



Knowledge grows

7th April 2022

Our Reference: 200-200-LET-DWER-0016

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) 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 10th (MW1) and 17th of March (MW2-5), with results received on the 25th and 31st of March 2022. As previously reported since 2017, an elevation in levels of nitrogen species continues. Results of the March 2022 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.

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;
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;

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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 submitted licence approvals for the onsite remedial infrastructure and extraction of groundwater (Works Approval, 26D and 5C).

Table 1: Six-Monthly Groundwater Monitoring Results

Date	Units	Trigger Limits	MW1	MW2	MW3	MW4	MW5
Aluminium (Filtered)	mg/L	0.021	0.022	0.008	<0.005	<0.050	<0.005
Alkalinity (total) as CaCO3	mg/L	561	283	201	384	113	455
Arsenic (Filtered)	mg/L	NA	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium (Filtered)	mg/L	1,210	60.7	136	103	849	131
Cadmium (Filtered)	mg/L	NA	<0.0001	<0.0001	<0.0002	<0.0020	<0.0002
Chloride	mg/L	95,700	264	1250	4220	83,400	2900
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	0.0017	0.0007	0.0007	0.0024	0.0009
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	19.5	74.8	255	3630	251
Manganese (Filtered)	mg/L	0.242	0.035	0.012	0.033	0.018	0.016
Ammonium (NH4+)	mg/L	NA	<0.01	31	<0.01	2.3	220
Ammonia as N (NH3-N)	mg/L	0.04	<0.01	24	<0.01	1.8	170
Nitrate (as NO3) calculated	mg/L	9.57	17	62	1417	314	5312
Nitrogen (Total)	mg/L	5.6	4.50	39	330	73	1500
Nickel (Filtered)	mg/L	NA	0.007	<0.001	<0.002	0.036	<0.002
Oil and Grease	mg/L	NA	<10	<10	<10	<10	<10
Lead (Filtered)	mg/L	NA	0.0001	<0.0001	<0.0002	<0.0020	<0.0002
TDS	mg/L	143,000	900	2300	9000	130000	13000
TSS	mg/L	2,090	250	1	2	15	2
Zinc (Filtered)	mg/L	0.052	0.007	0.007	0.007	0.034	0.005
pH (in-field)		6-8.4	7.35	7.42	7.12	7.36	7.1

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