



PO Box 60

Lancelin WA 6044

Ph: 08 9655 1555

admin@lancelinsouthwater.com.au

ABN 18 152 331 238

Report to the Department of Health

by

Lancelin South

for the period

1 Oct 2020 to 31 Dec 2020

Contents

1.0	WATER PROVIDER INFORMATION	3
2.0	PERFORMANCE SUMMARY.....	5
3.0	MICROBIAL PERFORMANCE.....	6
3.1	Microbiological - Exception Notifications	6
3.2	Microbiological - Performance	6
4.0	CHEMICAL - HEALTH RELATED PERFORMANCE	7
4.1	Chemical - Health Related - Exception Notifications	7
4.2	Chemical - Health Related - Performance	7
5.0	CHEMICAL - AESTHETIC PERFORMANCE	11
5.1	Chemical - Aesthetic - Exception Notifications	11
5.2	Chemical – Aesthetic Performance	11
6.0	RADIOLOGICAL PERFORMANCE.....	14
5.1	Radiological - Exception Notifications	14
5.2	Radiological – Performance	14
7.0	SAMPLING PROGRAMME	15
8.0	GENERAL NOTES / OTHER.....	16
	Table 1: Water Provider Contact Details	3
	Table 2: Lancelin South System Information.....	3
	Table 3: Water Quality Meeting the Drinking Water Guidelines / Minister of Health’s Directions	5
	Table 4: Microbiological compliance summary.....	6
	Table 5: Summary of chemical - health related - analyses at Consumer SP	7
	Table 6: Summary of chemical - health related - analyses at Treated Water SP.....	8
	Table 7: Summary of chemical - health related - analyses at Source SP	8
	Table 8: Summary of aesthetic related analyses from consumer sampling point	11
	Table 9: Summary of aesthetic related analyses from Treated Water Tank sampling point	12
	Table 10: Summary of aesthetic related analyses from source sampling point	12
	Table 11: Summary of achieved versus planned sampling	15

1.0 Water Provider Information

Table 1: Water Provider Contact Details

Name of Company	Lancelin South		
Company Address	PO Box 60, Lancelin, WA, 6044		
Company Phone	08 9655 1555	Fax	
Company Email	admin@lancelinsouthwater.com.au		
Chief Executive Officer			
CEO Email			
DoH Liaison Officer	Blair Shackleton, GHD		
DoH Liaison Officer Email	Blair.shackleton@ghd.com		

Table 2: Lancelin South System Information

Number of connections ⁽¹⁾	16
Number of customers ⁽²⁾	28
Average water supplied per connection (L/day)	206
Sources of water	100% groundwater
Treatment systems	Media filtration, GAC filtration, RO, chlorination
Length of mains	Approximately 1.6 km
Number of zones	1
Number of sample points	3 (Source SP, Treated Water Tank SP, Consumer SP)

Notes:

- (1) Number of connections refers to properties connected to services and having regular meter readings collected.
- (2) The number of customers is determined by the ERA as the number of customer accounts holders, which includes lots sold as well as lots under construction that may have not yet been connected to services.

Source Details

Raw water for the Lancelin South residential development is sourced from a single production bore, tapping the Leederville aquifer within the Lancelin South water reserve, approximately 250 m east of the Lancelin South development. The catchment within the water reserve is natural bushland.

Distribution System

The fenced Water Treatment Plant is located at the existing bore site (adjacent to Lancelin Road). Treated and chlorinated water is stored in a single tank adjacent to the water treatment plant. Potable water is supplied via a gravity system through approximately 1,600 m of DN 250 and DN 300 PVC (polyvinyl chloride) pipeline along Lancelin Road Reserve with a distribution network currently of approximately 1,900 m of HDPE (high density polyethylene) pipeline.

2.0 Performance Summary

Table 3: Water Quality Meeting the Drinking Water Guidelines / Minister of Health's Directions

	Number Assessed (¹)	Number of Non-Compliant Analyses (²)	% Compliance
Microbiological Quality			
Thermotolerant Coliforms / <i>E.coli</i>	9	0	100%
Amoeba (Thermophilic Naegleria)	3	0	100%
Chemical Quality(³)			
Chemical – Health related(⁴)	20	0	100%
Chemical – Aesthetic(⁵)	32	6	82%
Radiological	0	0	NA

Notes:

- (1) Number of samples taken for the quarter from the Treated Water Tank Sampling Point and the Consumer Sampling Point
- (2) Number of samples that do not comply with the drinking water guidelines (ADWG).
- (3) Chemical performance is based on the results of the quarter.
- (4) Chemicals with ADWG Health guideline;
- (5) Chemicals with ADWG aesthetic guideline value

3.0 Microbial Performance

3.1 Microbiological - Exception Notifications

Number of microbiological incidents resulting in exception notification 0

3.2 Microbiological - Performance

Table 4: Microbiological compliance summary

	Sampling Point	Number of Analyses	Number of Non-Compliant Analyses	% Compliance this Quarter	% Compliance 12 month average
<i>E. coli</i>	Treated Water Tank	3	0	100%	100%
	Consumer	6	0	100%	100%
Thermophilic <i>Naegleria</i>	Consumer	3	0	100%	100%
<i>Naegleria fowleri</i> ⁽¹⁾	Consumer	0	0	100%	100%

Notes:

(1) Analysis for *N. fowleri* only required if thermophilic *Naegleria* detected

4.0 Chemical - Health Related Performance

4.1 Chemical - Health Related - Exception Notifications

Number of chemical, health related, incidents resulting in exception notification 0

4.2 Chemical - Health Related - Performance

Consumer Sample Point

Number of field analyses for health related water quality parameters 5

Number of laboratory analyses for health related water quality parameters 10

Table 5: Summary of chemical - health related - analyses at Consumer SP

Parameter	No Samples	No Analyses	Unit	ADWG Limit (Health)	Maximum value	No of Analyses Non-Compliant (1)	% Compliance
Free Chlorine – Field	5	5	mg/L	5	2.5	0	100
Total Manganese	1	1	mg/L	0.5	<0.01	0	100
2-Chlorophenol	1	1	mg/L	0.3	<0.001	0	100
2,4-Dichlorophenol	1	1	mg/L	0.2	<0.001	0	100
2,4,6-Trichlorophenol	1	1	mg/L	0.02	<0.001	0	100
Pentachlorophenol	1	1	mg/L	0.01	<0.001	0	100
Total THM's	1	1	mg/L	0.25	0.023	0	100
Chloroacetic acid	1	1	mg/L	0.15	<0.002	0	100
Dichloroacetic acid	1	1	mg/L	0.1	<0.002	0	100
Trichloroacetic acid	1	1	mg/L	0.1	<0.002	0	100
Chloral Hydrate	1	1	mg/L	0.1	<0.002	0	100

Treated Water Sample Point

Number of field analyses for health related water quality parameters 5

Number of laboratory analyses for health related water quality parameters 0

Table 6: Summary of chemical - health related - analyses at Treated Water SP

	No Samples	No Analyses	Unit	ADWG Limit (Health)	Maximum value	No of Analyses Non-Compliant ⁽¹⁾	% Compliance
Free Chlorine – Field	5	5	mg/L	5	2.5	0	100%

Source Sampling Point

Number of laboratory analyses for health related water quality parameters 71

Table 7: Summary of chemical - health related - analyses at Source SP

	No Samples	No Analyses	Unit	ADWG Limit (Health)	Maximum value	No of Analyses Non-Compliant ⁽¹⁾	% Compliance
Total Manganese	1	1	mg/L	0.5	0.06	0	100
Total Nickel	1	1	mg/L	0.02	<0.000001	0	100
Nitrate	1	1	mg/L	50	<0.03	0	100
Total Nickel	1	1	µg/L	20	<0.001	0	100
Manganese - Total	1	1	mg/L	0.5	0.06	0	100
Arsenic - Total	1	1	mg/L	0.007	<0.001	0	100
Barium (dissolved)	1	1	mg/L	0.7	0.13	0	100
Boron (dissolved)	1	1	mg/L	4	0.06	0	100
Mercury - Total	1	1	mg/L	0.001	<0.0001	0	100
Molybdenum - Total	1	1	mg/L	0.05	<0.001	0	100
Selenium - Total	1	1	mg/L	0.01	<0.001	0	100
Beryllium (dissolved)	1	1	mg/L	0.06	<0.01	0	100
Silver - Total	1	1	mg/L	0.1	<0.001	0	100
Uranium - Total	1	1	mg/L	0.02	<0.001	0	100
Aldrin	1	1	µg/L	0.3	<0.001	0	100
Bromophos Ethyl	1	1	µg/L	10	<0.005	0	100
Chlordane	1	1	µg/L	2	<0.002	0	100
Chlorothalonil	1	1	µg/L	50	<0.005	0	100
Chlorpyrifos	1	1	µg/L	10	<0.01	0	100

Report to Department of Health

Lancelin South for Period 1 Oct 2020 to 31 Dec 2020

Diazinon	1	1	µg/L	4	<0.001	0	100
Dieldrin	1	1	µg/L	0.3	<0.001	0	100
Endosulfan I	1	1	µg/L	20	<0.001	0	100
Endosulfan II	1	1	µg/L	20	<0.001	0	100
Endosulfan Sulfate	1	1	µg/L	20	<0.001	0	100
Ethion	1	1	µg/L	4	<0.005	0	100
Fenitrothion	1	1	µg/L	7	<0.01	0	100
Fipronil	1	1	µg/L	0.7	<0.02	0	100
Heptachlor	1	1	µg/L	0.3	<0.001	0	100
Lindane	1	1	µg/L	10	<0.001	0	100
Malathion	1	1	µg/L	70	<0.01	0	100
Methoxychlor	1	1	µg/L	300	<0.02	0	100
o,p-DDT	1	1	µg/L	9	<0.001	0	100
p,p-DDT	1	1	µg/L	9	<0.001	0	100
Parathion Ethyl	1	1	µg/L	20	<0.02	0	100
Parathion Methyl	1	1	µg/L	0.7	<0.02	0	100
Trifluralin	1	1	µg/L	90	<0.01	0	100
Diuron	1	1	µg/L	20	<0.5	0	100
Molinate	1	1	µg/L	4	<0.1	0	100
Fluometuron	1	1	µg/L	70	<0.1	0	100
Trifluralin	1	1	µg/L	90	<0.1	0	100
Dimethoate	1	1	µg/L	7	<0.1	0	100
Simazine	1	1	µg/L	20	<0.1	0	100
Atrazine	1	1	µg/L	20	<0.1	0	100
Propazine	1	1	µg/L	50	<0.1	0	100
Terbutryn	1	1	µg/L	400	<0.1	0	100
Fenitrothion	1	1	µg/L	7	<0.1	0	100
Chlorpyrifos	1	1	µg/L	10	<0.1	0	100
Endosulfan I	1	1	µg/L	20	<0.1	0	100
Fenamiphos ¹	1	1	µg/L	0.5	<1	1	0
Endosulfan II	1	1	µg/L	20	<0.1	0	100

Report to Department of Health

Lancelin South for Period 1 Oct 2020 to 31 Dec 2020

Endosulfan Sulfate	1	1	µg/L	20	<0.1	0	100
Diclofop Methyl	1	1	µg/L	5	<0.1	0	100
Amitraz	1	1	µg/L	9	<0.1	0	100
Metolachlor	1	1	µg/L	300	<0.2	0	100
Hexazinone	1	1	µg/L	400	<0.4	0	100
Azinphos Methyl	1	1	µg/L	30	<1	0	100
Propiconazole	1	1	µg/L	100	<0.4	0	100
Chlorfenvinphos	1	1	µg/L	2	<0.1	0	100
Dicamba	1	1	µg/L	100	<0.1	0	100
MCPA	1	1	µg/L	40	<0.1	0	100
2,4-D	1	1	µg/L	30	<0.1	0	100
2,4,5-T	1	1	µg/L	100	<0.2	0	100
Picloram	1	1	µg/L	300	<0.4	0	100
Clopyralid	1	1	µg/L	2000	<0.5	0	100
Metsulfuron Methyl	1	1	µg/L	40	<0.1	0	100
Triclopyr	1	1	µg/L	20	<0.4	0	100
Paraquat	1	1	µg/L	20	<1	0	100
Diquat	1	1	µg/L	7	<1	0	100
Amitrole ¹	1	1	µg/L	0.9	<1	1	0
Fosamine	1	1	µg/L	30	<0.1	0	100
2-Chlorophenol	1	1	µg/L	300	<1	0	100
2,4-Dimethylphenol	1	1	µg/L	200	<1	0	100
2,4,6-Trichlorophenol	1	1	µg/L	20	<1	0	100
Pentachlorophenol	1	1	µg/L	10	<1	0	100

Notes:

- (1) The laboratory Limit of Detection for Fenamiphos and Amitrole is above the ADWG aesthetic criterion and hence are reported as non-compliant with ADWG.

5.0 Chemical - Aesthetic Performance

5.1 Chemical - Aesthetic - Exception Notifications

Number of chemical, aesthetic incidents resulting in exception notification	0
---	---

5.2 Chemical – Aesthetic Performance

Consumer Sampling Point

Number of field analyses for aesthetic water quality parameters	11
Number of laboratory analyses for aesthetic water quality parameters	15

Table 8: Summary of aesthetic related analyses from consumer sampling point

Parameter	No Samples	No Analyses	Unit	ADWG Limit (Aesthetic)	Maximum value	No of Analyses Non-Compliant	% Compliance
pH – field	6	6	pH Units	6.5-8.5	7.0 - 8.1	0	100
pH - laboratory	1	1	pH Units	6.5-8.5	7.4	0	100
Total Dissolved Solids	1	1	mg/L	600	520	0	100
Turbidity	1	1	NTU	5	0.2	0	100
Colour (True)	1	1	PCU	15	<5	0	100
Free Chlorine – Field	5	5	mg/L	0.6	2.5	5 ⁽¹⁾	0
Chloride, Cl	1	1	mg/L	250	290	1	0
Sulfate, SO ₄	1	1	mg/L	250	42	0	100
Ammonia Nitrogen	1	1	mg/L	0.5	<0.02	0	100
Sodium, Na	1	1	mg/L	180	120	0	100
Total Hardness	1	1	mg CaCO ₃ /L	200	160	0	100
Total Aluminium	1	1	mg/L	0.2	<0.01	0	100
Total Iron, Fe	1	1	mg/L	0.3	0.02	0	100
Total Manganese	1	1	mg/L	0.1	<0.01	0	100
2-Chlorophenol	1	1	mg/L	0.0001	<0.001	0	100
2,4-Dichlorophenol	1	1	mg/L	0.0003	<0.001	0	100
2,4,6-Trichlorophenol	1	1	mg/L	0.002	<0.001	0	100
Temperature ⁽²⁾	6	6	Deg C	N/A	25.2	N/A	N/A

Report to Department of Health

Lancelin South for Period 1 Oct 2020 to 31 Dec 2020

Notes:

- (1) All five field analyses for residual chlorine were above 0.6 mg/L, four being between 0.7 and 0.9 mg/L with 1 sample at 2.5 mg/L
- (2) Important water quality criteria but no guideline value in ADWG; operational target to be less than 25 degrees C.

Treated Water Tank Sampling Point

Number of field analyses for aesthetic water quality parameters	6
Number of laboratory analyses for aesthetic water quality parameters	0

Table 9: Summary of aesthetic related analyses from Treated Water Tank sampling point

	No Samples	No Analyses	Unit	ADWG Limit (Aesthetic)	Maximum value	No of Analyses Non-Compliant	% Compliance
pH	6	6	pH	6.5-8.5	7.1 – 7.97	0	100%
<i>Free Chlorine- Field⁽¹⁾</i>	6	6	<i>mg/L</i>	<i>0.6</i>	<i>2.5</i>	<i>N/A</i>	<i>N/A</i>
<i>Temperature⁽²⁾</i>	6	6	<i>Deg C</i>	<i>N/A</i>	<i>26.1</i>	<i>N/A</i>	<i>N/A</i>

Notes:

- (1) ADWG aesthetic value not applicable to this sample point – operational target of 0.8 – 1.0 mg/L to achieve 0.2 – 0.6 mg/L at consumer point.
- (2) Important water quality criteria but no guideline value in ADWG; operational target to be less than 25 degrees C.

Source Sampling Point

Number of field analyses for aesthetic water quality parameters	6
Number of laboratory analyses for aesthetic water quality parameters	0

Table 10: Summary of aesthetic related analyses from source sampling point

	No Samples	No Analyses	Unit	ADWG Limit (Aesthetic)	Maximum value	No of Analyses Non-Compliant	% Compliance
pH – field	6	6	pH	<6.5 - >8.5	6.8 - 7.3	0	100%
pH - laboratory	1	1	pH	<6.5 - >8.5	6.8	0	100%
Total Dissolved Solids	1	1	mg/L	600	760	1	0
Turbidity	1	1	NTU	5	2.6	0	100

Report to Department of Health

Lancelin South for Period 1 Oct 2020 to 31 Dec 2020

Colour (True)	1	1	PCU	15	<5	0	100
Chloride, Cl	1	1	mg/L	250	350	1	0
Sulfate, SO4	1	1	mg/L	250	28	0	100
Ammonia Nitrogen	1	1	mg/L	0.5	0.38	0	100
Sodium, Na	1	1	mg/L	180	110	0	100
Total Hardness	1	1	mg CaCO ₃ /L	200	270	1	0
Total Aluminium	1	1	mg/L	0.2	<0.01	0	100
Total Iron, Fe	1	1	mg/L	0.3	0.8	0	100
Total Manganese	1	1	mg/L	0.1	0.06	0	100
2-Chlorophenol	1	1	mg/L	0.0001	<0.001	0	100
2,4-Dichlorophenol	1	1	mg/L	0.0003	<0.001	0	100
2,4,6-Trichlorophenol	1	1	mg/L	0.002	<0.001	0	100
<i>Temperature⁽¹⁾</i>	6	6	<i>Deg C</i>	<i>N/A</i>	31	<i>N/A</i>	<i>N/A</i>

Notes:

- (1) Important water quality criteria but no guideline value in ADWG; operational target to be less than 25 degrees C.

6.0 Radiological Performance

5.1 Radiological - Exception Notifications

Number of radiological water quality analyses resulting in exception notification	0
---	---

5.2 Radiological – Performance

Number of samples collected for laboratory analysis of radiological parameters	0
--	---

Next sampling from source sampling point for radiological analysis due in quarter 2, 2021.

7.0 Sampling Programme

The achieved sampling compared against planned sampling is summarised in Table 11.

Table 11: Summary of achieved versus planned sampling

		Planned	Taken	% Taken
Microbiological	Treated Water SP	3	3	100%
	Consumer SP	10	9	90%
Chemical	Source SP	80	94	100%
	Treated Water SP	28	24	85%
	Consumer SP	47	41	87%
Radiological	Source SP	0	0	N/A
	Treated Water SP	0	0	N/A
	Consumer SP	0	0	N/A

Planned sampling scheduled for the week beginning 28 Dec 2020 was deferred by a week and hence, some sampling at the Treated Water and Consumer Sampling Points was not undertaken in this quarter. The planned sampling did occur on 4 Jan 2021 and will therefore be reported in the next Quarterly Report.

8.0 General Notes / Other

Regular fortnightly checks of pH, chlorine and water temperature using hand held instrumentation at the WTP (Source and Treated Water sampling points) and the Lancelin South sales office (Consumer sample point) are carried out by Coterra Environment on behalf of Lancelin South Water.

High chlorine levels were detected as part of the routine site visits and an investigation of the control and dosing system found that a control failure had occurred leading to flushing of the potable water pipeline on 8th October.