



Knowledge grows

21st September 2023

Our Reference: 200-200-LET-DWER-0020

Your Reference: MS870

Mr Ian Munro
Manager, Compliance (Ministerial Statements)
Department of Water and Environmental Regulation
Prime House, 8 Davidson Terrace
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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) undertakes monitoring of all groundwater bores every six months. Where 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 24th (MW1) and 30th of August (MW2-5), with results received on the 8th (MW1) and 14th (MW2-5) of September 2023. As previously reported since 2017, an elevation in levels of nitrogen species continues. Results of the March 2023 groundwater monitoring are provided as 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* (31st March 2017, 21st July 2017, 22nd September 2018, and 6th August 2021). 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. On the 6th of February 2023 DWER reclassified the site as 'Contaminated- remediation required'.

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

1. Completed Tier 1 and Tier 2 Risk Assessments, and a Hydrogeological Conceptual Site Model (in accordance with DWER guidelines) to assess environmental impact (submitted to DWER 19 June and 7 December 2017);
2. Undertaken an expanded groundwater monitoring program including the installation of an additional thirty-eight onsite and six downstream bores;

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3. Completed 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 Contaminated Sites Auditor from JBS&G;
5. Engaged Golders to undertake further investigations, modelling and assessment (in accordance with DWER guidelines), including completion of:
 - Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI);
 - Preliminary Ecological Risk Assessment (PERA) and Detailed Ecological Risk Assessment (DERA); and
 - Site Management Plan (SMP), Sampling Analyses Quality Plan (SAQP) and the Remedial Action Plan (RAP).
6. Selected the preferred remedial options, completed detailed engineering design, and obtained licence approvals for the onsite remedial infrastructure (Works Approval W6639/2022/1, 26D and 5C).
7. Implementation of the RAP commenced in 2021 and groundwater remedial infrastructure works in 2022, with completion of works under Works Approval W6639/2022/1 expected by end of 2023.

Table 1: Six-Monthly Groundwater Monitoring Results

Date	Units	Trigger Limits	MW1	MW2	MW3	MW4	MW5
Aluminium (Filtered)	mg/L	0.021	0.028	<0.005	<0.005	0.065	<0.005
Alkalinity (total) as CaCO ₃	mg/L	561	244	190	442	114	392
Arsenic (Filtered)	mg/L	NA	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium (Filtered)	mg/L	1,210	133	137	70.9	834	117
Cadmium (Filtered)	mg/L	NA	<0.0001	<0.0001	<0.0001	<0.0020	<0.0002
Chloride	mg/L	95,700	407	1,300	2,520	89,600	2,860
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	0.002	0.0007	0.0011	<0.0020	0.0006
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	45.9	79.5	174	3,670	218
Manganese (Filtered)	mg/L	0.242	0.17	0.007	0.003	0.018	0.011
Ammonium (NH ₄ ⁺)	mg/L	NA	<0.01	45	<0.01	2.5	220
Ammonia as N (NH ₃ -N)	mg/L	0.04	<0.01	35	<0.01	2.4	200
Nitrate (as NO ₃)	mg/L	9.57	66	142	841	753	3,984
Nitrogen (Total)	mg/L	5.6	15	71	210	190	1,100
Nickel (Filtered)	mg/L	NA	0.012	<0.001	0.001	0.04	<0.002
Oil and Grease	mg/L	NA	<10	<10	<10	<10	<10
Lead (Filtered)	mg/L	NA	0.0079	<0.0001	0.0002	<0.0020	<0.0002
TDS	mg/L	143,000	1,100	2,600	6,300	130,000	11,000
TSS	mg/L	2,090	62	9	<1	31	1
Zinc (Filtered)	mg/L	0.052	0.012	0.069	0.046	0.067	0.054
pH (in-field)		6-8.4	7.18	7.12	7.56	6.86	7.09

Please do not hesitate to contact the undersigned on 08 9183 4011 should you have any queries.

Yours Sincerely

Dr Ty Hibberd



Health, Environment, Safety & Quality Manager

Yara Pilbara Nitrates