Knowledge grows

26th March 2021

Our Reference: 200-200-LET-DWER-0014

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 on the 9th (MW1) and 3rd of March, with results received on the 22nd and 18th March 2021. As previously reported in 2017, 2018, 2019 and 2020 an elevation in levels of nitrogen species continues. Results of the March 2021 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.

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

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) and DSI, which is currently being finalised;
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**	0.007	<0.005	<0.005	<0.050	<0.005
Alkalinity (total) as CaCO3	**mg/L**	**561**	257	189	433	116	292
Arsenic (Filtered)	**mg/L**	**NA**	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium (Filtered)	**mg/L**	**1,210**	74.9	44.9	73.5	927	427
Cadmium (Filtered)	**mg/L**	**NA**	<0.0001	<0.0001	<0.0002	<0.0020	<0.0005
Chloride	**mg/L**	**95,700**	333	606	2,990	83,400	4,490
Chromium (III) (Filtered)	**mg/L**	**NA**	<0.005	<0.005	<0.005	<0.010	<0.005
Chromium (VI) (Filtered)	**mg/L**	**NA**	<0.004	<0.004	<0.004	<0.004	<0.004
Copper (Filtered)	**mg/L**	**NA**	0.0007	0.0013	0.0007	0.0051	0.0025
Iron (Filtered)	**mg/L**	**0.26**	<0.005	<0.005	<0.005	<0.050	<0.005
Mercury	**mg/L**	**0.0001**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Magnesium (Filtered)	**mg/L**	**5,170**	24.4	28	191	4,050	713
Manganese (Filtered)	**mg/L**	**0.242**	0.049	0.004	0.006	0.89	0.26
Ammonium (NH4+)	**mg/L**	**NA**	<0.01	47	<0.01	0.33	320
Ammonia as N (NH3-N)	**mg/L**	**0.04**	<0.01	37	<0.01	0.26	250
Nitrate (as NO3) calculated	**mg/L**	**9.57**	27	130	1,200	130	12,000
Nitrogen (Total)	**mg/L**	**5.6**	8.8	67	270	30	3,200
Nickel (Filtered)	**mg/L**	**NA**	0.023	<0.001	<0.002	0.057	<0.005
Oil and Grease	**mg/L**	**NA**	<10	<10	<10	<10	<10
Lead (Filtered)	**mg/L**	**NA**	<0.0001	<0.0001	<0.0002	0.073	<0.0005
TDS	**mg/L**	**143,000**	990	1,600	7,100	150,000	23,000
TSS	**mg/L**	**2,090**	95	11	3	120	<1
Zinc (Filtered)	**mg/L**	**0.052**	0.006	0.011	0.013	0.043	0.021
pH (in-field)		**6-8.4**	7.23	7.27	7.28	6.9	7.29

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

Yours Sincerely

Dr Ty Hibberd

Health, Environment, Safety & Quality Manager

Yara Pilbara Nitrates