

Notice

Environmental Protection Act 1994

Environmental Evaluation

Notice to conduct or commission an environmental evaluation

This notice to conduct or commission an environmental evaluation is issued by the administering authority pursuant to section 326B of the Environmental Protection Act 1994.

JBS Australia Pty Ltd
62 McRoyle Street
WACOL QLD 4076

Your reference: STAT1153; EPPR00767413

Our reference: CA4544; 101/0008424

19 April 2018

Take notice: that under the *Environmental Protection Act 1994* (the Act) a notice to commission an environmental investigation is issued to JBS Australia Pty Ltd, ACN 011 062 339 (JBS) by the administering authority. The administering authority is the Chief Executive of the Department of Environment and Science (the department).

The notice to commission an environmental investigation is issued with respect to the activities of JBS Australia Pty Ltd at Townsville on land described as Lot 105 on Plan SP253485 situated at Bruce Highway, Stuart 4811 (the premises).

A. Grounds

The notice to commission an environmental investigation is issued on the following grounds:

- Under section 326B of the Act, the administering authority is satisfied on reasonable grounds that an activity or proposed activity is causing or is likely to cause environmental harm.

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

1. JBS Australia Pty Ltd (JBS) owns an operational meatworks site in Townsville. The Townsville site is located on Lot 105 on Plan SP253485 (formerly Lot 105 on Plan EP1535).
2. JBS is the holder of Environmental Authority EPPR00767413 (the EA), formerly ENRE00888309, which authorises the following Environmentally Relevant Activities (ERA) at the Townsville site:
 - a. 25 (2) (b) – Meat processing, including rendering, in a year, more than 5,000t to 50,000t of meat or meat products; and

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- b. 63 (2)(b) – Sewage treatment- operating sewage treatment works, other than no-release works, with a total daily peak design capacity of more than 100 to 1,500EP if treated effluent is discharged to an infiltration trench or through an irrigation scheme.
3. The Wastewater Treatment Plant (WWTP) treats wastewater that comes from the kill floor of the abattoir operations. The wastewater is comprised of faeces, urine, blood and paunch (stomach contents).
4. The wastewater is treated via two anaerobic and three aerobic ponds before being irrigated to selected pasture land on site. The pasture is then harvested and sold by a third party.
5. The wastewater contains high levels of nutrients, organic matter, suspended solids, pathogens and other contaminants.
6. The EA requires an Irrigation Management Strategy (IMS). The purpose of the IMS is to ensure that the assimilative capacity of the irrigation area is not exceeded.
7. The EA contains the following conditions relating to the 'Irrigation Management Strategy':

E3 - The registered operator must

- (a) *Develop an Irrigation Management Strategy (IMS) which provides for the following functions:*
 - (i) *Reasonable and practicable measures to minimise the likelihood of environmental harm resulting from the release of contaminants to land;*
 - (ii) *Maintenance of the land irrigation area to provide for adequate assimilation, percolation, evaporation and transpiration of the irrigated waste water; and*
 - (iii) *Maintenance of the tailings dam to ensure maximum freeboard at all times...*

E4 – The IMS must include but not be limited to:

- (a) *An assessment of areas currently used for irrigation;*
 - (b) *The locations of watercourses and property boundaries;*
 - (c) *An assessment of soils including types, structure, nutrient status, salinity and sodicity, cation exchange capacity and sodium absorption ratio (SAR) of the contaminant release area;*
 - (d) *An Irrigation Management Plan (IMP), based on the sustainable long term use of the irrigated lands, taking into consideration at least the following matters:*
 - i. *A water balance table based on an 'average' year and a 'ninetieth' (90th) percentile wet year;*
 - ii. *Effluent allocation to the contaminant release area;*
 - iii. *Nutrient balance, including loads of Nitrogen and Phosphorous;*
 - iv. *Salt balance; and*
 - v. *Proposed crop development and removal strategies.*
 - (e) *A monitoring program that includes:*
 - i. *Soils and sub-soil analysis;*
 - ii. *Groundwater monitoring that determines the existence and rate of infiltration of effluent that has been irrigated to land, and the potential or actual impacts on groundwater from such infiltration;*
 - iii. *Plant analysis to assess nutrient export;*
 - iv. *Determination of the quantity of effluent irrigated to land; and*
 - v. *Determination of the quality of effluent for Suspended Solids, pH, Conductivity, total Nitrogen, total Phosphorous, 5 day Biochemical Oxygen and Faecal Coliforms.*
8. The document 'Irrigation Management Strategy, Australia Meat Holdings Abattoir, Stuart, Townsville QLD', dated 23 November 2004 (the IMS), was provided by JBS (formerly Australia Meat Holdings) and is understood to have been prepared in accordance with condition E3 of the EA.
 9. Sections 2.2: Effluent Quantity and 3.1: Irrigation Area of the IMS state that a total of 710ML of effluent is irrigated to 111ha of land per year.
 10. Section 2.3: Effluent quality outlined in the IMS states at Table 1 the 'final effluent quality data' for irrigation as follows:

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	BOD mg/L	TSS mg/L	pH	Cond. μS/cm	TN mg/L	TP mg/L
Average	31	57	7.8	2480	114	20
Range	9 to 131	28 to 127	7.2 to 8.5	2320 to 2570	48 to 147	12 to 23
No. Data	80	80	80	35	7	7

11. Sections 7.1: Phosphorus and 7.2: Nitrogen in the IMS outline the nutrient balance figures for phosphorous and nitrogen respectively. The sustainable life of irrigation for phosphorous application at an average concentration of 20mg/L at 710ML per year over 111 ha is stated to be 46 years. The nitrogen application at an average concentration of 114 mg/L at 710ML per year over 111 ha is stated to be approximately sustainable. Both calculations for sustainability were made based on even distribution of contaminants across 111ha and on the proviso that the Rhodes Grass crop is harvested to remove nutrients from the site. This analysis is supported by extracts from 1994 and 1999 soils reports, found in section 4.0 of the IMS.
12. Effluent quality results for April 2016 – March 2017, submitted by JBS on 28 April 2017 outline the following:

	BOD mg/L	TSS mg/L	pH	Cond. μS/cm	TN mg/L	TP mg/L
Average	27	69	8	1809	122	30
Range	16 to 51	44 to 150	7.6 to 8.18	694 to 2259	24 to 180	14 to 40
No. Data	10	10	10	10	10	10

13. The effluent quality results for April 2016 – March 2017 report concentrations of nitrogen and phosphorous above the averages set out in the IMS, indicating that an increased nutrient load is likely.
14. To determine if the nutrient loading to the wastewater irrigation area is sustainable and in balance as per the IMS, calculations and justifications have been undertaken by the department using the values in the table under paragraph 12.
15. The calculations show that there is potentially 14,430kg/yr of nitrogen that is not being taken out of the system by the harvesting of Rhodes Grass.
16. The calculations identify that the ability of the soil to store phosphorus at the rate indicated by the most recent effluent results is 18.7 years over the life of the site (the IMS stated a sustainable irrigation life for phosphorus of 46 years (in section 7.1)).
17. Further information provided by JBS suggests that soil and groundwater on site does not appear to have high levels of nutrient contamination.
18. The department considers that there is likely a loss of nitrogen to surface waters as per point 15, and thus likely harm to the receiving environment. Excess nitrogen in estuarine waters can cause eutrophication of water, which can lead to algal blooms, reduction of dissolved oxygen in the water and fish deaths.

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19. As per point 17, while JBS has provided a groundwater report that does not suggest high levels of nutrient contamination in groundwater, the department considers that the bores used to collect the monitoring data are too deep to detect potential impacts on shallow aquifers. Investigations at neighbouring sites indicate that shallower aquifers occur in the area and it seems likely that these could be affected by the leaching of nutrients from the irrigation of waste water to areas on site. These shallower aquifers would also appear likely to have interaction with surface waters (salt flats) described below.
20. The 'tailwater dam' is described in section 3.2 of the IMS. The purpose of the tailwater dam, as per the IMS, is to collect tailwater from the (flood) irrigation pastures for re-irrigation to pasture (via spray irrigation). The location of the tailwater dam is approximately 1.5km to the north of the meat processing plant infrastructure.
21. Section 5.1 of the IMS states that in an average year a mixture 108.8ML of stormwater and effluent will be released from the tailwater dam. The relationship between the IMS and the EA may currently provide authorisation for these releases.
22. On 24 March JBS reported a release from the tailwater dam after a rainfall event. The release occurred on 23 March 2017.
23. Correspondence from JBS dated 28 April 2017, states that the release flowed to the east of the tailwater dam, adjacent to the salt flats within the JBS site boundary.
24. The salt flats are considered mid estuary waters within the Townsville State Development Area (TSDA) under the Environmental Protection (Water) Policy (EPP Water) and are located on the site and directly to the north of the site.
25. Water quality monitoring was undertaken by JBS for the release event on 23 March 2017. Site 9 is the tailwater dam release point, approximately 50m south of the northernmost site boundary, approximately 200m east of the salt flats on site, and approximately 150m south of the salt flats off site. Certificates of analysis were received on 7 April 2017 which identified the following concentrations of contaminants:

Analysis	Unit	Site 9, 23/03/2017
Oil & Grease	mg/L	<5
Nitrite	ug/L	10
Total Nitrogen	mg/L	3.7
Total Kjeldahl Nitrogen	mg/L	3.7
Ammonia	mg/L	0.329
Total Phosphorous	mg/L	5.2
Filterable Reactive Phosphorus	mg/L	5
Faecal Coliforms	Cfu/ 100mL	2,700
Volatile Fatty Acids	mg/L	22
Alkalinity	mg CaCO ₃ /L	55

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Analysis	Unit	Site 9, 23/03/2017
Biological Oxygen Demand	mg/L	12
pH	pH unit	7.18
Electrical Conductivity	uS/cm	248
Chemical Oxygen Demand	mg/L	112

The contaminants of concern are as follows:

- Faecal coliform levels at 2,700 cfu/100 mL;
 - Ammonia levels at 329 µg/L, above the levels in the EPP Water for mid estuary waters within the TSDA of <10 µg/L;
 - Total Nitrogen levels at as 3,700 µg/L, above the levels in the EPP Water for mid estuary waters within the TSDA of <300 µg/L;
 - Filterable Reactive Phosphorus levels at 5,000 µg/L, above the levels in the EPP Water for mid estuary waters within the TSDA of <8 µg/L; and
 - Total Phosphorus levels at 5,200 µg/L, above the levels in the EPP Water for mid estuary waters within the TSDA of <25 µg/L.
26. On 24 May 2017 JBS reported a release from the tailwater dam after a rainfall event. The release occurred on 20 May 2017.
27. Correspondence from JBS dated 22 August 2017 and received on 23 August 2017 states that the release flowed to the east of the tailings dam, adjacent to salt flats within the JBS site boundary
28. The salt flats are considered mid estuary waters within the TSDA under the EPP Water and are located on the site and directly to the north of the site.
29. Water quality monitoring was undertaken by JBS of the release event on 20 May 2017. Certificates of analysis were received on 9 June 2017 which identified the following concentrations of contaminants:

Analysis	Unit	Site 9, 22/05/2017
Oil & Grease	mg/L	<5
Nitrite	µg/L	189
Total Nitrogen	mg/L	5.4
Total Kjeldahl Nitrogen	mg/L	4.5
Ammonia	mg/L	1.5
Total Phosphorous	mg/L	4.2
Filterable Reactive Phosphorus	mg/L	3.8

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Analysis	Unit	Site 9, 22/05/2017
Faecal Coliforms	Cfu/ 100mL	90,000
Volatile Fatty Acids	mg/L	12
Alkalinity	mg CaCO ₃ /L	50
Biological Oxygen Demand	mg/L	17
pH	pH unit	6.79
Electrical Conductivity	µS/cm	269
Chemical Oxygen Demand	mg/L	112
Total Dissolved Solids	mg/L	230
Total Suspended Solids	mg/L	12

The contaminants of concern are as follows:

- Faecal coliform levels at 90,000 cfu/100 mL;
- Ammonia levels at 1,500 µg/L, above the levels in the EPP Water for mid estuary waters within the TSDA of <10 µg/L;
- Total Nitrogen levels at as 5,400 µg/L, above the levels in the EPP Water for mid estuary waters within the TSDA of <300 µg/L;
- Filterable Reactive Phosphorus levels at 3,800 µg/L, above the levels in the EPP Water for mid estuary waters within the TSDA of <8 µg/L; and
- Total Phosphorus levels at 4,200 µg/L, above the levels in the EPP Water for mid estuary waters within the TSDA of <25 µg/L.

30. Departmental officers carried out a compliance inspection on 21 April 2017. Officers noted that there was an alleged unlicensed composting activity on site. This activity is thought to be a potential source of contaminants to the tailwater dam as the compost windrows are situated on an unbunded area in which runoff during rainfall events flows to a drainage line that reports directly to the tailwater dam.
31. The sample analyses from the release events of 23 March 2017 and 20 May 2017 identify elevated levels of contaminants above the EPP Water guideline values, as described above. Matters of concern with respect to the elevated level of contaminants in water leaving the site include:
 - What are the sources of the contaminants in water, for example, nutrient runoff resulting from wastewater irrigation or stormwater from the composting activity or from other sources on site;
 - What is the volume of contaminated water generated by the activity;
 - What is the volume of contaminated water that is leaving site/ reaching the receiving environment; and
 - What impacts are there to environmental values resulting from the releases to waters.

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32. The department considers that further investigations are required to determine whether the nutrient balance on site (presented in the IMS) is still relevant and if it adequately describes the current operating conditions.
33. The department considers that further investigations are required to determine the source, nature and extent of potential or actual contamination resulting from a potentially inadequate nutrient balance in conjunction with the stormwater releases from the site.
34. The department is satisfied on reasonable grounds that an environmental investigation should be undertaken to assess the sources of contaminants entering the tailwater dam and the nature and extent of impact resulting from the release of contaminated water from the tailwater dam (including by irrigation), which is causing or is likely to cause environmental harm to the abovementioned mid estuary waters within and potentially outside of the TSDA. The outcome of the environmental investigation is to identify the source, nature and extent of the impact resulting from the release of contaminated water with the view to prepare a revised management plan and nutrient balance regime to prevent any future potential or actual harm to affected environmental values.

B. Requirements

The report on the environmental investigation must address the following relevant matters:

Wastewater Irrigation

Requirement 1

By 29 June 2018 conduct daily time step modelling (preferably using MEDLI) using climate data from your local area to simulate the material mass balance for wastewater, nutrients and salt at the premises for at least the following modelling scenarios and provide a report to the administering authority:

- I. The Current Scenario-
Use the current:
 - (a) effluent quality and quantities produced by the facility;
 - (b) storage pond capacities for treatment and wet weather (or buffer) storage, also inputting current pond geometry;
 - (c) irrigation strategy, management and methods;
 - (d) available land area, soil parameters and any available groundwater information; and
 - (e) crop species and cropping management;

to assess the current wastewater irrigation system and quantify potential loss pathways for wastewater, nutrients and salt to surface water and groundwater, and accumulation of nutrients and salts in soils.

- II. Optimal Scenarios-
Using the quantification of potential loss pathways identified in 1. The Current Scenario, adjust appropriate inputs to the model until potential losses to the environment of wastewater, nutrients and salt are minimised and so that the environmental values are protected.

The modelling of the optimal scenarios must consider:

- (a) effluent quality and any opportunities for improving wastewater quality, and wastewater volumes and any opportunities at the facility for the reduction of wastewater volumes;
- (b) the need for additional pond storage to minimise the release of wastewater during wet weather;
- (c) the irrigation of wastewater based on crop demand and not on a fixed irrigation schedule;
- (c) irrigation methods which minimise the leaching of contaminants to groundwater and the release of wastewater to surface waters, (this must include the use of irrigation tail water dams and tail water recycling);
- (d) the need for any additional land area for irrigation; and

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(e) the need to change to other available crop species and cropping management practices to optimise the removal of nutrients and the uptake of irrigated wastewater;

Note: Tailwater and contaminated stormwater from areas such as the composting area may not be able to be dealt with using MEDLI but should be considered in the context of wastewater irrigation to land.

Groundwater

Requirement 2

By 29 June 2018 an appropriately qualified person must investigate, describe and report on the groundwater system at, and in the vicinity of, the premises, to characterise the groundwater potentially affected by the activity. The report must include at least descriptions of:

- (a) The hydrogeology in and around the premises; and
- (b) Any perching or confining features; and
- (c) Depths to groundwater and groundwater elevation in metres Australian Height Datum (AHD); and
- (d) Gradients and flow directions; and
- (e) Hydraulic properties of the host soils and lithology; and
- (f) Potential interaction with surface waters; and
- (g) Identification of potential groundwater dependent ecosystems and how groundwater interacts with them. (if applicable)

Requirement 3

By 29 June 2018 an appropriately qualified person must design and implement a groundwater monitoring network that ensures:

- (a) Bores are constructed in accordance with the "Minimum Construction Requirements For Water Bores in Australia" (Third edition) – National Uniform Drillers Licensing Committee 2011; and
- (b) a sufficient number of representative groundwater samples can be collected from the uppermost aquifer(s) and any deeper aquifer(s) likely to be impacted by the activity; and
- (c) a sufficient number of representative groundwater samples can be collected from hydraulically up-gradient or background bore(s) that have not been affected by any release of contaminants from the activity to groundwater; and
- (d) a sufficient number of representative groundwater samples can be collected from hydraulically down gradient or impacted bore(s) of any potential or actual release of contaminants to groundwater from the activity.

Requirement 4

By 29 June 2018 using the groundwater monitoring network required by Requirement 3 you must commence monitoring and keep records of groundwater quality for the relevant monitoring bores and maintain the groundwater monitoring program using an appropriately qualified person, or person(s) trained and supervised by an appropriately qualified person. All determinations of groundwater quality must be:

- (a) conducted for the water quality characteristics and at the minimum frequency stated in Table 1;
- (b) carried out with sufficient regularity and temporal replication to make valid conclusions about the presence or absence of contamination or other impact;
- (c) made in accordance with the best practice methods prescribed in the latest edition of the AS/NZS 5667.11:1998 (R2016) *Water quality – Sampling – Guidance on sampling of groundwaters*.

Table 1 Groundwater Quality Characteristics to be monitored and monitoring frequency

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Quality characteristic	Units	Monitoring frequency
pH	pH Unit	Monthly (in situ)
Electrical Conductivity	µS/cm	Monthly (in situ)
Ammonia as N	mg/L	Monthly
Nitrite and Nitrate as N	mg/L	Monthly
Total Nitrogen as N	mg/L	Monthly
Total Phosphorus as P	mg/L	Monthly

Requirement 5

By 1 August 2019, you must provide a written report, prepared by an appropriately qualified person, to the administering authority:

- (a) which describes how Requirements 2, 3 and 4 have been carried out; and
- (b) which utilises the results of groundwater monitoring to provide an assessment of any impact(s) on groundwater from the activity; and
- (c) which describes any source(s) of groundwater contamination and how groundwater contamination may have been caused; and
- (d) which describes the extent of any contamination of groundwater; and
- (e) which provides an evaluation of reasonable and practicable remediation measures of any identified impact to environmental values; and
- (f) which recommends the most appropriate remediation measure and provides a work program to implement the recommendations with estimated timeframes.

Surface Water

Requirement 6

By 29 June 2018 design and implement a stormwater and surface water assessment prepared by an appropriately qualified person(s) to monitor the effects of the activity on surface waters.

The stormwater and surface water assessment must include at least the following:

- (a) a description and assessment of all stormwater catchments on the premises and the contaminants of concern within each catchment; and
- (b) a description and assessment of all stormwater flow pathways on the premises and from the premises to receiving waters; and
- (c) a description and assessment of any available stormwater storage at the premises and any pumping capacities (for highly contaminated areas such as the composting area, the assessment should consider local rainfall data and compare pump capacities to a 1 in 10 year, 24 hour storm event); and
- (d) a description of potentially affected receiving waters including key communities and background water and sediment¹ quality characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality); and
- (e) a description of applicable environmental values and sediment¹ and water quality objectives to be

¹ If it is determined that potential effects of contaminants on sediment characteristics are minimal, determination of sediment quality targets may not be applicable. Please note that sufficient evidence of minimal impacts to sediments from relevant contaminants identified is required from JBS or parties commissioned by JBS to undertake this investigation must be provided and reviewed by the department.

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- achieved; and
- (f) consideration of any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment within which the receiving surface waters monitoring program is proposed; and
 - (g) the identification of appropriate water and sediment¹ quality targets within the receiving surface waters to be achieved, and clarification of contaminant concentrations or levels indicating adverse environmental impacts during the monitoring program.

Requirement 7

Based on the assessment required by Requirement 6, by 31 August 2018, develop and submit a report, prepared by an appropriately qualified person that analyses any impact to the receiving surface waters from the activity. The report must include, but not be limited to the following:

- (a) identification of impacts to the receiving surface waters from contaminants that are present on the JBS site; and
- (b) the source of any potential impact from the activity to the receiving surface waters; and
- (c) the cause of any potential impact from the activity to the receiving surface waters; and
- (d) the extent of any potential impact from the activity to the receiving surface waters; and
- (e) recommendations of the most appropriate remediation measures and a work program to implement the recommendations with estimated timeframes.

The environmental investigations must be carried out, and the environmental report prepared, by an **appropriately qualified person**. An **appropriately qualified person** means a person who has professional qualifications, training, skills or experience relevant to the environmental investigation requirements, and can give authoritative assessment, advice and analysis in relation to the environmental investigation requirements using relative protocols, standards, methods or literature.

The environmental reports must be submitted to the department on or before:

- **29 June 2018; 31 August 2018 and 1 August 2019**

As the recipient of this notice, you are also required to provide a statutory declaration in the form attached, to accompany the environmental report submitted to the department. The suitably qualified person who prepares the environmental report must also provide a statutory declaration in the form attached to accompany the environmental report submitted to the department.

You can view an electronic version of the statutory declaration for a recipient using the following search term ([ESR/2016/1997](#)).²

An electronic version of the statutory declaration for a suitably qualified person form is available using the search term ([ESR/2016/2266](#)).

Take notice:

1. the requirements of the notice to conduct or commission an environmental investigation take effect immediately upon service of this notice;
2. this notice remains in force until further notice from the department; and

² This is the publication number. The publication number can be used as a search term to find the latest version of a publication at <www.ehp.qld.gov.au>.

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3. you are responsible for meeting the costs of conducting or commissioning the environmental evaluation, preparing the environmental report and providing any further information as requested by the department.

C. 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 certain decisions of the department, may be able to apply to have the department review that original decision.

Generally, a request to have a decision reviewed must be made:

- within 10 business days of the decision being notified to the person;
- be supported by enough information to enable the department to decide the application for review; and
- be made using the application for review of an original decision form ([ESR/2015/1573](#)).

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 also be able to request a statement of reasons for a decision or a statutory order review under the *Judicial Review Act 1991*.

For further information about reviews and appeals see the:

1. [Information sheet - internal review and appeal to the Planning and Environment Court \(ESR/2015/1572\)](#).

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

D. Penalty

Failure to comply with a notice to conduct or commission an environmental evaluation is an offence.

- The maximum penalty for an individual is 300 penalty units, totalling \$37,845.00.
- The maximum penalty for a corporation is 1500 penalty units, totalling \$189,225.00.

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Should you have any queries in relation to this notice, please contact Kirsten Wright of the department on telephone number (07) 4722 5362.



Signature

19 April 2018

Date

Tim Brain
 Manager (compliance)
 Delegate of the Chief Executive
 Department of Environment and Science
Environmental Protection Act 1994

Enquiries:

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