Model Reporting Format
For the
Department of Health

Report to the Department of Health

by Harvey Water
for the period

01 April 2022 to *30 June 2022*

Contents

1.0 Water Provider Information

Water Provider Contact Details			
Name of Company	South West Irrigation Management Co-Operative, Trading as Harvey Water		
Company Address	1 Turnbull street, Harvey, WA 6220		
Company Phone	(08) 9729 0100	Fax	
Company Email	admin@harveywater.com.au		
Chief Executive Officer	Bruce Hathway		
DoH Liaison Officer	Brian Labza		

1.1 System Information (Annual Report Only)

Locality						
Zone Name	Number of Consumers	Average amount of Water Supplied (l/day)	Sources of Water (% Bore/ Surface catchment)	Treatment Systems	Length of Mains	Number of Sample points
1						

Notes:

(1) Table may be expanded or collapsed according to the number of zones or subdivided to show regions, schemes or service providers

Catchment Details

Harvey Water has installed a bore into the Leederville aquifer to supply water for treatment to the Albemarle Lithium processing plant in Kemerton. The bore is located on lot 253, 2km away from the water treatment plant (WTP) which is located within the Albemarle lithium processing plant as indicated in Figure 1. Water from the bore is treated through a WTP designed to bring the groundwater to an acceptable potable quality in accordance with the Department of Water and Environmental Regulations (DWER), the Department of Health (DoH) and the Australian Drinking Water Guidelines (ADWG).

The bore area is situated on the Swan Coastal Plain, which is formed of shoreline and coastal dune deposits extending from the Darling Scarp to the Indian Ocean. Lakes and swamps occur in the low-lying interdunal depressions. The coastal plain is drained by the Wellesley River ad a number of drains that discharge into it. Benger Swamp and Mialla Lagoon are prominent wetlands that occupy large shallow depressions in the coastal plain close to the Darling Scarp. The Wellesley River, the only major watercourse in

the vicinity of the site, runs in a south-westerly direction, 2km to the east of the bore area. This is one of the major river systems in the area that flows into the Brunswick River, which ultimately merges with the Collie River prior to discharging into the Leschenault Inlet.

Raw water is drawn from the bore using a downhole pump activated through a level sensor. This pump provides water to the WTP where it is treated through a system of filters and chemical dosing. Water is initially passed through a 100% glass multimedia filter to remove large particulates from the source water. After the multimedia filtration, water is chlorinated using sodium hypochlorite. Chlorinated water is then passed through a DMI media filter which utilises a catalytic filtration media for the removal of iron and manganese.

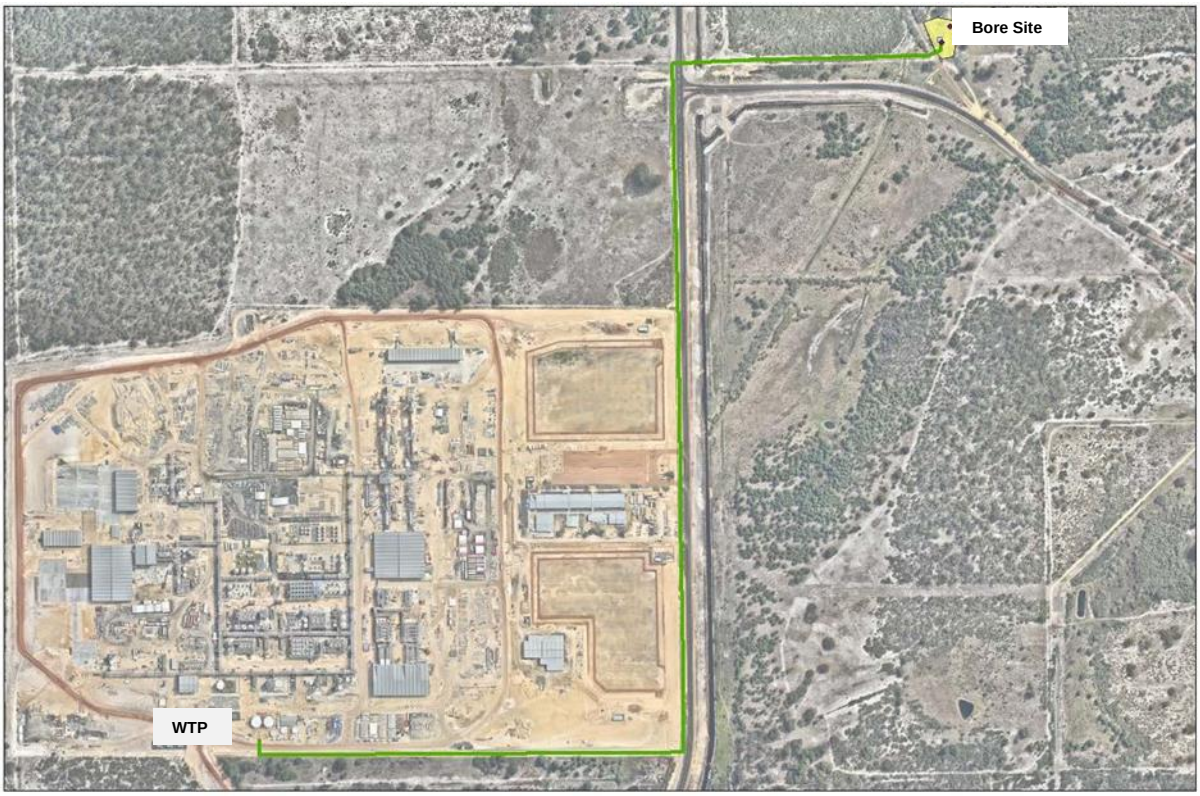


Figure 1 – Location of Bore and WTP

Distribution System

Treated water is stored in a 200kL potable water storage tank. Water within the potable water storage tank is recirculated using fixed speed recirculation pumps for the purpose of maintaining chlorination levels and pH correction. The chlorination and pH adjustments are done in order to maintain a final free chlorine concentration between 0.5 – 2.0 mg/L and a pH between 6.5 – 8.5.

Potable water is fed through the Albemarle potable water plumbing network through the use of three (3) dedicated potable water pumps, as well as to the Albemarle safety shower network through the use of three (3) dedicated safety water pumps.

The WTP has the capacity to produce up to 135kL over a 24 hour period, operating on demand. There is a single zone distribution system.

2.0 Performance Summary

Water Quality Meeting the Drinking Water Guidelines/Minister of Health's Directions			
	Zone 1 (1)		
Microbiological Quality	No Assessed (2)	No Within Guidelines	Variance (3)
Thermotolerant Coliforms / *E.coli*	14	14	0
Amoeba (Thermophilic Naegleria)	9	9	0
Chemical Quality(4)			
Chemical – Health related(5)	11	11	0
Chemical – Aesthetic(6)	11	2	9
Radiological	0	0	0

Notes:

(1) Table may be expanded or collapsed according to the number of zones

(2) Number of samples taken for the quarter/year

(3) Number of samples that do not comply with the drinking water guidelines.

(4) Chemical performance is based on the results of the quarter.

(5) Chemicals tested with a health guideline value – Refer to Small Community Sampling Grid

(6) Chemicals without health guideline values

3.0 Microbial Performance - (Rolling 12 Months ending)

E. coli is the most common indicator of recent contamination because generally it is not capable of growth naturally in the environment, the Australian Drinking Water Guidelines 2011 states that E.coli should not be present in any 100mL sample of potable water. While tests for other thermotolerant coliforms can be simpler, E. coli is considered a superior indicator for detecting contamination via:

- source water impacts from human and animal waste;
- inadequate treatment;
- post-treatment ingress of human and animal waste into distribution systems;
- Lack of effectiveness of risk management plans in assuring delivery of safe drinking water at consumers' taps.

3.1 Microbiological - Exception Notifications

NIL microbiological exceptions reported during this reporting period

Microbiological Water Quality Exceptions							
Region/Scheme/Zone/ Service Provider	Population served	Date	Microbiological Characteristic	Alert Level	Remedial Action	DoH Notified	Close Out Date

Note:

Include all exceptions for the previous 12 months to the end of the reporting quarter.

3.2 Microbiological - Compliance by Zone (Summary).

Zone	No. of Bacteria samples	Thermotolerant Coliforms		Thermotolerant Coliforms 12 Mths Roll. Avg. (%)			No. of Amoeba Samples	Naegleria to >= 42C	Naegleria Fowleri	Thermophillic Naegleria 12 Mths Rolling Avg (%)		
		Non Comply	% Comply	April 2022	May 2022	June 2022				April 2022	May 2022	June 2022
1	14	0	100	100	100	100	9	0	0	100	100	100

Note:

Rolling 12 months average is calculated in the following manner:

$$\frac{\text{Number of assessable samples complying for the past 12 months}}{\text{Number of assessable samples taken in the past 12 months}} \times 100$$

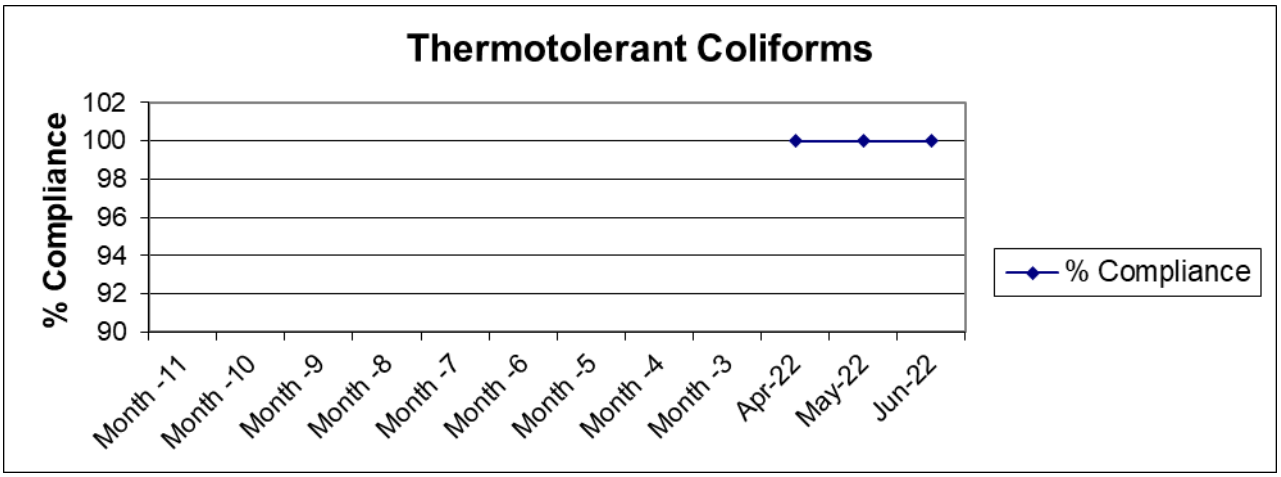
<u>Example: 12 Months Rolling Average for the month of February 2011</u>

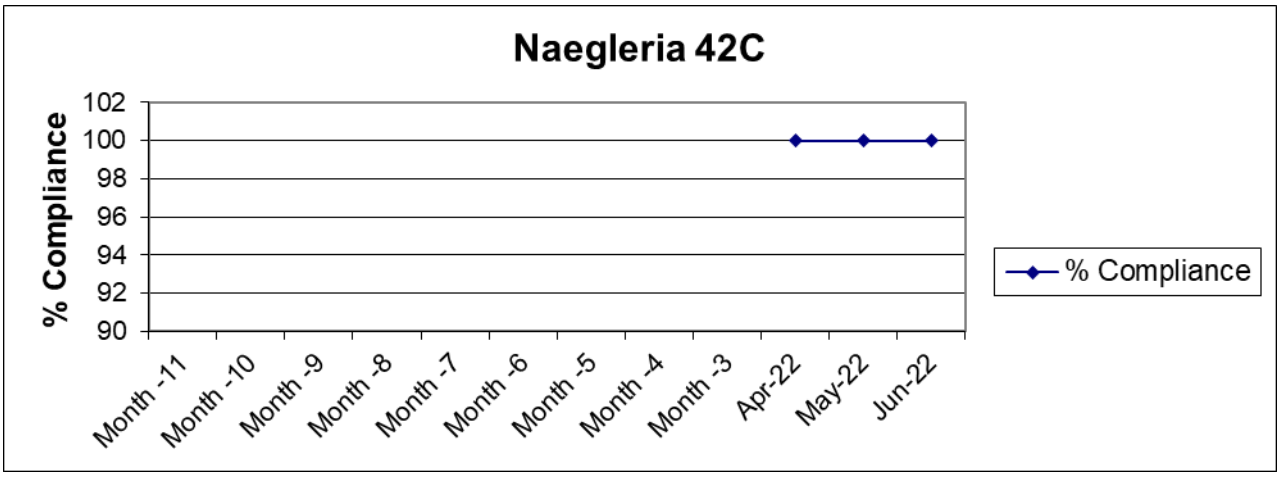
Number of assessable samples taken from 1 March 2010 to 28 February 2011 = **24**

Number of assessable samples complying from 1 March 2010 to 28 February 2011 = **20**

12 Months Rolling Average = **20 ÷ 24 x 100 = <u>83%</u>**

3.3 Microbiological - Charts by Zone





Notes for all charts

(1) All results displayed are to be on a rolling twelve (12) month basis to the end of each respective month.

(2) Compliance target must be shown

3.5 Microbiological Incident Specific Information

3.5.1 Zone 1

NIL Microbiological incidents recorded during reporting period.

4.0 Chemical - Health Related Performance

A number of chemicals are of concern in drinking water due to the negative effects they can have on human health. Monitoring the quality of water can provide an early warning for contamination and impact to water quality aesthetics.

4.1 Chemical - Health Related - Exception Notifications

NIL chemical – health related exceptions reported during this reporting period

Health Related Chemical Water Quality Exceptions							
Region/Scheme/Zone/ Service Provider	Population served	Date	Health Related Chemical Characteristic	MoU Alert Level	Remedial Action	DoH Notified	Close Out Date

4.2 Chemical - Health Related

Text interpretation by Zone of results presented.

Nil chemical – health related exceptions reported during this reporting period

5.0 Chemical - Aesthetic Performance

Aesthetic considerations of water concern taste, odour, corrosion and stains on containers and the effect that chemicals in the water have on these.

5.1 Chemical - Aesthetic – Chart

Zone			
Aesthetic Characteristic	No of Analyses	No of Analyses Complying	% Compliance
Aluminium 0.2 mg/L	9	9	100
Ammonia 0.5 mg/L	-	-	-
Chloride 250/L	10	10	100
Colour 15 HU	-	-	-
Hardness 200 mg/L	10	1	10
Iron 0.3 mg/L	10	10	100
Manganese 0.1 mg/L	9	9	100
pH <6.5	11	11	100
pH >8.5	11	11	100
Sodium 180 mg/L	10	10	100
Sulphate 250 mg/L	10	10	100
TDS 500 mg/L	11	1	9
Turbidity 5 NTU	11	10	91
Total samples taken	**112**	**92**	**82**

Notes:

(1) Repeat table according to the number of zones.

(2) Record analyses for the reporting quarter.

5.2 Chemical - Aesthetic - Incident Specific Information

5.2.1 Zone 1

Chemical – Aesthetic exceedances (based on Australian Drinking Water Guidelines) have been reported for the following analytes during the reporting period:

Analyte	Aesthetic Guideline	Maximum Level Recorded
Total Dissolved Solids	600 mg/L	680 mg/L
Hardness	200 mg/L	240 mg/L

As detailed in the Australian Drinking Water Guidelines (ADWG), there is no specific health guideline value for total dissolved solids (TDS) as there are no adverse health effects that are directly attributable to TDS. The aesthetic guideline of 600 mg/L for TDS listed in the ADWG relates to palatability of drinking water. Water within the range of 0 – 600 mg/L of TDS is considered to be of good palatability quality, while water within the range of 600 – 900 mg/L is considered to be of fair quality. The TDS for this water source falls within the fair range. Harvey Water will continue to monitor the TDS of the potable supply in order to ensure quality does not deteriorate.

Hardness is another parameter that exceeded the aesthetic guideline in accordance with the ADWG. The main issue of concern with hardness is the formation of scaling in pipework. The optimum hardness of potable water is in the range of 60 – 200 mg/L as CaCO3. The maximum hardness level in this water source recorded during this reporting period was 240 mg/L. According to the ADWG, water with hardness in the range of 200 – 500 mg/L as CaCO3 will have increasing scaling problems. Harvey Water will continue to monitor the level of hardness in the potable supply to ensure scaling does not pose an issue to the ongoing supply of water to Albemarle.

6.0 Radiological Performance

Humans are exposed to radiation form a number of sources that can cause acute and chronic illnesses. Radiological contamination can enter water from a number of sources including naturally occurring radioactive species or manufactured radionuclides from medical and industrial use.

6.1 Radiological - Exception Notifications

NIL Radiological water quality analysis undertaken – Annual monitoring only

Radiological Water Quality Exceptions							
Zone	Population served	Date	Radiological Characteristic	Alert Level	Remedial Action	DoH Notified	Close Out Date

6.2 Radiological Performance

Scheme/Service Provider	
Zone	% samples within range
1	N/A

7.0 Planned Sample Summary

Zone	Microbiological			Chemical			Radiological			Fluoride (if fluoridating)		
	Planned	Taken	% Taken	Planned	Taken	% Taken	Planned	Taken	% Taken	Planned	Taken	% Taken
1	12	14	117	12	11	92	0	0	100	N/A	N/A	N/A

7.1 Planned Sample Exceptions

Planned Sample Exceptions				
Zone	Sampling Point	Date Due	Characteristic (Microbiological/Chemical/Radiological)	Reason for missed sample
1	Harvey Water potable storage tank		Chemical	Miscommunication. Sampling/Analysis plan updated to ensure compliance.

8.0 General Notes/Other News

This section can include reference to specific programs for maintenance, new additions to the scheme supply or report format or discussion on ongoing problems.