SOUTH WEST IRRIGATION MANAGEMENT COOPERATIVE

Report to the Department of Health for the Period 01 January 2024 to 31 March 2024

Rev	Date	Details	Prepared By	Approved By
			Name	Name
1	22/04/2024	Draft	C.Norris	S.Cook
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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
DoH Liaison Officers	Cameron Norris and Aled Lewis
DoH Liaison Officer Email	cnorris@harveywater.com.au and alewis@harveywater.com.au

1.1 System Information

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 theKemerton Industrial Area. Water from the bore is treated through a Water Treatment Plant (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 pumped 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 particualtes 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.

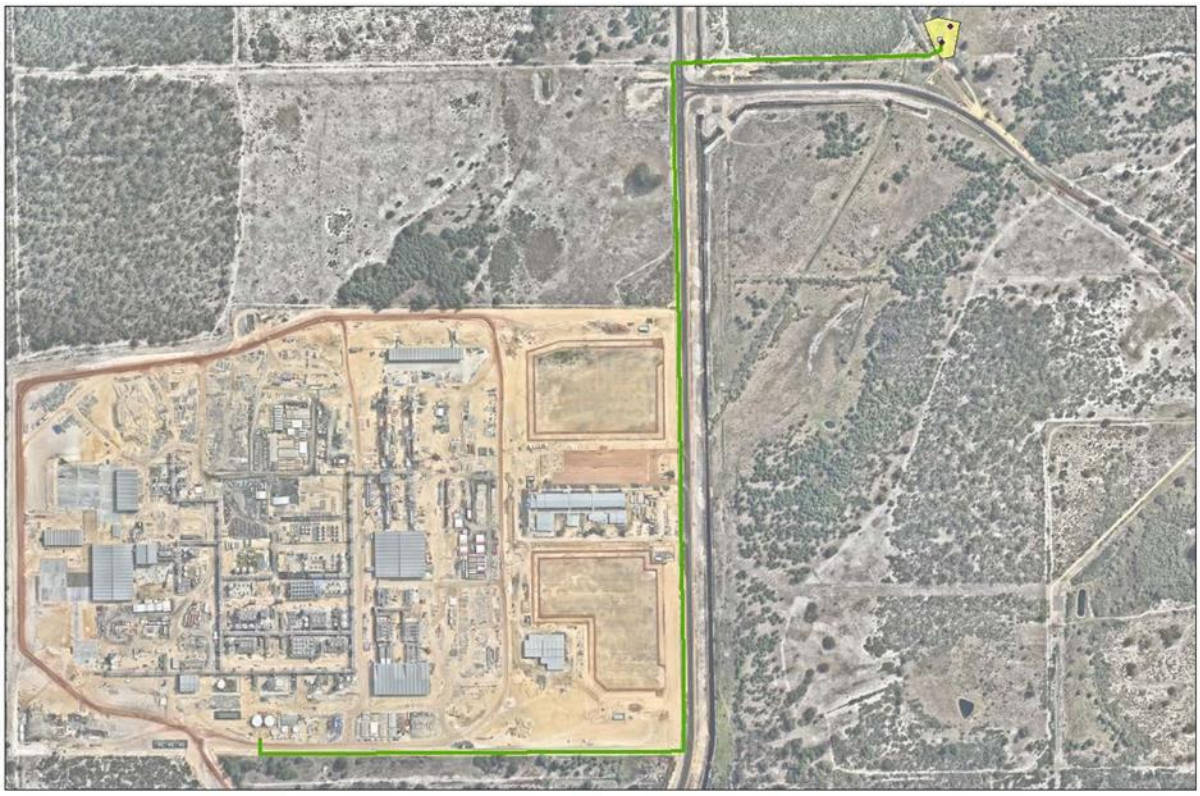

Figure 1 – Location of Bore and WTP

1.1.2 Distribution System

Chlorination and pH adjustments are undertaken 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 as per ADWG. Treated potable water is stored in a 200kL storage tank on site prior to pumped distribution around the Albemarle site.

1.1.3 Sampling Schedule & Procedure

Drinking water sampling is carried out in accordance with the Australian Drinking Water Guidelines (ADWG) and the Harvey Water sampling procedure. Free chlorine residual, pH and turbidity are analysed continuously within the potable water treatment plant. Weekly samples of drinkingwater are analysed in a NATA registered laboratory for pH, electrical conductivity, total dissolved solids, total suspended solids, alkalinity, chloride, coliforms, *E. coli*, and amoeba. Further to this, monthly samples are analysed for metals (calcium, magnesium, sodium, iron, cadmium, copper, manganese and lead) hardness, sulphate and nitrate. Annual analysis further expands on the weekly and monthly analysis to include a full suite of metals analysis as well as organic compounds and radiological tests.

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.

2 Performance Summary

Water Quality Meeting the Drinking Water Guidelines January - March 2024			
Parameters	**No. of Analyses**	**No. of Analyses Complying with ADWG**	**No. of exceedances of ADWG**
Microbial Quality			
E. Coli	13	13	0
Thermophilic *Naegleria*	13	13	0
Chemical and Physical Quality			
Health Related	143	143	0
Aesthetic	59	44	15
Radiological Quality			
Gross Alpha activity	0	0	0
Gross Beta activity	0	0	0

3 Microbial Performance

During the January to March 2024 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 January – March 2024				
Microbial Characteristic	**MOU Compliance Criteria**	**No. of Analyses**	**No. of Complying Analyses**	**% Compliance**
Bacterial				
E. Coli	Non-detect	13	13	100
Amoeba				
Thermophilic *Naegleria*	Non-detect	13	13	100

3.2 Microbial – Exception Notifications

During the reporting period of January to March 2024, there were no reported exceedances of microbial characteristics.

4 Chemical – Health Related Performance

During the January to March 2024 reporting period there were zero reported exceedances of the chemical health parameters in accordance with the ADWG.

4.1 Chemical: Health Related – Compliance Summary

Harvey Water Distribution System October – December 2023					
Health Characteristic	ADWG Guideline value(mg/L)	No. of Analyses	No. of Analyses Complying with ADWG	% Compliance	Max Value of Analysis (mg/L)
Cadmium	0.002	3	3	100	<0.0001
Chlorine (In house testing free residual)	5	129	129	100	0.93
Copper	2	3	3	100	<0.001
Lead	0.01	3	3	100	<0.001
Manganese	0.5	3	3	100	0.018
Nickel	0.02	1	1	100	<0.001
Nitrate	50	3	3	100	0.43

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 January to March 2024 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.

5.1 Chemical – Aesthetic

Harvey Water Distribution System January – March 2024					
Aesthetic Characteristic	ADWG guideline value(mg/L unless stated)	No. of Analyses	No. of Analyses Complying with ADWG	% Compliance	Max Value of Analysis (mg/L unless stated)
pH	6.5 – 8.5	13	13	91.7	(7.8) 8.8
TDS	600	13	1	7.69	650
Turbidity	5 NTU	9	9	100	0.97 NTU
Sodium	180	3	3	100	130
Hardness	200	3	0	0	240
Chloride	250	12	12	100	240
Sulphate	250	3	3	100	51
Iron	0.3	3	3	100	0.077

5.2 Chemical – Aesthetic – Incident Specific Information

Two analytes exceeded the aesthetic guidelines in a total of 16 samples analysed. These exceedances are discussed below:

- Total Dissolved Solids (TDS) – during this period, the TDS level in the potable water system ranged from 550 – 650 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 $CaCO_3$. 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 $CaCO_3$ 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 drinking water to Albemarle.

6 Radiological Performance

6.1 Radiological – Compliance Summary

During the January to March 2024 reporting period, there were no tests conducted for radiological performance as the next test for these will be in the annual sampling conducted in December each year.

Harvey Water Distribution System **January – March 2024**					
Radiological Characteristic	ADWG Compliance Criteria (Bq/L)	No. of Analyses	No. of Analyses Complying with ADWG	% Compliance	Max Value of Analysis (mg/L unless stated)
Gross Alpha Activity	0.5	0	0		
Gross Beta Activity	0.5	0	0		

7 Planned Sample Summary

7.1 Planned Sample Compliance Summary

Planned Samples January – March 2024								
Microbial			**Chemical**			**Radiological**		
Planned	**Taken**	**% Taken**	**Planned**	**Taken**	**% Taken**	**Planned**	**Taken**	**% Taken**
13	13	100	13	13	100	0	0	100

7.2 Planned Sample Exception Notifications

During the January to March 2024 reporting period, there were no missing samples.