

DRAFT Notice

Amendment of an approval of a resource for beneficial use

This notice is issued by the chief executive, pursuant to section 168 of the *Waste Reduction and Recycling Act 2011* to advise you of a decision by the chief executive and your review and appeal rights.

Nugrow Roma Pty Ltd
4/7 Sonia Court
RACEVIEW QLD 4305

Our reference : PR: 409312, App. no. 543076

Attn: Mr Peter Thompson, Environmental Compliance Manager

Dear Mr Thompson

Re: Amendment application for approval of a resource by Nugrow Roma Pty Ltd for the beneficial use of multiple wastes in a soil rejuvenation program (ENBU05261913)

The chief executive has considered your application that was received on [5 November 2014](#) and decided to approve the application. The amendments take effect from the date of this Notice

This approval (ENBU05261913) is a specific approval of which Nugrow Roma Pty Ltd (ABN 88 151 756 517) has the benefit and it is subject to the conditions set out in the attached schedule, issued in accordance with section 166 of the *Waste Reduction and Recycling Act 2011*.

The approval of the resource remains in force until **23 January 2019** (the period of the approval) unless the approval is replaced, suspended or cancelled.

The issuing of this approval for the beneficial use of a resource does not warrant or imply the lawfulness of the activity under other legislation, or that all approvals necessary under other legislation have or will be approved. It is the responsibility of the applicant to identify and obtain all other approvals necessary for the proposed activity.

The issuing of this approval also does not remove the obligation for the holder of the approval to take all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused (the 'general environmental duty', see s. 319 of the *Environmental Protection Act 1994*). 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.

Guidance on acceptable approaches to monitoring compliance with this approval is provided in Appendix [C](#) of this document.

Additional Advice about the application

You may apply to the chief executive for a review of this decision within 14 days of receiving this notice. Applications must be made using the approved form, "Application for Internal Review of an Original Decision" (EM219), which is available at <www.ehp.qld.gov.au> using the publication number EM219 as a search term. The completed form must be sent to the address on the form.

An application to review a decision does not stay the original decision. If you apply for an internal review of this decision you can also apply to the chief executive (using the same form) or the Queensland Civil and Administrative Tribunal (using form 44, "Application to Stay a Decision" available at <www.qcat.qld.gov.au>) for a stay of the original decision.

Sections 174-179 of the *Waste Reduction and Recycling Act 2011* cover the internal review process.

Should you have any queries in relation to this Notice, please contact Simone Ventura in the telephone number listed below.

Yours sincerely,

Signature

Date

Kelly Gleeson
Manager, Industry and Development
Environmental Services and Regulation
Environment and Heritage Protection

Enquiries:

Simone Ventura, Principal Project Officer
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SCHEDULE: CONDITIONS

Limitations of approval

- The approved resources are limited to those listed that meet the respective criteria for use listed in *Table 1 – Resource criteria*¹, that are to be applied to land by Nugrow Roma Pty Ltd (holder of the approval) for the improvement of soils located at Iona Park, Millbank Boundary Road, Kogan Qld 4406 (Lot 3 on DY117) (the site).

Table 1 – Resource criteria²

Resource	Criteria
Green waste	Green waste will only be utilised in the following scenarios: (a) in onsite composting; (b) applied as mulch to the surface layer of the ground surface; and/or (c) incorporated within the soil (top 10cm only).
Food waste	Food waste (liquid and solid) will only be incorporated in onsite composting windrows.
Livestock manure	Livestock manure will be applied directly to land or used in manufacturing compost.
Biosolids	Biosolids will be applied directly to land or used in manufacturing compost. Biosolids to be directly applied to land meet at least <i>Stabilisation Grade B</i> ³ , and <i>Contaminant Grade C</i> ⁴ classified as suitable for <i>Restricted Use 2</i> under the New South Wales Environmental Protection Authority <i>Environmental Guidelines: Use and Disposal of Biosolids Products</i> (2000) (the NSW Guidelines). Biosolids to be used in manufacturing compost meet at least <i>Stabilisation Grade B</i> ⁵ , and <i>Contaminant Grade D</i> ⁶ under the NSW Guidelines.
Treated sewage effluent	Treated sewage effluent: (a) will be released to the main dam for storage prior to irrigation; and (b) does not have, or prior to release to the main dam will be treated by Ultraviolet (UV) ozone disinfection on site ⁷ so that it does not have, <i>Escherichia coli</i> (E. Coli) concentrations that exceed 10,000 cfu/100mL found in 95% of the samples taken for a 12 month period ⁸ ; and (c) will not be used on food crop including minimally processed food crop .
Coal seam gas (CSG) produced water and drilling fluids	CSG produced water and drilling fluids used: (a) have a pH of at least 6 but not more than 10.5; and (b) have an electrical conductivity of less than 15,000 µS/cm.

¹ Any resource that is not used as stated in condition 1 is considered a waste and must be managed in accordance with the *Environmental Protection Act 1994* and *Waste Reduction and Recycling Act 2011*, and their subordinate legislation.

² Resource sampling and analysis for biosolids should be conducted in accordance with the procedures detailed in *Schedule 1—Biosolids sampling and analysis procedures* and *Schedule 2—Grading, sampling and compliance procedures* of the NSW Guidelines.

³ Biosolids must meet at least one of the requirements for pathogen reduction and the vector attraction requirements in Table 3–3 *Biosolids Stabilisation Requirements* of the NSW Guidelines.

⁴ Biosolids must not exceed the contaminant acceptance concentration limits for Grade C listed in Table 3–1 *Contaminant Concentration Thresholds* of the NSW Guidelines.

⁵ Biosolids must meet at least one of the requirements for pathogen reduction and the vector attraction requirements in Table 3–3 *Biosolids Stabilisation Requirements* of the NSW Guidelines.

⁶ Biosolids must not exceed the contaminant acceptance concentration limits for Grade D listed in Table 3–1 *Contaminant Concentration Thresholds* of the NSW Guidelines.

⁷ To remove any doubt, treated sewage effluent with *E. Coli* concentrations >10,000 cfu/100mL may be received on site however must be treated prior to being released to the main dam using **UV ozone** disinfection methods to ensure that *E. Coli* concentrations do not exceed 10,000 cfu/100mL found in 95% of the samples taken for a 12 month period.

⁸ Based on the Department of Energy and Water Supply (2008) *Water quality guidelines for recycled water schemes*, available at <www.dews.qld.gov.au>, and the *Public Health Regulation 2005*.

Drilling mud

Drilling mud:

- (a) will be mixed with compost to create a finished product for land application at Iona Park which is deemed suitable by an appropriately qualified person;
- (b) will be mixed at a ratio of no less than 3:1 (compost to drilling mud);
- (c) complies with the limits and quality characteristics stated in Appendix A – *Drilling mud quality characteristics*;
- (d) does not contain **restricted stimulation fluids**; and
- (e) is in solid form with no free flowing liquid.

2. The resources must not have any properties nor contain any other contaminants at concentrations which may cause environmental harm⁹ when used in accordance with the conditions of this approval.
3. Prior to the use of any resource under this approval, the holder of the approval must obtain written consent to use the resource from the person who possesses the resource, and keep records of the consent.

Resource monitoring

4. Any monitoring to determine the quality of resources applied to land on the site must be carried out on samples that are representative of the resources to be used.
5. Where the composition of a resource has changed or is likely to change, sufficient monitoring must be conducted to detect and characterise the extent of any change.
6. An **appropriately qualified person** must monitor, record and interpret all parameters listed in *Table 1 – Resource criteria* as part of this approval.
7. All analyses undertaken as a part of this approval must be carried out by a laboratory that has NATA certification, or an equivalent certification, for such analyses.

Use of the resources

8. The use of the resources must ensure that:
 - a) the soil structure, stability and productive capacity of the land on the site is maintained or improved;
 - b) there are no toxic effects to either crops or pasture plants; and
 - c) yields and produce quality are maintained or improved.
9. The use of the resources must be undertaken in accordance with written procedures that:
 - a) identify potential risks to the environment from the use of the resource during routine operations, closure and an emergency
 - b) establish and maintain control measures that minimise the potential for environmental harm; and
 - c) ensure that reviews of environmental performance are undertaken at least annually.
10. The use of the resources must not result in soil on the site being contaminated soil, when investigated in accordance with the current of the National Environment Protection (Assessment of Site Contamination) Measure 1999.
11. The resources must not be released directly or indirectly to land, air, or **waters** in a way or at a concentration that would cause environmental harm.

Records

12. All information and records that are required by the conditions of this approval must be kept for a minimum of five (5) years, and must be provided to the **chief executive** upon request.

Noise

⁹ See section 14 of *Environmental Protection Act 1994*. Environmental harm includes any adverse effect or potential adverse effect on public amenity and safety, waters, and health of stock grazed and plants grown on land ameliorated by the resource.

13. Noise resulting from the use of the resource must not cause an environmental nuisance.

Air

14. Odours or airborne contaminants which are noxious or offensive or otherwise unreasonably disruptive to public amenity or safety must not cause nuisance to any **sensitive place** or **commercial place**.

Transportation of resources

15. The resources must be handled and transferred in a manner that prevents the release of those resources during transporting, loading and unloading.
16. The following information must be recorded for each load of resource transported to the site:
- a) origin of the resource;
 - b) date of pickup of the resource;
 - c) date of delivery of the resource; and
 - d) quantity of the resource.

Compost manufacturing

17. Compost in which the resources are used must be manufactured at a rate of less than 200t per year¹⁰.
18. Biosolids used in the compost must be treated in an aerobic process for at least 14 days. During that time, the temperature of the biosolids must be >40 °C and the average temperature >45 °C.
19. Any compost manufactured must meet the requirements for producing compost contained in Australian Standard 4454 *Compost, soil conditioners and mulches*.

Solid resource application to land

20. The application of biosolids, manures and compost (including compost mixed with drilling mud), to land must be conducted at an agronomic loading rate no greater than the lower of the nitrogen limited biosolids application rate (NLBAR) or the contaminant limited biosolids application rate (CLBAR) as determined in accordance with the NSW guidelines.
21. The following records must be kept for each land application of resources:
- a) details of the land on which the application occurs;
 - b) date and time when the resource is applied;
 - c) the calculated application rate at which the resource is to be applied; and
 - d) the actual application rate.

Liquid resource application to land

22. The **liquid resources** to be irrigated to land must be of a quality that are suitable for irrigation, having been determined by an appropriately qualified person in accordance with the relevant assessment procedure listed in Appendix **AB**.
23. Liquid resources irrigated to land on the site must only be sourced from the main dam and must:
- a) not harm vegetation surrounding the irrigation area;
 - b) not cause soil erosion and soil structure damage;
 - c) not produce visible salting;
 - d) not cause surface ponding of the resource;
 - e) not result in surface runoff;

¹⁰ Manufacturing compost or soil conditioners at a rate of greater than 200t per year constitutes Environmentally Relevant Activity 53 Composting or soil conditioner manufacturing and requires an Environmental Authority under the *Environmental Protection Act 1994*.

- f) ensure that percolation of the resource beyond the plant root zone is minimised;
- g) not exceed plant fertiliser requirements; and
- h) not generate aerosol or cause spray drift, unless the irrigation methods comply with condition 24.

24. Irrigation of the liquid resources using **spray methods** must only occur:

- (a) at a pressure of equal to or less than 20 pounds per square inch (PSI); and
- (b) at a distance that is greater than 25 metres from the boundary of the site where there is vegetation screening between the irrigation area and the boundary, or at a distance that is greater than 50 metres from the boundary of the site where there is no vegetation screening.

Withholding period

25. Animals must not be allowed to graze on land on the site, on which biosolids or treated sewage effluent has been applied, for a period of at least 30 days after application.

Storage of the resources

- 26. The resources must be stored in a manner to prevent contact with stormwater runoff.
- 27. Any water that has come in contact with the resources in either storage or composting areas must be collected and recycled or irrigated to land in a manner that complies with conditions 8, 10, 11 and 23 as if it were a resource.

Impact assessment

- 28. An annual assessment of groundwater quality must be undertaken to determine any detrimental impacts of the use or if any environmental harm has, or is likely to be, caused by the use of the resources.
- 29. An annual assessment of soil quality of land where the resources have been applied must be undertaken to determine if any impact or environmental harm has or is likely to be caused by the use of the resources.
- 30. Monitoring undertaken to assess impacts of the use of the resources on groundwater or soil quality must be compliant with the chief executive's most recent monitoring and sampling manual.

DEFINITIONS

Words and phrases used throughout this approval are defined below. Where a definition for a term used in this approval is sought and the term is not defined within this permit the definitions provided in the relevant legislation shall be used.

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

Biosolids means treated tank sludges and residues from a municipal sewage treatment plant including sedimentation tank and clarifier sludges, aerobically and anaerobically digested sludge and filter cake products from those sewage treatment plants.

Coal seam gas project means an activity authorised under petroleum authority (under petroleum legislation including the *Petroleum Act 1923*, the *Petroleum and Gas (Production and Safety) Act 2004* and the *Petroleum (Submerged Lands) Act 1982*) for the extraction of coal seam gas.

Coal seam gas (CSG) production waters has the meaning in section 15A of the *Petroleum and Gas (Production and Safety) Act 2004* and means CSG water or associated water for a petroleum tenure. It does not include the waste water resulting from simulation activities.

Chief executive means the Department of Environment and Heritage Protection or its successor.

Commercial place means a workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees' accommodation or public roads.

Drilling fluids means liquids used in a drilling process for petroleum activities that are returned to the surface. It does not include residual drilling material or restricted stimulation fluids.

Drilling mud means a mixture of naturally occurring rock, soil, and water based drilling fluid generated during coal seam gas drilling operations at a coal seam gas project. It does not include drilling mud that has been generated by drilling through contaminated soils, acid sulphate soils (ASS) or potential acid sulphate soils (PASS).

Liquid resources mean treated sewage effluent and CSG drilling fluids.

Main dam means the dam located on the site which is used for the storage of treated sewage effluent and CSG drilling fluids.

Minimally processed food crop means a crop for a food product that—

- (a) may be eaten raw; or
 - (b) will be subjected to a minimal food process only.
- Examples of a minimal food process—washing, cutting, peeling, packaging.*

Residual drilling material means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.

Restricted stimulation fluids has the meaning in section 206 of the *Environmental Protection Act 1994* and means fluids used for the purpose of stimulation, including fracturing, that contain the following chemicals in more than the maximum amount prescribed under a regulation—

- (a) petroleum hydrocarbons containing benzene, ethylbenzene, toluene or xylene;
- (b) chemicals that produce, or are likely to produce, benzene, ethylbenzene, toluene or xylene as the chemical breaks down in the environment.

Sensitive place means:

- (a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- (b) a motel, hotel or hostel; or an educational institution; or
- (c) a medical centre or hospital; or
- (d) a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or

(e) a public park or gardens.

Site means Iona Park, Millbank Boundary Road, Kogan Qld 4406 (Lot 3 on DY117).

Spray methods for irrigation of liquid resources include those that are capable of generating aerosols and/or spray drift. They do not include methods such as drip, surface or sub surface irrigation.

Treated sewage effluent means sewage that has undergone treatment by sewage treatment works approved under the *Environmental Protection Act 1994* or the *Plumbing and Drainage Act 2002*.

Waters includes any river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water, natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

- END OF CONDITIONS -

Appendix A—Drilling mud quality characteristics

Quality Characteristic	Limit		Unit	Limit type
	If the resource is not subjected to a compost process	If the resource is subjected to a compost process		
Arsenic	80	80	mg/kg	Maximum
Barium	8000	8000	mg/kg	Maximum
Boron	20	20	mg/kg	Maximum
Cadmium	4	4	mg/kg	Maximum
Chromium (VI)	1	1	mg/kg	Maximum
Chromium (III)	400	400	mg/kg	Maximum
Copper	600	600	mg/kg	Maximum
Lead	600	600	mg/kg	Maximum
Mercury	4	4	mg/kg	Maximum
Nickel	240	240	mg/kg	Maximum
Selenium	20	20	mg/kg	Maximum
Silver	40	40	mg/kg	Maximum
Vanadium	400	400	mg/kg	Maximum
Zinc	1200	1200	mg/kg	Maximum
Total Petroleum Hydrocarbons (TPH) C ₆ -C ₉	100	400	mg/kg	Maximum
Total Petroleum Hydrocarbons (TPH) C ₁₀ -C ₃₆	1000	4000	mg/kg	Maximum
Benzene	1	4	mg/kg	Maximum
Phenols (non halogenated)	60	240	mg/kg	Maximum
Phenols (halogenated)	1	4	mg/kg	Maximum
Sodicity (exchangeable sodium percentage)	15	15	percent (%)	Maximum
Salinity (EC)	1000	1000	µS/cm	Maximum
Chloride	300	300	mg/kg	Maximum
pH	7.0 – 8.0	7.0 – 8.0	pH units	Range

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Appendix **BA**

Quality parameter	Assessment procedure
electrical conductivity	Salinity Management Handbook, with reference to Chapter 11; and/or Australian and New Zealand Guidelines for Fresh and Marine Water Quality, with reference to Volume 1 Chapter 4 and Volume 3 Chapter 9.
sodium adsorption ratio	
pH	<p>The assessment should consider:</p> <ul style="list-style-type: none">• soil properties within the root zone to be irrigated (e.g. clay content, cation exchange capacity, exchangeable sodium percentage)• water quality of the proposed resource (e.g. salinity, sodicity)• climate conditions (e.g. rainfall)• leaching fractions• average root zone salinity (calculated)• crop salt tolerance (e.g. impact threshold and yield decline)• management practices and objectives (e.g. irrigation application rate, amelioration techniques)• broader landscape issues (e.g. land use, depth to groundwater)• any additional modelling and tests undertaken to support the varied water quality parameters.
heavy metals	<p>Australian and New Zealand Guidelines for Fresh and Marine Water Quality, with reference to Volume 1 Chapters 3 and 4 and Volume 3 Chapter 9.</p> <p>The assessment should aim to derive site specific trigger values (e.g. cumulative contaminant loading limit) based on the methodology provided in the above mentioned procedure.</p>

Appendix CB

Advice

Please find following advice regarding the development of any monitoring programs used to help determine compliance with the conditions of approval. Monitoring programs and any written procedures for the use of the resources should be developed in accordance with best practice environmental management standards and reviewed regularly to ensure that current best practice is being implemented.

It is recommended that;

- Monitoring of biosolids to determine compliance with condition 1 should be conducted with samples taken at least every 120 dry tonnes¹¹.
- Monitoring of treated sewage effluent to determine compliance with condition 1 should be undertaken at least weekly.
- Monitoring of CSG drilling fluids and produced waters to determine compliance with condition 1 should be undertaken at least fortnightly.

Groundwater

Any groundwater monitoring program developed should provide for:

- a) Installation and monitoring of bores installed in accordance with relevant Australian standards in aquifer(s) potentially affected by the use of the resource; and
- b) The determination and keeping records of groundwater height and quality by sampling for at least the parameters, and at the frequency, stated in *Table 1 – Groundwater monitoring parameters*

Table 1 - Groundwater monitoring parameters

Parameter	Frequency
Standing groundwater level (metres AHD)	6 monthly
Arsenic	6 monthly
Cadmium	6 monthly
Chromium (Total)	6 monthly
Copper	6 monthly
Lead	6 monthly
Zinc	6 monthly
Nitrate	6 monthly
Chloride	6 monthly
Electrical conductivity (in-situ)	6 monthly
pH (in-situ)	6 monthly
<i>E. Coli</i>	6 monthly
Calcium	6 monthly
Nitrogen (total)	6 monthly
Phosphorous (total)	6 monthly
Sodium	6 monthly
Total Dissolved Solids	6 monthly

¹¹ Resource sampling and analysis for biosolids should be conducted in accordance with the procedures detailed in *Schedule 1— Biosolids sampling and analysis procedures* and *Schedule 2— Grading, sampling and compliance procedures* of the NSW Guidelines.

Soil

Any soil monitoring program should provide for monitoring of at least the parameters, and at the frequency, stated in *Table 2 – soil monitoring parameters*.

Table 2 - Soil monitoring parameters

Parameter	Frequency
Electrical conductivity (EC)	6 monthly
pH	6 monthly
Exchangeable Cation Exchange Capacity (ECEC)	Annually
Exchangeable Sodium Percentage (ESP)	Annually
Sodium Adsorption Ratio (SAR)	Annually
Arsenic	Annually
Cadmium	Annually
Chromium (total)	Annually
Copper	Annually
Lead	Annually
Mercury	Annually
Nickel	Annually
Selenium	Annually
Zinc	Annually
DDT/DDD/DDE	Annually
Aldrin	Annually
Dieldrin	Annually
Chlordane	Annually
Heptachlor and heptachlor epoxide	Annually
Hexachlorobenzene (HCB)	Annually
Lindane	Annually
Benzene hexachloride (BHC)	Annually
PCBs	Annually

Irrigation

Liquid resource being irrigated to land from the main dam should be monitored for at least the quality parameters and at the frequency specified in *Table 3 – Main dam monitoring parameters*.

Table 3 - Main dam monitoring parameters

Quality parameter	Frequency
Electrical conductivity	Fortnightly
Sodium absorption ratio (SAR)	Fortnightly
pH	Fortnightly
<i>E. Coli</i>	Monthly
Alkalinity (bicarbonate, carbonate and hydroxide)	Quarterly
Arsenic	Quarterly
Aluminium	Quarterly
Boron	Quarterly
Cadmium	Quarterly
Chromium (total)	Quarterly
Copper	Quarterly

Cobalt	Quarterly
Iron	Quarterly
Lead	Quarterly
Lithium	Quarterly
Manganese	Quarterly
Mercury	Quarterly
Molybdenum	Quarterly
Nickel	Quarterly
Selenium	Quarterly
Strontium	Quarterly
Vanadium	Quarterly
Zinc	Quarterly
Ammonium (NH ₄ ⁺)	Quarterly
Nitrate + nitrite	Quarterly
Total Kjeldahl Nitrogen (TKN)	Quarterly
Total Nitrogen	Quarterly
Total phosphorous	Quarterly
BTEX	Quarterly
Total dissolved solids (TDS)	Quarterly
Total petroleum hydrocarbons (TPH)	Quarterly
Flouride	Quarterly
Sulphate	Quarterly
Hardness (calculated)	6 monthly
Calcium, magnesium, sodium, and potassium	6 monthly
Chloride	6 monthly
Ortho phosphorous	6 monthly

Assessment report

Approval of a resource for beneficial use

Use this assessment report when deciding applications for approval of a resource under section 159 of the Waste Reduction and Recycling Act 2011 or when deciding application to transfer or amend an approval under section 168 of the Waste Reduction Act. Preparation of this assessment report is evidence that the criteria has been taken into consideration when making a decision.

EHP PROJECT NO: 404328	EHP FILE NUMBER: 101/0002277
EHP PERMIT NO:	ENBU05261913
NAME OF APPLICANT:	Nugrow Roma Pty Ltd
ABN/ACN:	88 151 756 517
REGISTERED ADDRESS:	4/7 Sonia Court, Raceview Qld 4305
Generator	Company Name: Various generators throughout SE Qld
Transporter	Company Name: Nugrow Roma Pty Ltd and other contractors
Site of Beneficial Use	Site Address: Iona Park, Millbank Boundary Rd, Kogan Qld 4406 Western Down LGA Site lot and plan: Lot 3 on DY117

CRITICAL DATES	DATE
VALID APPLICATION RECEIVED	5 November 2014
INFORMATION REQUEST ISSUED	N/A
RESPONSE TO INFORMATION REQUEST RECEIVED	N/A
Has an extension of time been approved? NOTE: Only one extension of time up to 20BD can be approved. An extension cannot be approved for an amendment or transfer application.	☐ Yes ☒ No
DECISION DUE	6 January 2014

This is an assessment report relating to an application for a—

Please check the relevant box:

- ☐ **New** specific approval
☐ **Transfer** of an existing specific approval
 (NOTE: for a transfer application, a reference to the applicant in the criteria is taken to be a reference to the proposed transferee)
☒ **Amendment** of an existing specific approval

Part A: General details

1. Summary of the proposed use of the resource/amendments

A specific approval has been granted for Nugrow to apply a number of waste materials to land as part of a soil rejuvenation program at Iona Park, Millbank Boundary Road, Kogan Qld 4406. A summary of the approved uses is provided in *Figure 1 – Approved beneficial uses*. The waste materials include a mix of regulated wastes under the EP Act and non-regulated wastes.

sch4p4(7)(1)(c) Business/commercial/professional/financial affairs

EHP RTI DL Release

The applicant has requested the following amendments to the approval:

1. **Condition 1 – Inclusion of additional site**

Proposal: The applicant proposes to add drilling mud generated from Coal Seam Gas (CSG) projects as a resource.

Recommendation: No further action. The applicant has since withdrawn this request. Refer to the response to information request letter from NuGrow to EHP, dated 15 July 2014.

Further details are provided in Part B, section 2 *Likelihood of harm*, of this report.

2. Summary of environmental risks

The main risks associated with proposed amendments are:

- Offsite health impacts – the irrigation of sewage effluent that generates aerosols and spray drift has the potential to release airborne pathogens offsite. This risk is increased as the sewage effluent approved for use has a higher pathogen content compared to effluent used in typical irrigation projects (sewage effluent approved for irrigation to land typically meets at least Class B under the Public Health Regulation 2005 having <100cfu/mL – as opposed to the currently approved Class D effluent having <10,000cfu/mL).

Pathogens include bacteria, viruses, protozoa and helminths (parasitic worms), and can result in diarrhoea, typhoid, hepatitis A or other serious illnesses.

There are neighbouring residential premises to the site.

Prescriptive conditions have been proposed in accordance with the relevant industry standards to minimise the potential for offsite release of airborne pathogens.

3. Documents and mapping considered in the assessment

Indicate the mapping documents considered in this assessment:

- | | |
|---|--|
| ☒ Applicant maps supplied | ☐ Local government maps |
| ☐ Applicant site plan supplied | (including overlays from local planning schemes) |
| ☐ Ecomaps with relevant layers | |
| ☐ Other <provide details> | |

Indicate the plans/programs/other documents that have been considered in this assessment:

- | | |
|--|---|
| ☐ Site management plan (contaminated land) | ☐ Monitoring programs |
| ☐ Site based management plan / activity based management plan | ☐ Environmental Impact Study (or other study assessing the impacts on the environment) |
| ☐ Stormwater management plan | ☐ Resource Management Plan |
| ☐ Noise management plan | ☐ Applicant design drawings |
| ☐ Dust management plan | |
| ☒ Other: Information provided with the application | |

Provide a brief description of any further information that was submitted following a request for further information:

A response to an information request was provided by Peter Thompson of Nugrow on 15 July 2014 – Refer to the file.

4. Associated activities/history of applicant

A history of the applicant is included in the assessment report for the original application.

5. Prelodgement meeting, consultations, site inspections

The draft amended conditions were developed in consultation with Peter Thompson, Environmental Compliance Manager of Nugrow.

6. Advice received

Nil

PART B: ASSESSMENT CONSIDERATIONS

Section 160 of the *Waste Reduction and Recycling Act 2011* (the Waste Reduction Act) outlines the criteria for decision. In addressing these considerations reference should be made to any subsequent conditions contained imposed on the approval.

NOTE that when deciding an application for a transfer or amendment the chief executive may consider the criteria under s. 160.

Section 160(1) of the Waste Reduction and Recycling Act 2011

Under s. 160(1) of the Waste Reduction Act, in deciding whether to grant or refuse an approval, the administering authority must consider the following:

1. Best practice environmental management

s. 160(1)(e) the best practice environmental management for the proposed use of the resource

- Ozone disinfection supports best practice as it does not leave any residual contaminants in the effluent and assists in reducing the risks at the source by improving the quality of effluent.
- While it is preferred that no aerosols or spray drift is generated, the applicant proposes appropriate measures to be implemented to minimise the potential for the release of airborne contaminants from the irrigation of liquid resources. The amendments support the hierarchy of control described in section 6.1 of the *Water quality guidelines for recycled water schemes* (DEWS, 2008).
- The disinfection activity and irrigation methods will be conducted in accordance with written procedures as required by condition 9 of the approval.
- The existing transport conditions are considered sufficient to manage any increased risk with transport.

Refer also to above consideration of part (g) of the standard criteria.

2. Likelihood of harm

s. 160(1)(f) the likelihood of any material environmental harm, serious environmental harm, or environmental nuisance happening because of the proposed use of the resource

Provided the proposed amended conditions of the approval are complied with, it is considered that there is a low likelihood of any material or serious environmental harm, or environmental nuisance happening from the use of the resource. Further details of considerations made and how the amended conditions were developed are provided below.

Quality Characteristic	Limit	Unit	Limit type	Based on GHD Report
Arsenic	80	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Barium	8000	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Boron	20	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Cadmium	4	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Chromium (VI)	1	mg/kg	Maximum	Table 3.2 Vic EPA (2009) – Maximum contaminant levels for wastes applied as clean fill Table 3.1 Maximum contaminant levels for unrestricted use of biosolids sludge or compost – SA EPA, Vic EPA, WA DEC
Chromium (III)	400	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Copper	600	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Lead	600	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Mercury	4	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Nickel	240	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Selenium	20	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing

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Silver	40	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Vanadium	400	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Zinc	1200	mg/kg	Maximum	Table 3.3 – based on 3:1 mixing
Total Petroleum Hydrocarbons (TPH) C ₆ -C ₉	100	mg/kg	Maximum	Adopted end product limit as the mud will not be mixed as a part of the compost process (which will allow for breakdown of hydrocarbons) but rather at the end.
Total Petroleum Hydrocarbons (TPH) C ₁₀ -C ₃₆	1000	mg/kg	Maximum	
Benzene	1	mg/kg	Maximum	
Phenols (non halogenated)	60	mg/kg	Maximum	
Phenols (halogenated)	1	mg/kg	Maximum	
Sodicity (exchangeable sodium percentage of clay)	15	percent (%)	Maximum	Table 3.4 – Primary media being upper most soil (application states spreading at 10mm thickness)
Salinity (EC)	1000	µS/cm	Maximum	Table 3.4 – Primary media
Chloride	300	mg/kg	Maximum	Table 3.4 – Primary media
pH	7.0 – 8.0	pH units	Range	Table 3.4 – Primary media
Surfactants	N/A	N/A	N/A	<p>No limit included as there is low risk of stormwater contamination and leachability. Existing conditions prohibit release to waters (including groundwater) in a way that may cause harm.</p> <p>GHD Report, Table 3.3 states <i>“Although surfactants are unlikely to present a risk to human health or plants, if there is potential for runoff or leaching to surface water bodies, the composter must identify the constituents of surfactants present and proposed an appropriate criteria or demonstrate acceptable leachability/risk to surface water.”</i></p>

Section 160(2) of the Waste Reduction and Recycling Act 2011

Under s. 160(2) of the *Waste Reduction and Recycling Act 2011*, in deciding whether to grant or refuse an approval, the administering authority may consider the following. These criteria however should be considered where applicable.

<i>s. 160(2) the applicant's environmental record;</i>	Considered
<ul style="list-style-type: none"> The applicants environmental record has not changed since the approval was originally issued. 	☒ Yes ☐ No
<i>s. 160(2)(b) the applicant's ability to comply with any proposed conditions of the approval;</i>	Considered
<ul style="list-style-type: none"> The applicant has reviewed and agreed to the proposed changes to conditions. Refer to email from Peter Thompson of NuGrow to Simone Ventura, EHP, dated 1 September 2014. 	☒ Yes ☐ No
<i>s. 160(2)(c) whether a disqualifying event has happened in relation to—</i> <ol style="list-style-type: none"> <i>if the applicant is an individual—the applicant or another person who is the applicant's partner; or</i> <i>if the applicant is a corporation—the corporation, any of the corporation's executive officers, or another corporation of which any of the corporation's executive officers is, or has been, an executive officer.</i> 	Considered
<ul style="list-style-type: none"> No disqualifying events have happened since the approval was originally issued. 	☒ Yes ☐ No

PART D: RECOMMENDATION

Details of the recommendation:

For the reasons stated in this report, it is recommended that the chief executive (check the applicable statements):

- ☐ **approve the new specific approval** application in accordance with s. 156 of the Waste Reduction Act (Subsequently the waste is to be considered as a resource under s13 of the *Environmental Protection Act 1994*.)
☒ **grant the amendment/transfer** application in accordance with s. 168 of the Waste Reduction Act
☐ **approve the transfer** application in accordance with s. 156 of the Waste Reduction Act
☒ **impose conditions on the approval** in accordance with s. 166 of the Waste Reduction Act (Proposed conditions and Notice of approval accompany this assessment report. The legislative considerations included in Attachment 1 – Conditions of this report have been made when drafting the proposed conditions.)
☐ **refuse the application** in accordance with s. 156 of the Waste Reduction Act (A notice of refusal including a statement of reasons accompanies this assessment report)

Simone Ventura Principal Project Officer		
Assessing Officer	Signed	Date

Review and endorsement

Insert any comments relevant for the delegates consideration:

David Cook Manager, WLCA		
Manager/Supervisor	Signed	Date

Approval

I approve the recommendation to approve with conditions based on the reasons stated in this report.

Lindsay Delzoppo
Manager, WLCA

Delegate

Signed

Date

EHP RTI DL Release

Attachment 1— CONDITIONS

LEGISLATIVE CONSIDERATIONS

Waste Reduction and Recycling Act 2011

Section 166 of the Waste Reduction Act states that:

- (1) The chief executive may impose conditions on an approval that the chief executive considers necessary or desirable.
- (2) Without limiting subsection (1), the conditions may relate to any of the following —
 - (a) The characteristics of the resource, including, for example, its physical state and its components and their concentrations;
 - (b) The origin and destination of the resource;
 - (c) Transporting or storing the resource;
 - (d) Any treatment or process for re-using, recycling, energy recovery, reprocessing or other use of the resource;
 - (e) Any waste resulting from a treatment or process mentioned in paragraph (d)
 - (f) The quantity of the resource that may be used under the approval and time frames relating to its use;
 - (g) Sampling, analysis, monitoring and reporting in relation to the resource;
 - (h) Measures or action to be taken to minimise against or remediate environmental impacts from the use of the resource, including material environmental harm, serious environmental harm or environmental nuisance.
- (3) A condition may be expressed to apply to anyone who has the benefit of the approval.
Without limiting subsection (3) a condition of a general approval may be expressed to apply to the producer, receiver, re-user, recycler or energy recoverer of the resource to which the approval relates.

DRAFTING INSTRUCTIONS FOR CONDITIONS

When drafting approval conditions, the principles contained in the departments procedural guide, [Writing Effective and Enforceable Conditions](#) (EM2417)¹, and the [Regulatory Strategy](#) should be followed.

Before developing a condition, it should be considered whether a condition is necessary to achieve the desired environmental outcomes. Following this, conditions should be developed using the **SMART** principles.

In summary, the “SMART” principles are

Letter	Rule	Details of the rule
S	Specific	What must be done (including details of where it must be done) or what must not be done (and details)? Who must or must not do it?
M	Measurable	It must be possible to know whether the person has complied with the condition.
A	Achievable	Is it capable of being complied with?
R	Reasonable/Relevant	There is a connection between the requirement and the operation/development/activity proposed. The requirement cannot be an unreasonable obligation, having regard to the activity proposed
T	Time Specific	When it must be completed by (or, if it is an ongoing obligation, clearly state that).

¹ This is the publication number. The publication number can be used as a search term to find the latest version of a publication on Ecosteps.

SCHEDULE: CONDITIONS

Limitations of approval

- The approved resources are limited to those listed that meet the respective criteria for use listed in *Table 1 – Resource criteria*¹, that are to be applied to land by Nugrow Roma Pty Ltd (holder of the approval) for the improvement of soils located at Iona Park, Millbank Boundary Road, Kogan Qld 4406 (Lot 3 on DY117) (the site).

Table 1 – Resource criteria²

Resource	Criteria
Green waste	Green waste will only be utilised in the following scenarios: (a) in onsite composting; (b) applied as mulch to the surface layer of the ground surface; and/or (c) incorporated within the soil (top 10cm only).
Food waste	Food waste (liquid and solid) will only be incorporated in onsite composting windrows.
Livestock manure	Livestock manure will be applied directly to land or used in manufacturing compost.
Biosolids	Biosolids will be applied directly to land or used in manufacturing compost. Biosolids to be directly applied to land meet at least <i>Stabilisation Grade B</i> ³ , and <i>Contaminant Grade C</i> ⁴ classified as suitable for <i>Restricted Use 2</i> under the New South Wales Environmental Protection Authority <i>Environmental Guidelines: Use and Disposal of Biosolids Products</i> (2000) (the NSW Guidelines). Biosolids to be used in manufacturing compost meet at least <i>Stabilisation Grade B</i> ⁵ , and <i>Contaminant Grade D</i> ⁶ under the NSW Guidelines.
Treated sewage effluent	Treated sewage effluent: (a) will be released to the main dam for storage prior to irrigation; and (b) does not have, or prior to release to the main dam will be treated by ozone Ultraviolet (UV) disinfection on site ⁷ so that it does not have, <i>Escherichia coli</i> (E. Coli) concentrations that exceed 10,000 cfu/100mL found in 95% of the samples taken for a 12 month period ⁸ ; and (c) will not be used on food crop including minimally processed food crop .
Coal seam gas (CSG) produced water and drilling fluids	CSG produced water and drilling fluids used: (a) have a pH of at least 6 but not more than 10.5; and (b) have an electrical conductivity of less than 15,000 µS/cm.

Comment [U1]: Treatment system has changed since last amendment
accepted

¹ Any resource that is not used as stated in condition 1 is considered a waste and must be managed in accordance with the *Environmental Protection Act 1994* and *Waste Reduction and Recycling Act 2011*, and their subordinate legislation.

² Resource sampling and analysis for biosolids should be conducted in accordance with the procedures detailed in *Schedule 1—Biosolids sampling and analysis procedures* and *Schedule 2—Grading, sampling and compliance procedures* of the NSW Guidelines.

³ Biosolids must meet at least one of the requirements for pathogen reduction and the vector attraction requirements in Table 3–3 *Biosolids Stabilisation Requirements* of the NSW Guidelines.

⁴ Biosolids must not exceed the contaminant acceptance concentration limits for Grade C listed in Table 3–1 *Contaminant Concentration Thresholds* of the NSW Guidelines.

⁵ Biosolids must meet at least one of the requirements for pathogen reduction and the vector attraction requirements in Table 3–3 *Biosolids Stabilisation Requirements* of the NSW Guidelines.

⁶ Biosolids must not exceed the contaminant acceptance concentration limits for Grade D listed in Table 3–1 *Contaminant Concentration Thresholds* of the NSW Guidelines.

⁷ To remove any doubt, treated sewage effluent with *E. Coli* concentrations >10,000 cfu/100mL may be received on site however must be treated prior to being released to the main dam using **ozone-UV** disinfection methods to ensure that *E. Coli* concentrations do not exceed 10,000 cfu/100mL found in 95% of the samples taken for a 12 month period.

⁸ Based on the Department of Energy and Water Supply (2008) *Water quality guidelines for recycled water schemes*, available at <www.dews.qld.gov.au>, and the *Public Health Regulation 2005*.

<u>Drilling mud</u>	<u>Drilling mud:</u> (a) will be mixed with compost that meets the requirements of the most recent version of Australian Standard 4454 Composts, soil conditioners and mulches to create a finished product for land application at Iona Park which is deemed suitable by an appropriately qualified person; (b) will be mixed at a ratio of no less than 3:1 (compost to drilling mud); (c) complies with the limits and quality characteristics stated in <u>Appendix A – Drilling mud quality characteristics</u> ; (d) does not contain restricted stimulation fluids ; and (e) is in solid form with no excessive amounts of free flowing liquid.
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2. The resources must not have any properties nor contain any other contaminants at concentrations which may cause environmental harm⁹ when used in accordance with the conditions of this approval.
3. Prior to the use of any resource under this approval, the holder of the approval must obtain written consent to use the resource from the person who possesses the resource, and keep records of the consent.

Resource monitoring

4. Any monitoring to determine the quality of resources applied to land on the site must be carried out on samples that are representative of the resources to be used.
5. Where the composition of a resource has changed or is likely to change, sufficient monitoring must be conducted to detect and characterise the extent of any change.
6. An **appropriately qualified person** must monitor, record and interpret all parameters listed in *Table 1 – Resource criteria* as part of this approval.
7. All analyses undertaken as a part of this approval must be carried out by a laboratory that has NATA certification, or an equivalent certification, for such analyses.

Use of the resources

8. The use of the resources must ensure that:
 - a) the soil structure, stability and productive capacity of the land on the site is maintained or improved;
 - b) there are no toxic effects to either crops or pasture plants; and
 - c) yields and produce quality are maintained or improved.
9. The use of the resources must be undertaken in accordance with written procedures that:
 - a) identify potential risks to the environment from the use of the resource during routine operations, closure and an emergency
 - b) establish and maintain control measures that minimise the potential for environmental harm; and
 - c) ensure that reviews of environmental performance are undertaken at least annually.
10. The use of the resources must not result in soil on the site being contaminated soil, when investigated in accordance with the current of the National Environment Protection (Assessment of Site Contamination) Measure 1999.
11. The resources must not be released directly or indirectly to land, air, or **waters** in a way or at a concentration that would cause environmental harm.

Records

12. All information and records that are required by the conditions of this approval must be kept for a minimum of five (5) years, and must be provided to the **chief executive** upon request.

⁹ See section 14 of *Environmental Protection Act 1994*. Environmental harm includes any adverse effect or potential adverse effect on public amenity and safety, waters, and health of stock grazed and plants grown on land ameliorated by the resource.

Noise

13. Noise resulting from the use of the resource must not cause an environmental nuisance.

Air

14. Odours or airborne contaminants which are noxious or offensive or otherwise unreasonably disruptive to public amenity or safety must not cause nuisance to any **sensitive place** or **commercial place**.

Transportation of resources

15. The resources must be handled and transferred in a manner that prevents the release of those resources during transporting, loading and unloading.
16. The following information must be recorded for each load of resource transported to the site:
- a) origin of the resource;
 - b) date of pickup of the resource;
 - c) date of delivery of the resource; and
 - d) quantity of the resource.

Compost manufacturing

17. Compost in which the resources are used must be manufactured at a rate of less than 200t per year¹⁰.
18. Biosolids used in the compost must be treated in an aerobic process for at least 14 days. During that time, the temperature of the biosolids must be >40 °C and the average temperature >45 °C.
19. Any compost manufactured must create a finished product to be used for land application at Iona Park which is deemed suitable by an appropriately qualified person ~~meet the requirements for producing compost contained in Australian Standard 4454 Compost, soil conditioners and mulches.~~

Solid resource application to land

20. The application of biosolids, manures and compost (including compost mixed with drilling mud), to land must be conducted at an agronomic loading rate no greater than the lower of the nitrogen limited biosolids application rate (NLBAR) or the contaminant limited biosolids application rate (CLBAR) as determined in accordance with the NSW guidelines.
21. The following records must be kept for each land application of resources:
- a) details of the land on which the application occurs;
 - b) date and time when the resource is applied;
 - c) the calculated application rate at which the resource is to be applied; and
 - d) the actual application rate.

Liquid resource application to land

22. The **liquid resources** to be irrigated to land must be of a quality that are suitable for irrigation, having been determined by an appropriately qualified person in accordance with the relevant assessment procedure listed in Appendix A9.
23. Liquid resources irrigated to land on the site must only be sourced from the main dam and must:
- a) not harm vegetation surrounding the irrigation area;
 - b) not cause soil erosion and soil structure damage;
 - c) not produce visible salting;

¹⁰ Manufacturing compost or soil conditioners at a rate of greater than 200t per year constitutes Environmentally Relevant Activity 53 Composting or soil conditioner manufacturing and requires an Environmental Authority under the *Environmental Protection Act 1994*.

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- d) not cause surface ponding of the resource;
- e) not result in surface runoff;
- f) ensure that percolation of the resource beyond the plant root zone is minimised;
- g) not exceed plant fertiliser requirements; and
- h) not generate aerosol or cause spray drift, unless the irrigation methods comply with condition 24.

24. Irrigation of the liquid resources using **spray methods** must only occur:

- (a) at a pressure of equal to or less than 20 pounds per square inch (PSI); and
- (b) at a distance that is greater than 25 metres from the boundary of the site where there is vegetation screening between the irrigation area and the boundary, or at a distance that is greater than 50 metres from the boundary of the site where there is no vegetation screening.

Withholding period

25. Animals must not be allowed to graze on land on the site, on which biosolids or treated sewage effluent has been applied, for a period of at least 30 days after application.

Storage of the resources

- 26. The resources must be stored in a manner to prevent contact with stormwater runoff.
- 27. Any water that has come in contact with the resources in either storage or composting areas must be collected and recycled or irrigated to land in a manner that complies with conditions 8, 10, 11 and 23 as if it were a resource.

Impact assessment

- 28. An annual assessment of groundwater quality must be undertaken to determine any detrimental impacts of the use or if any environmental harm has, or is likely to be, caused by the use of the resources.
- 29. An annual assessment of soil quality of land where the resources have been applied must be undertaken to determine if any impact or environmental harm has or is likely to be caused by the use of the resources.
- 30. Monitoring undertaken to assess impacts of the use of the resources on groundwater or soil quality must be compliant with the chief executive's most recent monitoring and sampling manual.

DEFINITIONS

Words and phrases used throughout this approval are defined below. Where a definition for a term used in this approval is sought and the term is not defined within this permit the definitions provided in the relevant legislation shall be used.

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

Biosolids means treated tank sludges and residues from a municipal sewage treatment plant including sedimentation tank and clarifier sludges, aerobically and anaerobically digested sludge and filter cake products from those sewage treatment plants.

Coal seam gas project means an activity authorised under petroleum authority (under petroleum legislation including the *Petroleum Act 1923*, the *Petroleum and Gas (Production and Safety) Act 2004* and the *Petroleum (Submerged Lands) Act 1982*) for the extraction of coal seam gas.

Coal seam gas (CSG) production waters has the meaning in section 15A of the *Petroleum and Gas (Production and Safety) Act 2004* and means CSG water or associated water for a petroleum tenure. It does not include the waste water resulting from simulation activities.

Chief executive means the Department of Environment and Heritage Protection or its successor.

Commercial place means a workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees' accommodation or public roads.

Drilling fluids means liquids used in a drilling process for petroleum activities that are returned to the surface. It does not include residual drilling material or restricted stimulation fluids.

Drilling mud means a mixture of naturally occurring rock, soil, and water based drilling fluid generated during coal seam gas drilling operations at a coal seam gas project. It does not include drilling mud that has been generated by drilling through contaminated soils, acid sulphate soils (ASS) or potential acid sulphate soils (PASS).

Liquid resources mean treated sewage effluent and CSG drilling fluids.

Main dam means the dam located on the site which is used for the storage of treated sewage effluent and CSG drilling fluids.

Minimally processed food crop means a crop for a food product that—

- (a) may be eaten raw; or
 - (b) will be subjected to a minimal food process only.
- Examples of a minimal food process—washing, cutting, peeling, packaging.*

Residual drilling material means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.

Restricted stimulation fluids has the meaning in section 206 of the *Environmental Protection Act 1994* and means fluids used for the purpose of stimulation, including fracturing, that contain the following chemicals in more than the maximum amount prescribed under a regulation—

- (a) petroleum hydrocarbons containing benzene, ethylbenzene, toluene or xylene;
- (b) chemicals that produce, or are likely to produce, benzene, ethylbenzene, toluene or xylene as the chemical breaks down in the environment.

Sensitive place means:

- (a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- (b) a motel, hotel or hostel; or an educational institution; or
- (c) a medical centre or hospital; or
- (d) a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or

(e) a public park or gardens.

Site means Iona Park, Millbank Boundary Road, Kogan Qld 4406 (Lot 3 on DY117).

Spray methods for irrigation of liquid resources include those that are capable of generating aerosols and/or spray drift. They do not include methods such as drip, surface or sub surface irrigation.

Treated sewage effluent means sewage that has undergone treatment by sewage treatment works approved under the *Environmental Protection Act 1994* or the *Plumbing and Drainage Act 2002*.

Waters includes any river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water, natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

- END OF CONDITIONS -

Appendix A—Drilling mud quality characteristics

Quality Characteristic	Limit	Unit	Limit type
Arsenic	80	mg/kg	Maximum
Barium	8000	mg/kg	Maximum
Boron	20	mg/kg	Maximum
Cadmium	4	mg/kg	Maximum
Chromium (VI)	1	mg/kg	Maximum
Chromium (III)Chromium	400100	mg/kg	Maximum
Copper	600	mg/kg	Maximum
Lead	600	mg/kg	Maximum
Mercury	4	mg/kg	Maximum
Nickel	240	mg/kg	Maximum
Selenium	20	mg/kg	Maximum
Silver	40	mg/kg	Maximum
Vanadium	400	mg/kg	Maximum
Zinc	1200	mg/kg	Maximum
Total Petroleum Hydrocarbons (TPH) C ₆ -C ₉	400400	mg/kg	Maximum
Total Petroleum Hydrocarbons (TPH) C ₁₀ -C ₃₆	40004000	mg/kg	Maximum
Benzene	44	mg/kg	Maximum
Phenols (non halogenated)	24060	mg/kg	Maximum
Phenols (halogenated)	44	mg/kg	Maximum
Sodicity (exchangeable sodium percentage)	15	percent (%)	Maximum
Salinity (EC)	4000-20,000	µS/cm	Maximum
Chloride	3001,500	mg/kg	Maximum
pH	7.0—8.05.0-12.0	pH units	Range

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Appendix **BA**

Quality parameter	Assessment procedure
electrical conductivity	Salinity Management Handbook, with reference to Chapter 11; and/or Australian and New Zealand Guidelines for Fresh and Marine Water Quality, with reference to Volume 1 Chapter 4 and Volume 3 Chapter 9.
sodium adsorption ratio	
pH	<p>The assessment should consider:</p> <ul style="list-style-type: none">• soil properties within the root zone to be irrigated (e.g. clay content, cation exchange capacity, exchangeable sodium percentage)• water quality of the proposed resource (e.g. salinity, sodicity)• climate conditions (e.g. rainfall)• leaching fractions• average root zone salinity (calculated)• crop salt tolerance (e.g. impact threshold and yield decline)• management practices and objectives (e.g. irrigation application rate, amelioration techniques)• broader landscape issues (e.g. land use, depth to groundwater)• any additional modelling and tests undertaken to support the varied water quality parameters.
heavy metals	<p>Australian and New Zealand Guidelines for Fresh and Marine Water Quality, with reference to Volume 1 Chapters 3 and 4 and Volume 3 Chapter 9.</p> <p>The assessment should aim to derive site specific trigger values (e.g. cumulative contaminant loading limit) based on the methodology provided in the above mentioned procedure.</p>

Appendix CB

Advice

Please find following advice regarding the development of any monitoring programs used to help determine compliance with the conditions of approval. Monitoring programs and any written procedures for the use of the resources should be developed in accordance with best practice environmental management standards and reviewed regularly to ensure that current best practice is being implemented.

It is recommended that;

- Monitoring of biosolids to determine compliance with condition 1 should be conducted with samples taken at least every 120 dry tonnes¹¹.
- Monitoring of treated sewage effluent to determine compliance with condition 1 should be undertaken at least weekly.
- Monitoring of CSG drilling fluids and produced waters to determine compliance with condition 1 should be undertaken at least fortnightly.

Groundwater

Any groundwater monitoring program developed should provide for:

- a) Installation and monitoring of bores installed in accordance with relevant Australian standards in aquifer(s) potentially affected by the use of the resource; and
- b) The determination and keeping records of groundwater height and quality by sampling for at least the parameters, and at the frequency, stated in *Table 1 – Groundwater monitoring parameters*

Table 1 - Groundwater monitoring parameters

Parameter	Frequency
Standing groundwater level (metres AHD)	6 monthly
Arsenic	6 monthly
Cadmium	6 monthly
Chromium (Total)	6 monthly
Copper	6 monthly
Lead	6 monthly
Zinc	6 monthly
Nitrate	6 monthly
Chloride	6 monthly
Electrical conductivity (in-situ)	6 monthly
pH (in-situ)	6 monthly
<i>E. Coli</i>	6 monthly
Calcium	6 monthly
Nitrogen (total)	6 monthly
Phosphorous (total)	6 monthly
Sodium	6 monthly
Total Dissolved Solids	6 monthly

¹¹ Resource sampling and analysis for biosolids should be conducted in accordance with the procedures detailed in *Schedule 1— Biosolids sampling and analysis procedures* and *Schedule 2— Grading, sampling and compliance procedures* of the NSW Guidelines.

Soil

Any soil monitoring program should provide for monitoring of at least the parameters, and at the frequency, stated in *Table 2 – soil monitoring parameters*.

Table 2 - Soil monitoring parameters

Parameter	Frequency
Electrical conductivity (EC)	6 monthly
pH	6 monthly
Exchangeable Cation Exchange Capacity (ECEC)	Annually
Exchangeable Sodium Percentage (ESP)	Annually
Sodium Adsorption Ratio (SAR)	Annually
Arsenic	Annually
Cadmium	Annually
Chromium (total)	Annually
Copper	Annually
Lead	Annually
Mercury	Annually
Nickel	Annually
Selenium	Annually
Zinc	Annually
DDT/DDD/DDE	Annually
Aldrin	Annually
Dieldrin	Annually
Chlordane	Annually
Heptachlor and heptachlor epoxide	Annually
Hexachlorobenzene (HCB)	Annually
Lindane	Annually
Benzene hexachloride (BHC)	Annually
PCBs	Annually

Irrigation

Liquid resource being irrigated to land from the main dam should be monitored for at least the quality parameters and at the frequency specified in *Table 3 – Main dam monitoring parameters*.

Table 3 - Main dam monitoring parameters

Quality parameter	Frequency
Electrical conductivity	Fortnightly
Sodium absorption ratio (SAR)	Fortnightly
pH	Fortnightly
<i>E. Coli</i>	Monthly
Alkalinity (bicarbonate, carbonate and hydroxide)	Quarterly
Arsenic	Quarterly
Aluminium	Quarterly
Boron	Quarterly
Cadmium	Quarterly
Chromium (total)	Quarterly
Copper	Quarterly

Cobalt	Quarterly
Iron	Quarterly
Lead	Quarterly
Lithium	Quarterly
Manganese	Quarterly
Mercury	Quarterly
Molybdenum	Quarterly
Nickel	Quarterly
Selenium	Quarterly
Strontium	Quarterly
Vanadium	Quarterly
Zinc	Quarterly
Ammonium (NH ₄ ⁺)	Quarterly
Nitrate + nitrite	Quarterly
Total Kjeldahl Nitrogen (TKN)	Quarterly
Total Nitrogen	Quarterly
Total phosphorous	Quarterly
BTEX	Quarterly
Total dissolved solids (TDS)	Quarterly
Total petroleum hydrocarbons (TPH)	Quarterly
Flouride	Quarterly
Sulphate	Quarterly
Hardness (calculated)	6 monthly
Calcium, magnesium, sodium, and potassium	6 monthly
Chloride	6 monthly
Ortho phosphorous	6 monthly

Notice

Waste Reduction and Recycling Act 2011

Notice of extension of decision period

This notice is issued by the Department of Environment and Heritage Protection (the department), pursuant to s. 159 (2) of the Waste Reduction and Recycling Act 2011, to advise the applicant of a decision to extend the decision period for their application.

Your reference:

Our reference: 101/0012851

NuGrow Roma Pty Ltd
1456 Ekibin Rd
TARRAGINDI QLD 4121

Attention: Peter Thompson, Environmental Compliance Manager

Dear Mr Thompson,

Re: Amendment application for beneficial use of a resource – NuGrow Roma Pty Ltd approval number ENBU05261913

This notice is issued to inform you that the department has fixed a later day for making a decision on your application in accordance with s. 159 (2) of the *Waste Reduction and Recycling Act 2011*. A decision on the application will be made by 4 February 2015

The later date has been fixed at the request of NuGrow Roma Pty Ltd to allow the department sufficient time to assess additional changes proposed by NuGrow (refer to emails from yourself to Simone Ventura of the department dated 22 and 23 December 2014).

Should you have any queries in relation to this notice, please contact Simone Ventura of the department on telephone number (07) 3330 5729.

Signature

Olga Hawas
A/Manager (Assessment), Industry and Development
Environmental Services and Regulation

Date

Enquiries:

Simone Ventura
Principal Project Officer (Assessment)
Waste and Contaminated Land Assessment
Ph. 07 3330 5729
Email: simone.ventura@ehp.qld.gov.au

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sch4-Signature



Signature

23/12/2014

Date

Olga Hawas
A/Manager (Assessment), Industry and Development
Environmental Services and Regulation

Enquiries:

Simone Ventura
Principal Project Officer (Assessment)
Waste and Contaminated Land Assessment
Ph. 07 3330 5729
Email: simone.ventura@ehp.qld.gov.au

File Note

Subject: Telephone conversation regarding Nugrow BUA amendment application (ENBU05261913)

Print and file when complete. WLCA is only able to provide advice in relation to the requirements for the determination and management of land listed on the Environmental Management Register or Contaminated Land Register, and any beneficial use approval requirements under the Waste Reduction and Recycling Act 2011.

Date: 9 January 2015

Between: Peter Thompson of Nugrow and Simone Ventura of EHP

Time: 1.50pm

Notes

SV called PT to discuss comments that Nugrow made on proposed draft conditions, provided to the department on 22/12/14. The following was discussed:

- Nugrow stated that they may not be able to comply with AS4454 due to particle size. SV noted that while particle size is used in determining the classification of the material, it is not an excluding factor. PT advised that there may be other factors that prevent compliance and that he will look into it further.
- Parameters for salinity, chloride and pH may be removed from Appendix A as these are considered in ensuring that the material meets AS4454, provided that requirement is kept. Chloride is to be considered as a part of toxicity testing.
- UV disinfection can replace ozone treatment as there aren't any additional residual contaminants.
- Nugrow will change their manufacturing process so that the mud is subject to the composting process, hence the limits in GHD report for organics (benzene, hydrocarbons & phenols) will be able to be used as opposed to final product limits.

Next action

- PT will do some further investigation into whether there are any parameters of AS4454 that will not be able to be addressed and will discuss their options with Nugrow's senior management. PT will email SV when this has been done.
- No further action required by the department at this time.

Simone Ventura
Principal Project Officer (Assessment)
Waste and Contaminated Land Assessment

File Note

Subject: Telephone conversation regarding Nugrow BUA amendment application (ENBU05261913)

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- Parameters for salinity, chloride and pH may be removed from Appendix A as these are considered in ensuring that the material meets AS4454, provided that requirement is kept. Chloride is to be considered as a part of toxicity testing.
- UV disinfection can replace ozone treatment as there aren't any additional residual contaminants.
- Nugrow will change their manufacturing process so that the mud is subject to the composting process, hence the limits in GHD report for organics (benzene, hydrocarbons & phenols) will be able to be used as opposed to final product limits.

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Waste and Contaminated Land Assessment