

Lion-Beer, Spirits & Wine Pty Ltd  
Level 7, 68 York Street  
Sydney NSW 2000

Revision 5  
Date 15/05/2020  
Author R  
Reviewer R  
Approved R

November 2020 Groundwater Monitoring  
Tooheys Brewery  
29 Nyrang Street, Lidcombe

1. Introduction

## 1. Introduction

The purpose of this document is to provide a summary of the groundwater monitoring results for the Tooheys Brewery site, located at 29 Nyrang Street, Lidcombe, Sydney, NSW. The monitoring was conducted as part of the Environmental Planning and Assessment Act 1979.

The monitoring was conducted by Douglas Partners, a specialist geotechnical and environmental consulting firm. The monitoring was conducted in accordance with the requirements of the Environmental Planning and Assessment Act 1979, and the relevant regulatory requirements. The monitoring was conducted to determine the presence and extent of groundwater contamination, and to assess the risk to the environment and human health.

The monitoring was conducted as part of the DP's First Round of 2011 Groundwater Monitoring, Tooheys Brewery - 29 Nyrang Street, Lidcombe. The monitoring was conducted to determine the presence and extent of groundwater contamination, and to assess the risk to the environment and human health. The monitoring was conducted in accordance with the requirements of the Environmental Planning and Assessment Act 1979, and the relevant regulatory requirements.

The monitoring was conducted as part of the Field Investigation Phase 1 Contamination Assessment, 29 Nyrang Street, Lidcombe, M. The monitoring was conducted to determine the presence and extent of groundwater contamination, and to assess the risk to the environment and human health. The monitoring was conducted in accordance with the requirements of the Environmental Planning and Assessment Act 1979, and the relevant regulatory requirements.





## 4. Groundwater Monitoring Methodology and Field Observations

### 4.1 Identification of Wells

Groundwater monitoring wells were installed at various locations throughout the site to monitor groundwater levels and quality. The wells were installed in accordance with the requirements of the California Department of Water Resources (CDWR) and the California Department of Public Health (CDPH).

### 4.2 Frequency of Sampling

Groundwater sampling was conducted at various frequencies throughout the monitoring period. The frequency of sampling was determined based on the results of the initial groundwater quality assessment and the potential for contamination. The sampling frequency was increased in areas where contamination was suspected or where groundwater levels were fluctuating significantly.

### 4.3 Well Development

Groundwater monitoring wells were developed using a variety of methods, including hand-dug, auger, and driven methods. The wells were developed to a depth of approximately 5 feet below the water table. The wells were then sealed with a bentonite seal to prevent surface water from entering the well.

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### 4.4 Collection of Groundwater Samples

Groundwater samples were collected using a variety of methods, including hand-dug, auger, and driven methods. The samples were collected at various depths throughout the monitoring period. The samples were then analyzed for various parameters, including pH, temperature, and specific conductance. The results of the analysis were used to determine the quality of the groundwater and to identify any potential contamination.

Groundwater samples were collected using a variety of methods, including hand-dug, auger, and driven methods. The samples were collected at various depths throughout the monitoring period. The samples were then analyzed for various parameters, including pH, temperature, and specific conductance. The results of the analysis were used to determine the quality of the groundwater and to identify any potential contamination.





Monitoring Well	m AHD (surface)	Date			
		25/11/2020 (well development)		26/11/2020 (groundwater sampling)	
		m bgl	m AHD	m bgl	m AHD
□□	□□□□	□□□□	□□□□	□.5□□	□□□□
□□	□□.5□	□□□□	□□□□	□.5□□	□□□□
□□	□□□□	□.5□□	□□□□	□□□□	□□□.5□
□□	□.5□□	□□□.5□	□□□.5□	□.5□□	□□□□
□□	□□□□	□□□□	□□□□	□□□□	□□□□
□□□	5□□□	□□□□	□□□□	□.5□□	□□□□

### Table 5: Groundwater Readings Prior to Sampling

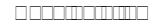
Monitoring Well	Temperature (°C)	Dissolved Oxygen (% saturation)	Conductivity (µS/cm)	pH	Redox (mV)
WW1	15.2	8.5	150	7.2	150
WW2	16.5	7.5	180	7.5	120
WW3	14.8	9.0	160	7.0	180
WW4	15.5	8.0	170	7.3	140
WW5	16.0	7.8	190	7.4	130
WW6	15.0	8.2	155	7.1	160





- [illegible]





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## Introduction

The following information is provided to assist you in understanding the results of the groundwater monitoring program conducted by Douglas Partners, Inc. (DPI) for the City of San Francisco (SF) in the San Francisco Bay Area.

The purpose of this report is to provide a summary of the results of the groundwater monitoring program conducted by DPI for the City of San Francisco (SF) in the San Francisco Bay Area. The results of the monitoring program are presented in the following sections:

- Borehole and Test Pit Logs
- Groundwater

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- Borehole and Test Pit Logs
- Groundwater

## Borehole and Test Pit Logs

The following information is provided to assist you in understanding the results of the borehole and test pit logs conducted by DPI for the City of San Francisco (SF) in the San Francisco Bay Area. The results of the logs are presented in the following sections:

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## Groundwater

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## Reports

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- Reports

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- Reports

## About this Report

## Site Anomalies

[illegible]

## Information for Contractual Purposes

[illegible]

## Site Inspection

[illegible]



## Groundwater Field Sheet

Project and Bore Installation Details						
Bore / Standpipe ID:	BH1					
Project Name:	Tooheys August 2020 Monitoring					
Project Number:	71021.15					
Site Location:	29 Nyrnag Street, Lidcombe					
Bore RL	6.5 m AHD					
Bore Easting:				Northing:		
Installation Date:	24-Oct-16					
GW Level (during drilling):				m bgl		
Well Depth:	14.2			m bgl		
Screened Interval:	2.0-14.2			m bgl		
Contaminants/Comments:						
Bore Development Details						
Date/Time:	25-11-16					
Purged By:	TJ					
GW Level (pre-purge):	2.53			m bgl		
GW Level (post-purge):	4.29			m bgl		
PSH observed:	Yes / <input checked="" type="checkbox"/> No (interface/visual). ? mm thick					
Observed Well Depth:	14.12			m bgl		
Estimated Bore Volume:	L					
Total Volume Purged:	100			L		
Equipment:	12 Volt pump					
Micropurge and Sampling Details						
Date/Time:	26-11-16 12:40					
Sampled By:	TJ					
Weather Conditions:	Sunny					
GW Level (pre-purge):	2.52			m bgl		
GW Level (post sample):	2.31			m bgl		
PSH observed:	Yes / <input checked="" type="checkbox"/> No (interface/visual). ? mm thick					
Observed Well Depth:	14.12			m bgl		
Estimated Bore Volume:	L					
Total Volume Purged:	9			L		
Equipment:	peristaltic pump and TPS multimeter					
Water Quality Parameters						
Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	0.1°C	±0.3 mg/L	±3%	±0.1	±10%	±10 mV
12:45/1	21.5	0.34	1515	6.41		-102.4
12:47/2	21.2	0.36	2210	6.12		-114.9
12:49/3	21.3	0.29	3490	5.95		-101.4
12:51/4	21.6	0.26	4094	5.94		-93.7
12:53/5	21.7	0.27	4167	5.94		-91.7
12:55/6	21.7	0.30	4181	5.94		-89.2
12:57/7	21.7	0.29	4174	5.94		-89.5
12:59/8	21.7	0.28	4189	5.94		-89.6
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			
	35	4477				
Sample Details						
Sampling Depth (rationale):	8.0 m bgl. Middle of water column					
Sample Appearance (e.g. colour, siltiness, odour):	Slightly silty, pale white, no odour					
Sample ID:	BH1					
QA/QC Samples:	-					
Sampling Containers and filtration:	500mL glass, 2x 40mL glass vials (HCl), 1x 100mL plastic (HNO3 (filtered))					
Comments / Observations:						

## Groundwater Field Sheet

### Project and Bore Installation Details

Bore / Standpipe ID:	BH2		
Project Name:	Tooheys August 2020 Monitoring		
Project Number:	71021.15		
Site Location:	29 Nyrnag Street, Lidcombe		
Bore RL	6.2 m AHD		
Bore Easting:		Northing:	
Installation Date:	20-Oct-16		
GW Level (during drilling):		m bgl	
Well Depth:	14.5	m bgl	
Screened Interval:	2.0-14.5	m bgl	
Contaminants/Comments:			

### Bore Development Details

Date/Time:	25-11-20	
Purged By:	TH	
GW Level (pre-purge):	2.42	m bgl
GW Level (post-purge):	4.39	m bgl
PSH observed:	Yes / No (interface/visual). ? mm thick	
Observed Well Depth:	14.15	m bgl
Estimated Bore Volume:	L	
Total Volume Purged:	100	L
Equipment:	12 Volt pump	

### Micropurge and Sampling Details

Date/Time:	26.11.20 / 11:39	
Sampled By:	Lisa Teng	
Weather Conditions:	Sunny	
GW Level (pre-purge):	2.54	m bgl
GW Level (post sample):	3.32	m bgl
PSH observed:	Yes / No (interface/visual). ? mm thick	
Observed Well Depth:	14.15	m bgl
Estimated Bore Volume:	L	
Total Volume Purged:	8	L
Equipment:	peristaltic pump and TPS multimeter	

### Water Quality Parameters

Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	0.1°C	+/- 0.3 mg/L	+/- 3%	+/- 0.1	+/- 10%	+/- 10 mV
11:40 / 1	21.6	0.74	11519	6.45		-8.0
11:42 / 2	21.6	0.72	11504	6.44		-9.8
11:44 / 3	21.6	0.69	11493	6.44		-10.9
11:46 / 4	21.6	0.57	11458	6.44		-14.7
11:48 / 5	21.6	0.55	11451	6.44		-16.7
11:50 / 6	21.5	0.55	11365	6.45		-18.9
11:52 / 7	21.7	0.51	11386	6.45		-20.5
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			
	4.6	12145				

### Sample Details

Sampling Depth (rationale):	9.0 m bgl, Middle of water column
Sample Appearance (e.g. colour, siltiness, odour):	Clear, no odour
Sample ID:	BH2
QC Samples:	BD2 / 20201126
Storage Containers and	500mL glass, 2x 40mL glass vials (HCl) , 1x 100mL plastic (HNO3 (filtered))
Observations:	



## Groundwater Field Sheet

Project and Bore Installation Details						
Bore / Standpipe ID:	BH7					
Project Name:	Tooheys August 2020 Monitoring					
Project Number:	71021.15					
Site Location:	29 Nymag Street, Lidcombe					
Bore RL	6.4 m AHD					
Bore Easting:				Northing:		
Installation Date:	7-Dec-16					
GW Level (during drilling):	m bgl					
Well Depth:	6.5 m bgl					
Screened Interval:	1.5-6.5 m bgl					
Contaminants/Comments:	Bend in pipe - development requires peristaltic pump					
Bore Development Details						
Date/Time:	25.11.20 10:15					
Purged By:	TG					
GW Level (pre-purge):	3.54 m bgl					
GW Level (post-purge):	4.87 m bgl					
PSH observed:	Yes / <u>No</u> (interface/visual). ? mm thick					
Observed Well Depth:	5.47 m bgl					
Estimated Bore Volume:	L					
Total Volume Purged:	10 L					
Equipment:	12 Volt pump					
Micropurge and Sampling Details						
Date/Time:	26.11.20 09:15					
Sampled By:	Hua Tang TG					
Weather Conditions:	Sunny					
GW Level (pre-purge):	3.63 m bgl					
GW Level (post sample):	4.42 m bgl					
PSH observed:	Yes / <u>No</u> (interface/visual). ? mm thick					
Observed Well Depth:	5.47 m bgl					
Estimated Bore Volume:	L					
Total Volume Purged:	5 L					
Equipment:	peristaltic pump and TPS multimeter					
Water Quality Parameters						
Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	0.1°C	+/- 0.3 mg/L	+/- 3%	+/- 0.1	+/- 10%	+/- 10 mV
0920 / 1	20.0	4.036	587	5.14		49.3
0922 / 2	19.9	0.64	588	5.11		49.6
0924 / 3	19.9	0.74	594	5.12		40.7
0926 / 4	19.9	0.80	583	5.02		50.2
0928 / 5	19.9	0.79	589	5.07		45.7
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			
	5.8	689				
Sample Details						
Sampling Depth (rationale):	4.5 m bgl, middle of water column					
Sample Appearance (e.g. colour, siltiness, odour):	Clear, pale yellow / no odour					
Sample ID:	BH7					
QA/QC Samples:	—					
Sampling Containers and	500mL glass, 2x 40mL glass vials (HCl), 1x 100mL plastic (HNO3 (filtered))					
Observations:						

## Groundwater Field Sheet

### Project and Bore Installation Details

Bore / Standpipe ID:	BH8		
Project Name:	Tooheys August 2020 Monitoring		
Project Number:	71021.15		
Site Location:	29 Nyrnag Street, Lidcombe		
Bore RL	6.5 m AHD		
Bore Easting:		Northing:	
Installation Date:	7-Dec-06		
GW Level (during drilling):		m bgl	
Well Depth:	8.25	m bgl	
Screened Interval:	2.0-8.25	m bgl	
Contaminants/Comments:			

### Bore Development Details

Date/Time:	25.11.20	
Purged By:	TH	
GW Level (pre-purge):	4.45	m bgl
GW Level (post-purge):	7.41	m bgl
PSH observed:	Yes / <input checked="" type="radio"/> No (interface/visual). ? mm thick	
Observed Well Depth:	8.25	m bgl
Estimated Bore Volume:	L	
Total Volume Purged:	200	L
Equipment:	12 Volt pump	

### Micropurge and Sampling Details

Date/Time:	26.11.20 09:56	
Sampled By:	Lisa Teng	
Weather Conditions:	Sunny	
GW Level (pre-purge):	4.52	m bgl
GW Level (post sample):	5.72	m bgl
PSH observed:	Yes / <input checked="" type="radio"/> No (interface/visual). ? mm thick	
Observed Well Depth:	8.25	m bgl
Estimated Bore Volume:	L	
Total Volume Purged:	8	L
Equipment:	peristaltic pump and TPS multimeter	

### Water Quality Parameters

Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	0.1°C	±0.3 mg/L	±3%	±0.1	±10%	±10 mV
09:58 / 1	23.2	1.04	21038	5.9		52
10:00 / 2	23.2	0.69	20974	5.89		48.4
10:02 / 3	23.2	0.61	20942	5.88		43.7
10:04 / 4	23.2	0.62	20928	5.89		32.3
10:06 / 5	23.2	0.63	20926	5.87		32.3
10:08 / 6	23.2	0.67	20908	5.87		31.3
10:10 / 7	23.2	0.63	20945	5.82		30.6
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			
	7.8	21089				

### Sample Details

Sampling Depth (rationale):	6 m bgl. Middle of water column
Sample Appearance (e.g. colour, siltiness, odour):	Clear, no odour
Sample ID:	BH8
QA/QC Samples:	-
Sampling Containers and filtration:	500mL glass, 2x 40mL glass vials (HCl), 1x 100mL plastic (HNO3 (filtered))
Comments / Observations:	

**Groundwater Field Sheet**

Project and Bore Installation Details						
Bore / Standpipe ID:	BH9					
Project Name:	Tooheys August 2020 Monitoring					
Project Number:	71021.15					
Site Location:	29 Nyrnag Street, Lidcombe					
Bore RL	6.0 m AHD					
Bore Easting:				Northing:		
Installation Date:	7 December 20016					
GW Level (during drilling):	m bgl					
Well Depth:	6.5 m bgl					
Screened Interval:	1.5-6.5 m bgl					
Contaminants/Comments:						
Bore Development Details						
Date/Time:	25.11.20					
Purged By:	TA					
GW Level (pre-purge):	4.11 m bgl					
GW Level (post-purge):	6.35 m bgl					
PSH observed:	Yes / No (interface/visual). ? mm thick					
Observed Well Depth:	6.70 m bgl					
Estimated Bore Volume:	1 L					
Total Volume Purged:	15 L					
Equipment:	12 Volt pump					
Micropurge and Sampling Details						
Date/Time:	26.11.20 10:33					
Sampled By:	Liao Teng TA					
Weather Conditions:	Sunny					
GW Level (pre-purge):	4.34 m bgl					
GW Level (post sample):	5.5 m bgl					
PSH observed:	Yes / <del>No</del> (interface/visual). ? mm thick					
Observed Well Depth:	6.76 m bgl					
Estimated Bore Volume:	L					
Total Volume Purged:	9 L					
Equipment:	peristaltic pump and TPS multimeter					
Water Quality Parameters						
Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	0.1°C	+/- 0.3 mg/L	+/- 3%	+/- 0.1	+/- 10%	+/- 10 mV
10:35 / 1	20.9	3.2	10258	6.26		11.2
10:37 / 2	20.7	3.03	9712	6.21		8.5
10:39 / 3	20.7	2.91	9351	6.16		8.5
10:41 / 4	20.7	2.81	9141	6.14		7.8
10:43 / 5	20.7	2.61	9810	6.17		4.4
10:45 / 6	20.8	2.46	10157	6.18		1.8
10:47 / 7	20.8	2.35	10220	6.19		-0.1
10:49 / 8	20.9	2.38	10234	6.19		-1.4
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			
	26	11214				
Sample Details						
Sampling Depth (rationale):	5.5 m bgl, middle of water column					
Sample Appearance (e.g. colour, siltiness, odour):	Clear, no odour					
Sample ID:	BH9					
QA/QC Samples:	-					
Sampling Containers and filtration:	500mL glass, 2x 40mL glass vials (HCl), 1x 100mL plastic (HNO3 (filtered))					
Comments / Observations:						



## Groundwater Field Sheet

Project and Bore Installation Details						
Bore / Standpipe ID:	BH10					
Project Name:	Tooheys August 2020 Monitoring					
Project Number:	71021.15					
Site Location:	29 Nymag Street, Lidcombe					
Bore RL	5.1 m AHD					
Bore Easting:				Northing:		
Installation Date:	7-Dec-06					
GW Level (during drilling):				m bgl		
Well Depth:	5			m bgl		
Screened Interval:	1.5-5.0			m bgl		
Contaminants/Comments:						
Bore Development Details						
Date/Time:	25-11-20					
Purged By:	TG					
GW Level (pre-purge):	1.42			m bgl		
GW Level (post-purge):	3.79			m bgl		
PSH observed:	Yes / <del>No</del> (interface/visual). ? mm thick					
Observed Well Depth:	4.20			m bgl		
Estimated Bore Volume:	L					
Total Volume Purged:	5			L		
Equipment:	12 Volt pump					
Micropurge and Sampling Details						
Date/Time:	26-11-20 1336					
Sampled By:	Lisa Teng TG					
Weather Conditions:	Sunny					
GW Level (pre-purge):	3.52			m bgl		
GW Level (post sample):	4.15			m bgl		
PSH observed:	Yes / <del>No</del> (interface/visual). ? mm thick					
Observed Well Depth:	4.20			m bgl		
Estimated Bore Volume:	L					
Total Volume Purged:	2.5			L		
Equipment:	peristaltic pump and TPS multimeter					
Water Quality Parameters						
Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	0.1°C	±0.3 mg/L	±3%	±0.1	±10%	±10 mV
1337 / 1	25.3	1.32	6894	6.44		-90.1
1339 / 2	20.5	2.04	65373	6.39		-77.8
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			
Sample Details						
Sampling Depth (rationale):	4. m bgl					
Sample Appearance (e.g. colour, siltiness, odour):	Slightly Silty, pale yellow, no odour					
Sample ID:	BH10					
QA/QC Samples:						
Sampling Containers and filtration:	500mL glass, 2x 40mL glass vials (HCl), 1x 100mL plastic (HNO3 (filtered))					
Comments / Observations:	well pumped dry after 2 TL. sampled post purge.					

## Calibration & Service Report Water Quality Meter

**Company:** Active Environmental Solutions Hire  
**Address:** Unit 16, 191 Parramatta Road  
AUBURN NSW 2144  
**Phone:** 02 9716 5966 | **Fax:** 02 9716 5988  
**Email:** [hire@aesolutions.com.au](mailto:hire@aesolutions.com.au)

**Manufacturer:** YSI  
**Instrument/Model:** WQM Professional Plus  
w/ Quatro Cable  
**Client Company:**  
**Client Name:**

**Serial #:** 17D105826  
**Cable Length:** 1m  
**Client Email:**  
**Client Phone:**

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	<input checked="" type="checkbox"/>	Voltage reading above 2.9V
	Battery Saver	<input checked="" type="checkbox"/>	Automatically turns off after 60 minutes if not used
Connections	Condition	<input checked="" type="checkbox"/>	Good, clean
Cable	Condition	<input checked="" type="checkbox"/>	Clean, no tears
Display	Operation	<input checked="" type="checkbox"/>	
Firmware	Version	<input checked="" type="checkbox"/>	4.0.0
Keypad	Operational	<input checked="" type="checkbox"/>	
Display	Screen	<input checked="" type="checkbox"/>	
Unit	Condition, seals and O-rings	<input checked="" type="checkbox"/>	
Monitor housing	Condition	<input checked="" type="checkbox"/>	
<b>pH</b>			
	Condition	<input checked="" type="checkbox"/>	Good, clean
	pH millivolts for pH7 calibration range 0 mV $\pm$ 50 mV	<input checked="" type="checkbox"/>	
	pH 4 mV range + 165 to + 180 from 7 buffer mV value	<input checked="" type="checkbox"/>	
	pH slope	<input checked="" type="checkbox"/>	55 to 60 mV/pH; ideal 59mV
	Response time < 90 seconds	<input checked="" type="checkbox"/>	
	Calibrated and conforms to manufacturer's specifications	<input checked="" type="checkbox"/>	
<b>ORP</b>			
	Condition	<input checked="" type="checkbox"/>	Good, clean
	Response time < 90 seconds	<input checked="" type="checkbox"/>	
	within $\pm$ 80mv of reference Zobell Reading	<input checked="" type="checkbox"/>	
	Calibrated and conforms to manufacturer's specifications	<input checked="" type="checkbox"/>	Variance range $\pm$ 20mV
<b>Conductivity</b>			
	Condition	<input checked="" type="checkbox"/>	Good, clean
	Temperature	<input checked="" type="checkbox"/>	$^{\circ}$ C
	Conductivity cell constant 5.0 $\pm$ 1.0 in GLP file	<input checked="" type="checkbox"/>	
	Clean sensor reads less than 3 $\mu$ S/cm in dry air	<input checked="" type="checkbox"/>	
	Calibrated and conforms to manufacturer's specifications	<input checked="" type="checkbox"/>	$\mu$ S/cm
<b>Dissolved Oxygen</b>			
	Condition	<input checked="" type="checkbox"/>	Good, clean
	DO sensor in use	<input checked="" type="checkbox"/>	Polarographic
	1.25 mil PE membrane (yellow membrane):	<input checked="" type="checkbox"/>	
	DO Sensor Value	<input checked="" type="checkbox"/>	(min 4.31 $\mu$ A - max 8.00 $\mu$ A) Avg 6.15 $\mu$ A
	Calibrated and conforms to manufacturer's specifications	<input checked="" type="checkbox"/>	ppm

### Instrument Readings

Parameter	Standards	Reference	Calibration Point	Before	After	Units
Temperature	Center 370 Thermometer	Room Temp.	23.0	N/A	23.1	$^{\circ}$ C
pH	pH 4.00	349389	4.01	4.01	4.01	pH
pH	pH 7.00	349958	7.00	6.95	7.00	pH
Conductivity	2760 $\mu$ S/cm at 25 $^{\circ}$ C	354236	2760	2745	2760	$\mu$ S/cm
ORP (Ref. check only)	Zobell A & B	340526 & 340529	231.4	225.0	231.4	mV
Zero Dissolved Oxygen	NaSO <sub>3</sub> in distilled water	323461/V070819	0.0	-0.3	0.0	%
100% Dissolved Oxygen	100% Air Saturation	Fresh Air	100.0	129.0	100.0	%

**Calibrated By:** Milenko Sasic

**Calibration Date:** 25/11/2020

**Calibration Due:** 25/05/2021

**Alemir International Pty Ltd t/a Active Environmental Solutions**

**ABN 14 080 228 708**

**Head Office - Melbourne**  
2 Merchant Avenue  
Thamesdown VIC 3074 Australia  
T: +61 3 9464 2300

**NSW Office - Auburn**  
Unit 16, 191 Parramatta Road  
Auburn NSW 2144 Australia  
T: +61 2 9716 5966

**WA Office - Malaga**  
Unit 6, 41 Holder Way  
Malaga WA 6090 Australia  
T: +61 8 9249 5643

**QLD Office - Banyo**  
Unit 17, 23 Ashton Place  
Banyo QLD 4074 Australia  
T: +61 7 3267 1433

[sales@aesolutions.com.au](mailto:sales@aesolutions.com.au)



[www.aesolutions.com.au](http://www.aesolutions.com.au)

Well	Hardness (mg CaCO <sub>3</sub> /L)	Heavy Metals <sup>1</sup>								TRH		Benzene	Toluene	Ethyl- benzene	Total Xylene
		As	Cd	Cr <sup>3</sup>	Cu	Pb	Hg	Ni	Zn	C <sub>6</sub> -C <sub>9</sub>	C <sub>10</sub> -C <sub>36</sub>				
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The diagram illustrates the arrangement of rDNA molecules in a chromosome. It shows two horizontal rows of boxes representing DNA segments. The top row contains several boxes, some labeled 'r' and others 'd'. The bottom row also contains boxes, some labeled 'r' and others 'd'. Vertical lines connect corresponding boxes between the two rows, illustrating the pairing of homologous chromosomes during meiosis.

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Well	Hardness (mg CaCO <sub>3</sub> /L)	Heavy Metals <sup>1</sup>								TRH		Benzene	Toluene	Ethyl-benzene	Total Xylene
		As	Cd	Cr <sup>3</sup>	Cu	Pb	Hg	Ni	Zn	C <sub>6</sub> -C <sub>9</sub>	C <sub>10</sub> -C <sub>36</sub>				
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Well	Hardness (mg CaCO <sub>3</sub> /L)	Heavy Metals <sup>1</sup>								TRH			Benzene	Toluene	Ethyl- benzene	Total Xylene
		As	Cd	Cr <sup>3</sup>	Cu	Pb	Hg	Ni	Zn	C <sub>6</sub> -C <sub>9</sub>	C <sub>10</sub> -C <sub>36</sub>	>C <sub>10</sub> -C <sub>16</sub>				
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04	10000	01	0.00000	000	000	000	0.00050	00	000	0000	0.500	0.500	000	000	000	000
05	00000	000	0.000	000	00	000	0.00050	00	000	0000	0.500	0.500	000	000	000	000
06	10000	000	0.00000	000	00	000	0.00050	50	000	0000	0.500	0.500	000	000	000	000
0700	10000	01	0.00000	000	000	000	0.00050	00	50	0000	0.500	0.500	000	000	000	000
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Well	Heavy Metals <sup>1</sup>								TRH					Benzene	Toluene	Ethyl- benzene	Total Xylene
	As	Cd	Cr <sup>3</sup>	Cu	Pb	Hg	Ni	Zn	C <sub>6</sub> -C <sub>9</sub>	C <sub>10</sub> -C <sub>14</sub>	C <sub>15</sub> -C <sub>28</sub>	C <sub>29</sub> -C <sub>36</sub>	>C <sub>10</sub> -C <sub>16</sub>				
01	0.00	0.0000	0.00	0.00	0.00	0.0005	0.00	0.00	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
02	0.00	0.000	0.00	0.00	0.00	0.0005	5.00	0.00	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
03	0.00	0.00	0.0000	0.00	0.00	0.0005	0.00	0.00	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
04	0.00	0.000	0.500	0.00	0.00	0.0005	0.00	0.00	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
05	0.00	0.000	0.0000	0.00	0.00	0.0005	0.00	0.00	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
06D	0.00	0.000	0.0000	0.00	0.00	0.0005	0.00	0.00	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
07	0.00	0.00	0.0000	0.00	0.00	0.0005	5.00	150	0.000	0.500	220	0.0000	98	0.00	0.00	0.00	0.00
GIL	0.00	0.500	0.0000	0.0000	0.500	0.000	0.000	0.0000	0.00	0.500			5.00	0.500	0.000	0.00	55.00

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Well	Heavy Metals <sup>1</sup>								TRH					Benzene	Toluene	Ethyl- benzene	Total Xylene
	As	Cd	Cr <sup>3</sup>	Cu	Pb	Hg	Ni	Zn	C <sub>6</sub> -C <sub>9</sub>	C <sub>10</sub> -C <sub>14</sub>	C <sub>15</sub> -C <sub>28</sub>	C <sub>29</sub> -C <sub>36</sub>	>C <sub>10</sub> -C <sub>16</sub>				
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Well	Heavy Metals <sup>2</sup>								TRH					Benzene	Toluene	Ethyl- benzene	Total Xylene <sup>5</sup>
	As	Cd	Cr <sup>4</sup>	Cu	Pb	Hg	Ni	Zn	C <sub>6</sub> - C <sub>9</sub>	C <sub>10</sub> -C <sub>14</sub>	C <sub>15</sub> -C <sub>28</sub>	C <sub>29</sub> -C <sub>36</sub>	>C <sub>10</sub> -C <sub>16</sub>				
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Well	Heavy Metals <sup>2</sup>								TRH					Benzene	Toluene	Ethyl- benzene	Total Xylene <sup>5</sup>
	As	Cd	Cr <sup>4</sup>	Cu	Pb	Hg	Ni	Zn	C <sub>6</sub> - C <sub>9</sub>	C <sub>10</sub> - C <sub>14</sub>	C <sub>15</sub> -C <sub>28</sub>	C <sub>29</sub> - C <sub>36</sub>	>C <sub>10</sub> - C <sub>16</sub>				
01	0.00	0.0000	0.00	2	0.00	0.0005	0.00	0.50	0.00	0.50	0.0000	0.0000	0.50	0.00	0.00	0.00	0.00
02	0.00	0.0000	0.00	0	0.00	0.0005	0.00	0.00	0.00	0.50	0.0000	0.0000	0.50	0.00	0.00	0.00	0.00
03 0.0000000000	0.00	0.0000	0.00	0.00	0.00	0.0005	0.00	0.00	0.00	0.50	0.0000	0.0000	0.50	0.00	0.00	0.00	0.00
04	15	0.0000	0.00	0	0.00	0.0005	0.00	0.00	0.00	0.50	0.0000	0.0000	0.50	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	5	0.00	0.0005	0.00	0.00	0.00	0.50	0.0000	0.0000	0.50	0.00	0.00	0.00	0.00
06	0	0.0000	0	14	0.00	0.0005	0.00	250	0.00	0.50	0.0000	0.0000	0.50	0.00	0.00	0.00	0.00
07	0	0.0000	0.00	6	0.00	0.0005	0.00	0.00	0.00	0.50	0.0000	0.0000	0.50	0.00	0.00	0.00	0.00
DGV <sup>1</sup>	0.00	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.00	0.50			50	0.50	0.00	0.00	550 <sup>5</sup>

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Well	Heavy Metals <sup>2</sup>								TRH					Benzene	Toluene	Ethyl- benzene	Total Xylene <sup>5</sup>
	As	Cd	Cr <sup>4</sup>	Cu	Pb	Hg	Ni	Zn	C <sub>6</sub> - C <sub>9</sub>	C <sub>10</sub> - C <sub>14</sub>	C <sub>15</sub> -C <sub>28</sub>	C <sub>29</sub> - C <sub>36</sub>	>C <sub>10</sub> - C <sub>16</sub>				
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DGV <sup>1</sup>	□□□	□□□□	□□□□□	□□□□	□□□□□□	□□□□	□□□□□□	□□□□□	□□□	□5□□			5□□	□5□□	□□□□	□□□	55□ <sup>6</sup>

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Well	Heavy Metals <sup>2</sup>								TRH					Benzene	Toluene	Ethyl- benzene	Total Xylene <sup>5</sup>
	As	Cd	Cr <sup>4</sup>	Cu	Pb	Hg	Ni	Zn	C <sup>6-</sup> C <sup>9</sup>	C <sup>10-</sup> C <sup>14</sup>	C <sup>15-</sup> C <sup>28</sup>	C <sup>29-</sup> C <sup>36</sup>	>C <sup>10-</sup> C <sup>16</sup>				
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Well	Heavy Metals <sup>2</sup>								TRH					Benzene	Toluene	Ethyl- benzene	Total Xylene <sup>5</sup>
	As	Cd	Cr <sup>4</sup>	Cu	Pb	Hg	Ni	Zn	C <sub>6</sub> - C <sub>9</sub>	C <sub>10</sub> - C <sub>14</sub>	C <sub>15</sub> - C <sub>28</sub>	C <sub>29</sub> -C <sub>36</sub>	>C <sub>10</sub> - C <sub>16</sub>				
01	0.00	0.0000	0.00	7	0.00	0.0005	0	0.00	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
02D000 0.0000050000	0	0.0000	0.00	0.00	0.00	0.0005	0	0.00	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
03	0.00	0.0000	0.00	17	0.00	0.0005	50	0	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
04	0	0.0000	0.00	19	0.00	0.0005	0.00	0.00	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
05	0.00	0.000	0.00	26	0.00	0.0005	0.00	0.00	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
06	50	0.0000	0.00	20	0.00	0.0005	0	0.00	0.000	0.500	0.0000	0.0000	0.500	0.00	0.00	0.00	0.00
0700	0	0.0000	0.00	9	0.00	0.0005	0	0.00	0.000	0.500	0.000	0.0000	0.500	0.00	0.00	0.00	0.00
DGV <sup>1</sup>	0.00	0.000	0.0000	0.0000	0.0000	0.000	0.0000	0.0000	0.00	0.500			500	0.500	0.000	0.00	5500

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## **CERTIFICATE OF ANALYSIS 256893**

### **Client Details**

<b>Client</b>	Douglas Partners Pty Ltd
<b>Attention</b>	Kurt Plambeck
<b>Address</b>	96 Hermitage Rd, West Ryde, NSW, 2114

### **Sample Details**

<b>Your Reference</b>	<u><b>71021.15, Lidcombe</b></u>
<b>Number of Samples</b>	7 WATER
<b>Date samples received</b>	27/11/2020
<b>Date completed instructions received</b>	27/11/2020

### **Analysis Details**

Please refer to the following pages for results, methodology summary and quality control data.  
 Samples were analysed as received from the client. Results relate specifically to the samples as received.  
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

### **Report Details**

<b>Date results requested by</b>	04/12/2020
<b>Date of Issue</b>	04/12/2020
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. <b>Tests not covered by NATA are denoted with *</b>	

#### **Results Approved By**

Dragana Tomas, Senior Chemist  
 Loren Bardwell, Senior Chemist

#### **Authorised By**

Nancy Zhang, Laboratory Manager

## vTRH(C6-C10)/BTEXN in Water

Our Reference		256893-1	256893-2	256893-3	256893-4	256893-5
Your Reference	UNITS	BH1	BH2	BH7	BH8	BH9
Date Sampled		26/11/2020	26/11/2020	26/11/2020	26/11/2020	26/11/2020
Type of sample		WATER	WATER	WATER	WATER	WATER
Date extracted	-	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020
Date analysed	-	02/12/2020	02/12/2020	02/12/2020	02/12/2020	02/12/2020
TRH C <sub>6</sub> - C <sub>9</sub>	µg/L	<10	<10	<10	<10	<10
TRH C <sub>6</sub> - C <sub>10</sub>	µg/L	<10	<10	<10	<10	<10
TRH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	117	119	114	117	104
Surrogate toluene-d8	%	96	97	98	98	97
Surrogate 4-BFB	%	110	108	98	89	100

## vTRH(C6-C10)/BTEXN in Water

Our Reference		256893-6	256893-7
Your Reference	UNITS	BH10	BD1
Date Sampled		26/11/2020	26/11/2020
Type of sample		WATER	WATER
Date extracted	-	01/12/2020	01/12/2020
Date analysed	-	02/12/2020	02/12/2020
TRH C <sub>6</sub> - C <sub>9</sub>	µg/L	<10	<10
TRH C <sub>6</sub> - C <sub>10</sub>	µg/L	<10	<10
TRH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	µg/L	<10	<10
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	126	116
Surrogate toluene-d8	%	96	98
Surrogate 4-BFB	%	94	102

svTRH (C10-C40) in Water						
Our Reference	UNITS	256893-1	256893-2	256893-3	256893-4	256893-5
Your Reference		BH1	BH2	BH7	BH8	BH9
Date Sampled		26/11/2020	26/11/2020	26/11/2020	26/11/2020	26/11/2020
Type of sample		WATER	WATER	WATER	WATER	WATER
Date extracted	-	30/11/2020	30/11/2020	30/11/2020	30/11/2020	30/11/2020
Date analysed	-	30/11/2020	30/11/2020	30/11/2020	30/11/2020	30/11/2020
TRH C <sub>10</sub> - C <sub>14</sub>	µg/L	<50	<50	<50	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	µg/L	<100	<100	<100	<100	<100
TRH C <sub>29</sub> - C <sub>36</sub>	µg/L	<100	<100	<100	<100	<100
TRH >C <sub>10</sub> - C <sub>16</sub>	µg/L	<50	<50	<50	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH >C <sub>16</sub> - C <sub>34</sub>	µg/L	<100	<100	<100	<100	<100
TRH >C <sub>34</sub> - C <sub>40</sub>	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	102	99	107	94	95

svTRH (C10-C40) in Water			
Our Reference	UNITS	256893-6	256893-7
Your Reference		BH10	BD1
Date Sampled		26/11/2020	26/11/2020
Type of sample		WATER	WATER
Date extracted	-	30/11/2020	30/11/2020
Date analysed	-	30/11/2020	30/11/2020
TRH C <sub>10</sub> - C <sub>14</sub>	µg/L	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	µg/L	<100	<100
TRH C <sub>29</sub> - C <sub>36</sub>	µg/L	<100	<100
TRH >C <sub>10</sub> - C <sub>16</sub>	µg/L	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	µg/L	<50	<50
TRH >C <sub>16</sub> - C <sub>34</sub>	µg/L	<100	<100
TRH >C <sub>34</sub> - C <sub>40</sub>	µg/L	<100	<100
Surrogate o-Terphenyl	%	90	95

HM in water - dissolved						
Our Reference		256893-1	256893-2	256893-3	256893-4	256893-5
Your Reference	UNITS	BH1	BH2	BH7	BH8	BH9
Date Sampled		26/11/2020	26/11/2020	26/11/2020	26/11/2020	26/11/2020
Type of sample		WATER	WATER	WATER	WATER	WATER
Date prepared	-	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020
Date analysed	-	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020
Arsenic-Dissolved	µg/L	2	<1	1	<1	2
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	1.2	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	<1	5	21	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	3	4	8	5	3
Zinc-Dissolved	µg/L	11	17	11	31	12

HM in water - dissolved			
Our Reference		256893-6	256893-7
Your Reference	UNITS	BH10	BD1
Date Sampled		26/11/2020	26/11/2020
Type of sample		WATER	WATER
Date prepared	-	01/12/2020	01/12/2020
Date analysed	-	01/12/2020	01/12/2020
Arsenic-Dissolved	µg/L	2	2
Cadmium-Dissolved	µg/L	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1
Copper-Dissolved	µg/L	16	<1
Lead-Dissolved	µg/L	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05
Nickel-Dissolved	µg/L	10	3
Zinc-Dissolved	µg/L	74	15

Method ID	Methodology Summary
<b>Metals-021</b>	Determination of Mercury by Cold Vapour AAS.
<b>Metals-022</b>	Determination of various metals by ICP-MS.
<b>Org-020</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
<b>Org-023</b>	Water samples are analysed directly by purge and trap GC-MS.
<b>Org-023</b>	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			01/12/2020	1	01/12/2020	01/12/2020		01/12/2020	[NT]
Date analysed	-			02/12/2020	1	02/12/2020	02/12/2020		02/12/2020	[NT]
TRH C <sub>6</sub> - C <sub>9</sub>	µg/L	10	Org-023	<10	1	<10	<10	0	106	[NT]
TRH C <sub>6</sub> - C <sub>10</sub>	µg/L	10	Org-023	<10	1	<10	<10	0	106	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	101	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	113	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	102	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	107	1	117	101	15	99	[NT]
Surrogate toluene-d8	%		Org-023	98	1	96	100	4	99	[NT]
Surrogate 4-BFB	%		Org-023	97	1	110	105	5	97	[NT]



QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			30/11/2020	[NT]	[NT]	[NT]	[NT]	30/11/2020	[NT]
Date analysed	-			30/11/2020	[NT]	[NT]	[NT]	[NT]	30/11/2020	[NT]
TRH C <sub>10</sub> - C <sub>14</sub>	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH C <sub>15</sub> - C <sub>28</sub>	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH C <sub>29</sub> - C <sub>36</sub>	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH >C <sub>10</sub> - C <sub>16</sub>	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH >C <sub>16</sub> - C <sub>34</sub>	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C <sub>34</sub> - C <sub>40</sub>	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
Surrogate o-Terphenyl	%		Org-020	111	[NT]	[NT]	[NT]	[NT]	81	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	256893-2
Date prepared	-			01/12/2020	1	01/12/2020	01/12/2020		01/12/2020	01/12/2020
Date analysed	-			01/12/2020	1	01/12/2020	01/12/2020		01/12/2020	01/12/2020
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	102	102
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	100	100
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	96	89
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	99	82
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	101	84
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	101	80
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	3	3	0	102	87
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	11	11	0	96	95

**Result Definitions**

<b>NT</b>	Not tested
<b>NA</b>	Test not required
<b>INS</b>	Insufficient sample for this test
<b>PQL</b>	Practical Quantitation Limit
<b>&lt;</b>	Less than
<b>&gt;</b>	Greater than
<b>RPD</b>	Relative Percent Difference
<b>LCS</b>	Laboratory Control Sample
<b>NS</b>	Not specified
<b>NEPM</b>	National Environmental Protection Measure
<b>NR</b>	Not Reported

## Quality Control Definitions

<b>Blank</b>	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
<b>Duplicate</b>	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
<b>Matrix Spike</b>	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
<b>LCS (Laboratory Control Sample)</b>	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
<b>Surrogate Spike</b>	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

## Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Rev4/October2016

## SAMPLE RECEIPT ADVICE

### Client Details

<b>Client</b>	Douglas Partners Pty Ltd
<b>Attention</b>	Kurt Plambeck

### Sample Login Details

<b>Your reference</b>	71021.15, Lidcombe
<b>Envirolab Reference</b>	256893
<b>Date Sample Received</b>	27/11/2020
<b>Date Instructions Received</b>	27/11/2020
<b>Date Results Expected to be Reported</b>	04/12/2020

### Sample Condition

<b>Samples received in appropriate condition for analysis</b>	Yes
<b>No. of Samples Provided</b>	7 WATER
<b>Turnaround Time Requested</b>	Standard
<b>Temperature on Receipt (°C)</b>	19.6
<b>Cooling Method</b>	Ice
<b>Sampling Date Provided</b>	YES

### Comments

TS/TB not received

Please direct any queries to:

<b>Aileen Hie</b>	<b>Jacinta Hurst</b>
<b>Phone:</b> 02 9910 6200	<b>Phone:</b> 02 9910 6200
<b>Fax:</b> 02 9910 6201	<b>Fax:</b> 02 9910 6201
<b>Email:</b> ahie@envirolab.com.au	<b>Email:</b> jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	HM in water - dissolved
BH1	✓	✓	✓
BH2	✓	✓	✓
BH7	✓	✓	✓
BH8	✓	✓	✓
BH9	✓	✓	✓
BH10	✓	✓	✓
BD1	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

### Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.