

Notice

Approval of resource for beneficial use

This notice is issued by the chief executive, pursuant to section 159 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

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

Re: Application for approval of a resource by Nugrow Roma Pty Ltd for the beneficial use of multiple wastes in a soil rejuvenation program

Your application for an approval of a resource for beneficial use received by this office and considered valid on 16 December 2013 has been granted.

This approval (ENBU05261913) is a specific approval of which Nugrow Roma Pty Ltd (ABN 88 151 756 517) has the benefit and 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 **xx February 2019** (the period of the approval) unless the approval is replaced, suspended or cancelled.

The issue of this approval for beneficial use of a resource does not warrant or imply the lawfulness of the activity under all legislation, or that 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.

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.

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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

Lindsay Delzoppo
Director, Statewide Environmental Assessments
Environment and Heritage Protection

Enquiries:

Simone Ventura, Principal Project Officer
Waste and Land Contamination Assessment
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001
Ph: (07) 3330 5729
Fax: (07) 3330 5875
Email: wlca@ehp.qld.gov.au

SCHEDULE: CONDITIONS

Limitations of approval

- The approved resources are limited to those listed in **Table 1 – Resource criteria** that meet the respective criteria 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 criteria

Resource	Criteria
Green waste	No stated criteria.
Food waste (liquid and solid)	No stated criteria.
Livestock manure	No stated criteria.
Biosolids	Biosolids to be directly applied to land must meet at least <i>Stabilisation Grade B</i> ² , and <i>Contaminant Grade C</i> ³ 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 must meet at least <i>Stabilisation Grade C</i> ⁴ , and <i>Contaminant Grade C</i> ⁵ under the NSW Guidelines.
Treated sewage effluent	Treated sewage effluent used must not have <i>Escherichia coli</i> (E. Coli) concentrations that exceed 500 cfu/100mL found in 95% of the samples taken for a 12 month period.
Coal seam gas (CSG) drill and production waters	CSG drill and production waters used must: (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 [VL1]: This would be considered under the Public Health Reg as class C water, shouldn't the approval condition the site to be signed and fenced (in line with the Queensland recycled water guidelines), and that the release not result in pooling or runoff or aerosols or spraydrift or vegetation die-off and that the release area be kept vegetated with groundcover to ensure nutrient uptake and then harvested and removed?

Comment [VL2]: Shouldn't there also be a SAR limit? The guideline "Irrigation water quality – salinity and soil structure stability" (Queensland Government) states that irrigation water must be analysed for both EC and SAR. Also, the guideline notes that EC greater than 5200 (or 5.2 dS/m) is extremely high. Such extreme salinity can result in soil structure degradation, reduce water infiltration into the soil surface and limit aeration. The guideline shows a figure with the relationship between SAR and EC to predict soil structure stability, I suggest a SAR limit be established in line with this figure to ensure stable soil structure.

- In addition to **condition 1**, the resources must not have any properties nor contain any other contaminants at concentrations which may cause environmental harm⁶ when used in accordance with the conditions of this approval.
- Prior to the use of a 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.

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 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.
³ Biosolids must not exceed the contaminant acceptance concentration limits for Grade C listed in Table 3– 1 *Contaminant Concentration Thresholds* of the NSW Guidelines.
⁴ As stated in Table 3– 3 *Biosolids Stabilisation Requirements* of the NSW Guidelines.
⁵ Biosolids must not exceed the contaminant acceptance concentration limits for Grade C listed in Table 3– 1 *Contaminant Concentration Thresholds* of the NSW Guidelines.
⁶ 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.

Resource monitoring

4. Monitoring of biosolids to determine compliance with **condition 1** must be conducted with samples taken at least every 120 dry tonnes.
5. Monitoring of treated sewage effluent to determine compliance with **condition 1** must be undertaken at least weekly.
6. Monitoring of CSG drill and production waters to determine compliance with **condition 1** must be undertaken at least fortnightly.
7. All analyses required under this approval must be carried out by a laboratory that has NATA certification, or an equivalent certification, for such analyses. The only exception to this condition is for *in situ* monitoring of groundwater quality parameters.
8. All determinations of the quality of the resource must be carried out on samples that are representative of the resources to be used.
9. In addition to the monitoring conducted in accordance with **conditions 4, 5 and 6**, where the composition of **the** resource has changed or is likely to change, more frequent monitoring must be conducted sufficient to detect and characterise the extent of any **change**⁷.

Comment [VL3]: Suggest the footnote be converted to a condition as footnotes are not enforceable.

Use of the resources

10. The use of the resources must ensure that:
 - a) the soil structure, stability and productive capacity is maintained or improved;
 - b) toxic effects to **either crops or pasture or both** do not result; and
 - c) yields and produce quality are maintained or improved.
11. The use of the resources must not result in soil on the site being contaminated soil, when investigated in accordance with the most recent version of the National Environment Protection (Assessment of Site Contamination) Measure 1999.
12. 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 nuisance or environmental harm**.
13. As soon as the holder of the approval becomes aware of any release of the resources that may cause actual or potential environmental harm, the release must be stopped, promptly rectified with the necessary equipment and **remediation methods**, and all reasonable actions taken to prevent a recurrence of the release.

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Management plans

14. The holder of the approval must develop and implement written procedures **and monitoring programs** for the use of the resource at the site.
15. The written procedures **and monitoring programs** must document how the resources will be received, handled, stored and placed, processed, **monitored** and used on-site so as to achieve the outcomes stated in **conditions 10, 11 and 12** and ensure compliance with all of the conditions of this approval.
16. A copy of the written procedures **and monitoring programs** must be made available to the chief executive on request.

Comment [JM7]: Should we specify monitoring for clarity?

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⁷ 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.

Records

17. The holder of the approval must keep all records required by conditions of this approval for a period of not less than five (5) years, and present this information to the chief executive when requested.

Noise

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

Air

19. Odour resulting from the use of the resource must not cause an environmental nuisance.

Transportation of resources

20. The resources must be handled and transferred in a manner that prevents the release of the resources during transport.
21. The following records for each load of resource transported must be kept:
- origin of the resource;
 - date of pickup of the resource;
 - date of delivery of the resource; and
 - quantity of the resource.

Composting

22. Compost in which the resources are used must be manufactured at a rate of less than 200t per year⁸.
23. Biosolids used in the compost must be treated in the 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.
24. Any compost manufactured must meet the requirements for producing compost contained in Australian Standard 4454 *Compost, soil conditioners and mulches*.
25. Compost manufactured using resources under this approval must only be used at the site subject of this approval.

Solids application to land

26. The application of biosolids, manures and compost to land must be conducted at an agronomic loading rate which considers the resource composition, crop nutritional demand and soil characteristics. Resource application must comply with the NSW Guidelines, at a 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 those guidelines.
27. The following records must be kept for each land application:
- details of the land on which the application occurs;
 - date and time when the resource is applied;
 - the calculated application rate at which the resource is to be applied; and
 - the actual application rate.

Irrigation of resources

⁸ 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*.

Comment [VL8]: if you don't require it by condition then they don't have to keep it on record? Suggest you have a general condition stating that all documents required to be developed under this approval must be kept for at least 5 years. (where documents has the meaning in the *Acts Interpretation Act 1954* and means:

- any paper or other material on which there is writing; and
- any paper or other material on which there are marks; and
- figures, symbols or perforations having a meaning for a person qualified to interpret them; and
- any disc, tape or other article or any material from which sounds, images, writings or messages are capable of being produced or reproduced (with or without the aid of another article or device).

Comment [VL9]: Environmental nuisance is defined as noise. Suggest you adopt a general nuisance condition like: Use of the resource must not cause environmental nuisance. (that covers noise, aerosols, fumes, odours, light etc.)

Comment [VL10]: Same as VL9

Comment [VL11]: Is this an ERA? I thought drill muds are not authorised to be used in composting

28. The irrigation of liquid resources to land must only be sourced from the **main dam** and must occur in a manner such that:
- vegetation is not damaged;
 - soil **erosion and soil structure damage is avoided**;
 - there is no surface ponding of the resource;
 - there is no surface runoff;
 - percolation of the resource beyond the plant root zone is minimised;
 - plant fertiliser requirements are not exceeded; and
 - the quality of groundwater is not adversely affected**.
29. The liquid resource to be irrigated to land must be of a quality that is suitable for irrigation, having been determined in accordance with the relevant assessment procedure listed in Appendix A.
30. Liquid resource from the main dam must be monitored for the quality parameters and at the frequency specified in **Table 2 – Main dam monitoring frequency** and records of results kept.

Comment [VL12]: Does this cover treated sewage effluent which is liquid and is authorised to be released?

Comment [JM13]: Include must not cause visible salting?

Comment [VL14]: Suggest you separate these out into two. The and there will mean you have to prove both have occurred.

Comment [JM15]: Does this conflict with condition 10?

Use of 'avoid' ambiguous?

Comment [JM16]: Condition 12? 'adversely' is too ambiguous for enforcement

Table 2 - Main dam monitoring frequency

Quality parameter	Frequency
Electrical conductivity	Fortnightly
Sodium absorption ratio (SAR)	Fortnightly
pH	Fortnightly
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

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Storage of the resources

- 31. The resource must be stored in a manner to prevent contact with stormwater runoff.
- 32. Any water that has come in contact with the resource in either storage or composting areas must be collected and recycled or irrigated to land in a manner that complies with conditions 10, 11, 12 and 28 as if it were a resource.

Comment [JM17]: Dam conditions?
Seepage monitoring?

Groundwater monitoring

- 33. A groundwater monitoring program must be developed and implemented to monitor impacts from the use of the resource on groundwater sufficient to determine compliance with conditions 12 and 28.
- 34. The groundwater monitoring program required by condition 33 must provide for:
 - a) Installation and monitoring of bores installed in accordance with relevant Australian standards in aquifer(s) potentially affected by the activity;
 - b) The determination and keeping records of groundwater height and quality by sampling for the parameters, and at the frequency, stated in Table 3 – Groundwater monitoring requirements;
 - c) Monitoring must be compliant with the requirements of the chief executive’s most recent monitoring and sampling manual; and
 - d) An annual assessment of the results of the determination of groundwater quality to determine any impact or environmental harm being caused.
- 35. All determinations of groundwater quality must be performed by an appropriately qualified person.

Comment [JM18]: Or likely to be caused?

Table 3 - Groundwater monitoring requirements

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
E. Coli	6 monthly
Calcium	6 monthly
Nitrogen (total)	6 monthly
Phosphorous (total)	6 monthly
Sodium	6 monthly
Total Dissolved Solids	6 monthly

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 drill and production waters means underground water taken or interfered with, if the taking or interference happens during the course of, or results from, the carrying out of another authorised activity under a petroleum authority, such as a petroleum well, and includes waters also known as [associated water](#) or produced formation water. The term includes all contaminants suspended or dissolved within the water.

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

Sodium adsorption ratio (SAR) means $Na^+ / \sqrt{((Ca^{2+} + Mg^{2+}) / 2)}$ as stated by US Salinity Laboratory Staff 1954, *Diagnosis and improvement of saline and alkali soils*. Agric Handbook No 60, USDA, US Govt Printing Office, Washington DC.

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

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.

Main dam means the dam located on the site which is used for the storage of treated sewage effluent and CSG drill and production waters.

- END OF CONDITIONS -

Appendix A

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	
heavy metals	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. 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.

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Limitations of approval

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Table 1 – Resource criteria

Resource	Criteria
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Food waste (liquid and solid)	No stated criteria.
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- In addition to **condition 1**, the resources must not have any properties nor contain any other contaminants at concentrations which may cause environmental harm⁶ when used in accordance with the conditions of this approval.
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Irrigation of resources

⁸ 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*.

Comment [VL8]: if you don't require it by condition then they don't have to keep it on record? Suggest you have a general condition stating that all documents required to be developed under this approval must be kept for at least 5 years. (where documents has the meaning in the *Acts Interpretation Act 1954* and means:

- any paper or other material on which there is writing; and
- any paper or other material on which there are marks; and
- figures, symbols or perforations having a meaning for a person qualified to interpret them; and
- any disc, tape or other article or any material from which sounds, images, writings or messages are capable of being produced or reproduced (with or without the aid of another article or device).

Comment [VL9]: Environmental nuisance is defined as noise. Suggest you adopt a general nuisance condition like: Use of the resource must not cause environmental nuisance. (that covers noise, aerosols, fumes, odours, light etc.)

Comment [VL10]: Same as VL9

Comment [VL11]: Is this an ERA? I thought drill muds are not authorised to be used in composting

28. The irrigation of liquid resources to land must only be sourced from the **main dam** and must occur in a manner **such that:**
- vegetation is not damaged;
 - soil **erosion and soil structure damage is avoided;**
 - there is no surface ponding of the resource;
 - there is no surface runoff;
 - percolation of the resource beyond the plant root zone is minimised;
 - plant fertiliser requirements are not exceeded; and
 - the quality of groundwater is not adversely affected.**
29. The liquid resource to be irrigated to land must be of a quality that is suitable for irrigation, having been determined in accordance with the relevant assessment procedure listed in Appendix A.
30. Liquid resource from the main dam must be monitored for the quality parameters and at the frequency specified in **Table 2 – Main dam monitoring frequency** and records of results kept.

Comment [VL12]: Does this cover treated sewage effluent which is liquid and is authorised to be released?

Comment [JM13]: Include must not cause visible salting?

Comment [VL14]: Suggest you separate these out into two. The and there will mean you have to prove both have occurred.

Comment [JM15]: Does this conflict with condition 10?

Use of 'avoid' ambiguous?

Comment [JM16]: Condition 12? 'adversely' is too ambiguous for enforcement

Table 2 - Main dam monitoring frequency

Quality parameter	Frequency
Electrical conductivity	Fortnightly
Sodium absorption ratio (SAR)	Fortnightly
pH	Fortnightly
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

DRAFT
ENRPTTDL Release

Storage of the resources

- 31. The resource must be stored in a manner to prevent contact with stormwater runoff.
- 32. Any water that has come in contact with the resource in either storage or composting areas must be collected and recycled or irrigated to land in a manner that complies with conditions 10, 11, 12 and 28 as if it were a resource.

Comment [JM17]: Dam conditions?
Seepage monitoring?

Groundwater monitoring

- 33. A groundwater monitoring program must be developed and implemented to monitor impacts from the use of the resource on groundwater sufficient to determine compliance with conditions 12 and 28.
- 34. The groundwater monitoring program required by condition 33 must provide for:
 - a) Installation and monitoring of bores installed in accordance with relevant Australian standards in aquifer(s) potentially affected by the activity;
 - b) The determination and keeping records of groundwater height and quality by sampling for the parameters, and at the frequency, stated in Table 3 – Groundwater monitoring requirements;
 - c) Monitoring must be compliant with the requirements of the chief executive’s most recent monitoring and sampling manual; and
 - d) An annual assessment of the results of the determination of groundwater quality to determine any impact or environmental harm being caused.
- 35. All determinations of groundwater quality must be performed by an appropriately qualified person.

Comment [JM18]: Or likely to be caused?

Table 3 - Groundwater monitoring requirements

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
E. Coli	6 monthly
Calcium	6 monthly
Nitrogen (total)	6 monthly
Phosphorous (total)	6 monthly
Sodium	6 monthly
Total Dissolved Solids	6 monthly

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 drill and production waters means underground water taken or interfered with, if the taking or interference happens during the course of, or results from, the carrying out of another authorised activity under a petroleum authority, such as a petroleum well, and includes waters also known as **associated water or** produced formation water. The term includes all contaminants suspended or dissolved within the water.

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

Sodium adsorption ratio (SAR) means $Na^+ / \sqrt{((Ca^{2+} + Mg^{2+}) / 2)}$ as stated by US Salinity Laboratory Staff 1954, *Diagnosis and improvement of saline and alkali soils*. Agric Handbook No 60, USDA, US Govt Printing Office, Washington DC.

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

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.

Main dam means the dam located on the site which is used for the storage of treated sewage effluent and CSG drill and production waters.

- END OF CONDITIONS -

Appendix A

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	
heavy metals	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. 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.

File Note

Subject: Application validation response – Nugrow Roma Pty Ltd

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: 18 December 2013

Ref: ENBU05261913; PR: 409312

Background

- Nugrow applied for an approval of a resource for beneficial use for the application of a number of waste materials to land as part of a soil rejuvenation program at Iona Park, Millbank Boundary Road, Kogan Qld 4406.
- The application was received on 20/11/13.
- The application was determined to not be valid. Refer to *Request for further information/validation Checklist* completed on 9/12/13.
- A letter was sent on 11/12/13 requesting information to make the application valid.
- Luke Zambelli of Zambelli Environmental responded on behalf of the applicant in a letter dated 16/12/13.

Issues

See Appendix A for consideration of the response provided.

The below table is a summary of the proposed wastes to be used, their status as regulated wastes, and comments of the approvals that would be most appropriate to enable their use as proposed by the applicant.

Waste	Is it a regulated waste under the EP Reg 08?	Appropriate approvals
CSG drill & production waters	No – if <15 000µS/cm and pH >6 but <10.5	None. Just need to ensure that all conditions of the existing EA are complied with.
Manures	No	None
Green waste	No	None
Biosolids	Yes	BUA

BUA Application validation response – Nugrow Roma Pty Ltd

Sewage effluent	Treated	No	None. Just need to ensure that all conditions of the existing EA are complied with.
	Semi treated	Yes	Sand filtration treatment will be occurring. An approval (other than a BUA) will be required, either: <ul style="list-style-type: none"> EHP assessment for ERA 63 Sewage treatment apply (>21 EP = treating >4200L ADWF/day or treating an inlet load of 52.5g P in a day); or Council assessment for <21EP under the Plumbing and Drainage Act Approvals for sewage treatment would cover irrigation/disposal on the land. The use of the sand (a regulated waste due to it containing sewage sludge and residues) in composting could be covered by the BUA. Obtaining a BUA however will not remove the need to get the appropriate approvals for sewage treatment. <i>What would be the consequences if no treatment occurred?</i> BUA would be refused for this component on the basis that no treatment means a significant risk of harm from pathogens and viruses.
	Untreated	Yes	

It is only necessary that the BUA to cover the use of:

- biosolids for direct application to land and compost; and
- sand filtration media in compost.

Recommendations

It is recommended that:

1. The application is considered not valid on the basis that consent has not been provided for the use of green waste and manure. It is noted that these wastes do typically present low risk (i.e. they're not considered a regulated waste under the EP Act) however the WRR does not limit applications to only being made for regulated wastes.
2. The department provide advice to the applicant regarding the appropriateness of wastes to be applied for in the BUA and requesting reconsideration by the applicant of the wastes being applied for.
3. The department provide advice to the applicant that the treatment of sewage will require either local or state government approval. A BUA will not cover the treatment of sewage.
4. Information be requested regarding who will be responsible for transport and at which point the applicant would like the wastes to be considered as resources.

Simone Ventura
Principal Project Officer, WLCA

Appendix A

Information requested to make a valid application	Response by Nugrow	Consideration
<p>Section 157(1)(b) of the WRR Act requires that the person, when making the application, either possesses the resource or has consent to make an application from the person who possesses the resource. In order for your application to meet this criteria, EHP requires:</p> <ol style="list-style-type: none"> 1. Confirmation that Toxfree is in possession of the nominated resources, the subject of the application, at this time. 2. A letter of consent from Toowoomba Regional Council (and any other council where biosolids may be sourced) to use the nominated resource, this is in their possession. 3. Letters of consent from the person or persons who have agreed to provide the green waste or manures, the subject of the application, confirming that that resource is in their possession. 	<ol style="list-style-type: none"> 1. Toxfree has various contracts for the collection of CSG drill and production waters, camp sewage effluent (untreated and treated), and camp food waste at this time. Therefore, although Toxfree may not be in possession of the resources at this time, the resources are being generated continuously and will be collected by Toxfree on an ongoing basis. 2. A letter of consent from Toowoomba Regional Council for the use of biosolids was forwarded to you by email on 25th November 2013. 3. Ordinarily green waste and manures require no approval for their application to land. However, the BUA supporting documents were written to include all resources that are going to be used to demonstrate the overall fertigation package for Iona Park. For instance manures will only be used if biosolids cannot be. Due to the fact that no approvals are usually required for greenwaste and manures, no consent will be sort for these resources. 	<ol style="list-style-type: none"> 1. Toxfree is acting as the 'middle man' by collecting the waste and delivering to Nugrow. Toxfree may be considered as a 'supplier' of the resource who will have possession of the resource. 2. Confirmed – consent provided. 3. It is agreed that the use of manures and green waste is commonly low risk. The WRR Act however requires consent regardless of whether the waste is low risk or not.
<p>Section 157(2)(b)(ii) of the WRR Act requires that details of any environmentally significant characteristics of the resource be provided in the application. In order for our application to meet these criteria, EHP requires information about the explosive; flammable; oxidising; poisonous; infectious; corrosive; or toxic nature of the resources the subject of the application, as detailed in Schedule A, List 2 of the National Environmental Protection (Movement of Controlled Waste Between States and Territories) Measure as varied December 2004.</p>	<p>None of the resources in NuGrow's application are explosive, flammable, oxidising, poisonous, corrosive or toxic.</p> <p>Both biosolids and effluent, as is commonly accepted contain infectious bacteria, such as E. coli, Faecal coliforms, various viruses and Salmonella sp. However, biosolids will be managed in accordance with the <i>New South Wales Environmental Guidelines: Use and Disposal of Biosolids Products</i>. Effluent will be managed in accordance with stated measures provided within the SBMP accompanying the application, which will minimise the risk of infectious contraction by onsite personnel and neighbouring sensitive receptors.</p> <p>The data provided by the generators on the CSG drill and production waters (Toxfree), camp effluent (Toxfree) and</p>	<p>Details have been provided sufficient to make the application valid.</p>

BUA Application validation response – Nugrow Roma Pty Ltd

	on the biosolids (Toowoomba Regional Council) illustrates that there is no acute toxicity that will occur as a result of the application of the resources at Iona Park.	
Section 157(2)(b)(v) of the WRR Act requires details of the form and manner in which the resource will be transported. Please provide details of both how the resource will be transported from the sites where it is generated to the site where it is to be used, and who will be responsible for that transport.	Due to the variety of production of both liquid and solid resources that will be utilised at Iona Park, various transporters will be utilised for their transport from the generation site to Iona Park. Furthermore, NuGrow is committed to the use of fit-for-purpose vehicles for the transport of the resources.	Details have been provided sufficient to make the application valid. Further information may need to be requested however.
Section 157(2)(b)(vii) of the WRR Act requires details of the quantity of resource proposed to be used. Please provide details of the expected quantities proposed to be used.	It is envisaged that no more than 1,000,000 litres of liquids (both CSG drill and production waters and treated and untreated effluent) will be received / day. Biosolids will be accepted in accordance with the nominated NLBAR and CLBAR determinations (please refer to supporting information). Greenwaste will be accepted sporadically when it becomes available. It is the intention to only accept manure when biosolids are not available for application.	<p>Details have been provided sufficient to make the application valid.</p> <p>Limits on volumes are not typically included in conditions on BUA approvals for the use of biosolids. It is appropriate that NLBAR and CLBAR application rates limit the volume of biosolids used.</p> <p>Use of manure and greenwaste commonly occur without any approvals being obtained. It could be considered appropriate to condition the volumes similar to that for biosolids through application rates.</p>
Section 157(2)(b)(viii) of the WRR Act requires details of any relevant waste minimisation scheme, waste management plan or industry code relevant to the resource. Please provide details of the existence and applicability of any such scheme, plan or code. Reference should be made to the departments <i>Coal seam Gas Water Management Policy (2012)</i> and how the proposal meets the outcomes of that policy.	<p>The objective of the <i>Coal Seam Gas Water Management Policy 2012</i> is to encourage the beneficial use of CSG water in a way that protects the environment and maximises its productive use as a valuable resource.</p> <p>NuGrow believes that its proposal to utilise CSG drill and production waters for irrigation via magnetic treatment is consistent with the above objective. In addition to this, the management procedures and control measures outlined in the supporting documentation for the use of CSG waters, effluent and biosolids will minimise or prevent environmental harm.</p> <p>Biosolids will be managed in accordance with the <i>New South Wales Environmental Guidelines: Use and Disposal of Biosolids Products, 1997</i>. Effluent will be irrigated in accordance with the <i>Queensland Water Recycling guidelines, December 2005</i>.</p> <p>Furthermore, it is believed that the supporting information demonstrates that the proposal encompasses waste</p>	Details have been provided sufficient to make the application valid.

BUA Application validation response – Nugrow Roma Pty Ltd

	<p>minimisation principles grounded in the Waste and Resource Management Hierarchy as purported within the <i>Waste Reduction and Recycling Act 2011</i>.</p>	
<p>Section 157(2)(b)(ix) of the WRR Act requires details of any Australian or industry standards relevant to its end product. Please provide details of any relevant standards and how the proposal complies with those standards. Reference should be made to the departments' guideline <i>Approval of coal seam gas water for beneficial use</i> (2013).</p>	<p><i>Australian Standard 4454 Composts, soil conditioners and mulches</i> applies to the production of aerobic compost which is proposed to be undertaken at Iona Park albeit on a limited scale. The composting workplace procedures have been designed such that the end product produced from the open windrow composting on site will be of a standard which complies with or betters the above Australian Standard.</p> <p>As previously mentioned, the biosolids will be tested, managed and applied in accordance with the <i>New South Wales Environmental Guidelines: Use and Disposal of Biosolids Products</i>. The supporting documents provide instructional information to onsite staff as to how to manage the biosolids in accordance with this guideline.</p> <p>The irrigation waters proposed to be utilised at Iona Park will be managed in accordance with Section 2.4 Water quality for irrigation and general water use of the <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i>. Appropriate measures from the above guideline, particularly with regards to the salinity and sodicity of irrigation waters, have been incorporated into the supporting documentation.</p> <p>I can advise that consideration has been given to the department's guideline titled "Approval of coal seam gas water for beneficial use (2013)" in so far as providing control measures for the management of CSG waters. It is to be noted that NuGrow is proposing to irrigate waters with a greater electrical conductivity value than the value provided within the minimum standards listed within the said guideline.</p>	<p>Details have been provided sufficient to make the application valid.</p>

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 12 May 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 B 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,

	sch4-Signature
Signature	

10/09/2014
Date

Lindsay Delzoppo
Director, Statewide Environmental Assessments
Environment and Heritage Protection

Enquiries:
Simone Ventura, Principal Project Officer
Waste and Land Contamination Assessment
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001
Ph: (07) 3330 5729
Fax: (07) 3330 5875
Email: wlca@ehp.qld.gov.au

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 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 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*.

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

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**.

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.

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 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 A.
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;
 - 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

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*.

- 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.

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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 (CSG) production waters has the meaning in section 15A of the *Petroleum and Gas (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.

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 -

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Appendix A

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	
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 B

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

DEPARTMENT OF ENVIRONMENT AND HERITAGE PROTECTION

NuGrow – Beneficial use application, Response to Department of the Premier and Cabinet Request

REQUEST DATE: 19 November 2013

ISSUE: The Department of the Premier and Cabinet is seeking advice from the Department of Environment and Heritage Protection (EHP) to assist in developing a response to an email from Mr Brian Monk to the Premier. The email raised a number of questions about a proposal by NuGrow to ‘beneficially use’ waste products from a coal seam gas ‘camp’.

BACKGROUND:

- Waste is defined in the *Environmental Protection Act 1994* (EP Act) as including anything that is left over, or an unwanted by-product, from an industrial, commercial, or domestic activity.
- Under the EP Act, there are a range of requirements that are placed on the management of various waste types.
- Under the *Waste Reduction and Recycling Act 2011* (WRR Act) a waste can be approved for use as a resource if the department considers that it has a beneficial use.
- If a waste is approved as a resource, it is no longer considered a waste for the purposes of the EP Act as described in section 13 of the EP Act.
- There are two types of approvals of a resource for beneficial use—general and specific.
- A general beneficial use approval (BUA) has clear standards which, if complied with, do not require individual assessment by the department. Anyone can operate under this type of approval provided they comply with the conditions of the approval.
- A specific BUA requires an individual assessment and only applies following approval by the department.
- EHP can issue a beneficial use approval (BUA) allowing waste to be used as a resource if it is satisfied the material has a beneficial use which would not cause environmental harm.
- In deciding whether to grant the BUA, under section 160 of the WRR Act, EHP must consider things like:
 - the waste and resource management hierarchy;
 - regulatory requirements under the EP Act; and
 - best practice environmental management.
- The onus is on the applicant to demonstrate the use of the resource would not cause environmental harm – any granted BUA would set out conditions (including monitoring) to ensure the beneficial use did not lead to environmental harm.
- BUA conditions also commonly prohibit the release of material to land, water or groundwater in a manner that would impact beyond the boundary of the re-use site.
- Of note however, there is no mandatory consultation requirement under the WRR Act for a specific BUA application.

RESPONSE:

- EHP held a pre-lodgement meeting with NuGrow representatives on 29 August 2013 to discuss a proposed application for a specific BUA to use wastes from a nearby coal seam gas ‘camp’ for soil conditioning.
- The proposed location for the scheme is at Kogan Creek, and it is understood that the ‘soil conditioner’ would be derived from mixing liquid effluent (likely to be CSG water) with other organic wastes.
- As a formal application has not been lodged, it is not possible for EHP to comment on the likely outcome of the assessment process.
- It is important to note however that the government’s CSG Water Management Policy 2012 encourages:

Business Area: Environmental Services and Regulation			
Briefing Officer: Joshua Lean		Telephone: 3330 5901	Date: 20/11/13
Approved by: Anne Lenz, Executive Director	File D	Telephone:	Date: 20/11/13

— *“the beneficial use of CSG water in a way that protects the environment and maximises its productive use as a valuable resource”.*

- Since the pre-lodgement meeting, NuGrow has indicated that it intends to apply to EHP for a BUA for the use of these wastes as a resource on the land, but no formal application has yet been received.
- It is noted that NuGrow has commenced public consultation on the proposed scheme. This however is a voluntary activity that is not formally required by law.
- Once an application is received, EHP would undertake an assessment in accordance with the requirements of the WRR Act.

CONSULTATION UNDERTAKEN:

- EHP has held a pre-lodgement meeting with NuGrow representatives about a potential application for a BUA to use wastes from a CSG camp as a soil conditioner.
- Nugrow also discussed with EHP the possible need to obtain a license to conduct Environmentally Relevant Activity (ERA) 53 – Composting and soil conditioner manufacturing.
- A license is required under the EP Act to conduct ERA 53 however, only if the threshold of manufacturing ‘200t or more of compost or soil conditioners in a year’ is exceeded.
- However, NuGrow have indicated that they do not expect their operation at Kogan Creek to exceed this threshold.

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Business Area: Environmental Services and Regulation		
Briefing Officer: Joshua Lean	Telephone: 3330 5901	Date: 20/11/13
Approved by: Anne Lenz, Executive Director	File D	Date of 39