Environmental Protection Act 1994

Environmental Protection Order

This environmental protection order is issued by the administering authority pursuant to section 358 of the Environmental Protection Act 1994.

NuGrow Bundaberg Pty Ltd
LEVEL 10, 1 EAGLE STREET
BRISBANE, QLD, 4000

Att: Peter Thompson

Cc via email to: peterthompson@nugrow.com.au

Our reference: STAT-E-100574343

Dear Mr Thompson

Take notice: that under the *Environmental Protection Act 1994* (the Act) this Environmental Protection Order (EPO) is issued to NuGrow Bundaberg Pty Ltd ACN 617 665 228 (you/NuGrow) by the administering authority. The administering authority is the Chief Executive of the Department of Environment, Science and Innovation (the department).

The EPO is issued with respect to the organic material processing activities of NuGrow Bundaberg Pty Ltd on land described as Lot 3 on Plan SP275605 situated at 19 Tardas Road, CORDALBA, QLD, 4660 (the premises).

A. Grounds

This EPO is issued on the following grounds:

1. You are, or have been contravening all or part of a condition of an Environmental Authority (EA), pursuant to section 358(d) (iii) of the Act:

- The department requires you to take reasonable measures to secure compliance with the following conditions of EPPR00666413, dated 09 October 2023:
  - Condition G7: The activity must be undertaken in accordance with written procedures that:
    1. identify potential risks to the environment from the activity during routine operations, closure and an emergency;
    2. establish and maintain control measures that minimise the potential for environmental harm;
    3. ensure plant, equipment and measures are maintained in a proper and effective condition;
    4. ensure plant, equipment and measures are operated in a proper and effective manner;
    5. ensure that staff are trained in and aware of their obligations under *the Environmental Protection Act 1994*; and
    6. ensure that reviews of environmental performance are undertaken at least annually.

- Condition G5: Other than as permitted by this environmental authority, the release of a contaminant into the environment must not occur.
- Condition G3: All reasonable and practicable measures must be taken to prevent or minimise environmental harm caused by the activities.

2. Pursuant to section 358(d)(i) of the Act, the department requires you to take reasonable measures to secure compliance with the General Environmental Duty. The General Environmental Duty is detailed in s319 of the Act which states the following:
   - *'A person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practical measures to prevent or minimise the harm (**the general environmental duty**).*

The facts and circumstances forming the basis for these grounds are:

1. You are the holder of EA EPPR00666413 (the EA) which authorises an environmentally relevant activity (ERA):

   ERA 53 - organic material processing (a) Processing more than 200t of organic material in a year by composting the organic material.

2. Between the date 17 February 2023 to the present, you have notified the department via the pollution hotline of eight (8) uncontrolled releases that have occurred from the leachate dam at the premises.
3. The department has investigated the circumstances that pertain to each of these releases (see Appendix A and B) and identified:
   i. none of the rainfall events that resulted in releases from the leachate dam were significant rain events.
   ii. leachate management practices at the premises are inadequate to maintain capture capacity in the leachate dam and prevent releases.
   iii. The contaminants within the leachate dam have increased over time.
   iv. The premises captures stormwater from disturbed areas and leachate within the same dam, resulting in large quantities of leachate being produced on the premises.
4. A review of the NuGrow Bundaberg Facility Stormwater Management Plan 16 August 2023 indicates that you have not adequately:
   i. identified risks to the environment as a result of releases from the leachate dam;
   ii. identified measures required to retain leachate on the premises;
   iii. identified measures to reduce the contamination of stormwater runoff from disturbed areas with leachate;
   iv. developed measures to reduce the concentrations of contaminants within the leachate dam; and
   v. developed and documented a sampling plan that monitors contaminants in the receiving environment as a result of releases from the leachate dam.
5. Your current activities at the premises include accepting a significant quantity of biosolids as feedstock. These biosolids are from Luggage Point Wastewater Treatment Plant (LPWWTP). Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) are known to be released into sewage networks from domestic and

non-domestic activities (trade waste). Biosolids from LPWWTP are known to contain high levels of PFAS compounds.

6. In accordance with the EA, leachate means a liquid that has passed through or emerged from or is likely to have passed through or emerged from, a material stored, processed or disposed of at the premises that contains soluble, suspended or miscible contaminants likely to have been derived from the said material.
7. The department has conducted multiple sampling events during releases events at the premises and the test results (Appendix C and E) indicate that contaminants are released from the leachate dam including nitrogen, phosphorus (nutrients), and PFAS.
8. The department has analysed the sampling results and identified that concentrations of both nutrients and PFAS compounds have been detected at higher levels in downstream Logging Creek when compared to upstream environment.
9. The contaminants identified within the leachate dam are consistent with compost leachate.
10. Sampling conducted by the department has detected PFAS in biota in water bodies downstream of where the leachate dam releases. PFAS was not detected in biota in upstream Logging Creek.
11. The department received water quality monitoring results from NuGrow Bundaberg for the leachate releases that occurred on the 27 March 2024. A review of results over time indicates that the PFAS levels within the leachate dam continue to increase. (Appendix D).
12. The release that occurred on the 27 March 2024 released leachate with a concentration of PFOS equal to 0.04 µg/L. Concentrations upstream in NuGrow sampling indicated no detection of PFOS, with downstream sampling location detecting PFOS at a concentration of 0.03 µg/L. (Reference Appendix C).
13. Nutrients in surface waters can cause algae to grow faster than ecosystems can handle. Significant increases in algae harm water quality, food resources and habitats, and decrease the oxygen that fish and other aquatic life need to survive.
14. PFAS are of high concern due to their toxicity, persistence and potential to bio-accumulate in the environment and people. Once released in the environment, many PFAS compounds are mobile and can adversely affect a wide range of environmental values, including beneficial uses undertaken by people.
15. Environmental contamination is of growing concern as PFAS have been shown to have adverse impacts on fish and some animals. PFAS accumulate in the bodies of animals, with laboratory studies indicating potential for negative effects on their reproductive, developmental and other systems. In studies where large doses of PFAS were given to laboratory animals, possible links with effects on the immune system, liver, reproduction, development and benign (non-cancerous) tumours have been reported.
16. PFAS concentrations have also been shown to be able to increase significantly in the tissues of animals through bioaccumulation and also biomagnify through higher order trophic levels in the food chain of the ecosystem.
17. Environmental Values relevant to releases from the leachate dam include:
    i. Aquatic ecosystems
    ii. Irrigation, Farm supply/use
    iii. Stock water

iv. Human Consumer

v. Primary recreation

vi. Secondary recreation

vii. Visual recreation

viii. Cultural and spiritual values

18. Ecological health is an environmental value under the Act that may be adversely affected by the release of PFAS into the environment, for example, by the bioaccumulation and biomagnification through food chains affecting aquatic and terrestrial organisms.

19. Human consumption is also an environmental value of Logging Creek which flows into the Burrum River. Bioaccumulation and bioconcentration of PFAS compounds can occur within aquatic species in the Burrum River that are subsequently consumed by humans.

20. The EA does not authorise the release of nutrients or PFAS compounds into the environment from continual leachate dam discharge events.

21. The department considers that PFAS compounds are hazardous contaminants. Under Schedule 4 of the Act, hazardous contaminant is defined as:

> *Hazardous contaminant means a contaminant, other than an item of explosive ordnance, that if improperly treated, stored, disposed of or otherwise managed, is likely to cause serious or material environmental harm because of-*
>
> *a) Its quantity, concentration, acute or chronic, toxic effects, carcinogenicity, teratogenicity, mutagenicity, corrosiveness, explosiveness, radioactivity or flammability; or*
>
> *b) Its physical, chemical or infections characteristics.*

22. The department considers that the increasing concentration trends of nutrients and hazardous contaminants (PFAS), reference Appendix D and F, present in the leachate dam have the potential to cause environmental harm if leachate is released. Environmental harm is defined in section 14 of the Act as follows:

> *Environmental harm is any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.*
>
> *Environmental harm may be caused by an activity—*
>
> *a) whether the harm is a direct or indirect result of the activity; or*
>
> *b) whether the harm results from the activity alone or from the combined effects of the activity and other activities or factors.*

23. The department considers that the contaminants in the leachate dam at the premises have the potential to adversely affect the environmental values of the nearby surface waters, namely Logging Creek, in the event of a release. An environmental value is defined in section 9 of the Act as follows:

> *a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or*

b) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.

24. The department considers the release of leachate containing PFAS and elevated nutrient levels a contravention of condition G5.
25. Due to the multiple leachate releases and the lack of effective measures to prevent releases, the department considers that you are not meeting your general environmental duty and are contravening condition G3.
26. The department considers that it is appropriate to require you to take reasonable measures to comply with your general environmental duty, to prevent the release of contaminants to the environment, and to secure compliance with your EA conditions.

B. Requirements

In accordance with this EPO, you are required to do the following:

1. By **31 May 2024,** you must update existing written procedures to include a Leachate Management Plan for the premises and submit these to the department via widebay.esr@des.qld.gov.au. The Leachate Management Plan must include, at a minimum:
    a) identified risks to the environment as a result of releases from the leachate dam or any other structure used to store leachate;
    b) established and proposed measures at the premises to capture leachate and maintain capacity in the leachate dam or any other structure used to store leachate to prevent the release of contaminants to waters and achieve compliance with the conditions of the EA.
    c) Documented water sampling procedures for monitoring contaminants released from the leachate dam or any other structure used to store leachate.
2. By **7 June 2024,** you must install a water level monitoring system on the leachate dam and commence daily recordings of the leachate volumes at the premises. Evidence that the system has been installed must be provided to the department via widebay.esr@des.qld.gov.au by this date.
3. By **7 June 2024,** you must:
    a) engage an appropriately qualified person (AQP) as defined below in this notice, to carry out the following requirements of this notice; and
    b) confirm the engagement of the AQP and submit the qualifications and experience of the AQP to the department in writing, to widebay.esr@des.qld.gov.au
4. By **19 July 2024,** you must ensure that the AQP assesses the current operations at the premises and prepares a site-specific water balance model which addresses, but is not limited to, the following:
    a) Rainfall and evaporation data from the Bureau of Meteorology during wet, dry and average predicted years.
    b) leachate storage volumes, including the leachate dam;
    c) Operational demands;

d) Catchments and impervious areas;

e) Clean water runoff;

f) Current and future predicted stockpile locations and footprint;

g) Current operational processes;

h) Potential future operational processes;

i) The volume of leachate excess to demands/usage that is to be managed by alternate measures.

5. By 19 **July 2024**, you must submit a report detailing the water balance model prepared by the AQP, under **Requirement 4** of this Notice, to the department to widebay.esr@des.qld.gov.au

6. By **23 August 2024,** you must ensure that the AQP:

   a) assesses and recommends measures for water reuse and the separation of clean and dirty water on the premises.

   b) considers and makes recommendations regarding improvements to stormwater and leachate management in accordance with the department's Best Practice Environmental Management ERA 53(a) Guideline (ESR/2021/5670) - Table 8 Management hierarchy for stormwater management.

   c) incorporates each recommended solution into the water balance model to demonstrate its effectiveness in preventing the release of leachate from the premises.

   d) ranks the most effective measures to stop leachate releases from the premises.

   e) where leachate is proposed to be reused on the premises, assesses and makes recommendations regarding the potential increase of contaminants within the leachate dam over time and the appropriateness of beneficially reusing leachate on the premises following the implementation of effective water management on the premises.

7. By **23 August 2024**, you must submit a report, prepared by the AQP, detailing the assessment and findings by the AQP under **Requirement 6** of the Notice, to the department via widebay.esr@des.qld.gov.au

8. By **23 August 2024**, you must commence the implementation of the recommended measures (identified by **Requirement 6** of this Notice) at the premises to prevent the release of leachate from the premises.

9. By **6 September 2024**, you must update existing written procedures to include a revised Leachate Management Plan and submit these to the department via widebay.esr@des.qld.gov.au. The revised Leachate Management Plan must detail any amendments to both stormwater and leachate management practices at the premises as a result of this EPO.

Definitions:

"Appropriately Qualified Person" means a person or persons who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice, and analysis to performance relative to the subject matter using the relevant protocols, standards, methods, or literature.

C. Obligations

If you propose to dispose of the place or business to which the EPO relates, you **must** advise the buyer of the existence of this EPO.

If you cease to carry out the activity to which this EPO relates, you **must** give written notice of ceasing to carry out the activity to the department within 10 days of ceasing the activity.

Take notice:

- the requirements of this order take effect immediately upon service of the order;
- failure to comply with this order is an offence under the Act;
- this order remains in force until further notice from the administering authority.

D. Penalty

It is important that you know the impact to you personally as an individual or as a corporation for not meeting your obligations.

Failure to comply with an EPO is an offence.

- The maximum penalty for wilfully contravening an EPO is 31,250 penalty units, totalling $4,837,500 for a corporation.
- The maximum penalty for contravening an EPO is 22,500 penalty units, totalling $3,483,000 for a corporation.

Failure to provide written notice to the buyer of the existence of the order is an offence.

- The maximum penalty is 250 penalty units, totalling $38,700, for a corporation.

Failure to provide written notice to the department within 10 business days of ceasing the activity to which an environmental protection order relates is an offence.

- The maximum penalty is 250 penalty units, totalling $38,700 for a corporation.

Section 3 of the *Penalties and Sentences Regulation 2015* prescribes the monetary value of a penalty unit.

E. Reviews and appeals

The provisions regarding reviews of decisions and appeals are found in sections 519 to 539 of the Act.

A person who is dissatisfied with an original decision made by the Department of Environment, Science and Innovation (the department) may apply to have that decision internally reviewed.

Information about initiating an appeal in relation to this notice is contained within the Internal Reviews and Appeals Information Sheet (available at www.qld.gov.au using the publication number ESR /2015/1742 as a search term)

A request for review or appeal is to be made using the approved form 'Application for review of original decision' (available at www.qld.gov.au using the publication number ESR/2015/1573 as a search term.

Applications for reviews are to be sent to Permit and Licence Management, Department of Environment, Science and Innovation: via email at palm@des.qld.gov.au , or by mail to the following address: GPO. Box 2454, Brisbane, QLD, 4001.

Where an application has been made for a decision to be reviewed, the applicant may also apply to the relevant court for a stay of the decision to secure the effectiveness of the review.

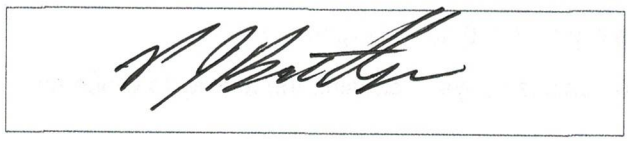
Once the original decision has been reviewed, a person who is dissatisfied with the review decision may be able to appeal against that decision to the relevant court within 22 business days after receiving notice of the review decision.

A person whose interests are or would be adversely affected by a decision of the department may be able to request a statement of reasons for a decision or a statutory order review under the *Judicial Review Act 1991*.

You may have other legal rights or obligations and should seek your own legal advice.

Pursuant to section 540 of the Act, the department is required to maintain a register of certain documents and information authorised under the Act. A copy of this document will be kept on the public register. The register is available for inspection by members of the public who are able take extracts, or copies of the documents from the register. Documents that are required to be kept on the register are published in their entirety, unless alteration is required by the Act. There is no general discretion allowing the department to withhold documents or information required to be kept on the public register. For more information on the department's public register, search 'public register' at www.qld.gov.au. For queries about privacy matters please email privacy@des.qld.gov.au or telephone 13 74 68.

Should you have any queries in relation to the notice, please contact Glenn Hayward, Senior Environmental Officer on 07 4302 8524.



Signature

8 May 2024

Date

Paul Butcher

Manager (Compliance)

Waste Operations

Delegate of the Chief Executive

Department of Environment, Science and Innovation

Environmental Protection Act 1994

Enquiries: Glenn Hayward

COMPLIANCE CENTRE: Maryborough

Ph: +61 7 4302 8524

Email: Glenn.hayward@des.qld.gov.au

Appendix A – Pollution hotline notification summary, NuGrow Bundaberg and departmental on ground observations.

Date of notification and notification number	Date of release	Rainfall amount	NuGrow Bundaberg notification Comments	Departmental observations
22/04/24 N-100643319	22/04/24	NuGrow on-site weather station data: ○ 61.6 mm of rainfall was received over the last 5 days at the site.	Overflow is occurring at the spillway of the onsite dam. Overflow was observed at 7.30am this morning. The water is slowly releasing.	• N/A
27/03/2024 N-100627164	27/03/2024	On-site weather station results shown in the graph below (Figure 1).	Overflow commenced between 7am and midday today.	• N/A
30/01/2024 N-100588131	30/01/2024	NuGrow on-site weather station data: ○ Rainfall of 53.2mm between 7am and 10am on 30/01/2024.	Upon arrival at site on 30/01/2024 at 7.30am, site personnel observed an overflow occurring through the dam spillway with an uncontrolled offsite discharge confirmed to be occurring and NuGrow's HSEQ team notified. This uncontrolled offsite discharge continues to occur as at 5.11pm today.	• On 31 January 2024 departmental officers completed a site inspection of the NuGrow Bundaberg site and observed water discharging from the leachate dam.
16/01/2024 N-100579666	15/01/2024	A review of rainfall records obtained from the NuGrow on-site weather station recorded: ○ Rainfall of 34mm between 12pm on 12/01/2024 and 4pm on 15/01/2024 and ○ Rainfall of 50.8mm between 4pm on 15/01/2024 and 16/01/2024 at 9.00am.	Upon arrival at site on 15/01/2024 at 8.00am, site personnel observed an overflow occurring through the dam spillway.	• On 16 January 2024 departmental officers completed a site inspection surrounding the NuGrow Bundaberg site and officers observed water flowing across Kingston Drive at the point where NuGrow Bundaberg discharges flow.
2/01/2024 N-100576304	2/01/2024	The NuGrow on-site weather station data: ○ 26.6mm since 9am 21/12/23, 11mm since 9am 22/12/23, 32.4mm 24/12/23, 19.6 26/12/23, 35.2mm 30/12/23, 16.2mm 01/01/24; ○ 27.8mm 12/01/24, 50.8mm 15/01/24.	A site inspection was undertaken at 6pm on Saturday 30/12/2023, the level of water in the dam was below the spill way and no overflow was observed. Upon arrival at site on 2/01/2024, site personnel observed an overflow occurring through the dam spillway.	• On 3 January 2024 departmental officers completed a site inspection of the NuGrow Bundaberg site and observed water discharging from the leachate dam.

		○ Other minor rainfall was received and recorded at the site however these were not significant enough to mention. ○ Please note that the daily rainfall data was calculated from 9am -9am the next day.		
12/04/2023 N-100416976	10/04/2023	The weather station closest to the NuGrow Bundaberg site (weather station 137101A, (located at Gregory River at Isis Highway, 152.24E, 25.09S) recorded the following rainfall data: ○ 6mm on 6 April 2023, ○ 46mm on 7 April 2023.	The overflow commenced some-time after a significant rainfall event on Friday night/Saturday morning.	• On 12 April 2023 departmental officers completed a site inspection of the NuGrow Bundaberg site and observed water discharging from the leachate dam. Water samples were collected at the release point, at an upstream monitoring location on Logging Creek and a downstream point on Logging Creek
17/02/2023 N-100386395	14-15 February 2023	Weather station 137101A, recorded a rainfall total of ○ 31mm on14/02/23, and 4mm on 15/02/23.	NuGrow environmental personnel received results of water samples this morning (16/02/2023) and upon evaluation of the results and based on the precautionary principle it was decided that a notification to the Department of Environment and Science	• N/A
17/02/2023 N-100386395	03/02/23	Weather station 137101A, recorded a rainfall total of ○ 33mm recorded on 01/02/23, 24mm on 02/02/23.	It should be noted that another overflow commenced sometime on the evening of 14-15 February 2023 in response to heavy rainfall and is continuing at the present time. Samples have been collected from the Dam, upstream and downstream of the release location. NuGrow have stored the samples in the on-site sample fridge and are organising sample transport to our contracted laboratory for analysis.	• N/A

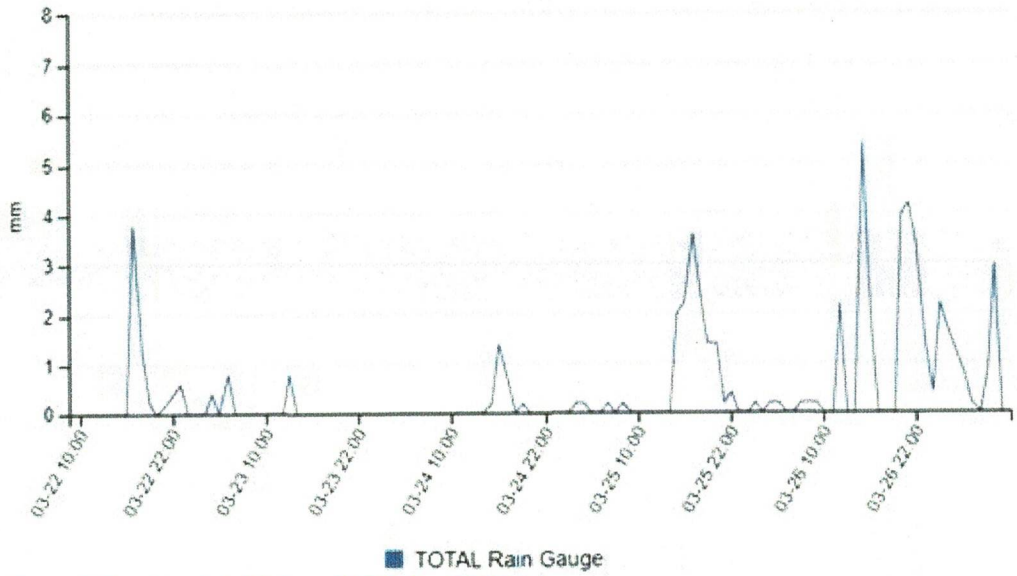


Figure 1 On-site rainfall data – 22/03/24 – 26/03/24.

Appendix B – Daily rainfall data totals since the commencement of NuGrow Bundaberg operations.

Gregory River at Isis Highway

Station number	137101A
Latitude	-25.09
Longitude	152.24
Data owner	QLD - Department of Regional Development, Manufacturing and Water



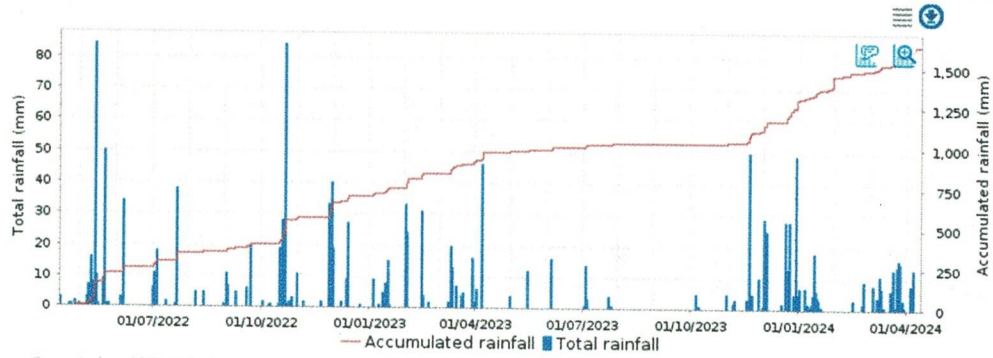
Watercourse discharge
Watercourse level
Rainfall

- Time series explorer
- Period of record summary
- Quality and gap summary
- Monthly data summary
- Yearly data summary
- Monthly mean statistical analysis
- Difference from mean analysis

Data download

Time series explorer

1d 7d 1m 6m 1y ∞ **Daily totals** 14/04/2022 - 14/04/2024



Generated on: 15/04/2024 08:15 EST

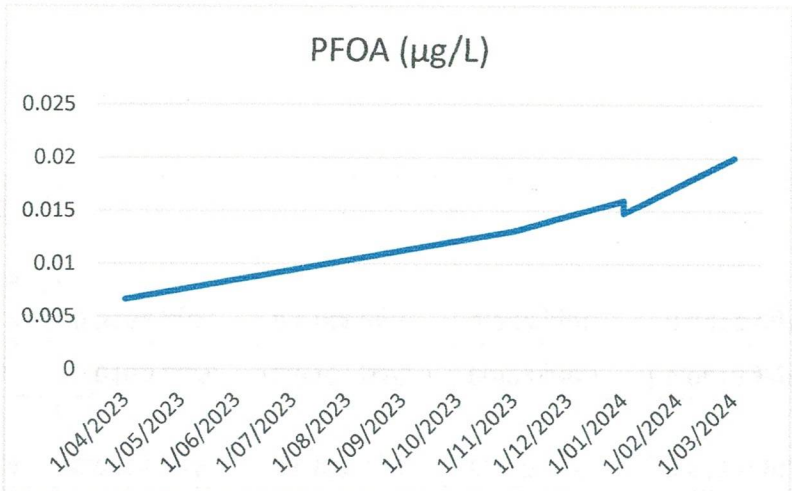
Bureau of Meteorology

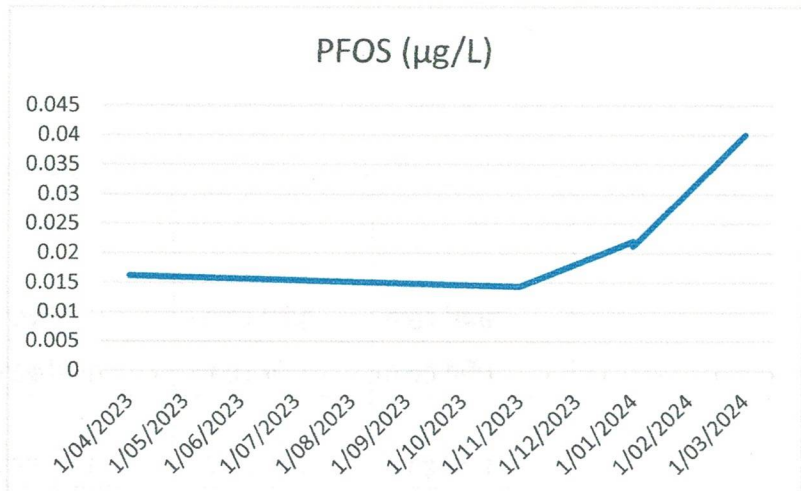
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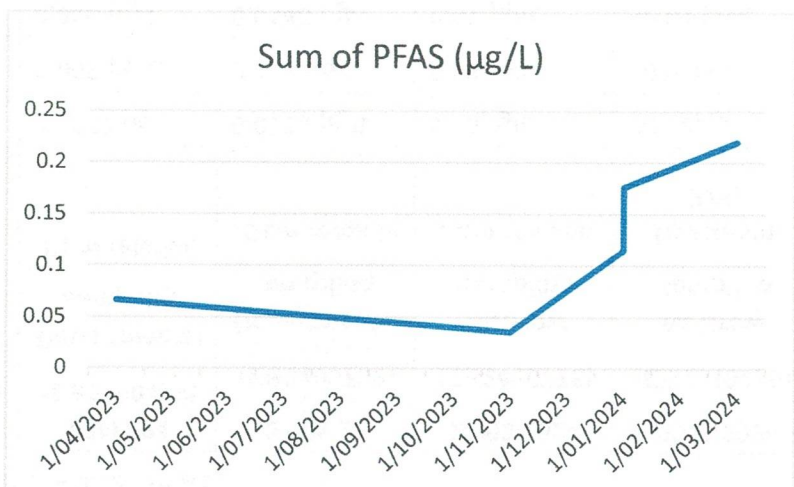
Appendix C – Sampling - leachate dam release results - PFAS

PFAS detected	12/04/23 (EB2311505) Departmental sampling Dam release	02/11/23 (EB2334313) Departmental sampling Dam release	03/01/24 (EB2400426) Departmental sampling Dam release	31/01/24 (EB2403739) Departmental sampling Dam release	27/03/2024 (EB2410775) NuGrow Sampling Dam release	27/03/2024 (EB2410775) NuGrow Sampling Upstream (US)	27/03/2024 (EB2410775) NuGrow Sampling Downstream (DS)
PFPeA	**0.0094 µg/L**	<0.0115 µg/L	<0.027 µg/L	**0.0225 µg/L**	**0.03µg/L**	<0.02µg/L	<0.02µg/L
PFHxA	**0.0302 µg/L**	<0.106 µg/L	**0.069 µg/L**	**0.118 µg/L**	**0.08µg/L**	<0.02µg/L	<0.02µg/L
PFOA	**0.0067 µg/L**	**0.0131 µg/L**	**0.016 µg/L**	**0.0148 µg/L**	**0.02 µg/L**	<0.01 µg/L	<0.01 µg/L
Sum of PFAS	**0.0666 µg/L**	**0.0363 µg/L**	**0.115 µg/L**	**0.176 µg/L**	**0.22 µg/L**	<0.01 µg/L	**0.03 µg/L**
PFOS	**0.0162 µg/L**	**0.0144 µg/L**	**0.022 µg/L**	**0.0212 µg/L**	**0.04 µg/L**	<0.01 µg/L	**0.03 µg/L**
Sum of PFHxS and PFOS	**0.0162 µg/L**	**0.0144 µg/L**	**0.022 µg/L**	**0.0212 µg/L**	**0.04 µg/L**	<0.01 µg/L	**0.03 µg/L**

Appendix D – Departmental/NuGrow sampling results -showing increasing PFOA, PFOS and Sum of PFAS concentrations within the NuGrow leachate dam. Excluding NuGrow sampling results taken on 3 January 2024.







Appendix E Nutrients Sampling (Nitrogen and Phosphorus)

Lowland freshwaters (Burrum catchment	**Limits The 20th, 50th and 80th percentiles of WQO**	**03/01/24 (EB2400426) Departmental Sampling Dam release**	**03/01/24 (EB2400426) Departmental Sampling US**	**03/01/24 (EB2400426) Departmental Sampling DS**	**31/01/24 (EB2403739) Departmental Sampling Dam release**	**31/01/24 (EB2403739) Departmental Sampling US**	**31/01/24 (EB2403739) Departmental Sampling DS**	**27/03/24 (EB2410775) NuGrow Sampling Dam release**	**27/03/24 (EB2410775) NuGrow Sampling US**	**27/03/24 (EB2410775) NuGrow Sampling DS**
total nitrogen	110 – 115 – 160 µg/L =0.11 – 0.115 – 0.16mg/L	16.5mg/L	0.9mg/L	1.8mg/L	13.3 mg/L	0.7 mg/L	1.4 mg/L	41.5	0.7	0.8
ammonia N	2 – 7 – 10 µg/L= 0.002 – 0.007 – 0.01mg/L	1.28mg/L	0.43 mg/L	0.9 mg/L	4.74 mg/L	0.16 mg/L	0.23 mg/L	N/A	N/A	N/A
total phosphorus	6 – 10 – 14 µg/L = 0.006 – 0.01 – 0.014mg/L	5.7 mg/L	0.03 mg/L	0.21 mg/L	5.78 mg/L	0.21 mg/L	0.20 mg/L	7.57	0.09	0.05

Appendix F – Departmental/NuGrow sampling results -showing increasing nutrient concentrations within the NuGrow leachate dam.

