



STAFF REPORT

TO: Environment & Planning Subcommittee

FROM: Leif Pigott, Coordinator - Natural Resource Consents

REFERENCE: RM080033V1

SUBJECT: **J S EWERS LTD - REPORT REP11-11-02** - Report prepared for meeting of 14 November 2011

1. INTRODUCTION

My full name is Leif David Pigott and I am employed by the Tasman District Council (TDC), as Coordinator- Natural Resource Consents. I lead the regional consents team and process resource consent applications of the “regional” type.

I hold a Master of Science degree in physics from Auckland University.

I have worked in local government since 1994. I was employed by Environment Waikato in 1994 as a Scientist and then from 1995 to 2000 as an Air Quality Scientist. From 2000-2003 I managed the Resource Science team at Otago Regional Council.

I have experience in the practice of assessing discharges to air. I have been involved in the area of air quality since 1995. I was a member of the team that developed the Regional Policy Statement and Regional Air Plan for Environment Waikato. I have also developed and run regional air quality monitoring programs and provided technical advice as required in the field of air quality.

I was a member of the Clean Air Society of Australia and New Zealand (CASANZ) 1995-2003. I have undertaken the CASANZ Air Quality Monitoring training course and regularly attended the special interest air quality working group where council staff discuss air quality issues. I have undertaken a Calpuff air quality modelling training course.

2. DESCRIPTION OF THE PROPOSED ACTIVITY

Ewers is a large market gardening operation. Onsite there is 23.4 megawatts of coal fired boilers to heat several large glasshouses.

The initial consent RM080033 to discharge exhaust gases and particles to air from coal-fired boilers was issued by Council on the 18 June 2008.

The Ewers operation has since been brought by MG marketing. They are in the process of rationalising the operation.

3. PROPOSED VARIATION

A variation to RM080033 (RM080033V1) was received to change two conditions in the current consent.

1. Remove the requirement to undertake a fuel conversion from coal to wood
2. Extend the phasing out of the three small boilers on site.

Since the initial application the applicant has updated the application, now they are applying not to phase out the three small boilers

This variation was limited notified, and one submission against the proposal was received. Significant time has been spent trying to negotiate a way forward however this has been unsuccessful.

Coal to Wood Fuel Conversion

RM080033 states that the fuel for the boilers will be converted from Coal to Wood. Condition 4 requires this conversion and is reproduced below:

- 4 *This resource consent authorises the burning of coal and wood as follows:*
- (a) *from 16 June 2008 until 31 December 2010, this consent authorises the burning of coal or wood;*
 - (b) *from 1 January 2011 until 31 December 2013, this resource consent authorises the burning of coal subject to no less than 6 MW of heat at the site being produced from wood;*
 - (c) *from 1 January 2014 this resource consent authorises the burning of wood only and no coal may be used to fuel any boiler on the site; and*
 - (d) *from 16 June 2008 until 1 January 2011 this consent authorises the operation of boilers 1-7 as listed in Table 1. From 1 January 2011 until 31 December 2028 this consent authorises the operation of boilers 4-7, as listed in Table 1, only.*

No progress on the conversion of these boilers has been made on this site. However, the applicant also owns Blackbyre Horticulture that has a boiler capable of burning wood on the next property and issues have been found with wood supply by the Applicant that has resulted in this variation. These are expanded on further in this report. This variation of consent is seeking to remove the fuel conversion condition volunteered by the applicant to avoid the initial consent from going to a hearing.

Consent RM080033 was publicly notified and an opposing submission from Peter Wilks was received. This submission opposed the application on the grounds of CO2 emissions from the coal burning boilers. In this regard the submission was driven by concerns over greenhouse gas emissions and climate change. This was the only submission in opposition where the submitter wished to be heard. Wishing to avoid the need for a hearing, the applicant, the submitter and Council staff were involved in two pre-hearing meetings to discuss the matter. In response to the submitter's concerns, the applicant volunteered to make a retrofit conversion from coal to wood by 1 January 2013, with an interim commitment of 6 MW to be produced from wood by 1 January 2011.

At the time, the applicant was unable to finalise a loan from the bank for a new glasshouse that was under construction until he had the correct consents in place. Council staff were receiving regular calls from both the applicant and the bank, suggesting that there was significant pressure to obtain the consent to discharge.

Since the consent was issued Ewers has been brought by MG Marketing. MG Marketing is the trading name for Market Gardeners Ltd. Set up as a co-operative to provide mutual support and endeavour for participating grower-shareholders. The business is now one of the largest fresh produce suppliers in Australasia and the Pacific region.

Since gaining the consent there is been no discernable move towards undertaking the work volunteered.

Decommissioning of Three Small Boilers

Condition 4(d) of RM080033 requires the decommissioning of the three small boilers by the first of January 2011.

4(d) from 16 June 2008 until 1 January 2011 this consent authorises the operation of boilers 1-7 as listed in Table 1. From 1 January 2011 until 31 December 2028 this consent authorises the operation of boilers 4-7, as listed in Table 1, only.

The initial application states "the three boilers are likely to be decommissioned"

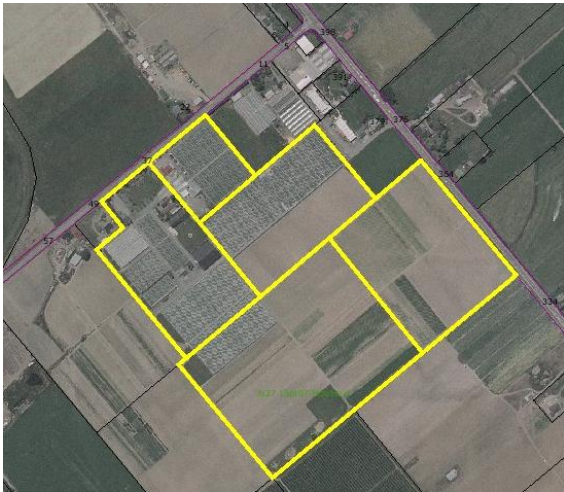
Further information dated February 2008 stated "when examining the modelling the input data was restricted to boilers 4-7 as units 1-3 will be phased out subsequent to the installation of Boiler 7." It does however not provide any time line for the phase out.

The agreement reached with the submitter did not specifically involve the removal of boilers 1-3. Thus it is not specifically volunteered by the applicant and agreed to by Peter Wilks.

An update to the notified variation was received 13 July 2011 to remove the phase out of the three small boilers.

1.2 Site Location and Description

The site is off the Appleby Highway and situated on the Waimea Plains



1.3 Legal Description

Address of property: 37 Blackbyre Road, Appleby
Legal description: Lot 2 DP 350321, Lot 5 DP 307291, Lots 6 and 7 DP 11300, Lot 3 DP 6665
Certificate of title: 205859 and NL6D/554
Valuation number: 1939011900
Location co-ordinates*: 2521361E, 5987272N (New Zealand Map Grid Datum)

* Seven point source discharges within ~100 m radius of these co-ordinates

2. TASMAN RESOURCE MANAGEMENT PLAN (TRMP) ZONING, AREAS AND RULES AFFECTED

According to the TRMP the following apply to the application site:

Area(s): The application site lies outside of the Richmond Airshed.

Zone: Rural 1.

The application is for a variation under Section 127 of the RMA this variation is a Discretionary Activity.

3. CONSULTATION, APPROVALS AND SUBMISSIONS

3.1 Consultation

The application was notified on a limited basis to 4 people who submitted previously on RM080033 which was fully notified.

3.2 Submissions

Two submissions were received.

Submitter	Submission	
Timothy Kelvin Robinson	Neutral	Does not want to be heard
Peter Wilks	Opposes application	Wants to be heard

Robinson Submission

Mr Roberson is concerned about the emission of sulphur dioxide from the burning of coal and the potential adverse effects on the land and people in this area.

Wilks Submission

“As the Council is aware, in 2008 Mr Ewers applied for and received a resource consent that allowed for a phase-in period in which to make a transition to a fully wood burner operation to heat his glasshouses. The consent conditions required that coal could be used exclusively until 31 December 2010, a minimum of 6MW to be supplied from wood sources from 1 January 2011 to 31 December 2013, and from 1 January 2014 only wood was permitted to be burnt.

These conditions were agreed to following a pre-hearing consultation between myself, the TDC, and Mr Ewers and his legal representative. I was not aware that Mr Ewers only agreed to these conditions “...to avoid the delays associated with a formal hearing”, as stated in a letter from Jones and Associates to TDC dated 4 May 2010.

The principal reasons for my objection are:

- *For some harmful emissions coal performs worse than wood as stated in pages of the application*
- *The continued use of coal is contrary to the principles of the RMA. In particular:*

The overriding purpose of the RMA is ‘to promote the sustainable management of natural and physical resources’. This is defined in section 5(2) as meaning:

‘managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to pro vide for their social, economic, and cultural wellbeing and for their health and safety while:

- (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
- (b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and*
- (c) Avoiding, remedying or mitigating any adverse effects on the environment*

And in Section 7 (j): Other matters:

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to:

- (a) kaitiakitanga:*
 - (aa) the ethic of stewardship:*
 - (b) the efficient use and development of natural and physical resources:*

- a) *the efficiency of the end use of energy:*
- (c) *the maintenance and enhancement of amenity values:*
- (d) *intrinsic values of ecosystems:*
- (e) *maintenance and enhancement of the quality of the environment*
- (g) *any finite characteristics of natural and physical resources:*
- (h) *the protection of the habitat of trout and salmon:*
- (i) *the effects of climate change:*
- (l) *the benefits to be derived from the use and development of renewable energy.*

- *Use of wood will generate local employment in procurement of logging and sawmill waste, and processing to material for use in boilers. An EECA report estimated that 138 fulltime jobs are created for each Petajoule (1PJ=10¹² J) of energy. (note from staff 1 PJ is in fact 10¹⁵J). The proposed Ewers operation will require 1000GJ per day (1 GJ=1*10⁹J). (note from staff could be larger than this)*
- *Wood is available locally; whereas coal has to be transported several hundred kilometres from the West Coast.*
- *Use of wood will be a positive marketing benefit for the grower.*
- *Wood-fired boiler technology has been successfully implemented in a commercial tomato growing operation in Blenheim with reported payback of 3.2 years and IRR of 25% ((EECA report ii september 2009).*
- *Use of wood will mean the grower does not have to pay for 'carbon taxes' that are built into the price of coal (coal has gone from \$170/t to \$200/t due to the ETS). This will mean a more economically sustainable business without the risks associated with unknown future price of carbon liabilities.*
- *C02 and Nitrous oxide are one of the recognised principal contributors to greenhouse gases and global warming. Wood is a sustainable energy source that has zero net C02 and Nitrous oxide emissions. Use of coal for heat generation is internationally recognised as one of the main contributors to greenhouse gases.*
- *The TDC should be encouraging large scale polluters in the Tasman District to convert to more environmentally friendly energy sources. This is entirely in keeping with one of the Councils core role and responsibilities, being to: 'manage, protect, develop, restore, enhance and conserve the environment' (source: TDC website)*

Staff Comments on the Submissions

Sulphur dioxide is recognised as an important contaminant from the combustion of coal and this is addressed in the assessment of effects.

The relevant matters in Part II of the RMA are addressed further on in this document.

Economics of wood as a fuel is an important issue, the wider community benefits of setting up a wood supply chain is somewhat outside the scope of this application.

Transitioning from coal to wood when it becomes economic is likely to be a long term driving factor for all greenhouse operators in the District as they try to keep profitable.

It is accepted that Nitrous oxide (N₂O) is an important greenhouse gas. However, it is not primarily produced as a combustion product. Agriculture is the main source of human-produced nitrous oxide. I suspect that Mr Wilks is confused with nitric oxide (formula NO) or nitrogen dioxide (formula NO₂) commonly known as NO_x these are significant combustion related pollutants and are addressed further on in this document.

There is no disputing the fact that the combustion of coal is a significant global source of greenhouse gases.

TDC does encourage sustainable development. The Nelson Regional Economic Development Agency is supported by the Tasman District Council by way of an annual financial contribution. Please contact David Francis for more details about the role of the EDA and the energy audits that are being undertaken.

4. PRINCIPAL ISSUES

The principal air quality issues associated with the applications are the potential changes in emissions from the proposed variation:

1. Ambient air quality
2. Greenhouse gas emission
3. Community/economics

5. STATUTORY PROVISIONS

The change of conditions proposed in the application is a Discretionary Activity as it is a 127 variation

For these types of applications, ss88 to 121 apply as if the application was an application for resource consent for a discretionary activity. As part of processing these types of applications, a council must, in determining if there are any adversely affected parties, consider every person who made a submission on the original application and may be affected by the change or cancellation. Under Section 127 only the change to the condition can be considered. It does not provide for the reconsideration of the entire consent.

The Council must consider the application pursuant to Section 104 and Section 107 of the Resource Management Act 1991.

The matters for Council to consider in Section 104 are:

- Part II matters;
- the actual and potential effects on the environment of allowing the activity (Section 104 (1)(a));
- any relevant provisions of a national environmental standard, other regulations, a national policy statement, the New Zealand coastal policy statement, the

Tasman Regional Policy Statement and the Tasman Resource Management Plan (Section 104 (1) (b))

- any other matter the Council considers relevant and reasonably necessary to determine the application (Section 104 (1)(c)).
- Section 104E.

The matters for Council to consider in Section 107 are:

- the Council shall not grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A.

5.1 Resource Management Act

This section of the report reviews the relevant section of the RMA .

The act defines the environment as follows,

Environment includes—

(a) Ecosystems and their constituent parts, including people and communities; and

(b) All natural and physical resources; and

(c) Amenity values; and

(d) The social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) of this definition or which are affected by those matters:

It should be noted that the environment specifically includes people and communities and specially notes social, economic conditions.

In considering an application for resource consent, the Council must ensure that if granted, the proposal is consistent with the purpose and principles set out in Part II of the Act.

Section 5 sets out the purpose of the Act which is to promote the sustainable management of natural and physical resources. "Sustainable management" means:

"Managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while:

- *sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
- *safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
- *avoiding, remedying, or mitigating any adverse effects of activities on the environment"*

Thus Section 5 enables people and communities to provide for their social, economic, and cultural well-being while safeguarding the life-supporting capacity of air, water, soil, and ecosystems.

MG marketing have taken over the Ewers operation. In their updated information they state "From a professional perspective it is rather difficult to see how Mr Ewers could have ever put those conditions forward for a viable operation. If the Blackbryre

Road facility becomes unable to be operated resulting in MG having to close the facility down then the cost to this district will amount to approximately 130 jobs (directly and indirectly) and a loss of some \$20,000,000 turnover through the facility”.

Thus the economics of the operation are important to the local community

Sections 6, 7 and 8 set out the **principles** of the Act:

Section 6 of the Act refers to matters of national importance that the Council shall recognise and provide for in achieving the purpose of the Act. The matters relevant to this application are:

None of the matters within Section 6 are relevant to this application.

Section 7 of the Act identifies other matters that the Council shall have particular regard to in achieving the purpose of the Act. Relevant matters to this application are:

(b) The efficient use and development of natural and physical resources:

(ba) the efficiency of the end use of energy

(f) Maintenance and enhancement of the quality of the environment:

(g) Any finite characteristics of natural and physical resources:

(i) the effects of climate change

(j) the benefits to be derived from the use and development of renewable energy.

Burning coal for heat in a boiler is relatively efficient compared to burning it for electricity, it does have a significant down side with the emissions of greenhouse gas. It is unclear if the end use is an efficient use of energy as there is a large energy input per vegetable (this is being regarded as out of scope for this discussion).

Emissions can be broken into two classes, the local air pollutants and the global pollutants (greenhouse gases).

The local pollutants, PM10, SO2 and NO2 are discussed further on in this document with the relevant matters in Section 7 providing the framework for the analysis.

The emissions of greenhouse gases and the potential for global warming will be less using wood.

Significant benefits will be derived from the use and development of renewable energy. Work published by EECA show the development of a wood fuel supply chain will provide the benefits to the local community with more money being spent locally and that money cycling through the local community.

The applicant suggests that the economics of the situation at this point in time do not make the conversion to wood a viable option for the operation to continue. Market forces and economics are a powerful reason to change fuels. The price of coal is likely to rise making the change to wood an economic choice in the medium term and this consent still allows for this change to be made.

In summary the use of the renewable wood resource is more consistent with the matters that the Council has to have regard to in Section 7 of the Act. However, using coal is not inconsistent with the matters in Section 7.

Section 8 of the Act shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

I do not consider that there are any relevant issues for this application in respect of Section 8.

These principles underpin all relevant Plans and Policy Statements, which provide more specific guidance for assessing this application.

Discharge of greenhouse gases and climate change within the RMA framework.

The requirement to have particular regard to the effects of climate change was introduced into the Resource Management Act 1991 (the RMA) by the Resource Management (Energy and Climate Change) Amendment Act 2004. Section 7 of the RMA relevantly states:

“In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

...

(i) the effects of climate change.”

It is worth reviewing the definition of effect in section 3 to reiterate how wide the definition is.

MEANING OF “EFFECT”

In this Act, unless the context otherwise requires, the term effect includes—

- (a) Any positive or adverse effect; and*
- (b) Any temporary or permanent effect; and*
- (c) Any past, present, or future effect; and*
- (d) Any cumulative effect which arises over time or in combination with other effects— regardless of the scale, intensity, duration, or frequency of the effect, and also includes—*
- (e) Any potential effect of high probability; and*
- (f) Any potential effect of low probability which has a high potential impact.*

SECTION 104E: APPLICATIONS RELATING TO DISCHARGE OF GREENHOUSE GASES

“When considering an application for a discharge permit or coastal permit to do something that would otherwise contravene section 15 or section 15B relating to the discharge into air of greenhouse gases, a consent authority must not have regard to the effects of such a discharge on climate change, except to the extent that the use and development of renewable energy enables a reduction in the discharge into air of greenhouse gases, either—

- (a) in absolute terms; or*
- (b) relative to the use and development of non-renewable energy.”*

Section 104E of the RMA directs that a consent authority must not have regard to the effects of greenhouse gases on climate change when considering applications for discharge or coastal permits, except in very limited circumstances. It applies only to

resource consent applications involving the use of renewable sources of energy production. The prohibition applies in all other cases.

The decision of the Court of Appeal was upheld by a majority of the Supreme Court in *Greenpeace NZ Inc v Genesis Power Ltd* (2008) 15 ELRNZ 15. The majority relied on the “clear legislative policy” of the Resource Management (Energy and Climate Change) Amendment Act 2004 (“2004 Act”) as set out in the purpose clause of that Act and the overall scheme of the new provisions. Moreover, the complementarity of the language of sections 70A and 104E was held to demonstrate the “implicit premise” that the exception expressed in those two sections is intended to be confined to proposals that involve the use and development of renewable energy.

On consistent with purpose of the 2004 Act, the Court noted that the underlying policy of that Act is “to require the negative effects of greenhouse gases causing climate change to be addressed not on a local but on a national basis, while enabling the positive effects of the use of renewable energy to be assessed locally or regionally”.

This however does not limit the exception in section 104E to applications proposing the use of renewable energy. That limitation would be inconsistent with the terms of section 7(j).

So 7(j) applies to this application and the question is does this application pass the test of 104E as it is going from a renewable energy source to a non renewable source of energy.

This application is removing the forced transition to wood so the consent is reducing the potential for the use and development of renewable energy. Not requiring the use of wood will not guarantee or enable a reduction in the discharge into air of greenhouse gases, either, in absolute terms; or relative to the use and development of non-renewable energy.

The consent will allow wood to be used as a fuel source. If/when wood becomes a more economic energy source the transition can still occur.

National Environmental Standard for Air Quality.

The NES for PM₁₀, SO₂ and NO₂ is discussed as part of the analysis further on in this document.

5.2 Tasman Regional Policy Statement

The Regional Policy Statement seeks to achieve the sustainable management. Part 3, section 12.2 of the RPS, Energy Issues, Objectives, Policies and Methods. Provides some high level policy direction on energy issues.

The energy sections have not been brought through into the TRMP. Tasman Resource Management Plan was developed to be consistent with the Regional Policy Statement, it is considered that an assessment under the TRMP will satisfy an assessment against Policy Statement principles for the discharge to air

5.3 Tasman Planning Documents

Regional Policy Statement (RPS)

Part 3, section 12.2 of the RPS, "Energy Issues, Objectives, Policies and Methods." Provides some limited high level policy direction on energy issues. These do not provide any more direction than Section 7 of the RMA.

Tasman Resource Management Plan

The TRMP has no objectives or policies on energy efficiency or the emission of greenhouse gases.

The most relevant Objectives and Policies to this application are contained in Chapter 34. The following Policies and Objectives have been considered relevant for this proposal:

Objectives and Policies	
34.1.2 Objective	
The discharge of contaminants to air in such a way that avoids, remedies or mitigates adverse effects while:	
(a)	maintaining existing air quality; and
(b)	enhancing air quality where existing quality is degraded for natural or human uses or values.
34.1.3 Policies	
34.1.3.1	To ensure that any discharges of contaminants to air are undertaken in a way that avoids, remedies or mitigates any adverse effects on the receiving environment or surrounding activities.
34.1.3.2	To allow or regulate contaminant discharges to air in relation to their actual or potential contamination effects, including: (a) adverse effects on human health; (b) adverse effects on amenity values; (c) contamination of adjacent sites; (d) degradation of water quality; (e) the production of objectionable, noxious or offensive odours.
34.1.3.3	To provide for contaminant discharges to air while maintaining or enhancing the ambient air quality.
34.1.3.10	To work with other agencies with responsibility for managing air quality, to recognise other statutes regulating discharges to air, and to support nationally co-ordinated policies for the management of motor vehicle emissions, ozone layer depleting substances and substances contributing to global warming.
34.1.3.11	To manage air quality to meet National Environment Standards for ambient air quality, especially in relation to concentrations of PM ₁₀ .
34.1.3.14	To take into account national guidelines for air quality when considering applications to discharge contaminants into the air.
34.1.3.16	To take into account potential adverse effects on ambient winter-time PM ₁₀ concentrations in the Richmond Airshed of discharges to air that may enter the Richmond Airshed.

Details of the assessment of the proposed activity in terms of these matters are addressed through the assessment of actual and potential effects in paragraphs of this report.

6. ASSESSMENT

In summary the applicant is proposing to be able to keep burning coal and not force a transition to wood. The three small boilers are largely irrelevant as the operation will need the same amount of heat for the complex.

To bring the volumes of fuel used into context the modelling is based on burning 44,000kg coal a day or 63,000kg of wood a day. With yearly figures of 8,000 tonnes of coal per year or 12,000 tonnes of wood per year (this relates to a similar energy input). It should be noted heating requirements vary through the year so the modelling is based on wintertime fuel usage.

Summary of the emission of coal verse wood as a fuel to provide the required energy on site.

Contaminant	Change in emissions	Notes
PM ₁₀	Will be similar	
NO ₂	will be similar	
SO ₂	coal will be significantly higher	Wood is has very little sulphur and the coal is 0.5% by weight.
CO ₂	Wood will be slightly lower	This is just examining the CO ₂ being discharged from the stack
CO ₂ as a greenhouse gas	Coal will be significantly higher.	However there will still be some emissions of CO ₂ from the use of fossil fuels during the collection and delivery of the wood

6.1 Actual and Potential Environmental Effects Discussion of Key Potential Environmental Effects of Wood vs Coal

The environmental effects of wood verses coal are discussed in this section are; ambient air pollutants, greenhouse gases (global pollutants) and the economic and community. Each of these effects is addressed in the following sections.

6.2 Assessment of Ambient Pollutants

Fine particulate material (PM₁₀)

PM₁₀ particles with an aerodynamic diameter less than 10 microns. PM₁₀ come from sources such as burning coal, oil, wood and light fuel oil in domestic fires, transportation and industrial processes. Natural sources of particles include sea salt, dust, pollens and volcanic activity.

When we breathe in, the hairs in our nose and air passages remove particles larger than 10 µm in size. Particles smaller than 10 µm can penetrate into the lungs, where they cause problems and affect our health.

Some of the most common health effects include irritation of your eyes, throat and lungs. For people with existing respiratory conditions, such as asthma or bronchitis, breathing in particles can make the conditions worse. Particles can also reduce your capacity to resist infection. Studies show that particles can increase the number of hospital admissions and emergency department visits, school absences, lost work days and restricted activity days. Studies in the United States and Europe show a correlation between levels of particles and the number of people who die each year (the mortality rate).

Groups that are most sensitive to particle pollution are; children, adults with obstructive lung disease, asthmatics, and the elderly. In this case there are no sensitive receivers near the discharge e.g., schools, rest homes etc.

Guideline key value to protect health is the 24-hour average, the 24 hour average concentration of PM₁₀ in the air should not be more than 50 µg/m³. While the average annual concentration of PM₁₀ should not exceed 20 µg/m³.

In most New Zealand cities and towns, PM₁₀ levels are usually about 25-35 µg/m³ (24-hour average). This is below the guideline value. However, some cities and towns have quite bad particle pollution, especially in winter with recorded levels of up to 500 µg/m³ (24-hour average). For example, Richmond and Nelson often experience high levels of PM₁₀ in winter when particles from residents' home fires get trapped close to the ground by temperature inversions

The PM₁₀ emissions from the glasshouse boiler burning either wood or coal will be similar. The maximum ground level concentration are predicted to be 11 ug/m³ for coal and 10 ug/m³ for wood.

The modelling suggests the maximum ground level concentrations (GLC) of PM₁₀ are predicted from the burning of coal to be 11 ug/m³ and 7 ug/m³ at the greatest influenced dwelling. This is an increase of 14% of the Nation Environmental Standard for PM₁₀. Even with the maximum increase of PM₁₀ the levels will be much lower than those within Richmond.

It should also be noted that modelling and the use of GLC of this nature is generally quite conservative.

I agree with the assessment of John Iseli that "any adverse effects of PM₁₀ discharged from the boilers are predicted to be minor, whether wood or coal is burnt.

Nitrogen Dioxide (NO₂)

This is a product of high temperature combustion and the rate of discharge will be similar for both wood and coal. Thus this contaminant is not a significant issue for this application.

The predicted GLC are significantly less than the NZ air quality guideline. The adverse effects of the NO₂ emissions will be less than minor.

Sulphur Dioxide (SO₂)

Coal contains sulphur, when the coal is burnt it releases the sulphur and sulphur dioxide. The current consent specifies a maximum sulphur content of 0.5% by weight.

Wood contains very little sulphur and alkaline ash of wood can bind sulphur dioxide further reducing the emissions.

Sulphur dioxide is a colourless, soluble gas with a characteristic pungent smell, which forms sulphuric acid when combined with water.

Sulphur dioxide is produced mainly from the combustion of fossil fuels that contain sulphur, such as coal and oil (for example, coal being burnt in a home fireplace for heating and diesel-powered vehicles). Sulphur dioxide is also produced from some industrial processes, such as fertiliser manufacturing, aluminium smelting and steel making.

Sulphur dioxide can cause respiratory problems, such as bronchitis, and it can irritate your nose, throat and lungs. It may cause coughing, wheezing, phlegm and asthma attacks. The effects are worse when you are exercising. Sulphur dioxide has also been linked to cardiovascular disease.

Groups most sensitive to sulphur dioxide; are children, adults with lung disease and asthmatics.

The relevant standards and guideline values to protect health are the one hour and 24 hour standards. The national environmental standard for sulphur dioxide are 350 µg/m³ and 570 µg/m³ as a 1-hour average. The average concentrations of sulphur dioxide should not exceed the 350 µg/m³ standard more than nine times a year and should not exceed the 570 µg/m³ standard at all. The national ambient air quality standard for sulphur dioxide is 120 µg/m³ as a 24-hour average.

New Zealand's ambient standards and guidelines are generally consistent with World Health Organisation (WHO) recommendations. In October 2006, WHO released its first global air quality guidelines, which reduced the 24-hour average sulphur dioxide guideline from 120 µg/m³ to 20 µg/m³. The Ministry for the Environment is currently investigating whether the ambient air quality guideline should be reviewed in light of this change.

The World Health Organisation (WHO) revision of the 24-hour guideline for SO₂ from 125 to 20 µg/m³ is based on the following considerations.

- Health effects are now known to be associated with much lower levels of SO₂ than previously believed.
- A greater degree of protection is needed.
- Although the causality of the effects of low concentrations of SO₂ is still uncertain, reducing SO₂ concentrations is likely to decrease exposure to co-pollutants.

Most of the modelling is well below the relevant SO₂ guidelines. However the modelling shows the 24 hour average SO₂ CLG is 41 ug/m³ and the maximum GLC at any dwelling is 26 ug/m³. This is higher than the WHO limit of 20 ug/m³. Given that this a maximum GLC and these are conservative, assuming maximum coal consumption then it is unlikely that this level would be achieved, any exceedance would be infrequent at worst.

If and/or when New Zealand adopts the new WHO guideline a Section 128 review of this consent may need to be undertaken. Condition 16 of the initial consent allows the council to require ambient monitoring of SO₂. Ambient monitoring would provide real data rather than relying on modelling.

The worst case effect is the same as currently exists now. Any transition to wood will reduce the SO₂ emissions and the ambient levels of SO₂.

6.3 Assessment of Greenhouse Gas

There is no argument that using wood will produce significantly less green house gas emissions than coal. The emissions out of the stacks will be about the same but the burning of wood does not release the locked up carbon from the coal. (NB The greenhouse gas emissions from the use of wood will not be zero as fossil fuels will have been used to process and transport the wood.)

This application is removing the forced transition to wood, thus it reduces the potential for *“the use and benefits from the use and development of renewable energy”* (Section 7(1)). Not requiring the use of wood will not guarantee or enable a reduction in the discharge into air of greenhouse gases, either, in absolute terms; or relative to the use and development of non-renewable energy.

The consent will still allow wood to be used as a fuel source. If/when wood becomes a more economic energy source the transition could still occur.

The effects of the actual greenhouse gas emissions and its relative contribution to global warming is outside the scope of section 107E of the RMA and are not assessed here.

6.4 Assessment of Economics and Community

The operation provides a significant number of jobs within the district and provides work for several other service providers. This employment is important for the communities well being. The facility employs approximately 130 people directly or indirectly and has a turnover of about 20 million dollars.

The energy costs for this operation are very large using about 8,000 tonnes of coal per year. If we assume the cost of the coal is \$175 per tonne the energy cost will be 1.4 million dollars per year. The energy bill is large and using it in a efficient manner is key to the company's bottom line.

EECA have spent a significant amount of effort working on wood as an energy source (see <http://www.eecabusiness.govt.nz/renewable-energy/wood-energy-knowledge-centre>).

Wood is used by some of the larger industries in the Nelson Tasman area as a feed stock and fuel source. These industries anecdotally mop up most of the spare wood available in the region. With at least one company who is going into the forests to gather wood from the skid sites to meet the demand. This is backed up by a report from EECA which examines changing from light fuel oil to wood in Nelson. The key quote is “A well established and reliable wood fuel supply is available in the area.

This is in the form of a specialist third party contractor who supplies over 20,000 tonnes to the MDF facility.”

In reality the economics are likely to pay a bigger part in Ewers transitioning to wood from coal than this discharge consent. See attached case study from EECA; PH Kinzett- wood fuel proves profitable choice. This case study is examining one glasshouse transitioning from coal to wood. In this case the payback analysis suggests the project would pay for itself in about three years.

There are potential adverse effects on the community from not allowing this variation to occur. The operation is a large local employer. Removal of an operation of this size from the area could have significant economic impacts on the wider community.

Not decommissioning the three small boilers

Emissions analysis supplied by John Iseli provides evidence that not removing the boilers will not have a negative effect on the ambient air quality.

The initial application states “the three boilers are likely to be decommissioned” Further information dated February 2008 stated “when examining the modelling the input data was restricted to boilers 4-7 as units 1-3 will be phased out subsequent to the installation of Boiler 7.” It does however not provide any time line for the phase out.

The agreement to avoid going to a hearing that was reached with the submitter (Wilks) did not specifically involve the removal of boilers 1-3. Thus it is not specifically volunteered by the applicant and agreed to by Peter Wilks.

An update to the notified variation was received 13 July 2011 to remove the phase out of the three small boilers.

The three small boilers are boilers 1-3 in the application, a total of 2.4 megawatts or about 10% of the discharge on site. The emissions to the environment from the site will be constant and the energy needs would need to be met by burning more material in one of the larger boilers. The heat required on site does is determined by the glasshouses not the number of boilers. If the applicant uses fewer boilers they will still need to burn about the same volume of coal.

These small boilers have 18 metre stacks that are higher than the larger boilers at 16.5 metres. These stacks will increase the dispersion of the pollutants. The smaller boilers do not have such good emissions control however given the scale of emissions this is unlikely to be significant.

I agree with the applicant that leaving the three small boilers will not adversely affect the ambient concentration of contaminants off site. It may result in slightly lower levels of contaminants as a result of better dispersal of material.

There is currently a condition of consent that requires best practice and maintenance of these boilers (Condition 3) and this is not proposed to change as part of this variation.

6.5 Permitted Baseline

Under Section 104 (2) of the Resource Management Act the Council may use the “permitted baseline” test to assess the proposal. Under this principle the proposal is compared with what could be done as permitted activities under the relevant Plan.

The permitted baseline for the operation of coal boilers in this zone is a combined heat output across the site of 2 megawatts. The combined heat output on this site is about ten times this value at approximately 23.4 megawatts. In this case there is not a relevant permitted baseline test

6.4. Relevant Objectives and Policies of the TRMP

The relevant objectives and policies of the TRMP are listed the paragraph 5.3 of this report. All the relevant objectives and policies can be met by the proposed development.

7. SUMMARY

7.1 Principal Issues

The principal issue is whether the variation or not allowing the variation will have adverse effects effects on the environment that are on balance more than minor.

7.2 Statutory Provisions

The variation is Discretionary in status as an activity. The Council must consider the application pursuant to Section 104 of the Resource Management Act 1991.

On balance the application is not inconsistent with the relevant Part II matters or the RPS and TRMP.

7.3 Overall Conclusion

Overall the writer’s assessment is that the adverse effects on the environment from this variation will result in than ambient air quality better than that specified in the relevant National Standards and the proposal is generally consistent with the objectives and policies, and matters of discretion in the Tasman Resource Management Plan.

The effect of the emissions of greenhouse gas on the environment from this discharge are outside of the scope of the consent as determined by Section 104E of the Act.

8. RECOMMENDATION

Having considered the application in detail it is the writer’s view to recommend to grant this variation to the discharge permit and still allow the applicant to transition to wood as fuel. Recommended conditions are below and a track change version of the consent has been appended to this report.

9. RECOMMENDED CONDITIONS

Remove the required transition from coal to wood while leaving the applicant the ability to burn wood in the future

Remove the decommissioning of the small boilers

Track change version is attached.

A handwritten signature in black ink, appearing to read 'L. Pigott', is centered on the page.

Leif Pigott
Coordinator- Natural Resource Consents

PH Kinzett – wood fuel proves profitable choice

Switching to wood energy has helped Blenheim based PH Kinzett Ltd cut fuel costs at its greenhouse operation by 21%, helping to maintain profitability.

Traditional family business

PH Kinzett is a 100-year old family-owned business growing grapes, cherries and tomatoes on its site outside Blenheim. The tomato growing operation concentrates on long season and winter production, using hydroponics in glasshouses covering two hectares.

With a staff of 10, owner Paul Kinzett's business is a small to mid-scale operation in an industry of several hundred competitors.

Keen to get out of coal

Consistent warmth is critical to the hydroponic tomato growing process. In common with most South Island growers, Kinzett had been fuelling its boilers with coal, burning between 1,000 and 1,200 tonnes a year. This added up to a major cost for the business, second only to its labour costs.

Additionally Kinzett wanted an environmentally friendly fuel option lower in CO₂ and particulate emissions and less dirty for its staff to handle. Technical advice showed that it was practical to convert the existing coal boiler to wood.

A payback analysis suggested that the project would pay for itself in three years.

Making the change

The glasshouses are in two main blocks, operated as three control zones kept at between 16° and 18°C. Heating is hot-water based. There are actually two boilers on site, one main boiler and one standby, plus a large heat store.

The main boiler is a Morrow Engineering 'Tripass' rated at 4MW. Designed originally for coal firing, Morrow was confident it could be converted successfully.

Most of the work involved creating spaces and a system for storing and transporting the new fuel. A covered 'feed' bunker was constructed with a walking floor and various augers installed for transporting the fuel. Along with the feed bunker, there is also a bigger external bunker to save the wood.

The furnace needed a new, thicker refractory lining, and fan speeds needed altering.

To minimise any effect on the operation, Kinzett undertook the majority of the work during the warmer summer months allowing them to burn small amounts of coal in the standby boiler – and maintain the growing conditions in the glasshouse.

Operating with wood fuel takes about the same time it did with coal although it's now a much more pleasant task. Topping up the feed bunker and cleaning the boiler are both daily tasks. De-ashing is done daily.

The supply issue

Wood supply was always a key part of the equation. As a relatively low-density fuel, it's not economic to truck wood chips any long distances, so the supply has to be local.

A promising source of supply was available from a local project that would have provided good quality wood chips. However, just as Kinzett's conversion was nearing completion, it collapsed. An alternative was found, but it involved accepting wood chips with higher moisture content.



Based outside Blenheim, PH Kinzett grow grapes, cherries and tomatoes.

✓ Key features

- Existing coal fired 4MW boiler converted to burning wood
- Retains 'dual fuel' capability for energy security
- Burns about 4000 tonnes of wood a year

✓ Key benefits

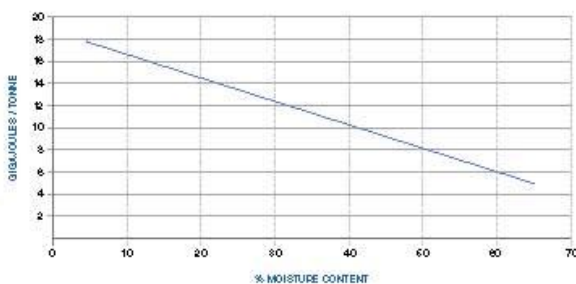
- 21% saving in fuel costs
- 2,100 tonne/year reduction in CO₂ emissions
- Simple payback 3.2 years (IRR 25%)
- Efficiency, output and returns improving with drier woods and operational improvements
- \$4,700 p.a. saving in ash disposal costs

✓ Sector relevance

- Commercial greenhouse growers
- Food and beverage processors
- Hospitals and schools with space heating requirements



It was a steep learning curve getting the boiler to operate optimally. The boiler produced a lot of steam – indicating that Kinzett was not getting as much heat out of the fuel as planned. The consequence of this was they had to burn more chips to get the same level of energy. However the experience proved the system can handle wet wood and still be economic.



Reducing energy value of wood fuel with increasing moisture content (% wet basis)

Improving outlook

The supply situation – along with the project's performance and return – improved when Flight Timber, a local wood processor, began to supply Kinzett with sawdust boiler fuel. The sawdust is more economic than the chips, in this instance and has a lower moisture content.

Flight Timber created an additional revenue stream for themselves by improving their energy efficiency of their plant – and using a combination of two by-products from their operation, hogged offcuts and sawdust, rather than sawdust alone. This freed up the majority of the sawdust which is then sold to Kinzett.

The wood chip that Kinzett used previously isn't being wasted either. It's going to a local MDF plant – proving the versatility of wood as fuel.

With the success of the project, Kinzett is considering converting the standby boiler to wood energy too.

Key personnel

Paul Kinzett (Managing Director, PH Kinzett Limited)
phkinzett@xtra.co.nz

Alistair Morrow (Morrow Engineering)
morrow-eng@xtra.co.nz

MAY 2010 / EEC-1479



Kinzett's perspective

Paul Kinzett, Managing Director

"I recall what our technical advisor said at the start – for the first six months you'll wish like hell that you'd had nothing to do with it. After that, you'll be really happy you made the decision to convert. It's not all beer and skittles.

The learning curve is quite steep. You have to get used to all the bits and pieces of handling a new fuel and how to burn it.

"But we're now in the swing of it, and it's saving us the equivalent of around one salary. When we only have 10 staff, that's really worthwhile.

"It's also very consistent. We don't get the variations like we used to with coal. They'd start on a new seam in the mine and the makeup of the coal would be quite different and give you different outcomes.

"Plus, we don't get as much ash from the wood, and there's a possibility later that it may get utilised by local vineyards.

"We're certainly happy with the change. The exercise has been well worthwhile, and the longer and harder we run that boiler the better it seems to run."



For more information contact The Energy Efficiency and Conservation Authority:

EECA HEAD OFFICE: PO Box 388, Wellington, (04) 470 2200

EECA AUCKLAND: PO Box 37444, Parnell, Auckland, (09) 377 5328

EECA CHRISTCHURCH: PO Box 13983, Christchurch, (03) 353 9280

www.eecabusiness.govt.nz

RESOURCE CONSENT DECISION

Resource consent number: RM080033

Pursuant to Section 104B of the Resource Management Act 1991 (“the Act”), the Tasman District Council (“the Council”) hereby grants resource consent to:

J S Ewers Ltd
(hereinafter referred to as “the Consent Holder”)

Activity authorised by this consent: Discharge of exhaust gases and particles to air from coal-fired boilers.

Location details:

Location details:

Address of property: 37 Blackbyre Road, Appleby
Legal description: Lot 2 DP 350321, Lot 5 DP 307291, Lots 6 and 7 DP 11300, Lot 3 DP 6665
Certificate of title: 205859 and NL6D/554
Valuation number: 1939011900
Location co-ordinates*: 2521361E, 5987272N (New Zealand Map Grid Datum)

* Seven point source discharges within ~100 m radius of these co-ordinates

Notation:

TSP:	Total suspended particulate
SO ₂ :	Sulphur dioxide
PM ₁₀ :	Particulate matter of aerodynamic diameter no greater than 10 microns
H ₂ SO ₄ :	Sulphuric acid
SO ₃ :	Sulphur trioxide
CO ₂ :	Carbon dioxide
NO ₂ :	Nitrogen dioxide
NO _x :	Nitrogen oxides
kg/hr:	Kilograms per hour
µg/m ³ :	Micrograms per cubic metre
MW:	Megawatts

Pursuant to Section 108 of the Act, this consent is issued subject to the following conditions:

CONDITIONS

General Conditions

1. Notwithstanding Condition 4, no alterations shall be made to the plant or processes which may substantially change the nature or increase the quantity of contaminants discharged into air without prior consultation with the Tasman District Council.
2. The discharge into air from each of the boilers shall be only via a stack with its outlet not lower than the distance above ground listed in Table 1. The discharges shall be directed vertically into the air and shall not be impeded by any obstruction above the stacks that decreases the vertical velocity below that which would occur in the absence of such obstruction.
3. The Consent Holder shall at all times adopt the best practicable option to prevent or minimise actual or likely adverse effects on the environment arising from the discharges into air from the process. This includes ensuring that all equipment is maintained at a level which, as a minimum, meets the design specifications for the operation.

Decommissioning and Fuel Conversion from Coal to Wood

4. This resource consent authorises the burning of coal and or wood. ~~as follows:~~
 - ~~(a) from 16 June 2008 until 31 December 2010, this consent authorises the burning of coal or wood;~~
 - ~~(b) from 1 January 2011 until 31 December 2013, this resource consent authorises the burning of coal subject to no less than 6 MW of heat at the site being produced from wood;~~
 - ~~(c) from 1 January 2014 this resource consent authorises the burning of wood only and no coal may be used to fuel any boiler on the site; and~~
 - ~~(d) from 16 June 2008 until 1 January 2011 this consent authorises the operation of boilers 1-7 as listed in Table 1. From 1 January 2011 until 31 December 2028 this consent authorises the operation of boilers 4-7, as listed in Table 1, only.~~

Advice Note:

~~Restrictions apply to the sulphur content of coal burned on site, as described in Condition 5.~~

Fuel

5. The coal used for firing the boilers shall have a maximum sulphur content of 0.5% by weight as certified by Coal Research Ltd or another laboratory which is Telarc registered for coal analysis. Certification of the coal sulphur content and calorific value shall be included in the Annual Report required by Condition 18.

6. Fuel consumption of each boiler shall be monitored and recorded weekly. The maximum coal burning rate for each boiler shall not exceed the rates listed in Table 1.

Emission Factors

7. Emissions factors for TSP, PM₁₀ and SO₂ for each boiler shall be established using the United States Environmental Protection Agency document “AP 42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources” or an equivalent document that has been approved in writing by the Council.

These emission factors shall be reported in the first Annual Report required to be compiled and submitted to the Council as per Condition 18.

Emission Thresholds

8. Emission rates of TSP and SO₂ from the coal-fired boiler stacks shall not exceed those listed in Table 1, columns 5 and 6.

All concentrations shall be expressed as with gas volumes corrected to dry gas basis, 0°C, 12% CO₂ by volume (or equivalent oxygen concentration) and one atmospheric pressure.

9. To demonstrate compliance with Condition 8 the Consent Holder shall calculate TSP and SO₂ emissions using the coal supply and use data referred to in Conditions 5 and 6 and the emissions factors referred to in Condition 8.

Emission rates for TSP and SO₂ shall be calculated and expressed in kg/hr as 7-day averages. These rates shall be collated and reported annually in the Annual Report referred to in Condition 18.

Advice Note:

This condition requires the Consent Holder to report annually on the emission rates from each boiler. The emission rate in each case is to be calculated from the coal specifications and usage data and emissions factors for each boiler, and should be expressed as the rate of emission in kg/hr as an average for each week of the year.

10. The discharge of smoke from the exit of any boiler stack shall not exceed an opacity to:
 - (a) obscure a Council approved observer’s view to a degree equal to smoke as dark as, or darker than Ringelmann Shade No. 2; or
 - (b) when determined by photo electric means in the stack or ducts leading to the stack, and when corrected for path length and temperature as set in Addendum No.1 (1972) 2BS2742:1969, 52% obscuration of transmitted light.

Discharge in excess of these limits is permitted for:

- (c) intermittent emission not exceeding an aggregate of two minutes in any period of one hour; and
- (d) a period not exceeding 20 minutes when lighting up a boiler from cold.

Advice Note:

Boiler start up from cold typically occurs once per year but may occur more frequently if the boiler is required to be shut down for urgent maintenance.

Emissions Monitoring

- 11. To demonstrate compliance with Condition 8, discharge testing shall be undertaken as follows:
 - (a) the concentrations of PM₁₀, TSP and SO₂ in the stack exhaust stream of Boilers 4, 5, 6 and 7 shall be measured at least once in the year 2009;
 - (b) the concentrations of PM₁₀, TSP and SO₂ in the stack exhaust stream of Boiler 7 shall be measured at least once in the year 2011, following conversion to wood fuel use;
 - (c) the concentrations of TSP and SO₂ in the stack exhaust stream of Boilers 4, 5, 6 and 7 shall be measured at least once in the years 2012, 2015, 2018, 2021, 2024 and 2027;
 - (d) each test sampling of the boiler stacks shall occur when the boiler in question is operating at greater than 75% of its maximum operating capacity;
 - (e) the method of TSP and PM₁₀ sampling shall be ISO 9096:2003, ASTM D3685-98, USEPA Method 5 or an equivalent method as agreed by the Council's Co-ordinator Compliance Monitoring;
 - (f) the method of SO₂ sampling shall be AS3580.4.1—1990 or other method as agreed by the Council's Co-ordinator Compliance Monitoring; and
 - (g) the organisation performing the testing must either be currently accredited under ISO 17025, to undertake the method used to perform the testing, or otherwise be approved in writing by the Council's Co-ordinator Compliance Monitoring.

Contingency Measures

- 12. Where discharges of contaminants to air from the site are inconsistent with the conditions of this resource consent, or where any significant increase in the discharge of any contaminant(s) to air may result in adverse effects on the environment, the Consent Holder shall:
 - (a) immediately execute works as may be necessary to stop such escape;

- (b) as soon as practicable, notify the Council's Co-ordinator Compliance Monitoring of the discharge of the contaminant(s); and follow this up within 24 hours by written notification;
- (c) within two weeks report to the Council's Co-ordinator Compliance Monitoring in writing the cause of the discharge of the contaminant and the steps taken, or being taken, to effectively control or prevent such escape; and
- (d) take all reasonable steps to avoid, remedy or mitigate any adverse effects results from the discharge.

Ambient Air Pollution

- 13. There shall be no odour, dust, particulate, smoke, ash or fume caused by the discharges at or beyond the boundary of the site, which in the opinion of the Council's Co-ordinator Compliance Monitoring, is noxious, dangerous, offensive or objectionable.

Ambient Air Pollution Limits

- 14. The operation authorised by this consent shall not cause the ambient concentrations of PM₁₀ to exceed 50 µg/m³ expressed as a 24 hour mean at or beyond the boundary of the site.
- 15. The operation authorised by this consent shall not cause the ambient concentrations of SO₂ to exceed 120 µg/m³ expressed as a 24 hour mean at or beyond the boundary of the site.

Ambient Air Quality Monitoring

- 16. If satisfied that reasonable grounds exist the Council's Co-ordinator Compliance Monitoring may direct the Consent Holder to, at their expense, undertake ambient air pollution monitoring as follows. Ambient concentrations of PM₁₀ and SO₂ shall be monitored at two points determined by the Council's Co-ordinator Compliance Monitoring along the boundary of the site for a period of one month during at each location during the plant's production season (defined as between the months of August to May inclusive). This testing shall be completed with a continuous high volume (High Vol) sampler in accordance with AS 3580.9.6 "*Methods for sampling and analysis of ambient air: Determination of suspended particulate matter PM₁₀ high volume sampler with size selective inlet, gravimetric method*". Monitoring results shall be forwarded to Council's Co-ordinator Compliance Monitoring within 10 working days of receipt of the results from the laboratory. The method of SO₂ monitoring shall be an instrumental method or other method as agreed by the Council's Co-ordinator Compliance Monitoring.

The organisation performing the monitoring must either be currently accredited under ISO 17025, to undertake the method used to perform the testing, or otherwise be approved in writing by the Council's Co-ordinator Compliance Monitoring.

Incidents and Complaints Register

17. The Consent Holder shall keep an Incidents and Complaints Register in which is recorded any incident having an adverse environmental effect, or being alleged to have and adverse environmental effect, and any complaints from members of the public. These records shall include:
- (a) the nature of the incident and any adverse impacts identified or alleged;
 - (b) the date and time of the incident and the complaint;
 - (c) the name(s) of the complainant(s) (if given) and where possible any other member(s) of the public identified or alleged to be adversely affected;
 - (d) the weather conditions at the time of the incident;
 - (e) comments as to the likely cause of the incident; and
 - (f) a record of the action taken to remedy or mitigate the situation.

All incidents and complaints shall be notified to the Council as soon as possible and not later than 24 hours following the incident or the receipt of the complaint.

Reporting

18. The Consent Holder shall compile an Annual Report for this site and supply this to the Council's Co-ordinator Compliance Monitoring on or before 1 June each year. As a minimum, the report shall for the preceding 12 months:
- (a) analyse the results obtained from analyses required to be completed by Condition 5, 6, 7, 8, 9 and 11, and compare these with (where available) the last 5 years of results;
 - (b) analyse any complaints received;
 - (c) determine compliance with the conditions of this consent;
 - (d) where there is any non-compliance with any condition of this consent identified by the testing results, identify the problem, its cause, remedial action taken, and provide a timescale for this remedial action; and
 - (e) provide an update on progress made towards fuel conversions and decommissioning described in Condition 4.

Review Conditions

19. The Council may, during the period of 1 August to 1 October each year, review any or all of the conditions of this consent pursuant to Section 128 of the Resource Management Act for all or any of the following purposes:

- (a) to deal with any adverse effect on the environment which may arise from the exercise of the consent that was not foreseen at the time of granting of this consent, and which is therefore appropriate to deal with at a later stage; and/or
- (b) to require the Consent Holder to adopt the best practicable option to remove or reduce any adverse effects on the environment result from the discharge; and/or
- (c) to review the contaminant limits if it is appropriate to do so; and/or
- (d) to review the frequency of sampling and/or number of determinands analysed if the results indicate that this is required and/or appropriate.

Expiry

20. This resource consent expires on 31 December 2028.

Table 1. Process description

1 Boiler	2 Description	3 Stack height (metres)	4 Maximum coal burning rate (kg/hr)	5 Maximum TSP emission rate (kg/hr)	6 Maximum SO ₂ emission rate (kg/hr)	7 Monitoring required?	8 Future operation	9 Notes
1	Trevett 400 kW vertical boiler with bunkerfeed underfeed stoker. No grit arrestor.	18	100	0.3	1.8	No	Existing boiler. To be decommissioned by 1 January 2011.	
2	Trevett 1,000 kW vertical boiler with bunkerfeed underfeed stoker. Cyclone grit arrestor.	18	250	0.7	4.5	No	Existing boiler. To be decommissioned by 1 January 2011.	
3	Trevett 1,000 kW vertical boiler with bunkerfeed underfeed stoker. Cyclone grit arrestor.	18	250	0.7	4.5	No	Existing boiler. To be decommissioned by 1 January 2011.	
4	Morrow 3 MW economic boiler with bunkerfeed underfeed stoker. Multicyclone grit arrestor. PLC control.	16.5	700	1.9	12.6	Yes	Existing boiler fuelled with coal or wood until 31 December 2013; boiler to be fuelled with wood only from 1 January 2014.	*, §
5	Morrow 6 MW economic boiler with bunkerfeed underfeed stoker. Multicyclone grit arrestor. PLC control.	16.5	1400	3.8	25	Yes	Existing boiler fuelled with coal or wood until 31 December 2013; boiler to be fuelled with wood only from 1 January 2014.	*, §
6	Morrow 6 MW economic boiler with bunkerfeed underfeed stoker. Multicyclone grit arrestor. PLC control.	16.5	1400	3.8	25	Yes	Existing boiler fuelled with coal or wood until 31 December 2013; boiler to be fuelled with wood only from 1 January 2014.	*, §
7	Morrow 6 MW economic boiler with bunkerfeed underfeed stoker. Multicyclone grit arrestor. PLC control.	16.5	1400	3.8	25	Yes	Boiler to be commissioned June 2008. Between commissioning and 31 December 2010 the boiler will be fuelled with coal, with trials using wood undertaken concurrently. From 1 January 2011 the boiler will be fuelled with wood only.	*, §

Notes:

* Combined heat output to be no less than 6 MW from wood from 1 January 2011 onwards.

§ All concentrations shall be expressed as hourly averages with gas volumes corrected to dry gas basis, 0°C, 12% CO₂ by volume (or equivalent oxygen concentration) and one atmospheric pressure.