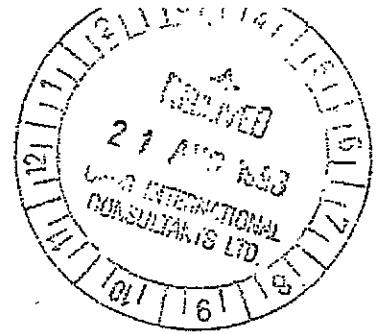


TASMAN DISTRICT COUNCIL

AIR DISCHARGE PERMIT - NN980210D

20 yrs  
14/8/2018



**Applicant:** Nelson Regional Sewerage Authority

**Purpose:** Air discharges in association with the application of biosolids.

**Location:** On the north-western side of the Wai-iti River between Bartons and Woodstock Roads, Spring Grove.

**Legal Description:** Lot 3, DP 12767 (CT 9A/695).

**Owner:** The property is owned by Mr Michael Higgins and the pine plantation managed by Baltune Forest Ltd.

**Grid Reference:** NZMS 280 N28: 2514500E 598000N

**Date Received:** 4 June 1998

**Status:** Non-notified

**Investigating Officer:** D R Lewis

1.0 INTRODUCTION

- 1.1 The Nelson Regional Sewerage Authority (NRSA) have consents to apply biosolids to forestry stands on Rabbit Island. However, the total Kjeldahl nitrogen (TKN) levels of the biosolids being produced are far higher than predicted and this, together with an increase in the volume of biosolids produced, means that a greater area of land is required for biosolids application than was originally expected. It has been estimated sufficient land beyond Rabbit Island is needed to discharge an excess of 9,500 cubic metres in 1998 and 16,000 cubic metres in 1999.
- 1.2 Section 15(1)(c) of the Resource Management Act (RMA) requires that no person may discharge any contaminant from an industrial or trade premises into air unless the discharge is allowed by a rule in a Regional Plan, Proposed Regional Plan, by regulations or by a resource consent. The definition of "industrial or trade premises" includes any premises used for the "..... treatment, or disposal of waste materials or for other waste management purposes." This definition would therefore include the production of the biosolids and their disposal to land.
- 1.3 The Tasman District Council is at present promulgating a Regional Plan for air quality management as part of the Tasman Resource Management Plan, but this is only at the draft stage and, as no regulations exist that permit the proposed discharges, then a resource consent is required.

1.4 The transitional provisions of the RMA give some relief for existing activities but, in this case, Section 418(1A) specifies that Section 15(1)(c) shall apply to any discharges from industrial or trade premises used for the storage, treatment or disposal of waste materials commenced after the first day of October 1991. As this is a new undertaking then there is a requirement for an air discharge consent.

## 2.0 BIOSOLIDS PRODUCTION

2.1 Biosolids is the term given to the sewage sludge arising from the treatment process whereby the thickened sludge from the waste stream is digested in a process known as auto-thermophilic aerobic digestion (ATAD). Through this process organic substances in the sludge are degraded into stabilised sludge (biosolids), carbon dioxide and water.

2.2 The ATAD system has three lines (A, B and C Trains) to handle the thickened sludge and each of these has two stages. The first stage holds the sludge temperature at between 25 and 35°C whilst the second stage holds the sludge at around 55°C. The high temperatures of the second stage destroy pathogens which include bacteria, viruses and parasites. Each stage has aerators which should effectively keep the sludge mixed in the tanks.

2.3 The biosolids produced from the ATAD process are then pumped to holding tanks on Rabbit Island and then transferred to mobile tankers for irrigation to the forestry area.

2.4 These biosolids conform to the United States Environmental Protection Agency (USEPA) Class A standards which means that the pathogens in the biosolids have been reduced to within acceptable limits which make them safe for immediate human contact and suitable for land disposal. Testing of the biosolids has confirmed that they have complied with the USEPA Class A standards at all times.

2.5 Problems have been experienced with the ATAD aerators at the sewage treatment plant whereby the supplied aerators did not sufficiently mix or aerate the sewage sludge. This resulted in biosolids being produced in an anaerobic state (rather than the aerobic state), resulting in very real odour problems. The extent of the odour problems has been such that a resource consent condition for the disposal of biosolids on Rabbit Island was not complied with. This stated that where the smell resulting from the disposal operations became offensive then the consent holder was required to take such steps as necessary to remedy the problem. It is contended that the time period for the remedial work has been excessively long and has resulted in avoidable public complaints to this form of land disposal of biosolids.

2.6 Although the NRSA did identify the cause of the odour problems the remediation has been drawn out due to the company supplying the plant going into liquidation and the Authority then being required to investigate practical means of rectifying the problem and then implementing these solutions themselves. As the production of sewage from the region could not be stopped whilst the problem was being investigated and rectified, odiferous biosolids were being produced that had to be disposed of.

- 2.7 The A Train has now been upgraded with effective aerators and this has resulted in not only dramatically reducing the odour of the biosolids but also increasing the temperature during the processing stages. Field trial disposal of this quality of biosolids have been carried out by decanting biosolids from the A Train direct to a tanker with application to the area following overnight storage. In this situation (with the biosolids being stored in the tanker) they have not cooled down to the optimum temperature for application and have not released their ammonium content. Consequently, on their application the initial odour was that of ammonia but this was transitory with the residual odour being similar to that of a humus product. Revisiting a day after application to the trial area showed that there was no offensive odour present and it is considered that the new aeration system is effective in producing aerobic biosolids with the resultant vast improvement in the odour to a level that is acceptable and does not have adverse effect on the recreational environment. However, as the biosolids can be stored for a number of days in the tanks on Rabbit Island it must be ensured that they do not revert to an anaerobic state during this storage period. If this was to occur then the foul odours would again be produced.

### 3.0 RESOURCE MANAGEMENT ACT

- 3.1 In consideration of this application, regard must be given to those matters under Part II of the Act. In this context, Section 5 relates to the sustainable management of natural and physical resources which includes safeguarding the life-supporting capacity of air and avoiding, remedying or mitigating any adverse effects of activities on the environment.

It is believed that the alterations to the ATAD system by the provision of upgraded aeration for the production of biosolids have remedied the previous problems caused by the emission of malodorous smells. The quality of the biosolids from the A Train are now such that not only do they comply with the USEPA Class A standards for control of pathogens but also their application to the forestry will not result in odours that are detectable beyond the application area.

- 3.2 Section 6 of the Act refers to matters of national importance such as the protection of significant indigenous vegetation and habitats of indigenous fauna, while Sections 7 and 8 lists other matters which must be given particular regard to when Council exercises its powers including maintenance to and enhancement of the quality of the environment.

The use of biosolids for their fertiliser value by their application to forestry to enhance tree growth is a method of sustainable management whereby a waste product is being utilised rather than being discarded. The fact of their utilisation in this manner has the effect of protecting and maintaining other environments that may have been used for the discarding. The adverse effect of odour that was experienced is mitigatable both through control on the production of the biosolids and on the disposal to land methods.

- 3.3 With recognition of these priority issues the application can then be considered under Section 104 of the Act, of which sub-section (3) requires regard to be given to the actual and potential effects on the environment of allowing the discharge permit activity, having regard to the nature of the discharge and the sensitivity of the proposed receiving environment to adverse effects, the applicant's reason for making the proposed choice and any possible alternative methods of discharge, including discharge into any other receiving environment.

The adverse effects of the discharge of biosolids onto Rabbit Island have been evidenced by the malodorous smells that have arisen through the application of anaerobic biosolids. This has resulted in adverse effect on the users of this recreational area and to residents not only on the island but outside the bounds of this area. This effect is attributable to the deficiencies in the process whereby insufficient aeration occurred resulting in anaerobic biosolids but, as stated previously, the recent installation of effective aeration has remedied this adverse effect to the extent that application of biosolids from the A Train should not result in further adverse effect.

Alternative methods of discharge have been utilised by the NSRA by transporting and disposal of the biosolids at the York Valley tip but there is a limitation on the quantity of the biosolids able to be disposed of in this manner. Also, alternative methods of discharge are being investigated by the Authority for disposal of biosolids on other forestry blocks in the region. Once these investigations have culminated in specific proposals then applications for consents will also be required and assessment made of the likely environmental impacts.

#### 4.0 PROPOSED TASMAN REGIONAL POLICY STATEMENT.

- 4.1 The purpose of the Proposed Regional Policy Statement is to promote the sustainable management of natural and physical resources by providing an overview of the resource management issues of the region and policies and methods to achieve integrated resource management.

- 4.2 Under Policy 4.2 Council will seek protection of the air so as to sustain the life-supporting capacity of this resource in a manner consistent with Maori interests.

It is believed that these interests were addressed in the application for disposal of biosolids onto Rabbit Island and that the conditions set addressed any potential conflict with this particular policy. Similar protections should be applied to the Baltune Forest Ltd application area with consent conditions ensuring that the generation of the malodorous smells does not affect the air resource.

- 4.3 Policy 6.4 requires Council to avoid, remedy or mitigate adverse effects of adjacent rural land use activities across property boundaries, including effects of odour.

This policy has not been complied with for the disposal of biosolids on Rabbit Island due to the improperly processed biosolids creating offensive odours. However, the identification and rectification of the causes of the offensive odours has now resulted in the mitigation of this adverse effect to the extent that it is believed that the level of odour emitted will be publicly acceptable and should have little or no adverse effect on neighbouring properties.

- 4.4 Policy 10.4 requires Council to avoid, remedy or mitigate adverse effects of the disposal of solid or liquid waste contaminants by seeking land disposal of such wastes where it is the best practicable option.

This application for consent complies with this policy in that the solid waste from the sewage stream is being captured and treated to the extent that it is of a suitable quality for land disposal. The utilisation of these wastes for their fertiliser value is a defined method of sustainable management and, with the imposition of appropriate consent conditions, will result in the protection of Iwi and environmental interests.

## 5.0 PROPOSED TASMAN RESOURCE MANAGEMENT PLAN

- 5.1 Under the Proposed Tasman Resource Management Plan the Higgins property has been zoned Rural 2. Under the Rural 2 zone rules, rule 17.5.2(c) requires that the activity does not emit dust or odour causing a nuisance in a residential zone.

It is considered that this rule can be complied with as it is unlikely that a nuisance condition caused by odour would be experienced in the closest residential zones of Wakefield from the properly controlled application of biosolids on the Higgins property.

## 6.0 NELSON BAYS REGIONAL PLANNING SCHEME 1984

- 6.1 Under Section 1.3 of this Scheme the general objective relating to air is to maintain or improve the quality of the Region's air. The implementation of this objective dictates that, among other things, local authorities, when considering planning applications, should take into account potential impact on air quality.

Assessment of the potential impact on air quality by the application of biosolids to Baltune Forest Ltd is being considered and it is considered that, provided appropriate conditions are imposed, then there will potentially be only a minimal adverse effect on air quality. Also, because of the transitory nature of the application and the conditions proposed for control on the spread of biosolids, any minor adverse effect will only be for a short period.

## 7.0 ASSESSMENT

- 7.1 The major adverse effect from the application of biosolids to the forestry plantations is readily identifiable as being that of the malodorous emissions that have occurred through this process. Providing this adverse effect can be avoided then it is considered that the application of biosolids in this manner is in fact sustainable management whereby a waste resource is being utilised for its fertiliser value in the growing of the forest. It is contended that, despite the stigma associated with the content of the biosolids, disposal in this manner does not have an adverse environmental effect and presents a far better option for disposal of the waste stream than is utilised in many other parts of the country (e.g. discharge to sea, discharges with a lower standard of treatment). In fact, it is likely that if it had not been for the odours being produced by the biosolids, then there would be far greater public acceptance of this disposal system.

- 7.2 Alternative disposal sites are being investigated by the NSRA but these will also be subject to the resource management procedures and require applications for consent. In the interim, there is a defined need for an expansion to the present disposal areas as contained within Rabbit Island and hence the necessity as seen by the NSRA for this application.
- 7.3 The quality of the biosolids complies with an internationally recognised standard that in fact allows immediate human contact with the biosolids but, as a precautionary measure, an exclusion time for public access to the forestry area treated with biosolids is required.
- 7.4 The application of biosolids to the forest floor is by means of a mobile irrigator. The pressures being used are relatively low and consequently the formation of aerosols into the air is usually of a minor nature. However, when the irrigation stream hits a tree trunk then the impact can fragment the stream and create a greater aerosol emission. As this application is taking place under the forest canopy of trees at least six years old then the canopy has the effect of retaining the aerosols and, providing the wind strength during application is not great, the escape of aerosols from the applied area is not expected to be significant.
- 7.5 It is believed that the proposed conditions relating to the quality of the biosolids (including control on their odour release), together with the controls relating to the conditions for their application, will effectively mitigate the adverse effect of any odour.
- 7.6 A review following the first round of application of biosolids to the Higgins property should be held to assess whether or not the consent conditions relating to the control of potential adverse effects have been effective and a decision made following this review as to whether or not further conditions for control are required or whether the performance by the applicants has been such that the second applications of biosolids will be permitted.

## 8.0 RECOMMENDATION

That discharge permit NN980210 for the air discharges in association with the application of biosolids to the forestry area managed by Baltune Forest Ltd be granted for a period of twenty years from the date of granting of this consent subject to the following conditions:

### 1. Biosolids Application

That only aerobic biosolids produced at the Bells Island ATAD plant from any Train that has been upgraded by the provision of a new aerating system be disposed of on the forestry areas the subject of this application, except that if the District Environmental Health Officer at Tasman District Council is satisfied that biosolids from any other Train are no more odourous than the biosolids from such an upgraded Train and have an ORP (Oxidation Reduction Potential) reading of greater than -150 mV (millivolts) and a temperature of not less than 50°C then the consent holder may dispose of biosolids from any other Train.

**2. Separate Storage Required**

That until such time as all Trains for the production of biosolids have had their aeration upgraded then the biosolids as permitted by Condition 1 above shall be stored separately at the Rabbit Island depot.

**3. Aeration of Rabbit Island Storage Tanks**

The storage tanks at the Rabbit Island depot holding biosolids shall be provided with effective aerators if it is discovered that the biosolids become anaerobic during their storage in these tanks.

**4. Cessation of Application if Malodorous**

If the quality of the biosolids deteriorates to the extent that in the opinion of the District Environmental Health Officer or as a result of a complaint considered justified by the District Environmental Health Officer, offensive odours are being emitted, then the application of biosolids on the subject forestry area must cease immediately and biosolids shall not be reapplied until such time as the quality of the biosolids has been improved to the extent that in the opinion of Council's enforcement officer, the offensive odours are not present.

**5. Wind Speed Restriction**

No application of biosolids shall take place during conditions when the mean wind speed, which is measured in the Waimea Basin, exceeds the Beauport Wind Scale of No.4 (i.e. no greater than 8 metres per second).

**6. Biosolids Transport**

The tankers used for the transporting of biosolids to the forestry area the subject of this application shall be thoroughly cleaned down prior to leaving the Rabbit Island storage depot and no leakage of biosolids from the tankers shall be permitted whilst en route to or return from the disposal site.

**7. Contingency Plan**

A contingency plan that includes measures for containment and clean-up of accidental spillage's on public roads from the tankers shall be provided to the satisfaction of Council prior to the uplifting of this permit.

**8. Odour Complaints**

A complaints recording system shall be instituted that records all odour complaints where the complainant considers the odours result from the carrying out of application of biosolids to the subject forestry areas. The record shall include the name of the complainant; the date, time and location of the odour incident; the weather conditions including wind speed and direction when the odour was detected; any possible cause for the odour complaint; any corrective action taken; notification to the complainant of the outcome of the investigation into the complaint.

9. Review of Consent

Within one year of the granting of this consent, the permit holder shall provide Council with a report summarising the performance of the first biosolids application - including compliance with consent conditions and any operational or odour problems or complaints - so that the need for a review of conditions can be determined by Council. If such a review is so determined, then Council may review any of the conditions by giving notice of its intention to do so pursuant to Section 128 of the Resource Management Act 1991, at any time over the duration of the consent after the first anniversary of its grant, for the following purposes:

(a) To deal with any adverse effect on the environment arising from the exercise of this consent;

or

(b) Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

9.0 REASONS FOR CONSENT

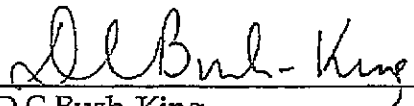
9.1 It is accepted that the activity of application of biosolids to forestry is a method of sustainable management of the sewage waste stream and that the imposition of appropriate consent conditions will ensure that there will be minimal effect on the air environment.

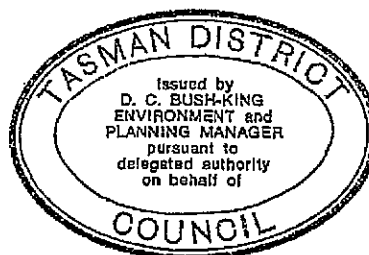
9.2 The duration of the consent and the provision for a review of conditions reflects Council's stated policy that it will seek to avoid, remedy or mitigate adverse effects of the discharges of contaminants to air.

9.3 The application of biosolids to the forestry areas as controlled by the proposed consent conditions will generally maintain the quality of the environment and the air resource associated with this application.

D R Lewis  
District Environmental Health Officer

APPROVED

  
D C Bush-King  
Environment and Planning Manager



14/8/97