



Knowledge grows

26th March 2020

Our Reference: 200-200-LET-DWER-0011

Your Reference: MS870

Mr Ian Munro
Manager, Compliance (Ministerial Statements)
Department of Water and Environmental Regulation
Prime House, 8 Davidson Terrace
JOONDALUP WA 6027

Email: compliance@dwer.wa.gov.au

Dear Ian,

Ministerial Statement No. 870, Condition 8 - Yara Pilbara Nitrates Groundwater Monitoring Results

In accordance with Condition 8-4 of Ministerial Statement 870, Yara Pilbara Nitrates (YPN) is required to conduct monitoring of all groundwater bores every six months. In the event that monitoring indicates an exceedance of trigger levels, Condition 8-5 requires that the results be reported to the CEO.

The most recent round of groundwater monitoring was conducted between the 5th and 10th of March, with results received on the 19th and 26th March 2020. As previously reported in 2017, 2018 and 2019, an elevation in levels of nitrogen species continues. Results of the March 2020 groundwater monitoring are provided below in Table 1, with exceedances of trigger levels highlighted.

Known unplanned releases have been previously reported to the Department of Water and Environmental Regulation (DWER) under Section 72 of the *Environmental Protection Act 1986* (31 March 2017, 21 July 2017 and 22 September 2018) and the site was reported by Yara to DWER as a Known or Suspected Contaminated Site via submission of Form 1, on the 16th October 2018. On 7th December 2018 DWER classified the site as 'potentially contaminated – investigation required', and in this listing requested that a Contaminated Sites Auditor be engaged, and Detailed Site Investigation (DSI) be completed.

To date, YPN have taken the following actions in response to this issue:

Yara Pilbara Nitrates Pty Ltd

Postal Address
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1. Completed a Tier 1 Risk Assessment, Tier 2 Risk Assessment and a Preliminary Hydrogeological Conceptual Site Model (in accordance with DWER guidelines) to assess environmental impact (submitted to DWER 19 June 2017 and 7 December 2017);
2. Undertaken an expanded groundwater monitoring program including the installation of an additional twenty-seven site bores and three downstream bores;
3. Commenced execution of an extensive repair project at the TAN Plant, with a focus on potential source mitigation in areas where groundwater contamination is known or likely;
4. Engaged Golders to undertake further investigations (in accordance with DWER guidelines), including a Preliminary Ecological Risk Assessment (PERA), Preliminary Site Investigation (PSI), a DSI, and a Detailed Ecological Risk Assessment (DERA);
5. Engaged contaminated sites auditor, JBS&G; and
6. Remediation assessment options are currently underway.

Table 1: Six-Monthly Groundwater Monitoring Results

Date	Units	Trigger Limits	MW1	MW2	MW3	MW4	MW5
Aluminium (Filtered)	mg/L	0.021	<0.005	<0.005	<0.005	<0.005	<0.005
Alkalinity (total) as CaCO ₃	mg/L	561	261	232	426	182	140
Arsenic (Filtered)	mg/L	NA	<0.001	<0.001	0.001	<0.001	<0.001
Calcium (Filtered)	mg/L	1,210	85.6	86.4	112	798	666
Cadmium (Filtered)	mg/L	NA	<0.0001	<0.0001	<0.0002	<0.0005	<0.0020
Chloride	mg/L	95,700	369	911	4,060	8,670	62,300
Chromium (III) (Filtered)	mg/L	NA	<0.005	<0.005	<0.005	<0.005	<0.010
Chromium (VI) (Filtered)	mg/L	NA	<0.004	<0.004	<0.004	<0.004	0.004
Copper (Filtered)	mg/L	NA	0.0006	0.0005	0.0006	<0.0005	<0.0020
Iron (Filtered)	mg/L	0.26	<0.005	<0.005	<0.005	<0.005	<0.05
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Magnesium (Filtered)	mg/L	5,170	30.2	53.1	255	1,480	2,650
Manganese (Filtered)	mg/L	0.242	<0.001	0.016	0.058	0.006	0.15
Ammonium (NH ₄ ⁺)	mg/L	NA	<0.01	78	<0.01	150	19
Ammonia as N (NH ₃ -N)	mg/L	0.04	<0.01	61	<0.01	110	15
Nitrate (as NO ₃) calculated	mg/L	9.57	30	530	620	17,000	1,500
Nitrogen (Total)	mg/L	5.6	7.2	200	150	4,100	510
Nickel (Filtered)	mg/L	NA	<0.001	<0.001	0.004	<0.005	0.04
Oil and Grease	mg/L	NA	<10	<10	<10	<10	<10
Lead (Filtered)	mg/L	NA	<0.0001	<0.0001	<0.0002	<0.0005	<0.0020
TDS	mg/L	143,000	1,000	2,300	8,900	38,000	100,000
TSS	mg/L	2,090	42	2	2	11	120
Zinc (Filtered)	mg/L	0.052	0.013	0.007	0.011	0.017	0.06
pH (in-field)		6-8.4	7.15	6.91	7.09	7.29	6.79



Please do not hesitate to contact the undersigned on 08 9183 4043 should you have any queries.

Yours Sincerely

A handwritten signature in black ink, appearing to read "Ty Hibberd", with a long horizontal stroke extending to the right.

Dr Ty Hibberd

Health, Environment, Safety & Quality Manager

Yara Pilbara Nitrates