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***Report to the Department of Health***

***By***

***Nickel West Leinster Operations***

**for the period**

***1<sup>st</sup> of October to 31<sup>st</sup> of December 2022***

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## 1.0 Water Provider Information

Water provider contact details	
<b>Name of Company</b>	BHP Nickel West Pty Ltd
<b>Company Address</b>	Level 43 125 St Georges Tce, Perth WA 6000
<b>DoH Liaison Officer</b>	Heather Little
<b>DoH Liaison Officer Email</b>	heather.little@bhp.com
<b>DoH Liaison Contact #</b>	0405 585 229

### 1.1. System Information

BHP Nickel West Leinster Nickel Operations is located 370 km north of Kalgoorlie. The Leinster Nickel Operations cover large mineral tenement landholdings incorporating several Nickel deposits and facilities including:

- Underground mining
- Nickel Sulphide Concentrator Facility
- Leinster township (residential area, commercial facilities and SPQ accommodation village)

Average population on any given day at this location is 1000 people.

#### 1.1.1. Potable Water Supply System

Potable water for the mine site and township of Leinster is sourced from the 11 mile bore field that sits 6 km equidistant from both locations. The raw water from this borefield 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.

The mine site has storage capacity of 1.6 megalitres. Water quality improvement is achieved via in-line filters (4 stage filters; particulate removal class 3; taste / odor removal class 4; calcium removal) at designated drinking water facilities.

## 1.2. Number of Potable Water Sampling Points

Table 1 below provides the number of potable 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 potable water provided for consumption, only consumer or distribution sample point information is collated in this quarterly report.

<b>Table 1: Potable Water Sampling Points</b>		
<b>Region</b>	<b>Consumer / Distribution Points</b>	<b>Source Water Points</b>
<b>Leinster</b>	9	1

## 2.0 Performance Summary

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

<b>Table 2: Potable Water Sampling Performance Summary</b>			
<b>Microbiological Quality</b>	<b>No. assessed</b>	<b>No. compliant</b>	<b>Variance</b>
<i>Thermotolerant coliforms / E.coli</i>	27	27	0
<i>Amoeba (Thermophilic Naegleria)</i>	27	27	0
<i>Chemical - Health</i>	9	9	0
<i>Chemical - Aesthetic</i>	<b>3</b>	<b>2</b>	<b>1</b>
<i>Radiological</i>	0	0	0

### 3.0 Microbial Performance

Table 3 below provides a 12-month summary of microbiological compliance. Including samples that require DoH notification and remedial actions.

<b>Table 3: Microbiological - Compliance</b>						
<b>Region/ Scheme /Zone</b>	<b>Date</b>	<b>Microbiological Characteristic</b>	<b>Alert Level</b>	<b>Remedial Actions</b>	<b>Date DOH notified</b>	<b>Close out date</b>
	<b>QUARTER 4 2022</b>			No issues to report		
	<b>QUARTER 3 2022</b>			No issues to report		
	<b>QUARTER 2 2022</b>			No issues to report		
	<b>QUARTER 1 2022</b>			No issues to report		
	<b>QUARTER 4 2021</b>			No issues to report		

#### 4.0 Chemical - Health Related Performance

<b>Table 4: Leinster Distribution Water Chemical Health Performance</b>				
	<b>Analyses Completed</b>	<b>ADWG Compliant</b>	<b>Variance</b>	<b>Maximum recorded value</b>
<b>Antimony (0.003 mg/L)</b>	0	0	0	0
<b>Arsenic (0.01 mg/L)</b>	0	0	0	0
<b>Cadmium (0.002 mg/L)</b>	0	0	0	0
<b>Copper (2 mg/L)</b>	0	0	0	0
<b>Cyanide (0.08 mg/L)</b>	0	0	0	0
<b>Fluoride (1.5 mg/L)</b>	0	0	0	0
<b>Iodide (0.5 mg/L)</b>	0	0	0	0
<b>Lead (0.01 mg/L)</b>	0	0	0	0
<b>Nickel (0.02 mg/L)</b>	0	0	0	0
<b>Nitrate (50 mg/L)</b>	6	6	0	18
<b>Nitrite (3 mg/L)</b>	0	0	0	0
<b>Selenium 0.01 mg/L)</b>	0	0	0	0

#### 4.1 Chemical - Health Related - Exception Notification

<b>Leinster Medical Centre RO Monthly Nitrate Analysis</b>	
<b>Sample Date</b>	<b>Nitrate Value (mg/L)</b>
15/12/22	1.6
18/11/22	1.4
11/10/2022	1.1
06/10/22	4.7
16/08/22	4.5
22/06/22	4.6
23/05/22	5.2
28/04/22	5.7
21/03/22	6.4
03/02/22	6.1
30/09/21	2.7
26/08/21	3.0
29/07/21	2.5
24/06/21	2.4
24/05/21	2.3
25/03/21	3.5
11/03/21	3.3
28/01/21	3.4

Note: Leinster Medical Centre RO not sampled in July due to bottle error. September resampling had to occur, due to arriving outside of holding time.

## 5.0 Chemical - Aesthetic Performance

### 5.1 Chemical - Aesthetic Performance

<b>Table 8: Leinster Distribution Water Chemical Aesthetic Performance</b>				
	<b>Analyses Completed</b>	<b>ADWG Compliant</b>	<b>Variance</b>	<b>Maximum recorded value</b>
<b>Aluminium (0.2 mg/L)</b>	0	0	0	0
<b>Ammonia (0.5 mg/L)</b>	0	0	0	0
<b>Chloride (250/L)</b>	1	1	0	240
<b>Colour (15 HU)</b>	0	0	0	0
<b>Hardness (200 mg/L)</b>	0	0	0	0
<b>Iron (0.3 mg/L)</b>	0	0	0	0
<b>Manganese (0.1 mg/L)</b>	0	0	0	0
<b>pH (6.5 - 8.5)</b>	0	0	0	0
<b>Sodium (180 mg/L)</b>	0	0	0	0
<b>Sulphate (250 mg/L)</b>	1	1	0	120
<b>TDS (600 mg/L)</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>780</b>
<b>Turbidity (5 NTU)</b>	0	0	0	0

### 5.2 Chemical - Aesthetic Related – Incident Specific Information

As Leinster potable water is sourced from groundwater aquifer resources, the water is naturally hard. The recorded max value of 820 mg/L is marginally above the Australian Drinking Water Guideline value of 600 mg/L and typical for this system. 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.

## 6.0 Radiological Performance

No Radiological samples were required during the reporting period



## 7.0 Planned Sample Summary

<b>Table 11: Leinster Distribution Water Planned Sample Summary</b>			
	<b>Planned Analyses</b>	<b>Taken</b>	<b>% Compliance to Plan</b>
<b>Microbial</b>	54	54	100
<b>Chemical</b>	9	9	100
<b>Radiological</b>	0	0	100

### 7.1 Planned Sample Exceptions

Nil

## 8.0 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).