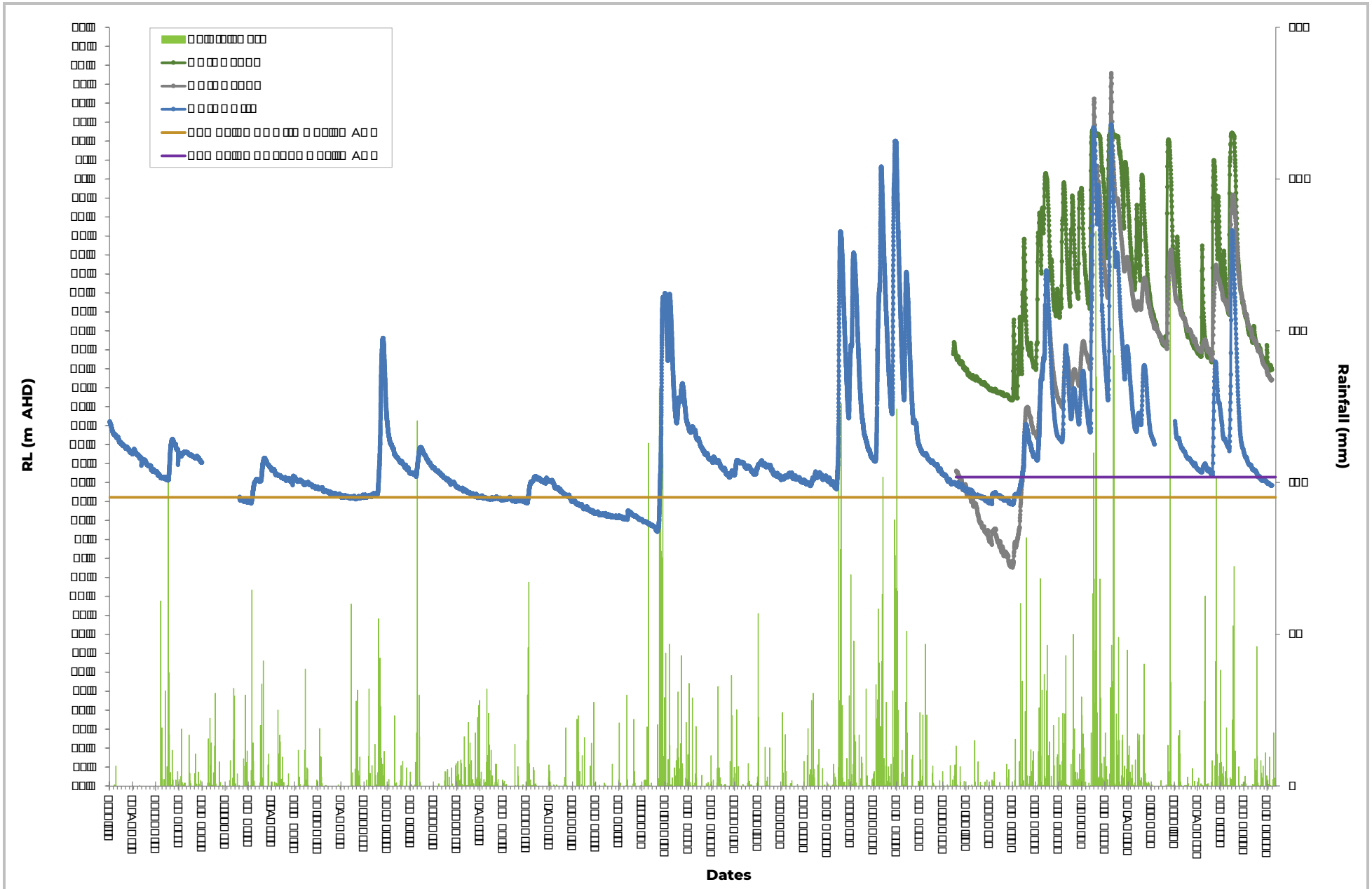

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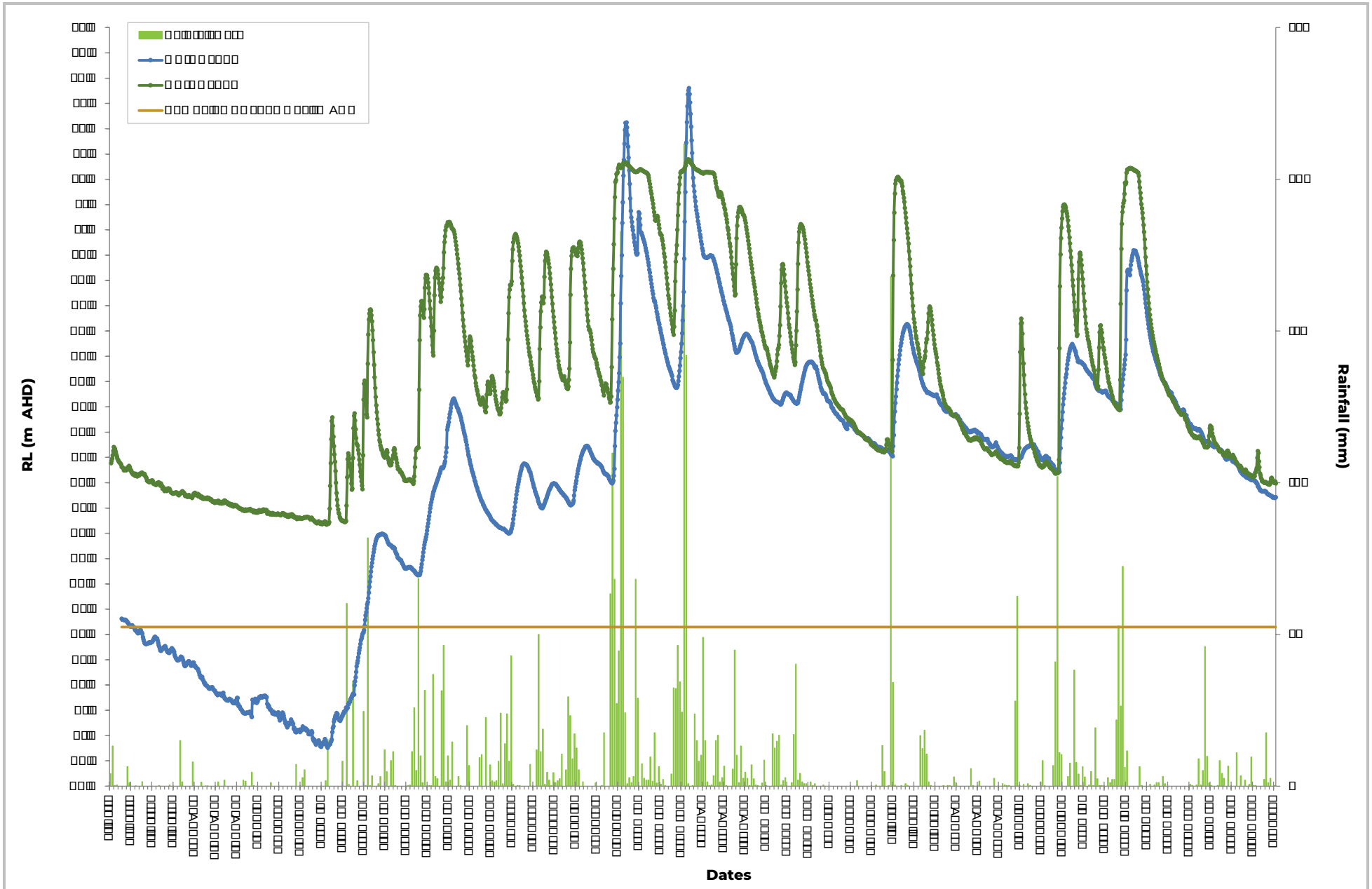

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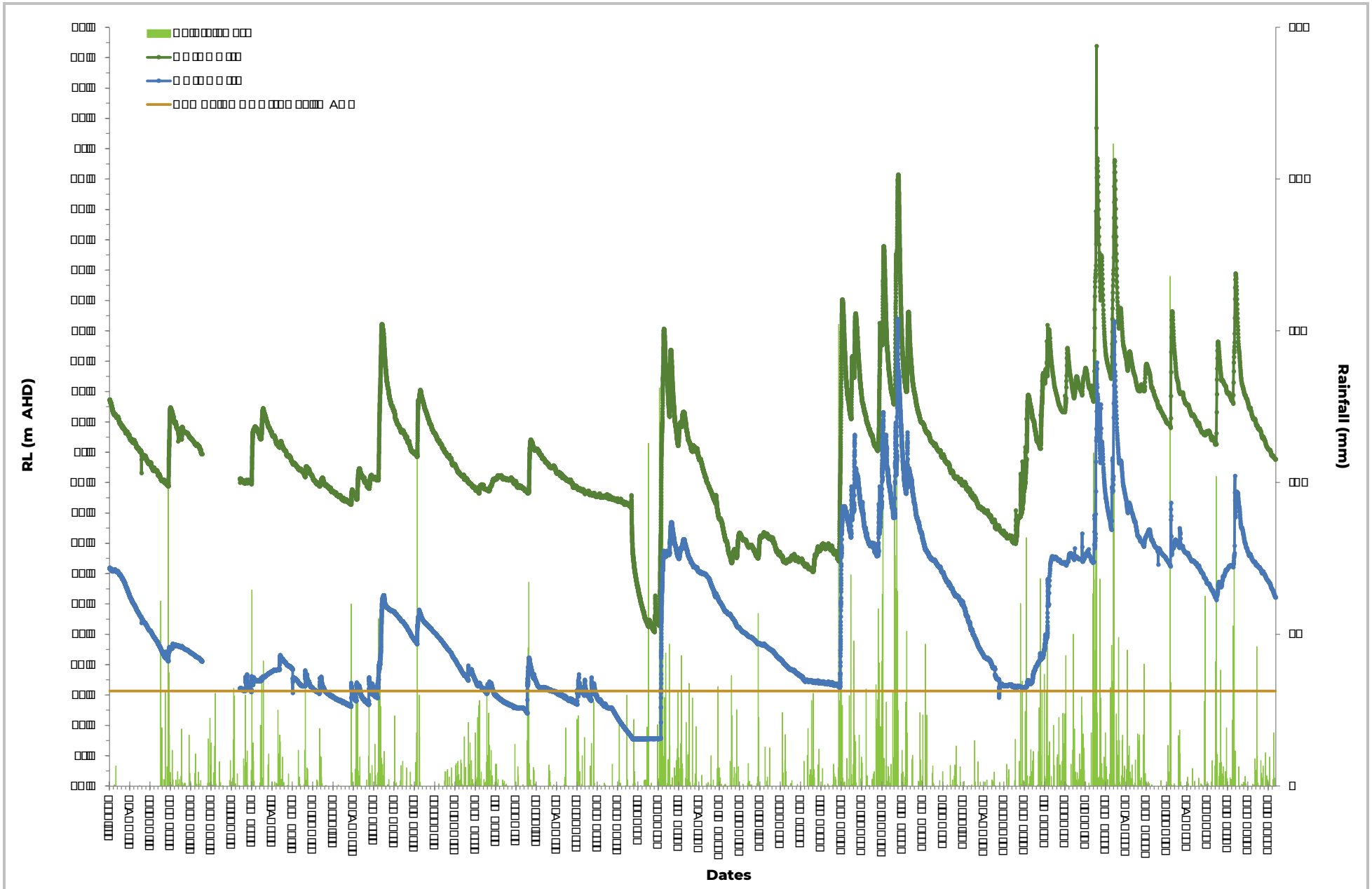

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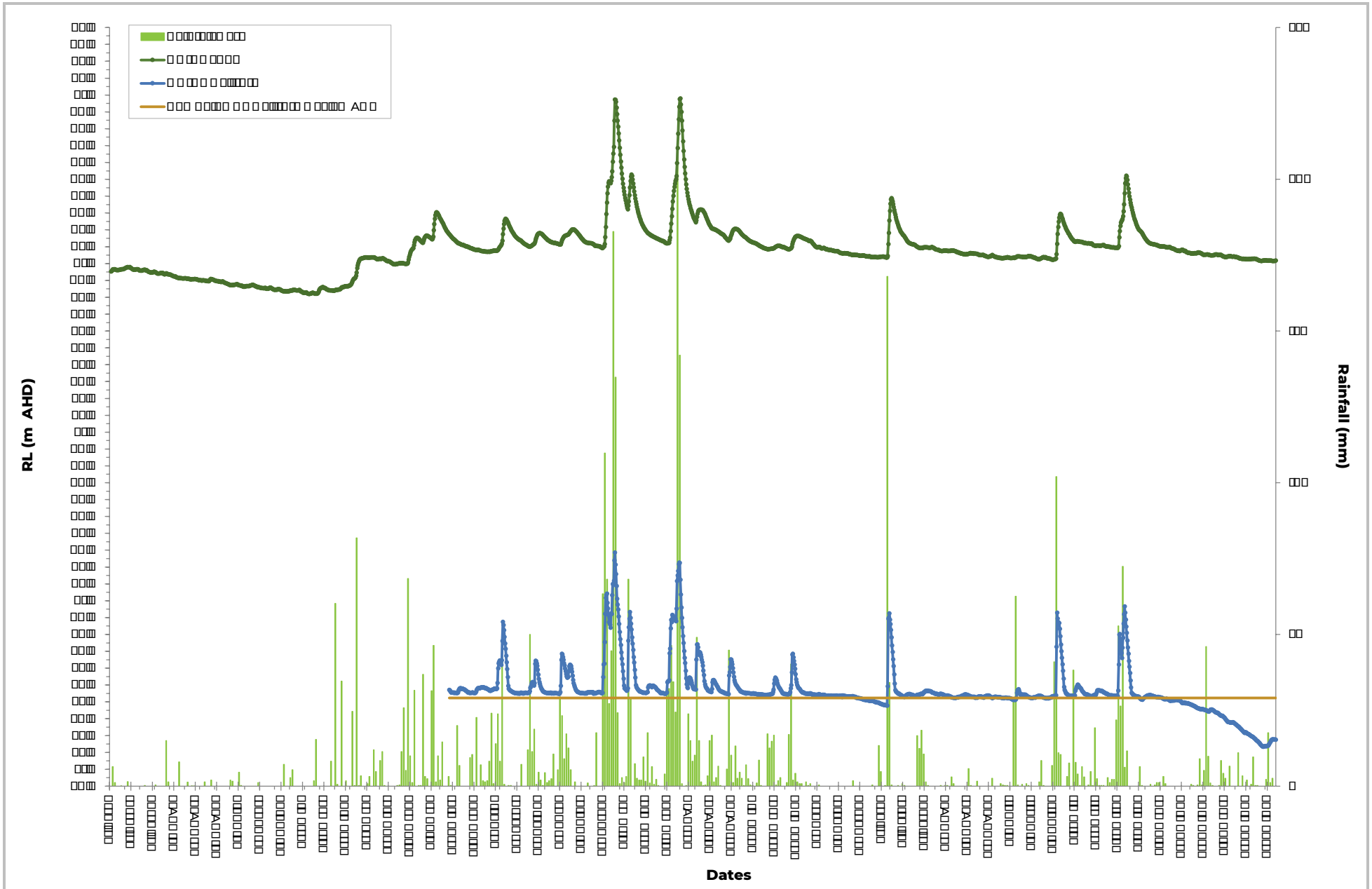

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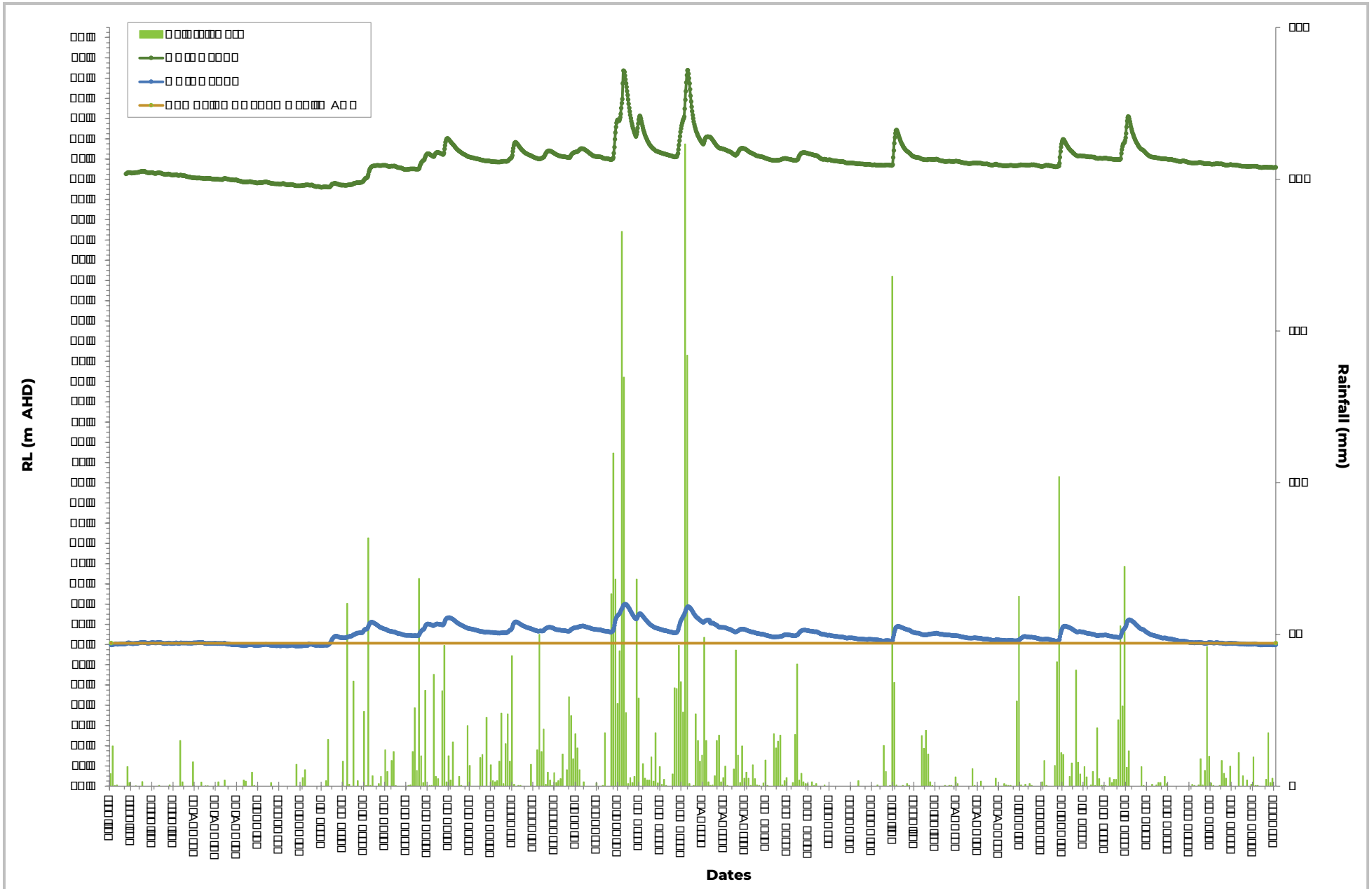

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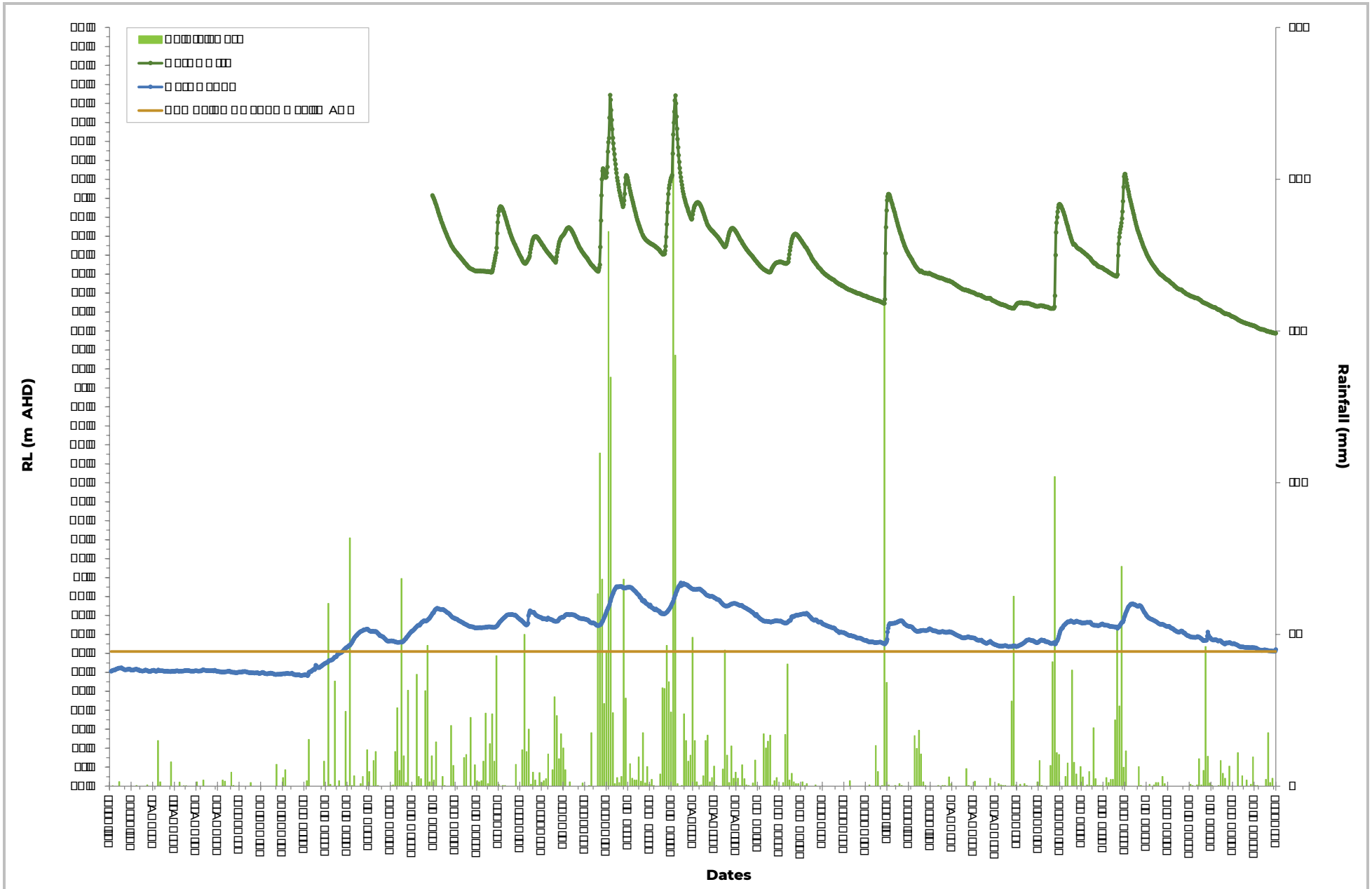

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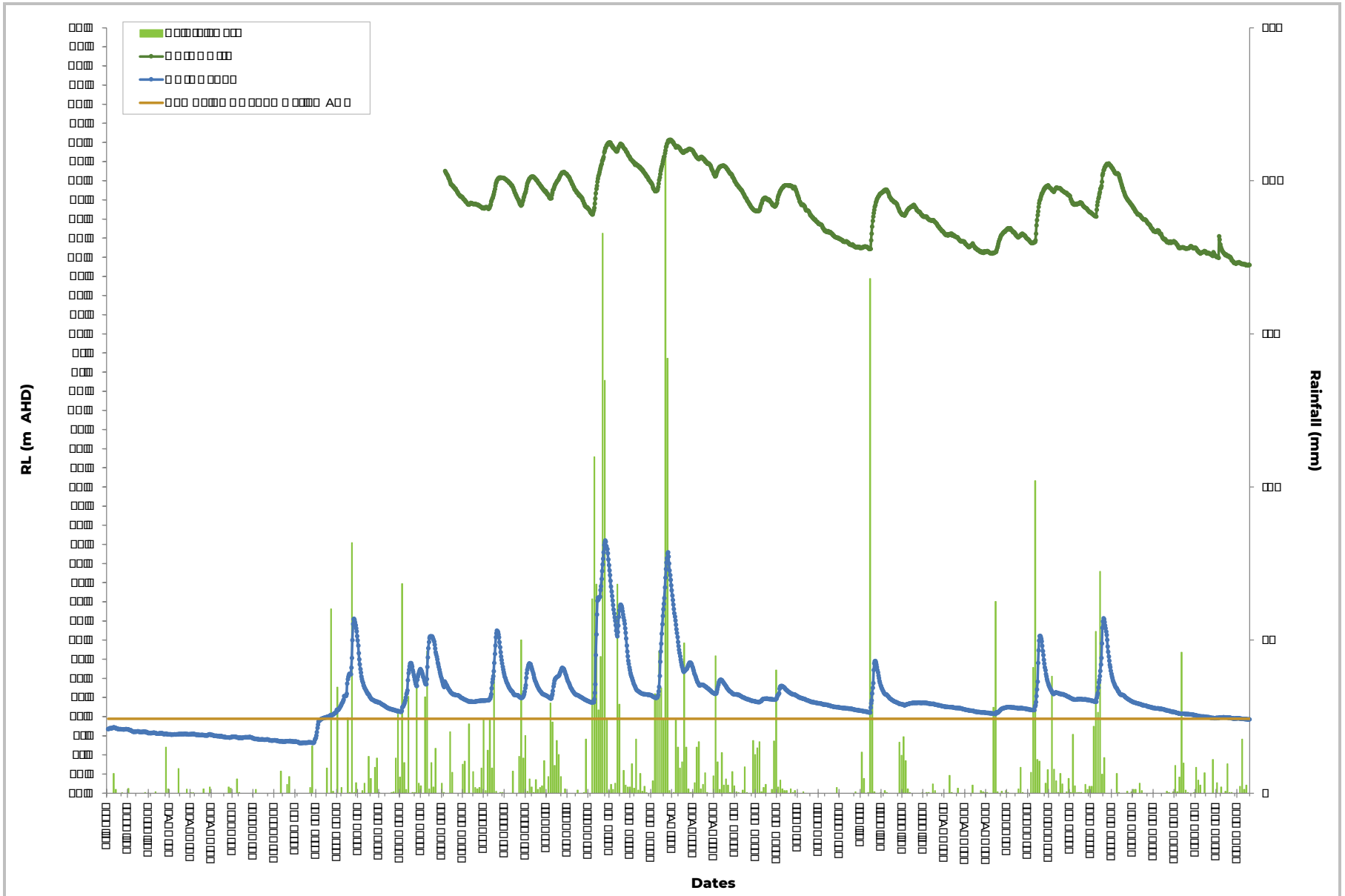

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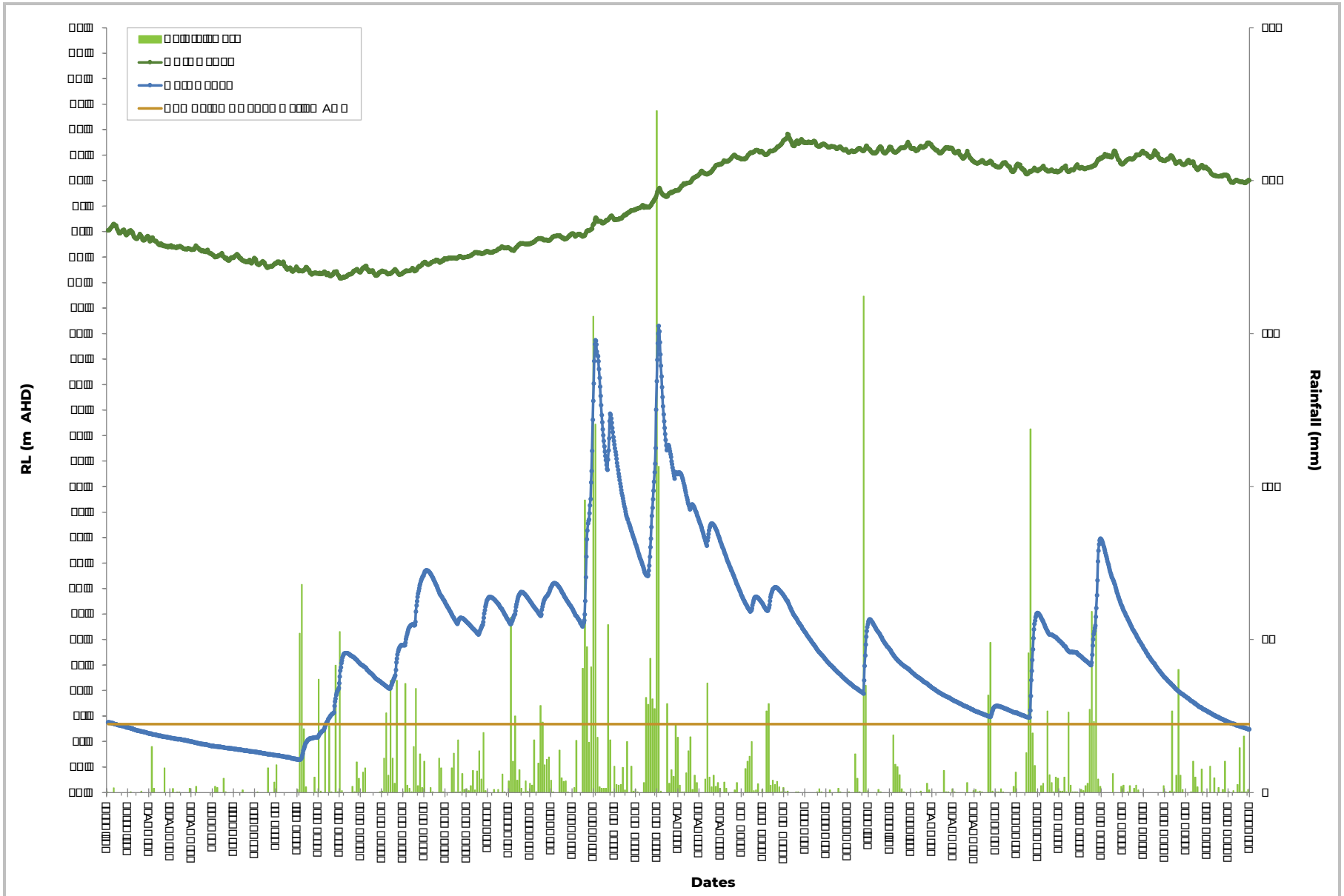

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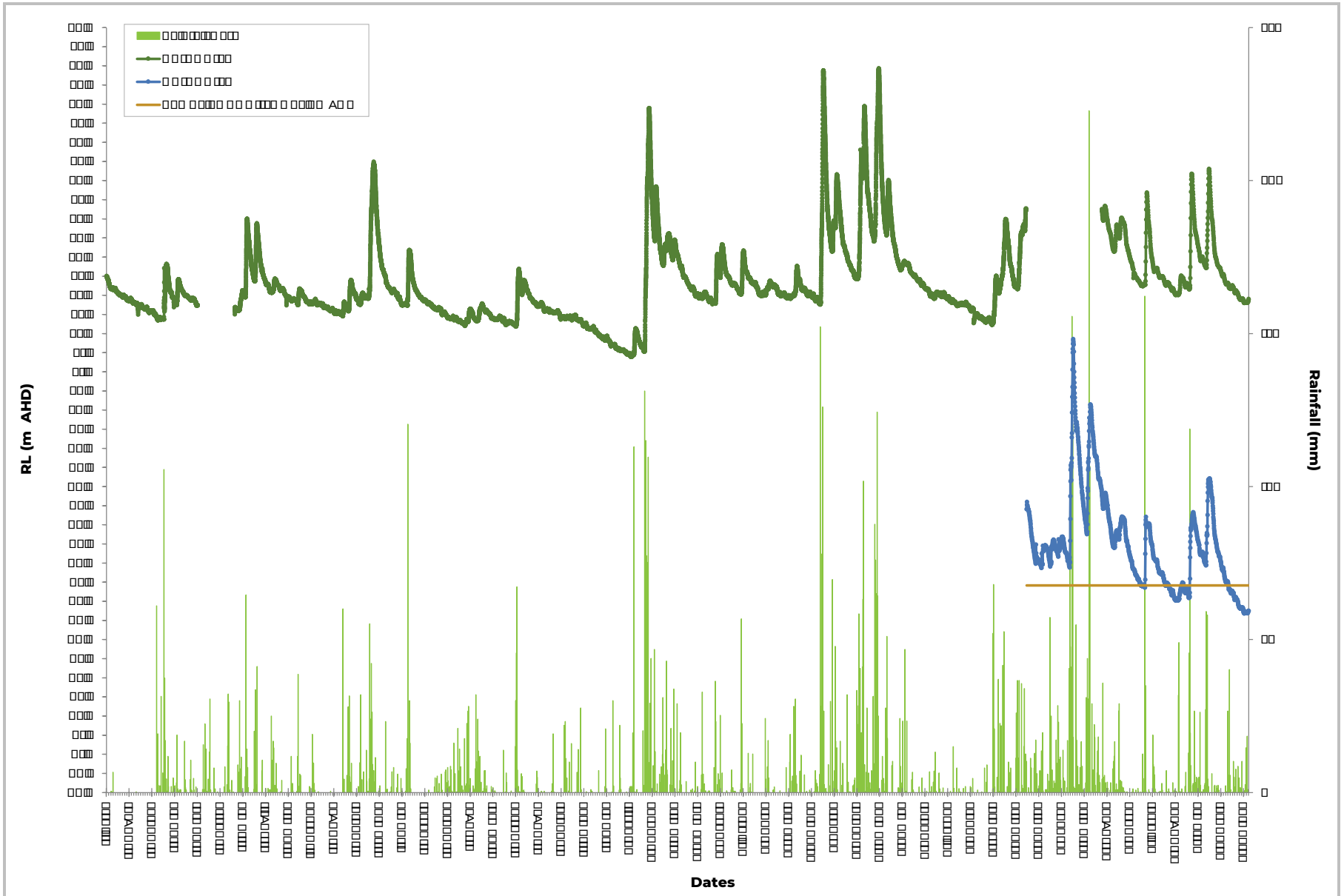

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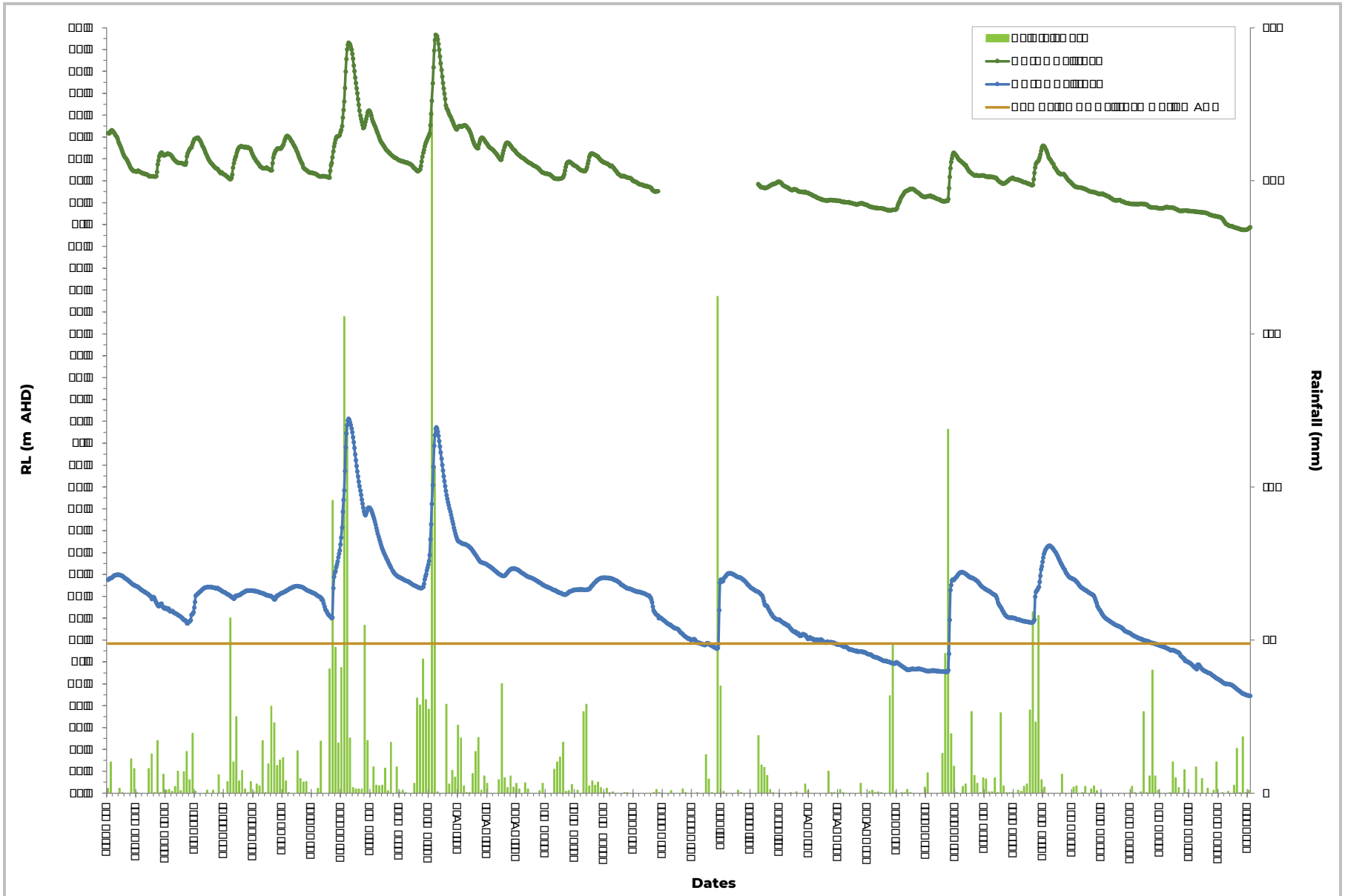

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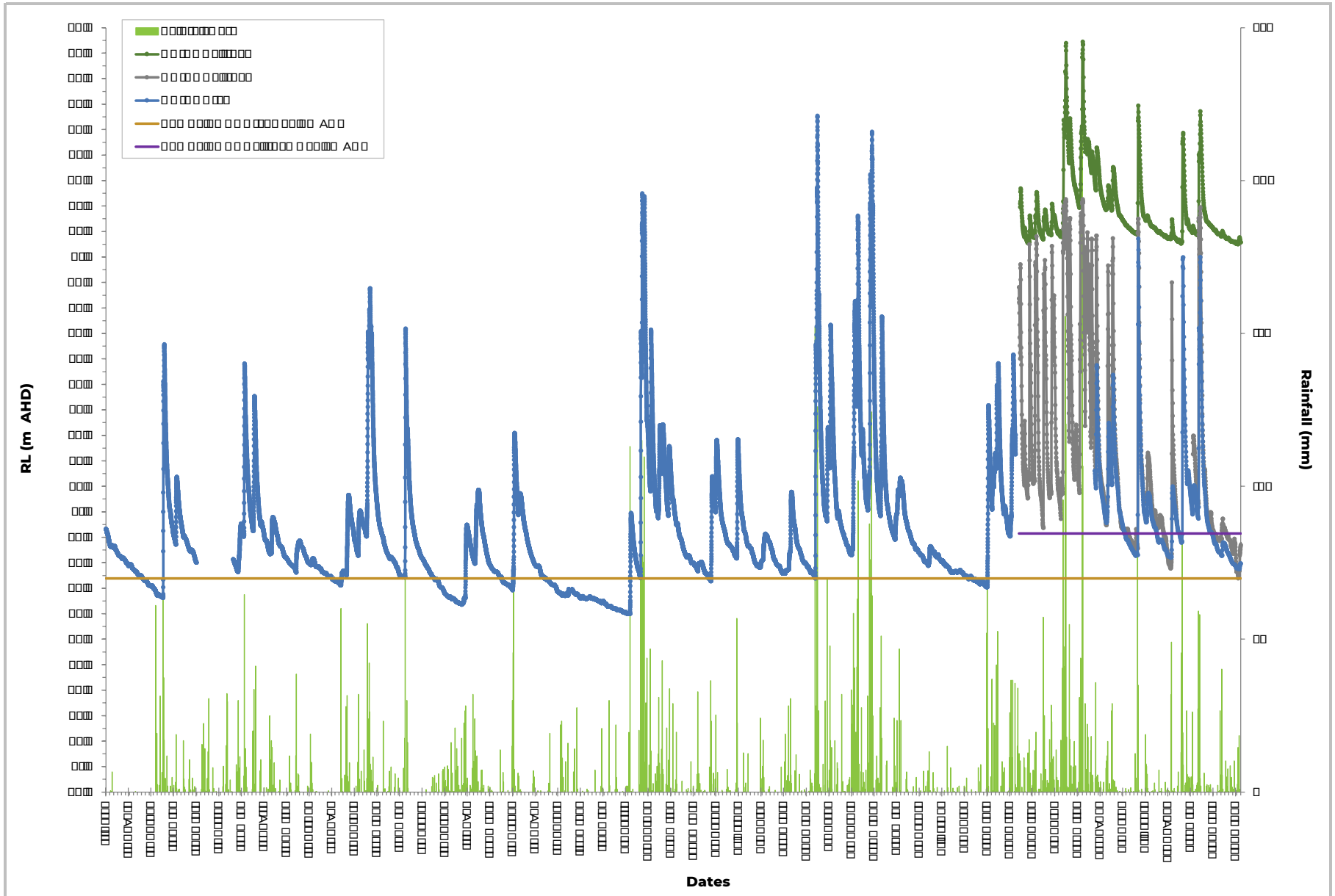

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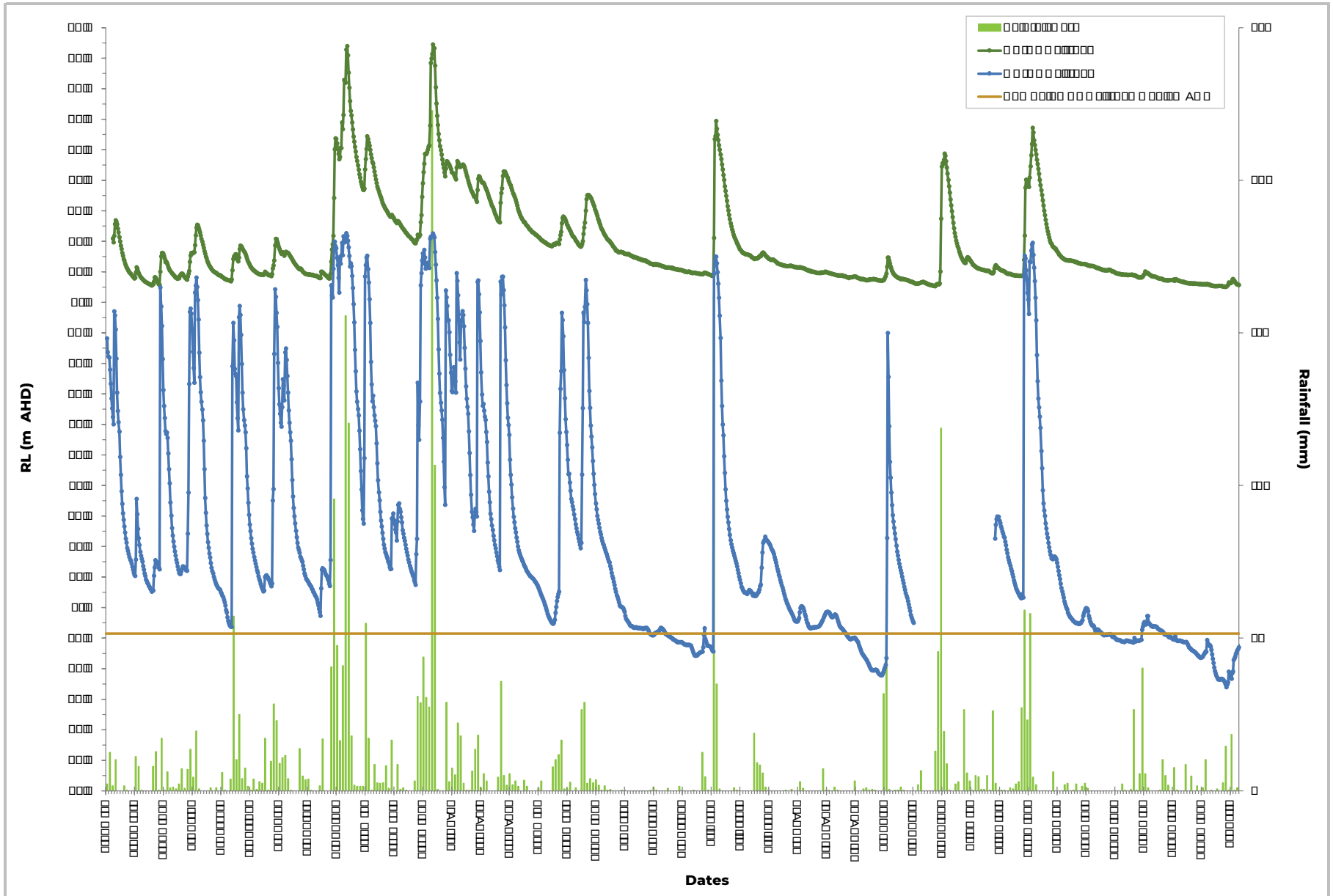

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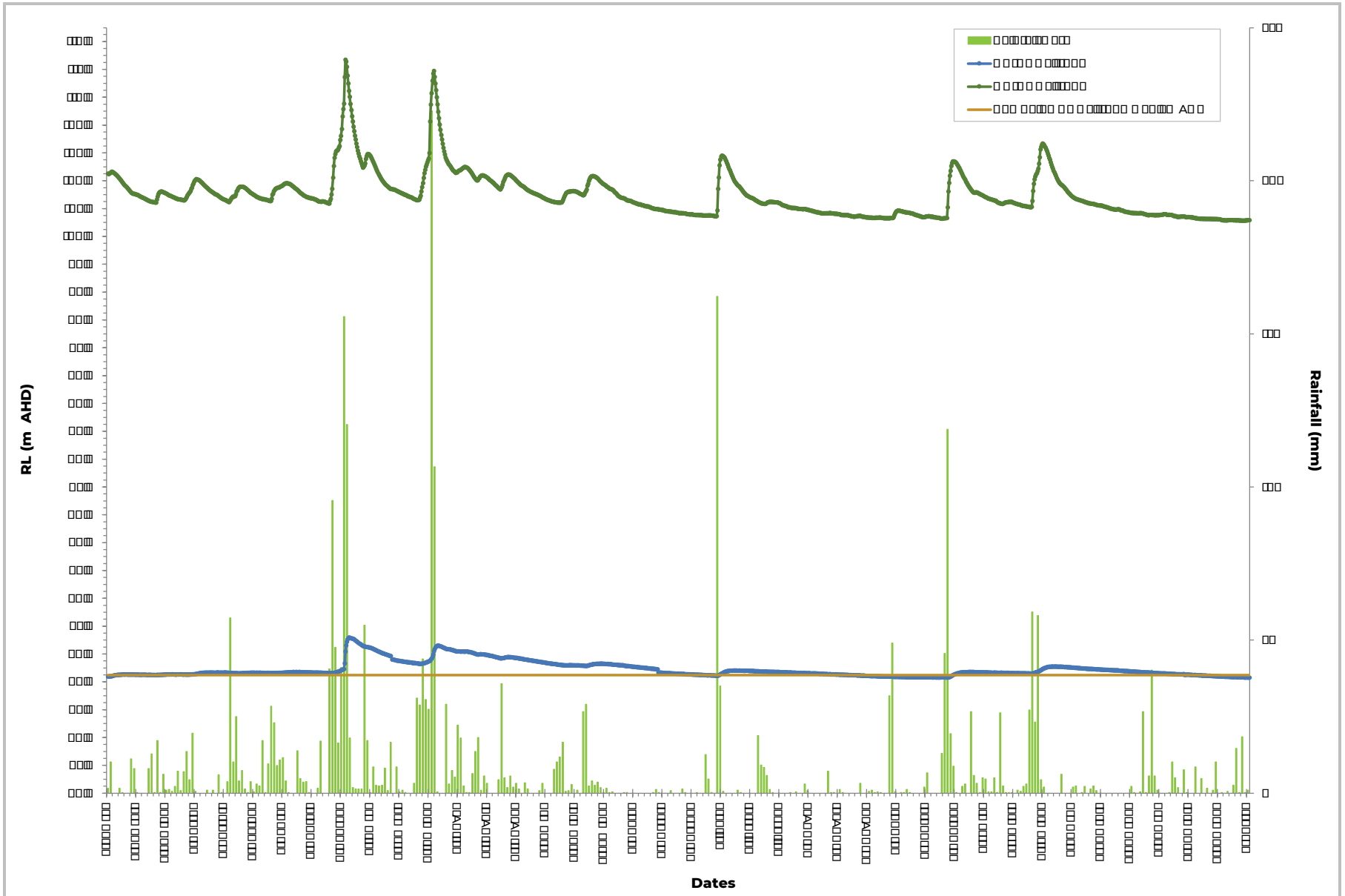

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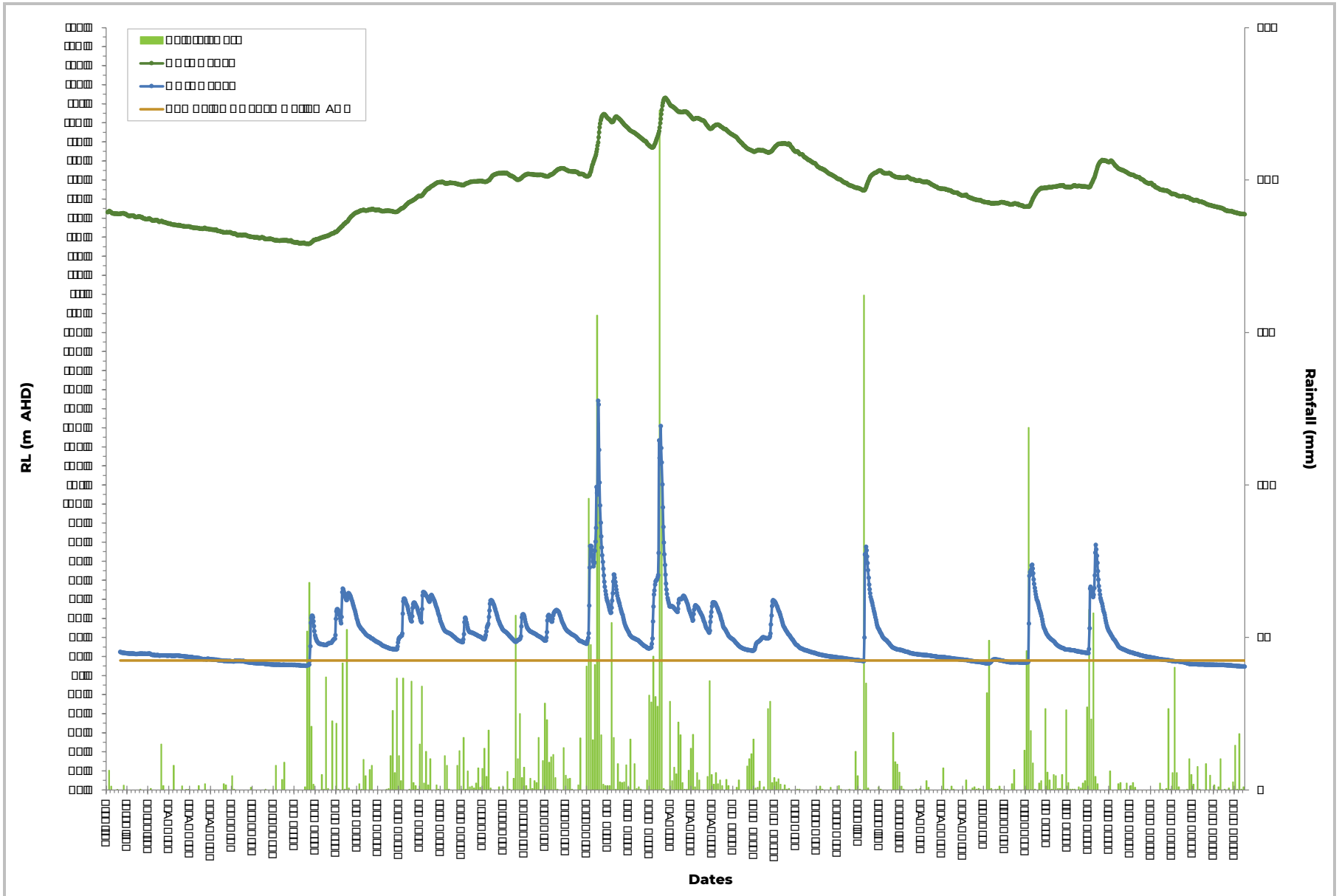

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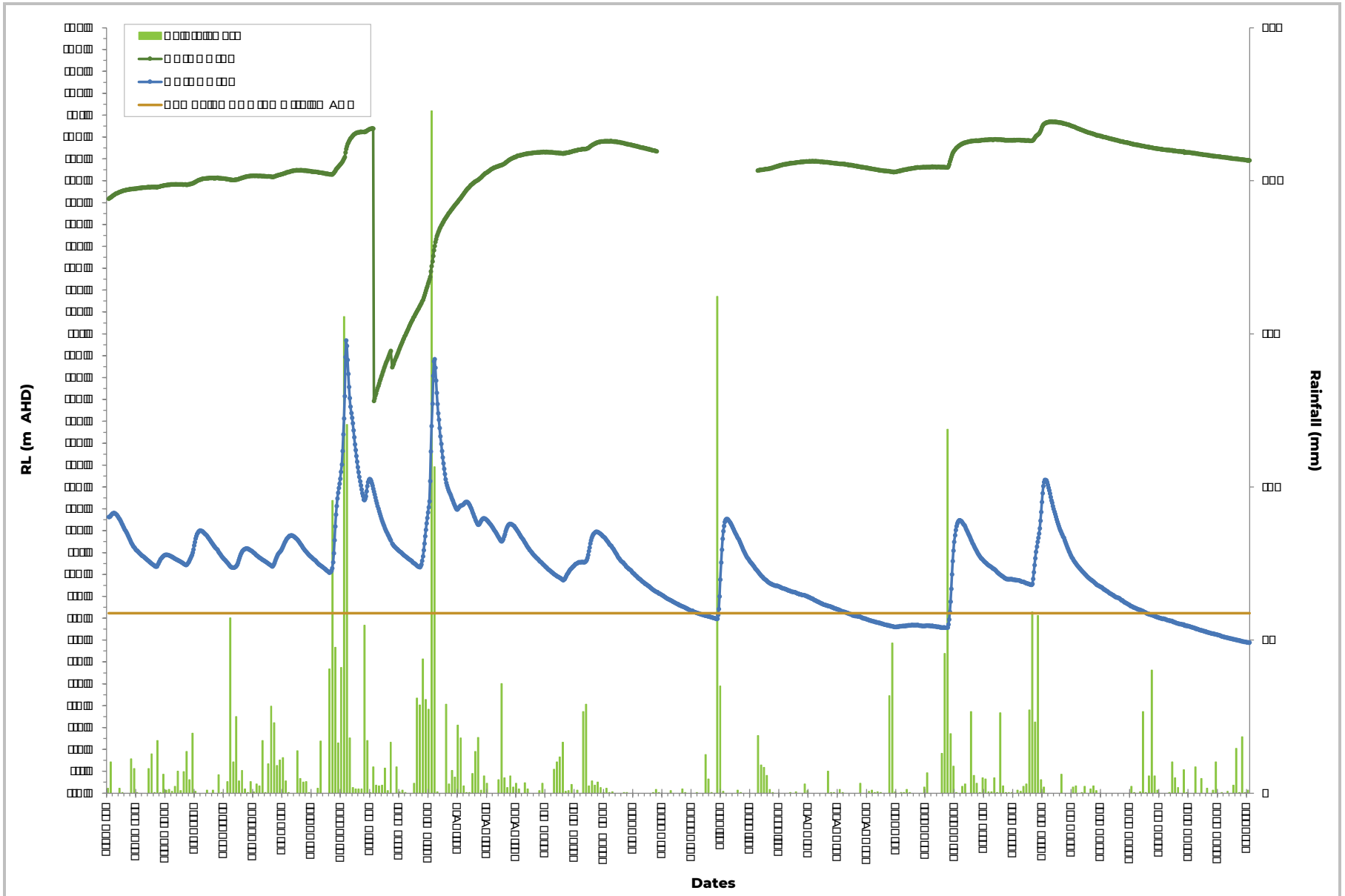

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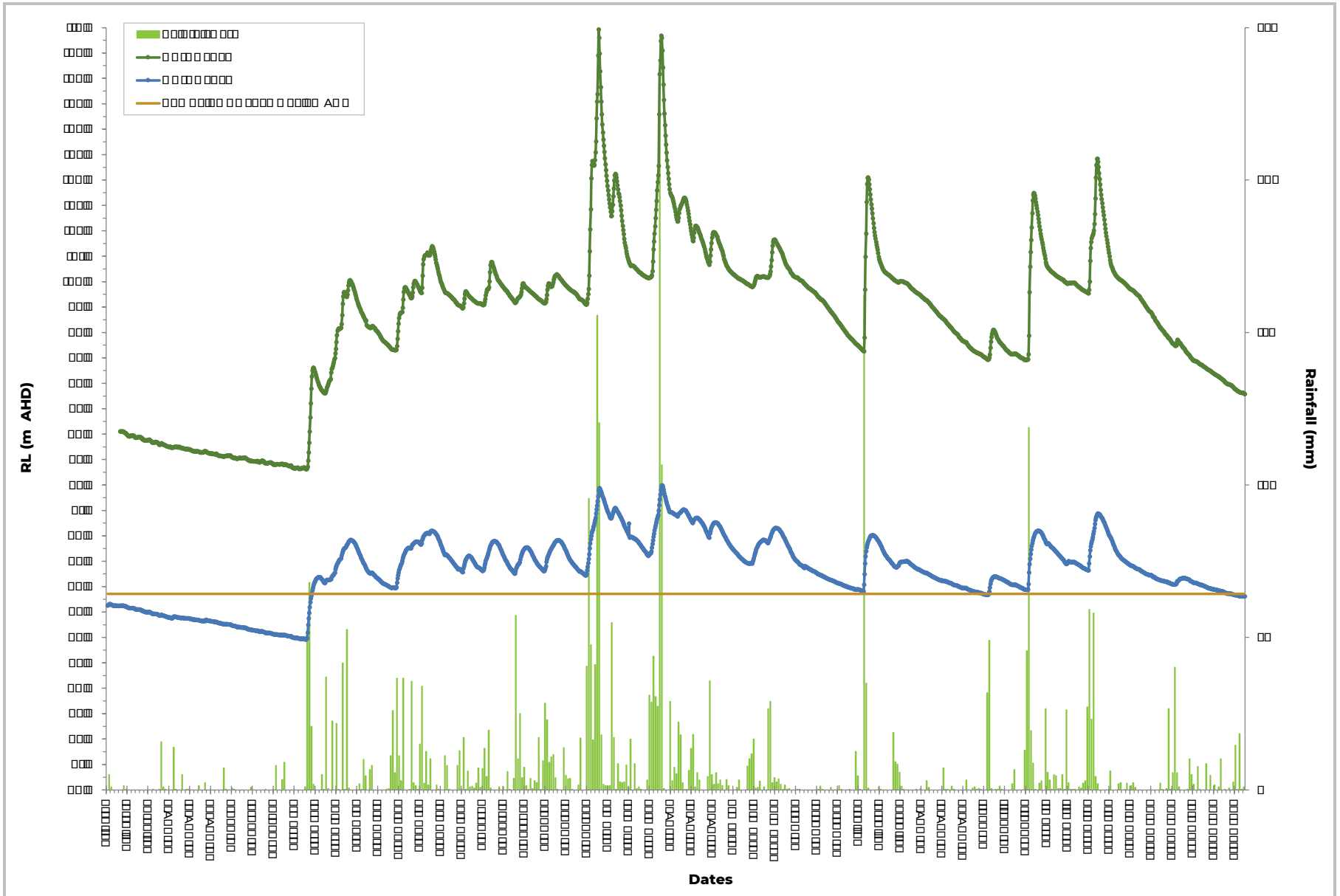

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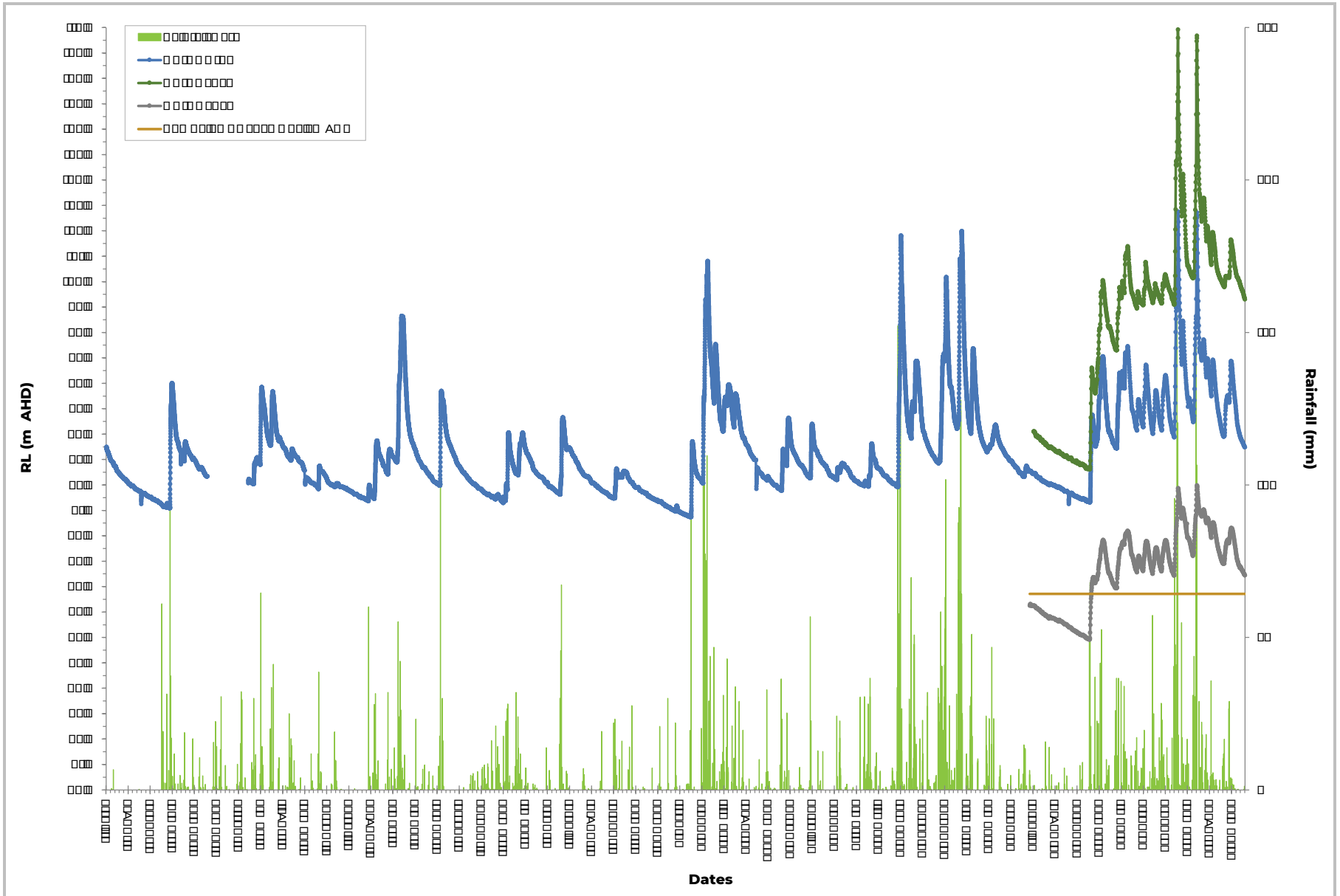

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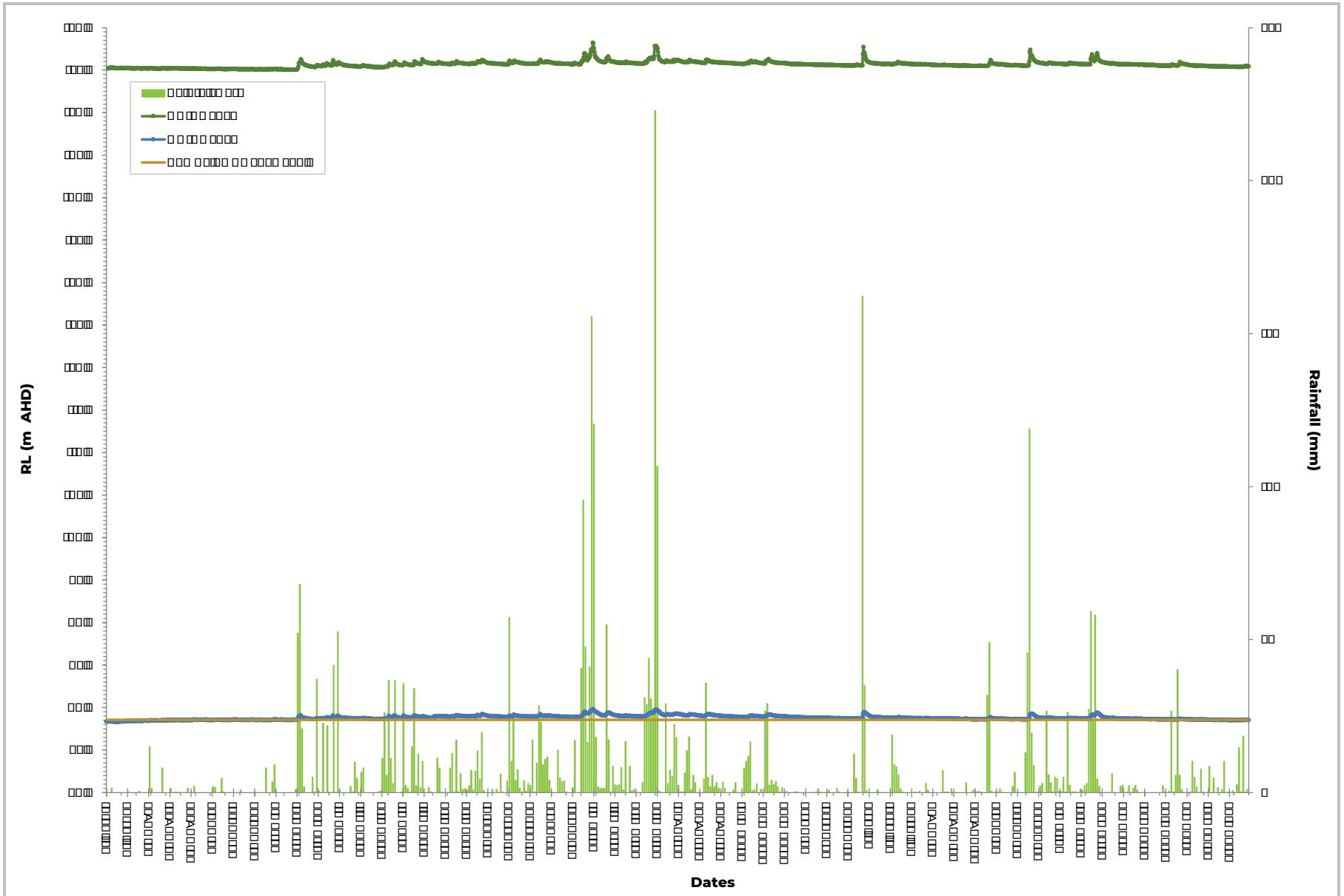

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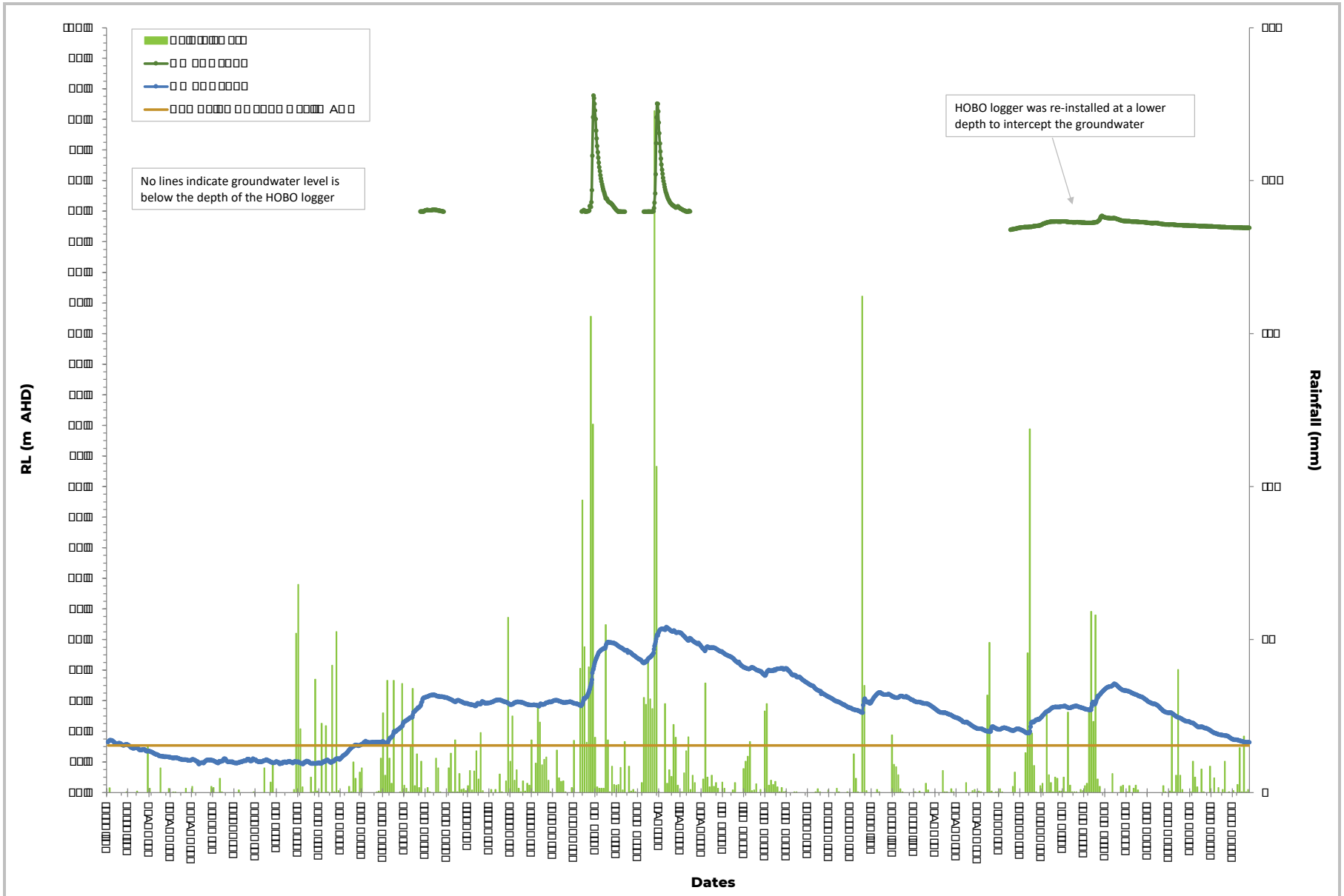

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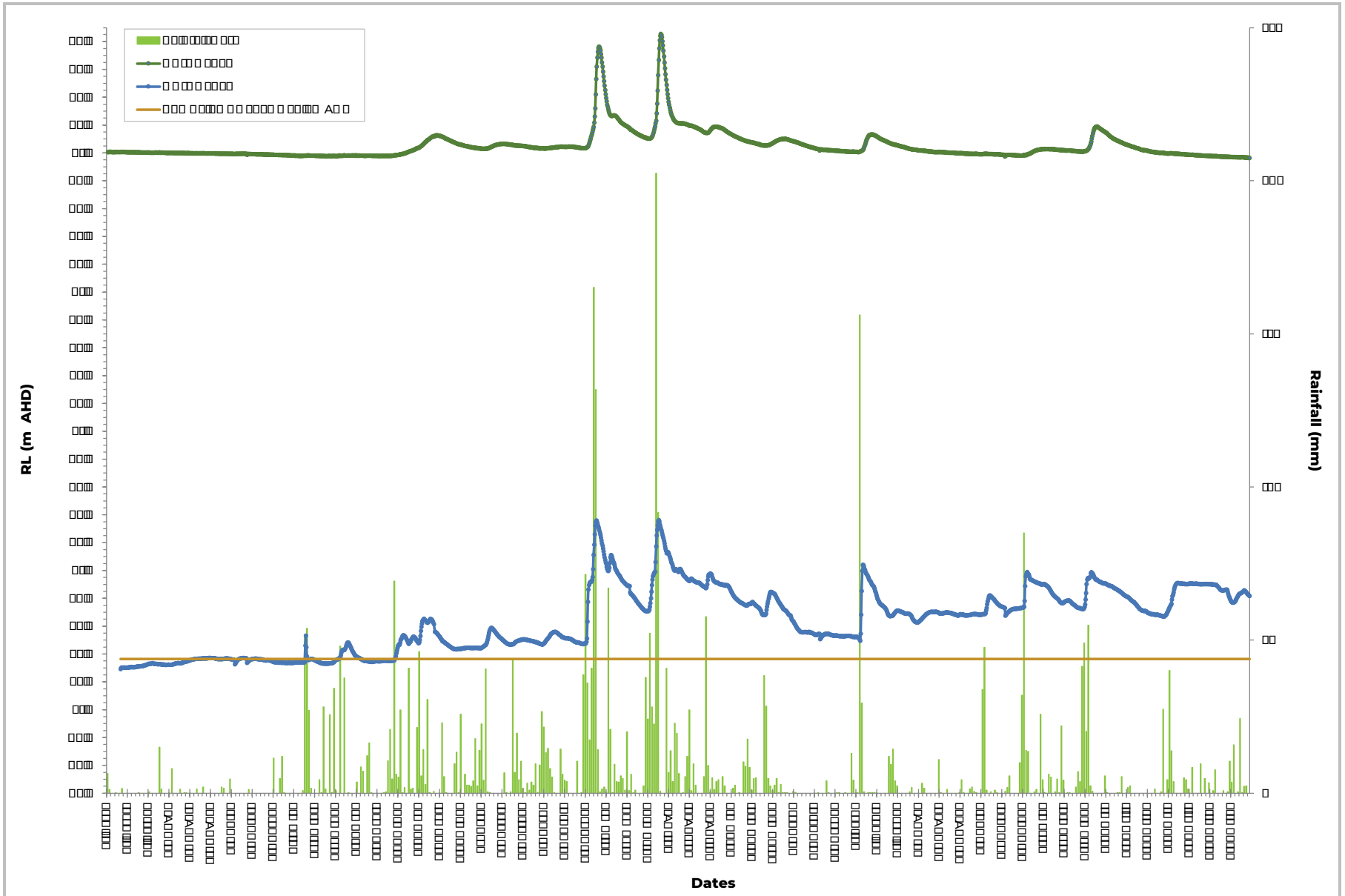

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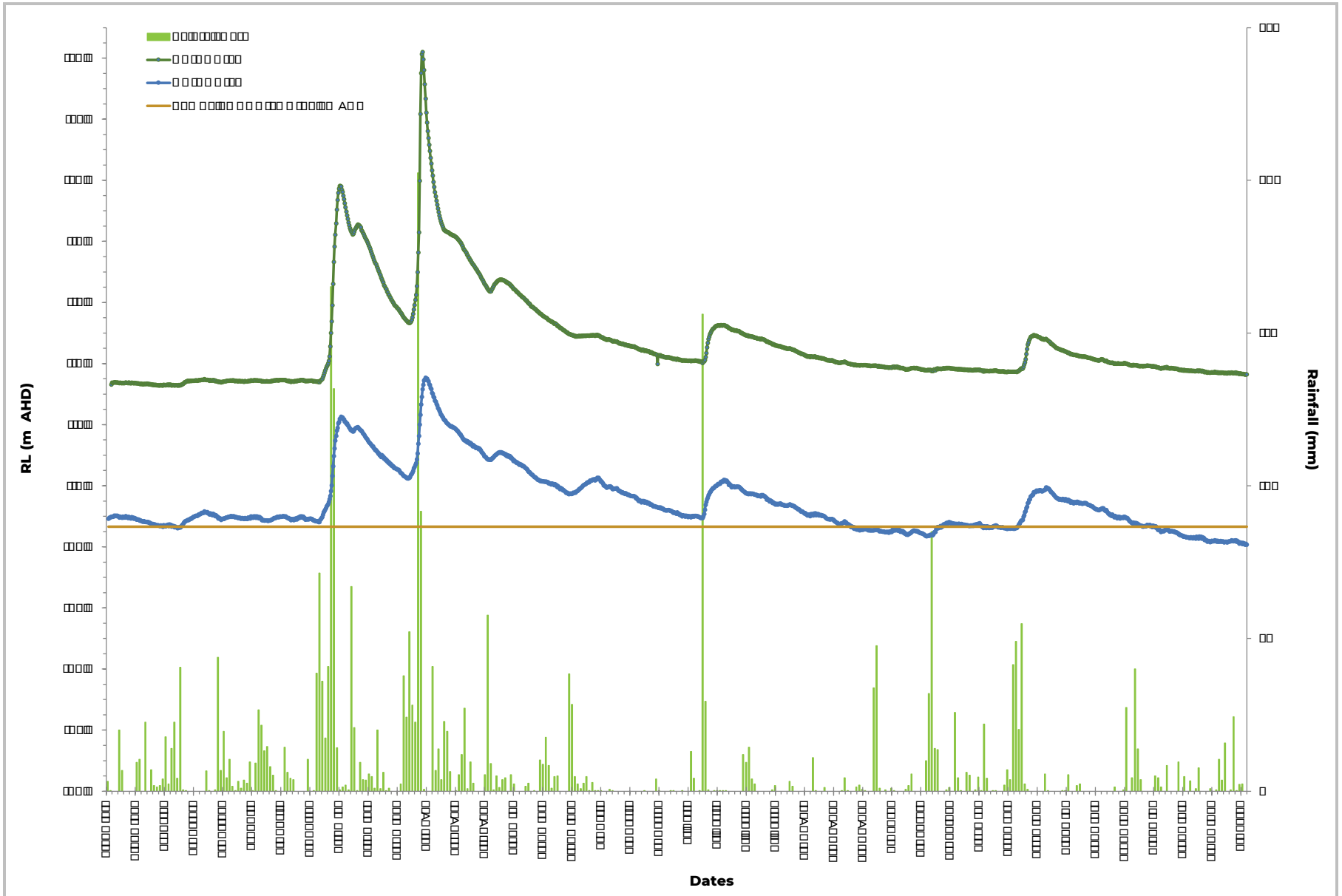

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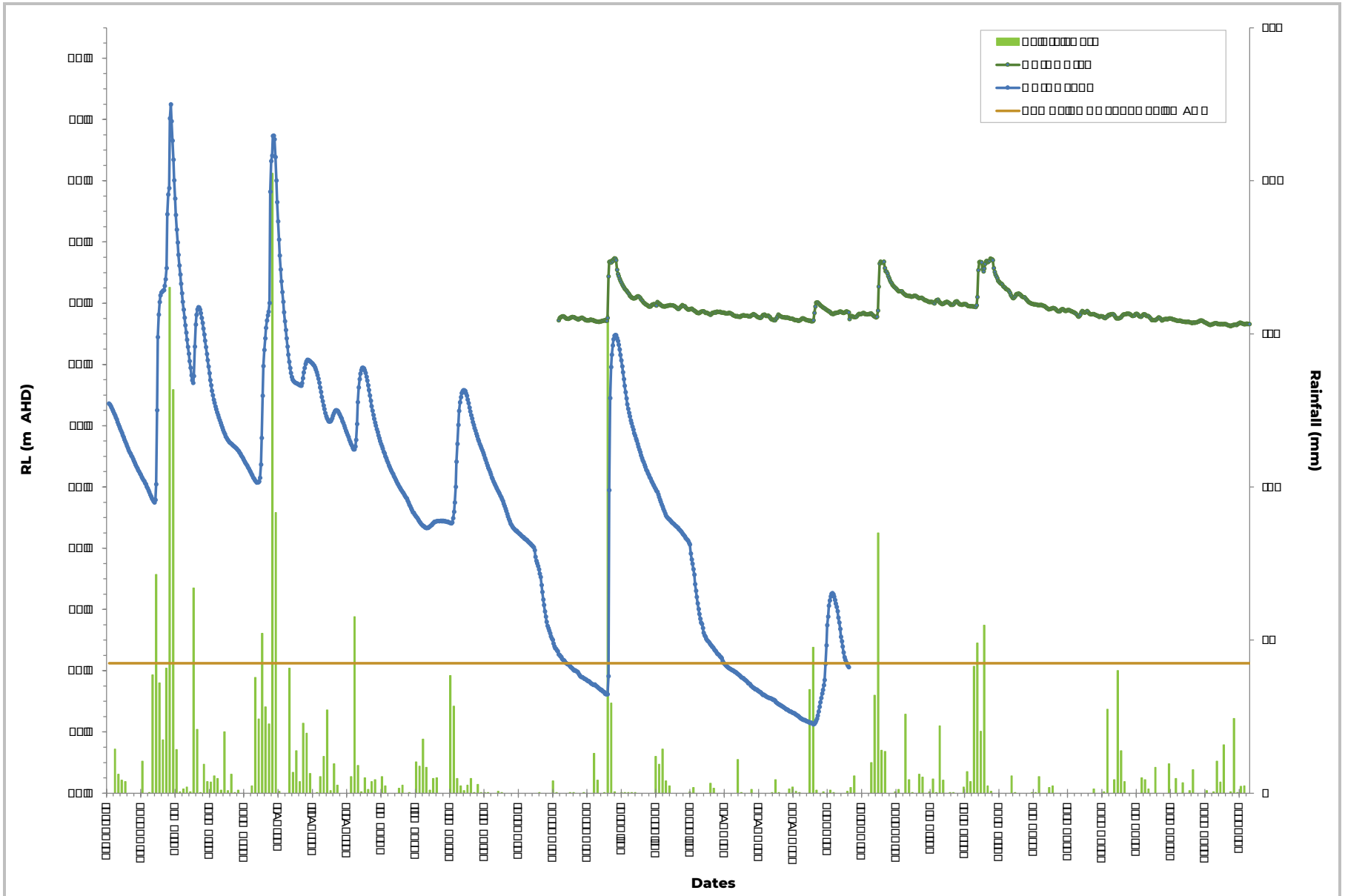

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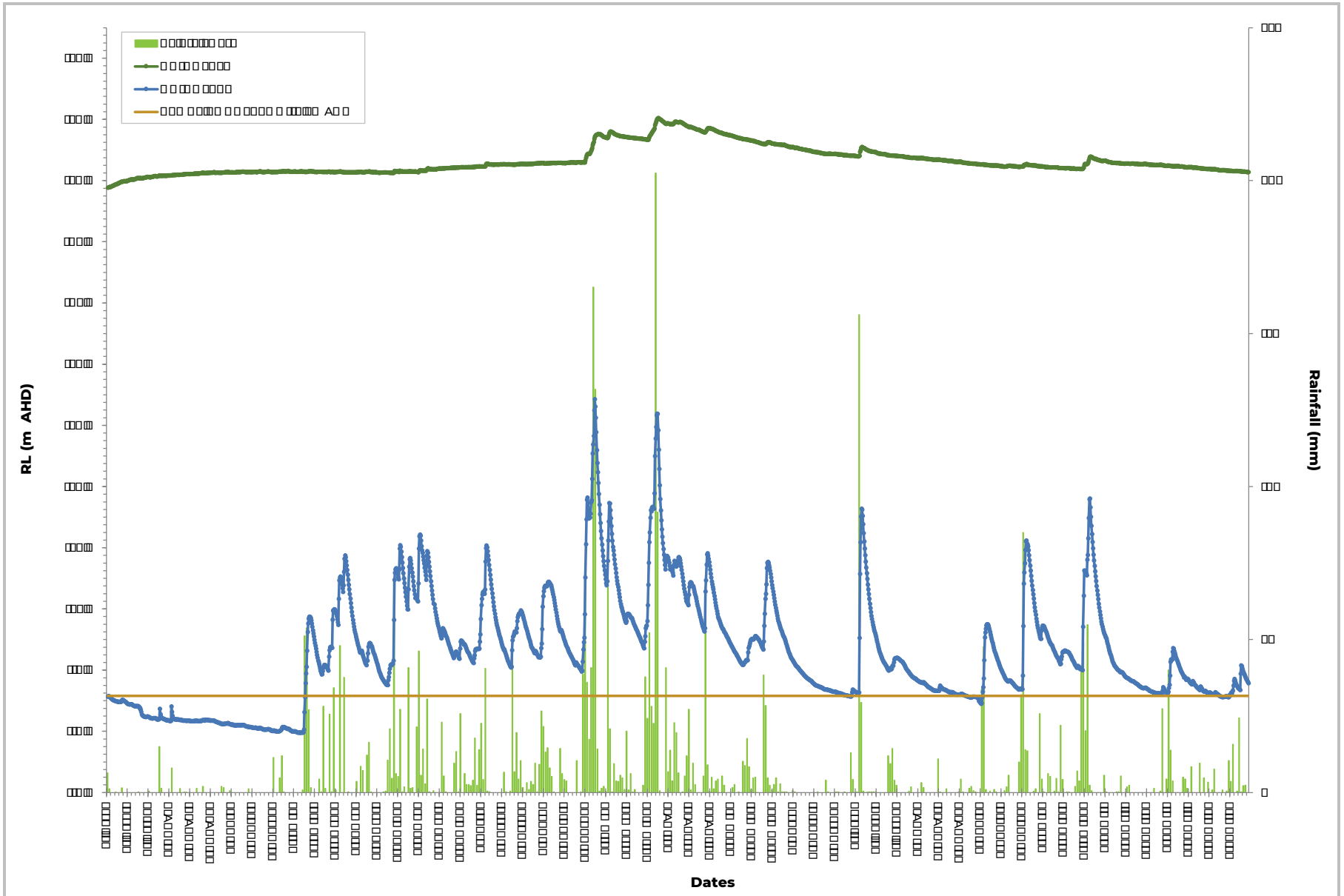

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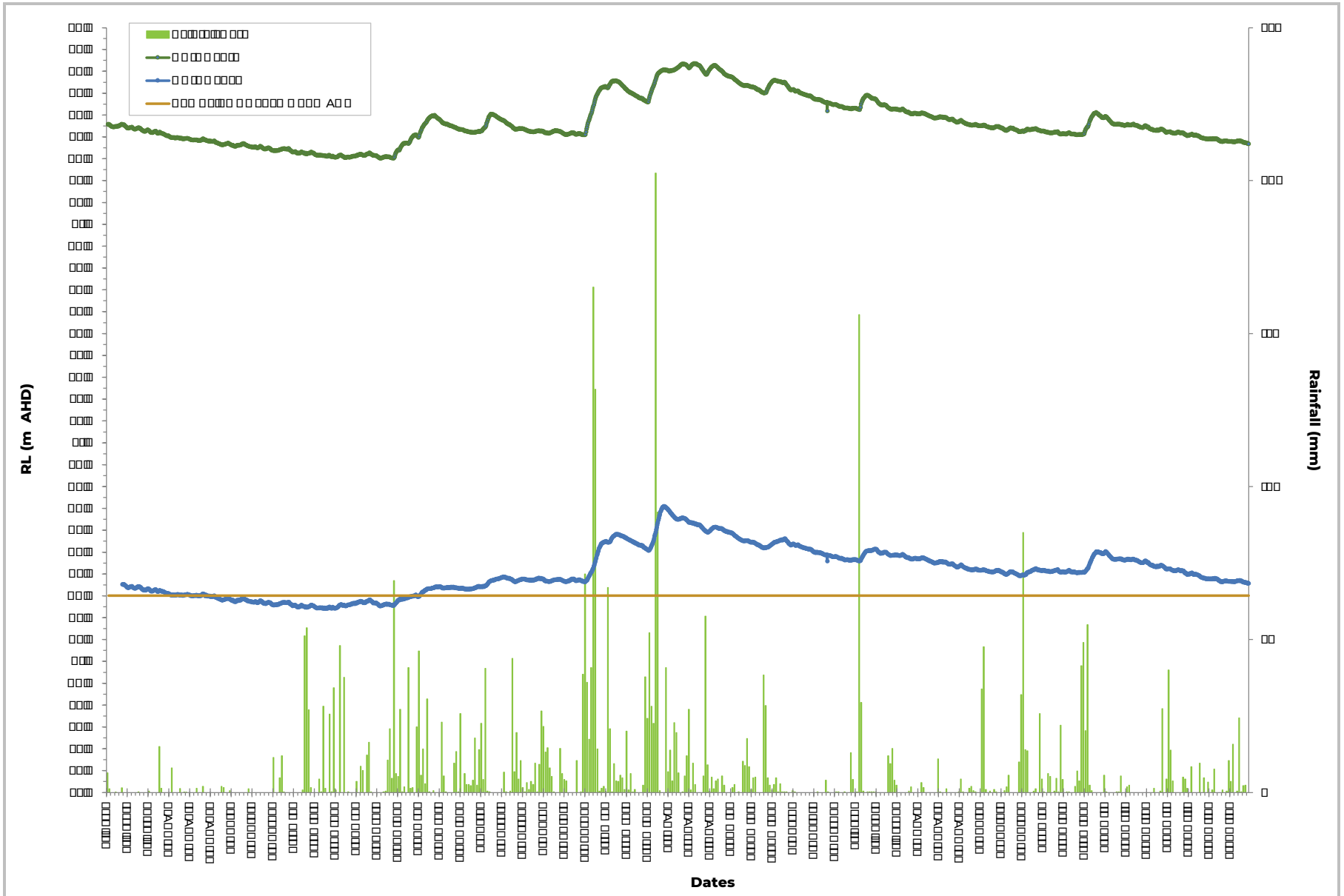
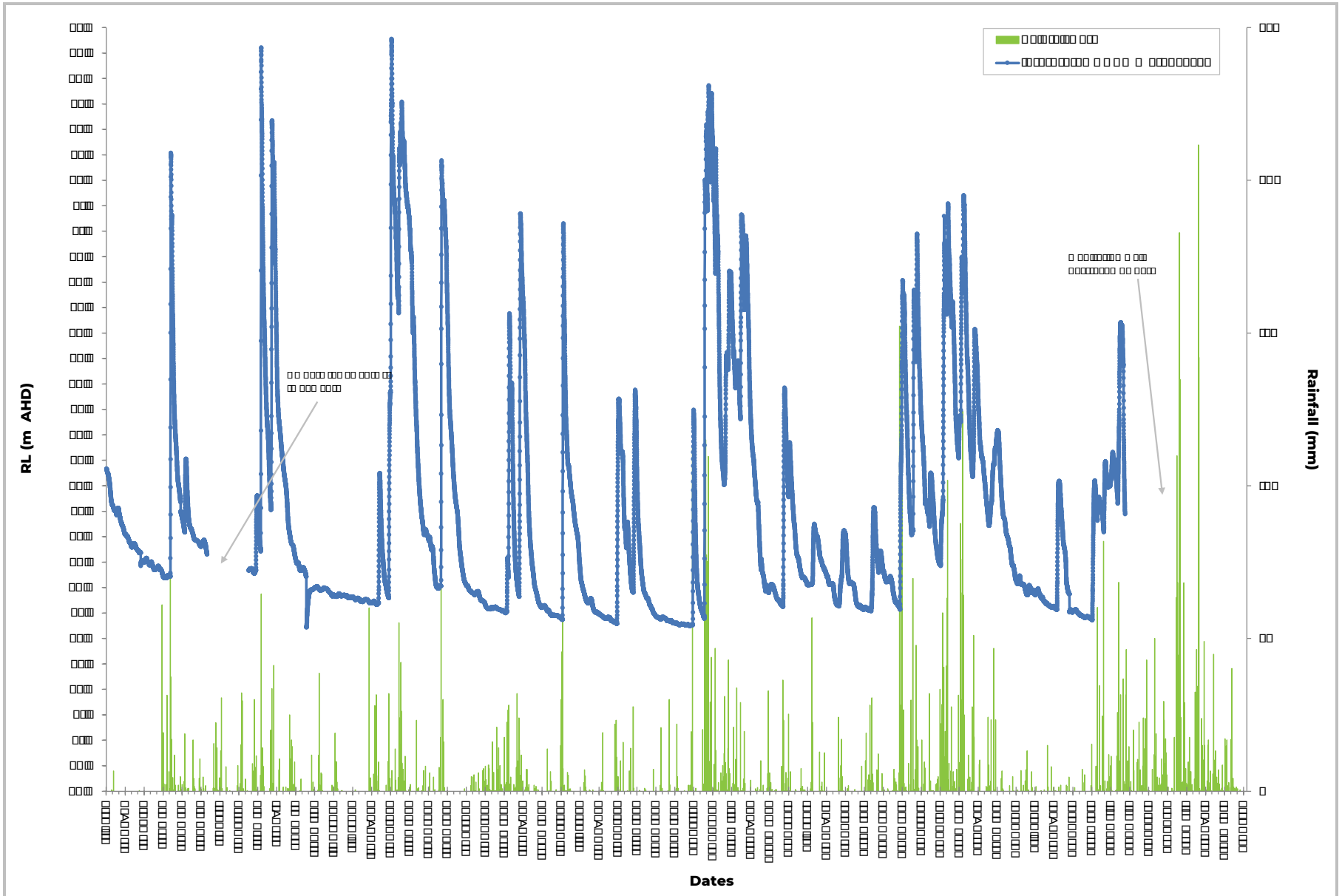


		BALLPARK ENVIRONMENTAL			

Appendix B
Groundwater Hydrographs



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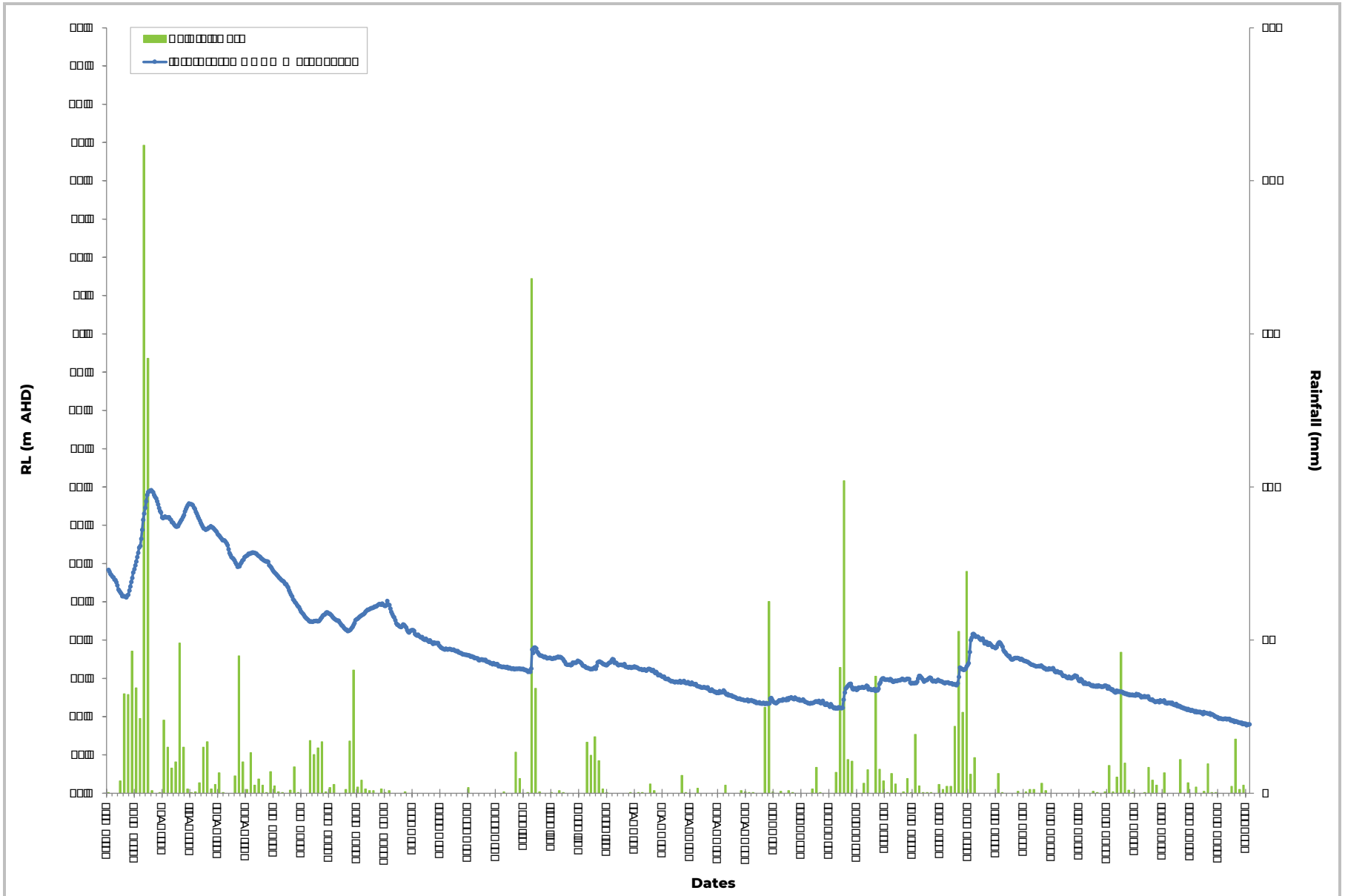

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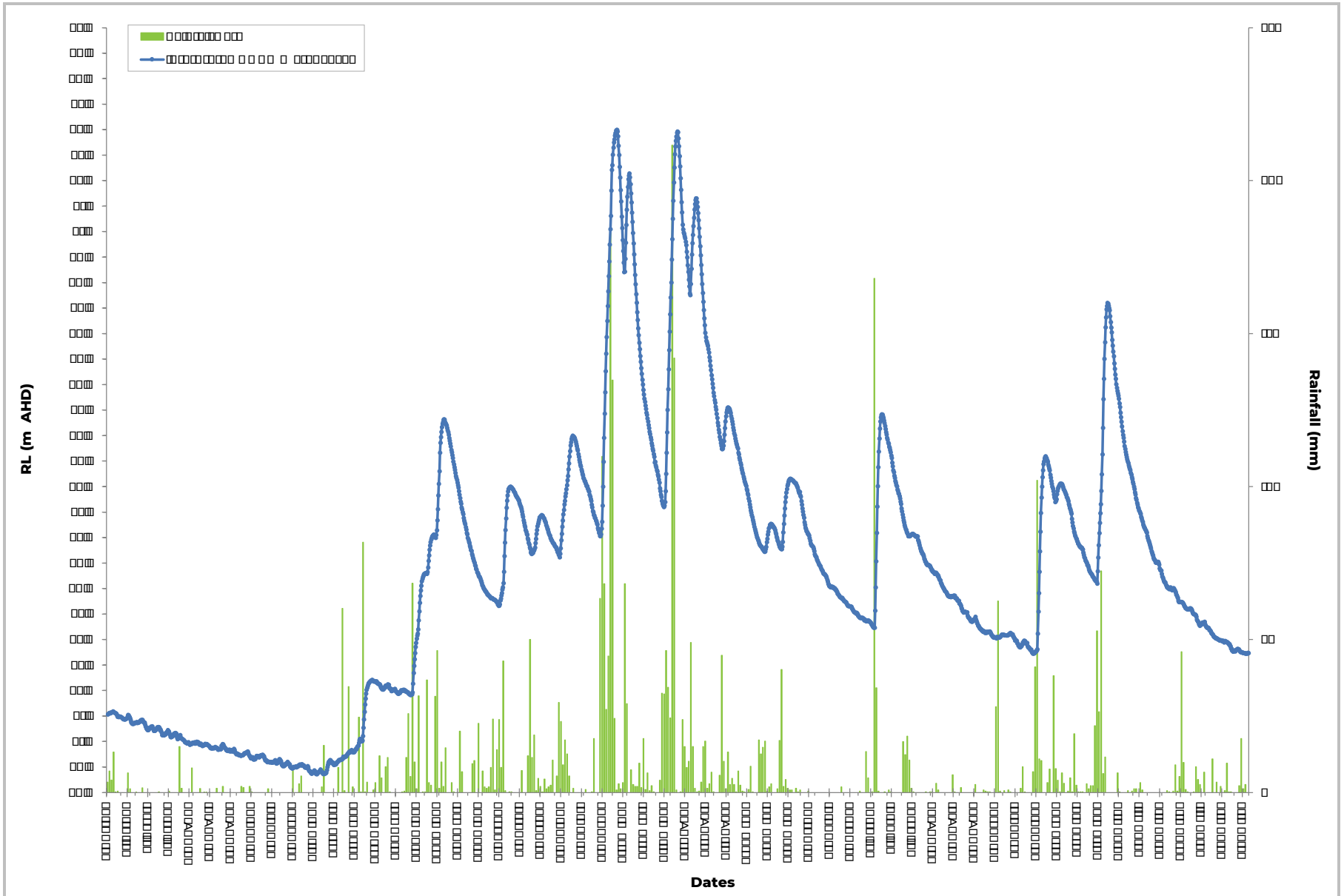

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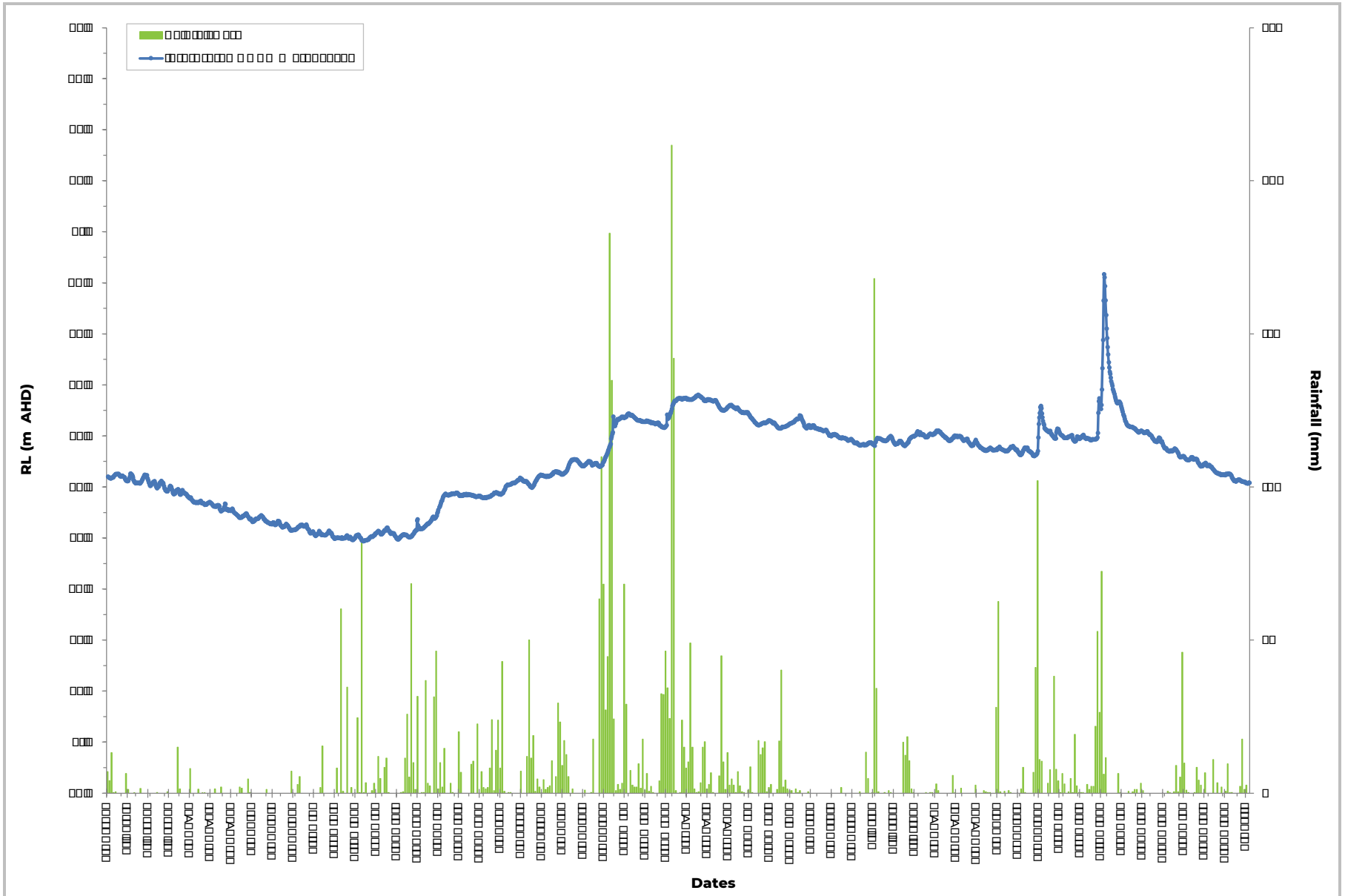

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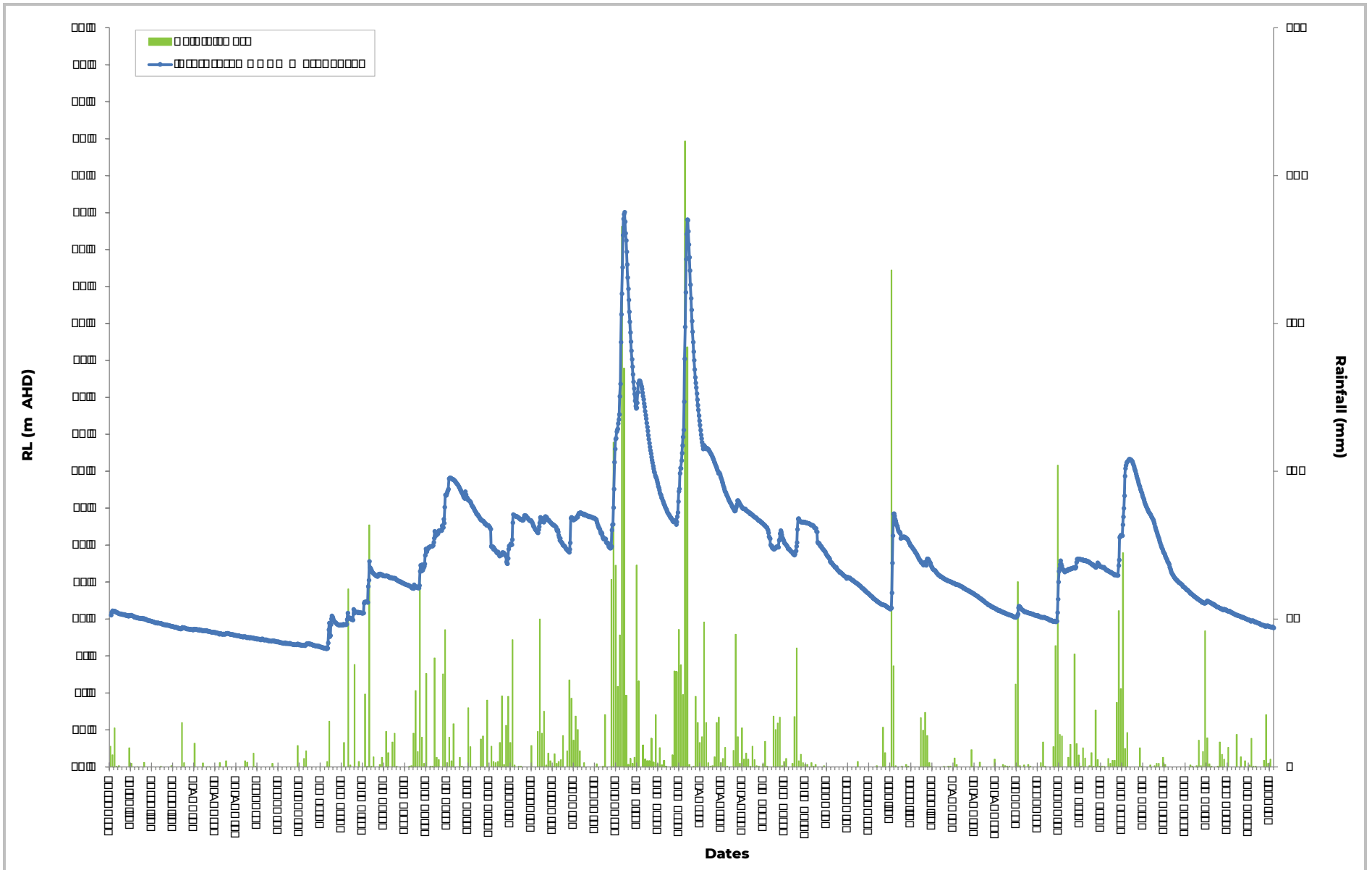

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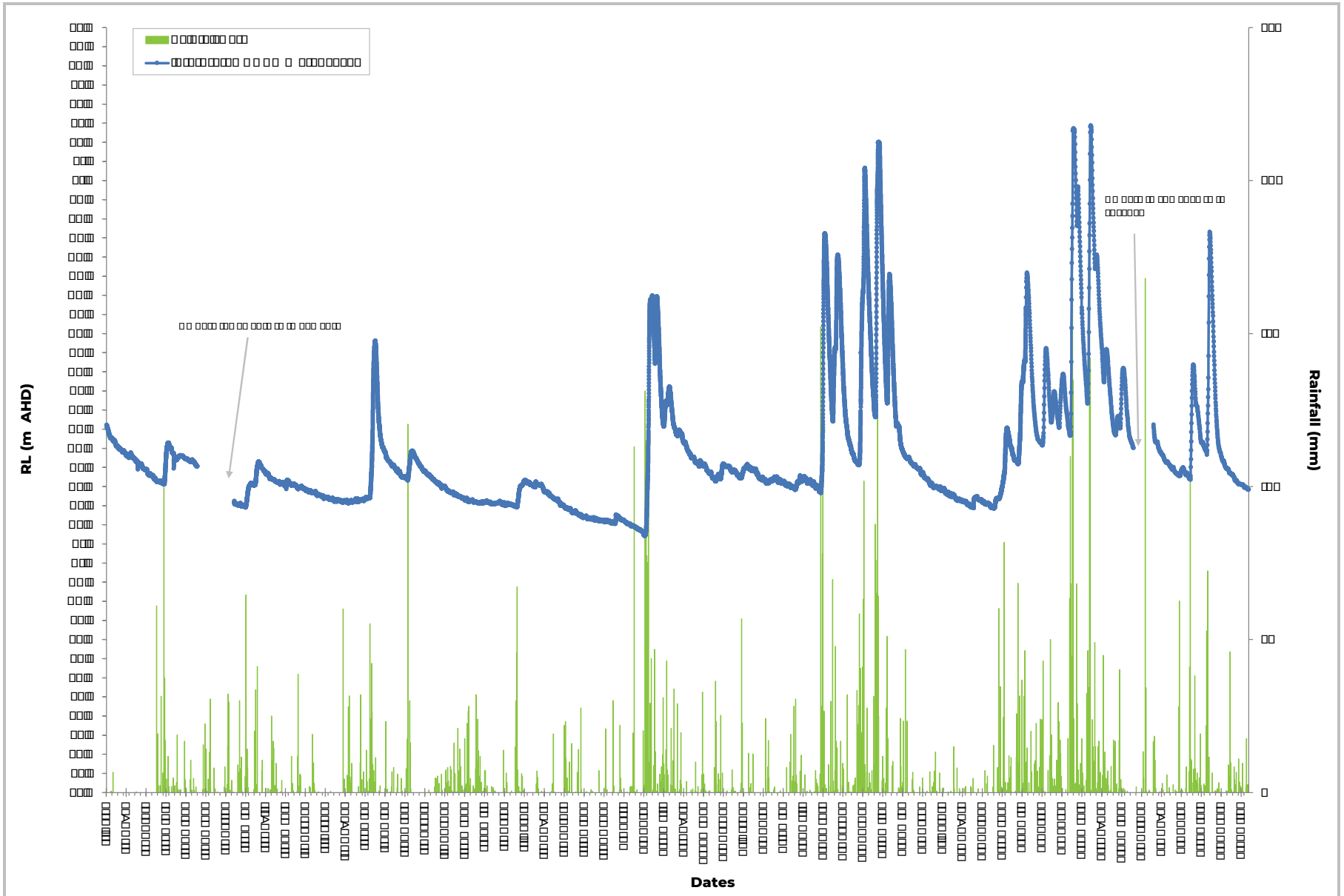

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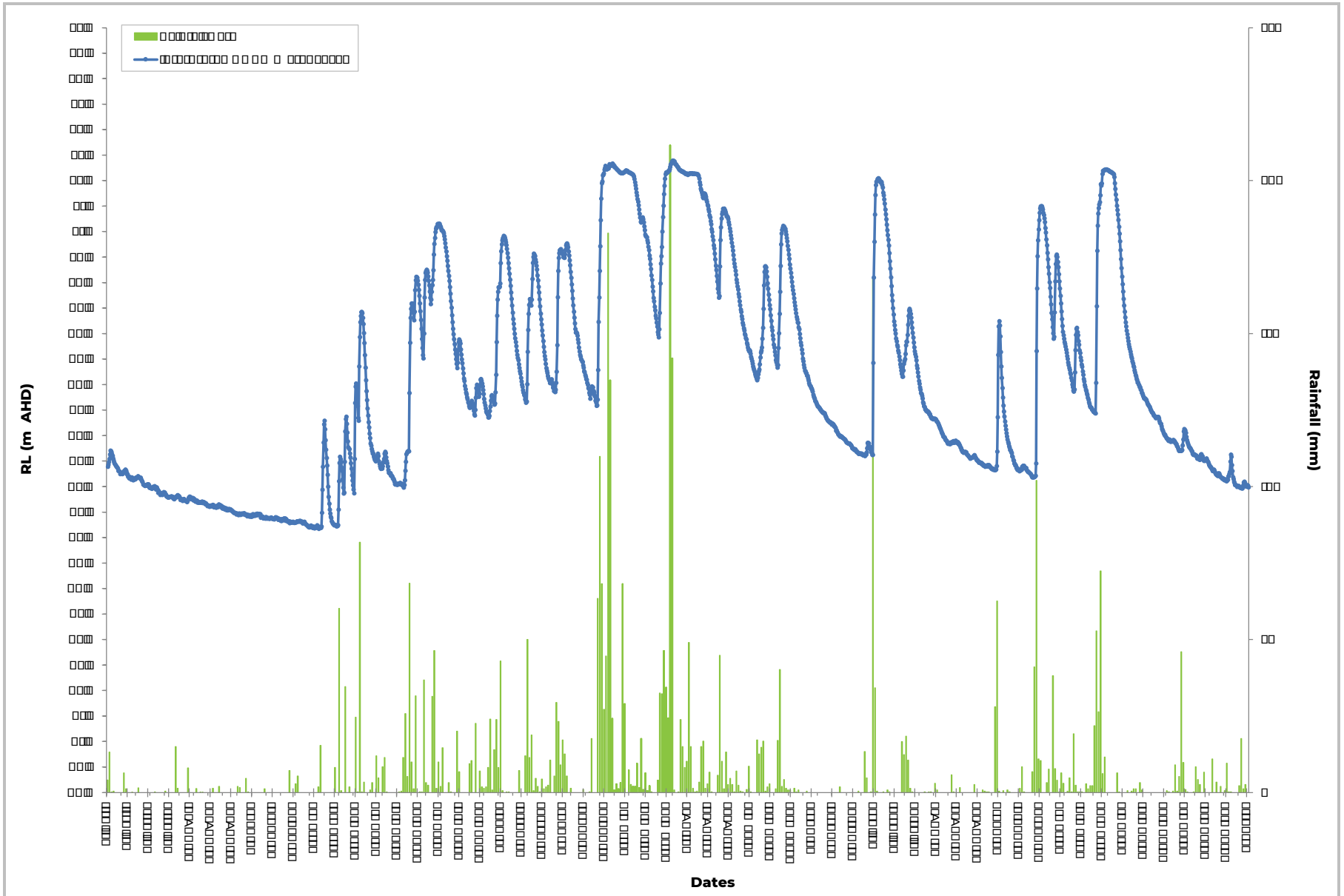

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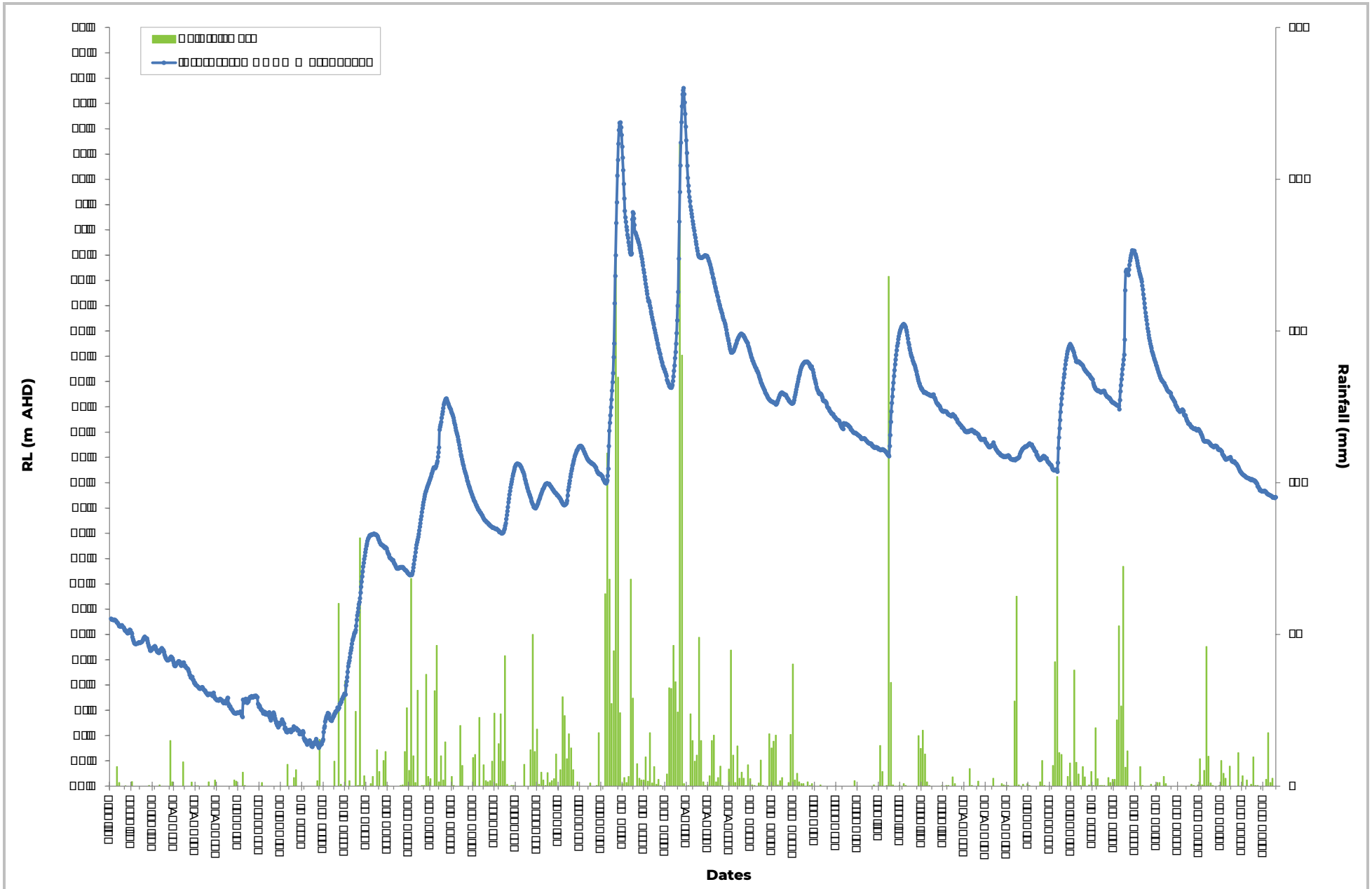

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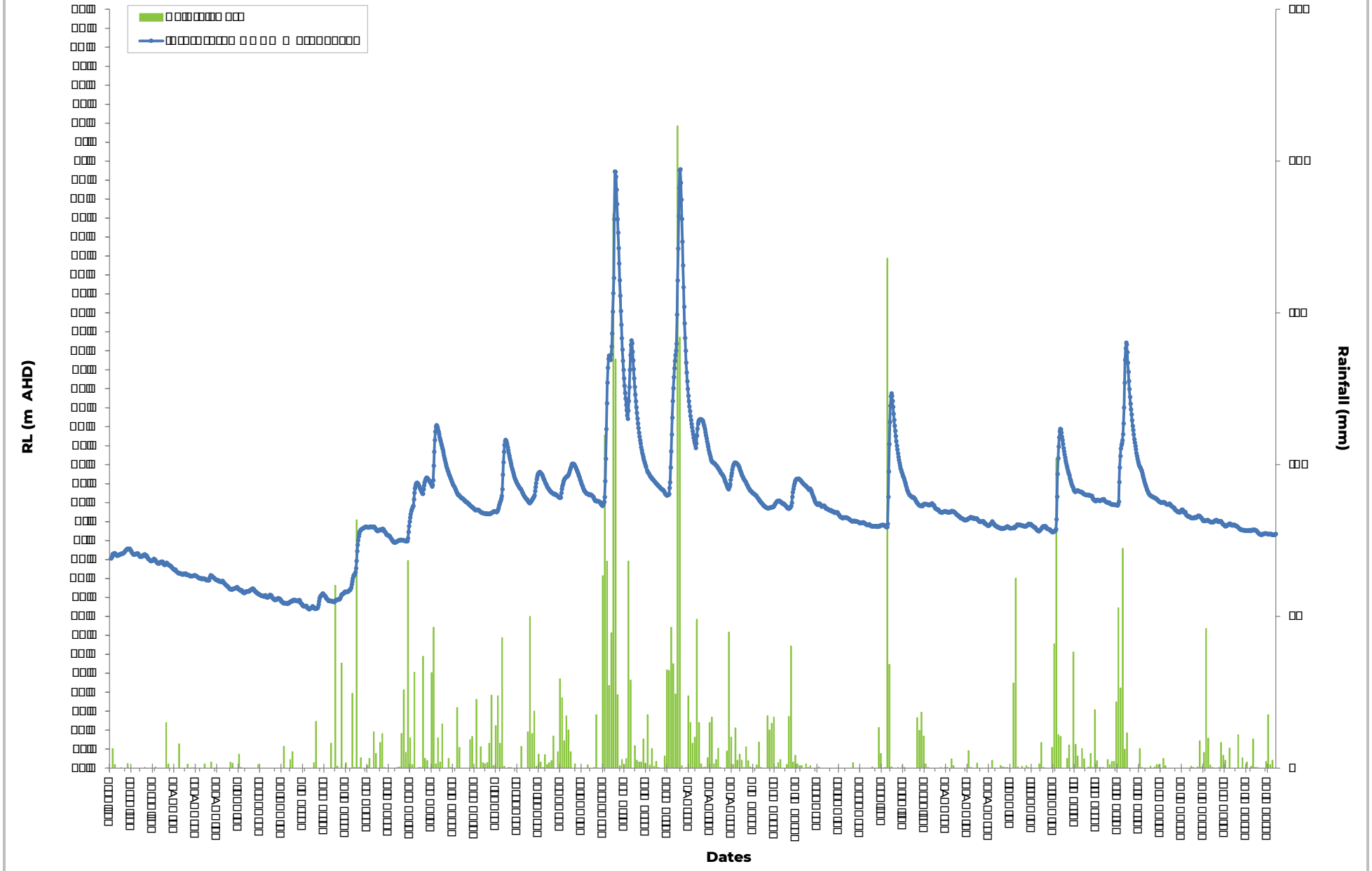

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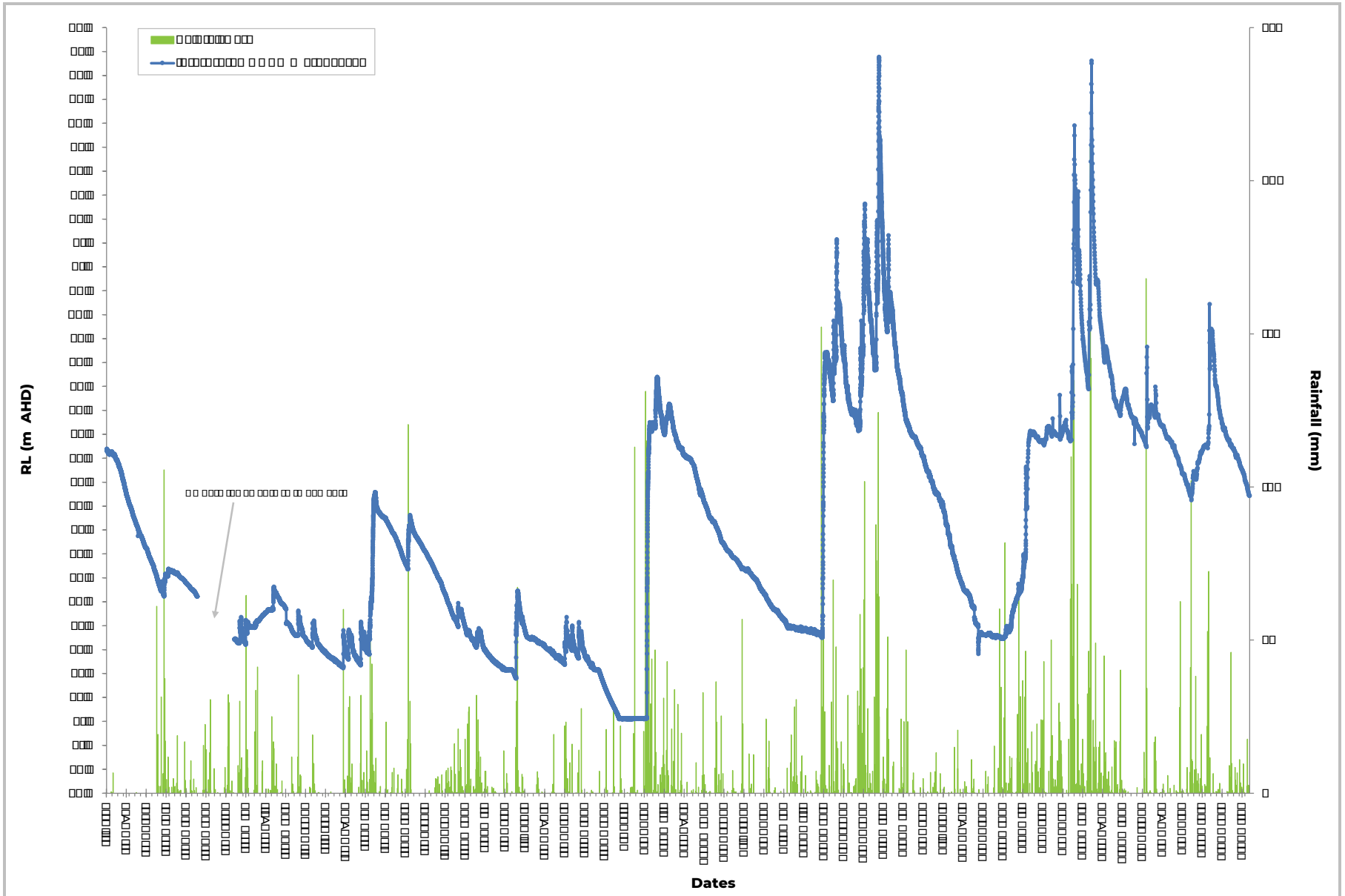

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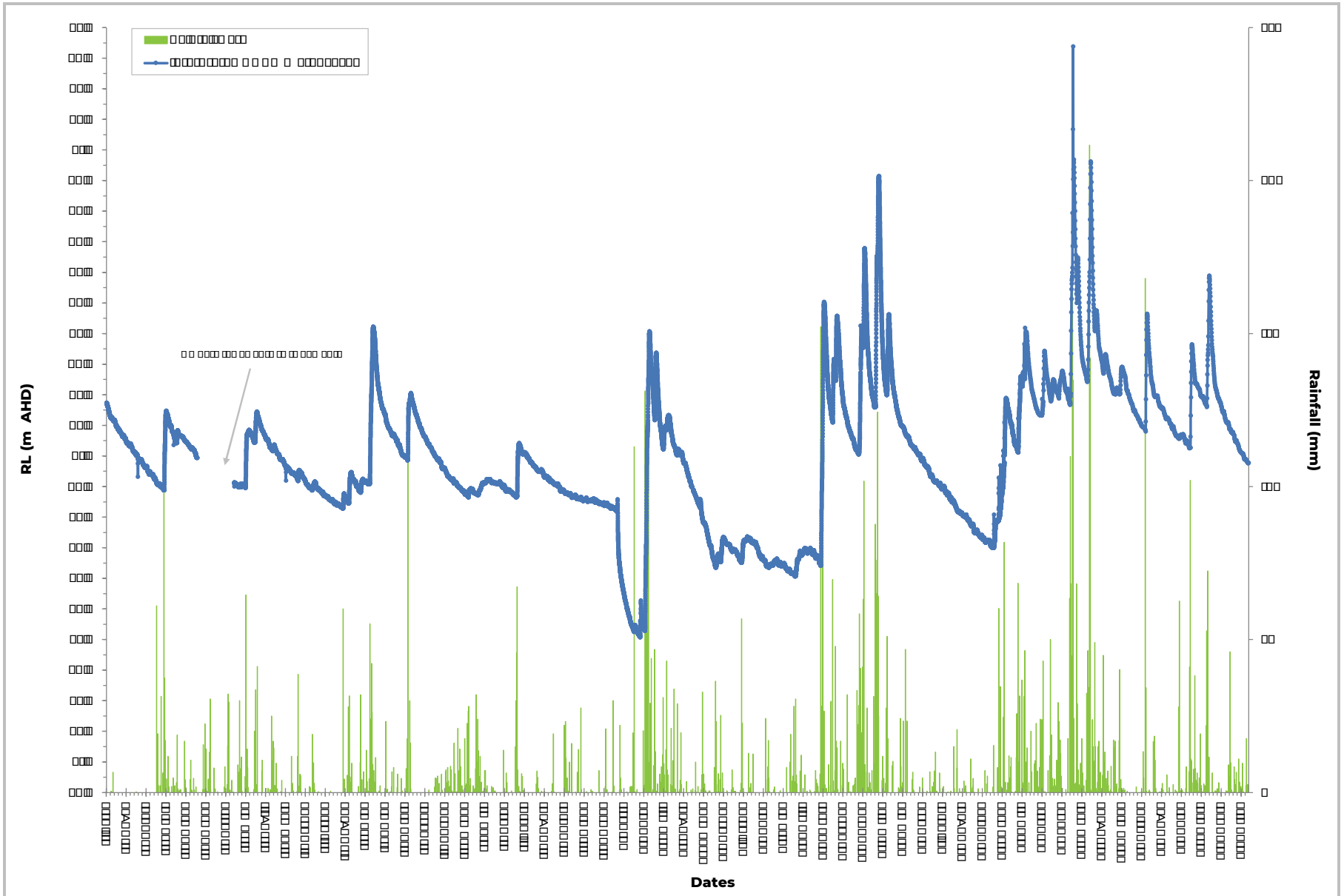

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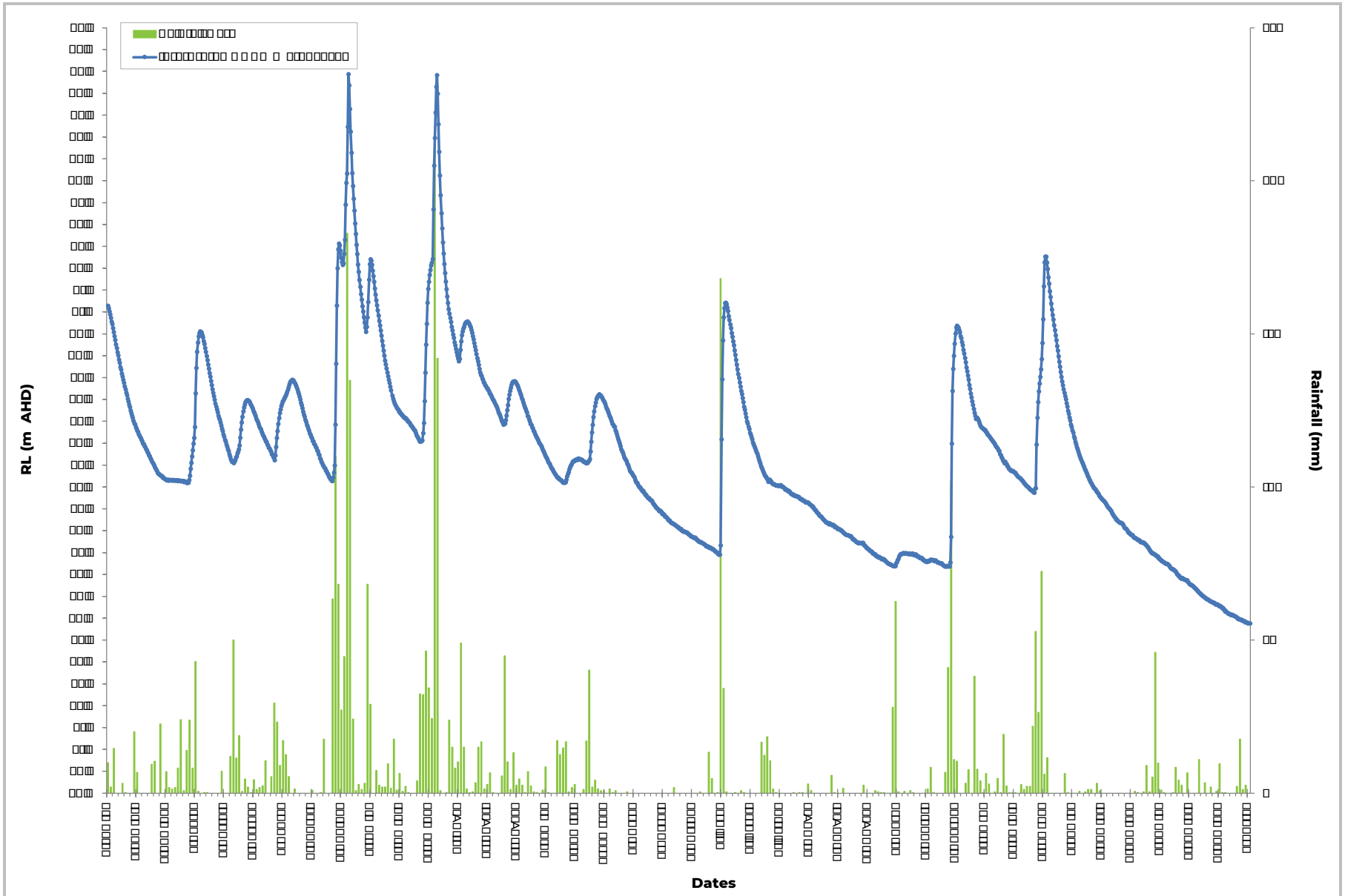

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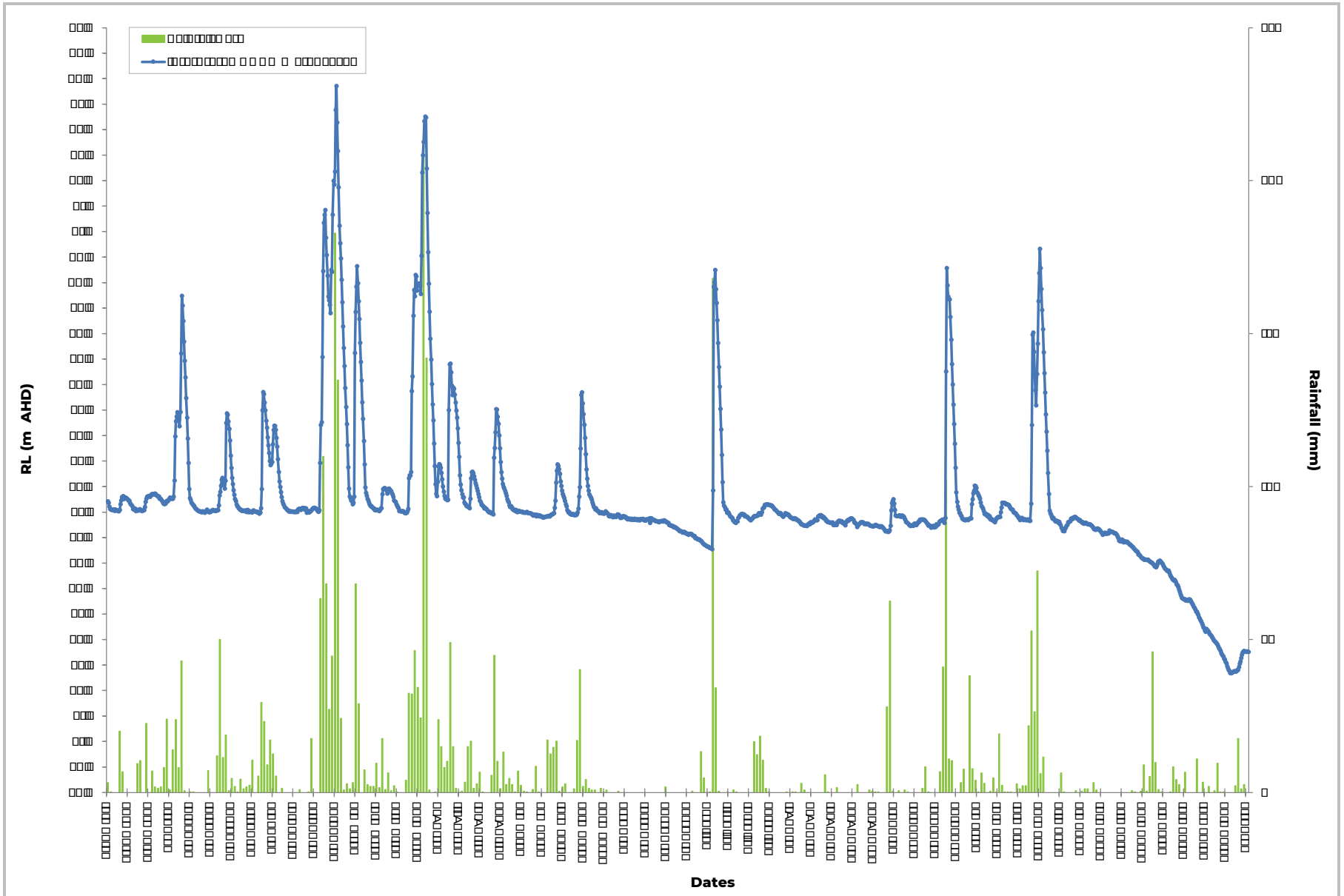

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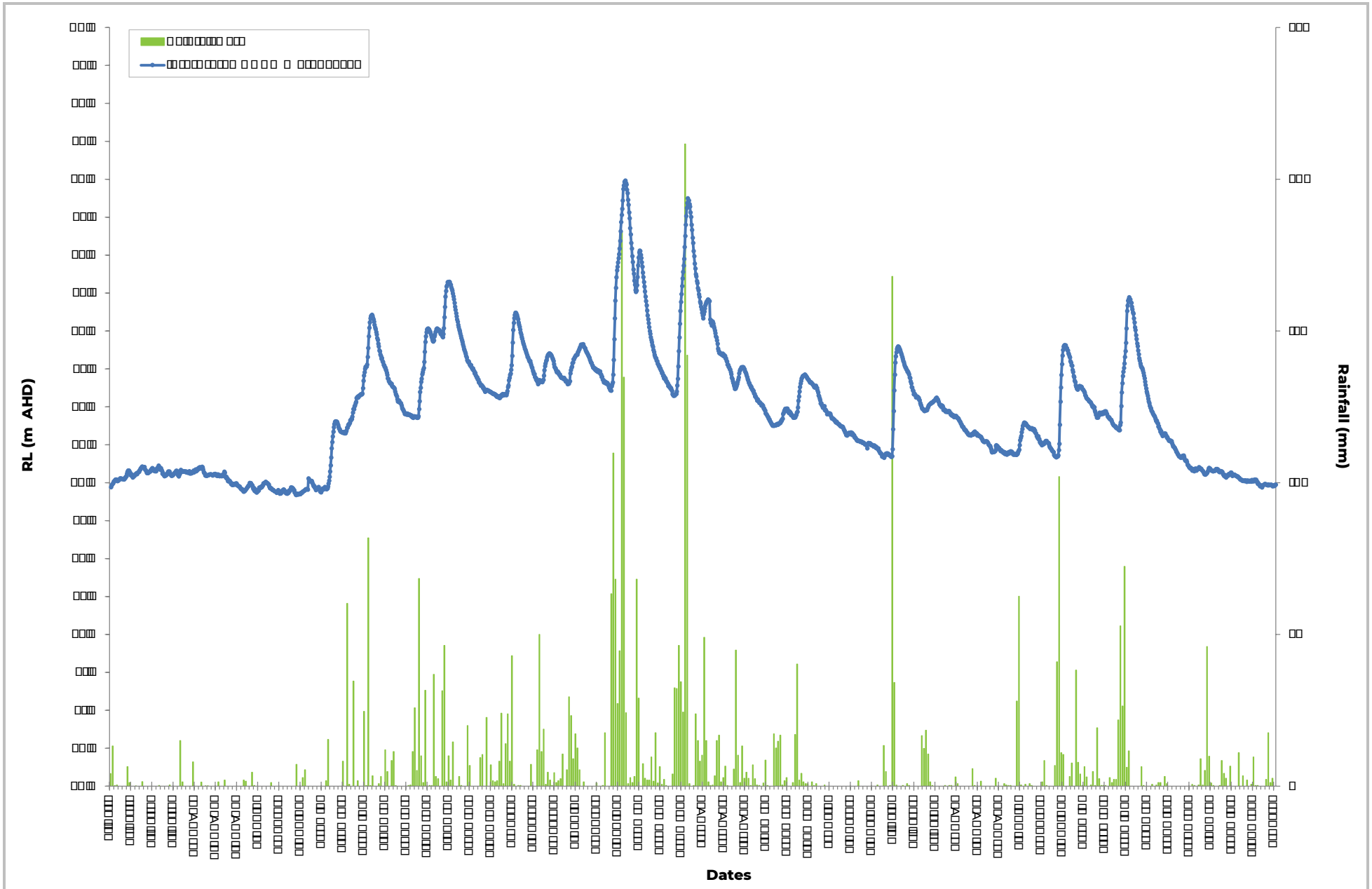

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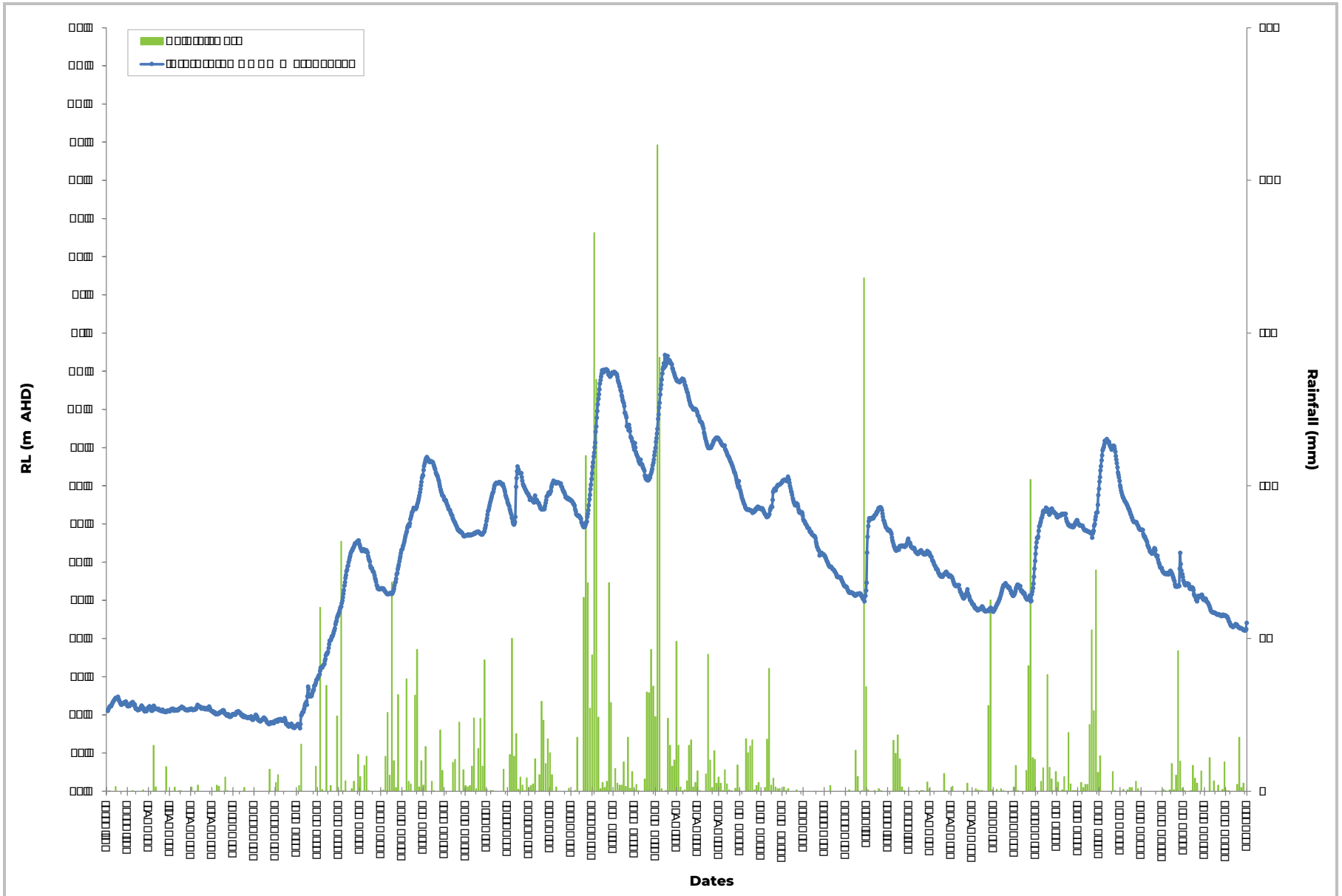

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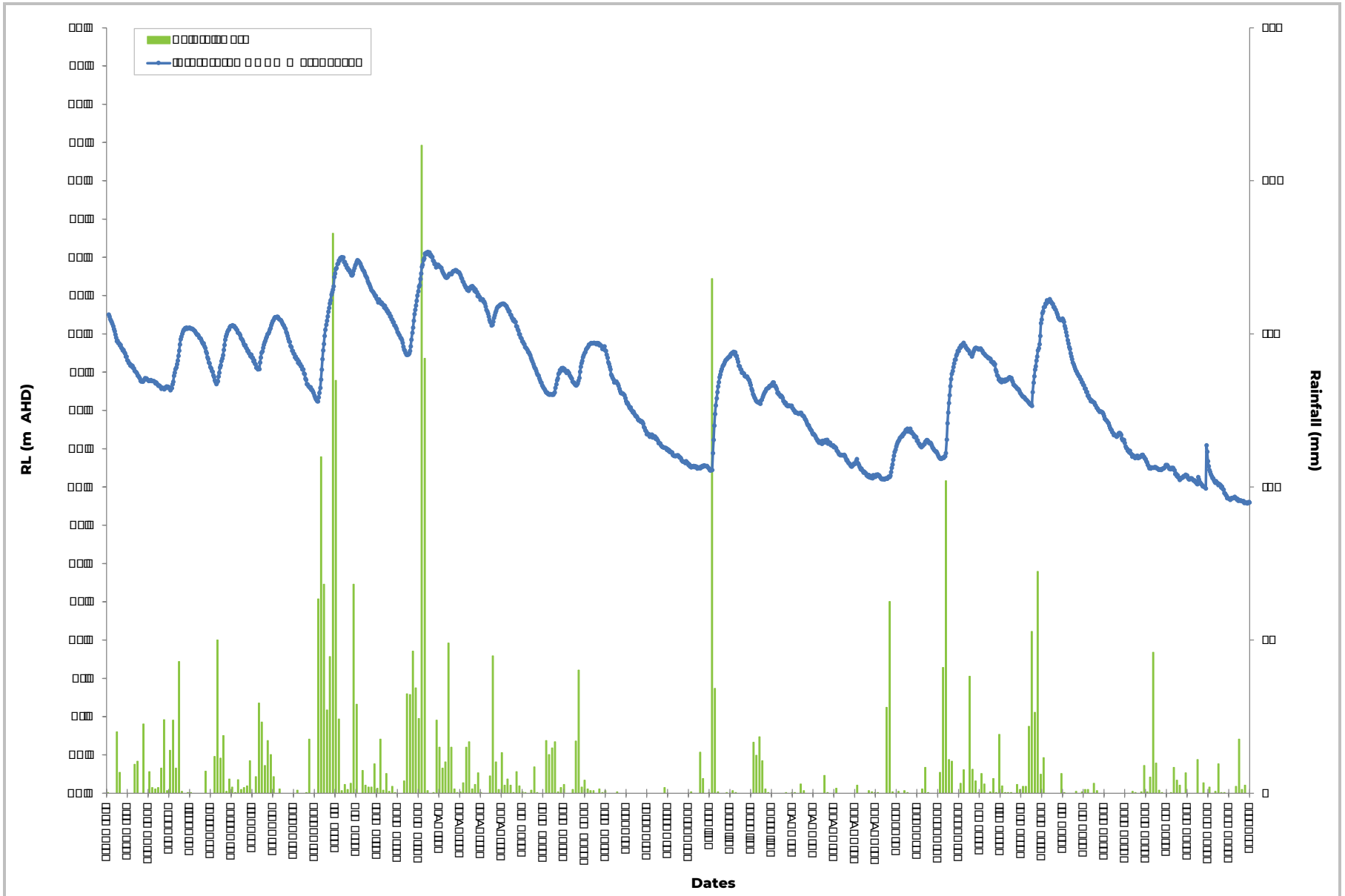

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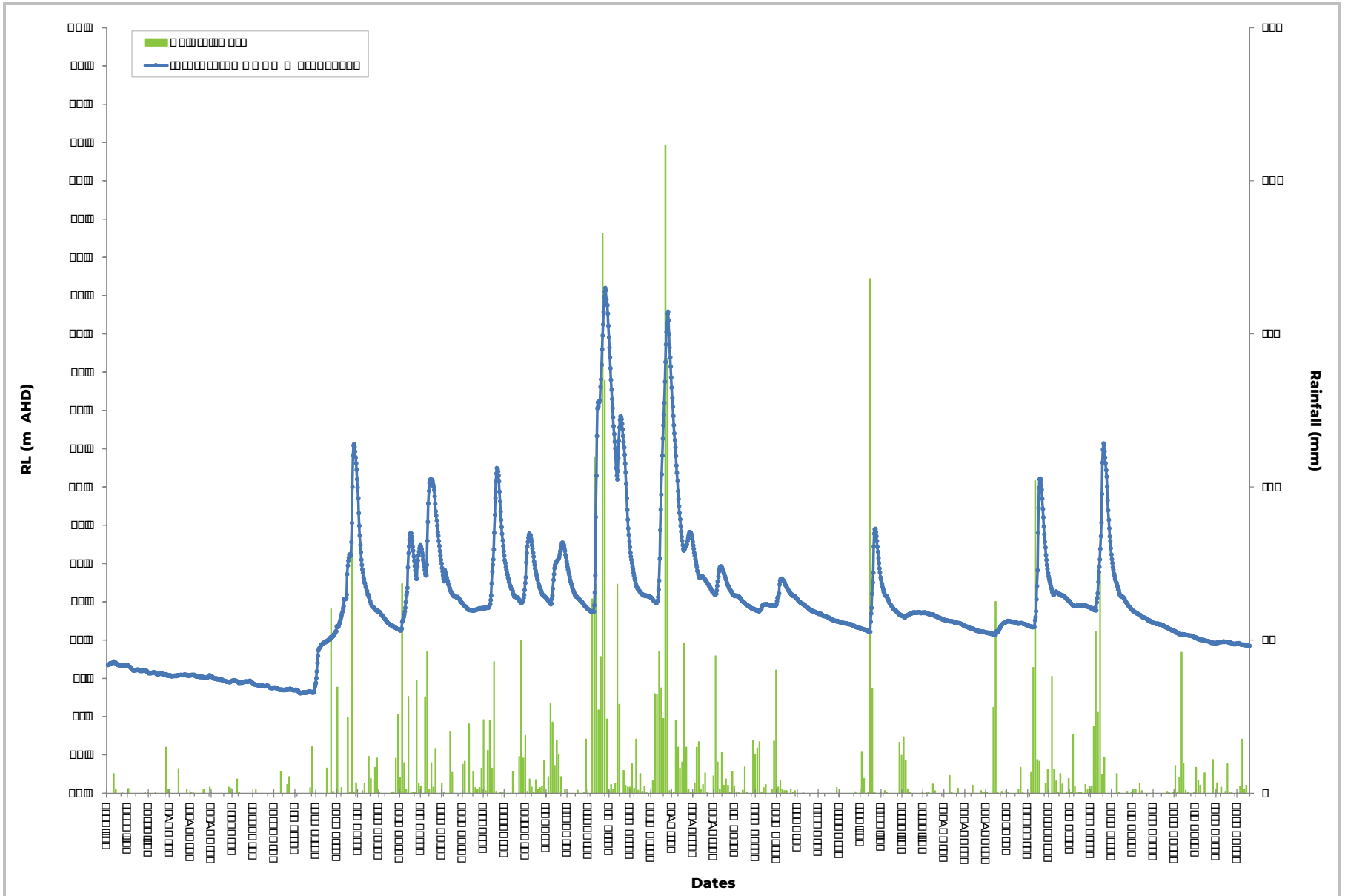

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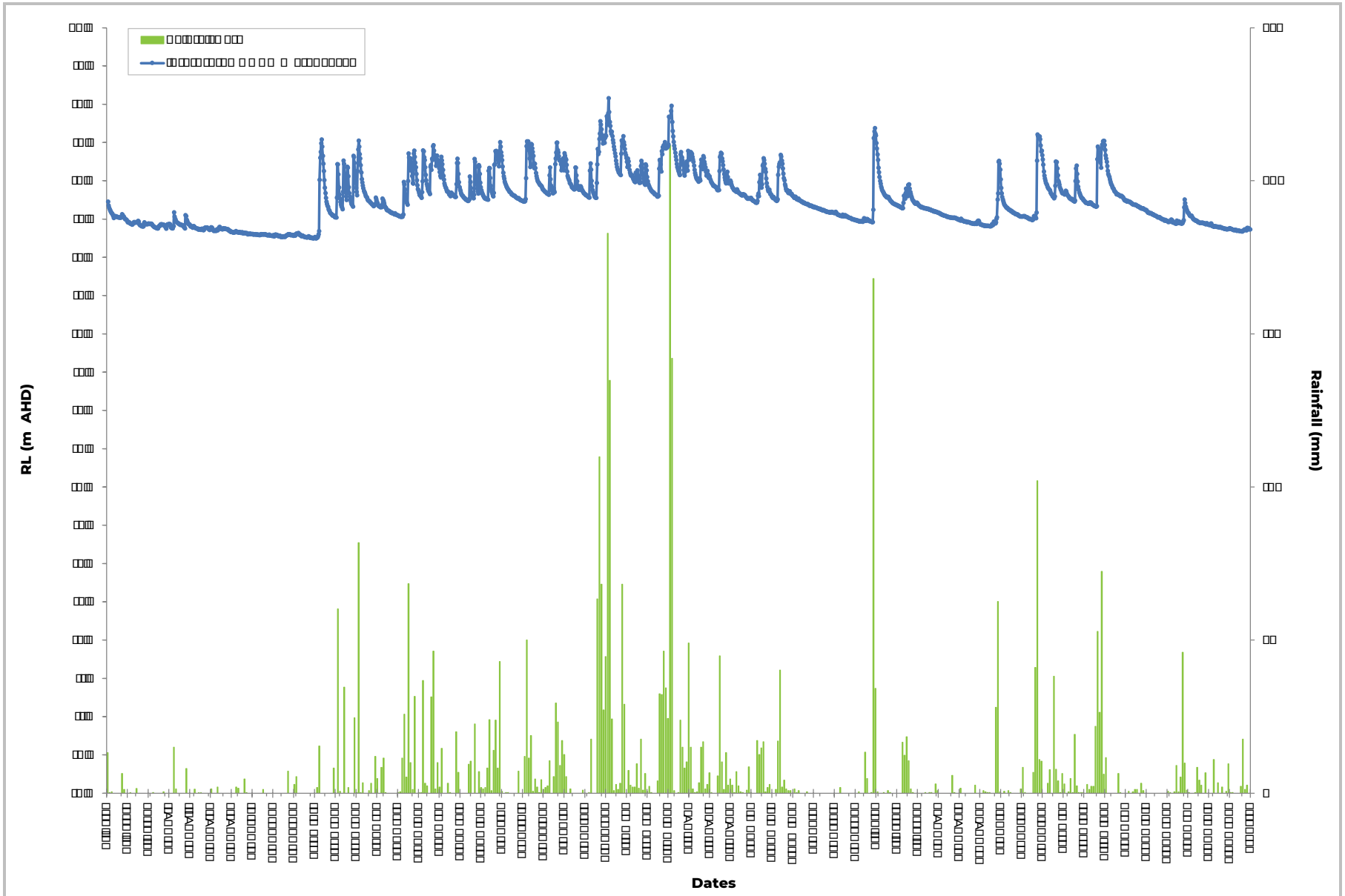

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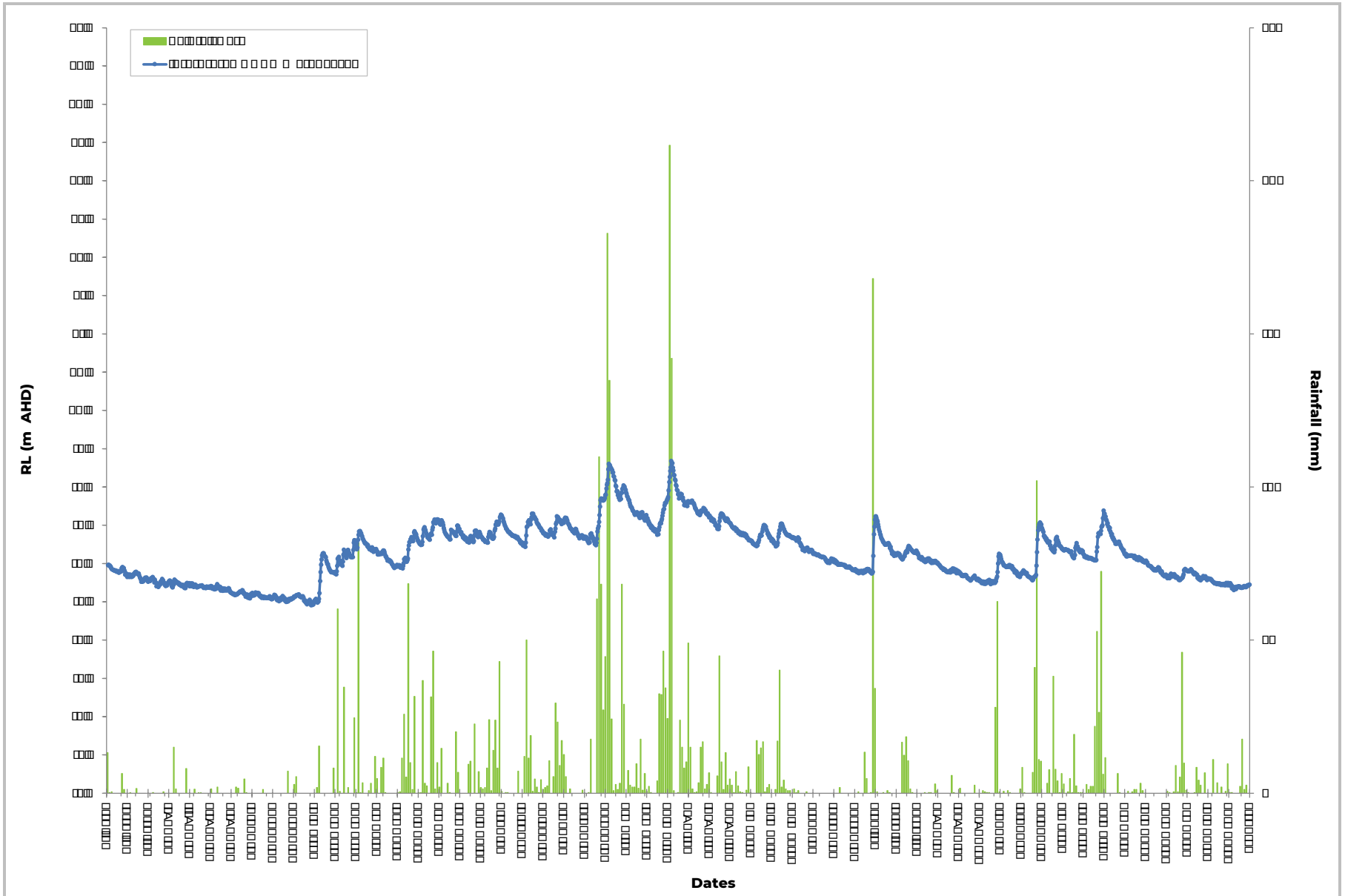

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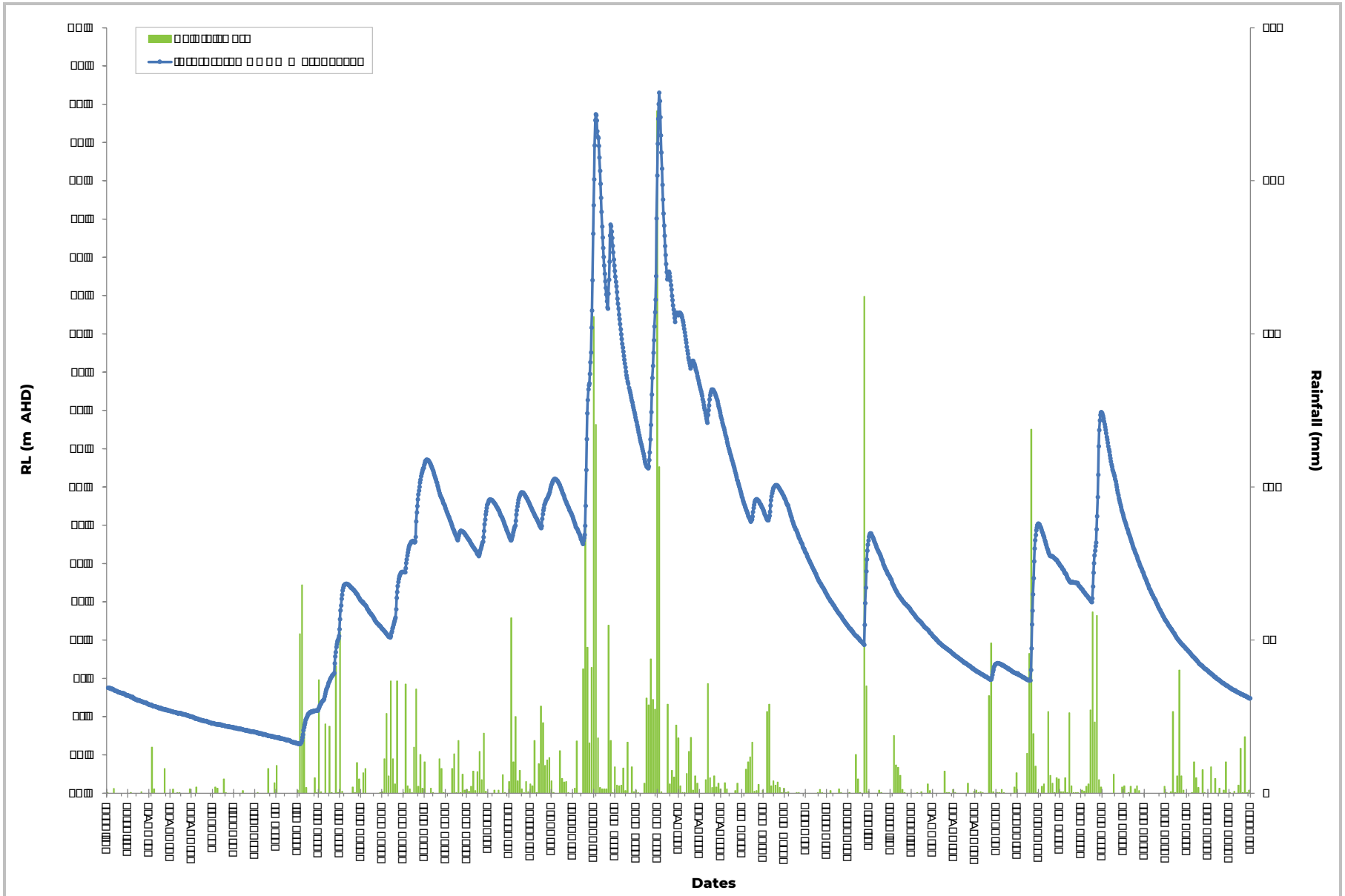

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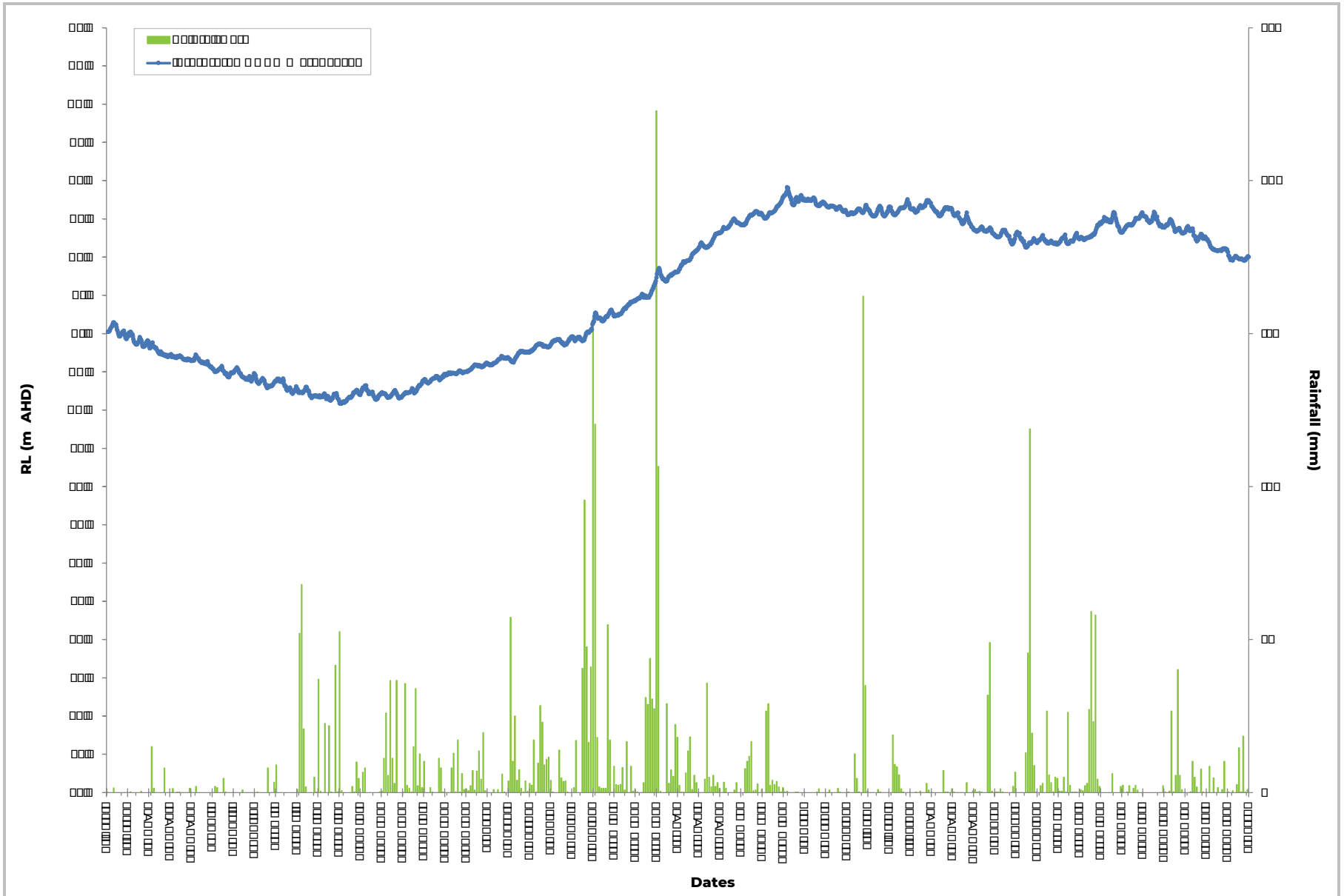

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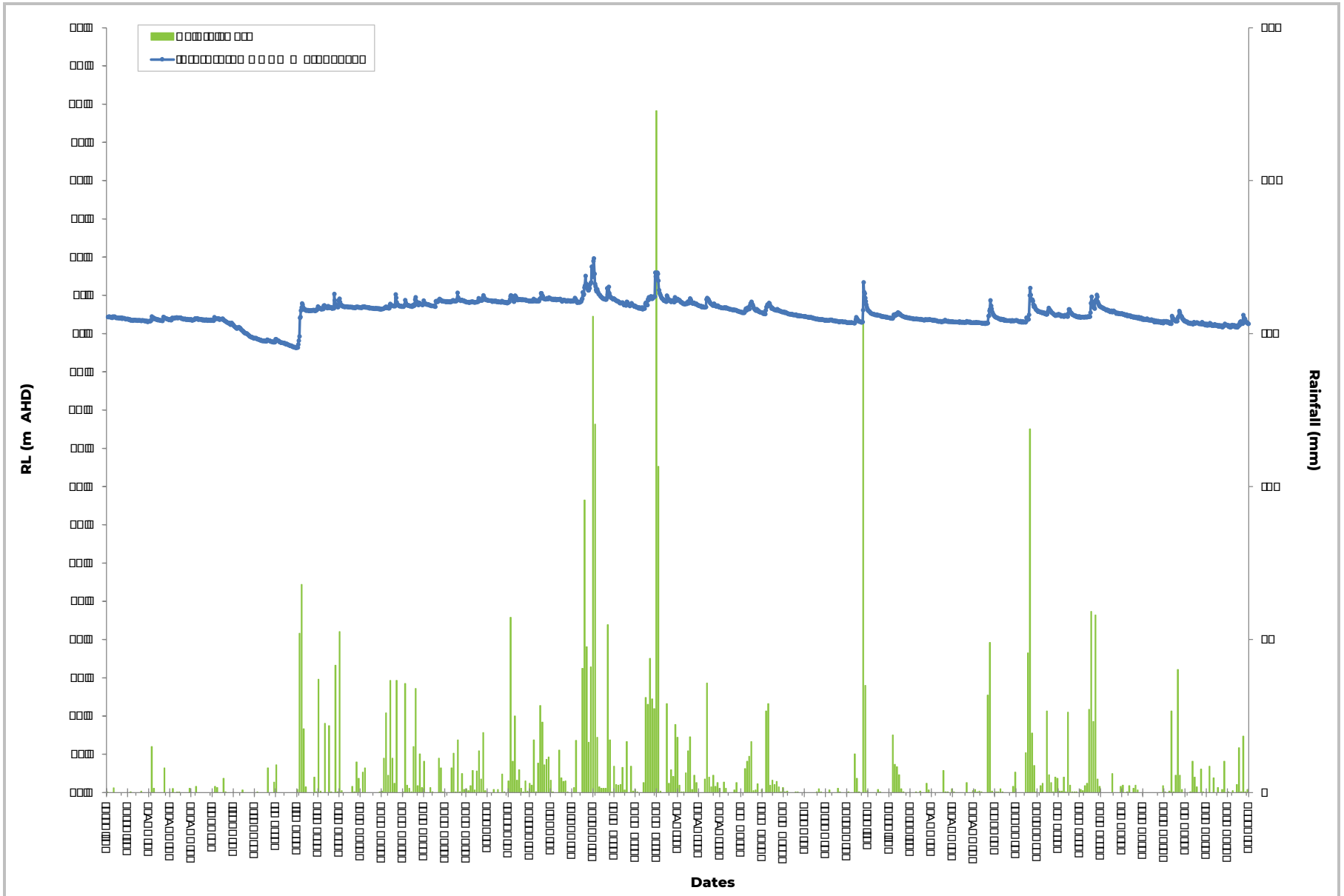

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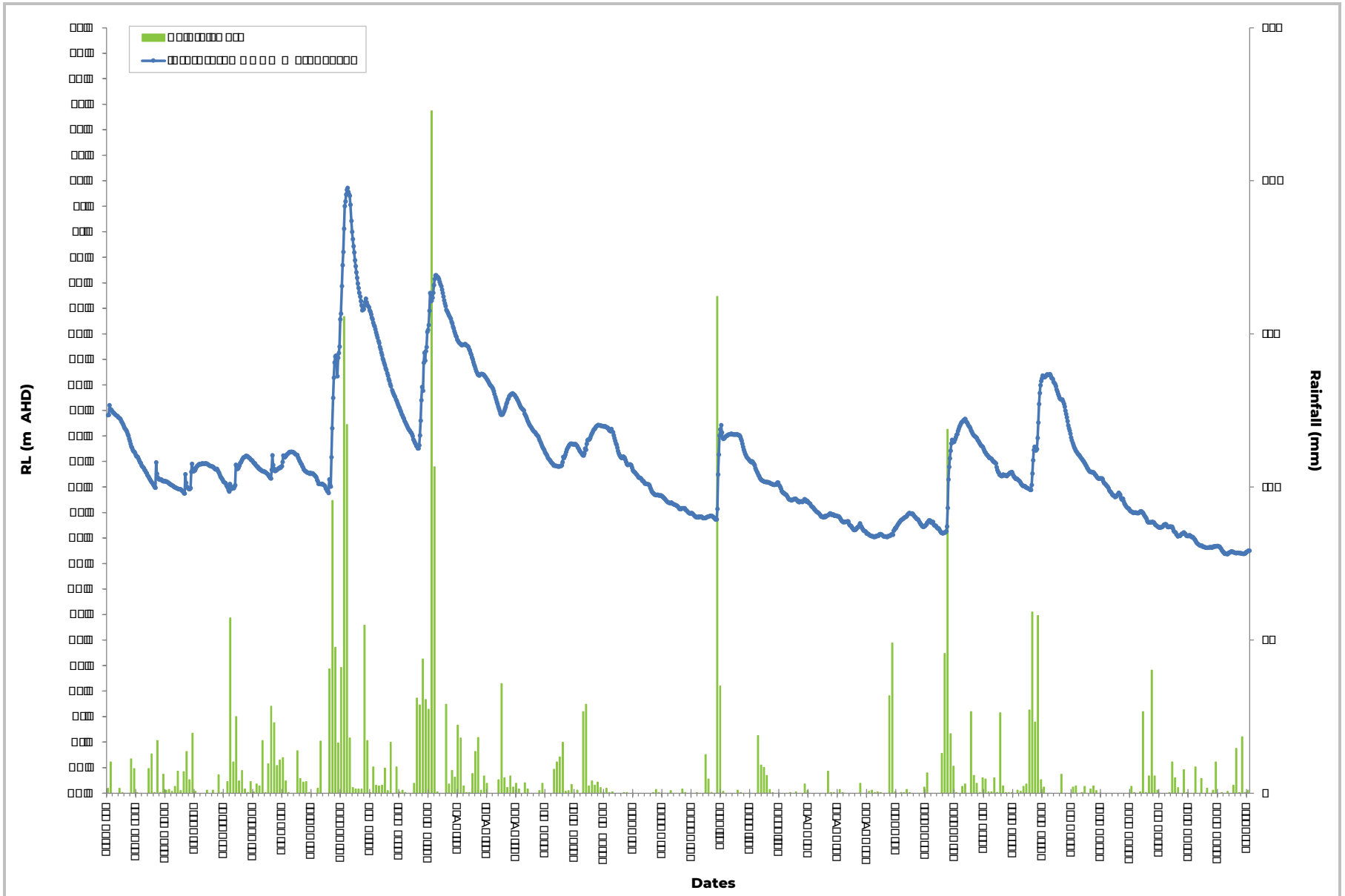

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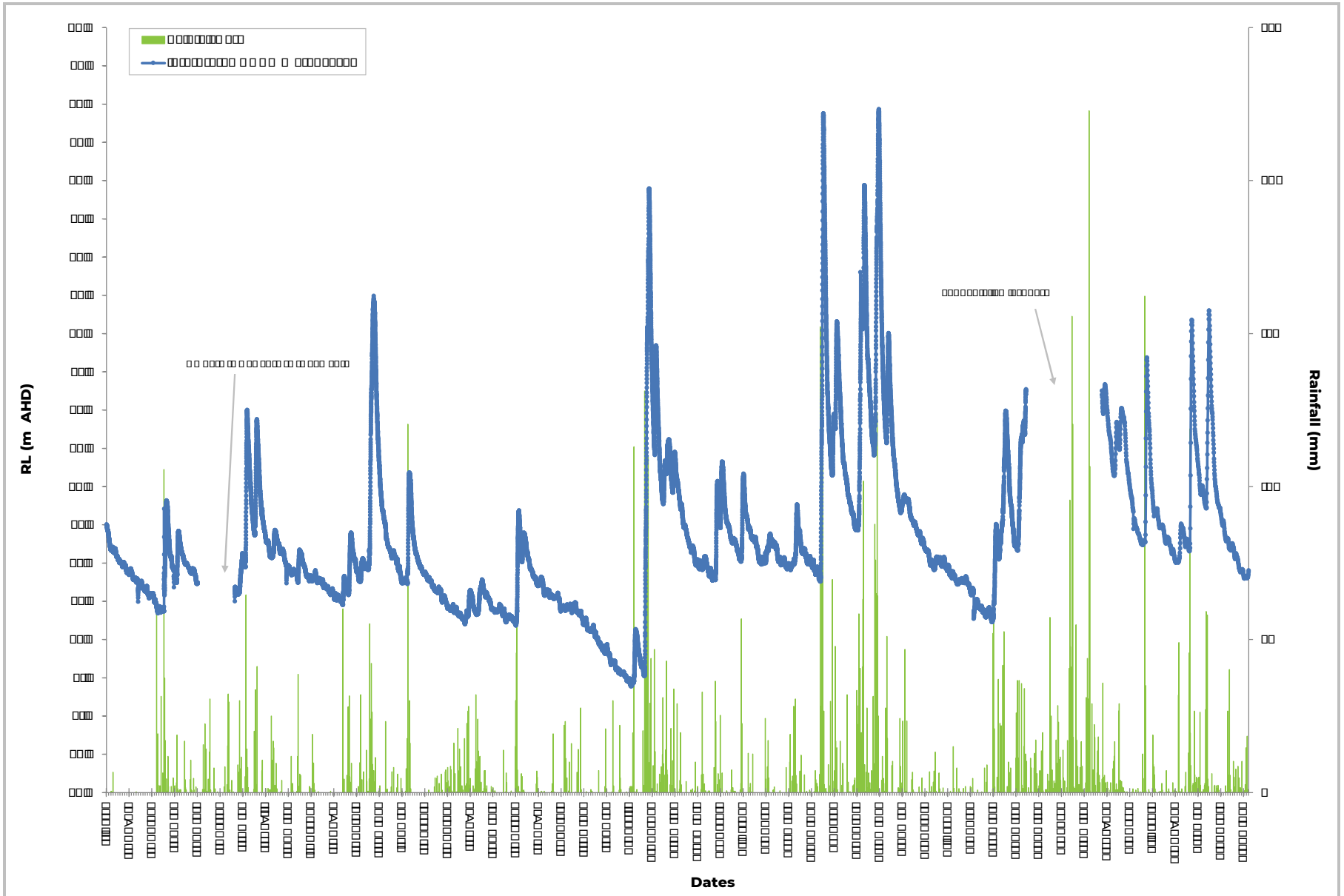

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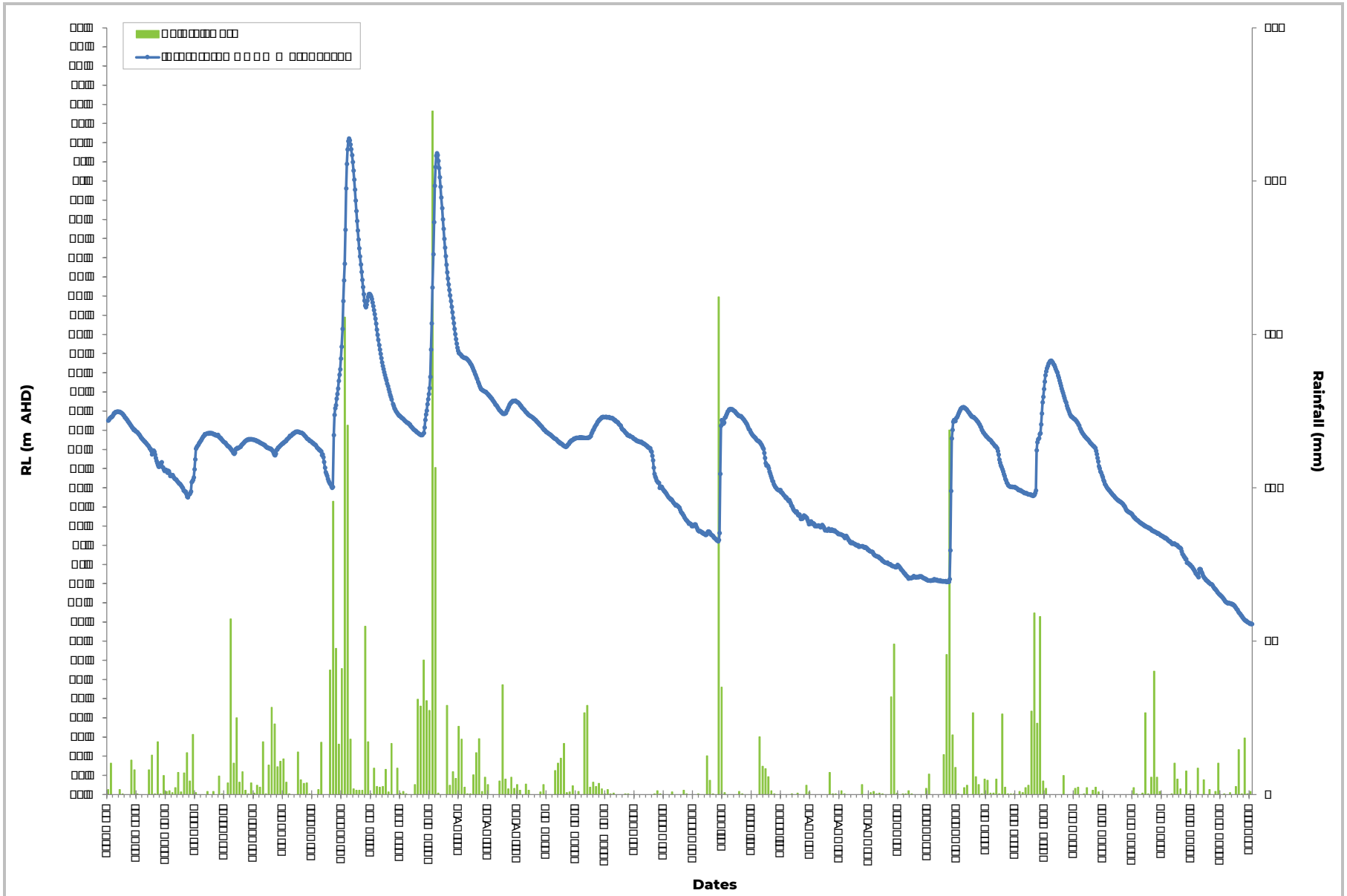

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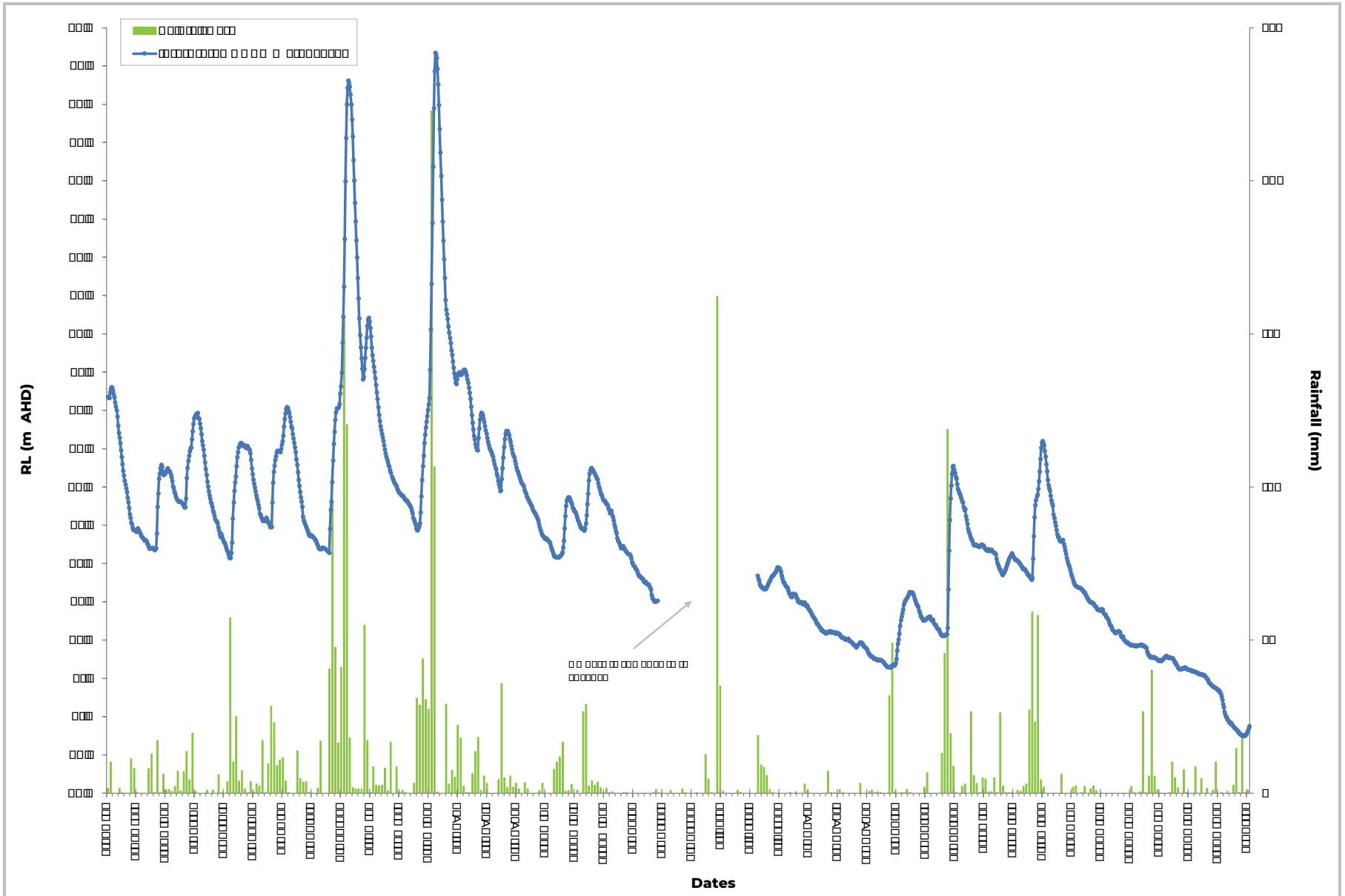

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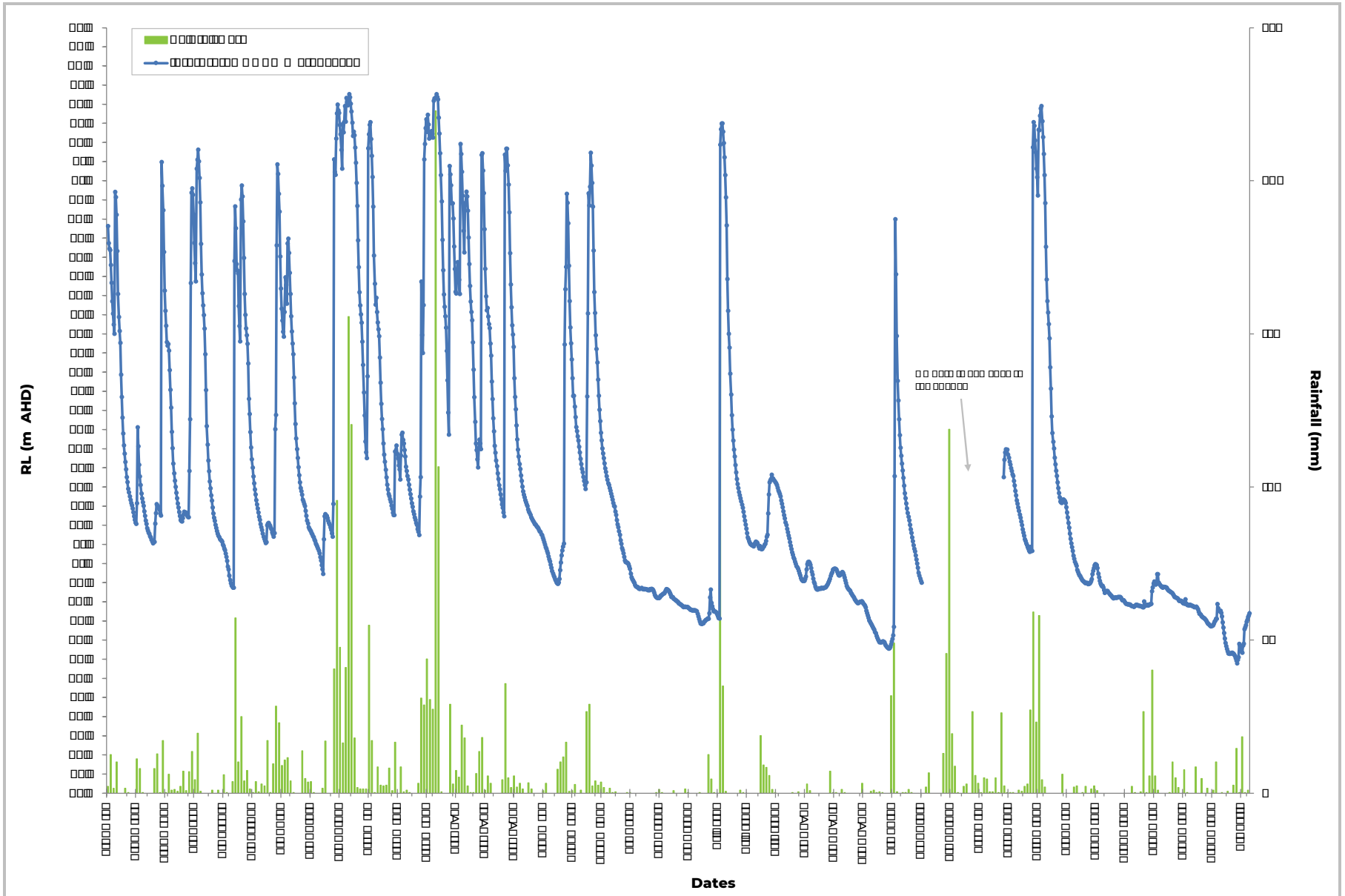

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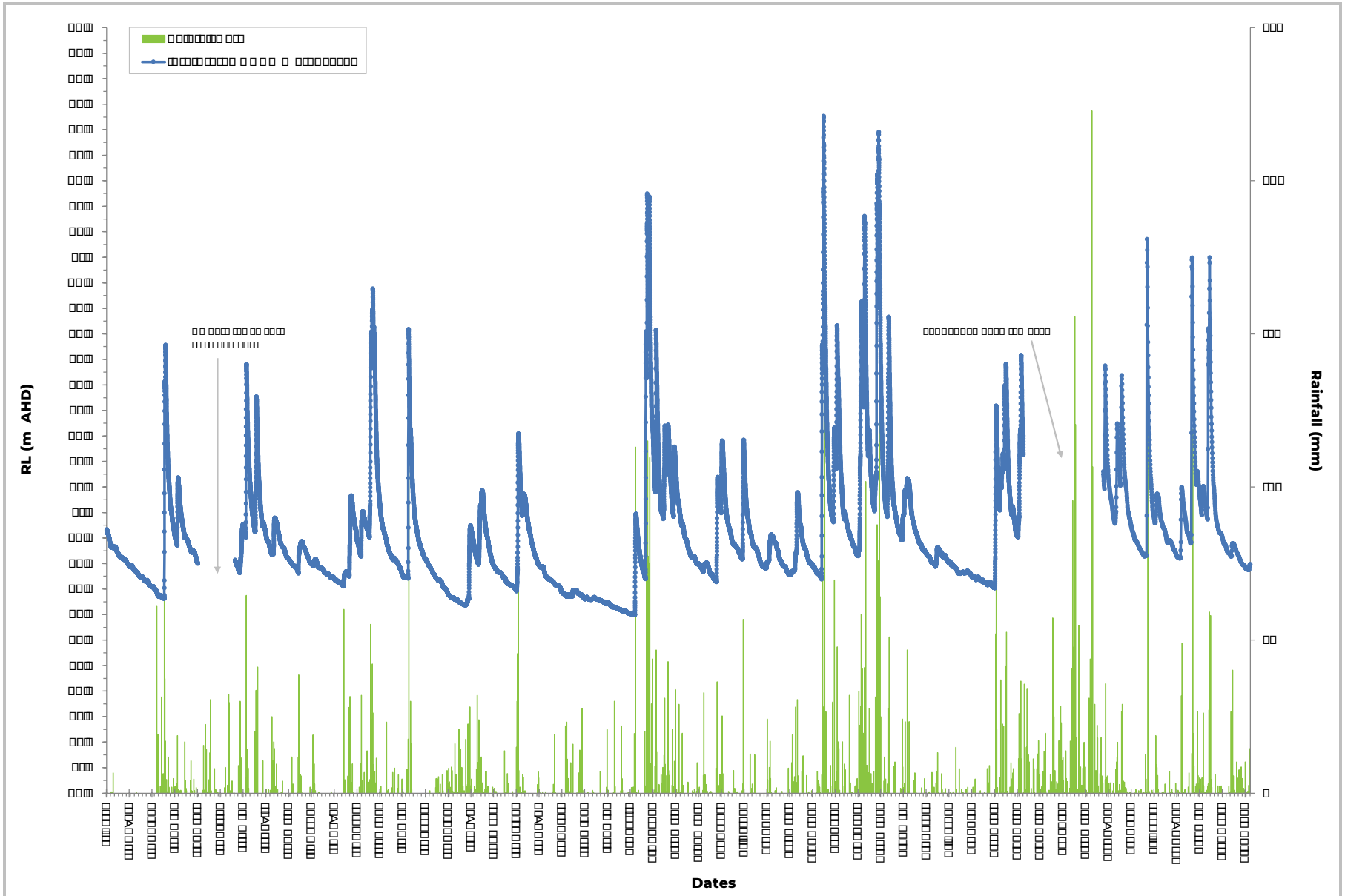

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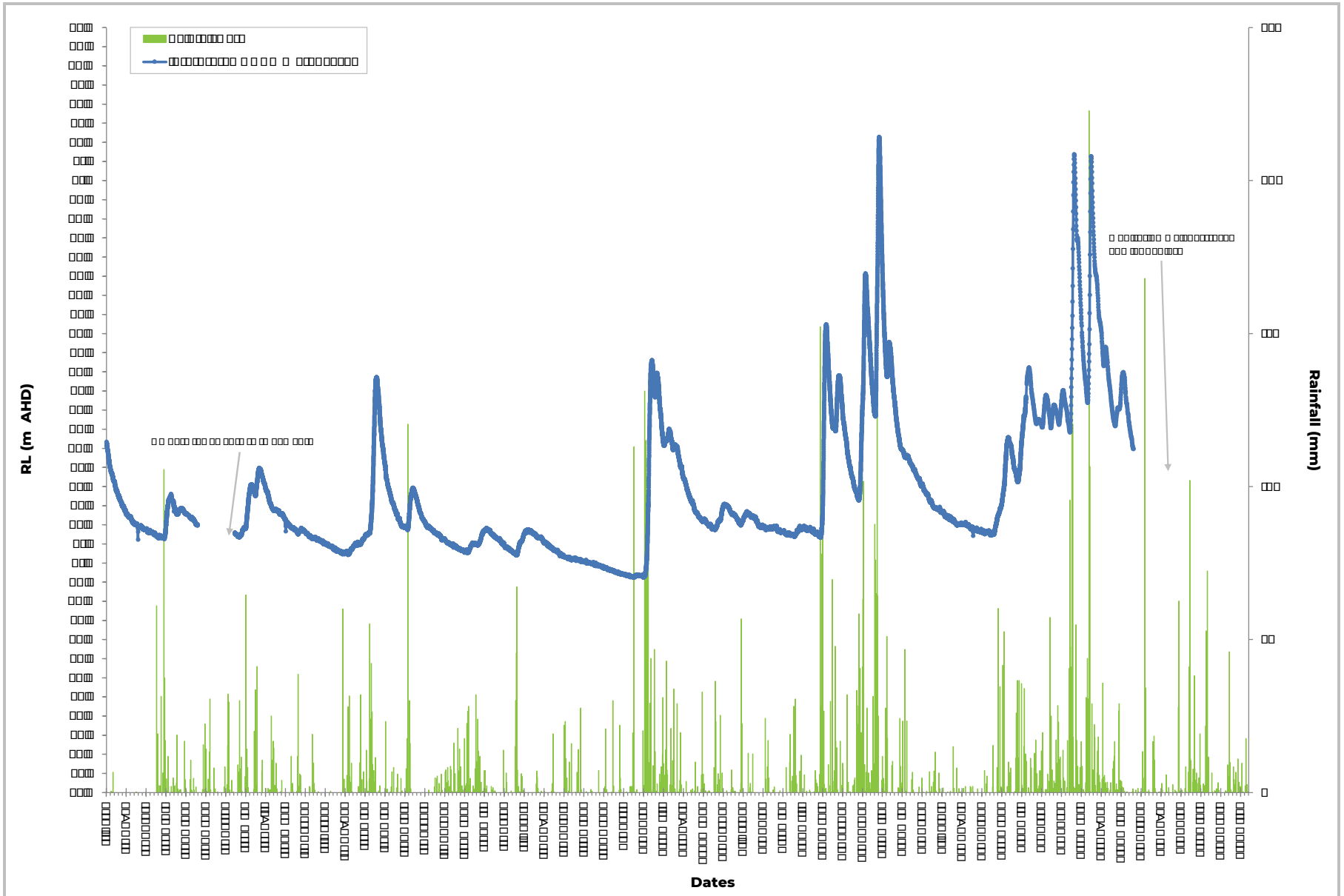

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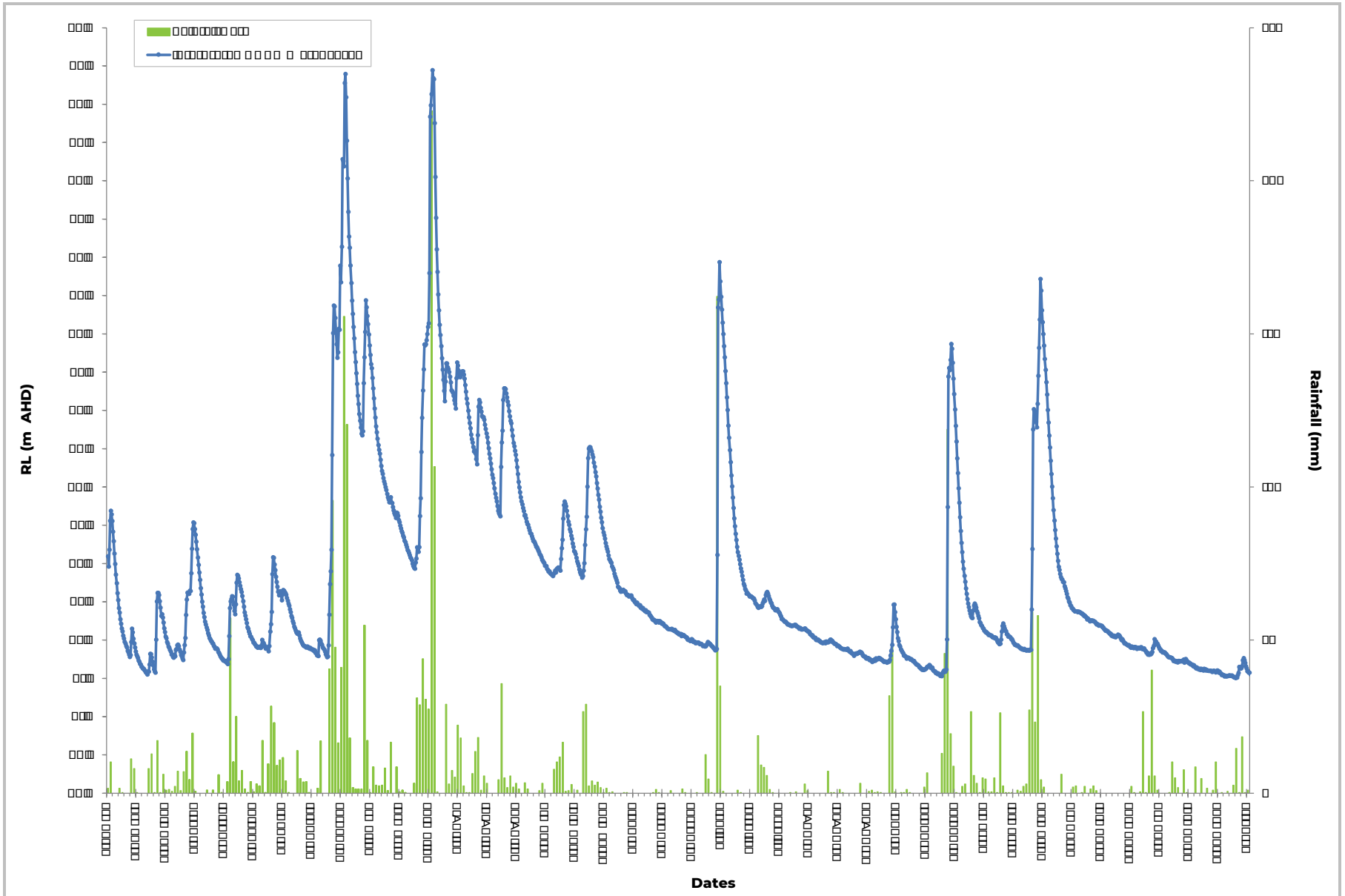

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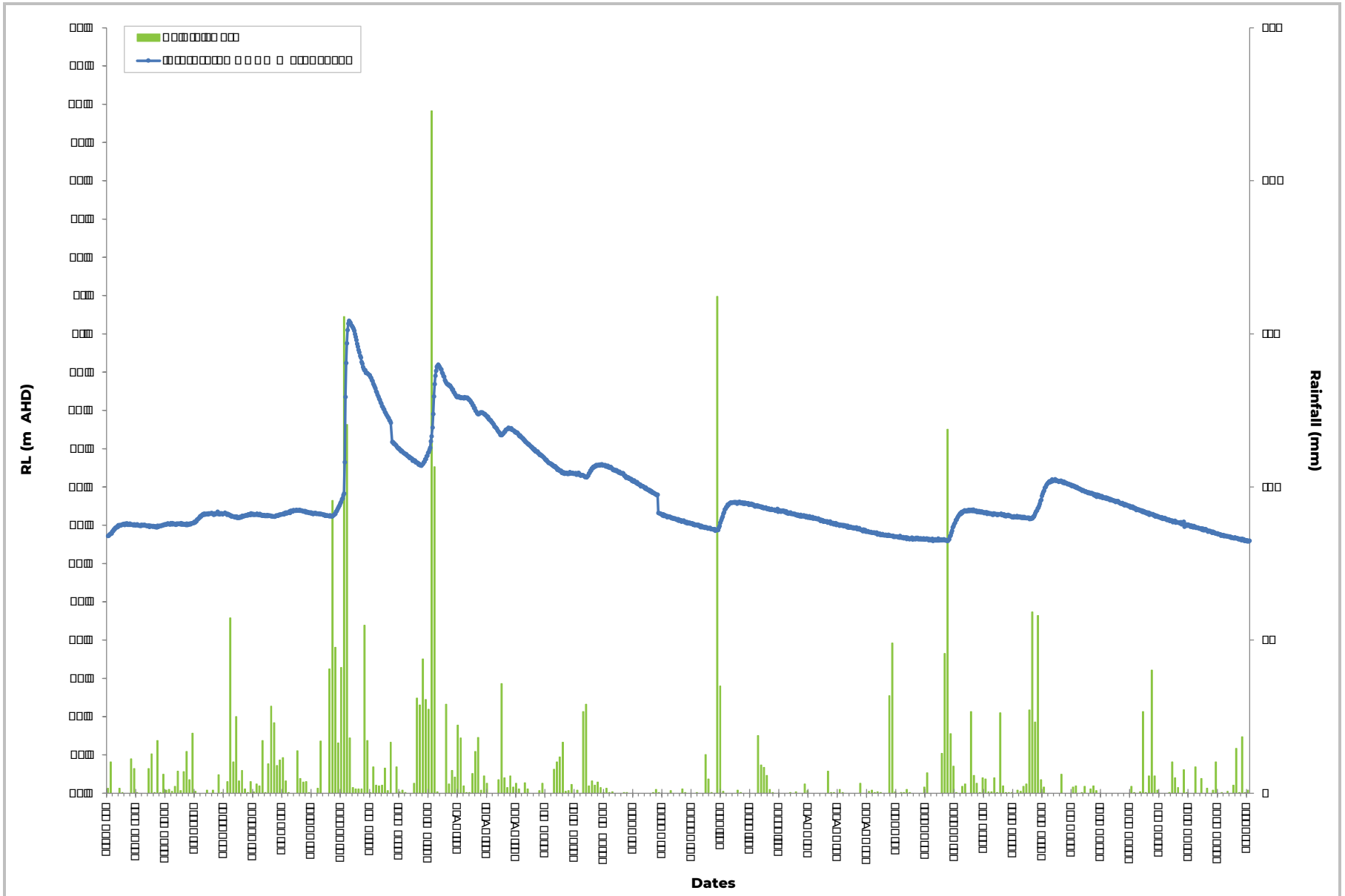

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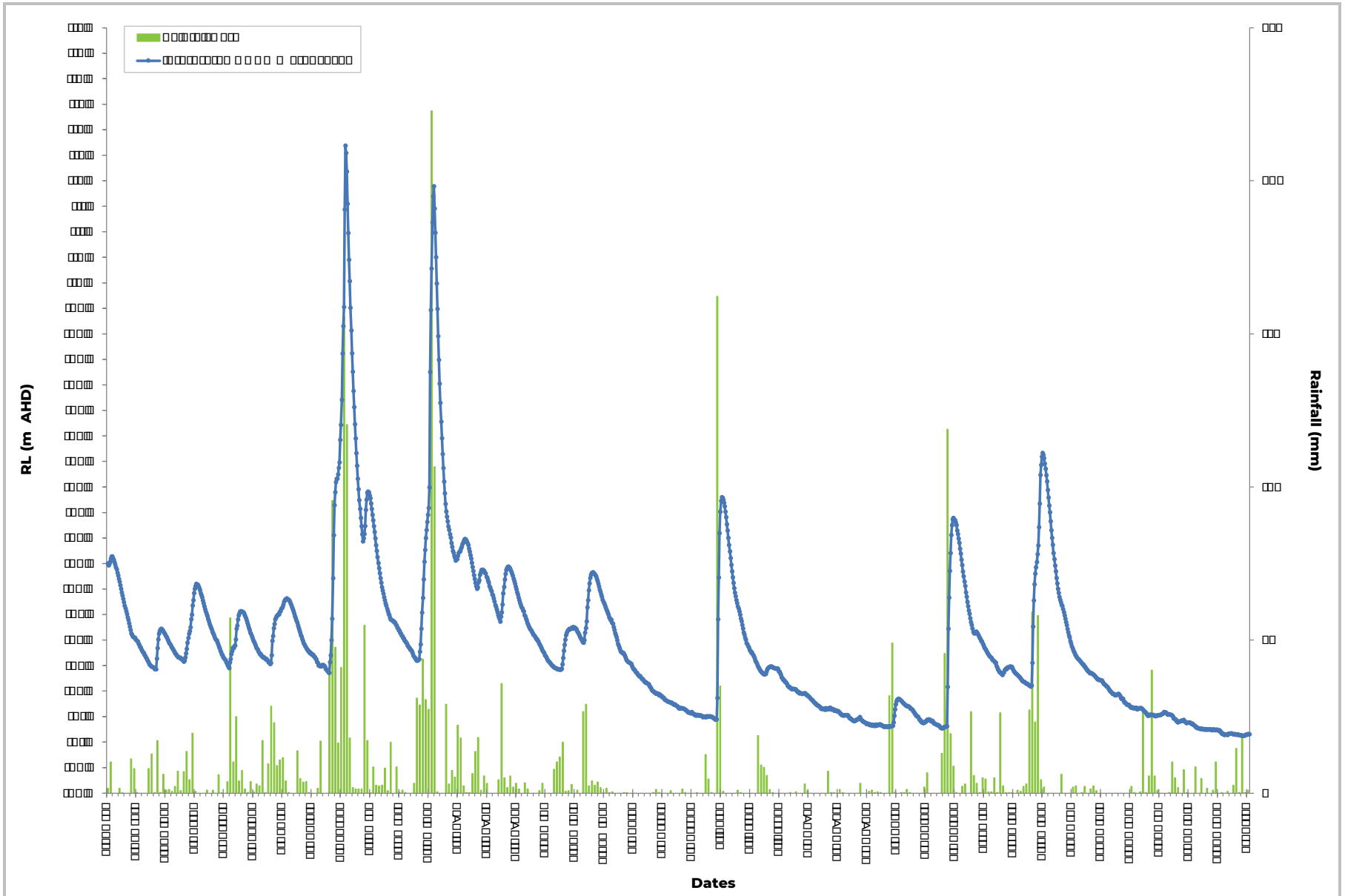

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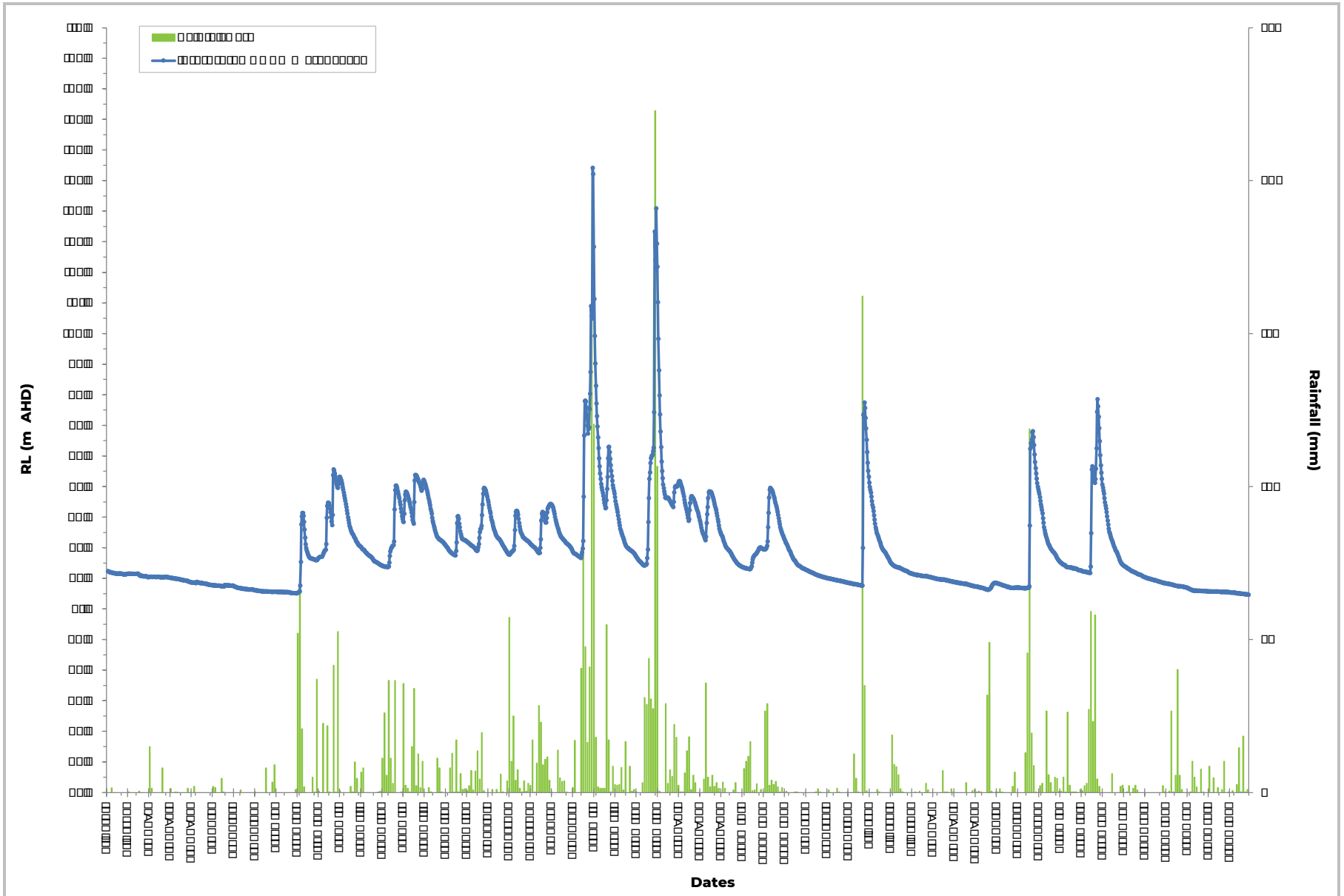

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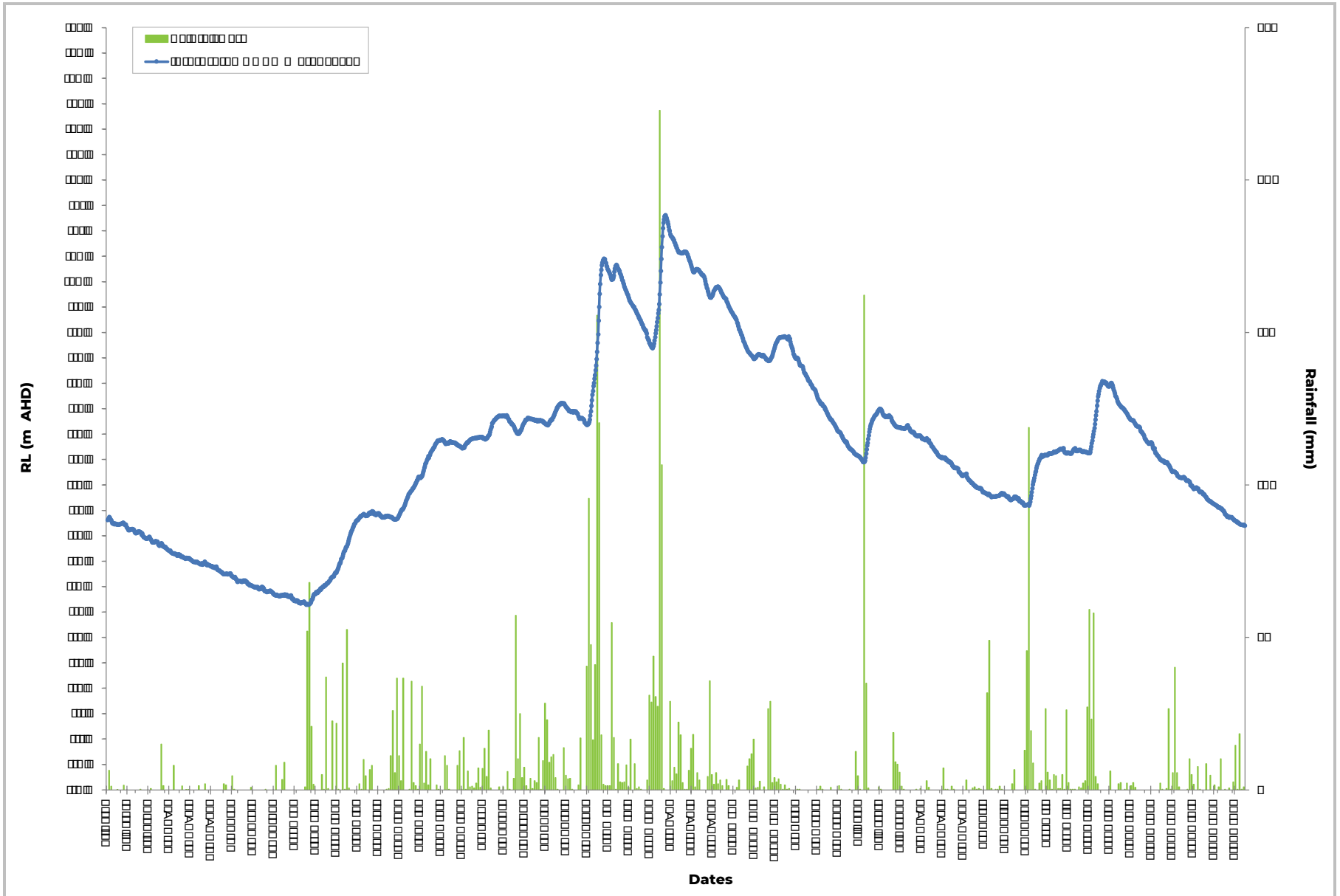

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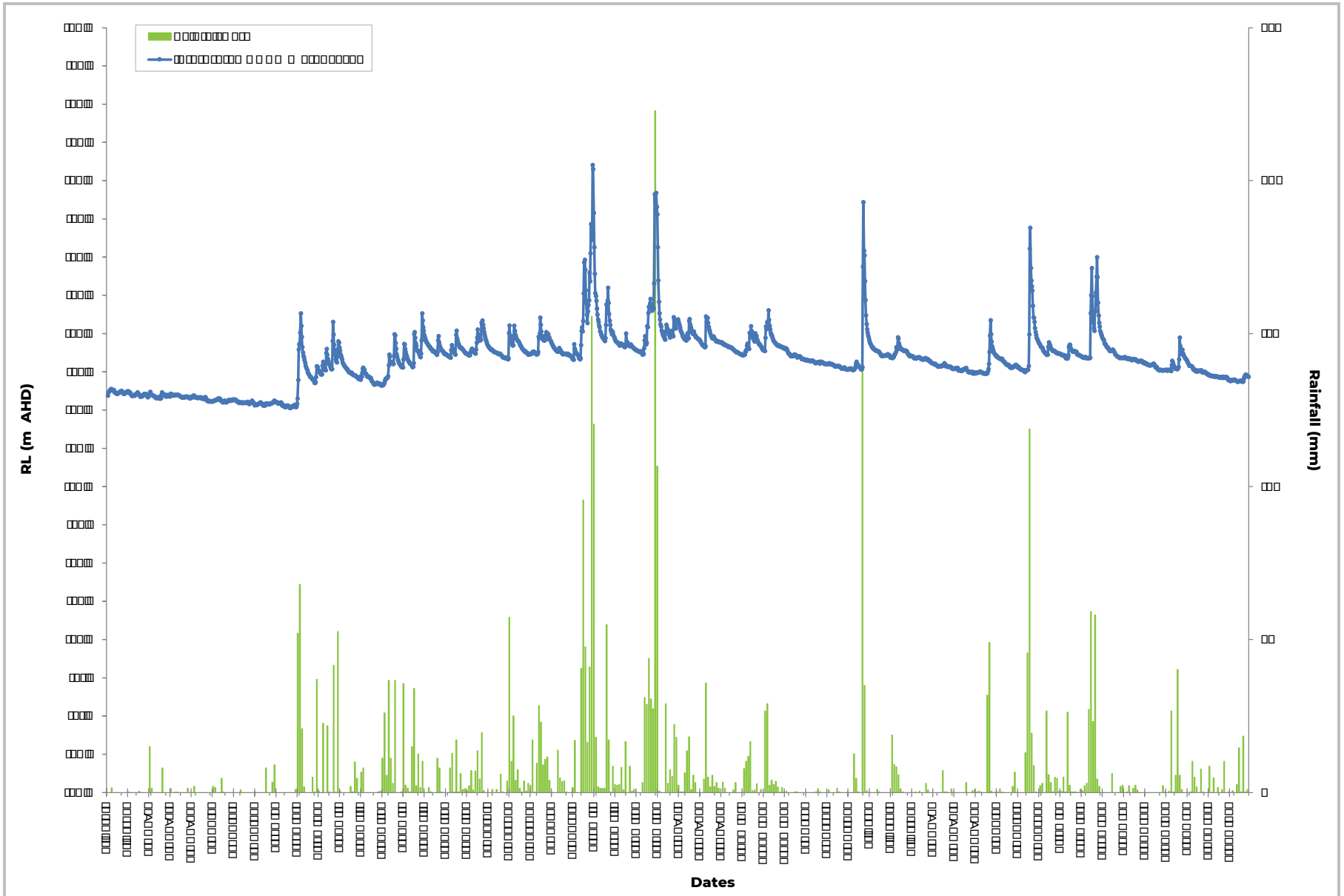

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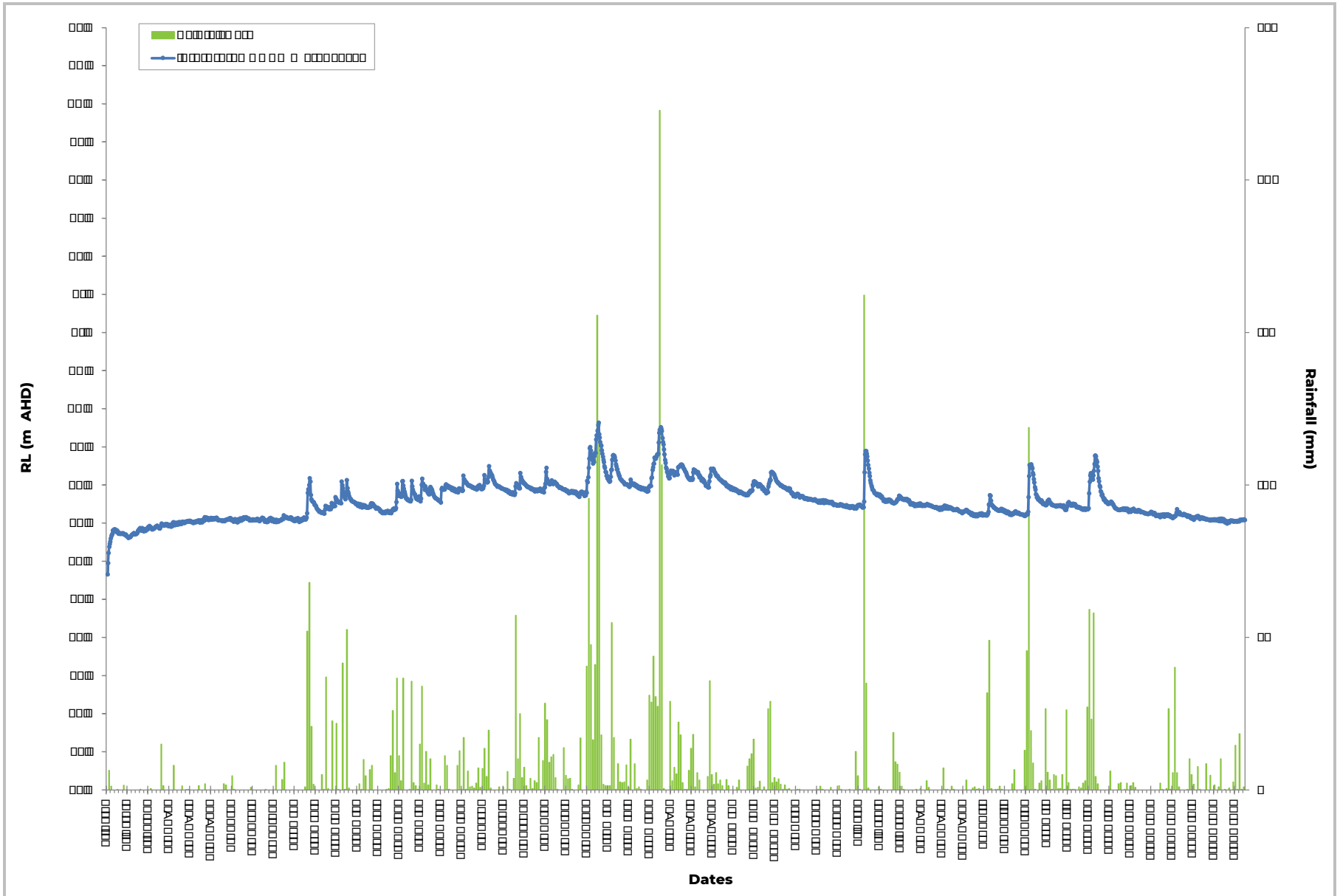

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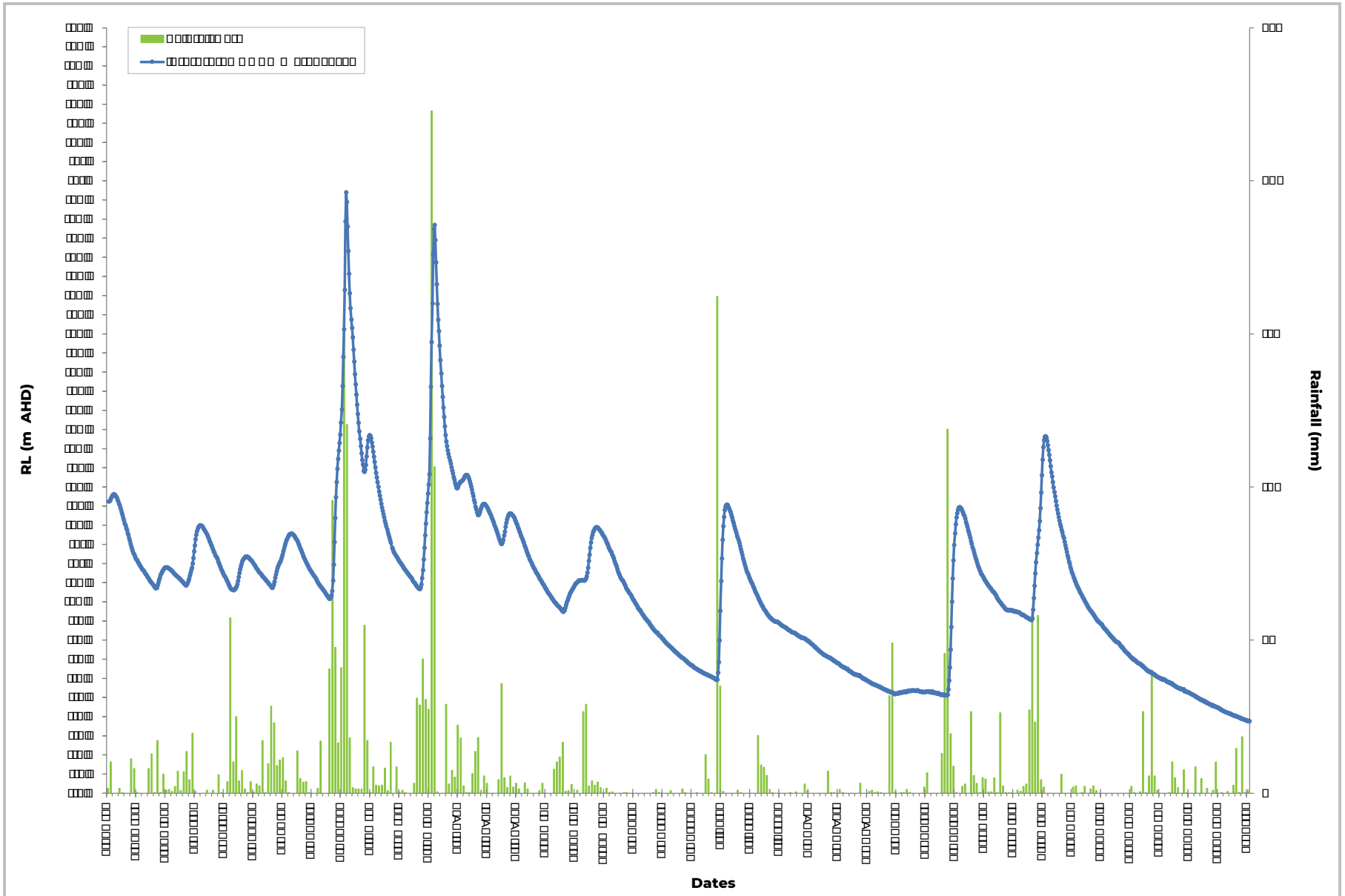

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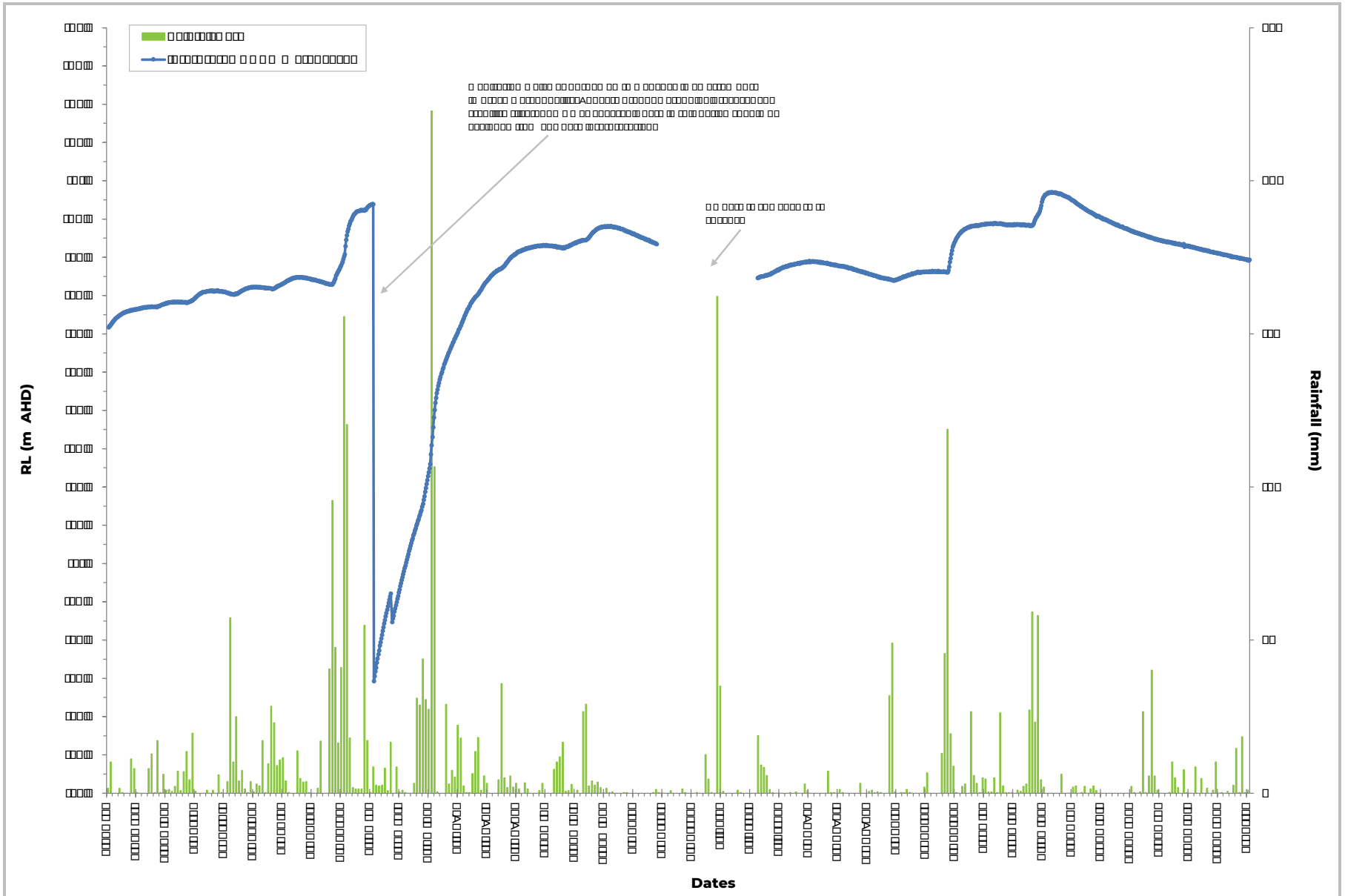

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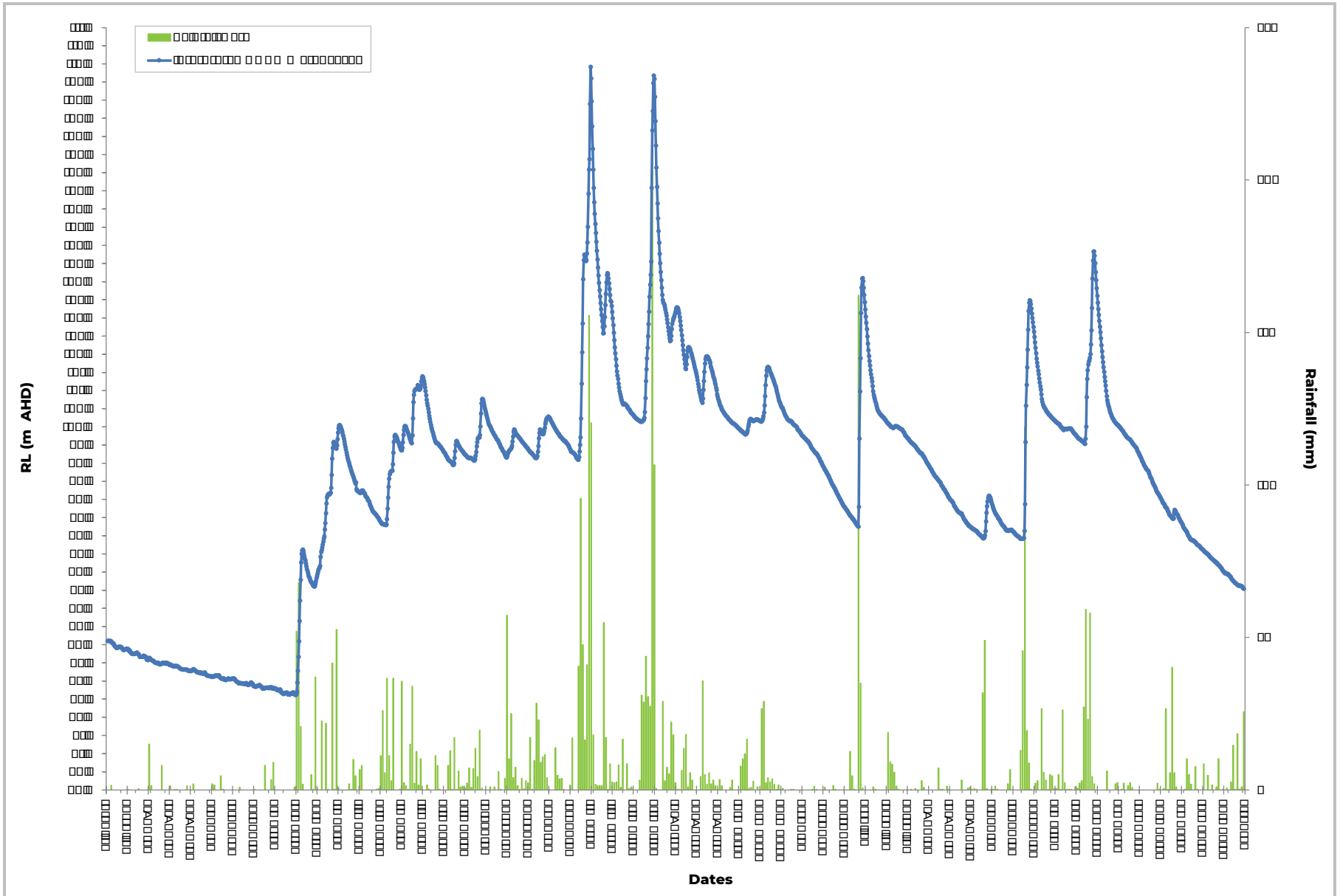

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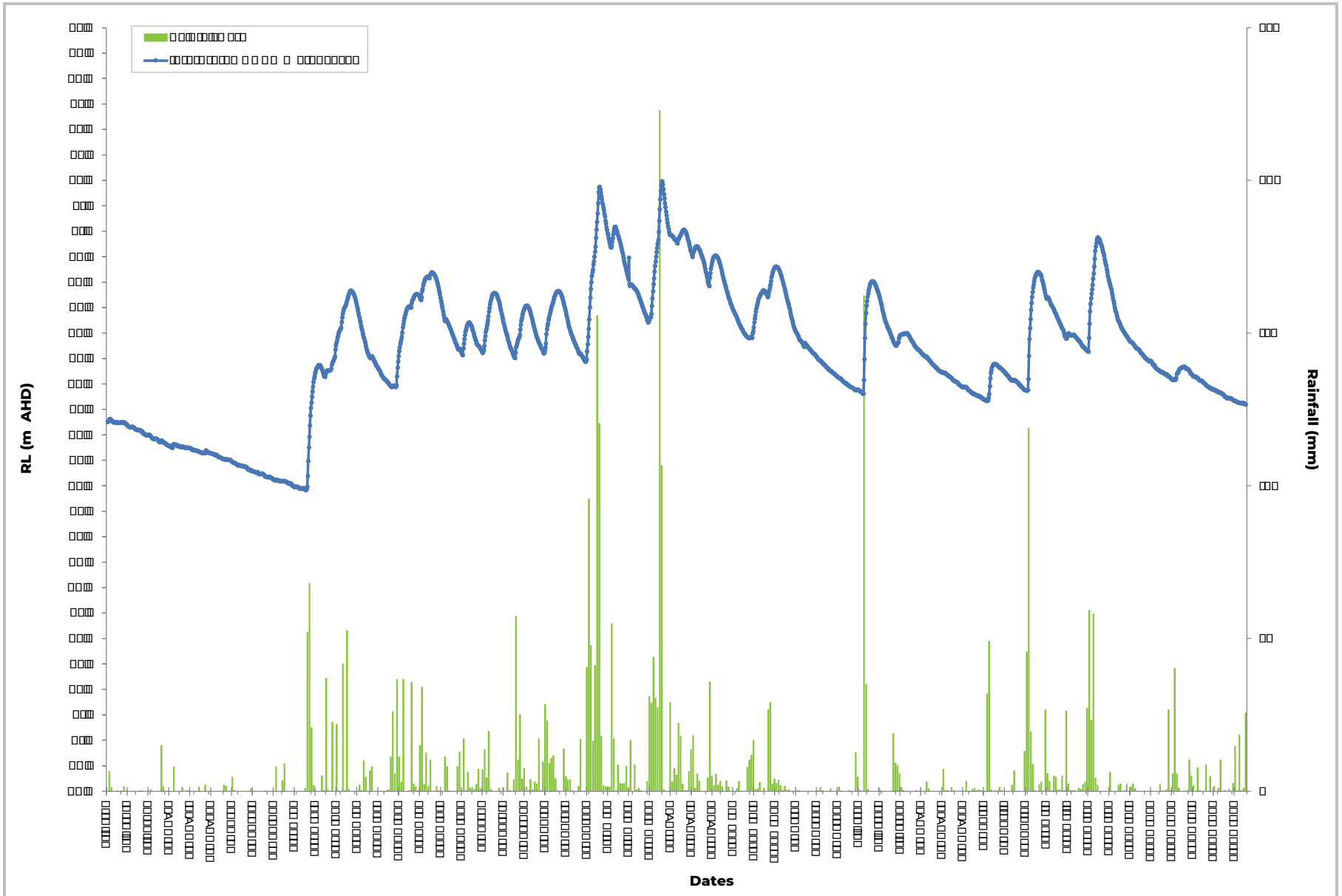

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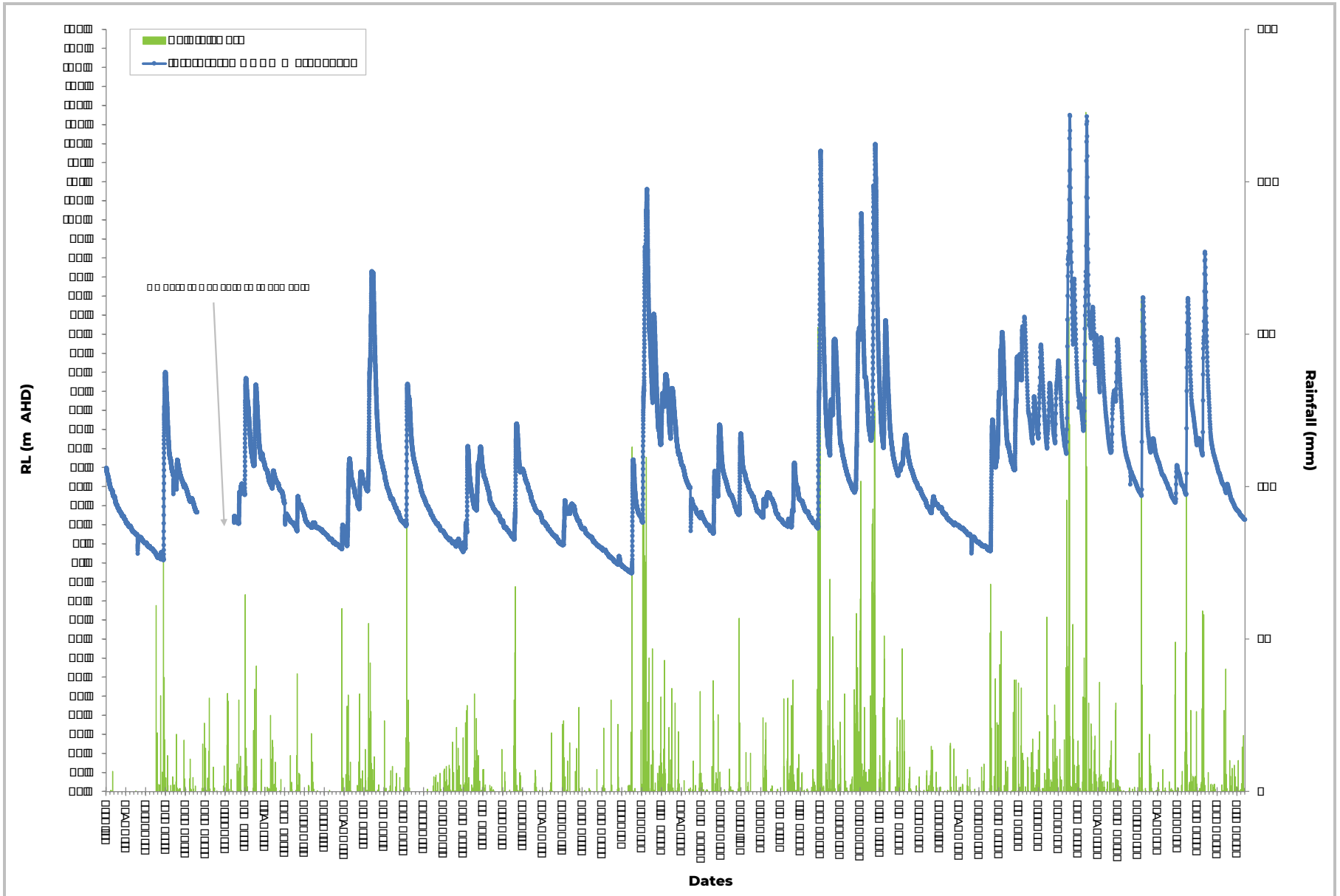

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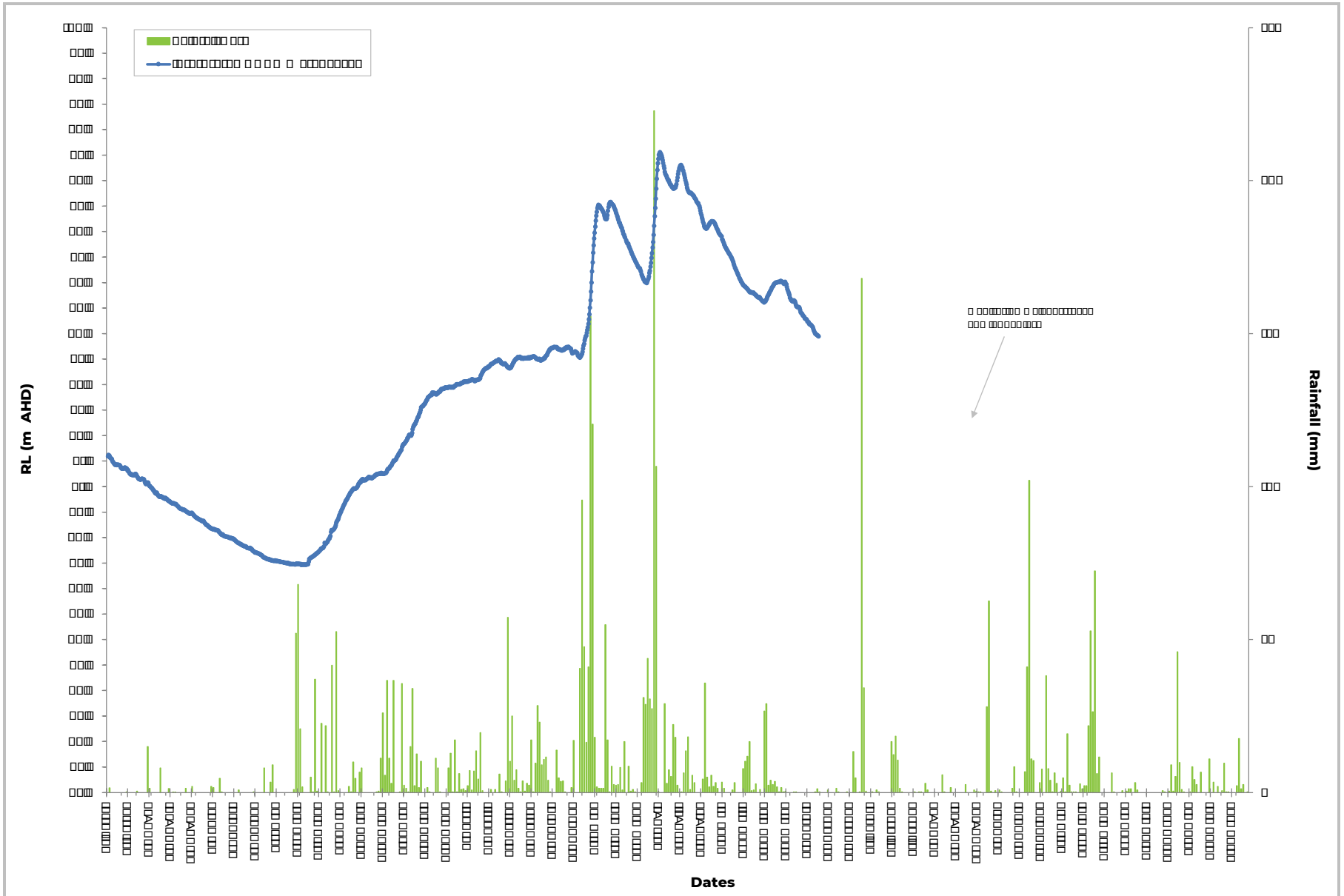

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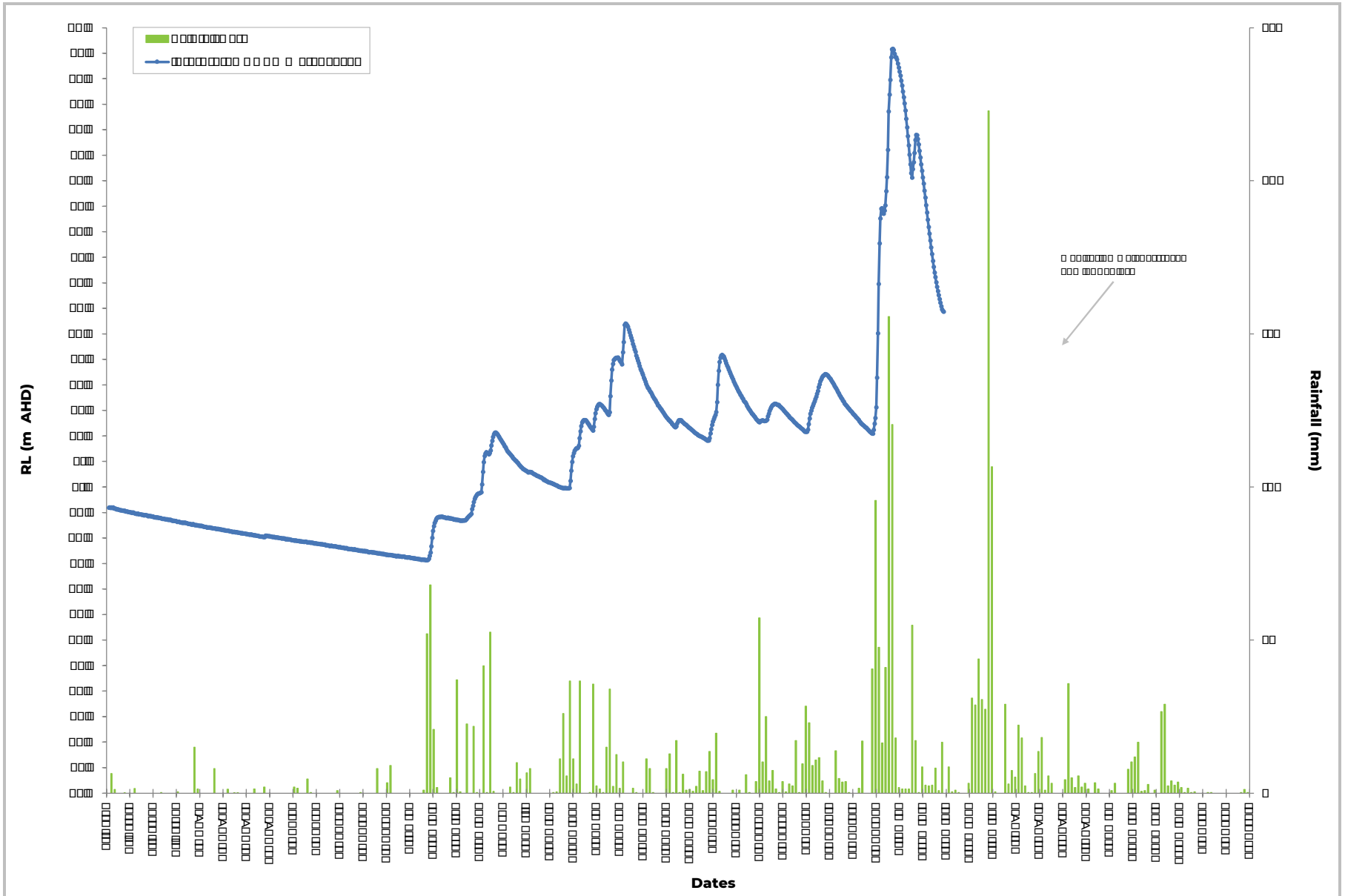

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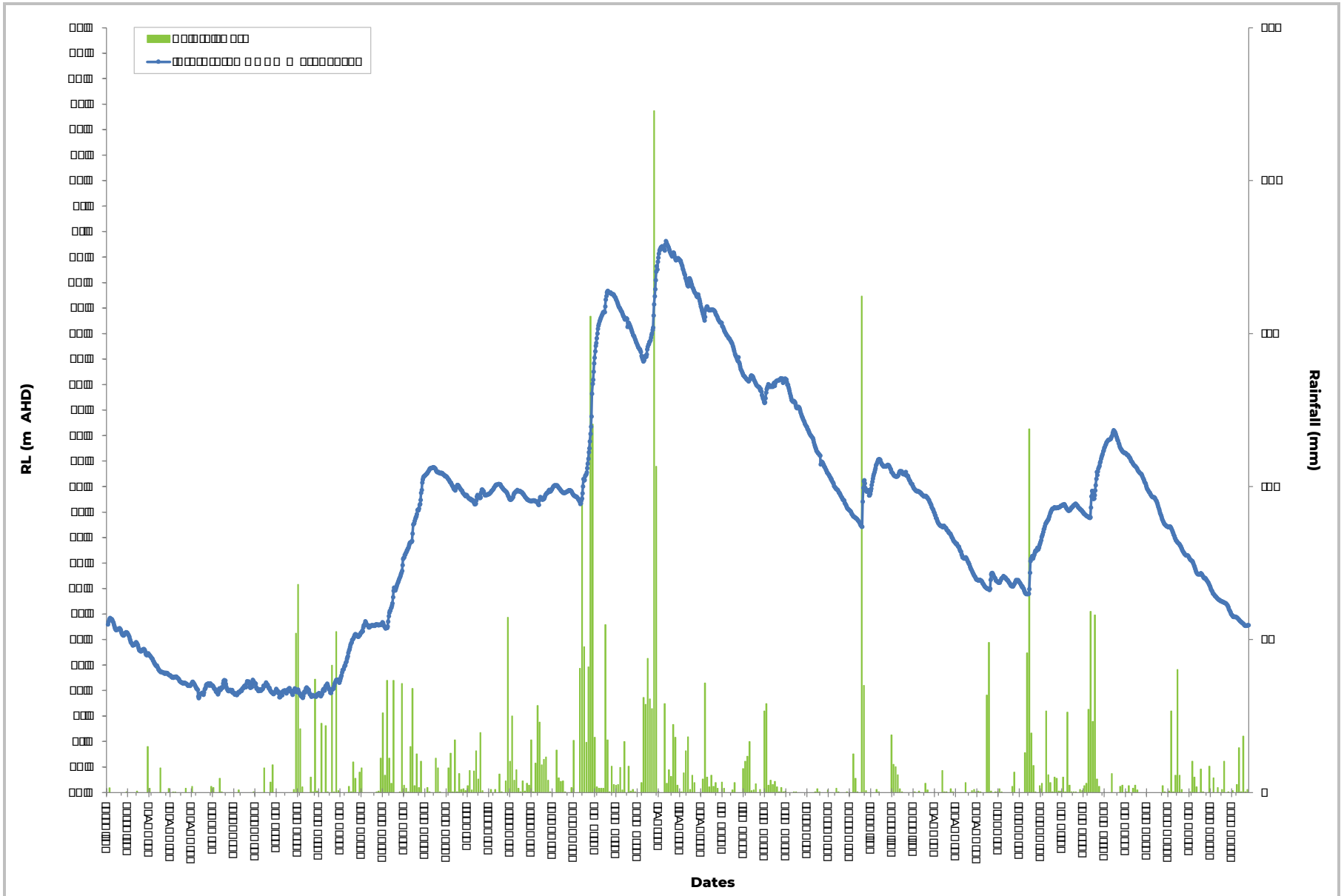

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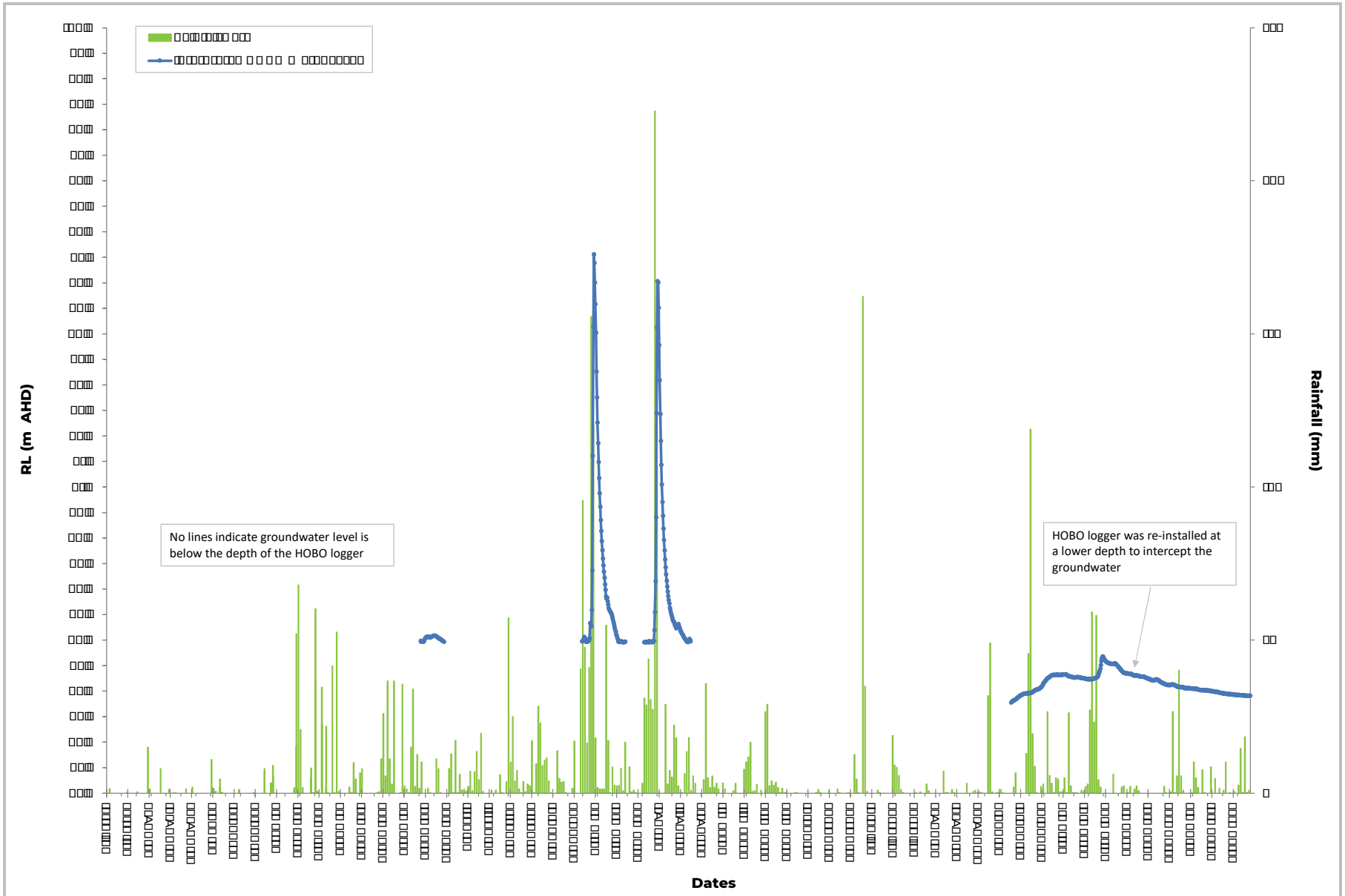

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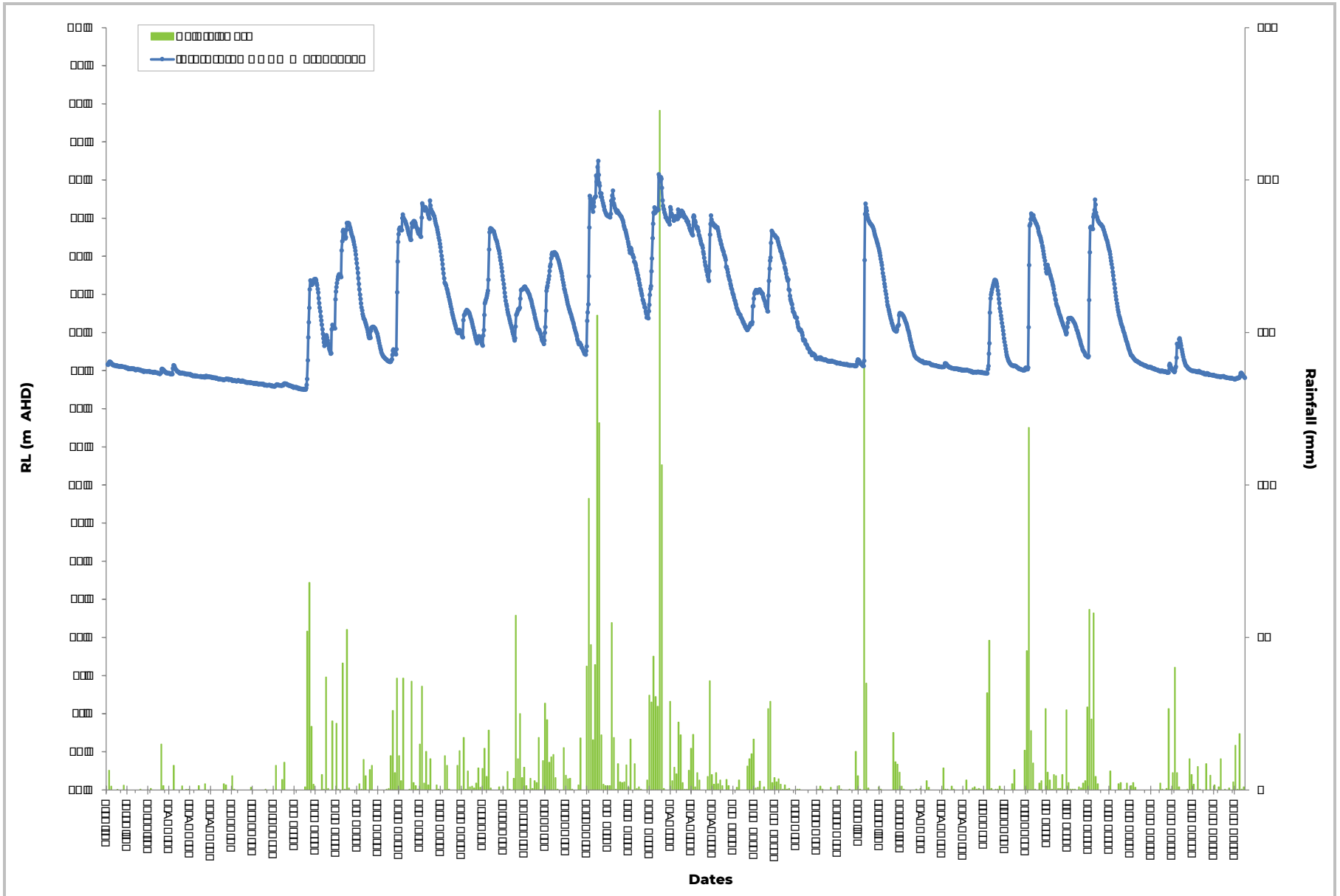

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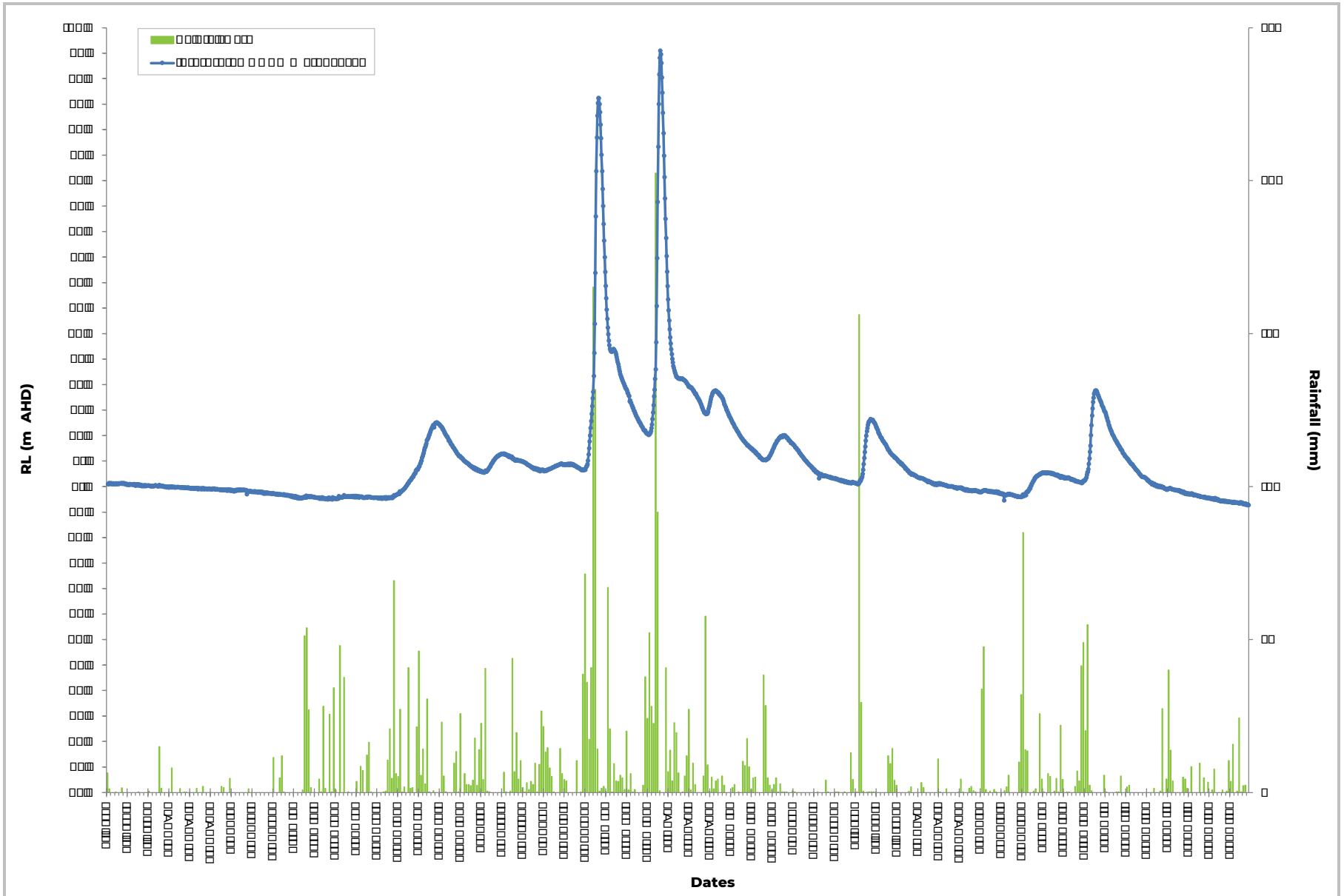

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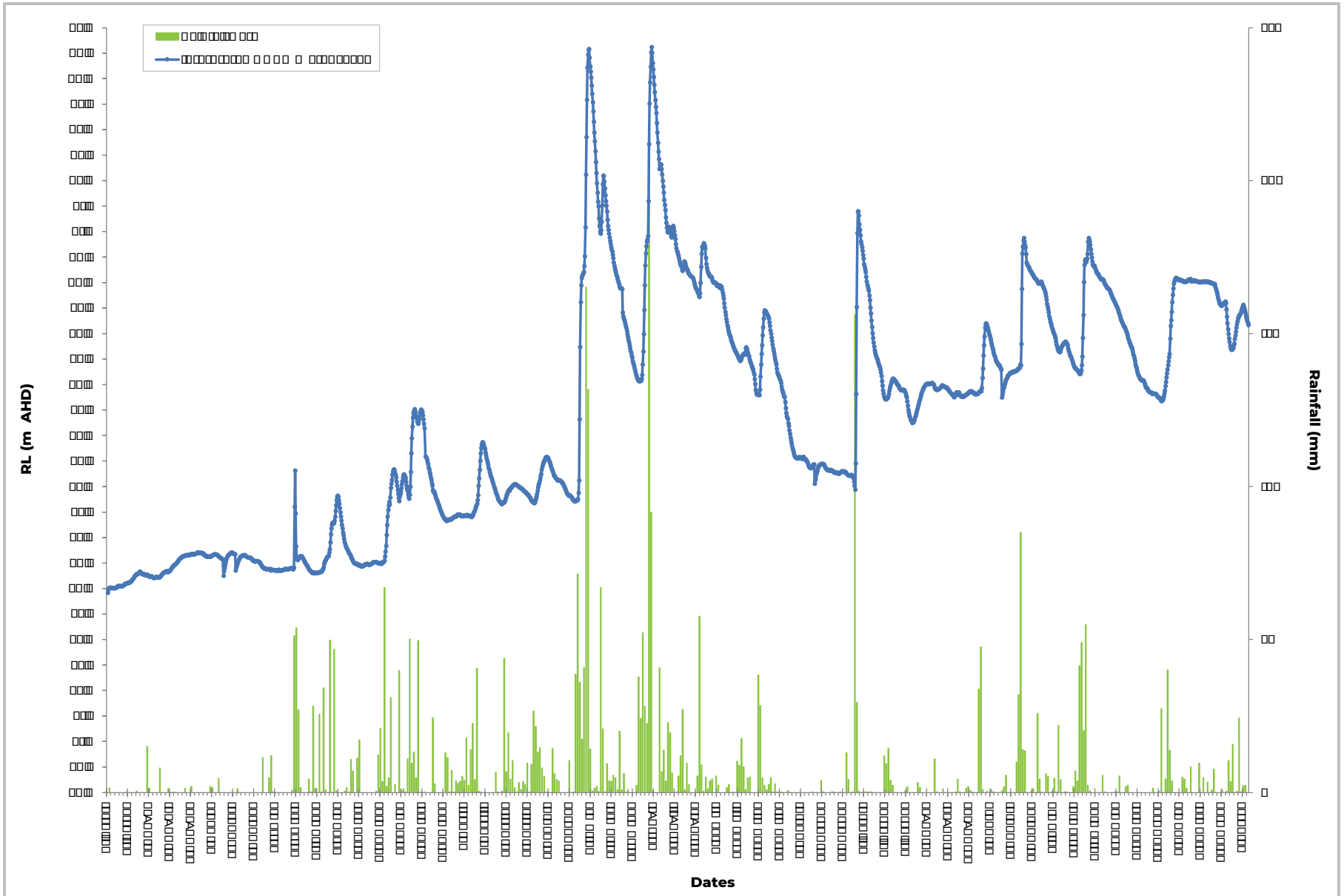

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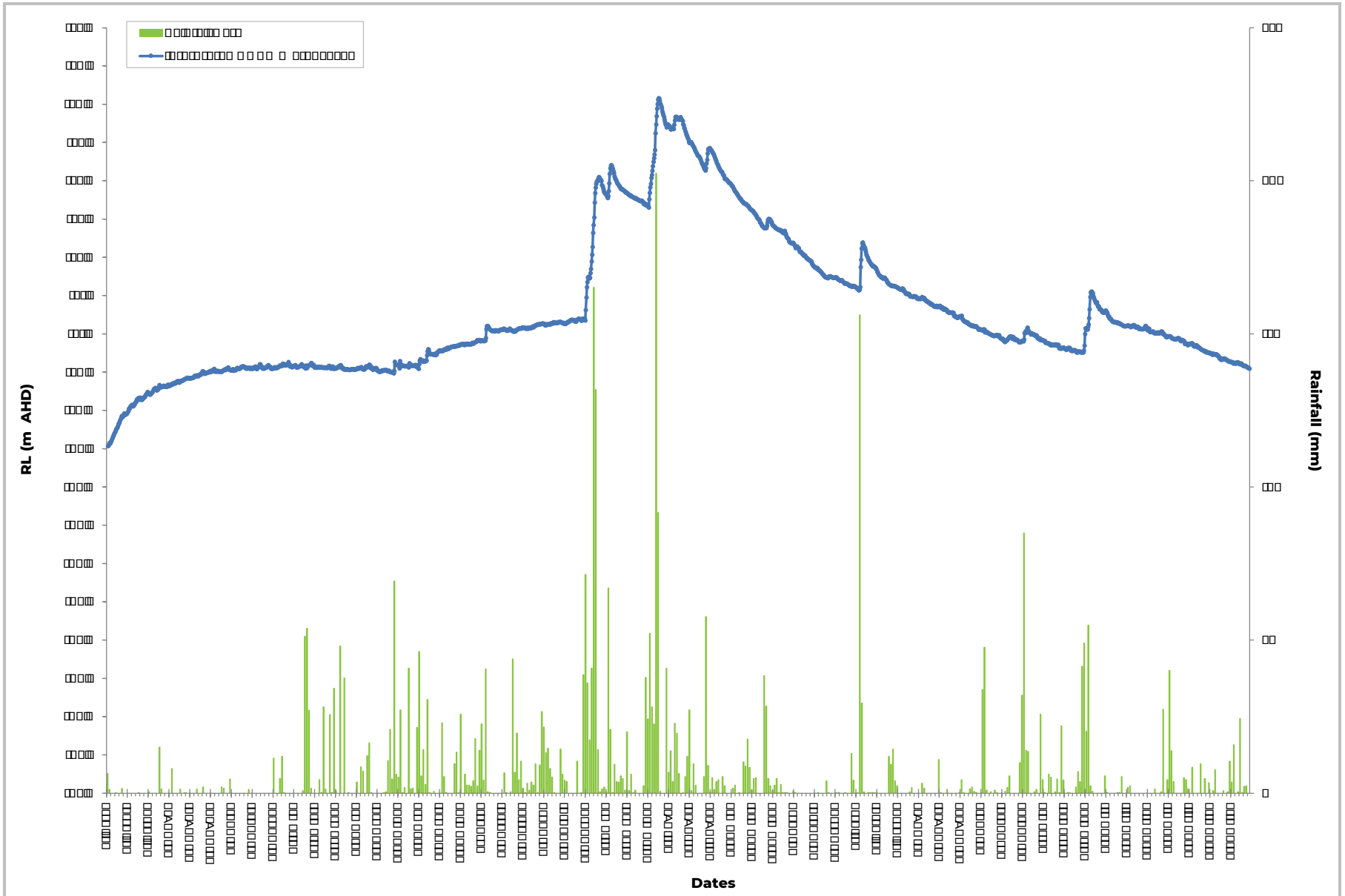

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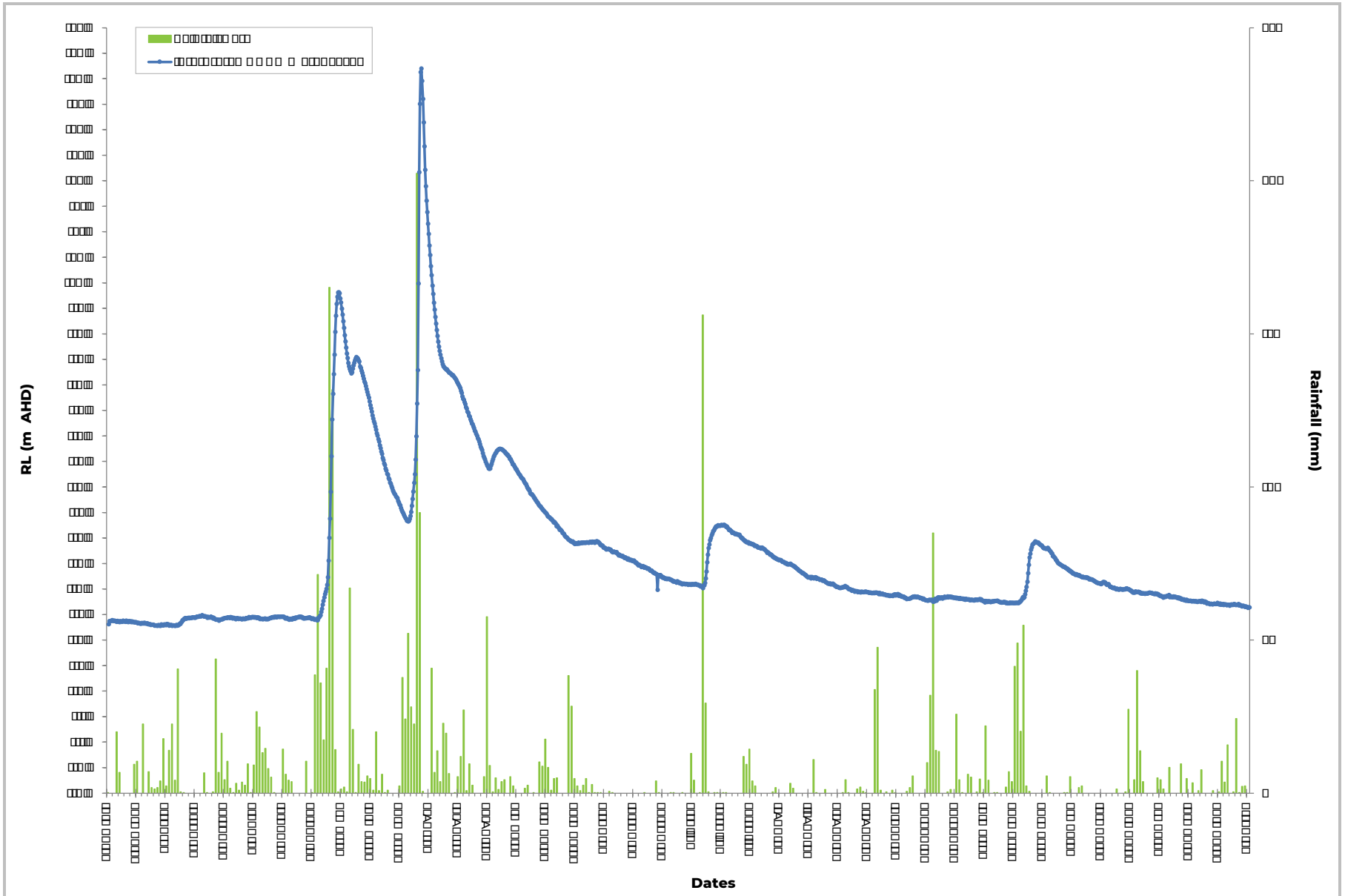

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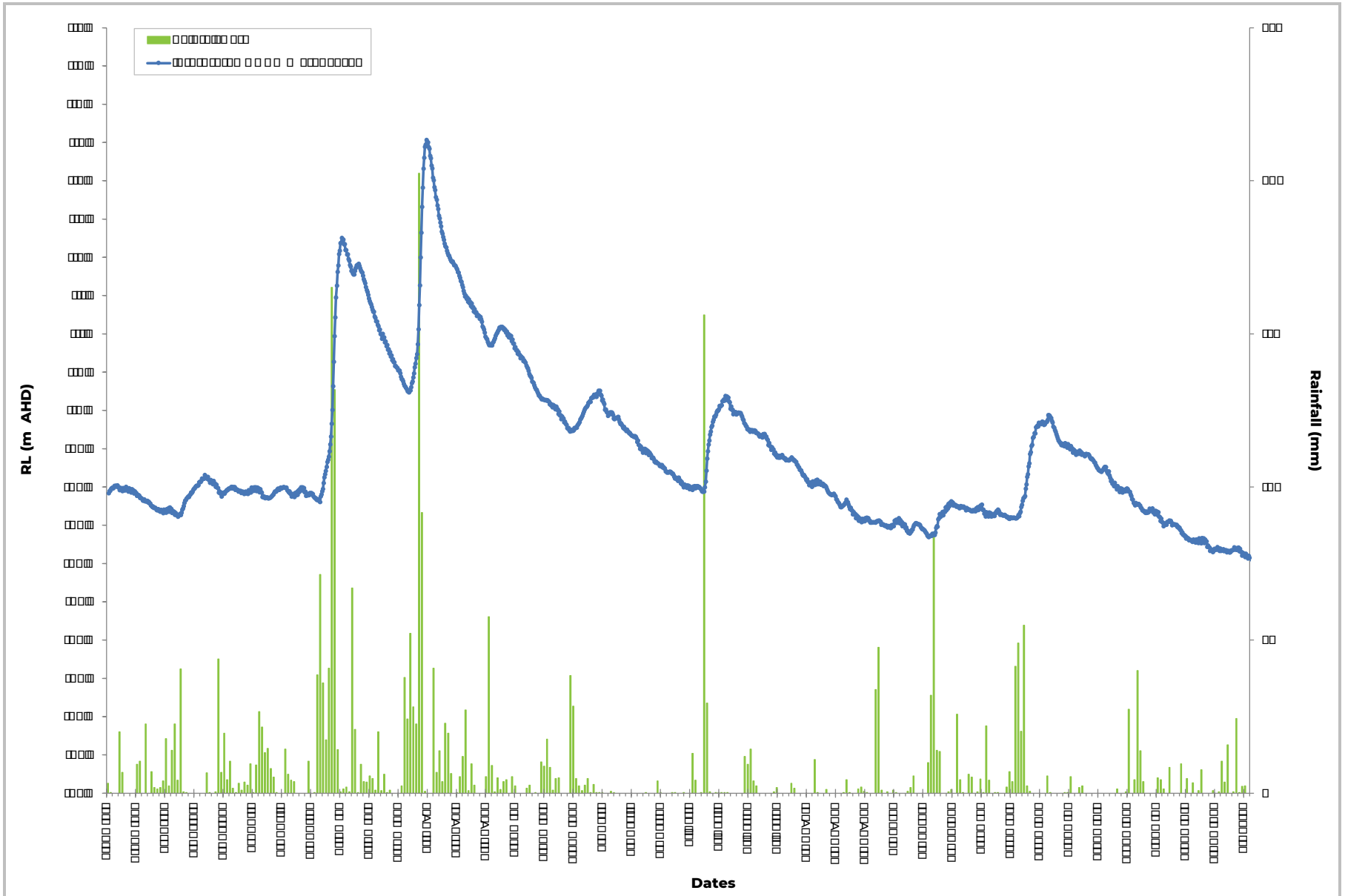

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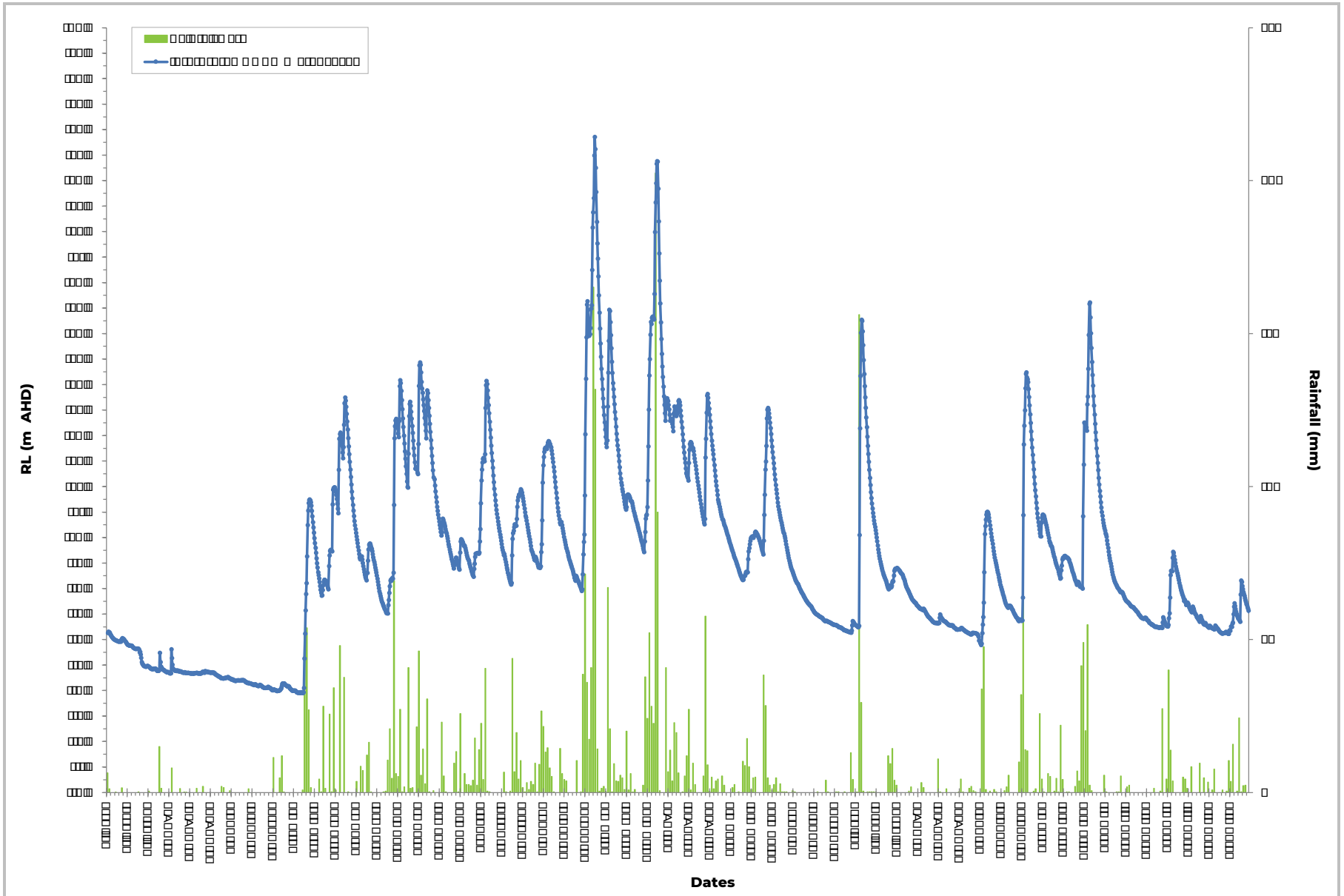

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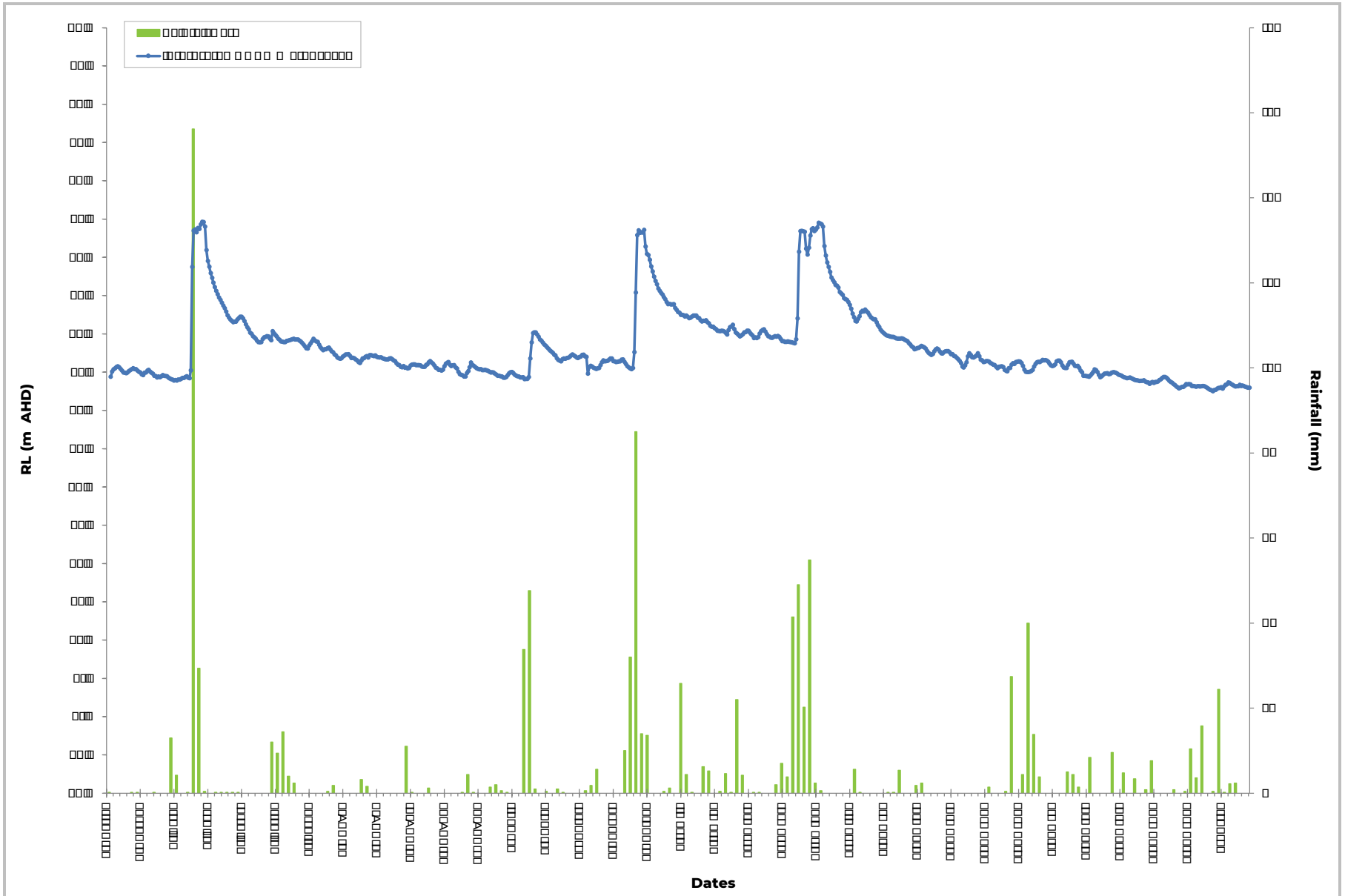

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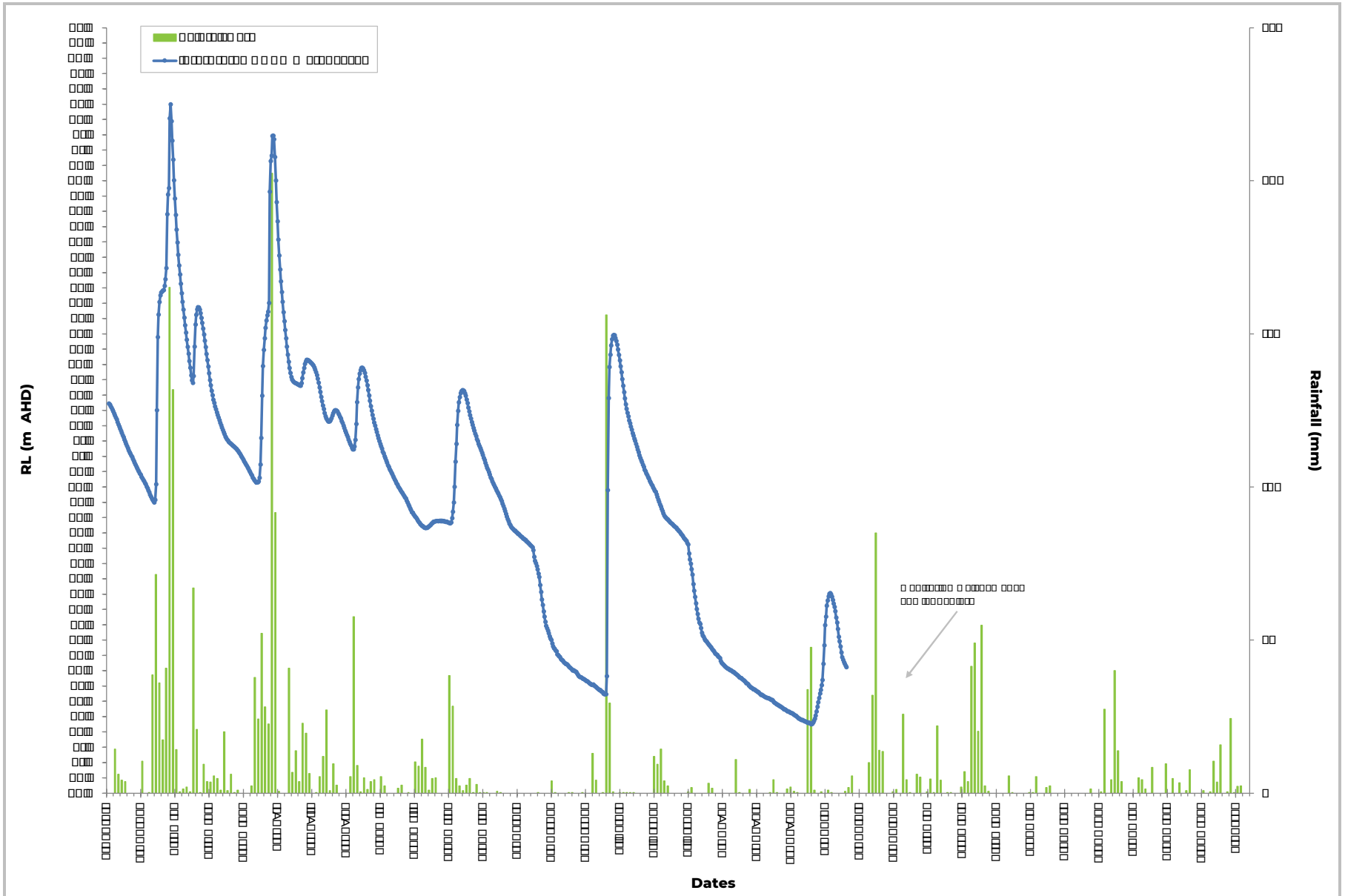

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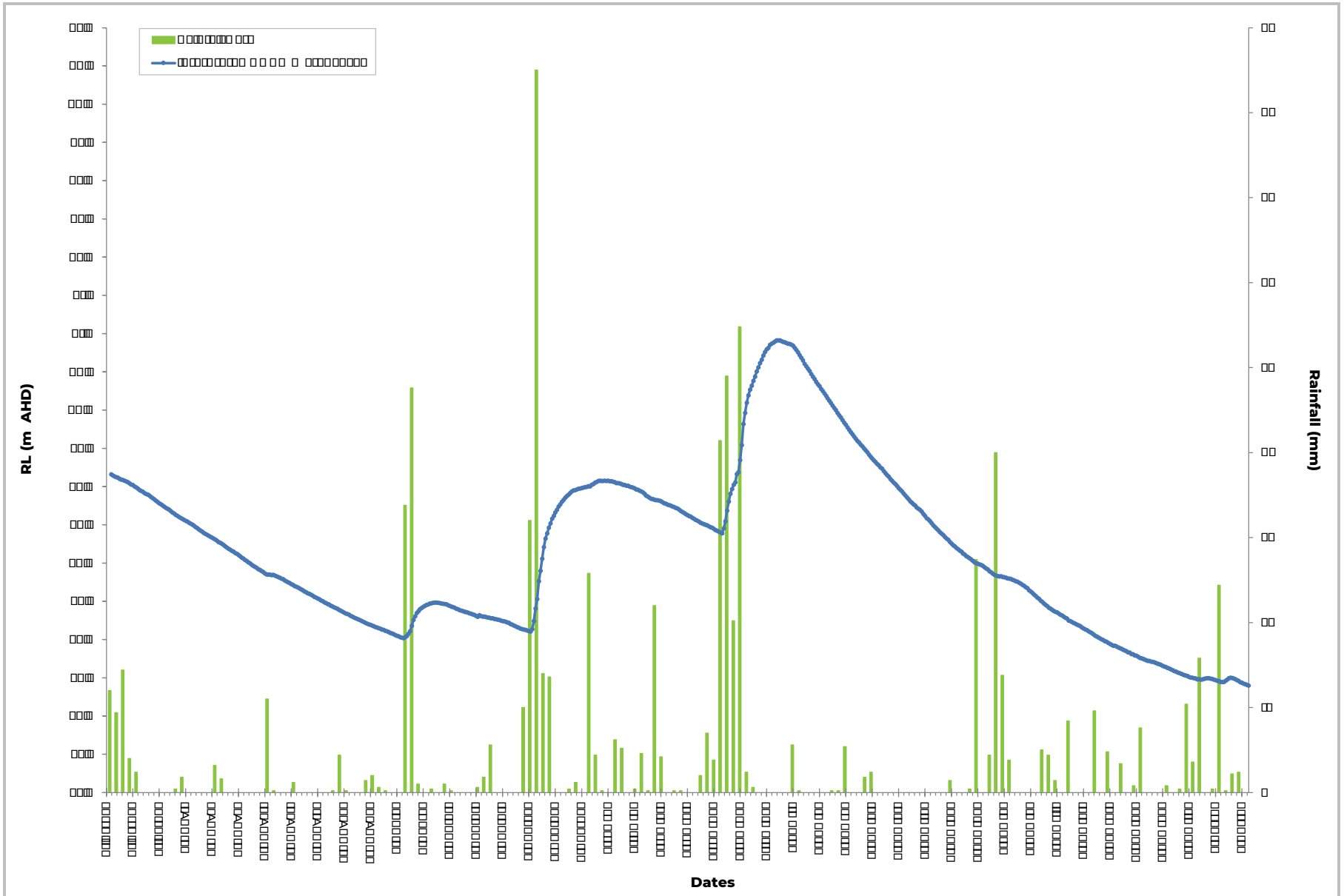

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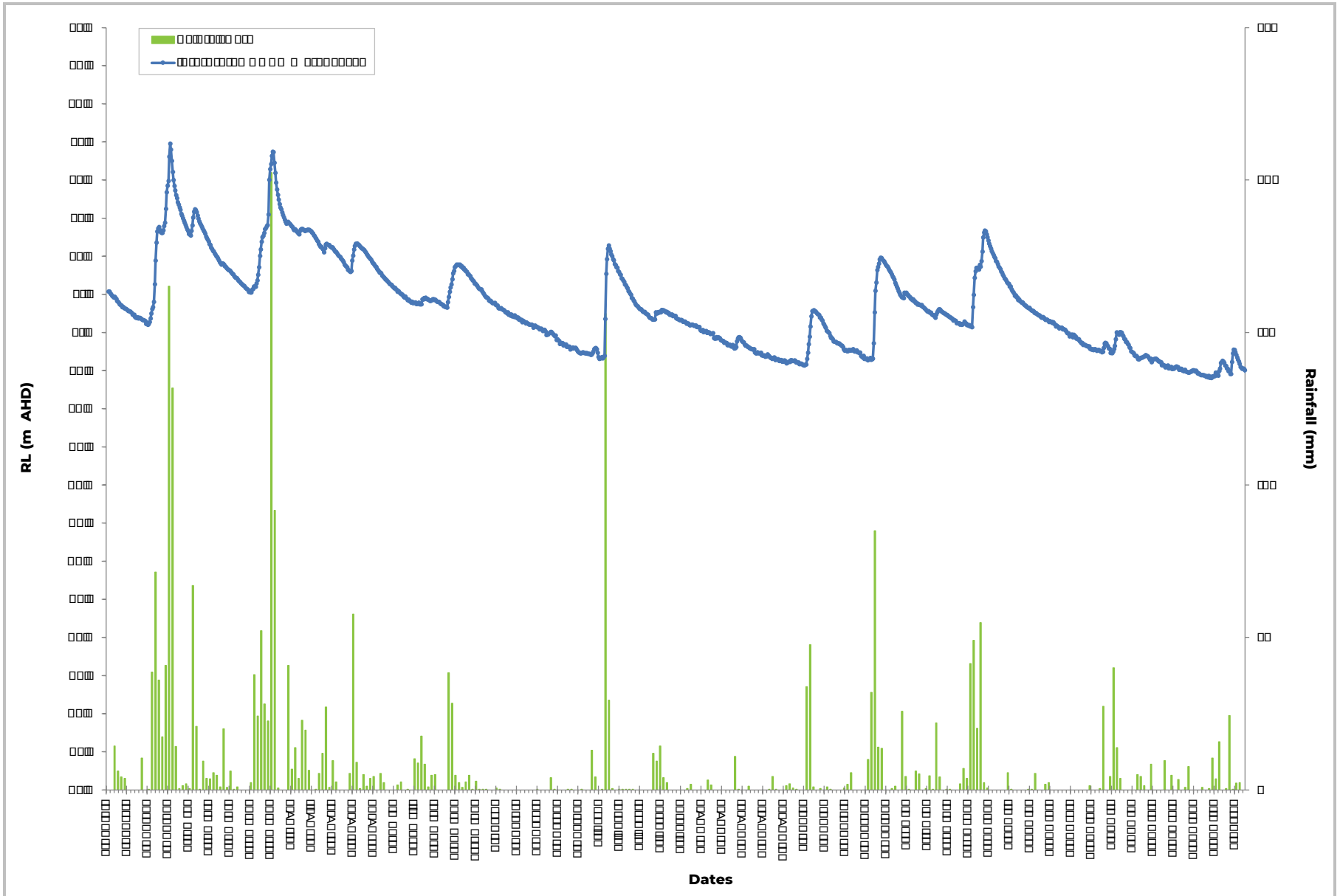

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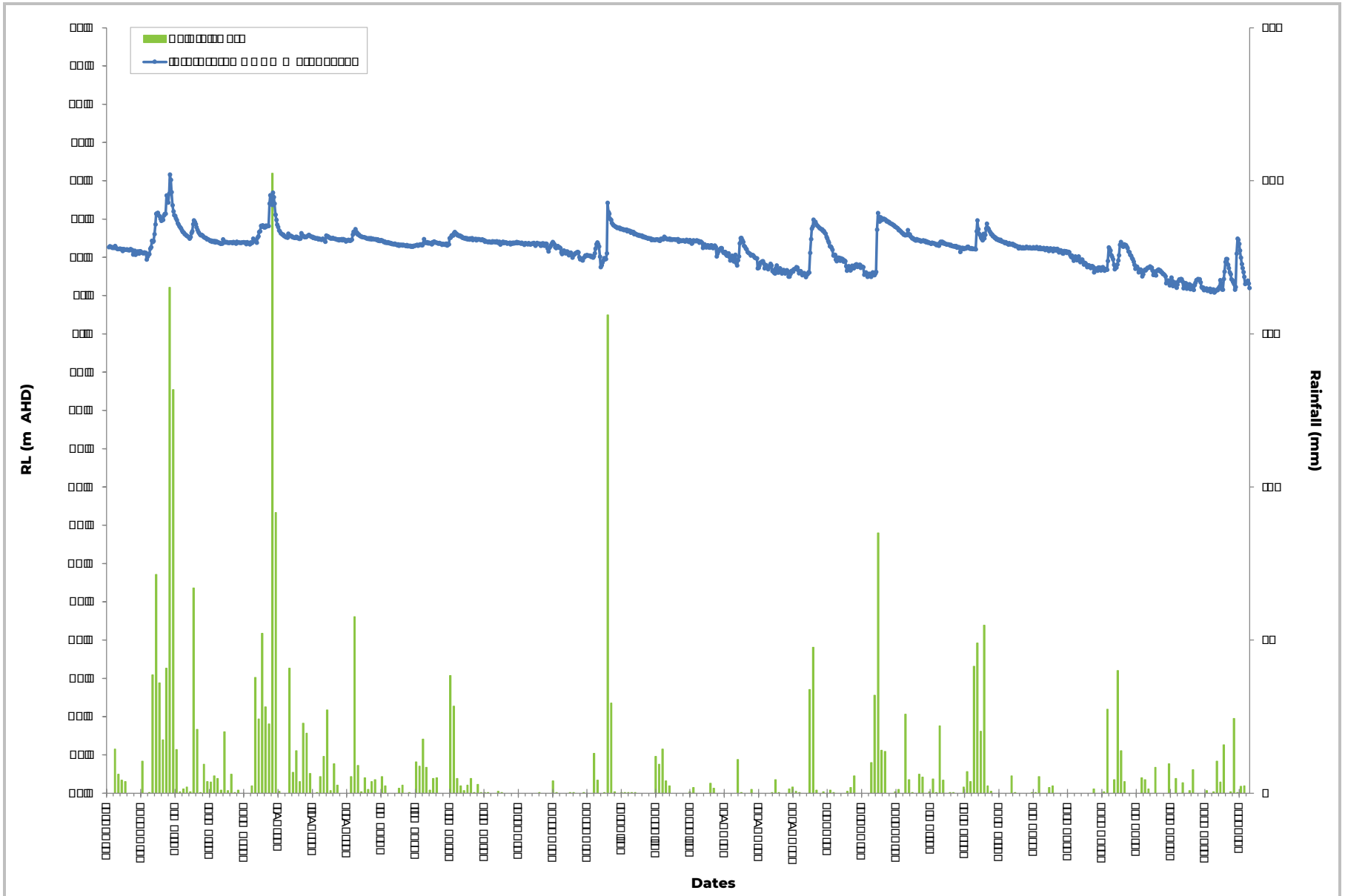

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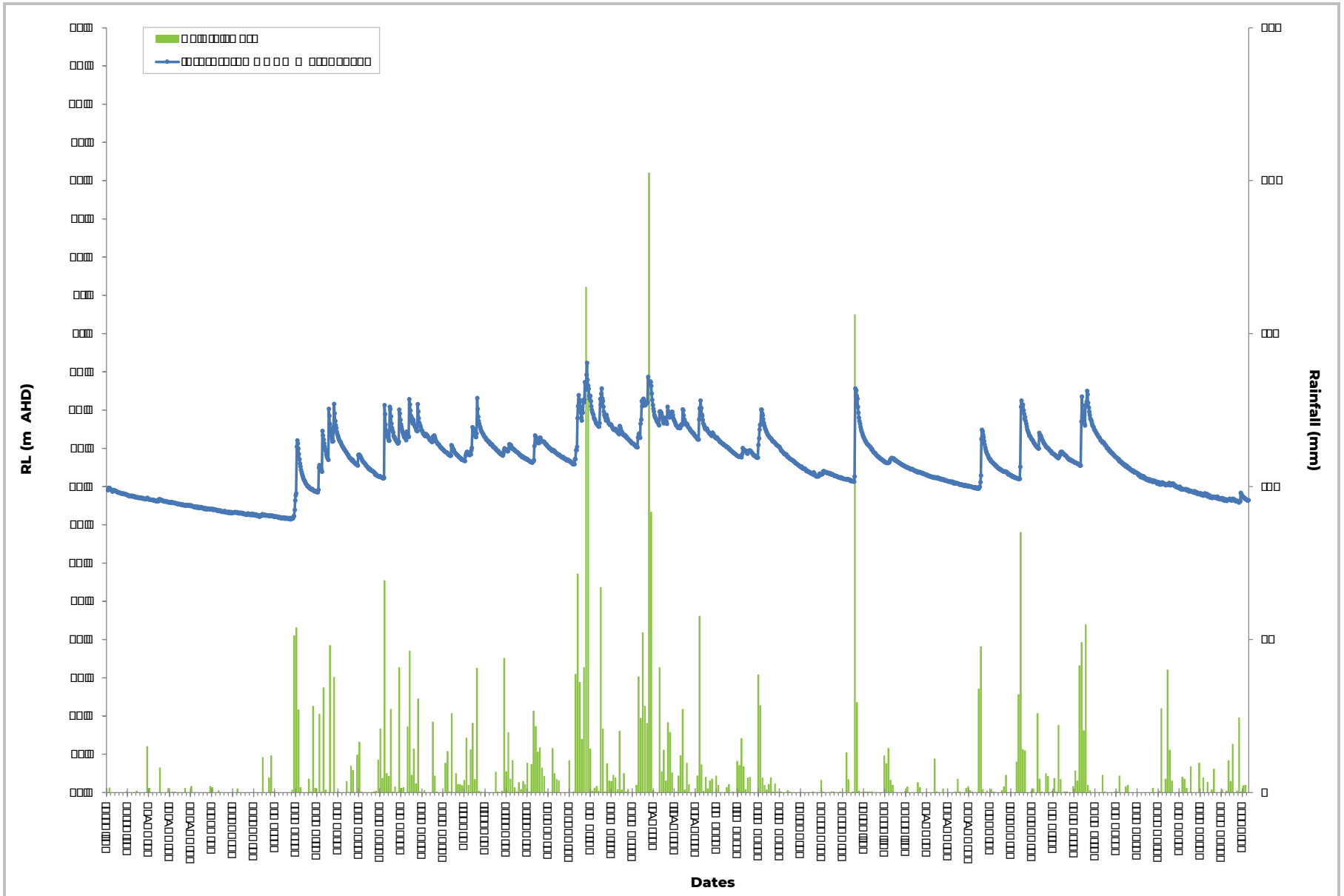

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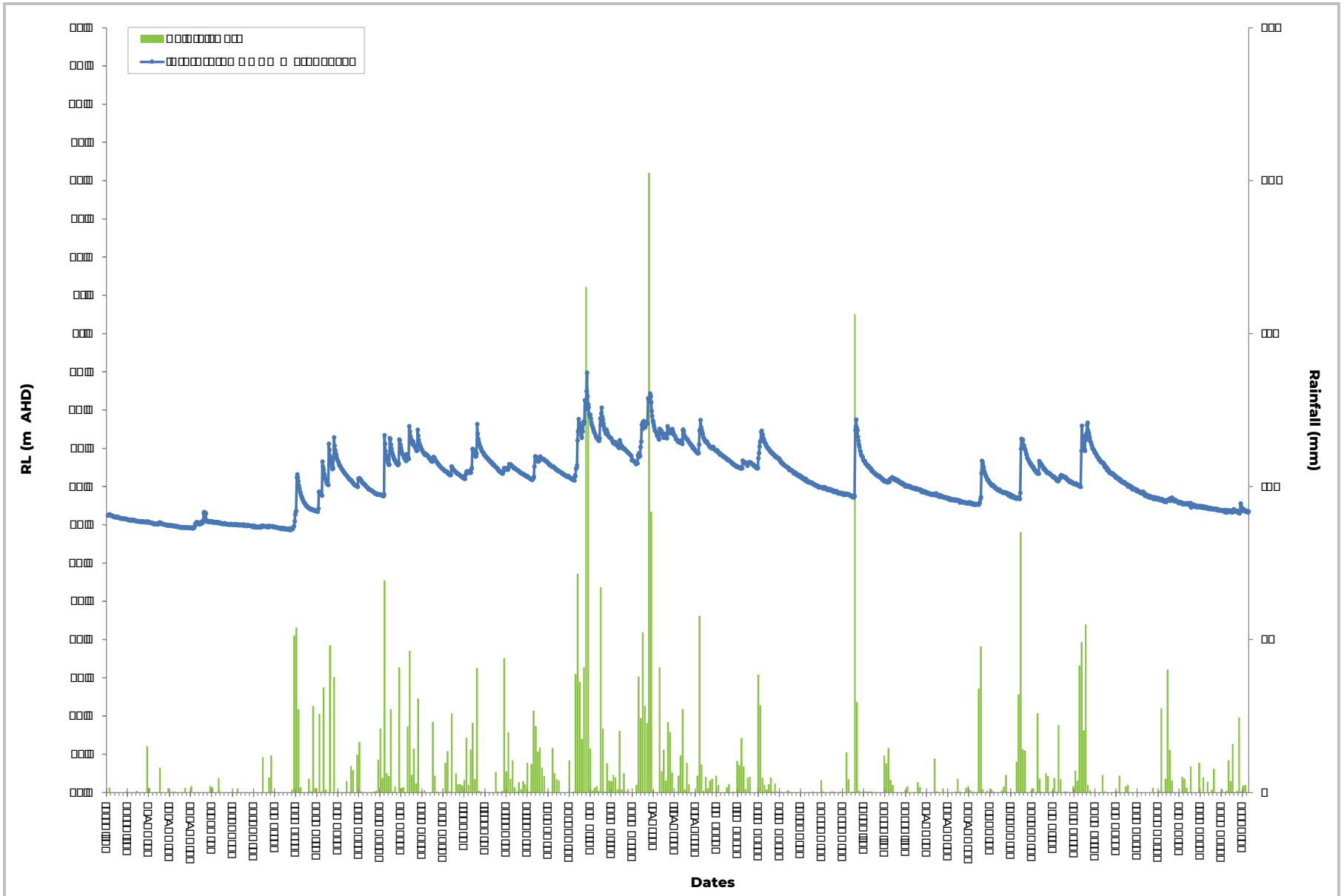

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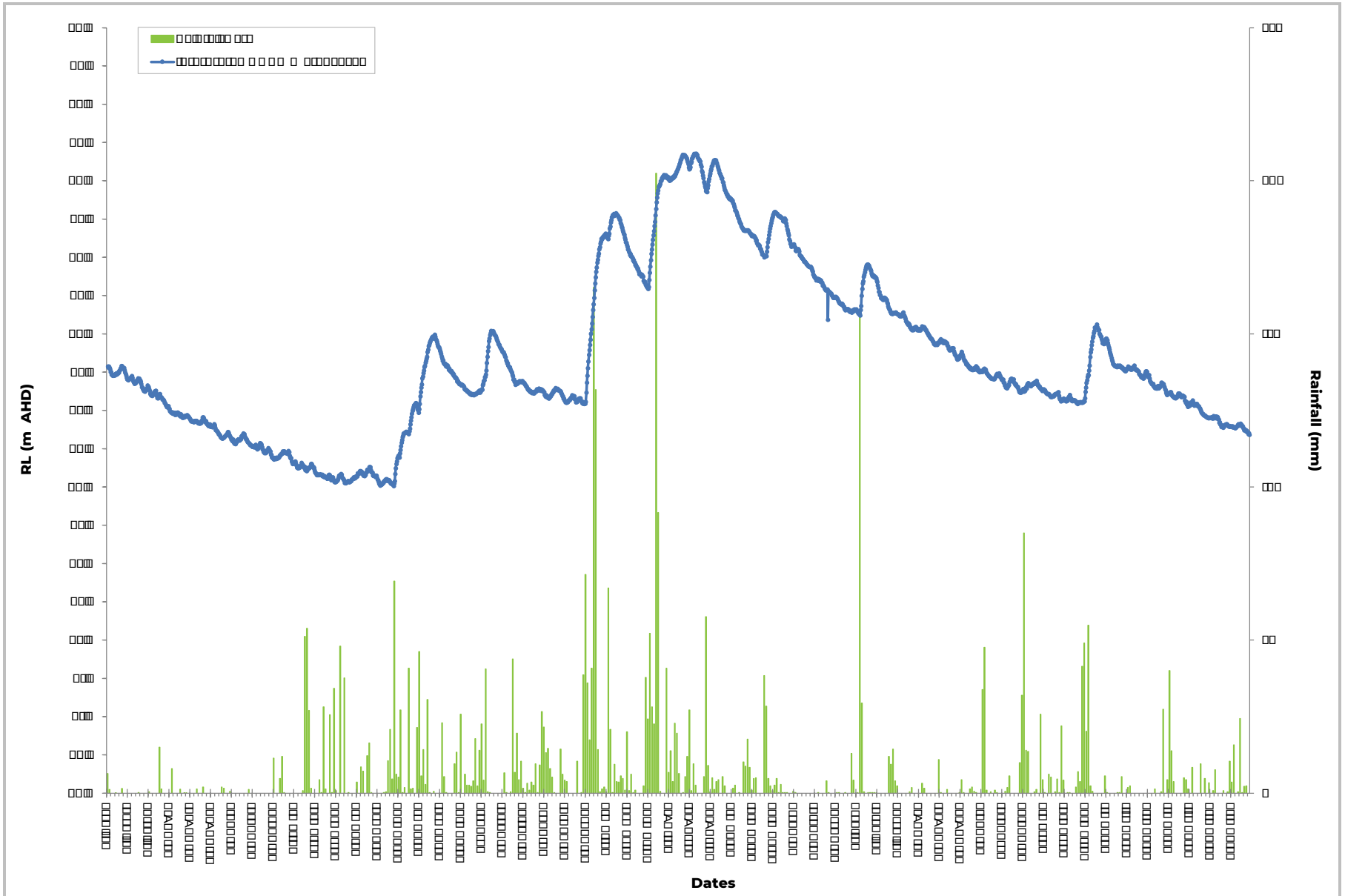
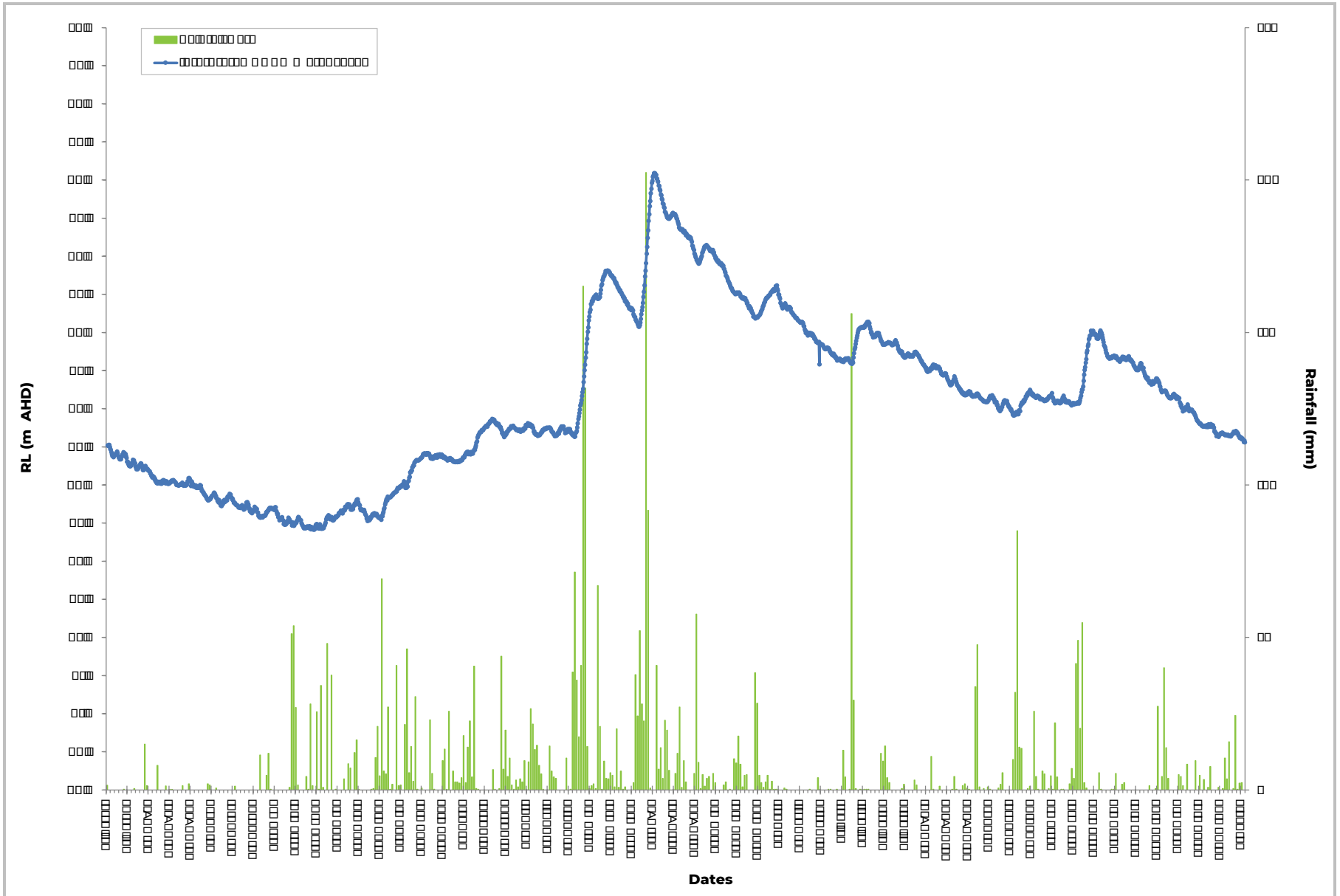
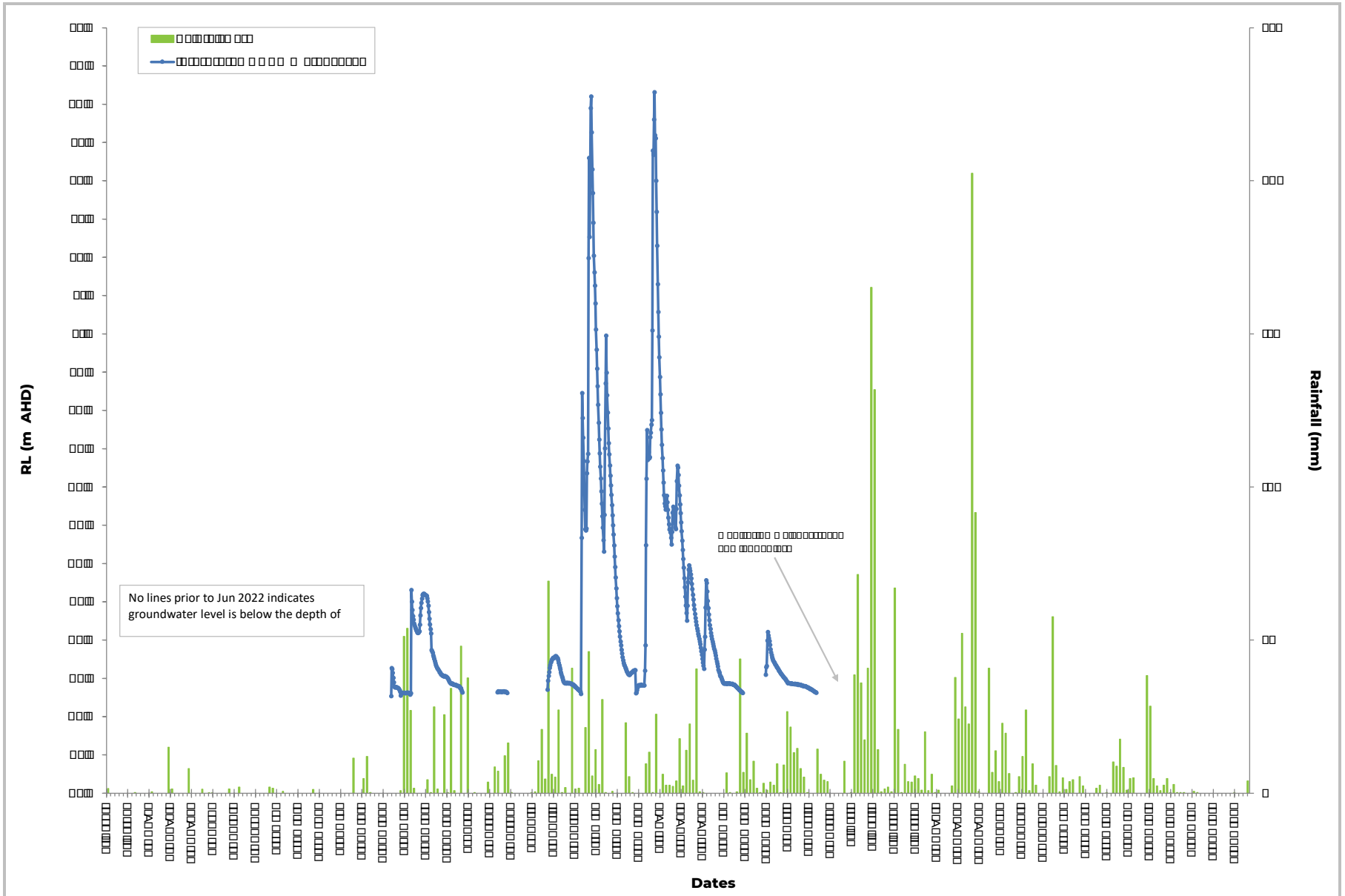


		BALLPARK ENVIRONMENTAL			



		BALLPARK ENVIRONMENTAL			



BALLPARK ENVIRONMENTAL

Appendix C

Groundwater Screening Laboratory Certificates of Analysis

Ballpark Environmental Pty Ltd
Suite 2, 192 pacific Highway
Coffs Harbour
NSW 2450

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Andrew Ballard & Joel Parkin**

Report **953805-W-V2**
Project name
Project ID BPE21058
Received Date Jan 06, 2023

Client Sample ID			**BHH106**	**BH1056**	**BH1058**	**BH1059**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**S23-Ja0002182**	**S23-Ja0002183**	**S23-Ja0002184**	**S23-Ja0002185**
Date Sampled			**Jan 03, 2022**	**Jan 03, 2022**	**Jan 03, 2022**	**Jan 03, 2022**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	0.1	< 0.1	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BHH106	BH1056	BH1058	BH1059
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002182	S23-Ja0002183	S23-Ja0002184	S23-Ja0002185
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	119	134	126	119
Toluene-d8 (surr.)	1	%	120	136	129	122
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002

Client Sample ID			BHH106	BH1056	BH1058	BH1059
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002182	S23-Ja0002183	S23-Ja0002184	S23-Ja0002185
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	0.0009	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]82	150	[Q09]INT	[Q09]INT
Tetrachloro-m-xylene (surr.)	1	%	[Q09]75	142	147	124
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			BHH106	BH1056	BH1058	BH1059
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002182	S23-Ja0002183	S23-Ja0002184	S23-Ja0002185
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	147
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	53	73	57	60
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	70	150	[Q09]INT	[Q09]INT
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHH106	BH1056	BH1058	BH1059
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002182	S23-Ja0002183	S23-Ja0002184	S23-Ja0002185
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHH106	BH1056	BH1058	BH1059
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002182	S23-Ja0002183	S23-Ja0002184	S23-Ja0002185
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	119	148	124	136
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	36	42	42	36
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	0.03
Chloride	1	mg/L	7.7	16	7.1	23
Nitrate & Nitrite (as N)	0.05	mg/L	0.46	0.67	0.26	0.14
Nitrate (as N)	0.02	mg/L	0.45	0.67	0.26	0.13
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	0.06	< 0.05	< 0.05
Sulphate (as SO4)	2	mg/L	21	15	7.4	7.7
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	58	78	21	< 20
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	58	78	21	< 20
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.013	0.001	0.006	0.011
Iron (filtered)	0.05	mg/L	0.20	< 0.05	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.010	0.054	0.032	0.49
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.021	< 0.001	0.001	0.003
Zinc (filtered)	0.005	mg/L	0.091	0.008	0.013	0.011
Alkali Metals						
Calcium	0.5	mg/L	8.0	5.5	5.3	1.0
Magnesium	0.5	mg/L	2.9	6.5	1.3	2.7
Potassium	0.5	mg/L	3.6	4.5	1.6	1.3
Sodium	0.5	mg/L	41	39	15	24

Client Sample ID			BHH110	BH2001	BH2002	BHH1111
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002186	S23-Ja0002187	S23-Ja0002188	S23-Ja0002189
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.12
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	0.2	0.2
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	0.2	0.32
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.21
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.21
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	0.2	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	0.2	0.21
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BHH110	BH2001	BH2002	BHH1111
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002186	S23-Ja0002187	S23-Ja0002188	S23-Ja0002189
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	135	130	124	120
Toluene-d8 (surr.)	1	%	140	136	130	127
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002

Client Sample ID			BHH110	BH2001	BH2002	BHH1111
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002186	S23-Ja0002187	S23-Ja0002188	S23-Ja0002189
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Tetrachloro-m-xylene (surr.)	1	%	140	[Q09]INT	[Q09]INT	[Q09]INT
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHH110	BH2001	BH2002	BHH1111
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002186	S23-Ja0002187	S23-Ja0002188	S23-Ja0002189
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	68	77	57	69
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	123	127	[Q09]INT	[Q09]INT
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BHH110	BH2001	BH2002	BHH1111
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002186	S23-Ja0002187	S23-Ja0002188	S23-Ja0002189
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	137	138	140	133
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	44	46	52	50
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHH110	BH2001	BH2002	BHH1111
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002186	S23-Ja0002187	S23-Ja0002188	S23-Ja0002189
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	0.03
Chloride	1	mg/L	18	29	13	32
Nitrate & Nitrite (as N)	0.05	mg/L	1.2	< 0.05	0.61	< 0.05
Nitrate (as N)	0.02	mg/L	1.2	< 0.02	0.61	0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	2	mg/L	13	22	18	60
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	48	88	< 20	76
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	48	88	< 20	76
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.003
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.013	< 0.001	0.008	0.003
Iron (filtered)	0.05	mg/L	< 0.05	1.1	< 0.05	0.06
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.20	0.61	0.009	1.3
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.006	< 0.001	< 0.001	0.001
Zinc (filtered)	0.005	mg/L	0.008	< 0.005	0.009	< 0.005
Alkali Metals						
Calcium	0.5	mg/L	5.3	18	10	37
Magnesium	0.5	mg/L	5.8	12	2.5	8.2
Potassium	0.5	mg/L	2.4	2.6	1.7	3.7
Sodium	0.5	mg/L	35	52	16	48

Client Sample ID			BHH113	BH2003	BHN2.1-015	BH2004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002190	S23-Ja0002191	S23-Ja0002192	S23-Ja0002193
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	0.4
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	0.5
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	0.4
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	0.45

Client Sample ID			BHH113	BH2003	BHN2.1-015	BH2004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002190	S23-Ja0002191	S23-Ja0002192	S23-Ja0002193
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BHH113	BH2003	BHN2.1-015	BH2004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002190	S23-Ja0002191	S23-Ja0002192	S23-Ja0002193
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	127	120	129	110
Toluene-d8 (surr.)	1	%	134	124	131	112
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]INT	135	[Q09]INT	[Q09]INT
Tetrachloro-m-xylene (surr.)	1	%	[Q09]INT	132	143	[Q09]INT
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			BHH113	BH2003	BHN2.1-015	BH2004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002190	S23-Ja0002191	S23-Ja0002192	S23-Ja0002193
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	76	82	90	81
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			BHH113	BH2003	BHN2.1-015	BH2004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002190	S23-Ja0002191	S23-Ja0002192	S23-Ja0002193
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHH113	BH2003	BHN2.1-015	BH2004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002190	S23-Ja0002191	S23-Ja0002192	S23-Ja0002193
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	[Q09]INT	140	150	[Q09]INT
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	52	48	50	52
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01	0.15	< 0.01	< 0.01
Chloride	1	mg/L	22	23	11	12
Nitrate & Nitrite (as N)	0.05	mg/L	1.9	< 0.05	4.9	3.8
Nitrate (as N)	0.02	mg/L	1.9	< 0.02	4.9	3.8
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.05	mg/L	0.07	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	2	mg/L	31	5.0	49	16
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	29	160	< 20	< 20
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	29	160	< 20	< 20

Client Sample ID			BHH113	BH2003	BHN2.1-015	BH2004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002190	S23-Ja0002191	S23-Ja0002192	S23-Ja0002193
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	0.009	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.011	< 0.001	0.024	0.049
Iron (filtered)	0.05	mg/L	< 0.05	5.7	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.008	0.82	0.037	0.057
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	< 0.001	0.009	0.007
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	0.012	0.068
Alkali Metals						
Calcium	0.5	mg/L	6.2	38	2.8	2.4
Magnesium	0.5	mg/L	5.6	14	11	6.2
Potassium	0.5	mg/L	2.2	6.9	2.1	1.8
Sodium	0.5	mg/L	40	45	30	17

Client Sample ID			BHH115	BH2006	BHH119	BH2008
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002194	S23-Ja0002195	S23-Ja0002196	S23-Ja0002197
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	0.09	< 0.05
TRH C15-C28	0.1	mg/L	0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.1	< 0.1	< 0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	0.11	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	0.11	< 0.05
TRH >C16-C34	0.1	mg/L	0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.1	< 0.1	0.11	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BHH115	BH2006	BHH119	BH2008
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002194	S23-Ja0002195	S23-Ja0002196	S23-Ja0002197
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	126	121	127	124
Toluene-d8 (surr.)	1	%	128	119	130	121
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BHH115	BH2006	BHH119	BH2008
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002194	S23-Ja0002195	S23-Ja0002196	S23-Ja0002197
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]INT	122	[Q09]INT	112
Tetrachloro-m-xylene (surr.)	1	%	[Q09]INT	98	129	82
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			BHH115	BH2006	BHH119	BH2008
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002194	S23-Ja0002195	S23-Ja0002196	S23-Ja0002197
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	104
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	78	67	83	65
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHH115	BH2006	BHH119	BH2008
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002194	S23-Ja0002195	S23-Ja0002196	S23-Ja0002197
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHH115	BH2006	BHH119	BH2008
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002194	S23-Ja0002195	S23-Ja0002196	S23-Ja0002197
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	135	123	147	130
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	0.003	< 0.003
Phenol-d6 (surr.)	1	%	58	20	58	49
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	0.59	< 0.01	0.56	< 0.01
Chloride	1	mg/L	10	27	28	14
Nitrate & Nitrite (as N)	0.05	mg/L	0.75	1.1	< 0.05	1.2
Nitrate (as N)	0.02	mg/L	0.73	1.0	< 0.02	1.2
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	0.08	< 0.05	< 0.05
Sulphate (as SO4)	2	mg/L	4.6	88	46	17
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	33	180	270	< 20
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	33	180	270	< 20
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.010	0.002	0.002	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.011	0.002	0.12	0.016
Iron (filtered)	0.05	mg/L	0.40	< 0.05	0.60	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.028	0.12	0.56	0.011
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.010	0.002	0.22	< 0.001
Zinc (filtered)	0.005	mg/L	0.072	< 0.005	0.080	< 0.005

Client Sample ID			BHH115	BH2006	BHH119	BH2008
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002194	S23-Ja0002195	S23-Ja0002196	S23-Ja0002197
Date Sampled			Jan 03, 2022	Jan 03, 2022	Jan 03, 2022	Jan 03, 2022
Test/Reference	LOR	Unit				
Alkali Metals						
Calcium	0.5	mg/L	11	8.0	36	0.6
Magnesium	0.5	mg/L	1.8	16	9.0	1.0
Potassium	0.5	mg/L	9.7	5.5	6.6	< 0.5
Sodium	0.5	mg/L	9.5	130	77	31

Client Sample ID			BH2015	BH2016	BH2027	BH2029
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002198	S23-Ja0002199	S23-Ja0002200	S23-Ja0002201
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	0.07	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	0.3	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	0.37	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	0.07	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	0.07	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	0.4	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	0.47	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BH2015	BH2016	BH2027	BH2029
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002198	S23-Ja0002199	S23-Ja0002200	S23-Ja0002201
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	125	132	127	120
Toluene-d8 (surr.)	1	%	132	137	134	126
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002

Client Sample ID			BH2015	BH2016	BH2027	BH2029
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002198	S23-Ja0002199	S23-Ja0002200	S23-Ja0002201
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]INT	[Q09]INT	144	[Q09]INT
Tetrachloro-m-xylene (surr.)	1	%	[Q09]INT	129	82	127
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			BH2015	BH2016	BH2027	BH2029
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002198	S23-Ja0002199	S23-Ja0002200	S23-Ja0002201
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	127	[Q09]INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	73	81	78	60
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	115	[Q09]INT	116	[Q09]INT
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH2015	BH2016	BH2027	BH2029
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002198	S23-Ja0002199	S23-Ja0002200	S23-Ja0002201
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH2015	BH2016	BH2027	BH2029
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002198	S23-Ja0002199	S23-Ja0002200	S23-Ja0002201
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	137	149	[Q09]INT	125
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	49	55	43	44
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	14	91	9.9	32
Nitrate & Nitrite (as N)	0.05	mg/L	11	0.13	0.85	< 0.05
Nitrate (as N)	0.02	mg/L	11	0.12	0.85	< 0.02
Nitrite (as N)	0.02	mg/L	0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	2	mg/L	9.6	10	17	48
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	46	290	120	220
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	46	290	120	220
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.13	0.32	0.002	< 0.001
Iron (filtered)	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.38
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.41	0.53	0.017	0.35
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	0.099	0.013	0.002
Zinc (filtered)	0.005	mg/L	0.007	0.048	0.011	< 0.005
Alkali Metals						
Calcium	0.5	mg/L	9.2	87	4.5	19
Magnesium	0.5	mg/L	9.0	14	5.3	8.2
Potassium	0.5	mg/L	9.6	4.2	2.2	3.9
Sodium	0.5	mg/L	20	61	13	67

Client Sample ID			BH2030	BHH125	BHH127	BHN2.1-024
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002202	S23-Ja0002203	S23-Ja0002204	S23-Ja0002205
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.12
TRH C15-C28	0.1	mg/L	< 0.1	0.7	< 0.1	1.8
TRH C29-C36	0.1	mg/L	< 0.1	0.8	< 0.1	1.5
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	1.5	< 0.1	3.42
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	0.10	< 0.05	0.20
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	0.1	< 0.05	0.2
TRH >C16-C34	0.1	mg/L	< 0.1	1.2	< 0.1	2.7
TRH >C34-C40	0.1	mg/L	< 0.1	0.5	< 0.1	1.0
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	1.8	< 0.1	3.9
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BH2030	BHH125	BHH127	BHN2.1-024
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002202	S23-Ja0002203	S23-Ja0002204	S23-Ja0002205
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	73	65	70	69
Toluene-d8 (surr.)	1	%	67	56	68	66
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002

Client Sample ID			BH2030	BHH125	BHH127	BHN2.1-024
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002202	S23-Ja0002203	S23-Ja0002204	S23-Ja0002205
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Tetrachloro-m-xylene (surr.)	1	%	147	[Q09]INT	[Q09]INT	[Q09]INT
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH2030	BHH125	BHH127	BHN2.1-024
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002202	S23-Ja0002203	S23-Ja0002204	S23-Ja0002205
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	73	84	60	70
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	104	78	[Q09]INT	115
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BH2030	BHH125	BHH127	BHN2.1-024
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002202	S23-Ja0002203	S23-Ja0002204	S23-Ja0002205
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	148	145	144	140
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	44	35	49	46
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH2030	BHH125	BHH127	BHN2.1-024
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002202	S23-Ja0002203	S23-Ja0002204	S23-Ja0002205
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	15	9.7	16	6.4
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	0.87	2.0	0.28
Nitrate (as N)	0.02	mg/L	0.02	0.86	2.0	0.28
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	0.28	1.9	< 0.05
Sulphate (as SO4)	2	mg/L	5.6	24	35	32
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	63	42	48	30
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	63	42	48	30
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.002	0.002	0.010	0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	0.0003
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.012	0.035	0.004	0.043
Iron (filtered)	0.05	mg/L	0.22	< 0.05	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.66	< 0.005	0.007	4.6
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	< 0.001	0.002	0.060
Zinc (filtered)	0.005	mg/L	< 0.005	0.006	< 0.005	0.071
Alkali Metals						
Calcium	0.5	mg/L	11	4.9	2.6	1.2
Magnesium	0.5	mg/L	6.8	3.6	4.2	5.1
Potassium	0.5	mg/L	2.5	2.0	2.3	1.4
Sodium	0.5	mg/L	26	38	56	21

Client Sample ID			BHN2.1-025	BHH131	BHN2.1-026	BHN2.1-031
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002206	S23-Ja0002207	S23-Ja0002208	S23-Ja0002209
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			BHN2.1-025	BHH131	BHN2.1-026	BHN2.1-031
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002206	S23-Ja0002207	S23-Ja0002208	S23-Ja0002209
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BHN2.1-025	BHH131	BHN2.1-026	BHN2.1-031
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002206	S23-Ja0002207	S23-Ja0002208	S23-Ja0002209
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	63	69	69	63
Toluene-d8 (surr.)	1	%	60	68	66	60
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	148
Tetrachloro-m-xylene (surr.)	1	%	131	148	[Q09]INT	134
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			BHN2.1-025	BHH131	BHN2.1-026	BHN2.1-031
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002206	S23-Ja0002207	S23-Ja0002208	S23-Ja0002209
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	57	61	64	77
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			BHN2.1-025	BHH131	BHN2.1-026	BHN2.1-031
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002206	S23-Ja0002207	S23-Ja0002208	S23-Ja0002209
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	[Q09]INT	110	114	105
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHN2.1-025	BHH131	BHN2.1-026	BHN2.1-031
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002206	S23-Ja0002207	S23-Ja0002208	S23-Ja0002209
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	140	144	137	[Q09]INT
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	50	52	50	46
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	9.1	12	7.1	45
Nitrate & Nitrite (as N)	0.05	mg/L	0.09	3.7	1.7	< 0.05
Nitrate (as N)	0.02	mg/L	0.09	3.7	1.7	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.05	mg/L	0.06	0.12	< 0.05	< 0.05
Sulphate (as SO4)	2	mg/L	41	16	11	4.6
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	140	22	< 20	< 20
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	140	22	< 20	< 20

Client Sample ID			BHN2.1-025	BHH131	BHN2.1-026	BHN2.1-031
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002206	S23-Ja0002207	S23-Ja0002208	S23-Ja0002209
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.046	2.6	0.033	0.094
Iron (filtered)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.24	0.011	0.020	0.34
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.007	0.007	0.007	0.046
Zinc (filtered)	0.005	mg/L	0.009	0.010	0.014	0.064
Alkali Metals						
Calcium	0.5	mg/L	3.2	1.2	0.7	5.4
Magnesium	0.5	mg/L	7.5	3.6	3.3	4.1
Potassium	0.5	mg/L	1.4	1.1	0.8	1.6
Sodium	0.5	mg/L	32	25	9.7	33

Client Sample ID			BHN2.1-044	BHN2.1-047	BH2034	BH2035
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002210	S23-Ja0002211	S23-Ja0002212	S23-Ja0002213
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	0.2	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.2	< 0.1	< 0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	0.2	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.2	< 0.1	< 0.1	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BHN2.1-044	BHN2.1-047	BH2034	BH2035
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002210	S23-Ja0002211	S23-Ja0002212	S23-Ja0002213
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	64	62	62	61
Toluene-d8 (surr.)	1	%	60	59	60	58
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BHN2.1-044	BHN2.1-047	BH2034	BH2035
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002210	S23-Ja0002211	S23-Ja0002212	S23-Ja0002213
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Tetrachloro-m-xylene (surr.)	1	%	[Q09]INT	[Q09]INT	145	138
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			BHN2.1-044	BHN2.1-047	BH2034	BH2035
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002210	S23-Ja0002211	S23-Ja0002212	S23-Ja0002213
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	88	83	72	103
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	[Q09]INT	131	92	[Q09]INT
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHN2.1-044	BHN2.1-047	BH2034	BH2035
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002210	S23-Ja0002211	S23-Ja0002212	S23-Ja0002213
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHN2.1-044	BHN2.1-047	BH2034	BH2035
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002210	S23-Ja0002211	S23-Ja0002212	S23-Ja0002213
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	50	43	46	89
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	0.10
Chloride	1	mg/L	11	6.2	7.9	28
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	0.43	3.4	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	0.43	3.4	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	2	mg/L	21	24	12	< 2
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	140	< 20	< 20	230
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	140	< 20	< 20	230
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.005
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.008	0.016	0.005	< 0.001
Iron (filtered)	0.05	mg/L	0.71	< 0.05	< 0.05	1.7
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.54	0.020	< 0.005	1.5
Mercury (filtered)	0.0001	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001	0.004	< 0.001	0.001
Zinc (filtered)	0.005	mg/L	< 0.005	0.021	0.006	< 0.005

Client Sample ID			BHN2.1-044	BHN2.1-047	BH2034	BH2035
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002210	S23-Ja0002211	S23-Ja0002212	S23-Ja0002213
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Alkali Metals						
Calcium	0.5	mg/L	16	0.5	3.1	65
Magnesium	0.5	mg/L	15	3.6	2.3	16
Potassium	0.5	mg/L	4.6	1.8	1.2	2.6
Sodium	0.5	mg/L	48	16	19	47

Client Sample ID			BHH140	BHH142	BHH144	BH2037
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002214	S23-Ja0002215	S23-Ja0002216	S23-Ja0002217
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	0.15	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	0.4	0.2	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.5	0.35	< 0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	0.5	0.2	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.5	0.2	< 0.1	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BHH140	BHH142	BHH144	BH2037
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002214	S23-Ja0002215	S23-Ja0002216	S23-Ja0002217
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	59	62	62	62
Toluene-d8 (surr.)	1	%	57	59	58	59
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002

Client Sample ID			BHH140	BHH142	BHH144	BH2037
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002214	S23-Ja0002215	S23-Ja0002216	S23-Ja0002217
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Tetrachloro-m-xylene (surr.)	1	%	145	[Q09]INT	[Q09]INT	[Q09]INT
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			BHH140	BHH142	BHH144	BH2037
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002214	S23-Ja0002215	S23-Ja0002216	S23-Ja0002217
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	56	85	57	59
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	[Q09]INT	[Q09]INT	96	[Q09]INT
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHH140	BHH142	BHH144	BH2037
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002214	S23-Ja0002215	S23-Ja0002216	S23-Ja0002217
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BHH140	BHH142	BHH144	BH2037
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002214	S23-Ja0002215	S23-Ja0002216	S23-Ja0002217
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	141	[Q09]INT	129	142
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	48	59	45	48
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	0.01	0.13	< 0.01	< 0.01
Chloride	1	mg/L	7.0	19	10	15
Nitrate & Nitrite (as N)	0.05	mg/L	2.7	3.3	4.0	1.1
Nitrate (as N)	0.02	mg/L	2.7	1.6	4.0	1.1
Nitrite (as N)	0.02	mg/L	< 0.02	1.7	< 0.02	< 0.02
Phosphorus reactive (as P)	0.05	mg/L	0.08	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	2	mg/L	5.0	30	11	6.7
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	24	< 20	< 20	28
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	49	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	24	57	< 20	28
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.055	0.005	0.007	0.003
Iron (filtered)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.004	0.009	0.001	0.008
Zinc (filtered)	0.005	mg/L	0.014	0.012	0.009	0.024
Alkali Metals						
Calcium	0.5	mg/L	7.7	120	1.6	6.3
Magnesium	0.5	mg/L	1.5	< 0.5	2.2	2.2
Potassium	0.5	mg/L	1.2	16	1.5	2.6
Sodium	0.5	mg/L	15	64	23	20

Client Sample ID			BH2038	BH2039	BH2050	QC15
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002218	S23-Ja0002219	S23-Ja0002220	S23-Ja0002221
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	0.2	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	0.2	< 0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	0.2	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	0.2	< 0.1	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BH2038	BH2039	BH2050	QC15
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002218	S23-Ja0002219	S23-Ja0002220	S23-Ja0002221
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	60	61	62	60
Toluene-d8 (surr.)	1	%	56	58	59	57
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002

Client Sample ID			BH2038	BH2039	BH2050	QC15
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002218	S23-Ja0002219	S23-Ja0002220	S23-Ja0002221
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Tetrachloro-m-xylene (surr.)	1	%	[Q09]INT	146	145	142
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	145	[Q09]INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH2038	BH2039	BH2050	QC15
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002218	S23-Ja0002219	S23-Ja0002220	S23-Ja0002221
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	108	55	58	60
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	[Q09]INT	140	[Q09]INT	[Q09]INT
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BH2038	BH2039	BH2050	QC15
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002218	S23-Ja0002219	S23-Ja0002220	S23-Ja0002221
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Semivolatile Organics						
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	[Q09]INT	144	140	140
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	76	45	42	42
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH2038	BH2039	BH2050	QC15
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0002218	S23-Ja0002219	S23-Ja0002220	S23-Ja0002221
Date Sampled			Jan 04, 2022	Jan 04, 2022	Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	8.0	6.4	26	15
Nitrate & Nitrite (as N)	0.05	mg/L	1.7	0.86	0.93	11
Nitrate (as N)	0.02	mg/L	1.7	0.86	0.92	11
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.05	mg/L	0.08	0.05	< 0.05	< 0.05
Sulphate (as SO4)	2	mg/L	9.1	12	19	11
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	24	40	110	45
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	24	40	110	45
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.003	0.003	0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.11	0.004	0.25	0.12
Iron (filtered)	0.05	mg/L	0.28	< 0.05	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.020	0.021	0.006	0.40
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001	0.003	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	0.006	< 0.005	0.006	0.006
Alkali Metals						
Calcium	0.5	mg/L	7.1	13	19	9.0
Magnesium	0.5	mg/L	2.6	2.4	3.4	6.9
Potassium	0.5	mg/L	5.4	3.2	1.5	8.4
Sodium	0.5	mg/L	15	14	49	20

Client Sample ID			QC17
Sample Matrix			Water
Eurofins Sample No.			S23-Ja0002223
Date Sampled			Jan 04, 2022
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1

Client Sample ID			QC17
Sample Matrix			Water
Eurofins Sample No.			S23-Ja0002223
Date Sampled			Jan 04, 2022
Test/Reference	LOR	Unit	
Volatile Organics			
1.1-Dichloroethane	0.001	mg/L	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005
Allyl chloride	0.001	mg/L	< 0.001
Benzene	0.001	mg/L	< 0.001
Bromobenzene	0.001	mg/L	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001
Bromoform	0.001	mg/L	< 0.001
Bromomethane	0.005	mg/L	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001
Chloroethane	0.005	mg/L	< 0.005
Chloroform	0.005	mg/L	< 0.005
Chloromethane	0.005	mg/L	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001
Dibromomethane	0.001	mg/L	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001
Iodomethane	0.001	mg/L	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005
o-Xylene	0.001	mg/L	< 0.001
Styrene	0.001	mg/L	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001

Client Sample ID			QC17
Sample Matrix			Water
Eurofins Sample No.			S23-Ja0002223
Date Sampled			Jan 04, 2022
Test/Reference	LOR	Unit	
Volatile Organics			
Trichloroethene	0.001	mg/L	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003
Total MAH*	0.003	mg/L	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005
4-Bromofluorobenzene (surr.)	1	%	60
Toluene-d8 (surr.)	1	%	58
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
Polycyclic Aromatic Hydrocarbons			
Total PAH*	0.001	mg/L	< 0.001
Organochlorine Pesticides			
Chlordanes - Total	0.002	mg/L	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002
Endrin	0.0002	mg/L	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002
Toxaphene	0.005	mg/L	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]INT
Tetrachloro-m-xylene (surr.)	1	%	144
Organophosphorus Pesticides			
Azinphos-methyl	0.002	mg/L	< 0.002
Bolstar	0.002	mg/L	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002
Coumaphos	0.02	mg/L	< 0.02
Demeton-S	0.002	mg/L	< 0.002

Client Sample ID			QC17
Sample Matrix			Water
Eurofins Sample No.			S23-Ja0002223
Date Sampled			Jan 04, 2022
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
Demeton-O	0.002	mg/L	< 0.002
Diazinon	0.002	mg/L	< 0.002
Dichlorvos	0.002	mg/L	< 0.002
Dimethoate	0.002	mg/L	< 0.002
Disulfoton	0.002	mg/L	< 0.002
EPN	0.002	mg/L	< 0.002
Ethion	0.002	mg/L	< 0.002
Ethoprop	0.002	mg/L	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002
Fenitrothion	0.002	mg/L	< 0.002
Fensulfothion	0.002	mg/L	< 0.002
Fenthion	0.002	mg/L	< 0.002
Malathion	0.002	mg/L	< 0.002
Merphos	0.002	mg/L	< 0.002
Methyl parathion	0.002	mg/L	< 0.002
Mevinphos	0.002	mg/L	< 0.002
Monocrotophos	0.002	mg/L	< 0.002
Naled	0.002	mg/L	< 0.002
Omethoate	0.02	mg/L	< 0.02
Phorate	0.002	mg/L	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02
Pyrazophos	0.002	mg/L	< 0.002
Ronnel	0.002	mg/L	< 0.002
Terbufos	0.002	mg/L	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002
Tokuthion	0.002	mg/L	< 0.002
Trichloronate	0.002	mg/L	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT
Semivolatile Organics			
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003
2-Fluorobiphenyl (surr.)	1	%	56
2-Methylnaphthalene	0.005	mg/L	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01

Client Sample ID			QC17
Sample Matrix			Water
Eurofins Sample No.			S23-Ja0002223
Date Sampled			Jan 04, 2022
Test/Reference	LOR	Unit	
Semivolatile Organics			
2-Picoline	0.005	mg/L	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	[Q09]INT
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5
a-HCH	0.005	mg/L	< 0.005
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Acetophenone	0.005	mg/L	< 0.005
Aldrin	0.005	mg/L	< 0.005
Aniline	0.005	mg/L	< 0.005
Anthracene	0.001	mg/L	< 0.001
b-HCH	0.005	mg/L	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005
Chrysene	0.001	mg/L	< 0.001
d-HCH	0.005	mg/L	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005
Dieldrin	0.005	mg/L	< 0.005

Client Sample ID			QC17
Sample Matrix			Water
Eurofins Sample No.			S23-Ja0002223
Date Sampled			Jan 04, 2022
Test/Reference	LOR	Unit	
Semivolatile Organics			
Diethyl phthalate	0.005	mg/L	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005
Diphenylamine	0.005	mg/L	< 0.005
Endosulfan I	0.005	mg/L	< 0.005
Endosulfan II	0.005	mg/L	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005
Endrin	0.005	mg/L	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005
Endrin ketone	0.005	mg/L	< 0.005
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005
Heptachlor	0.005	mg/L	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Methoxychlor	0.005	mg/L	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005
Naphthalene	0.001	mg/L	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005
Nitrobenzene-d5 (surr.)	1	%	141
Pentachlorobenzene	0.005	mg/L	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01
Phenanthrene	0.001	mg/L	< 0.001
Phenol	0.003	mg/L	< 0.003
Phenol-d6 (surr.)	1	%	44
Pronamide	0.005	mg/L	< 0.005
Pyrene	0.001	mg/L	< 0.001
Trifluralin	0.005	mg/L	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01
Chloride	1	mg/L	26
Nitrate & Nitrite (as N)	0.05	mg/L	0.92
Nitrate (as N)	0.02	mg/L	0.92
Nitrite (as N)	0.02	mg/L	< 0.02
Phosphorus reactive (as P)	0.05	mg/L	< 0.05
Sulphate (as SO4)	2	mg/L	19
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	180
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20
Total Alkalinity (as CaCO3)	20	mg/L	180

Client Sample ID			QC17
Sample Matrix			**Water**
Eurofins Sample No.			**S23-Ja0002223**
Date Sampled			**Jan 04, 2022**
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	0.25
Iron (filtered)	0.05	mg/L	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001
Manganese (filtered)	0.005	mg/L	0.006
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001
Zinc (filtered)	0.005	mg/L	0.006
Alkali Metals			
Calcium	0.5	mg/L	19
Magnesium	0.5	mg/L	3.5
Potassium	0.5	mg/L	1.5
Sodium	0.5	mg/L	50

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Jan 06, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jan 06, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jan 06, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Volatile Organics	Sydney	Jan 06, 2023	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Semivolatile Organics	Sydney	Jan 06, 2023	7 Day
- Method: LTM-ORG-2190 SVOC in Water & Soil by GC-MS			
Metals M8 filtered	Sydney	Jan 06, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals (filtered)	Sydney	Jan 06, 2023	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B11C: Na/K/Ca/Mg	Sydney	Jan 06, 2023	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Sydney	Jan 17, 2023	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Jan 06, 2023	7 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Eurofins Suite B19C: NO3/NO2/NOx/Reactive P/NH3			
Ammonia (as N)	Melbourne	Jan 10, 2023	28 Days
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Nitrate & Nitrite (as N)	Melbourne	Jan 10, 2023	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrate (as N)	Melbourne	Jan 10, 2023	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrite (as N)	Melbourne	Jan 10, 2023	2 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Phosphorus reactive (as P)	Sydney	Jan 09, 2023	28 Days
- Method: E052 Reactive phosphate (as P)			
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride	Sydney	Jan 06, 2023	28 Days
- Method: LTM-INO-4270 Anions by Ion Chromatography			
Sulphate (as SO4)	Sydney	Jan 06, 2023	28 Days
- Method: In-house method LTM-INO-4270 Sulphate by Ion Chromatograph			
Alkalinity (speciated)	Melbourne	Jan 10, 2023	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			

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NSW 2450

Project Name:
Project ID: BPE21058

Order No.:
Report #: 953805
Phone: 0400 566 088
Fax:

Received: Jan 6, 2023 9:20 AM
Due: Jan 13, 2023
Priority: 5 Day
Contact Name: Andrew Ballard & Joel Parkin

Eurofins Analytical Services Manager : Hannah Mawbey

Sample Detail						Iron (filtered)	Iron (filtered)	Manganese (filtered)	Manganese (filtered)	Metals M8 filtered	Metals M8 filtered	Suite B14: OCP/OPP	Suite B14: OCP/OPP	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Eurofins Suite SVV: SVOC/VOC	Eurofins Suite SVV: SVOC/VOC	Eurofins Suite B19C: NO3/NO2/NOx/Reactive P/NH3	Eurofins Suite B11E: Cl/SO4/Alkainity	Eurofins Suite B11E: Cl/SO4/Alkainity	Eurofins Suite B11C: Na/K/Ca/Mg	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254						X		X		X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217							X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**																	
1	BHH106	Jan 03, 2022		Water	S23-Ja0002182		X		X		X		X		X		X	X		X		X
2	BH1056	Jan 03, 2022		Water	S23-Ja0002183		X		X		X		X		X		X	X		X		X
3	BH1058	Jan 03, 2022		Water	S23-Ja0002184		X		X		X		X		X		X	X		X		X
4	BH1059	Jan 03, 2022		Water	S23-Ja0002185		X		X		X		X		X		X	X		X		X
5	BHH110	Jan 03, 2022		Water	S23-Ja0002186		X		X		X		X		X		X	X		X		X
6	BH2001	Jan 03, 2022		Water	S23-Ja0002187		X		X		X		X		X		X	X		X		X
7	BH2002	Jan 03, 2022		Water	S23-Ja0002188		X		X		X		X		X		X	X		X		X
8	BHH1111	Jan 03, 2022		Water	S23-Ja0002189		X		X		X		X		X		X	X		X		X
9	BHH113	Jan 03, 2022		Water	S23-Ja0002190		X		X		X		X		X		X	X		X		X
10	BH2003	Jan 03, 2022		Water	S23-Ja0002191		X		X		X		X		X		X	X		X		X
11	BHN2.1-015	Jan 03, 2022		Water	S23-Ja0002192		X		X		X		X		X		X	X		X		X
12	BH2004	Jan 03, 2022		Water	S23-Ja0002193		X		X		X		X		X		X	X		X		X

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Company Name: Ballpark Environmental Pty Ltd
Address: Suite 2, 192 pacific Highway
Coffs Harbour
NSW 2450

Project Name:
Project ID: BPE21058

Order No.:
Report #: 953805
Phone: 0400 566 088
Fax:

Received: Jan 6, 2023 9:20 AM
Due: Jan 13, 2023
Priority: 5 Day
Contact Name: Andrew Ballard & Joel Parkin

Eurofins Analytical Services Manager : Hannah Mawbey

Sample Detail						Iron (filtered)	Iron (filtered)	Manganese (filtered)	Manganese (filtered)	Metals M8 filtered	Metals M8 filtered	Suite B14: OCP/OPP	Suite B14: OCP/OPP	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Eurofins Suite SVV: SVOC/VOC	Eurofins Suite SVV: SVOC/VOC	Eurofins Suite B19C: NO3/NO2/NOx/Reactive P/NH3	Eurofins Suite B11E: Cl/SO4/Alkalinity	Eurofins Suite B11E: Cl/SO4/Alkalinity	Eurofins Suite B11C: Na/K/Ca/Mg	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254						X		X		X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217							X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
13	BHH115	Jan 03, 2022		Water	S23-Ja0002194		X		X		X		X		X		X	X		X		X
14	BH2006	Jan 03, 2022		Water	S23-Ja0002195		X		X		X		X		X		X	X		X		X
15	BHH119	Jan 03, 2022		Water	S23-Ja0002196		X		X		X		X		X		X	X		X		X
16	BH2008	Jan 03, 2022		Water	S23-Ja0002197		X		X		X		X		X		X	X		X		X
17	BH2015	Jan 04, 2022		Water	S23-Ja0002198		X		X		X		X		X		X	X		X		X
18	BH2016	Jan 04, 2022		Water	S23-Ja0002199		X		X		X		X		X		X	X		X		X
19	BH2027	Jan 04, 2022		Water	S23-Ja0002200		X		X		X		X		X		X	X		X		X
20	BH2029	Jan 04, 2022		Water	S23-Ja0002201		X		X		X		X		X		X	X		X		X
21	BH2030	Jan 04, 2022		Water	S23-Ja0002202		X		X		X		X		X		X	X		X		X
22	BHH125	Jan 04, 2022		Water	S23-Ja0002203		X		X		X		X		X		X	X		X		X
23	BHH127	Jan 04, 2022		Water	S23-Ja0002204		X		X		X		X		X		X	X		X		X
24	BHN2.1-024	Jan 04, 2022		Water	S23-Ja0002205		X		X		X		X		X		X	X		X		X
25	BHN2.1-025	Jan 04, 2022		Water	S23-Ja0002206		X		X		X		X		X		X	X		X		X
26	BHH131	Jan 04, 2022		Water	S23-Ja0002207		X		X		X		X		X		X	X		X		X
27	BHN2.1-026	Jan 04, 2022		Water	S23-Ja0002208		X		X		X		X		X		X	X		X		X

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Melbourne Laboratory - NATA # 1261 Site # 1254						X		X		X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217							X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
28	BHN2.1-031	Jan 04, 2022		Water	S23-Ja0002209		X		X		X		X		X		X	X		X		X
29	BHN2.1-044	Jan 04, 2022		Water	S23-Ja0002210		X		X		X		X		X		X	X		X		X
30	BHN2.1-047	Jan 04, 2022		Water	S23-Ja0002211		X		X		X		X		X		X	X		X		X
31	BH2034	Jan 04, 2022		Water	S23-Ja0002212		X		X		X		X		X		X	X		X		X
32	BH2035	Jan 04, 2022		Water	S23-Ja0002213		X		X		X		X		X		X	X		X		X
33	BHH140	Jan 04, 2022		Water	S23-Ja0002214		X		X		X		X		X		X	X		X		X
34	BHH142	Jan 04, 2022		Water	S23-Ja0002215		X		X		X		X		X		X	X		X		X
35	BHH144	Jan 04, 2022		Water	S23-Ja0002216		X		X		X		X		X		X	X		X		X
36	BH2037	Jan 04, 2022		Water	S23-Ja0002217		X		X		X		X		X		X	X		X		X
37	BH2038	Jan 04, 2022		Water	S23-Ja0002218		X		X		X		X		X		X	X		X		X
38	BH2039	Jan 04, 2022		Water	S23-Ja0002219		X		X		X		X		X		X	X		X		X
39	BH2050	Jan 04, 2022		Water	S23-Ja0002220		X		X		X		X		X		X	X		X		X
40	QC15	Jan 04, 2022		Water	S23-Ja0002221		X		X		X		X		X		X	X		X		X
41	QC16	Jan 04, 2022		Water	S23-Ja0002222	X		X		X		X		X		X		X	X		X	
42	QC17	Jan 04, 2022		Water	S23-Ja0002223		X		X		X		X		X		X	X		X		X

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Melbourne Laboratory - NATA # 1261 Site # 1254						X		X		X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217							X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
43	QC18	Jan 04, 2022		Water	S23-Ja0002224	X		X		X		X		X		X		X	X		X	
Test Counts						43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.005			0.005	Pass	
2-Propanone (Acetone)	mg/L	< 0.005			0.005	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.005			0.005	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Benzene	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.005			0.005	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.005			0.005	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.005			0.005	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	
Dichlorodifluoromethane	mg/L	< 0.005			0.005	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
Methylene Chloride	mg/L	< 0.005			0.005	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.005			0.005	Pass	
Vinyl chloride	mg/L	< 0.005			0.005	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.002			0.002	Pass	
4.4'-DDD	mg/L	< 0.0002			0.0002	Pass	
4.4'-DDE	mg/L	< 0.0002			0.0002	Pass	
4.4'-DDT	mg/L	< 0.0002			0.0002	Pass	
a-HCH	mg/L	< 0.0002			0.0002	Pass	
Aldrin	mg/L	< 0.0002			0.0002	Pass	
b-HCH	mg/L	< 0.0002			0.0002	Pass	
d-HCH	mg/L	< 0.0002			0.0002	Pass	
Dieldrin	mg/L	< 0.0002			0.0002	Pass	
Endosulfan I	mg/L	< 0.0002			0.0002	Pass	
Endosulfan II	mg/L	< 0.0002			0.0002	Pass	
Endosulfan sulphate	mg/L	< 0.0002			0.0002	Pass	
Endrin	mg/L	< 0.0002			0.0002	Pass	
Endrin aldehyde	mg/L	< 0.0002			0.0002	Pass	
Endrin ketone	mg/L	< 0.0002			0.0002	Pass	
g-HCH (Lindane)	mg/L	< 0.0002			0.0002	Pass	
Heptachlor	mg/L	< 0.0002			0.0002	Pass	
Heptachlor epoxide	mg/L	< 0.0002			0.0002	Pass	
Hexachlorobenzene	mg/L	< 0.0002			0.0002	Pass	
Methoxychlor	mg/L	< 0.0002			0.0002	Pass	
Toxaphene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.002			0.002	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.02			0.02	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Semivolatile Organics							
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
1-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
1-Naphthylamine	mg/L	< 0.005			0.005	Pass	
1.2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3.5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
2-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2-Methylnaphthalene	mg/L	< 0.005			0.005	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Naphthylamine	mg/L	< 0.005			0.005	Pass	
2-Nitroaniline	mg/L	< 0.005			0.005	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2-Picoline	mg/L	< 0.005			0.005	Pass	
2.3.4.6-Tetrachlorophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
2.4-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.6-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
3-Methylcholanthrene	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
3.3'-Dichlorobenzidine	mg/L	< 0.005			0.005	Pass	
4-Aminobiphenyl	mg/L	< 0.005			0.005	Pass	
4-Bromophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
4-Chlorophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
4.4'-DDD	mg/L	< 0.005			0.005	Pass	
4.4'-DDE	mg/L	< 0.005			0.005	Pass	
4.4'-DDT	mg/L	< 0.005			0.005	Pass	
7.12-Dimethylbenz(a)anthracene	mg/L	< 0.005			0.005	Pass	
a-HCH	mg/L	< 0.005			0.005	Pass	
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Acetophenone	mg/L	< 0.005			0.005	Pass	
Aldrin	mg/L	< 0.005			0.005	Pass	
Aniline	mg/L	< 0.005			0.005	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
b-HCH	mg/L	< 0.005			0.005	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroethoxy)methane	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroisopropyl)ether	mg/L	< 0.005			0.005	Pass	
Bis(2-ethylhexyl)phthalate	mg/L	< 0.005			0.005	Pass	
Butyl benzyl phthalate	mg/L	< 0.005			0.005	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
d-HCH	mg/L	< 0.005			0.005	Pass	
Di-n-butyl phthalate	mg/L	< 0.005			0.005	Pass	
Di-n-octyl phthalate	mg/L	< 0.005			0.005	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.j)acridine	mg/L	< 0.005			0.005	Pass	
Dibenzofuran	mg/L	< 0.005			0.005	Pass	
Dieldrin	mg/L	< 0.005			0.005	Pass	
Diethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethylaminoazobenzene	mg/L	< 0.005			0.005	Pass	
Diphenylamine	mg/L	< 0.005			0.005	Pass	
Endosulfan I	mg/L	< 0.005			0.005	Pass	
Endosulfan II	mg/L	< 0.005			0.005	Pass	
Endosulfan sulphate	mg/L	< 0.005			0.005	Pass	
Endrin	mg/L	< 0.005			0.005	Pass	
Endrin aldehyde	mg/L	< 0.005			0.005	Pass	
Endrin ketone	mg/L	< 0.005			0.005	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
g-HCH (Lindane)	mg/L	< 0.005			0.005	Pass	
Heptachlor	mg/L	< 0.005			0.005	Pass	
Heptachlor epoxide	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Methoxychlor	mg/L	< 0.005			0.005	Pass	
N-Nitrosodibutylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosodipropylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosopiperidine	mg/L	< 0.005			0.005	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Nitrobenzene	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Pentachloronitrobenzene	mg/L	< 0.005			0.005	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Pronamide	mg/L	< 0.005			0.005	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Trifluralin	mg/L	< 0.005			0.005	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO3)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Iron (filtered)	mg/L	< 0.05			0.05	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	126			70-130	Pass	
TRH C10-C14	%	100			70-130	Pass	
TRH C6-C10	%	127			70-130	Pass	
TRH >C10-C16	%	107			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	99			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.1.1-Trichloroethane	%	107			70-130	Pass	
1.2-Dichlorobenzene	%	117			70-130	Pass	
1.2-Dichloroethane	%	120			70-130	Pass	
Benzene	%	107			70-130	Pass	
Ethylbenzene	%	106			70-130	Pass	
m&p-Xylenes	%	111			70-130	Pass	
o-Xylene	%	109			70-130	Pass	
Toluene	%	102			70-130	Pass	
Trichloroethene	%	94			70-130	Pass	
Xylenes - Total*	%	110			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	124			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	79			70-130	Pass	
4.4'-DDD	%	111			70-130	Pass	
4.4'-DDE	%	103			70-130	Pass	
4.4'-DDT	%	118			70-130	Pass	
a-HCH	%	89			70-130	Pass	
Aldrin	%	103			70-130	Pass	
b-HCH	%	100			70-130	Pass	
d-HCH	%	98			70-130	Pass	
Dieldrin	%	117			70-130	Pass	
Endosulfan I	%	108			70-130	Pass	
Endosulfan II	%	95			70-130	Pass	
Endosulfan sulphate	%	115			70-130	Pass	
Endrin	%	127			70-130	Pass	
Endrin aldehyde	%	104			70-130	Pass	
Endrin ketone	%	90			70-130	Pass	
g-HCH (Lindane)	%	92			70-130	Pass	
Heptachlor	%	121			70-130	Pass	
Heptachlor epoxide	%	88			70-130	Pass	
Hexachlorobenzene	%	97			70-130	Pass	
Methoxychlor	%	114			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	104			70-130	Pass	
Dimethoate	%	75			70-130	Pass	
Ethion	%	103			70-130	Pass	
Fenitrothion	%	110			70-130	Pass	
Methyl parathion	%	98			70-130	Pass	
Mevinphos	%	89			70-130	Pass	
LCS - % Recovery							
Semivolatile Organics							
2-Methyl-4.6-dinitrophenol	%	75			25-140	Pass	
1.2.4-Trichlorobenzene	%	84			70-130	Pass	
2-Chlorophenol	%	74			25-140	Pass	
2-Methylphenol (o-Cresol)	%	69			25-140	Pass	
2-Nitrophenol	%	78			25-140	Pass	
2.4-Dichlorophenol	%	77			25-140	Pass	
2.4-Dimethylphenol	%	77			25-140	Pass	
2.4-Dinitrophenol	%	70			25-140	Pass	
2.4-Dinitrotoluene	%	77			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.4.5-Trichlorophenol	%	72			25-140	Pass	
2.4.6-Trichlorophenol	%	70			25-140	Pass	
2.6-Dichlorophenol	%	70			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	64			25-140	Pass	
4-Chloro-3-methylphenol	%	82			25-140	Pass	
4-Nitrophenol	%	38			25-140	Pass	
Acenaphthene	%	72			70-130	Pass	
Acenaphthylene	%	76			70-130	Pass	
Anthracene	%	86			70-130	Pass	
Benz(a)anthracene	%	71			70-130	Pass	
Benzo(a)pyrene	%	85			70-130	Pass	
Benzo(b&j)fluoranthene	%	70			70-130	Pass	
Benzo(g.h.i)perylene	%	70			70-130	Pass	
Benzo(k)fluoranthene	%	79			70-130	Pass	
Chrysene	%	80			70-130	Pass	
Dibenz(a.h)anthracene	%	70			70-130	Pass	
Fluoranthene	%	92			70-130	Pass	
Fluorene	%	87			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	70			70-130	Pass	
N-Nitrosodipropylamine	%	88			70-130	Pass	
Pentachlorophenol	%	94			25-140	Pass	
Phenanthrene	%	87			70-130	Pass	
Phenol	%	45			25-140	Pass	
Pyrene	%	92			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	98			70-130	Pass	
Nitrate & Nitrite (as N)	%	101			70-130	Pass	
Nitrate (as N)	%	101			70-130	Pass	
Nitrite (as N)	%	97			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	82			80-120	Pass	
Cadmium (filtered)	%	83			80-120	Pass	
Chromium (filtered)	%	86			80-120	Pass	
Copper (filtered)	%	85			80-120	Pass	
Iron (filtered)	%	86			80-120	Pass	
Lead (filtered)	%	84			80-120	Pass	
Manganese (filtered)	%	85			80-120	Pass	
Mercury (filtered)	%	87			80-120	Pass	
Nickel (filtered)	%	86			80-120	Pass	
Zinc (filtered)	%	88			80-120	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	102			80-120	Pass	
Magnesium	%	118			80-120	Pass	
Potassium	%	116			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Semivolatile Organics				Result 1					
1.2.4-Trichlorobenzene	S23-Ja0002183	CP	%	75			70-130	Pass	
2-Chlorophenol	S23-Ja0002183	CP	%	45			30-130	Pass	
2.4-Dinitrotoluene	S23-Ja0002183	CP	%	70			70-130	Pass	
4-Chloro-3-methylphenol	S23-Ja0002183	CP	%	57			30-130	Pass	
Acenaphthene	S23-Ja0002183	CP	%	74			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-Nitrosodipropylamine	S23-Ja0002183	CP	%	79			70-130	Pass	
Pyrene	S23-Ja0002183	CP	%	86			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	S23-Ja0002187	CP	%	92			70-130	Pass	
Sulphate (as SO4)	S23-Ja0002187	CP	%	86			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S23-Ja0002189	CP	%	124			70-130	Pass	
4.4'-DDD	S23-Ja0002189	CP	%	105			70-130	Pass	
4.4'-DDE	S23-Ja0002189	CP	%	95			70-130	Pass	
4.4'-DDT	S23-Ja0002189	CP	%	103			70-130	Pass	
a-HCH	S23-Ja0002189	CP	%	82			70-130	Pass	
Aldrin	S23-Ja0002189	CP	%	100			70-130	Pass	
b-HCH	S23-Ja0002189	CP	%	95			70-130	Pass	
d-HCH	S23-Ja0002189	CP	%	95			70-130	Pass	
Dieldrin	S23-Ja0002189	CP	%	104			70-130	Pass	
Endosulfan I	S23-Ja0002189	CP	%	95			70-130	Pass	
Endosulfan II	S23-Ja0002189	CP	%	82			70-130	Pass	
Endosulfan sulphate	S23-Ja0002189	CP	%	101			70-130	Pass	
Endrin	S23-Ja0002189	CP	%	115			70-130	Pass	
Endrin aldehyde	S23-Ja0002189	CP	%	89			70-130	Pass	
Endrin ketone	S23-Ja0002189	CP	%	121			70-130	Pass	
g-HCH (Lindane)	S23-Ja0002189	CP	%	81			70-130	Pass	
Heptachlor	S23-Ja0002189	CP	%	109			70-130	Pass	
Heptachlor epoxide	S23-Ja0002189	CP	%	78			70-130	Pass	
Hexachlorobenzene	S23-Ja0002189	CP	%	91			70-130	Pass	
Methoxychlor	S23-Ja0002189	CP	%	116			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S23-Ja0002189	CP	%	106			70-130	Pass	
Dimethoate	S23-Ja0002189	CP	%	86			70-130	Pass	
Ethion	S23-Ja0002189	CP	%	97			70-130	Pass	
Fenitrothion	S23-Ja0002189	CP	%	114			70-130	Pass	
Methyl parathion	S23-Ja0002189	CP	%	100			70-130	Pass	
Mevinphos	S23-Ja0002189	CP	%	117			70-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
2-Methyl-4.6-dinitrophenol	S23-Ja0002189	CP	%	78			30-130	Pass	
2-Chlorophenol	S23-Ja0002189	CP	%	93			30-130	Pass	
2-Methylphenol (o-Cresol)	S23-Ja0002189	CP	%	92			30-130	Pass	
2-Nitrophenol	S23-Ja0002189	CP	%	91			30-130	Pass	
2.4-Dichlorophenol	S23-Ja0002189	CP	%	88			30-130	Pass	
2.4-Dimethylphenol	S23-Ja0002189	CP	%	86			30-130	Pass	
2.4-Dinitrophenol	S23-Ja0002189	CP	%	82			70-130	Pass	
2.4.5-Trichlorophenol	S23-Ja0002189	CP	%	79			30-130	Pass	
2.4.6-Trichlorophenol	S23-Ja0002189	CP	%	81			30-130	Pass	
2.6-Dichlorophenol	S23-Ja0002189	CP	%	85			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S23-Ja0002189	CP	%	89			30-130	Pass	
4-Chloro-3-methylphenol	S23-Ja0002189	CP	%	107			30-130	Pass	
Acenaphthene	S23-Ja0002189	CP	%	78			70-130	Pass	
Acenaphthylene	S23-Ja0002189	CP	%	84			70-130	Pass	
Anthracene	S23-Ja0002189	CP	%	75			70-130	Pass	
Benz(a)anthracene	S23-Ja0002189	CP	%	71			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(a)pyrene	S23-Ja0002189	CP	%	83			70-130	Pass	
Benzo(b&j)fluoranthene	S23-Ja0002189	CP	%	87			70-130	Pass	
Benzo(k)fluoranthene	S23-Ja0002189	CP	%	75			70-130	Pass	
Dibenz(a.h)anthracene	S23-Ja0002189	CP	%	69			70-130	Fail	Q08
Fluoranthene	S23-Ja0002189	CP	%	89			70-130	Pass	
Fluorene	S23-Ja0002189	CP	%	85			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S23-Ja0002189	CP	%	71			70-130	Pass	
Pentachlorophenol	S23-Ja0002189	CP	%	102			30-130	Pass	
Phenanthrene	S23-Ja0002189	CP	%	82			70-130	Pass	
Pyrene	S23-Ja0002189	CP	%	83			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	S23-Ja0002197	CP	%	82			70-130	Pass	
Nitrate & Nitrite (as N)	S23-Ja0002197	CP	%	82			70-130	Pass	
Nitrate (as N)	S23-Ja0002197	CP	%	82			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S23-Ja0002200	CP	%	85			75-125	Pass	
Cadmium (filtered)	S23-Ja0002200	CP	%	86			75-125	Pass	
Chromium (filtered)	S23-Ja0002200	CP	%	86			75-125	Pass	
Copper (filtered)	S23-Ja0002200	CP	%	85			75-125	Pass	
Iron (filtered)	S23-Ja0002200	CP	%	84			75-125	Pass	
Lead (filtered)	S23-Ja0002200	CP	%	84			75-125	Pass	
Manganese (filtered)	S23-Ja0002200	CP	%	83			75-125	Pass	
Mercury (filtered)	S23-Ja0002200	CP	%	88			75-125	Pass	
Nickel (filtered)	S23-Ja0002200	CP	%	84			75-125	Pass	
Zinc (filtered)	S23-Ja0002200	CP	%	86			75-125	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S23-Ja0002203	CP	%	104			70-130	Pass	
4.4'-DDD	S23-Ja0002203	CP	%	82			70-130	Pass	
4.4'-DDE	S23-Ja0002203	CP	%	85			70-130	Pass	
4.4'-DDT	S23-Ja0002203	CP	%	84			70-130	Pass	
a-HCH	S23-Ja0002203	CP	%	73			70-130	Pass	
Aldrin	S23-Ja0002203	CP	%	83			70-130	Pass	
d-HCH	S23-Ja0002203	CP	%	82			70-130	Pass	
Dieldrin	S23-Ja0002203	CP	%	80			70-130	Pass	
Endosulfan I	S23-Ja0002203	CP	%	87			70-130	Pass	
Endosulfan sulphate	S23-Ja0002203	CP	%	92			70-130	Pass	
Endrin	S23-Ja0002203	CP	%	98			70-130	Pass	
Endrin aldehyde	S23-Ja0002203	CP	%	90			70-130	Pass	
Endrin ketone	S23-Ja0002203	CP	%	101			70-130	Pass	
g-HCH (Lindane)	S23-Ja0002203	CP	%	77			70-130	Pass	
Heptachlor	S23-Ja0002203	CP	%	91			70-130	Pass	
Heptachlor epoxide	S23-Ja0002203	CP	%	71			70-130	Pass	
Hexachlorobenzene	S23-Ja0002203	CP	%	71			70-130	Pass	
Methoxychlor	S23-Ja0002203	CP	%	73			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S23-Ja0002203	CP	%	86			70-130	Pass	
Ethion	S23-Ja0002203	CP	%	74			70-130	Pass	
Fenitrothion	S23-Ja0002203	CP	%	82			70-130	Pass	
Methyl parathion	S23-Ja0002203	CP	%	80			70-130	Pass	
Mevinphos	S23-Ja0002203	CP	%	109			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Semivolatile Organics				Result 1					
1.2.4-Trichlorobenzene	S23-Ja0002203	CP	%	86			70-130	Pass	
2-Chlorophenol	S23-Ja0002203	CP	%	63			30-130	Pass	
2-Nitrophenol	S23-Ja0002203	CP	%	73			30-130	Pass	
2.4-Dimethylphenol	S23-Ja0002203	CP	%	74			30-130	Pass	
2.4-Dinitrotoluene	S23-Ja0002203	CP	%	78			70-130	Pass	
2.4.5-Trichlorophenol	S23-Ja0002203	CP	%	77			30-130	Pass	
2.4.6-Trichlorophenol	S23-Ja0002203	CP	%	71			30-130	Pass	
4-Chloro-3-methylphenol	S23-Ja0002203	CP	%	68			30-130	Pass	
Acenaphthene	S23-Ja0002203	CP	%	85			70-130	Pass	
Acenaphthylene	S23-Ja0002203	CP	%	74			70-130	Pass	
Anthracene	S23-Ja0002203	CP	%	72			70-130	Pass	
Benzo(a)pyrene	S23-Ja0002203	CP	%	82			70-130	Pass	
Benzo(b&j)fluoranthene	S23-Ja0002203	CP	%	80			70-130	Pass	
Benzo(k)fluoranthene	S23-Ja0002203	CP	%	72			70-130	Pass	
Chrysene	S23-Ja0002203	CP	%	76			70-130	Pass	
Fluoranthene	S23-Ja0002203	CP	%	81			70-130	Pass	
Fluorene	S23-Ja0002203	CP	%	77			70-130	Pass	
N-Nitrosodipropylamine	S23-Ja0002203	CP	%	88			70-130	Pass	
Pentachlorophenol	S23-Ja0002203	CP	%	40			30-130	Pass	
Phenanthrene	S23-Ja0002203	CP	%	73			70-130	Pass	
Pyrene	S23-Ja0002203	CP	%	94			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	S23-Ja0002208	CP	%	92			70-130	Pass	
Nitrate & Nitrite (as N)	S23-Ja0002208	CP	%	92			70-130	Pass	
Nitrate (as N)	S23-Ja0002208	CP	%	91			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	S23-Ja0002209	CP	%	91			70-130	Pass	
Sulphate (as SO4)	S23-Ja0002209	CP	%	96			70-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
1.2.4-Trichlorobenzene	S23-Ja0002213	CP	%	80			70-130	Pass	
2-Chlorophenol	S23-Ja0002213	CP	%	64			30-130	Pass	
2.4-Dinitrotoluene	S23-Ja0002213	CP	%	75			70-130	Pass	
4-Chloro-3-methylphenol	S23-Ja0002213	CP	%	60			30-130	Pass	
4-Nitrophenol	S23-Ja0002213	CP	%	30			30-130	Pass	
Acenaphthene	S23-Ja0002213	CP	%	71			70-130	Pass	
N-Nitrosodipropylamine	S23-Ja0002213	CP	%	80			70-130	Pass	
Pentachlorophenol	S23-Ja0002213	CP	%	91			30-130	Pass	
Pyrene	S23-Ja0002213	CP	%	83			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S23-Ja0002217	CP	%	89			75-125	Pass	
Cadmium (filtered)	S23-Ja0002217	CP	%	83			75-125	Pass	
Chromium (filtered)	S23-Ja0002217	CP	%	87			75-125	Pass	
Copper (filtered)	S23-Ja0002217	CP	%	84			75-125	Pass	
Iron (filtered)	S23-Ja0002217	CP	%	87			75-125	Pass	
Lead (filtered)	S23-Ja0002217	CP	%	85			75-125	Pass	
Manganese (filtered)	S23-Ja0002217	CP	%	85			75-125	Pass	
Mercury (filtered)	S23-Ja0002217	CP	%	88			75-125	Pass	
Nickel (filtered)	S23-Ja0002217	CP	%	85			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Zinc (filtered)	S23-Ja0002217	CP	%	86			75-125	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	S23-Ja0002223	CP	%	91			70-130	Pass	
Nitrate & Nitrite (as N)	S23-Ja0002223	CP	%	91			70-130	Pass	
Nitrate (as N)	S23-Ja0002223	CP	%	90			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S23-Ja0002223	CP	%	89			75-125	Pass	
Cadmium (filtered)	S23-Ja0002223	CP	%	83			75-125	Pass	
Chromium (filtered)	S23-Ja0002223	CP	%	87			75-125	Pass	
Copper (filtered)	S23-Ja0002223	CP	%	84			75-125	Pass	
Iron (filtered)	S23-Ja0002223	CP	%	87			75-125	Pass	
Lead (filtered)	S23-Ja0002223	CP	%	85			75-125	Pass	
Manganese (filtered)	S23-Ja0002223	CP	%	85			75-125	Pass	
Mercury (filtered)	S23-Ja0002223	CP	%	88			75-125	Pass	
Nickel (filtered)	S23-Ja0002223	CP	%	85			75-125	Pass	
Zinc (filtered)	S23-Ja0002223	CP	%	86			75-125	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	S23-Ja0002223	CP	%	94			75-125	Pass	
Magnesium	S23-Ja0002223	CP	%	93			75-125	Pass	
Potassium	S23-Ja0002223	CP	%	88			75-125	Pass	
Sodium	S23-Ja0002223	CP	%	80			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M23-Ja0004238	NCP	mg/L	1700	1500	15	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M23-Ja0004238	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO3)	M23-Ja0004238	NCP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO3)	M23-Ja0004238	NCP	mg/L	1700	1500	15	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S23-Ja0002182	CP	mg/L	0.001	0.001	7.8	30%	Pass	
Cadmium (filtered)	S23-Ja0002182	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S23-Ja0002182	CP	mg/L	0.002	0.002	6.1	30%	Pass	
Copper (filtered)	S23-Ja0002182	CP	mg/L	0.013	0.012	4.2	30%	Pass	
Iron (filtered)	S23-Ja0002182	CP	mg/L	0.20	0.20	<1	30%	Pass	
Lead (filtered)	S23-Ja0002182	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S23-Ja0002182	CP	mg/L	0.010	0.010	1.5	30%	Pass	
Mercury (filtered)	S23-Ja0002182	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S23-Ja0002182	CP	mg/L	0.021	0.018	16	30%	Pass	
Zinc (filtered)	S23-Ja0002182	CP	mg/L	0.091	0.092	1.6	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S23-Ja0002182	CP	mg/L	8.0	8.1	1.4	30%	Pass	
Magnesium	S23-Ja0002182	CP	mg/L	2.9	3.0	3.0	30%	Pass	
Potassium	S23-Ja0002182	CP	mg/L	3.6	3.8	3.9	30%	Pass	
Sodium	S23-Ja0002182	CP	mg/L	41	43	2.5	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S23-Ja0002186	CP	mg/L	18	18	<1	30%	Pass	
Sulphate (as SO4)	S23-Ja0002186	CP	mg/L	13	13	3.3	30%	Pass	

Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
1-Chloronaphthalene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1-Naphthylamine	S23-Ja0002188	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.4-Dichlorobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Chloronaphthalene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Methylnaphthalene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Naphthylamine	S23-Ja0002188	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
2-Nitroaniline	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Picoline	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2.3.4.6-Tetrachlorophenol	S23-Ja0002188	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dinitrotoluene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2.6-Dinitrotoluene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
3-Methylcholanthrene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
3.3'-Dichlorobenzidine	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Aminobiphenyl	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Bromophenyl phenyl ether	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Chlorophenyl phenyl ether	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4.4'-DDD	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4.4'-DDE	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4.4'-DDT	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
7.12-Dimethylbenz(a)anthracene	S23-Ja0002188	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
a-HCH	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Acetophenone	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aldrin	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aniline	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
b-HCH	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benzyl chloride	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Bis(2-chloroethoxy)methane	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Bis(2-chloroisopropyl)ether	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Bis(2-ethylhexyl)phthalate	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Butyl benzyl phthalate	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
d-HCH	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Di-n-butyl phthalate	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Di-n-octyl phthalate	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dibenz(a.j)acridine	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dibenzofuran	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dieldrin	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Diethyl phthalate	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dimethyl phthalate	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dimethylaminoazobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Diphenylamine	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endosulfan I	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endosulfan II	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endosulfan sulphate	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endrin	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endrin ketone	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
g-HCH (Lindane)	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
Heptachlor	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Heptachlor epoxide	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Methoxychlor	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
N-Nitrosodibutylamine	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
N-Nitrosodipropylamine	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
N-Nitrosopiperidine	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Nitrobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachloronitrobenzene	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pronamide	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Trifluralin	S23-Ja0002188	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	S23-Ja0002189	CP	mg/L	0.03	0.02	14	30%	Pass	
Nitrate & Nitrite (as N)	S23-Ja0002189	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Nitrate (as N)	S23-Ja0002189	CP	mg/L	0.02	0.02	<1	30%	Pass	
Nitrite (as N)	S23-Ja0002189	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S23-Ja0002189	CP	mg/L	0.003	0.003	3.8	30%	Pass	
Chromium (filtered)	S23-Ja0002189	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S23-Ja0002189	CP	mg/L	0.003	0.002	43	30%	Fail	Q15
Iron (filtered)	S23-Ja0002189	CP	mg/L	0.06	0.06	3.1	30%	Pass	
Lead (filtered)	S23-Ja0002189	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S23-Ja0002189	CP	mg/L	1.3	1.3	<1	30%	Pass	
Mercury (filtered)	S23-Ja0002189	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S23-Ja0002189	CP	mg/L	0.001	< 0.001	79	30%	Fail	Q15
Zinc (filtered)	S23-Ja0002189	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S23-Ja0002192	CP	mg/L	2.8	2.7	<1	30%	Pass	
Magnesium	S23-Ja0002192	CP	mg/L	11	11	1.7	30%	Pass	
Potassium	S23-Ja0002192	CP	mg/L	2.1	2.2	5.9	30%	Pass	
Sodium	S23-Ja0002192	CP	mg/L	30	31	2.7	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S23-Ja0002197	CP	mg/L	14	14	<1	30%	Pass	
Sulphate (as SO4)	S23-Ja0002197	CP	mg/L	17	15	12	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S23-Ja0002201	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S23-Ja0002201	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Iron (filtered)	S23-Ja0002201	CP	mg/L	0.38	0.39	2.4	30%	Pass	
Lead (filtered)	S23-Ja0002201	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S23-Ja0002201	CP	mg/L	0.35	0.35	1.6	30%	Pass	
Mercury (filtered)	S23-Ja0002201	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S23-Ja0002201	CP	mg/L	0.002	0.002	<1	30%	Pass	
Zinc (filtered)	S23-Ja0002201	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S23-Ja0002201	CP	mg/L	19	19	<1	30%	Pass	
Magnesium	S23-Ja0002201	CP	mg/L	8.2	8.0	1.8	30%	Pass	
Potassium	S23-Ja0002201	CP	mg/L	3.9	3.8	<1	30%	Pass	
Sodium	S23-Ja0002201	CP	mg/L	67	66	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S23-Ja0002205	CP	mg/L	0.001	< 0.001	39	30%	Fail	Q15
Cadmium (filtered)	S23-Ja0002205	CP	mg/L	0.0003	0.0003	2.9	30%	Pass	
Chromium (filtered)	S23-Ja0002205	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S23-Ja0002205	CP	mg/L	0.043	0.041	4.3	30%	Pass	
Lead (filtered)	S23-Ja0002205	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S23-Ja0002205	CP	mg/L	4.6	4.4	2.6	30%	Pass	
Mercury (filtered)	S23-Ja0002205	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S23-Ja0002205	CP	mg/L	0.060	0.058	1.7	30%	Pass	
Zinc (filtered)	S23-Ja0002205	CP	mg/L	0.071	0.068	4.4	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S23-Ja0002205	CP	mg/L	1.2	1.1	4.6	30%	Pass	
Magnesium	S23-Ja0002205	CP	mg/L	5.1	5.0	1.0	30%	Pass	
Potassium	S23-Ja0002205	CP	mg/L	1.4	1.5	5.9	30%	Pass	
Sodium	S23-Ja0002205	CP	mg/L	21	21	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S23-Ja0002207	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S23-Ja0002207	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S23-Ja0002207	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S23-Ja0002207	CP	mg/L	2.6	2.5	3.2	30%	Pass	
Iron (filtered)	S23-Ja0002207	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Lead (filtered)	S23-Ja0002207	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S23-Ja0002207	CP	mg/L	0.011	0.012	2.8	30%	Pass	
Mercury (filtered)	S23-Ja0002207	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S23-Ja0002207	CP	mg/L	0.007	0.007	3.2	30%	Pass	
Zinc (filtered)	S23-Ja0002207	CP	mg/L	0.010	0.008	17	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S23-Ja0002208	CP	mg/L	7.1	6.9	3.4	30%	Pass	
Sulphate (as SO4)	S23-Ja0002208	CP	mg/L	11	12	7.2	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S23-Ja0002212	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S23-Ja0002212	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S23-Ja0002212	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S23-Ja0002212	CP	mg/L	0.005	0.005	14	30%	Pass	
Iron (filtered)	S23-Ja0002212	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Lead (filtered)	S23-Ja0002212	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S23-Ja0002212	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury (filtered)	S23-Ja0002212	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S23-Ja0002212	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	S23-Ja0002212	CP	mg/L	0.006	< 0.005	48	30%	Fail	Q15
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S23-Ja0002217	CP	mg/L	15	15	1.2	30%	Pass	
Sulphate (as SO4)	S23-Ja0002217	CP	mg/L	6.7	6.5	2.7	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	S23-Ja0002219	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Nitrate & Nitrite (as N)	S23-Ja0002219	CP	mg/L	0.86	0.85	<1	30%	Pass	
Nitrate (as N)	S23-Ja0002219	CP	mg/L	0.86	0.85	1.6	30%	Pass	
Nitrite (as N)	S23-Ja0002219	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S23-Ja0002223	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S23-Ja0002223	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S23-Ja0002223	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C10-C16	S23-Ja0002223	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S23-Ja0002223	CP	mg/L	< 0.1	0.1	180	30%	Fail	Q15
TRH >C34-C40	S23-Ja0002223	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
4.4'-DDD	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
4.4'-DDE	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
4.4'-DDT	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
a-HCH	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Aldrin	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
b-HCH	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
d-HCH	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Dieldrin	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endosulfan I	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endosulfan II	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endosulfan sulphate	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endrin	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endrin aldehyde	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endrin ketone	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
g-HCH (Lindane)	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Heptachlor	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Heptachlor epoxide	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Hexachlorobenzene	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Methoxychlor	S23-Ja0002223	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	S23-Ja0002223	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos-methyl	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	S23-Ja0002223	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Demeton-O	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Fenthion	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	S23-Ja0002223	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Phorate	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	S23-Ja0002223	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	S23-Ja0002223	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
2-Methyl-4.6-dinitrophenol	S23-Ja0002223	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
1-Chloronaphthalene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1-Naphthylamine	S23-Ja0002223	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.4-Dichlorobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Chloronaphthalene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Chlorophenol	S23-Ja0002223	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Methylnaphthalene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S23-Ja0002223	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Naphthylamine	S23-Ja0002223	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
2-Nitroaniline	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Nitrophenol	S23-Ja0002223	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2-Picoline	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2.3.4.6-Tetrachlorophenol	S23-Ja0002223	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dichlorophenol	S23-Ja0002223	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dimethylphenol	S23-Ja0002223	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	S23-Ja0002223	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2.4-Dinitrotoluene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2.4.5-Trichlorophenol	S23-Ja0002223	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	S23-Ja0002223	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	S23-Ja0002223	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.6-Dinitrotoluene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S23-Ja0002223	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
3-Methylcholanthrene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
3.3'-Dichlorobenzidine	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Aminobiphenyl	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Bromophenyl phenyl ether	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Chloro-3-methylphenol	S23-Ja0002223	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
4-Chlorophenyl phenyl ether	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
4-Nitrophenol	S23-Ja0002223	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
4.4'-DDD	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4.4'-DDE	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4.4'-DDT	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
7.12-Dimethylbenz(a)anthracene	S23-Ja0002223	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
a-HCH	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Acenaphthene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acetophenone	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aldrin	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aniline	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Anthracene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
b-HCH	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benz(a)anthracene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzyl chloride	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Bis(2-chloroethoxy)methane	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Bis(2-chloroisopropyl)ether	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Bis(2-ethylhexyl)phthalate	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Butyl benzyl phthalate	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chrysene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
d-HCH	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Di-n-butyl phthalate	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Di-n-octyl phthalate	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dibenz(a.h)anthracene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.j)acridine	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dibenzofuran	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dieldrin	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Diethyl phthalate	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dimethyl phthalate	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dimethylaminoazobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Diphenylamine	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endosulfan I	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endosulfan II	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endosulfan sulphate	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endrin	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endrin aldehyde	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endrin ketone	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Fluoranthene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
g-HCH (Lindane)	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Heptachlor	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Heptachlor epoxide	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Methoxychlor	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
N-Nitrosodibutylamine	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
N-Nitrosodipropylamine	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
N-Nitrosopiperidine	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Naphthalene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nitrobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachloronitrobenzene	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorophenol	S23-Ja0002223	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Phenanthrene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenol	S23-Ja0002223	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Pronamide	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pyrene	S23-Ja0002223	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Trifluralin	S23-Ja0002223	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Hannah Mawbey	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Dilani Samarakoon	Senior Analyst-Inorganic
Mary Makarios	Senior Analyst-Inorganic
Mickael Ros	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile
Ryan Phillips	Senior Analyst-Inorganic
Scott Beddoes	Senior Analyst-Inorganic

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Ballpark Environmental Pty Ltd
Suite 2, 192 pacific Highway
Coffs Harbour
NSW 2450

Attention: **Andrew Ballard & Joel Parkin**

Report **956094-W**
Project name
Project ID BPE21058
Received Date Jan 17, 2023

Client Sample ID			**QC16**	**QC18**
Sample Matrix			**Water**	**Water**
Eurofins Sample No.			**S23-Ja0002222**	**S23-Ja0002224**
Date Sampled			**Jan 04, 2022**	**Jan 04, 2022**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1
Volatile Organics				
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001

Client Sample ID			QC16	QC18
Sample Matrix			Water	Water
Eurofins Sample No.			S23-Ja0002222	S23-Ja0002224
Date Sampled			Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit		
Volatile Organics				
Bromobenzene	0.001	mg/L	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	148	143
Toluene-d8 (surr.)	1	%	93	90
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons				
Total PAH*	0.001	mg/L	< 0.001	< 0.001
Organochlorine Pesticides				
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002

Client Sample ID			QC16	QC18
Sample Matrix			Water	Water
Eurofins Sample No.			S23-Ja0002222	S23-Ja0002224
Date Sampled			Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit		
Organochlorine Pesticides				
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	109	90
Tetrachloro-m-xylene (surr.)	1	%	118	101
Organophosphorus Pesticides				
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002

Client Sample ID			QC16	QC18
Sample Matrix			Water	Water
Eurofins Sample No.			S23-Ja0002222	S23-Ja0002224
Date Sampled			Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit		
Organophosphorus Pesticides				
Ronnel	0.002	mg/L	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	73	83
Semivolatile Organics				
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.005	< 0.005
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	89	98
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.005	< 0.005
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	90	27
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005

Client Sample ID			QC16	QC18
Sample Matrix			Water	Water
Eurofins Sample No.			S23-Ja0002222	S23-Ja0002224
Date Sampled			Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit		
Semivolatile Organics				
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.005	< 0.005
a-HCH	0.005	mg/L	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005

Client Sample ID			QC16	QC18
Sample Matrix			Water	Water
Eurofins Sample No.			S23-Ja0002222	S23-Ja0002224
Date Sampled			Jan 04, 2022	Jan 04, 2022
Test/Reference	LOR	Unit		
Semivolatile Organics				
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001
Nitrobenzene	0.05	mg/L	< 0.05	< 0.05
Nitrobenzene-d5 (surr.)	1	%	50	67
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	58	66
Pronamide	0.005	mg/L	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01	0.06
Chloride	1	mg/L	16	30
Nitrate & Nitrite (as N)	0.05	mg/L	11	0.91
Nitrate (as N)	0.02	mg/L	11	0.91
Nitrite (as N)	0.02	mg/L	0.02	< 0.02
Phosphorus reactive (as P)	0.01	mg/L	0.08	0.10
Sulphate (as SO4)	5	mg/L	13	26
Alkalinity (speciated)				
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	1400	110
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	1400	110
Heavy Metals				
Arsenic (filtered)	0.001	mg/L	< 0.001	0.002
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.15	0.27
Iron (filtered)	0.05	mg/L	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.51	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001	< 0.001
Zinc (filtered)	0.005	mg/L	0.007	0.007
Alkali Metals				
Calcium	0.5	mg/L	6.3	17
Magnesium	0.5	mg/L	6.1	3.6
Potassium	0.5	mg/L	7.7	1.6
Sodium	0.5	mg/L	14	40

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jan 10, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jan 09, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jan 10, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Volatile Organics	Melbourne	Jan 09, 2023	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			
Semivolatile Organics	Melbourne	Jan 10, 2023	7 Days
- Method: USEPA SW 846 8270			
Metals M8 filtered	Melbourne	Jan 09, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals (filtered)	Melbourne	Jan 09, 2023	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B11C: Na/K/Ca/Mg	Melbourne	Jan 09, 2023	180 Days
- Method: LTM-MET-3010 Alkali Metals by ICP-AES			
Suite B14: OCP/OPP			
Organochlorine Pesticides	Melbourne	Jan 10, 2023	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Organophosphorus Pesticides	Melbourne	Jan 10, 2023	7 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8270)			
Eurofins Suite B19C: NO3/NO2/NOx/Reactive P/NH3			
Ammonia (as N)	Melbourne	Jan 09, 2023	28 Days
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Nitrate & Nitrite (as N)	Melbourne	Jan 09, 2023	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrate (as N)	Melbourne	Jan 09, 2023	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrite (as N)	Melbourne	Jan 09, 2023	2 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Phosphorus reactive (as P)	Melbourne	Jan 09, 2023	2 Days
- Method: APHA 4500-P			
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride	Melbourne	Jan 09, 2023	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Sulphate (as SO4)	Melbourne	Jan 09, 2023	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Jan 09, 2023	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			

eurofins | Environment Testing

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Chloride	mg/L	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Iron (filtered)	mg/L	< 0.05			0.05	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
Sulphate (as SO4)	%	127			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	M23-Ja0005729	NCP	%	128			70-130	Pass	
TRH C10-C14	K22-De0047942	NCP	%	84			70-130	Pass	
TRH C6-C10	M23-Ja0005729	NCP	%	120			70-130	Pass	
TRH >C10-C16	K22-De0047942	NCP	%	87			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M23-Ja0005729	NCP	%	84			70-130	Pass	
1.1.1-Trichloroethane	M23-Ja0005729	NCP	%	85			70-130	Pass	
1.2-Dichlorobenzene	M23-Ja0005729	NCP	%	95			70-130	Pass	
1.2-Dichloroethane	M23-Ja0005729	NCP	%	97			70-130	Pass	
Benzene	M23-Ja0005729	NCP	%	87			70-130	Pass	
Ethylbenzene	M23-Ja0005729	NCP	%	102			70-130	Pass	
m&p-Xylenes	M23-Ja0003043	NCP	%	116			70-130	Pass	
o-Xylene	M23-Ja0005729	NCP	%	113			70-130	Pass	
Toluene	M23-Ja0005729	NCP	%	89			70-130	Pass	
Trichloroethene	M23-Ja0005729	NCP	%	92			70-130	Pass	
Xylenes - Total*	M23-Ja0003043	NCP	%	116			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M23-Ja0005729	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
2-Chlorophenol	M23-Ja0006915	NCP	%	99			30-130	Pass	
2.4.5-Trichlorophenol	M23-Ja0006915	NCP	%	30			30-130	Pass	
4-Nitrophenol	M23-Ja0006915	NCP	%	54			30-130	Pass	
Chrysene	M23-Ja0006915	NCP	%	104			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene	M23-Ja0012862	NCP	%	122			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M23-Ja0002919	NCP	%	81			70-130	Pass	
Nitrate & Nitrite (as N)	M23-Ja0002919	NCP	%	87			70-130	Pass	
Nitrate (as N)	M23-Ja0002919	NCP	%	87			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M23-Ja0002304	NCP	%	94			75-125	Pass	
Cadmium (filtered)	M23-Ja0002304	NCP	%	82			75-125	Pass	
Chromium (filtered)	M23-Ja0002304	NCP	%	100			75-125	Pass	
Copper (filtered)	M23-Ja0002309	NCP	%	97			75-125	Pass	
Iron (filtered)	S23-Ja0002222	CP	%	116			75-125	Pass	
Lead (filtered)	S23-Ja0002222	CP	%	99			75-125	Pass	
Mercury (filtered)	M23-Ja0002304	NCP	%	92			75-125	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	S23-Ja0002222	CP	%	89			75-125	Pass	
Magnesium	S23-Ja0002222	CP	%	96			75-125	Pass	
Potassium	S23-Ja0002222	CP	%	92			75-125	Pass	
Sodium	S23-Ja0002222	CP	%	93			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M23-Ja0005727	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	M23-Ja0005123	NCP	mg/L	**	**	<1	30%	Pass	
TRH C15-C28	M23-Ja0005123	NCP	mg/L	**	**	<1	30%	Pass	
TRH C29-C36	M23-Ja0005123	NCP	mg/L	**	**	<1	30%	Pass	
TRH C6-C10	M23-Ja0005727	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	M23-Ja0005123	NCP	mg/L	**	**	<1	30%	Pass	
TRH >C16-C34	M23-Ja0005123	NCP	mg/L	**	**	<1	30%	Pass	
TRH >C34-C40	M23-Ja0005123	NCP	mg/L	**	**	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1-Dichloroethene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1-Trichloroethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2-Trichloroethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dibromoethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichlorobenzene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloroethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloropropane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.3-Trichloropropane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.4-Trimethylbenzene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichlorobenzene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichloropropane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3.5-Trimethylbenzene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.4-Dichlorobenzene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
2-Butanone (MEK)	M23-Ja0005727	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Propanone (Acetone)	M23-Ja0005727	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Chlorotoluene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M23-Ja0005727	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate								
Volatile Organics				Result 1	Result 2	RPD		
Allyl chloride	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromobenzene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromochloromethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromodichloromethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromoform	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromomethane	M23-Ja0005727	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Carbon disulfide	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Carbon Tetrachloride	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chlorobenzene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chloroethane	M23-Ja0005727	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Chloroform	M23-Ja0005727	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Chloromethane	M23-Ja0005727	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
cis-1.2-Dichloroethene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
cis-1.3-Dichloropropene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibromochloromethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibromomethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dichlorodifluoromethane	M23-Ja0005727	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Ethylbenzene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Iodomethane	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Isopropyl benzene (Cumene)	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	M23-Ja0005727	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Methylene Chloride	M23-Ja0005727	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
o-Xylene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Styrene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Tetrachloroethene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
trans-1.2-Dichloroethene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
trans-1.3-Dichloropropene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Trichloroethene	M23-Ja0005727	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Trichlorofluoromethane	M23-Ja0005727	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Vinyl chloride	M23-Ja0005727	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Xylenes - Total*	M23-Ja0005727	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	M23-Ja0005727	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
4.4'-DDD	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
4.4'-DDE	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
4.4'-DDT	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
a-HCH	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Aldrin	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
b-HCH	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
d-HCH	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Dieldrin	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endosulfan I	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endosulfan II	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endosulfan sulphate	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endrin	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endrin aldehyde	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endrin ketone	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
g-HCH (Lindane)	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Heptachlor	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Heptachlor epoxide	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Hexachlorobenzene	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Methoxychlor	S23-Ja0002222	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Toxaphene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	S23-Ja0002222	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos-methyl	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	S23-Ja0002222	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Demeton-O	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	S23-Ja0002222	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Phorate	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	S23-Ja0002222	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	S23-Ja0002222	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
2-Methyl-4.6-dinitrophenol	S23-Ja0002222	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
1-Chloronaphthalene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1-Naphthylamine	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2-Dichlorobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
1.4-Dichlorobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Chloronaphthalene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Chlorophenol	S23-Ja0002222	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Methylnaphthalene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S23-Ja0002222	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Naphthylamine	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Nitroaniline	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Nitrophenol	S23-Ja0002222	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2-Picoline	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2.3.4.6-Tetrachlorophenol	S23-Ja0002222	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dichlorophenol	S23-Ja0002222	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dimethylphenol	S23-Ja0002222	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	S23-Ja0002222	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2.4-Dinitrotoluene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2.4.5-Trichlorophenol	S23-Ja0002222	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	S23-Ja0002222	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	S23-Ja0002222	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.6-Dinitrotoluene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S23-Ja0002222	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
3-Methylcholanthrene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
3.3'-Dichlorobenzidine	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Aminobiphenyl	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Bromophenyl phenyl ether	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Chloro-3-methylphenol	S23-Ja0002222	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
4-Chlorophenyl phenyl ether	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Nitrophenol	S23-Ja0002222	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
4.4'-DDD	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4.4'-DDE	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4.4'-DDT	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
7.12-Dimethylbenz(a)anthracene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
a-HCH	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Acenaphthene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acetophenone	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aldrin	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Aniline	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Anthracene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
b-HCH	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benz(a)anthracene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzyl chloride	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Bis(2-chloroethoxy)methane	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Bis(2-chloroisopropyl)ether	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Bis(2-ethylhexyl)phthalate	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Butyl benzyl phthalate	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chrysene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
d-HCH	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Di-n-butyl phthalate	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Di-n-octyl phthalate	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dibenz(a.h)anthracene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.j)acridine	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
Dibenzofuran	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dieldrin	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Diethyl phthalate	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dimethyl phthalate	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Dimethylaminoazobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Diphenylamine	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endosulfan I	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endosulfan II	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endosulfan sulphate	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endrin	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endrin aldehyde	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Endrin ketone	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Fluoranthene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
g-HCH (Lindane)	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Heptachlor	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Heptachlor epoxide	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Methoxychlor	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
N-Nitrosodibutylamine	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
N-Nitrosodipropylamine	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
N-Nitrosopiperidine	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Naphthalene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nitrobenzene	S23-Ja0002222	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Pentachlorobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachloronitrobenzene	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorophenol	S23-Ja0002222	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Phenanthrene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenol	S23-Ja0002222	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Pronamide	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pyrene	S23-Ja0002222	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Trifluralin	S23-Ja0002222	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M23-Ja0002325	NCP	mg/L	0.03	0.03	9.1	30%	Pass	
Chloride	M23-Ja0002330	NCP	mg/L	77	76	<1	30%	Pass	
Nitrate & Nitrite (as N)	M23-Ja0002325	NCP	mg/L	2.6	2.5	<1	30%	Pass	
Nitrate (as N)	M23-Ja0002325	NCP	mg/L	2.5	2.5	<1	30%	Pass	
Nitrite (as N)	M23-Ja0002325	NCP	mg/L	0.02	< 0.02	<1	30%	Pass	
Sulphate (as SO4)	M23-Ja0004303	NCP	mg/L	410	420	1.4	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M23-Ja0002304	NCP	mg/L	0.001	0.001	2.7	30%	Pass	
Cadmium (filtered)	M23-Ja0002304	NCP	mg/L	0.010	0.011	3.7	30%	Pass	
Chromium (filtered)	M23-Ja0002304	NCP	mg/L	0.001	0.002	7.6	30%	Pass	
Copper (filtered)	M23-Ja0002309	NCP	mg/L	0.002	0.002	<1	30%	Pass	
Iron (filtered)	S23-Ja0002222	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Lead (filtered)	M23-Ja0002304	NCP	mg/L	1.6	1.6	<1	30%	Pass	
Manganese (filtered)	S23-Ja0002222	CP	mg/L	0.51	0.51	<1	30%	Pass	
Mercury (filtered)	M23-Ja0002304	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Nickel (filtered)	M23-Ja0002304	NCP	mg/L	2.2	2.2	1.3	30%	Pass	
Zinc (filtered)	M23-Ja0002304	NCP	mg/L	3.5	3.5	1.5	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M23-Ja0002329	NCP	mg/L	59	59	<1	30%	Pass	
Magnesium	M23-Ja0002329	NCP	mg/L	9.8	9.9	1.3	30%	Pass	
Potassium	M23-Ja0002329	NCP	mg/L	7.6	7.7	<1	30%	Pass	
Sodium	M23-Ja0002329	NCP	mg/L	54	55	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	B22-De0055857	NCP	mg/L	35	38	7.8	30%	Pass	
Carbonate Alkalinity (as CaCO3)	B22-De0055857	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO3)	B22-De0055857	NCP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO3)	B22-De0055857	NCP	mg/L	35	38	7.8	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Hannah Mawbey	Analytical Services Manager
Joseph Edouard	Senior Analyst-Organic
Mele Singh	Senior Analyst-Organic
Mele Singh	Senior Analyst-Volatile
Scott Beddoes	Senior Analyst-Inorganic
Scott Beddoes	Senior Analyst-Metal

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Sample Receipt Advice

Company name:	Ballpark Environmental Pty Ltd
Contact name:	Andrew Ballard & Joel Parkin
Project name:	Not provided
Project ID:	BPE21058
Turnaround time:	5 Day
Date/Time received	Jan 6, 2023 9:20 AM
Eurofins reference	953805

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

QC16 and QC18 sent to MEL lab.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Hannah Mawbey on phone : or by email: HannahMawbey@eurofins.com

Results will be delivered electronically via email to Andrew Ballard & Joel Parkin - info@ballparkenv.com.au.

Global Leader - Results you can trust

BALLPARK
ENVIRONMENTAL

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Coffs Harbour
NSW 2450 Australia
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E. info@ballparkenv.com.au

Chain of Custody	Laboratory Quotation/ Order No: Quotation: 221202BPEN	Project No.: BPE21058	Sheet 1 of 3
Dispatch to: Sample Receipt - Eurofins Delivery Door 2, Eurofins Sydney Campus, 179 Magowar Road, GIRRAWEEN NSW 2145	Sampled By: JP/AB	Consigning Officer	JP
		Date Dispatched	5-Jan-23
Attention: Sample receipt	Project Manager: (report results to) info@ballparkenv.com.au	Courier Service:	TOLL
		Consignment Note No.:	111 0090 WODCF

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Joel Parkin Coffs Harbour	05-Jan-23	1150	[illegible]	6/1/23	9:20

Comments:	Sample Matrix	Container Type & Preservative	Sample No.	Sample Depth (m)	Date Sampled:	Analyses Required: B11C (Cations #1)	B11E (Anions #1)	TRH	Metals	B19C (Nutrients #4)	B14 OCP/OPP	SVV (SVOC[2], VOC[3])				Send to Eurofins Melbourne	HOLD	Sample Condition on Receipt
	Water	metals/ green plastic/ amber/ purple plastic/ 2 x vials	BHH106		03-Jan-23	x	x	x	x	x	x	x						
	Water		BH1056		03-Jan-23	x	x	x	x	x	x	x						
	Water		BH1058		03-Jan-23	x	x	x	x	x	x	x						
	Water		BH1059		03-Jan-23	x	x	x	x	x	x	x						
	Water		BHH110		03-Jan-23	x	x	x	x	x	x	x						
	Water		BH2001		03-Jan-23	x	x	x	x	x	x	x						
	Water		BH2002		03-Jan-23	x	x	x	x	x	x	x						
	Water		BHH111		03-Jan-23	x	x	x	x	x	x	x						
	Water		BHH113		03-Jan-23	x	x	x	x	x	x	x						
	Water		BH2003		03-Jan-23	x	x	x	x	x	x	x						
	Water		BHN2.1-015		03-Jan-23	x	x	x	x	x	x	x						
	Water		BH2004		03-Jan-23	x	x	x	x	x	x	x						
	Water		BHH115		03-Jan-23	x	x	x	x	x	x	x						
	Water		BH2006		03-Jan-23	x	x	x	x	x	x	x						
	Water		BHH119		03-Jan-23	x	x	x	x	x	x	x						
	Water		BH2008		03-Jan-23	x	x	x	x	x	x	x						

Special Laboratory Instructions: **Analyses required as per Eurofins Quotation 221202BPEN**

Metals: As, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Zn)

Detection Limits: Normal

Turnaround Required: Standard TAT Requested

13.9°C

953805

BALLPARK
ENVIRONMENTAL

Suite 2, 192 Pacific Highway
Coffs Harbour
NSW 2450 Australia
M: 0400 566 088
E. info@ballparkenv.com.au

Chain of Custody	Laboratory Quotation/ Order No: Quotation: 221202BPEN	Project No.: BPE21058	Sheet 2 of 3
Dispatch to: Sample Receipt - Eurofins Delivery Door 2, Eurofins Sydney Campus, 179 Magowar Road, GIRRAWEEN NSW 2145	Sampled By: JP/AB	Consigning Officer	JP
		Date Dispatched	5-Jan-23
Attention: Sample receipt	Project Manager: (report results to) info@ballparkenv.com.au	Courier Service:	TOLL
		Consignment Note No.:	711 009 03 WODCF

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Joel Parkin Coffs Harbour	05-Jan-23	1150			

Comments:	Sample Matrix	Container Type & Preservative	Sample No.	Sample Depth (m)	Date Sampled:	Analyses Required: B11C (Cations #1)	B11E (Anions #1)	TRH	Metals	B19C (Nutrients #4)	B14 OCP/OPP	SVV (SVOC², VOC³)				Send to Eurofins Melbourne	HOLD	Sample Condition on Receipt
	Water	metals/ green plastic/ amber/ purple plastic/ 2 x vials	BH2015		04-Jan-23	x	x	x	x	x	x	x						
	Water		BH2016		04-Jan-23	x	x	x	x	x	x	x						
	Water		BH2027		04-Jan-23	x	x	x	x	x	x	x						
	Water		BH2029		04-Jan-23	x	x	x	x	x	x	x						
	Water		BH2030		04-Jan-23	x	x	x	x	x	x	x						
	Water		BHH125		04-Jan-23	x	x	x	x	x	x	x						
	Water		BHH127		04-Jan-23	x	x	x	x	x	x	x						
	Water		BHN2.1-024		04-Jan-23	x	x	x	x	x	x	x						
	Water		BHN2.1-025		04-Jan-23	x	x	x	x	x	x	x						
	Water		BHH131		04-Jan-23	x	x	x	x	x	x	x						
	Water		BHN2.1-026		04-Jan-23	x	x	x	x	x	x	x						
	Water		BHH2.1-031		04-Jan-23	x	x	x	x	x	x	x						
	Water		BHN2.1-044		04-Jan-23	x	x	x	x	x	x	x						
	Water		BHH2.1-047		04-Jan-23	x	x	x	x	x	x	x						
	Water		BH2034		04-Jan-23	x	x	x	x	x	x	x						
	Water		BH2035		04-Jan-23	x	x	x	x	x	x	x						

Special Laboratory Instructions: **Analyses required as per Eurofins Quotation 221202BPEN**

Metals: As, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Zn)

Detection Limits: Normal

Turnaround Required: Standard TAT Requested

953305

BALLPARK ENVIRONMENTAL

Suite 2, 192 Pacific Highway
Coffs Harbour
NSW 2450 Australia
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E. info@ballparkenv.com.au

Chain of Custody	Laboratory Quotation/ Order No:	Quotation: 221202BPEN	Project No.: BPE21058	Sheet 3 of 3
Dispatch to:	Sample Receipt - Eurofins Delivery Door 2, Eurofins Sydney Campus, 179 Magowar Road, GIRRAWEEN NSW 2145	Sampled By: JP/AB	Consigning Officer	JP
			Date Dispatched	5-Jan-23
Attention:	Sample receipt	Project Manager: (report results to) info@ballparkenv.com.au	Courier Service:	TOLL
			Consignment Note No.:	MII 009OWODCF

Relinquished By:		Date:	Time:	Received By:	Date:	Time:
	Joel Parkin					
	Coffs Harbour	05-Jan-23	1150			

Comments:	Sample Matrix	Container Type & Preservative	Sample No.	Sample Depth (m)	Date Sampled:	B11C (Cations #1)	B11E (Anions #1)	TRH	Metals	B19C (Nutrients #4)	B14 OCP/OPP	SVV (SVOC[2], VOC[3])				Send to Eurofins Melbourne	HOLD	Sample Condition on Receipt
						Analyses Required												
	Water		BHH140		04-Jan-23	x	x	x	x	x	x	x						
	Water		BHH142		04-Jan-23	x	x	x	x	x	x	x						
	Water		BHH144		05-Jan-23	x	x	x	x	x	x	x						
	Water		BH2037		05-Jan-23	x	x	x	x	x	x	x						
	Water		BH2038		05-Jan-23	x	x	x	x	x	x	x						
	Water		BH2039		05-Jan-23	x	x	x	x	x	x	x						
	Water	metals/ green plastic/ amber/ purple plastic/ 2 x vials	BH2050		05-Jan-23	x	x	x	x	x	x	x						
	Water		QC15		04-Jan-23	x	x	x	x	x	x	x						
	Water		QC16		04-Jan-23	x	x	x	x	x	x	x				x		
	Water		QC17		05-Jan-23	x	x	x	x	x	x	x						
	Water		QC18		05-Jan-23	x	x	x	x	x	x	x				x		
	Water																	
	Water																	
	Water																	
	Water																	
	Water																	

Special Laboratory Instructions: **Analyses required as per Eurofins Quotation 221202BPEN**

Metals: As, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Zn)

Detection Limits: Normal

Turnaround Required: Standard TAT Requested

953805

Ballpark Environmental Pty Ltd
Suite 2, 192 pacific Highway
Coffs Harbour
NSW 2450

Attention: **Andrew Ballard & Joel Parkin**

Report **954635-W-V2**
Project name
Project ID BPE21058
Received Date Jan 11, 2023

Client Sample ID			**BH2036**	**BH2047**	**BH2051**	**BH2052**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**S23-Ja0006796**	**S23-Ja0006797**	**S23-Ja0006798**	**S23-Ja0006799**
Date Sampled			**Jan 09, 2023**	**Jan 09, 2023**	**Jan 09, 2023**	**Jan 09, 2023**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BH2036	BH2047	BH2051	BH2052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006796	S23-Ja0006797	S23-Ja0006798	S23-Ja0006799
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Volatile Organics						
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	87	87	87	88
Toluene-d8 (surr.)	1	%	96	98	99	96
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002

Client Sample ID			BH2036	BH2047	BH2051	BH2052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006796	S23-Ja0006797	S23-Ja0006798	S23-Ja0006799
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	[Q09]INT	113	128	96
Tetrachloro-m-xylene (surr.)	1	%	123	110	126	103
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			BH2036	BH2047	BH2051	BH2052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006796	S23-Ja0006797	S23-Ja0006798	S23-Ja0006799
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.005	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	75	55	58	63
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	103	103	[Q09]INT	98
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH2036	BH2047	BH2051	BH2052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006796	S23-Ja0006797	S23-Ja0006798	S23-Ja0006799
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Semivolatile Organics						
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH2036	BH2047	BH2051	BH2052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006796	S23-Ja0006797	S23-Ja0006798	S23-Ja0006799
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Semivolatile Organics						
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	126	101	113	117
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	22	38	33	36
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01	0.05	< 0.01	< 0.01
Chloride	1	mg/L	34	16	32	19
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	0.11	< 0.05	1.0
Nitrate (as N)	0.02	mg/L	0.04	0.10	< 0.02	1.0
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.01	mg/L	0.05	0.10	0.04	0.10
Sulphate (as SO4)	2	mg/L	12	20	24	17
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	180	76	180	51
Carbonate Alkalinity (as CaCO3)	10	mg/L	16	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	190	76	180	51
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	0.001	0.004	0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	0.010	< 0.001	0.002
Iron (filtered)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.018	0.15	0.12	0.008
Mercury (filtered)	0.0001	mg/L	< 0.0001	0.0007	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	0.010	0.006	0.002
Zinc (filtered)	0.005	mg/L	< 0.005	0.010	0.010	0.012
Alkali Metals						
Calcium	0.5	mg/L	56	11	60	9.5
Magnesium	0.5	mg/L	5.9	5.7	7.4	5.6
Potassium	0.5	mg/L	1.3	1.0	1.1	2.2
Sodium	0.5	mg/L	36	38	44	31

Client Sample ID			BH2053	BHH150	BHH153	BH3002
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006800	S23-Ja0006801	S23-Ja0006802	S23-Ja0006803
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	0.06	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	0.2	< 0.1	0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	0.26	< 0.1	0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	0.08	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	0.08	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	0.2
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	0.2
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BH2053	BHH150	BHH153	BH3002
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006800	S23-Ja0006801	S23-Ja0006802	S23-Ja0006803
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Volatile Organics						
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	84	88	84	84
Toluene-d8 (surr.)	1	%	94	92	93	89
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002

Client Sample ID			BH2053	BHH150	BHH153	BH3002
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006800	S23-Ja0006801	S23-Ja0006802	S23-Ja0006803
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	117	106	136	Q09 INT
Tetrachloro-m-xylene (surr.)	1	%	120	139	167	139
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	Q09 INT	150	Q09 INT	Q09 INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH2053	BHH150	BHH153	BH3002
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006800	S23-Ja0006801	S23-Ja0006802	S23-Ja0006803
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Semivolatile Organics						
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	60	56	55	74
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	99	125	115	110
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BH2053	BHH150	BHH153	BH3002
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006800	S23-Ja0006801	S23-Ja0006802	S23-Ja0006803
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Semivolatile Organics						
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	131	102	113	125
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	46	41	41	50
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH2053	BHH150	BHH153	BH3002
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006800	S23-Ja0006801	S23-Ja0006802	S23-Ja0006803
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	< 0.01	1.5	0.19	< 0.01
Chloride	1	mg/L	120	26	59	10
Nitrate & Nitrite (as N)	0.05	mg/L	0.13	< 0.05	< 0.05	4.3
Nitrate (as N)	0.02	mg/L	0.12	< 0.02	0.02	4.3
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.01	mg/L	0.08	0.14	0.05	100
Sulphate (as SO4)	2	mg/L	250	13	6.7	24
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	< 20	330	290	< 20
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	< 20	340	290	< 20
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	0.066
Iron (filtered)	0.05	mg/L	0.10	0.06	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.029	0.82	0.51	0.014
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	0.008
Zinc (filtered)	0.005	mg/L	0.010	< 0.005	< 0.005	0.018
Alkali Metals						
Calcium	0.5	mg/L	7.4	52	64	2.1
Magnesium	0.5	mg/L	8.2	10	12	5.9
Potassium	0.5	mg/L	2.4	8.6	1.5	2.2
Sodium	0.5	mg/L	60	57	47	18

Client Sample ID			BH3014	BH3015	BH3016	BH3020
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006804	S23-Ja0006805	S23-Ja0006806	S23-Ja0006807
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	0.1	< 0.1

Client Sample ID			BH3014	BH3015	BH3016	BH3020
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006804	S23-Ja0006805	S23-Ja0006806	S23-Ja0006807
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BH3014	BH3015	BH3016	BH3020
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006804	S23-Ja0006805	S23-Ja0006806	S23-Ja0006807
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Volatile Organics						
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	91	88	88	86
Toluene-d8 (surr.)	1	%	97	95	95	94
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	144	129	69	109
Tetrachloro-m-xylene (surr.)	1	%	145	97	150	99
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			BH3014	BH3015	BH3016	BH3020
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006804	S23-Ja0006805	S23-Ja0006806	S23-Ja0006807
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	86	50	72	55
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			BH3014	BH3015	BH3016	BH3020
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006804	S23-Ja0006805	S23-Ja0006806	S23-Ja0006807
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Semivolatile Organics						
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	116	115	115	84
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH3014	BH3015	BH3016	BH3020
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006804	S23-Ja0006805	S23-Ja0006806	S23-Ja0006807
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Semivolatile Organics						
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	132	103	115	103
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	37	35	41	37
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	15	25	57	50
Nitrate & Nitrite (as N)	0.05	mg/L	0.73	1.3	0.11	< 0.05
Nitrate (as N)	0.02	mg/L	0.73	1.3	0.11	0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.01	mg/L	0.02	0.04	0.06	0.05
Sulphate (as SO4)	2	mg/L	12	21	29	15
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	< 20	130	240	61
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	< 20	130	240	61

Client Sample ID			BH3014	BH3015	BH3016	BH3020
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006804	S23-Ja0006805	S23-Ja0006806	S23-Ja0006807
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	0.036	0.001	0.001
Iron (filtered)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.014	0.006	0.087	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001	0.070	0.021	0.006
Zinc (filtered)	0.005	mg/L	0.005	0.015	0.013	0.012
Alkali Metals						
Calcium	0.5	mg/L	2.4	39	90	20
Magnesium	0.5	mg/L	2.4	3.9	10	4.3
Potassium	0.5	mg/L	1.1	2.3	3.1	1.4
Sodium	0.5	mg/L	19	38	46	46

Client Sample ID			BH3003	BH3004	BH3005	BHH154
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006808	S23-Ja0006809	S23-Ja0006810	S23-Ja0006811
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	0.06	< 0.05	< 0.05	0.07
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	0.06	< 0.05	< 0.05	0.07
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	0.06	< 0.05	< 0.05	0.07
TRH >C16-C34	0.1	mg/L	0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.16	< 0.1	< 0.1	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BH3003	BH3004	BH3005	BHH154
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006808	S23-Ja0006809	S23-Ja0006810	S23-Ja0006811
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Volatile Organics						
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	83	91	85	89
Toluene-d8 (surr.)	1	%	100	99	95	96
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			BH3003	BH3004	BH3005	BHH154
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006808	S23-Ja0006809	S23-Ja0006810	S23-Ja0006811
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	129	141	136	142
Tetrachloro-m-xylene (surr.)	1	%	108	115	113	120
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			BH3003	BH3004	BH3005	BHH154
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006808	S23-Ja0006809	S23-Ja0006810	S23-Ja0006811
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT	[Q09]INT	[Q09]INT	[Q09]INT
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Fluorobiphenyl (surr.)	1	%	65	74	59	65
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	118	103	64	118
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH3003	BH3004	BH3005	BHH154
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006808	S23-Ja0006809	S23-Ja0006810	S23-Ja0006811
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Semivolatile Organics						
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
a-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-HCH	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			BH3003	BH3004	BH3005	BHH154
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006808	S23-Ja0006809	S23-Ja0006810	S23-Ja0006811
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Semivolatile Organics						
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene-d5 (surr.)	1	%	124	131	118	120
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	45	40	44	45
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	0.16
Chloride	1	mg/L	12	26	35	26
Nitrate & Nitrite (as N)	0.05	mg/L	2.4	0.23	0.42	0.07
Nitrate (as N)	0.02	mg/L	2.4	0.22	0.42	0.06
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphorus reactive (as P)	0.01	mg/L	0.08	0.03	0.04	0.04
Sulphate (as SO4)	2	mg/L	17	8.1	10	29
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	< 20	47	21	110
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	< 20	47	21	110
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	0.007	0.019	0.003
Iron (filtered)	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.62
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	< 0.005	< 0.005	0.010	0.69
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	0.009	< 0.005	< 0.005	< 0.005

Client Sample ID			BH3003	BH3004	BH3005	BHH154
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S23-Ja0006808	S23-Ja0006809	S23-Ja0006810	S23-Ja0006811
Date Sampled			Jan 09, 2023	Jan 09, 2023	Jan 09, 2023	Jan 09, 2023
Test/Reference	LOR	Unit				
Alkali Metals						
Calcium	0.5	mg/L	2.9	8.3	4.3	33
Magnesium	0.5	mg/L	3.2	4.0	3.9	6.3
Potassium	0.5	mg/L	1.6	3.2	2.8	3.0
Sodium	0.5	mg/L	19	26	27	33

Client Sample ID			QC19
Sample Matrix			Water
Eurofins Sample No.			S23-Ja0006812
Date Sampled			Jan 09, 2023
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	0.07
TRH C15-C28	0.1	mg/L	0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.17
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	0.07
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	0.07
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
Volatile Organics			
1.1-Dichloroethane	0.001	mg/L	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005
Allyl chloride	0.001	mg/L	< 0.001
Benzene	0.001	mg/L	< 0.001
Bromobenzene	0.001	mg/L	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001

Client Sample ID			QC19
Sample Matrix			Water
Eurofins Sample No.			S23-Ja0006812
Date Sampled			Jan 09, 2023
Test/Reference	LOR	Unit	
Volatile Organics			
Bromodichloromethane	0.001	mg/L	< 0.001
Bromoform	0.001	mg/L	< 0.001
Bromomethane	0.005	mg/L	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001
Chloroethane	0.005	mg/L	< 0.005
Chloroform	0.005	mg/L	< 0.005
Chloromethane	0.005	mg/L	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001
Dibromomethane	0.001	mg/L	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001
Iodomethane	0.001	mg/L	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005
o-Xylene	0.001	mg/L	< 0.001
Styrene	0.001	mg/L	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001
Trichloroethene	0.001	mg/L	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003
Total MAH*	0.003	mg/L	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005
4-Bromofluorobenzene (surr.)	1	%	86
Toluene-d8 (surr.)	1	%	95
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
Polycyclic Aromatic Hydrocarbons			
Total PAH*	0.001	mg/L	< 0.001
Organochlorine Pesticides			
Chlordanes - Total	0.002	mg/L	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002

Client Sample ID			QC19
Sample Matrix			Water
Eurofins Sample No.			S23-Ja0006812
Date Sampled			Jan 09, 2023
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
Endosulfan II	0.0002	mg/L	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002
Endrin	0.0002	mg/L	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002
Toxaphene	0.005	mg/L	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002
Dibutylchlorendate (surr.)	1	%	130
Tetrachloro-m-xylene (surr.)	1	%	105
Organophosphorus Pesticides			
Azinphos-methyl	0.002	mg/L	< 0.002
Bolstar	0.002	mg/L	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002
Coumaphos	0.02	mg/L	< 0.02
Demeton-S	0.002	mg/L	< 0.002
Demeton-O	0.002	mg/L	< 0.002
Diazinon	0.002	mg/L	< 0.002
Dichlorvos	0.002	mg/L	< 0.002
Dimethoate	0.002	mg/L	< 0.002
Disulfoton	0.002	mg/L	< 0.002
EPN	0.002	mg/L	< 0.002
Ethion	0.002	mg/L	< 0.002
Ethoprop	0.002	mg/L	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002
Fenitrothion	0.002	mg/L	< 0.002
Fensulfothion	0.002	mg/L	< 0.002
Fenthion	0.002	mg/L	< 0.002
Malathion	0.002	mg/L	< 0.002
Merphos	0.002	mg/L	< 0.002
Methyl parathion	0.002	mg/L	< 0.002
Mevinphos	0.002	mg/L	< 0.002
Monocrotophos	0.002	mg/L	< 0.002
Naled	0.002	mg/L	< 0.002
Omethoate	0.02	mg/L	< 0.02
Phorate	0.002	mg/L	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02
Pyrazophos	0.002	mg/L	< 0.002
Ronnel	0.002	mg/L	< 0.002
Terbufos	0.002	mg/L	< 0.002

Client Sample ID			QC19
Sample Matrix			Water
Eurofins Sample No.			S23-Ja0006812
Date Sampled			Jan 09, 2023
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
Tetrachlorvinphos	0.002	mg/L	< 0.002
Tokuthion	0.002	mg/L	< 0.002
Trichloronate	0.002	mg/L	< 0.002
Triphenylphosphate (surr.)	1	%	[Q09]INT
Semivolatile Organics			
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.5
1.2-Dichlorobenzene	0.005	mg/L	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003
2-Fluorobiphenyl (surr.)	1	%	54
2-Methylnaphthalene	0.005	mg/L	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.5
2-Nitroaniline	0.005	mg/L	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01
2-Picoline	0.005	mg/L	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01
2.4.6-Tribromophenol (surr.)	1	%	78
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.5
a-HCH	0.005	mg/L	< 0.005

Client Sample ID			QC19
Sample Matrix			Water
Eurofins Sample No.			S23-Ja0006812
Date Sampled			Jan 09, 2023
Test/Reference	LOR	Unit	
Semivolatile Organics			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Acetophenone	0.005	mg/L	< 0.005
Aldrin	0.005	mg/L	< 0.005
Aniline	0.005	mg/L	< 0.005
Anthracene	0.001	mg/L	< 0.001
b-HCH	0.005	mg/L	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005
Chrysene	0.001	mg/L	< 0.001
d-HCH	0.005	mg/L	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Dibenz(a.j)acridine	0.005	mg/L	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005
Dieldrin	0.005	mg/L	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005
Diphenylamine	0.005	mg/L	< 0.005
Endosulfan I	0.005	mg/L	< 0.005
Endosulfan II	0.005	mg/L	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005
Endrin	0.005	mg/L	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005
Endrin ketone	0.005	mg/L	< 0.005
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
g-HCH (Lindane)	0.005	mg/L	< 0.005
Heptachlor	0.005	mg/L	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Methoxychlor	0.005	mg/L	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005

Client Sample ID			QC19
Sample Matrix			**Water**
Eurofins Sample No.			**S23-Ja0006812**
Date Sampled			**Jan 09, 2023**
Test/Reference	LOR	Unit	
Semivolatile Organics			
Naphthalene	0.001	mg/L	< 0.001
Nitrobenzene	0.005	mg/L	< 0.005
Nitrobenzene-d5 (surr.)	1	%	107
Pentachlorobenzene	0.005	mg/L	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01
Phenanthrene	0.001	mg/L	< 0.001
Phenol	0.003	mg/L	< 0.003
Phenol-d6 (surr.)	1	%	39
Pronamide	0.005	mg/L	< 0.005
Pyrene	0.001	mg/L	< 0.001
Trifluralin	0.005	mg/L	< 0.005
Ammonia (as N)	0.01	mg/L	< 0.01
Chloride	1	mg/L	16
Nitrate & Nitrite (as N)	0.05	mg/L	0.81
Nitrate (as N)	0.02	mg/L	0.81
Nitrite (as N)	0.02	mg/L	< 0.02
Phosphorus reactive (as P)	0.01	mg/L	0.03
Sulphate (as SO4)	2	mg/L	14
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	74
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20
Total Alkalinity (as CaCO3)	20	mg/L	74
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001
Iron (filtered)	0.05	mg/L	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001
Manganese (filtered)	0.005	mg/L	0.016
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001
Zinc (filtered)	0.005	mg/L	0.005
Alkali Metals			
Calcium	0.5	mg/L	2.3
Magnesium	0.5	mg/L	2.4
Potassium	0.5	mg/L	1.1
Sodium	0.5	mg/L	18

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Jan 11, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jan 11, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jan 11, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Volatile Organics	Sydney	Jan 11, 2023	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Semivolatile Organics	Sydney	Jan 11, 2023	7 Day
- Method: LTM-ORG-2190 SVOC in Water & Soil by GC-MS			
Metals M8 filtered	Sydney	Jan 11, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals (filtered)	Sydney	Jan 11, 2023	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B11C: Na/K/Ca/Mg	Sydney	Jan 11, 2023	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Sydney	Jan 11, 2023	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Jan 11, 2023	7 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Eurofins Suite B19C: NO3/NO2/NOx/Reactive P/NH3			
Ammonia (as N)	Melbourne	Jan 13, 2023	28 Days
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Nitrate & Nitrite (as N)	Melbourne	Jan 13, 2023	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrate (as N)	Melbourne	Jan 13, 2023	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrite (as N)	Melbourne	Jan 13, 2023	2 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Phosphorus reactive (as P)	Melbourne	Jan 13, 2023	2 Days
- Method: APHA 4500-P			
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride	Sydney	Jan 11, 2023	28 Days
- Method: LTM-INO-4270 Anions by Ion Chromatography			
Sulphate (as SO4)	Sydney	Jan 11, 2023	28 Days
- Method: In-house method LTM-INO-4270 Sulphate by Ion Chromatograph			
Alkalinity (speciated)	Melbourne	Jan 13, 2023	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			

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Company Name: Ballpark Environmental Pty Ltd
Address: Suite 2, 192 pacific Highway
Coffs Harbour
NSW 2450

Project Name:
Project ID: BPE21058

Order No.:
Report #: 954635
Phone: 0400 566 088
Fax:

Received: Jan 11, 2023 10:15 AM
Due: Jan 18, 2023
Priority: 5 Day
Contact Name: Andrew Ballard & Joel Parkin

Eurofins Analytical Services Manager : Hannah Mawbey

Sample Detail						Iron (filtered)	Manganese (filtered)	Metals M8 filtered	Suite B14: OCP/OPP	Total Recoverable Hydrocarbons	Eurofins Suite SVV: SVOC/VOC	Eurofins Suite B19C: NO3/NO2/NOx/Reactive P/NH3	Eurofins Suite B11E: Cl/SO4/Alkalinity	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254								X		X		X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X		X	X
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	BH2036	Jan 09, 2023		Water	S23-Ja0006796	X	X	X	X	X	X	X	X	X
2	BH2047	Jan 09, 2023		Water	S23-Ja0006797	X	X	X	X	X	X	X	X	X
3	BH2051	Jan 09, 2023		Water	S23-Ja0006798	X	X	X	X	X	X	X	X	X
4	BH2052	Jan 09, 2023		Water	S23-Ja0006799	X	X	X	X	X	X	X	X	X
5	BH2053	Jan 09, 2023		Water	S23-Ja0006800	X	X	X	X	X	X	X	X	X
6	BHH150	Jan 09, 2023		Water	S23-Ja0006801	X	X	X	X	X	X	X	X	X
7	BHH153	Jan 09, 2023		Water	S23-Ja0006802	X	X	X	X	X	X	X	X	X
8	BH3002	Jan 09, 2023		Water	S23-Ja0006803	X	X	X	X	X	X	X	X	X
9	BH3014	Jan 09, 2023		Water	S23-Ja0006804	X	X	X	X	X	X	X	X	X
10	BH3015	Jan 09, 2023		Water	S23-Ja0006805	X	X	X	X	X	X	X	X	X
11	BH3016	Jan 09, 2023		Water	S23-Ja0006806	X	X	X	X	X	X	X	X	X
12	BH3020	Jan 09, 2023		Water	S23-Ja0006807	X	X	X	X	X	X	X	X	X

eurofins

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Melbourne Laboratory - NATA # 1261 Site # 1254								X		X		X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X		X	X
13	BH3003	Jan 09, 2023		Water	S23-Ja0006808	X	X	X	X	X	X	X	X	X
14	BH3004	Jan 09, 2023		Water	S23-Ja0006809	X	X	X	X	X	X	X	X	X
15	BH3005	Jan 09, 2023		Water	S23-Ja0006810	X	X	X	X	X	X	X	X	X
16	BHH154	Jan 09, 2023		Water	S23-Ja0006811	X	X	X	X	X	X	X	X	X
17	QC19	Jan 09, 2023		Water	S23-Ja0006812	X	X	X	X	X	X	X	X	X
Test Counts						17	17	17	17	17	17	17	17	17

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.005			0.005	Pass	
2-Propanone (Acetone)	mg/L	< 0.005			0.005	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.005			0.005	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Benzene	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.005			0.005	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.005			0.005	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.005			0.005	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	
Dichlorodifluoromethane	mg/L	< 0.005			0.005	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
Methylene Chloride	mg/L	< 0.005			0.005	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.005			0.005	Pass	
Vinyl chloride	mg/L	< 0.005			0.005	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Semivolatile Organics							
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
1-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
1-Naphthylamine	mg/L	< 0.005			0.005	Pass	
1.2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3.5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
2-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2-Methylnaphthalene	mg/L	< 0.005			0.005	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Naphthylamine	mg/L	< 0.005			0.005	Pass	
2-Nitroaniline	mg/L	< 0.005			0.005	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2-Picoline	mg/L	< 0.005			0.005	Pass	
2.3.4.6-Tetrachlorophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
2.4-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.6-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
3-Methylcholanthrene	mg/L	< 0.005			0.005	Pass	
3.3'-Dichlorobenzidine	mg/L	< 0.005			0.005	Pass	
4-Aminobiphenyl	mg/L	< 0.005			0.005	Pass	
4-Bromophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
4-Chlorophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
4.4'-DDD	mg/L	< 0.005			0.005	Pass	
4.4'-DDE	mg/L	< 0.005			0.005	Pass	
4.4'-DDT	mg/L	< 0.005			0.005	Pass	
7.12-Dimethylbenz(a)anthracene	mg/L	< 0.005			0.005	Pass	
a-HCH	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Acetophenone	mg/L	< 0.005			0.005	Pass	
Aldrin	mg/L	< 0.005			0.005	Pass	
Aniline	mg/L	< 0.005			0.005	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
b-HCH	mg/L	< 0.005			0.005	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroethoxy)methane	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroisopropyl)ether	mg/L	< 0.005			0.005	Pass	
Bis(2-ethylhexyl)phthalate	mg/L	< 0.005			0.005	Pass	
Butyl benzyl phthalate	mg/L	< 0.005			0.005	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
d-HCH	mg/L	< 0.005			0.005	Pass	
Di-n-butyl phthalate	mg/L	< 0.005			0.005	Pass	
Di-n-octyl phthalate	mg/L	< 0.005			0.005	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.j)acridine	mg/L	< 0.005			0.005	Pass	
Dibenzofuran	mg/L	< 0.005			0.005	Pass	
Dieldrin	mg/L	< 0.005			0.005	Pass	
Diethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethylaminoazobenzene	mg/L	< 0.005			0.005	Pass	
Diphenylamine	mg/L	< 0.005			0.005	Pass	
Endosulfan I	mg/L	< 0.005			0.005	Pass	
Endosulfan II	mg/L	< 0.005			0.005	Pass	
Endosulfan sulphate	mg/L	< 0.005			0.005	Pass	
Endrin	mg/L	< 0.005			0.005	Pass	
Endrin aldehyde	mg/L	< 0.005			0.005	Pass	
Endrin ketone	mg/L	< 0.005			0.005	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
g-HCH (Lindane)	mg/L	< 0.005			0.005	Pass	
Heptachlor	mg/L	< 0.005			0.005	Pass	
Heptachlor epoxide	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Methoxychlor	mg/L	< 0.005			0.005	Pass	
N-Nitrosodibutylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosodipropylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosopiperidine	mg/L	< 0.005			0.005	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Nitrobenzene	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Pentachloronitrobenzene	mg/L	< 0.005			0.005	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Pronamide	mg/L	< 0.005			0.005	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Trifluralin	mg/L	< 0.005			0.005	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO3)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Iron (filtered)	mg/L	< 0.05			0.05	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	122			70-130	Pass	
1.1.1-Trichloroethane	%	97			70-130	Pass	
1.2-Dichlorobenzene	%	118			70-130	Pass	
1.2-Dichloroethane	%	120			70-130	Pass	
Benzene	%	103			70-130	Pass	
Ethylbenzene	%	109			70-130	Pass	
m&p-Xylenes	%	122			70-130	Pass	
o-Xylene	%	113			70-130	Pass	
Toluene	%	100			70-130	Pass	
Trichloroethene	%	102			70-130	Pass	
Xylenes - Total*	%	119			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	100			70-130	Pass	
LCS - % Recovery							
Semivolatile Organics							
1.2.4-Trichlorobenzene	%	74			70-130	Pass	
2-Chlorophenol	%	35			25-140	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.4-Dinitrotoluene	%	107			70-130	Pass	
4-Chloro-3-methylphenol	%	68			25-140	Pass	
4-Nitrophenol	%	34			25-140	Pass	
Acenaphthene	%	81			70-130	Pass	
Endrin aldehyde	%	96			70-130	Pass	
N-Nitrosodipropylamine	%	92			70-130	Pass	
Pentachlorophenol	%	85			25-140	Pass	
Phenol	%	27			25-140	Pass	
Pyrene	%	89			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	95			70-130	Pass	
Nitrate & Nitrite (as N)	%	97			70-130	Pass	
Nitrate (as N)	%	97			70-130	Pass	
Nitrite (as N)	%	96			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	86			70-130	Pass	
Total Alkalinity (as CaCO3)	%	96			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	92			80-120	Pass	
Cadmium (filtered)	%	91			80-120	Pass	
Chromium (filtered)	%	90			80-120	Pass	
Copper (filtered)	%	92			80-120	Pass	
Iron (filtered)	%	93			80-120	Pass	
Lead (filtered)	%	94			80-120	Pass	
Manganese (filtered)	%	92			80-120	Pass	
Mercury (filtered)	%	97			80-120	Pass	
Nickel (filtered)	%	91			80-120	Pass	
Zinc (filtered)	%	93			80-120	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	96			80-120	Pass	
Magnesium	%	99			80-120	Pass	
Potassium	%	98			80-120	Pass	
Sodium	%	119			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Semivolatile Organics				Result 1					
2-Chlorophenol	S23-Ja0006797	CP	%	60			30-130	Pass	
2.4-Dinitrotoluene	S23-Ja0006797	CP	%	82			70-130	Pass	
4-Chloro-3-methylphenol	S23-Ja0006797	CP	%	58			30-130	Pass	
4-Nitrophenol	S23-Ja0006797	CP	%	39			30-130	Pass	
N-Nitrosodipropylamine	S23-Ja0006797	CP	%	73			70-130	Pass	
Pentachlorophenol	S23-Ja0006797	CP	%	66			30-130	Pass	
Pyrene	S23-Ja0006797	CP	%	77			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	S23-Ja0006801	CP	%	122			70-130	Pass	
Nitrate & Nitrite (as N)	S23-Ja0006801	CP	%	82			70-130	Pass	
Nitrate (as N)	S23-Ja0006801	CP	%	82			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S23-Ja0006802	CP	%	80			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDD	S23-Ja0006802	CP	%	85			70-130	Pass	
4.4'-DDE	S23-Ja0006802	CP	%	78			70-130	Pass	
4.4'-DDT	S23-Ja0006802	CP	%	88			70-130	Pass	
a-HCH	S23-Ja0006802	CP	%	87			70-130	Pass	
Aldrin	S23-Ja0006802	CP	%	98			70-130	Pass	
b-HCH	S23-Ja0006802	CP	%	90			70-130	Pass	
d-HCH	S23-Ja0006802	CP	%	88			70-130	Pass	
Dieldrin	S23-Ja0006802	CP	%	85			70-130	Pass	
Endosulfan I	S23-Ja0006802	CP	%	79			70-130	Pass	
Endosulfan II	S23-Ja0006802	CP	%	84			70-130	Pass	
Endosulfan sulphate	S23-Ja0006802	CP	%	82			70-130	Pass	
Endrin	S23-Ja0006802	CP	%	90			70-130	Pass	
Endrin aldehyde	S23-Ja0006802	CP	%	92			70-130	Pass	
Endrin ketone	S23-Ja0006802	CP	%	88			70-130	Pass	
g-HCH (Lindane)	S23-Ja0006802	CP	%	92			70-130	Pass	
Heptachlor	S23-Ja0006802	CP	%	84			70-130	Pass	
Heptachlor epoxide	S23-Ja0006802	CP	%	85			70-130	Pass	
Hexachlorobenzene	S23-Ja0006802	CP	%	79			70-130	Pass	
Methoxychlor	S23-Ja0006802	CP	%	83			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S23-Ja0006802	CP	%	87			70-130	Pass	
Dimethoate	S23-Ja0006802	CP	%	98			70-130	Pass	
Ethion	S23-Ja0006802	CP	%	101			70-130	Pass	
Fenitrothion	S23-Ja0006802	CP	%	113			70-130	Pass	
Methyl parathion	S23-Ja0006802	CP	%	126			70-130	Pass	
Mevinphos	S23-Ja0006802	CP	%	101			70-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
2-Methyl-4.6-dinitrophenol	S23-Ja0006802	CP	%	88			30-130	Pass	
2-Chlorophenol	S23-Ja0006802	CP	%	83			30-130	Pass	
2-Methylphenol (o-Cresol)	S23-Ja0006802	CP	%	83			30-130	Pass	
2-Nitrophenol	S23-Ja0006802	CP	%	90			30-130	Pass	
2.4-Dichlorophenol	S23-Ja0006802	CP	%	90			30-130	Pass	
2.4-Dimethylphenol	S23-Ja0006802	CP	%	85			30-130	Pass	
2.4-Dinitrophenol	S23-Ja0006802	CP	%	86			70-130	Pass	
2.4.5-Trichlorophenol	S23-Ja0006802	CP	%	80			30-130	Pass	
2.4.6-Trichlorophenol	S23-Ja0006802	CP	%	82			30-130	Pass	
2.6-Dichlorophenol	S23-Ja0006802	CP	%	89			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S23-Ja0006802	CP	%	82			30-130	Pass	
4-Chloro-3-methylphenol	S23-Ja0006802	CP	%	81			30-130	Pass	
4-Nitrophenol	S23-Ja0006802	CP	%	57			30-130	Pass	
Acenaphthene	S23-Ja0006802	CP	%	79			70-130	Pass	
Acenaphthylene	S23-Ja0006802	CP	%	81			70-130	Pass	
Anthracene	S23-Ja0006802	CP	%	83			70-130	Pass	
Benz(a)anthracene	S23-Ja0006802	CP	%	72			70-130	Pass	
Fluoranthene	S23-Ja0006802	CP	%	84			70-130	Pass	
Fluorene	S23-Ja0006802	CP	%	80			70-130	Pass	
Naphthalene	S23-Ja0006802	CP	%	74			70-130	Pass	
Pentachlorophenol	S23-Ja0006802	CP	%	89			30-130	Pass	
Phenanthrene	S23-Ja0006802	CP	%	82			70-130	Pass	
Phenol	S23-Ja0006802	CP	%	59			30-130	Pass	
Pyrene	S23-Ja0006802	CP	%	85			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S23-Ja0006805	CP	%	75			70-130	Pass	
4.4'-DDD	S23-Ja0006805	CP	%	79			70-130	Pass	
4.4'-DDE	S23-Ja0006805	CP	%	75			70-130	Pass	
4.4'-DDT	S23-Ja0006805	CP	%	86			70-130	Pass	
a-HCH	S23-Ja0006805	CP	%	77			70-130	Pass	
Aldrin	S23-Ja0006805	CP	%	89			70-130	Pass	
b-HCH	S23-Ja0006805	CP	%	80			70-130	Pass	
d-HCH	S23-Ja0006805	CP	%	78			70-130	Pass	
Dieldrin	S23-Ja0006805	CP	%	78			70-130	Pass	
Endosulfan I	S23-Ja0006805	CP	%	77			70-130	Pass	
Endosulfan II	S23-Ja0006805	CP	%	78			70-130	Pass	
Endosulfan sulphate	S23-Ja0006805	CP	%	77			70-130	Pass	
Endrin	S23-Ja0006805	CP	%	84			70-130	Pass	
Endrin aldehyde	S23-Ja0006805	CP	%	82			70-130	Pass	
Endrin ketone	S23-Ja0006805	CP	%	81			70-130	Pass	
g-HCH (Lindane)	S23-Ja0006805	CP	%	81			70-130	Pass	
Heptachlor	S23-Ja0006805	CP	%	74			70-130	Pass	
Heptachlor epoxide	S23-Ja0006805	CP	%	79			70-130	Pass	
Hexachlorobenzene	S23-Ja0006805	CP	%	72			70-130	Pass	
Methoxychlor	S23-Ja0006805	CP	%	78			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S23-Ja0006805	CP	%	81			70-130	Pass	
Dimethoate	S23-Ja0006805	CP	%	87			70-130	Pass	
Ethion	S23-Ja0006805	CP	%	90			70-130	Pass	
Fenitrothion	S23-Ja0006805	CP	%	101			70-130	Pass	
Methyl parathion	S23-Ja0006805	CP	%	110			70-130	Pass	
Mevinphos	S23-Ja0006805	CP	%	89			70-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
2-Methyl-4.6-dinitrophenol	S23-Ja0006805	CP	%	80			30-130	Pass	
2-Chlorophenol	S23-Ja0006805	CP	%	78			30-130	Pass	
2-Methylphenol (o-Cresol)	S23-Ja0006805	CP	%	78			30-130	Pass	
2-Nitrophenol	S23-Ja0006805	CP	%	85			30-130	Pass	
2.4-Dichlorophenol	S23-Ja0006805	CP	%	85			30-130	Pass	
2.4-Dimethylphenol	S23-Ja0006805	CP	%	80			30-130	Pass	
2.4-Dinitrophenol	S23-Ja0006805	CP	%	79			70-130	Pass	
2.4.5-Trichlorophenol	S23-Ja0006805	CP	%	77			30-130	Pass	
2.4.6-Trichlorophenol	S23-Ja0006805	CP	%	77			30-130	Pass	
2.6-Dichlorophenol	S23-Ja0006805	CP	%	85			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S23-Ja0006805	CP	%	80			30-130	Pass	
4-Chloro-3-methylphenol	S23-Ja0006805	CP	%	78			30-130	Pass	
4-Nitrophenol	S23-Ja0006805	CP	%	43			30-130	Pass	
Acenaphthene	S23-Ja0006805	CP	%	74			70-130	Pass	
Acenaphthylene	S23-Ja0006805	CP	%	75			70-130	Pass	
Anthracene	S23-Ja0006805	CP	%	74			70-130	Pass	
Benz(a)anthracene	S23-Ja0006805	CP	%	72			70-130	Pass	
Benzo(b&j)fluoranthene	S23-Ja0006805	CP	%	70			70-130	Pass	
Fluoranthene	S23-Ja0006805	CP	%	80			70-130	Pass	
Fluorene	S23-Ja0006805	CP	%	75			70-130	Pass	
Pentachlorophenol	S23-Ja0006805	CP	%	81			30-130	Pass	
Phenanthrene	S23-Ja0006805	CP	%	76			70-130	Pass	
Phenol	S23-Ja0006805	CP	%	56			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pyrene	S23-Ja0006805	CP	%	83			70-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
1.2.4-Trichlorobenzene	S23-Ja0006807	CP	%	78			70-130	Pass	
2-Chlorophenol	S23-Ja0006807	CP	%	64			30-130	Pass	
2.4-Dinitrotoluene	S23-Ja0006807	CP	%	94			70-130	Pass	
4-Chloro-3-methylphenol	S23-Ja0006807	CP	%	66			30-130	Pass	
Acenaphthene	S23-Ja0006807	CP	%	78			70-130	Pass	
N-Nitrosodipropylamine	S23-Ja0006807	CP	%	86			70-130	Pass	
Pentachlorophenol	S23-Ja0006807	CP	%	49			30-130	Pass	
Phenol	S23-Ja0006807	CP	%	30			30-130	Pass	
Pyrene	S23-Ja0006807	CP	%	81			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S23-Ja0006812	CP	%	91			75-125	Pass	
Cadmium (filtered)	S23-Ja0006812	CP	%	88			75-125	Pass	
Chromium (filtered)	S23-Ja0006812	CP	%	88			75-125	Pass	
Copper (filtered)	S23-Ja0006812	CP	%	87			75-125	Pass	
Iron (filtered)	S23-Ja0006812	CP	%	89			75-125	Pass	
Lead (filtered)	S23-Ja0006812	CP	%	92			75-125	Pass	
Manganese (filtered)	S23-Ja0006812	CP	%	83			75-125	Pass	
Mercury (filtered)	S23-Ja0006812	CP	%	94			75-125	Pass	
Nickel (filtered)	S23-Ja0006812	CP	%	88			75-125	Pass	
Zinc (filtered)	S23-Ja0006812	CP	%	90			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
a-HCH	S23-Ja0009853	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
g-HCH (Lindane)	S23-Ja0009853	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
Endrin aldehyde	S23-Ja0006796	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M23-Ja0011822	NCP	mg/L	310	280	9.3	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M23-Ja0013374	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO3)	M23-Ja0011822	NCP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO3)	M23-Ja0011822	NCP	mg/L	320	300	7.3	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S23-Ja0006796	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S23-Ja0006796	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S23-Ja0006796	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S23-Ja0006796	CP	mg/L	0.002	0.002	10	30%	Pass	
Iron (filtered)	S23-Ja0006796	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Lead (filtered)	S23-Ja0006796	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S23-Ja0006796	CP	mg/L	0.018	0.019	4.0	30%	Pass	
Mercury (filtered)	S23-Ja0006796	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S23-Ja0006796	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	S23-Ja0006796	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S23-Ja0006796	CP	mg/L	56	55	2.1	30%	Pass	
Magnesium	S23-Ja0006796	CP	mg/L	5.9	6.0	1.1	30%	Pass	
Potassium	S23-Ja0006796	CP	mg/L	1.3	1.4	2.9	30%	Pass	
Sodium	S23-Ja0006796	CP	mg/L	36	37	1.8	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S23-Ja0006797	CP	mg/L	0.001	0.001	5.3	30%	Pass	
Cadmium (filtered)	S23-Ja0006797	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S23-Ja0006797	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S23-Ja0006797	CP	mg/L	0.010	0.010	1.1	30%	Pass	
Iron (filtered)	S23-Ja0006797	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Lead (filtered)	S23-Ja0006797	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S23-Ja0006797	CP	mg/L	0.15	0.14	4.8	30%	Pass	
Mercury (filtered)	S23-Ja0006797	CP	mg/L	0.0007	0.0007	<1	30%	Pass	
Nickel (filtered)	S23-Ja0006797	CP	mg/L	0.010	0.010	<1	30%	Pass	
Zinc (filtered)	S23-Ja0006797	CP	mg/L	0.010	0.010	8.6	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S23-Ja0006797	CP	mg/L	11	11	2.9	30%	Pass	
Magnesium	S23-Ja0006797	CP	mg/L	5.7	5.6	2.1	30%	Pass	
Potassium	S23-Ja0006797	CP	mg/L	1.0	1.0	<1	30%	Pass	
Sodium	S23-Ja0006797	CP	mg/L	38	37	1.7	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S23-Ja0006801	CP	mg/L	0.06	0.05	7.9	30%	Pass	
TRH C15-C28	S23-Ja0006801	CP	mg/L	0.2	0.1	<1	30%	Pass	
TRH C29-C36	S23-Ja0006801	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C10-C16	S23-Ja0006801	CP	mg/L	0.08	0.08	1.2	30%	Pass	
TRH >C16-C34	S23-Ja0006801	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S23-Ja0006801	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S23-Ja0006804	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S23-Ja0006804	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S23-Ja0006804	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C10-C16	S23-Ja0006804	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S23-Ja0006804	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S23-Ja0006804	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
4.4'-DDD	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
4.4'-DDE	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
4.4'-DDT	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Aldrin	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
b-HCH	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
d-HCH	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Dieldrin	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endosulfan I	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endosulfan II	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endosulfan sulphate	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endrin	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endrin aldehyde	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endrin ketone	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Heptachlor	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Heptachlor epoxide	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Hexachlorobenzene	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Methoxychlor	S23-Ja0006804	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Toxaphene	S23-Ja0006804	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	S23-Ja0006804	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos-methyl	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	S23-Ja0006804	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Demeton-O	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	S23-Ja0006804	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Phorate	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	S23-Ja0006804	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	S23-Ja0006804	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S23-Ja0006804	CP	mg/L	15	16	3.6	30%	Pass	
Sulphate (as SO4)	S23-Ja0006804	CP	mg/L	12	13	1.4	30%	Pass	
Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
Endrin aldehyde	S23-Ja0006806	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	S23-Ja0006810	CP	mg/L	< 0.01	0.03	200	30%	Fail	Q15
Nitrate & Nitrite (as N)	S23-Ja0006810	CP	mg/L	0.42	0.43	1.3	30%	Pass	
Nitrate (as N)	S23-Ja0006810	CP	mg/L	0.42	0.42	<1	30%	Pass	
Nitrite (as N)	S23-Ja0006810	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S23-Ja0006812	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C6-C10	S23-Ja0006812	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1-Dichloroethene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1-Trichloroethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2-Trichloroethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dibromoethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichlorobenzene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloroethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloropropane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.3-Trichloropropane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.4-Trimethylbenzene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichlorobenzene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichloropropane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3.5-Trimethylbenzene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.4-Dichlorobenzene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
2-Butanone (MEK)	S23-Ja0006812	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Propanone (Acetone)	S23-Ja0006812	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Chlorotoluene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	S23-Ja0006812	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Allyl chloride	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromobenzene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromochloromethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromodichloromethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromoform	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromomethane	S23-Ja0006812	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Carbon disulfide	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Carbon Tetrachloride	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chlorobenzene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chloroethane	S23-Ja0006812	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chloroform	S23-Ja0006812	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chloromethane	S23-Ja0006812	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
cis-1.2-Dichloroethene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
cis-1.3-Dichloropropene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibromochloromethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibromomethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dichlorodifluoromethane	S23-Ja0006812	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Ethylbenzene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Iodomethane	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Isopropyl benzene (Cumene)	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S23-Ja0006812	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methylene Chloride	S23-Ja0006812	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
o-Xylene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Styrene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Tetrachloroethene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
trans-1.2-Dichloroethene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
trans-1.3-Dichloropropene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Trichloroethene	S23-Ja0006812	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Trichlorofluoromethane	S23-Ja0006812	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Vinyl chloride	S23-Ja0006812	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Xylenes - Total*	S23-Ja0006812	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S23-Ja0006812	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Hannah Mawbey	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Dilani Samarakoon	Senior Analyst-Inorganic
Fang Yee Tan	Senior Analyst-Metal
Mary Makarios	Senior Analyst-Inorganic
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic
Scott Beddoes	Senior Analyst-Inorganic

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Tel: +61 2 4968 8448
NATA# 1261 Site# 25079

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

Sample Receipt Advice

Company name:	Ballpark Environmental Pty Ltd
Contact name:	Andrew Ballard & Joel Parkin
Project name:	Not provided
Project ID:	BPE21058
Turnaround time:	5 Day
Date/Time received	Jan 11, 2023 10:15 AM
Eurofins reference	954635

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Hannah Mawbey on phone : or by email: HannahMawbey@eurofins.com

Results will be delivered electronically via email to Andrew Ballard & Joel Parkin - info@ballparkenv.com.au.

Global Leader - Results you can trust

BALLPARK ENVIRONMENTAL

Suite 2, 192 Pacific Highway
Coffs Harbour
NSW 2450 Australia
M: 0400 566 088
E. info@ballparkenv.com.au

Chain of Custody | Laboratory Quotation/ Order No: **Quotation: 221202BPEN** | **Project No.: BPE21058** | Sheet 1 of 2

Dispatch to:	Sample Receipt - Eurofins Delivery Door 2, Eurofins Sydney Campus, 179 Magowar Road, GIRRAWEEN NSW 2145	Sampled By:	JP/AB
Attention:	Sample receipt	Project Manager: (report results to)	info@ballparkenv.com.au
Relinquished By:	Joel Parkin Coffs Harbour	Date: 10-Jan-23	Time:
Consigning Officer	JP		
Date Dispatched	10-Jan-23		
Courier Service:	TOLL		
Consignment Note No.:	00903WODCG		
Received By:		Date: 10/1	Time: 10.15

Comments:	Sample Matrix	Container Type & Preservative	Sample No.	Sample Depth (m)	Date Sampled:	Analyses Required: B11C (Cations #1)	B11E (Anions #1)	TRH	Metals	B19C (Nutrients #4)	B14 OCP/OPP	SVV (SVOC[2], VOC[3])				Send to Eurofins Melbourne	HOLD	Sample Condition on Receipt
	Water	metals/ green plastic/ amber/ purple plastic/ 2 x vials	BH2036		09-Jan-23	x	x	x	x	x	x	x						
	Water		BH2047		09-Jan-23	x	x	x	x	x	x	x						
	Water		BH2051		09-Jan-23	x	x	x	x	x	x	x						
	Water		BH2052		09-Jan-23	x	x	x	x	x	x	x						
	Water		BH2053		09-Jan-23	x	x	x	x	x	x	x						
	Water		BHH150		09-Jan-23	x	x	x	x	x	x	x						
	Water		BHH153		09-Jan-23	x	x	x	x	x	x	x						
	Water		BH3002		09-Jan-23	x	x	x	x	x	x	x						
	Water		BH3014		09-Jan-23	x	x	x	x	x	x	x						
	Water		BH3015		09-Jan-23	x	x	x	x	x	x	x						
	Water		BH3016		09-Jan-23	x	x	x	x	x	x	x						
	Water		BH3020		09-Jan-23	x	x	x	x	x	x	x						
	Water		BH3003		10-Jan-23	x	x	x	x	x	x	x						
	Water		BH3004		10-Jan-23	x	x	x	x	x	x	x						
	Water		BH3005		10-Jan-23	x	x	x	x	x	x	x						

Special Laboratory Instructions: **Analyses required as per Eurofins Quotation 221202BPEN**

Metals: As, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Zn

Detection Limits: Normal

Turnaround Required: Standard TAT Requested

954635

13.7°C

BALLPARK ENVIRONMENTAL

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NSW 2450 Australia
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Chain of Custody		Laboratory Quotation/ Order No:	**Quotation: 221202BPEN**	**Project No.:**	**BPE21058**	Sheet 2 of 2
Dispatch to:	Sample Receipt - Eurofins Delivery Door 2, Eurofins Sydney Campus, 179 Magowar Road, GIRRAWEEN NSW 2145	Sampled By:	JP/AB	Consigning Officer	*JP*	
				Date Dispatched	10-Jan-23	
Attention:	Sample receipt	Project Manager: (report results to)	info@ballparkenv.com.au	Courier Service:	TOLL	
				Consignment Note No.:	***00903WODCG***	

Relinquished By:		Date:	Time:	Received By:	Date:	Time:
Joel Parkin	Coffs Harbour	*10-Jan-23*				

Comments:	Sample Matrix	Container Type & Preservative	Sample No.	Sample Depth (m)	Date Sampled:	Analyses Required: B11C (Cations #1)	B11E (Anions #1)	TRH	Metals	B19C (Nutrients #4)	B14 OCP/OPP	SVV (SVOC[2], VOC[3])				Send to Eurofins Melbourne	HOLD	Sample Condition on Receipt
	Water	metals/ green plastic/ amber/ purple plastic/ 2 x vials	BHH154		10-Jan-23	x	x	x	x	x	x	x						
	Water		QC19		10-Jan-23	x	x	x	x	x	x	x						

Special Laboratory Instructions: **Analyses required as per Eurofins Quotation 221202BPEN**

Metals: As, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Zn

Detection Limits: Normal

Turnaround Required: Standard TAT Requested

954635