

SOUTH WEST IRRIGATION MANAGEMENT COOPERATIVE

Report to the Department of Health for the Period 01 October 2022 to 31 December 2022

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		Details	Name	Name	
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1 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) 9721 0100				
Company Email	admin@harveywater.com.au				
Chief Executive Officer	Bruce Hathway				
CEO Email	admin@harveywater.com.au				
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1.1 System Information (Annual Report Only)

1.1.1 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 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 swamp occur in the low-lying interdunal depressions. The coastal plain is drained by the Wellesley River and a number of drains which discharge into it. Benger Swamp and Mialla Lagoon are prominent wetlands which occupuy 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 ina 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 catalytic filtration media for the removal of iron and manganese.





1.1.2 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 of between 0.5 - 2.0 mg/L and a pH between 6.5 - 8.5.

Potable water is fed through the Albemarle pitpable 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.

1.1.3 Sampling Schedule & Procedure

Potable water sampling is carried out in accordance with the Australian Drinking Water Guidelines (ADWG) and Harvey Water sampling procedure.

Further monitoring or adjustments to the sampling schedule can be made in response to the following:

- Post any incident
- Issues identified during a risk assessment
- Availability of any new information or new industry best practices
- Recommentations from regulatory authorities.

In addition to the sampling program undertaken in accordance with the Drinking Water Quality Management Plan, Harvey Water are also additionally testing at various locations around the

Albemarle site as listed below, with those results reported separately by Albemarle as part of their compliance monitoring with the Department of Health. All samples taken as part of this monitoring program are taken in accordance with the ADWG and Harvey Water sampling procedure.

Sampling locations around Albemarle site are as follows:

- Albemarle tanks (located at NPI building)
- NPI Office
- Warehouse/Workshop
- Final Product Office
- Southern Gatehouse
- Northern Gatehouse
- Southern Ablutions
- Central Ablutions
- Wellness Centre
- Safety Shower Network

2 Performance Summary

Water Quality Meeting the Drinking Water Guidelines October – December 2022							
Parameters	No. of Analyses	No. of Analyses Complying with ADWG	No. of exceedences of ADWG				
Microbial Quality							
Thermotolerant Coliforms	10	10	0				
E. Coli	10	10	0				
Thermophilic Amoebae	10	10	0				
Thermophilic Naegleria	10	10	0				
Chemical and Physical Quality							
Health Related	81	81	0				
Aesthetic	53	39	14				
Radiological Quality							
Gross Alpha NA NA NA							
Gross Beta	NA	NA	NA				

3 Microbial Performance

During the September to December 2022 reporting period, there were no reported exceedences of microbial paramaters when compared against the ADWG in the potable water system.

3.1 Microbial – Compliance Summary

Harvey Water Distribution System October – December 2022								
Microbial Characteristic	MOU Compliance Criteria	No. of Analyses	No. of Complying Analyses	% Compliance				
Bacterial								
E. Coli Non-detect 10 10 100								
Thermotolerant Coliforms	Non-detect	10	10	100				
Amoeba								
Thermophilic Amoebae	Non-detect	10	10	100				
Thermophilic Naegleria	Non-detect	10	10	100				

3.2 Microbial – Exception Notifications

During the reporting period of October – December 2022, there were no reported exceedences of microbial characteristics.

4 Chemical – Health Related Performance

During the October to December 2022 reporting period there were zero reported exceedences of the chemical health parameters in accordance with the ADWG.

Harvey Water Distribution System October – December 2022								
Health Parameter	ADWG Compliance Criteria (mg/L)	No. of Analyses	No. of Analyses Complying with ADWG	% Compliance	Max Value of Analysis (mg/L)			
Antimony	0.003	1	1	100	<0.001			
Cadmium	0.002	3	3	100	<0.0001			
Chlorine (Inhouse testing free residual)	5	60	60	100	1.89			
Copper	2	3	3	100	0.001			
Iron	0.3	3	3	100	0.16			
Lead	0.01	3	3	100	<0.001			
Manganese	0.5	3	3	3 100				
Molybdenum	0.05	1	1	100	<0.001			
Nickel	0.02	1	1	100	<0.001			
Nitrate	50	3	3	100	3.2			

4.1 Chemical: Health Related – Compliance Summary

4.2 Chemical: Health Related – Exception Notifications

There were no chemical health related exception notifications during the reporting period.

5 Chemical – Aesthetic Performance

During the October to December 2022 reporting period, there were two analytes that exceeded the chemical aesthetic parameters in the potable water distribution system. The details of these are outlined in section 5.2.

Harvey Water Distribution System October – December 2022								
Health Parameter	Health Parameter Compliance Criteria (mg/L unless stated)		No. of Analyses Complying with ADWG	% Compliance	Max Value of Analysis (mg/L unless stated)			
рН	6.5 – 8.5	10	10	100	(7.6) 7.9			
TDS	600	11	0	0	670			
Turbidity	5 NTU	11	11	100	3.5 NTU			
Aluminium	0.2	1	1	100	<0.01			
Sodium	180	3	3	100	130			
Hardness	200	3	0	0	230			
Chloride	250	8	8	100	250			
Sulphate	250	2	2	100	56			
Zinc	3	1	1	100	0.0023			
Iron	0.3	3	3	100	0.16			

5.1 Chemical – Aesthetic

5.2 Chemical – Aesthetic – Incident Specific Information

Two analytes exceeded the aesthetic guidelines in a total of 11 samples analysed. These exceedences are discussed below:

- Total Dissolved Solids (TDS) during this period, the TDS level in the potable water system ranged from 610 670 mg/L. It is noted water with TDS in the range of 600 900 mg/L is considered to have fair palatability, rather than good palatability for water with TDS < 600mg/L. As the water in this system falls within the fair range, the water quality will continue to be monitored to ensure the quality does not deteriorate further.
- Hardness 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 230 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 Planned Sample Summary

Planned Samples October – December 2022								
Microbial			Chemical			Radiological		
Planned	Taken	% Taken	Planned Taken % Taken		Planned	Taken	% Taken	
12	10	83.3	12	11	91.7	0	0	NA

6.1 Planned Sample Compliance Summary

6.2 Planned Sample Exception Notifications

During the October – December 2022 reporting period, two microbial samples were missed. The first of these was taken on the 22nd December 2022, however due to courier delays, the samples were not delivered to the laboratory within the required timeframe for microbial analysis (ie within 24 hours of samples being taken). This sample was able to be analysed for chemical and physical parameters. The second sample missed was due to be taken during the break between Christmas and New Year. Due to availability of staff, courers and laboratory, no sample was taken during that period.