

BHP

BHP WAN Leinster Operations

(Leinster Township)

Drinking Water Quality Report

January to March 2025



Version	Date	Submission
1.0	24/04/2025	30/04/2025
1.1	06/05/2025	06/05/2025

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1. Water Provider Information

Water provider contact details	
Name of Company	BHP Western Australia Nickel (WAN) Pty Ltd
Company Address	Level 43 125 St Georges Tce, Perth WA 6000
DoH Liaison Officer	Giovanna De Sousa
DoH Liaison Officer Email	Giovanna.desousa@bhp.com
DoH Liaison Contact #	0466847141

1.1 System Information

WAN Leinster Operations is located 370 km north of Kalgoorlie. The Leinster Operations cover large mineral tenement landholdings incorporating several Nickel deposits and facilities including Leinster township (residential area, commercial facilities and SPQ accommodation village). The Average population on any given day at this location is 300 people.

1.2 Drinking Water Supply System

Drinking water for the township of Leinster is sourced from the 11 mile bore field that sits 6 km equidistant from both locations. The raw water from this bore field has historically raised levels of salinity and nitrates.

Water is stored at the 11-mile water transfer station (390 kilolitres) and is gas chlorinated prior to being pumped to storage facilities located at town and the mine site.

The town reticulation network includes a 3 million litre buffer tank which provides holding capacity and distribution head pressure. There are two reverse osmosis (RO) units located at the dry mess facility and the town medical centre to deliver higher quality water.

Drinking water supplied by BHP complies with the health-related criteria, as outlined in version 3.7 of the Australian Drinking Water Guidelines (ADWG).

1.3 Number of Drinking Water Sampling Points

Table 1 below provides the number of drinking water sample points maintained. Source water sample points are included in the monitoring program to provide data relating to changes in chemistry and microbiology of pre-treatment water. As these points are not indicative of the quality of drinking water provided for consumption, only consumer or distribution sample point information is collated in this quarterly report.

Table 1: Drinking Water Sampling Points		
Region	Consumer / Distribution Points	Source Water Points (11 mile)
Leinster Township	7	1

2. Performance Summary

Table 2 below provides the number of microbiological water samples completed throughout quarter one. The required number assessed, number within compliance and any variance within the sampling quota.

Table 2: Drinking Water Sampling Performance Summary			
Microbiological Quality	No. assessed	No. compliant	Variance
<i>Thermotolerant coliforms / E. coli</i>	43	43	0
<i>Amoeba (Thermophilic Naegleria)</i>	42	42	0
Chemical Quality	No. assessed	No. compliant	Variance
<i>Chemical - Health</i>	76	57	19
<i>Chemical - Aesthetic</i>	84	68	16
<i>Radiological</i>	0	0	0

3. Microbial Performance

Microbiological verification sampling is completed routinely at identified drinking water sample points which are chosen to be representative of distributed water. The aim of verification sampling is to confirm the water quality supplied to Leinster Town is safe and aesthetically acceptable. To ensure confidence in the reported results, all microbiological analyses are undertaken by a NATA accredited laboratory.

Microbiological results are reported by exception, and the Department of Health Western Australia (DoH) is notified of the exception as required by the specific alert level notification requirements listed in the DoH Binding Protocol.

Table 3 below provides a summary of microbiological compliance, including samples that require DoH notification and remedial actions.

Table 3: Microbiological - Compliance						
Region/ Scheme/Zone	Date	Microbiological Characteristic	Alert Level	Remedial Actions	Date DOH notified	Close out date
There were no microbiological exceptions in Q1 2025.						

4. Chemical - Health Related Performance

Water chemistry samples are completed routinely at locations and frequencies specified in the Site Water Quality Verification Monitoring Program developed using a risk-based approach following completion of the site-specific drinking water quality risk assessment. The aim of verification sampling is to ensure that the water quality delivered to Leinster Town is of acceptable quality. Verification samples are analysed by a NATA accredited laboratory with the exception of free chlorine readings which are undertaken by technicians on-site using handheld instruments.

Chemistry results that have the potential to affect human health and have health related guidelines in Table 10.6 of the Australian Drinking Water Guidelines (ADWG) 2011(v3.8) are reported by exception to the West Australian Department of Health (DoH).

Table 4 depicts health related chemical performance for January to March 2025.

Table 4: Leinster Township Distribution Water Chemical Health Performance				
Parameter	Analyses Completed	ADWG Compliant	Variance	Maximum recorded value
2,4,6-Trichlorophenol (0.02 mg/L)	1	1	0	< 0.001 mg/L
2,4-Dichlorophenol (0.2 mg/L)	1	1	0	< 0.0001 mg/L
2-Chlorophenol (0.3 mg/L)	1	1	0	< 0.00005 mg/L
Bromate (0.02 mg/L)	1	1	0	0.0089 mg/L
Bromodichloromethane (0.25 mg/L)	2	2	0	< 0.001 mg/L
Bromoform (0.25 mg/L)	2	2	0	0.0037 mg/L
Chlorate (0.7 mg/L) ¹	1	0	1	2.9 mg/L
Chloroacetic acid (MCA) (0.15 mg/L)	1	1	0	< 0.05 mg/L
Chloroform (0.25 mg/L)	2	2	0	< 0.001 mg/L
Dibromochloromethane (0.25 mg/L)	2	2	0	< 0.001 mg/L
Dichloroacetic acid (DCA) (0.1 mg/L)	1	0	0	< 0.02 mg/L
Free Chlorine (5 mg/L) ²	15	15	0	1.35 mg/L
Nitrate (50 mg/L)	42	24	18	85 mg/L
Trihalomethanes (0.25 mg/L)	2	2	0	0.0037 mg/L
Trichloroacetaldehyde (0.1 mg/L)	1	1	0	< 0.02 mg/L
Trichloroacetic acid (0.1 mg/L)	1	1	0	< 0.02 mg/L

¹ Based on WHO health limits as no ADWG health limits exist currently.

²As total chlorine is not tested, the free chlorine result is measured against the ADWG health-related guideline value for total chlorine within Table 4.

4.1 Chemical - Health Related - Exception Notification

Additional sampling is conducted on a monthly frequency for Nitrate at the Leinster Medical Centre due to the ongoing detections of Nitrate above the ADWG Health guidelines for the Leinster Township Water Distribution System, which is detailed in Table 5.

Table 5: Leinster Medical Centre RO Monthly Nitrate Analysis	
Sample Date	Nitrate Value (mg/L)
20/03/2025	6.0
27/02/2025	4.7
30/01/2025	4.8
5/12/2024	3.2
21/11/2024	2.9
10/10/2024	3.1
19/09/2024	6.8
22/08/2024	23
16/07/2024	21
20/06/2024	16
16/05/2024	16
21/04/2024	16

27/03/2024	17
29/02/2024	19
1/02/2024	11
28/12/2023	10
28/11/2023	9.7
17/11/2023	10

5. Chemical - Aesthetic Performance

This section includes water chemistry results that do not have health guideline values but do have aesthetic guideline values in the ADWG (2011). Exceeding an aesthetic guideline value does not pose a health risk (provided no health guideline is exceeded at the same time) but can affect the palatability and how pleasing the water appears. Individual exceedances are generally not reportable to the DoH, with exception of turbidity.

Table 6 depicts aesthetic related chemical performance for January to March 2025. Next round of sampling is to be completed in April 2025.

Table 6: Leinster Township Distribution Water Chemical Aesthetic Performance				
Parameter	Analyses Completed	ADWG Compliant	Variance	Maximum recorded value
2,4,6-Trichlorophenol (0.002 mg/L)	1	1	0	< 0.001 mg/L
2,4-Dichlorophenol (0.0003 mg/L)	1	1	0	< 0.0001 mg/L
2-Chlorophenol (0.0001 mg/L)	1	1	0	< 0.00005 mg/L
Colour (15 HU)	3	3	0	< 5 HU
Free Chlorine (0.6 mg/L) ¹	18	9	9	1.35 mg/L
Hardness (200 mg/L)	0	0	0	-
pH (6.5 - 8.5)	20	18	2	6.20 pH units and 8.83 pH units
TDS (600 mg/L)	20	15	5	856.42 mg/L
Turbidity (5 NTU)	20	20	0	1.8 NTU

¹ Chlorine residual aesthetic limit will be exceeded in order to maintain an effective disinfectant residual.

5.1 Chemical - Aesthetic Related – Incident Specific Information

Australian Drinking Water Guidelines state based on taste total dissolved solids should ideally be less than 600 mg/L to be regarded good quality for drinking. The Australian Drinking Water Guideline also state between 600 – 900mg/L is regarded as fair quality drinking water and acceptable. Highest record value for TDS in this quarter was recorded at 850 mg/L, within “fair quality water” as defined in ADWG.

6. Radiological Performance

Radiological parameters include gross alpha and gross beta levels which measure the overall radioactivity of the water. Verification samples are analysed by a NATA accredited laboratory to ensure accuracy of results.

Radiological results that are above the ADWG (2011) recommended screening levels (0.5 Bq/L for either gross alpha or gross beta) are investigated to determine the nature of the radioactivity. If further radiological analysis reveals a radiation dose exceedance, this is reported to the West Australian Department of Health (DoH). The department is notified of the exception within the required timeframe and using the communication mode specified in the DoH Binding Protocol.

There were no potable water radiological sampling undertaken for this quarter and is due during the next quarter, June 2025.

Table 7: Leinster Township Radiological Performance				
Parameter	Analyses Completed	ADWG Compliant	Variance	Maximum recorded value
Gross Alpha (0.5 Bq/L)	0	0	0	0
Gross Beta (0.5 Bq/L)	0	0	0	0

7. Planned Sample Summary

Planned drinking water quality monitoring completeness during January to March 2025 is summarised in Table 8 below.

Table 8: Leinster Township Distribution Water Planned Sample Summary			
Parameter	Planned Analyses	Taken	% Compliance to Plan
Microbial	36	46	127%
Chemical	89	132	148%
Radiological ¹	0	0	N/A

¹ Radiological sampling is undertaken on a biannual basis with the next sampling to be conducted in June 2025

8. Planned Sample Exceptions

BHP WAN is now under care and maintenance since October 2024. The frequency of potable water sampling at Leinster has been altered in adjustment to such changes. The Department of Health is aware of these changes in line with licensing requirements.

Due to transitioning to a new sampling provider site temporary suspension, and access issues, the following were missed:

- March: SP4, Town Potable Storage Tank – Hardness

Additionally, during the March 2025 quarter sampling, 2,4,6-trichlorophenol, 2,4-dichlorophenol, 2-chlorophenol, chloroacetic acid, dichloroacetic acid, trichloroacetaldehyde and trichloroacetic acid were missed from SP7 – Dry Mess Kitchen Tap due to a laboratory error in which speciated phenols to test. This has been rectified for the next quarterly sampling period.

9. General Notes/Other News

A Water Services Licence was granted by the Economic Regulation Authority (ERA) for the town of Leinster in September 2020 (commenced 16/9/2020 and expires 15/9/2045).