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Courier		
By Hand		

Contact: Trystan Richards
Our Ref: P2108127JC41V01
Pages: 3 + Attachments
cc. Andrew Norris

13 August, 2024

Ingenia
Suite 1, 257 Gympie Road
Kedron, QLD - 4031.
Attention: Harry Brazil

Dear Harry,

RE: MERRY BEACH CARAVAN PARK, MONTHLY REVIEW OF LABORATORY RESULTS – SEWAGE TREATMENT AND REUSE SYSTEM – JULY 2024

Further to recommendations in Merry Beach Annual Monitoring Report find below the monthly review of monitoring data for July 1 to July 28, 2024.

1. Collection of water samples

Water samples for selected monitoring points were collected on the following dates:

- July 29 – Eff1, GW5, GW6 and Influent.
- July 29- Drinking water samples from Beach Front Tank, Creek Tanks and Main Tank. Top Toilet Tank and Main tank were not sampled.

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ABN 85 070 240 890 ACN 070 240 890

2. Review of monitoring results against POEO Act Environmental Protection License 5888 conditions

1. Effluent 1 (Eff1) (Monitoring Point 2)

Laboratory results were reviewed against License 5888 conditions for Eff1 (Monitoring Point 2), results are summarised in Table 1. Conclusions regarding Eff1 are:

- Laboratory results for Eff1 indicate license conditions were exceeded for faecal coliforms during July. Please ensure the UV unit tubes are cleaned monthly and UV lamps are checked and replaced in accordance with manufacture's specifications. Alternatively, manual / automatic chlorination of effluent after decanting may also be trailed.
- Laboratory results for Eff1 indicate license conditions were exceeded for nitrogen (total) during July. This is historically 'typical' occurrence.
- Laboratory results for Eff1 indicate license conditions were exceeded for oil and grease during July. MA recommends continued monitoring to determine if this an outlier or ongoing occurrence.
- Laboratory results of Eff1 indicate TSS levels were exceeded for July. MA recommends filters be removed, cleaned and inspected to ensure proper operation.
- All other laboratory results for Eff1 were within license conditions during July.

Table 1: Review of monitoring results for Eff1 against License 5888 conditions.

Chemical	Units	License 5888 Conditions – Eff1 (Point 2)			Sampling Date 2024	
		50 percentile concentration limit	90 percentile concentration limit	100 percentile concentration limit	July 29	Complies?
BOD	mg/L		20	30	5	✓
Faecal coliforms (FC)	CFU/100 mL	25		150	1,500	✘
Nitrogen (total)	mg/L		10	15	53.5	✘
Oil and grease	mg/L	1.5		5	14.6	✘
pH	pH units			6.5 – 8.5	7.6	✓
Phosphorous (total)	mg/L	5.5		10	0.95	✓
Total suspended solids (TSS)	mg/L		10	20	10	✘

3. Reuse Effluent (Eff2) (Monitoring Point 6)

Laboratory results were reviewed against License 5888 conditions for Eff2 (Monitoring Point 6). Conclusions regarding Eff2 are:

- Laboratory results for Eff2 (Monitoring Point 6) indicate no sample was collected due to "Not Operational".

From discussion with site operators MA understands the following:

- Chlorine dosing has been automated.
- All effluent is being pumped into a sewage tanker and taken offsite by a licensed contractor.
- Anoxic tank taken offline and used for storage (200kL).
- No irrigation fields or reuse are currently in use. Irrigation fields will be used once consistent compliance results and approval are achieved from NSW EPA.
- Eff1 samples are taken from treated effluent line into anoxic tank.

If Eff1 and Eff2 are no longer being used and is instead taken offsite by a licensed contractor, any exceedances mentioned above are irrelevant to the conditions of licence 5888.

Correspondence between the Client and MA are presented in Attachments below.

4. Drinking water supply tank testing

Laboratory results were reviewed against National Drinking Water Quality Standards for drinking water at multiple tested tanks:

- All sample locations were within the standards for faecal coliforms with results (<1 CFU/100ml) for July 2024.
- All sample locations were within the standards for *E. coli* with results (<1 CFU/100mL) for July 2024.
- Main tank and Top Toilet Tank were not sampled due to "Tank not in use"

5. Review of monitored parameters

Groundwater monitoring results were reviewed for July 2024.

Laboratory results indicate groundwater monitoring points GW1 – GW4 were not sampled due to "Could not Locate".

GW05 had it's lowest EC for the study period.

All other laboratory results for groundwater. water monitoring for Julu 2024 are generally consistent with previous reported periods and will continue to be monitored.

We recommend that prior to effluent disposal all wastewater treatment and storage tanks are serviced and verified as operating in accordance with License 5888 requirements.

For and on behalf of

MARTENS & ASSOCIATES PTY LTD

TRYSTAN RICHARDS
Environmental Consultant

CHAIN OF CUSTODY

Mandatory Fields

Page 1 of 1

CoC #: *(if applicable)*

CLIENT CODE:	IMGMER	*PROJECT MANAGER:	Gray Taylor	SAMPLER:	Peter Young
*CLIENT:	INGENIA HOLIDAYS MERRY BEACH	*PM MOBILE:	0422 685 594	SAMPLER MOBILE:	0404 455 064
OFFICE: *(Invoiced Office)*	Merry Beach Rd, Kioloa NSW 2539	ALS QUOTE # *(Client PL if blank)*	EW2023INGMER0002	PURCHASE ORDER NO.:	PO501061
PROJECT NO./PROJECT:	Merry Beach Fresh/ Drinking Water Monthly			SITE:	

*INVOICE TO: *(client default if nil)* payables@ingeniacommunities.com.au , Merrybeachmgr@ingeniaholidays.com.au , KBourke@ingeniacommunities.com.au ☐ CC Invoice to PM

*EMAIL REPORTS TO: *(default to PM if blank)* gtaylor@martens.com.au; mail@martens.com.au; young.pete7@gmail.com, Merrybeachmgr@ingeniaholidays.com.au, KBourke@ingeniacommunities.com.au, Bconnolly@ingeniaholidays.com.au, Trichards@martens.com.au, ejongsma@martens.com.au

BIOSECURITY

Country of Origin: *(if not Australia)*

*** STORAGE REQUIREMENTS** *Please check box.* → *Standard Storage time from receipt of samples: Waters - 3 weeks, Soils - 2 months*

- ☒ Standard Storage
- ☐ Extended Storage

Specify Disposal Date:

Note: Extended storage incurs a fee and requires a signed agreement.

*** TURNAROUND** *Please check box.* → *(Not all tests can be expedited, contact Client Services for more information)*

- ☒ 5+ days (no surcharge)
- ☐ 3 day (+15%)
- ☐ 2 day (+30%)
- ☐ 1 day (+50%)

***ANALYSIS REQUIRED**

(NB. ALS Quote No. and/or Analysis Suite Codes must be listed to attract suite/quoted price)
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).
Mark an X in the boxes below analysis to indicate the parameter listed above to be tested on that sample.

Environmental Division Wollongong
Work Order Reference
EW2403421

Telephone : 02 42253125

Comments:

ALS Use Only Lab ID	Sample ID	Depth	Date/Time 29/7/24	No. Bottles	MATRIX: Soil/Solid(S) Water(W) Sediments (SD), Dust (D), Product (P), Biota (B), Biosolid (BS)	MW006 (Ec) - E.coli	MW007 - Total Coliforms										(additional bottles req.) Dup	(additional bottles req.) MS	Additional Information *(Comment on hazards - e.g., asbestos, known high contamination)*
	Beach Front Tank ~~GENOAS~~		1030	1	W	X	X										☐	☐	
	Creek Tanks		1045	1	W	X	X										☐	☐	
	Main Tank		N/A	1	W	X	X										☐	☐	
	Pool Shower Tanks		N/A	1	W	X	X										☐	☐	
	Pool Toilet Tank		1130	1	W	X	X										☐	☐	
																	☐	☐	
																	☐	☐	
																	☐	☐	
																	☐	☐	
																	☐	☐	
																	☐	☐	

Receipt Detail (Lab Use ONLY)

Chilling Method: Ice: Frozen / Melted — Ice Bricks: Frozen / Thawed — None

Sample Temp at Receipt: 5.2 °C 5.9 °C 5.0 °C

Security Seal Intact *(circle)*: Yes / No / NA(None)

Carrier Details: ☐ Courier/Post ☐ Client

Con Note #

Packaging: *(Circle)* Hard Esky / Foam Esky / Box/Bag/Other

Count # # #

Relinquished by: Tom Rush	Signature:	Date/Time: 29/7	Received by: M SAMSON Signature
Relinquished by:	Signature:	Date/Time:	Received by: Signature

Date/Time: 29/7/24 1600

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EW2403421**		
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
E-mail	: gtaylor@martens.com.au	E-mail	: Aneta.Prosaroski@ALSGlobal.com
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Facsimile	: ----	Facsimile	: W 02 42253128 N 02 44232083
Project	: Merry Beach Fresh /Drinking Water Monthly	Page	: 1 of 4
Order number	: P0501061	Quote number	: EW2024INGMER0001 (EW24INGMER0001)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Tom Roose		

Dates

Date Samples Received	: 29-Jul-2024 16:00	Issue Date	: 29-Jul-2024
Client Requested Due Date	: 06-Aug-2024	Scheduled Reporting Date	: **06-Aug-2024**

Delivery Details

Mode of Delivery	: Sampled By ALS	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 5.2, 5.9, 5.0 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 5 / 5

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.**
- **Please direct any queries you have regarding this work order to the above ALS laboratory contact.**
- **Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EN67 PK - Field Observations Field Tests - Field Observations - ALS	WATER - MW006 (Ec) E.coli by Membrane Filtration	WATER - MW007 Total Coliforms by Membrane Filtration
EW2403421-001	29-Jul-2024 10:30	Beach front tank		✓	✓
EW2403421-002	29-Jul-2024 10:45	Creek Tanks		✓	✓
EW2403421-003	29-Jul-2024 00:00	Main tank	✓		
EW2403421-004	29-Jul-2024 00:00	Top toilets tank	✓		
EW2403421-005	29-Jul-2024 11:30	Pretty beach tank		✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES FOR MERRY BEACH

- *AU Certificate of Analysis - NATA (COA)	Email	KBourke@ingeniacommunities.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	KBourke@ingeniacommunities.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Tax Invoice (INV)	Email	KBourke@ingeniacommunities.com.au
- Chain of Custody (CoC) (COC)	Email	KBourke@ingeniacommunities.com.au
- EDI Format - XTab (XTAB)	Email	KBourke@ingeniacommunities.com.au

Emily Jongsma

- *AU Certificate of Analysis - NATA (COA)	Email	ejongsma@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ejongsma@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ejongsma@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ejongsma@martens.com.au
- Chain of Custody (CoC) (COC)	Email	ejongsma@martens.com.au
- EDI Format - XTab (XTAB)	Email	ejongsma@martens.com.au

Gray Taylor

- *AU Certificate of Analysis - NATA (COA)	Email	gtaylor@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	gtaylor@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	gtaylor@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	gtaylor@martens.com.au
- Chain of Custody (CoC) (COC)	Email	gtaylor@martens.com.au
- EDI Format - XTab (XTAB)	Email	gtaylor@martens.com.au

Mail Martens

- *AU Certificate of Analysis - NATA (COA)	Email	mail@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mail@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mail@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mail@martens.com.au
- Chain of Custody (CoC) (COC)	Email	mail@martens.com.au
- EDI Format - XTab (XTAB)	Email	mail@martens.com.au

Manager (Reports & Invoice)

- *AU Certificate of Analysis - NATA (COA)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Tax Invoice (INV)	Email	merrybeachmgr@ingeniaholidays.com.au
- Chain of Custody (CoC) (COC)	Email	merrybeachmgr@ingeniaholidays.com.au
- EDI Format - XTab (XTAB)	Email	merrybeachmgr@ingeniaholidays.com.au

Payables

- A4 - AU Tax Invoice (INV)	Email	payables@ingeniacommunities.com.au

Peter Young

- *AU Certificate of Analysis - NATA (COA)	Email	young.pete7@gmail.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	young.pete7@gmail.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	young.pete7@gmail.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	young.pete7@gmail.com
- Chain of Custody (CoC) (COC)	Email	young.pete7@gmail.com
- EDI Format - XTab (XTAB)	Email	young.pete7@gmail.com

Trystan Richards

- *AU Certificate of Analysis - NATA (COA)	Email	trichards@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	trichards@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	trichards@martens.com.au
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- EDI Format - XTab (XTAB)	Email	trichards@martens.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) MW007: Coliforms by MF

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EW2403421**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Telephone	: 02 42253125
Project	: Merry Beach Fresh /Drinking Water Monthly	Date Samples Received	: 29-Jul-2024
Site	: ----	Issue Date	: 06-Aug-2024
Sampler	: Tom Roose	No. of samples received	: 5
Order number	: P0501061	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN67 PK: Field Tests							
Field Test Dummy Bottle (EN67 PK)							
Main tank, Top toilets tank	**29-Jul-2024**	**----**	----	**----**	**29-Jul-2024**	----	**----**
MW006: Thermotolerant Coliforms & E.coli by MF							
Sterile Plastic Bottle - Sodium Thiosulfate (MW006)							
Beach front tank, Creek Tanks, Pretty beach tank	**29-Jul-2024**	**----**	----	**----**	**30-Jul-2024**	30-Jul-2024	✓
MW007: Coliforms by MF							
Sterile Plastic Bottle - Sodium Thiosulfate (MW007)							
Beach front tank, Creek Tanks, Pretty beach tank	**29-Jul-2024**	**----**	----	**----**	**30-Jul-2024**	30-Jul-2024	✓

Quality Control Parameter Frequency Compliance

- **No Quality Control data available for this section.**

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Field Tests - Port Kembla	EN67 PK	WATER	Field determinations as per methods described in APHA. The analysis is performed in the field by ALS samplers. ALS NATA accreditation apply for this service.
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.7
Coliforms by Membrane Filtration	MW007	WATER	AS 4276.5

QUALITY CONTROL REPORT

Work Order	: **EW2403421**	Page	: 1 of 3
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Fresh /Drinking Water Monthly	Date Samples Received	: 29-Jul-2024
Order number	: P0501061	Date Analysis Commenced	: 29-Jul-2024
C-O-C number	: ----	Issue Date	: 06-Aug-2024
Sampler	: Tom Roose		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
Aneta Prosaroski	Environmental Services Representative	Laboratory - Wollongong, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Work Order	: **EW2403421**	Page	: 1 of 3
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Fresh /Drinking Water Monthly	Date Samples Received	: 29-Jul-2024 16:00
Order number	: P0501061	Date Analysis Commenced	: 29-Jul-2024
C-O-C number	: ----	Issue Date	: 06-Aug-2024 15:21
Sampler	: Tom Roose		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Aneta Prosaroski	Environmental Services Representative	Laboratory - Wollongong, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- MF = membrane filtration
- CFU = colony forming unit
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- **Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.**
- Sampling completed by ALS Wollongong in accordance with in-house sampling method EN/67.5 Drinking Water: Tanks and Taps
- MW007 is ALS's internal code and is equivalent to AS4276.5.

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**Beach front tank**	**Creek Tanks**	**Main tank**	**Top toilets tank**	**Pretty beach tank**
			Sampling date / time	29-Jul-2024 10:30	29-Jul-2024 10:45	29-Jul-2024 00:00	29-Jul-2024 00:00	29-Jul-2024 11:30
Compound	*CAS Number*	*LOR*	*Unit*	**EW2403421-001**	**EW2403421-002**	**EW2403421-003**	**EW2403421-004**	**EW2403421-005**
				Result	Result	Result	Result	Result
EN67 PK: Field Tests								
Field Observations	----	0.01	--	**----**	**----**	**Not Sampled - Tank not in use**	**Not Sampled - Tank not in use**	**----**
MW006: Thermotolerant Coliforms & E.coli by MF								
Escherichia coli	----	1	CFU/100mL	<1	<1	**----**	**----**	<1
MW007: Coliforms by MF								
Coliforms	----	1	CFU/100mL	<1	<1	**----**	**----**	<1

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) MW007: Coliforms by MF

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

Environmental Division
Wollongong
Work Order Reference
EW2403422

Telephone : 02 42253125

WATER ANALYSIS CHAIN OF CUSTODY

Project:	Merry Beach Monitoring – July 2024			**Laboratory:**	ALS (Australian Laboratory Services)
Sampling Date:		**Results Required by:**		**Address:**	4/13 Geary Place, North Nowra, NSW 2541
Our reference:	P2108127	**Our Contact:**	Gray Taylor	**Contact:**	**Phone:** (02) 4423 2063 **Facsimile:** (02) 4423 20[illegible]

Sample ID	Number of Containers (DATE + TIME)	pH	Conductivity	Suspended Solids	BOD_5	Phosphorous (total)	Nitrogen (total)	TKN	Ammonia	NOx	Faecal Col.	Enterococci	Oil and Grease	E. Coli	
		Analysis Required (X)													
884/Eff1	29/7 1145	X		X	X	X	X	X	X	X	X		X		
~~884/Eff2~~		X		X										X	OFFLINE
~~884/GW1~~		X	X		X	X		X	X	X	X	X			COULD NOT BE LOCATED
~~884/GW2~~		X	X		X	X		X	X	X	X	X			
~~884/GW3~~		X	X		X	X		X	X	X	X	X			
~~884/GW4~~		X	X		X	X		X	X	X	X	X			
884/GW5	1245	X	X		X	X		X	X	X	X	X			
884/GW6	1230	X	X		X	X		X	X	X	X	X			
Influent	1130	X		X	X	X	X	X	X	X	X		X	X	

Notes: Fax (02 9476 8767) and email (gtaylor@martens.com.au; trichards@martens.com.au; mail@martens.com.au; young.pete7@gmail.com and merrybeachmgr@ingeniaholidays.com.au) results as soon as available, originals of laboratory reports to be posted to Merry Beach Caravan Park, KIOLOA, NSW, 2539.

TEMP 6.9, 7.2, 7.0

M SAHYOR. 29/7/24 1600

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SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EW2403422**		
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
E-mail	: gtaylor@martens.com.au	E-mail	: Aneta.Prosaroski@ALSGlobal.com
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Facsimile	: ----	Facsimile	: W 02 42253128 N 02 44232083
Project	: Merry Beach Monitoring - July 2024	Page	: 1 of 4
Order number	: P2108127	Quote number	: EW2024INGMER0001 (EW24INGMER0001)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Tom Roose		

Dates

Date Samples Received	: 29-Jul-2024 16:00	Issue Date	: 29-Jul-2024
Client Requested Due Date	: 06-Aug-2024	Scheduled Reporting Date	: **06-Aug-2024**

Delivery Details

Mode of Delivery	: Sampled By ALS	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 6.9, 7.2, 7.0
Receipt Detail	:	No. of samples received / analysed	: 9 / 9

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.**
- **Please direct any queries you have regarding this work order to the above ALS laboratory contact.**
- **Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA025H Suspended Solids - Standard Level	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EN67 PK - pH Field Tests - pH - ALS Wollongong	WATER - EP020 LL Oil and Grease Low Level	WATER - EP030 BOD	WATER - MW006 (FC) Thermotolerant Coliforms by Membrane Filtration	WATER - NT-11 Total Nitrogen and Total Phosphorus
EW2403422-001	29-Jul-2024 11:45	884/Eff1	✓	✓	✓	✓	✓	✓	✓
EW2403422-007	29-Jul-2024 12:45	884/GW5		✓	✓		✓	✓	
EW2403422-008	29-Jul-2024 12:30	884/GW6		✓	✓		✓	✓	
EW2403422-009	29-Jul-2024 11:30	Influent	✓	✓	✓	✓	✓		✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EK059G Nitrite plus Nitrate as N (NOx) by Discrete	WATER - EN67 PK - Conductivity Field Tests - Conductivity- ALS Wollongong	WATER - EN67 PK - Field Observations Field Tests - Field Observations - ALS	WATER - MW006 (FC & Ec) Thermotolerant Coliforms & E.coli by Membrane	WATER - MW023 Enterococci - Enumeration by Membrane	WATER - NT-09 TKN, Total Phosphorus
EW2403422-002	29-Jul-2024 00:00	884/Eff2			✓			
EW2403422-003	29-Jul-2024 00:00	884/GW1			✓			
EW2403422-004	29-Jul-2024 00:00	884/GW2			✓			
EW2403422-005	29-Jul-2024 00:00	884/GW3			✓			
EW2403422-006	29-Jul-2024 00:00	884/GW4			✓			
EW2403422-007	29-Jul-2024 12:45	884/GW5	✓	✓			✓	✓
EW2403422-008	29-Jul-2024 12:30	884/GW6	✓	✓			✓	✓
EW2403422-009	29-Jul-2024 11:30	Influent				✓		

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES FOR MERRY BEACH

- *AU Certificate of Analysis - NATA (COA)	Email	KBourke@ingeniacommunities.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	KBourke@ingeniacommunities.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Tax Invoice (INV)	Email	KBourke@ingeniacommunities.com.au
- Chain of Custody (CoC) (COC)	Email	KBourke@ingeniacommunities.com.au
- EDI Format - XTab (XTAB)	Email	KBourke@ingeniacommunities.com.au

Emily Jongsma

- *AU Certificate of Analysis - NATA (COA)	Email	ejongsma@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ejongsma@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ejongsma@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ejongsma@martens.com.au
- Chain of Custody (CoC) (COC)	Email	ejongsma@martens.com.au
- EDI Format - XTab (XTAB)	Email	ejongsma@martens.com.au

Gray Taylor

- *AU Certificate of Analysis - NATA (COA)	Email	gtaylor@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	gtaylor@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	gtaylor@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	gtaylor@martens.com.au
- Chain of Custody (CoC) (COC)	Email	gtaylor@martens.com.au
- EDI Format - XTab (XTAB)	Email	gtaylor@martens.com.au

Mail Martens

- *AU Certificate of Analysis - NATA (COA)	Email	mail@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mail@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mail@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mail@martens.com.au
- Chain of Custody (CoC) (COC)	Email	mail@martens.com.au
- EDI Format - XTab (XTAB)	Email	mail@martens.com.au

Manager (Reports & Invoice)

- *AU Certificate of Analysis - NATA (COA)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Tax Invoice (INV)	Email	merrybeachmgr@ingeniaholidays.com.au
- Chain of Custody (CoC) (COC)	Email	merrybeachmgr@ingeniaholidays.com.au
- EDI Format - XTab (XTAB)	Email	merrybeachmgr@ingeniaholidays.com.au

Payables

- A4 - AU Tax Invoice (INV)	Email	payables@ingeniacommunities.com.au

Peter Young

- *AU Certificate of Analysis - NATA (COA)	Email	young.pete7@gmail.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	young.pete7@gmail.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	young.pete7@gmail.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	young.pete7@gmail.com
- Chain of Custody (CoC) (COC)	Email	young.pete7@gmail.com
- EDI Format - XTab (XTAB)	Email	young.pete7@gmail.com

Trystan Richards

- *AU Certificate of Analysis - NATA (COA)	Email	trichards@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	trichards@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	trichards@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	trichards@martens.com.au
- Chain of Custody (CoC) (COC)	Email	trichards@martens.com.au
- EDI Format - XTab (XTAB)	Email	trichards@martens.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EK055G: Ammonia as N by Discrete Analyser
(WATER) EK067G: Total Phosphorus as P by Discrete Analyser
(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser
(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser
(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser
(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C
(WATER) EP020: Oil and Grease (O&G)
(WATER) EP030: Biochemical Oxygen Demand (BOD)
(WATER) MW006: Thermotolerant Coliforms & E.coli by MF
(WATER) MW023: Enterococci by Membrane Filtration

CERTIFICATE OF ANALYSIS

Work Order	: **EW2403422**	Page	: 1 of 5
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Monitoring - July 2024	Date Samples Received	: 29-Jul-2024 16:00
Order number	: P2108127	Date Analysis Commenced	: 29-Jul-2024
C-O-C number	: ----	Issue Date	: 06-Aug-2024 12:56
Sampler	: Tom Roose		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 9		
No. of samples analysed	: 9		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Aneta Prosaroski	Environmental Services Representative	Laboratory - Wollongong, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- MF = membrane filtration
- CFU = colony forming unit
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- **Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.**
- pH performed by ALS Wollongong via in-house method EA005FD and EN67 PK.
- Electrical conductivity performed by ALS Wollongong via in-house method EA010FD and EN67 PK.
- Sampling and groundwater depth measurements completed by ALS Wollongong via inhouse sampling method EN/67.11 Groundwater Sampling. Via Bailer Method.
- Sampling completed by ALS Wollongong in accordance with in-house sampling method EN/67.10 Wastewaters
- Sample collection of Ground Waters by in-house EN67 where the “surface layer of the aquifer was sampled”.
- MW023 is ALS's internal code and is equivalent to AS4276.9.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	884/Eff1	884/Eff2	884/GW1	884/GW2	884/GW3
			Sampling date / time	29-Jul-2024 11:45	29-Jul-2024 00:00	29-Jul-2024 00:00	29-Jul-2024 00:00	29-Jul-2024 00:00
Compound	CAS Number	LOR	Unit	EW2403422-001	EW2403422-002	EW2403422-003	EW2403422-004	EW2403422-005
				Result	Result	Result	Result	Result
EA005FD: Field pH								
pH	----	0.1	pH Unit	**7.6**	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**10**	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.25**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**45.6**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**7.9**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**53.5**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.95**	----	----	----	----
EN67 PK: Field Tests								
Field Observations	----	0.01	--	----	**Not Sampled - Not Operational**	**Not Sampled - Could not Locate**	**Not Sampled - Could not Locate**	**Not Sampled - Could not Locate**
EP020: Oil and Grease (O&G)								
Oil & Grease	----	1.0	mg/L	**14.6**	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	**5**	----	----	----	----
MW006: Thermotolerant Coliforms & E.coli by MF								
Thermotolerant Coliforms	----	1	CFU/100mL	**1500**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	884/GW4	884/GW5	884/GW6	Influent	----
			Sampling date / time	29-Jul-2024 00:00	29-Jul-2024 12:45	29-Jul-2024 12:30	29-Jul-2024 11:30	----
Compound	CAS Number	LOR	Unit	EW2403422-006	EW2403422-007	EW2403422-008	EW2403422-009	--------
				Result	Result	Result	Result	----
EA005FD: Field pH								
pH	----	0.1	pH Unit	----	7.1	6.9	7.9	----
EA010FD: Field Conductivity								
Conductivity @ 25oC	----	1	µS/cm	----	7	1040	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	----	----	----	49	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	13.6	0.24	27.8	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	0.02	0.08	<0.01	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	29.1	77.0	30.7	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	----	----	----	30.7	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	2.88	9.86	4.05	----
EN67 PK: Field Tests								
Field Observations	----	0.01	--	Not Sampled - Could not Locate	----	----	----	----
EP020: Oil and Grease (O&G)								
Oil & Grease	----	1.0	mg/L	----	----	----	16.0	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	----	210	8	61	----
MW006: Thermotolerant Coliforms & E.coli by MF								
Thermotolerant Coliforms	----	1	CFU/100mL	----	1600	~10	98000000	----
Escherichia coli	----	1	CFU/100mL	----	----	----	73000000	----
MW023: Enterococci by Membrane Filtration								
Enterococci	----	1	CFU/100mL	----	36	~10	----	----

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP030: Biochemical Oxygen Demand (BOD)

(WATER) EK055G: Ammonia as N by Discrete Analyser

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

(WATER) EK067G: Total Phosphorus as P by Discrete Analyser

(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser

(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser

(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser

(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C

(WATER) EP020: Oil and Grease (O&G)

(WATER) MW023: Enterococci by Membrane Filtration

QUALITY CONTROL REPORT

Work Order	: **EW2403422**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Monitoring - July 2024	Date Samples Received	: 29-Jul-2024
Order number	: P2108127	Date Analysis Commenced	: 29-Jul-2024
C-O-C number	: ----	Issue Date	: 06-Aug-2024
Sampler	: Tom Roose		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 9		
No. of samples analysed	: 9		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
Aneta Prosaroski	Environmental Services Representative	Laboratory - Wollongong, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 5965033)									
EN2407929-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	10	9	0.0	No Limit
ES2424756-005	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	2320	2140	8.4	0% - 20%
ES2424871-012	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EW2403422-001	884/Eff1	EA025H: Suspended Solids (SS)	----	5	mg/L	10	9	15.8	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5961620)									
ES2424977-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.11	0.10	0.0	0% - 50%
EW2403422-001	884/Eff1	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.25	0.26	5.4	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5961622)									
ES2425025-012	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.54	0.53	0.0	0% - 20%
EW2403422-001	884/Eff1	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	45.6	44.6	2.2	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5961626)									
ES2425025-012	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.8	0.7	0.0	No Limit
ES2425025-022	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.6	0.5	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5961625)									
ES2425025-012	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.06	0.05	0.0	No Limit
ES2425025-022	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.06	0.05	20.1	No Limit
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 5957895)									
ES2424849-002	Anonymous	EP030: Biochemical Oxygen Demand	----	2	mg/L	20	24	16.4	0% - 50%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 5965033)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	94.7	83.0	129
				<5	1000 mg/L	99.4	82.0	110
				<5	928 mg/L	98.2	83.0	118
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5961620)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	99.1	90.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5961622)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	99.8	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5961626)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	96.8	69.0	123
				<0.1	1 mg/L	111	70.0	123
				<0.1	5 mg/L	112	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5961625)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	87.4	71.3	126
				<0.01	0.442 mg/L	89.1	71.3	126
				<0.01	1 mg/L	104	70.0	130
EP020: Oil and Grease (O&G) (QCLot: 5958531)								
EP020: Oil & Grease	----	1	mg/L	<1.0	5000 mg/L	92.0	80.0	120
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 5957895)								
EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	200 mg/L	104	74.0	112

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5961620)							
ES2424977-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	96.7	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5961622)							
ES2425025-012	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	108	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5961626)							
ES2425025-013	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	96.4	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5961625)							
ES2425025-013	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	106	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EW2403422**	Page	: 1 of 5
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Telephone	: 02 42253125
Project	: Merry Beach Monitoring - July 2024	Date Samples Received	: 29-Jul-2024
Site	: ----	Issue Date	: 06-Aug-2024
Sampler	: Tom Roose	No. of samples received	: 9
Order number	: P2108127	No. of samples analysed	: 9

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005FD: Field pH							
Field Test Dummy Bottle (EN67 PK) 884/Eff1, 884/GW5, 884/GW6, Influent	**29-Jul-2024**	**----**	----	----	**29-Jul-2024**	----	----
EA010FD: Field Conductivity							
Field Test Dummy Bottle (EN67 PK) 884/GW5, 884/GW6	**29-Jul-2024**	**----**	----	----	**29-Jul-2024**	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H) 884/Eff1, Influent	**29-Jul-2024**	**----**	----	----	**02-Aug-2024**	05-Aug-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) 884/Eff1, 884/GW5, 884/GW6, Influent	**29-Jul-2024**	**----**	----	----	**01-Aug-2024**	26-Aug-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) 884/Eff1, 884/GW5, 884/GW6, Influent	**29-Jul-2024**	**----**	----	----	**01-Aug-2024**	26-Aug-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) 884/Eff1, 884/GW5, 884/GW6, Influent	**29-Jul-2024**	**01-Aug-2024**	26-Aug-2024	✓	**01-Aug-2024**	26-Aug-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) 884/Eff1, 884/GW5, 884/GW6, Influent	**29-Jul-2024**	**01-Aug-2024**	26-Aug-2024	✓	**01-Aug-2024**	26-Aug-2024	✓
EN67 PK: Field Tests							
Field Test Dummy Bottle (EN67 PK) 884/Eff2, 884/GW1, 884/GW2, 884/GW3, 884/GW4	**29-Jul-2024**	**----**	----	----	**29-Jul-2024**	----	----

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP020: Oil and Grease (O&G)							
Amber Jar - Sulfuric Acid or Sodium Bisulfate (EP020 LL)							
884/Eff1, Influent	**29-Jul-2024**	**----**	----	**----**	**31-Jul-2024**	26-Aug-2024	✓
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural (EP030)							
884/Eff1, 884/GW5, 884/GW6, Influent	**29-Jul-2024**	**----**	----	**----**	**30-Jul-2024**	31-Jul-2024	✓
MW006: Thermotolerant Coliforms & E.coli by MF							
Sterile Plastic Bottle - Sodium Thiosulfate (MW006)							
884/Eff1, 884/GW5, 884/GW6, Influent	**29-Jul-2024**	**----**	----	**----**	**30-Jul-2024**	30-Jul-2024	✓
MW023: Enterococci by Membrane Filtration							
Sterile Plastic Bottle - Sodium Thiosulfate (MW023)							
884/GW5, 884/GW6	**29-Jul-2024**	**----**	----	**----**	**30-Jul-2024**	30-Jul-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Field Tests - Port Kembla	EN67 PK	WATER	Field determinations as per methods described in APHA. The analysis is performed in the field by ALS samplers. ALS NATA accreditation apply for this service.
Oil and Grease Low Level	EP020 LL	WATER	In house: Referenced to APHA 5520 B. Oil & grease is a gravimetric procedure to determine the amount of dissolved or emulsified oil & grease residue in an aqueous sample. The sample is serially extracted three times n-hexane. The resultant extracts are combined, dehydrated and concentrated prior to gravimetric determination. This method is compliant with NEPM Schedule B(3)
Biochemical Oxygen Demand (BOD)	EP030	WATER	In house: Referenced to APHA 5210 B. The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM Schedule B(3).
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.7
Enumeration of Enterococci by Membrane Filtration	MW023	WATER	AS4276.9

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)

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DAILY MONITORING RECORD – MERRY BEACH CARAVAN PARK SEWAGE TREATMENT AND RE-USE SCHEME

Start Date: 1-7-24 **Finish Date:** 7-7-24

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time of Readings	9-45	9.25	11.30	7:40	1000	11:00	8.30
Meter 1 Reading MAGFLOW (L)	9642	9674	9706	9738	9786	9798	9851
Meter 2 Reading (KL) – Non- Potable RU	19392	19392	19392	19392	19392	19392	19392
Meter 3 Reading (KL) – Irrigation	106747	106747	106747	106747	106747	106747	106747
Meter 4 Reading (KL) – NPWS	37952	37952	37952	37952	37952	37952	37952
Meter 5 Reading (KL) - DLWC	37398.	37398	37398	37398	37398	37398	37398
Pump Well Effluent Appearance	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY
STP Status	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED
UV Lamp Status	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)
Chlorination System Status	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY
Irrigation Field Status	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING
Weather Conditions	(SUNNY) / CLOUDY / RAIN	SUNNY / CLOUDY / (RAIN)	SUNNY / CLOUDY / (RAIN)	SUNNY / CLOUDY / (RAIN)	SUNNY / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	SUNNY / CLOUDY / (RAIN)
Dissolved Oxygen in IDEA reactor (mg/L)	7.57	11.34	0.08 No Air	7.75 Air	2.27	9.23	10.33 Air
pH in IDEA reactor / Effluent PW	4.62 /	4.39 /	6.22 /	7.21 /	7.22	7.50 /	7.73
Total Alkalinity in IDEA Reactor (mg/L)							M2 error
30 minute sludge volume (%)				45%	54%	28%	28%.
Chlorine (residual) onsite testing Eff2 (once per week)							
Initials	LUKE.	LUKE.	LUKE	Josh	KANE 2x TRUCKS	B/M	LUKE

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DAILY MONITORING RECORD – MERRY BEACH CARAVAN PARK SEWAGE TREATMENT AND RE-USE SCHEME

Start Date: 8-7-24 **Finish Date:** 14-7-24.

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time of Readings	8-25	8.15	9.20	12.00	10.10	10.00	10.00
Meter 1 Reading MAGFLOW (L)	9886	9919	9969	1001	1005	1009	1013
Meter 2 Reading (KL) – Non- Potable RU	19392	19392	19392	19392	19392	19392	19392
Meter 3 Reading (KL) – Irrigation	106747	106747	106747	106747	106747	106747	106747
Meter 4 Reading (KL) – NPWS	37952	37952	37952	37952	37952	37952	37952
Meter 5 Reading (KL) - DLWC	37398	37398	37398	37398	37398	37398	37398
Pump Well Effluent Appearance	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY	CLEAR / (CLOUDY) / GREY
STP Status	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED
UV Lamp Status	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)
Chlorination System Status	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY
Irrigation Field Status	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING
Weather Conditions	SUNNY / CLOUDY / (RAIN)	SUNNY / CLOUDY / (RAIN)	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN
Dissolved Oxygen in IDEA reactor (mg/L)	8.89	4.14	3.87 MIX	0.10	10.77	6.73	3.12
pH in IDEA reactor / Effluent PW	7.61 /	7.51 /	7.43	7.44	7.42	7.37	7.26
Total Alkalinity in IDEA Reactor (mg/L)	474 mg/L		500 mg/L				
30 minute sludge volume (%)	29 %		29 %				
Chlorine (residual) onsite testing Eff2 (once per week)							
Initials	LUKE	LUKE	LUKE & BRIAN	BRIAN	BRIAN	B/M	B/M

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DAILY MONITORING RECORD – MERRY BEACH CARAVAN PARK SEWAGE TREATMENT AND RE-USE SCHEME

Start Date: 15-7-24 **Finish Date:** 21-7-24

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time of Readings	8.15	8.30	8.30	8.15	1000	10.10	8.30
Meter 1 Reading MAGFLOW (L)	10416	10.20 MAX	10.23	10.27	10 T 1	10.34	10.36
Meter 2 Reading (KL) – Non- Potable RU	19392	19392	19392	19392	19392	19392	19392
Meter 3 Reading (KL) – Irrigation	106747	106747	106747	106747	106747	106747	106747
Meter 4 Reading (KL) – NPWS	37952	37952	37952	37952	37952	37952	37952
Meter 5 Reading (KL) - DLWC	37398	37398	37398	37398	37398	37398	37398
Pump Well Effluent Appearance	CLEAR / CLOUDY / GREY	CLEAR / CLOUDY / GREY	CLEAR / CLOUDY / GREY	CLEAR / CLOUDY / GREY	CLEAR / CLOUDY / GREY	CLEAR / CLOUDY / GREY	CLEAR / CLOUDY / GREY
STP Status	OK / ALARMED	OK / ALARMED	OK / ALARMED	OK / ALARMED	OK / ALARMED	OK / ALARMED	OK / ALARMED
UV Lamp Status	OK / ALARMED	OK / ALARMED	OK / ALARMED	OK / ALARMED	OK / ALARMED	OK / ALARMED	OK / ALARMED
Chlorination System Status	OK / FAULTY	OK / FAULTY	OK / FAULTY	OK / FAULTY	OK / FAULTY	OK / FAULTY	OK / FAULTY
Irrigation Field Status	OK / WET / PONDING	OK / WET / PONDING	OK / WET / PONDING	OK / WET / PONDING	OK / WET / PONDING	OK / WET / PONDING	OK / WET / PONDING
Weather Conditions	SUNNY / CLOUDY / RAIN	SUNNY / CLOUDY / RAIN	SUNNY / CLOUDY / RAIN	SUNNY / CLOUDY / RAIN	SUNNY / CLOUDY / RAIN	SUNNY / CLOUDY / RAIN	SUNNY / CLOUDY / RAIN
Dissolved Oxygen in IDEA reactor (mg/L)	11.21 AIR	0.71 MIX	12.53 AIR	13.52 AIR	13.49 AIR	5.26	7.41 MIX
pH in IDEA reactor / Effluent PW	7.11 /	6.98 /	7.44 /	7.45 /	7.98	7.27	7.20
Total Alkalinity in IDEA Reactor (mg/L)	217 mg/L		282 mg/L				239 mg/L
30 minute sludge volume (%)	40 %		58 %				40 %
Chlorine (residual) onsite testing Eff2 (once per week)							
Initials	LUKE.	LUKE	LUKE.	LUKE	KANEZ	B/M	LUKE

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DAILY MONITORING RECORD – MERRY BEACH CARAVAN PARK SEWAGE TREATMENT AND RE-USE SCHEME

Start Date: 22-7-24 **Finish Date:** 28-7-24

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time of Readings	8.25	8.15	8.30	8.45	11.25	10.15	8.35
Meter 1 Reading MAGFLOW (L)	10.38	10.40	10.41	10.44	10.46	10.49	10.53
Meter 2 Reading (KL) – Non- Potable RU	19392	19392	19392	19392	19392	19392	19392
Meter 3 Reading (KL) – Irrigation	106747	106747	106747	106747	106747	106747	106747
Meter 4 Reading (KL) – NPWS	37952	37952	37952	37952	37952	37952	37952
Meter 5 Reading (KL) - DLWC	37398	37398	37398	37398	37398	37398	37398
Pump Well Effluent Appearance	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY
STP Status	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED
UV Lamp Status	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)	OK / (ALARMED)
Chlorination System Status	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY
Irrigation Field Status	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING
Weather Conditions	SUNNY / (CLOUDY) / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	SUNNY / (CLOUDY) / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	~~SUNNY~~ / (CLOUDY) / RAIN
Dissolved Oxygen in IDEA reactor (mg/L)	13.08 AIR	13.17 AIR	7.46 MIX	10.34 AIR	12.40 AIR	6.23	2.91 MIX
pH in IDEA reactor / Effluent PW	7.36 /	7.41 /	7.22 /	7.25 /	7.24	7.104	6.96 /
Total Alkalinity in IDEA Reactor (mg/L)			200 mg/L				189 mg/L.
30 minute sludge volume (%)			60% MIX				60% MIX
Chlorine (residual) onsite testing Eff2 (once per week)							
Initials	LUKE	LUKE	LUKE	LUKE	BRIAN	BRIAN	LUKE