
in the matter of the Resource Management Act 1991

and

in the matter of Application by Transwaste Canterbury Limited to the
Hurunui District Council to cancel or change
Condition 22 of RC020069, relating to the Canterbury
Regional Landfill at Kate Valley, Canterbury

Statement of evidence of Martin John Pinkham

Dated: 26 May 2006

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Reference: JM Appleyard

STATEMENT OF EVIDENCE OF MARTIN JOHN PINKHAM

- 1 My full name is Martin John Pinkham. I obtained a degree in Civil Engineering (BE) (Civil) from the University of Canterbury, New Zealand in 1980. I am a member of the Institute of Professional Engineers of New Zealand. I am also a member of the Association of Local Government Engineers of New Zealand.

- 2 I have been employed by Canterbury Waste Services since January 2000, firstly as the project's Development Engineer and since 2004 as the Landfill Manager. During this time my duties have included the following:
 - 2.1 Coordinating the activities of the technical consultants working on the project.
 - 2.2 Preparing the transport strategy and liaising with the local authority partners regarding alterations to transfer stations, and the transport system for the Kate Valley Landfill.
 - 2.3 Preparing Appendix A Proposed Conditions of the application utilising the advice of the consultant team, regulatory authorities and industry.
 - 2.4 Preparing Appendix T Draft Landfill Management Plan of the Applications, with assistance from the consultant team and industry partners.
 - 2.5 Design Manager for the construction of the landfill and associated infrastructure.
 - 2.6 Management of the day to day operation of the landfill including responsibility for consent monitoring and compliance

MATTERS COVERED BY MY BRIEF OF EVIDENCE

- 3 The evidence that I am giving today will cover the following matters:
 - 3.1 Vehicle Counting System
 - 3.2 Current Waste Volumes
 - 3.3 Current Need for River Metal as Liner Protection Layer

3.4 Existing Vehicle Movement Situation

3.5 Compliance

VEHICLE COUNTING SYSTEM

- 4 All traffic accessing the landfill turns off Mt Cass Road, approximately 5.2 km from State Highway 1 (SH1) and uses the Landfill Access Road (LAR). Approximately 1.7km from Mt Cass Road an in pavement Peek piezometric traffic counter/classifier is installed. Photographs of the Peek piezometric traffic counter/classifier are shown in **Appendix A**. This counter/classifier is linked to the Administration office and the traffic data is available in real time at the Administration office.
- 5 The Peek piezometric traffic counter/classifier records all vehicles travelling down the access road, i.e. travelling away from the landfill. It is not practicable to count the traffic in the upward lane, i.e. towards the landfill, as the speed of vehicles travelling uphill can vary and in many cases the vehicles will be decelerating. The Peek piezometric traffic counter / classifier requires the speed of traffic to be relatively constant to accurately classify the vehicles passing over it.
- 6 The output from the Peek piezometric traffic counter/classifier details the time and vehicle type, using the Transit NZ standard classification system. Classes 1 and 2 are recorded as light vehicles and all other classes are recorded as heavy vehicles.
- 7 All waste, gravel and leachate trucks also pass over Transwaste's weighbridge that is located approximately 200 metres beyond the Peek piezometric traffic counter/classifier on the inward journey. Photographs of the weighbridge are shown in **Appendix B**. As part of the weighing process all truck operators enter the details of the load they are carrying. While the CWS waste vehicles use a stored tare, all other vehicles are required to weigh out to complete the weighing transaction process.
- 8 At the end of each month the daily Peek piezometric traffic counter/classifier data and the weighbridge data is combined to prepare a monthly summary of vehicle trips from the landfill. The summary is forwarded to Hurunui District Council.

- 9 The daily records are, as detailed on the table below, processed to provide an analysis of daily vehicle trips.

| Vehicle / Material Type | Source | Method of Calculation |
|--------------------------------|---|---|
| Light vehicles | Peek Classifier record | Directly from record |
| Waste trucks | Weighbridge record | Directly from record |
| Gravel trucks | Weighbridge record | Directly from record |
| Leachate trucks | Weighbridge record | Directly from record |
| Other heavy vehicles | Peek Classifier record and Weighbridge record | Total heavy vehicles (Peek) - Waste trucks (Weighbridge) - Gravel trucks (Weighbridge) - Leachate trucks (Weighbridge) |

- 10 The other heavy vehicles category includes trucks delivering goods to the site, fuel tankers, fertiliser deliveries to the farming operation, contractor's vehicles, road maintenance trucks and medium service vehicles (such as tyre maintenance).
- 11 There are occasions when a minor manual adjustment to the traffic records is required. Examples of this include adding a heavy vehicle when a bus visiting the site exits the site via the farm track onto Mt Cass Road, as this is a shorter route to Tiromoana Bush. There are also occasions when there are maintenance truck movements within the landfill site on the LAR only, which are deducted. All these adjustments are documented.
- 12 The landfill also has cameras monitoring site traffic, and a record of all movements of maintained for approximately one month in the surveillance computer hard drive. This can be used to verify traffic counts and weighbridge transactions.

CURRENT WASTE VOLUME

- 13 The waste volume required to be disposed on at Kate Valley in its first year of operation looks likely to exceed the 2002 "most likely" projections by 25%. Around 300,000 tonnes of residual waste is now expected for the 2005/06 year, compared to 240,000 predicted back in 2002.
- 14 This 25% increase in received waste over expected waste volume was actually achieved during the last year of the Burwood Landfill operation, the 2004/05 year, following a steady annual increase since 2002. A graph showing actual waste volumes for regional

landfill disposal from 1985 to 2005 in calendar years is appended as **Appendix C**.

- 15 This increase has occurred during a period where Meta NZ, the operational arm of TerraNova (formerly the Recovered Materials Foundation), who undertake the primary recyclable recovery from municipal waste collection in Christchurch, have experienced record volumes of material recovered from the waste stream.
- 16 The unexpected increase in waste volumes appears to be related to the very positive economic conditions prevailing in Canterbury since around 2002, resulting in increased house construction, commerce, and other developments. To the knowledge of Transwaste and its Council and private sector shareholders, this change was not predicted by anyone involved in the Canterbury waste recovery, collection or disposal industry, nor by economy pundits, until it was well underway.

CURRENT NEED FOR RIVER METAL AS LINER PROTECTION LAYER

- 17 A substantial number of trips arising from haulage of crushed metal from the Waipara River at the Omihi Stream junction into the landfill have been necessary, for constructing the liner drainage layer. This metal haulage is not continuous, with haulage to stockpile needed around one week in three.
- 18 The need for a liner protection layer is a consent condition (Condition 4 CRC021914), and the nature of material to be used for this layer are specified in the various standards required to be met by consent conditions.
- 19 It had been expected prior to landfill construction that sufficient quantities of suitable sand would be available from the cell excavation for use as the landfill liner protection layer. Consequently, no allowance was made in the original heavy vehicle trip projections for haulage of gravel for liner protection. However, upon actual full excavation of the first cell, it was found that the subsurface sequence at the current cell location contains more dense silt material than expected. Sand of the type that was originally anticipated to be suitable for liner protection is still present, but at this current level of the landfill, the sand is not in continuous or thick enough lenses to allow practical excavation without incorporating too much silty material.

- 20 While this is a good outcome as far as confirming that the natural containment under the landfill is even better than expected, this has necessitated haulage of suitable crushed metal for use as the liner protection layer. The requirement for a liner protection layer made of suitable material is a condition of resource consent. Suitable material has been able to be sourced from the Waipara River at the Omihi Stream junction, 3.5 km from the landfill access road. This short haul route on Mt Cass Road is bounded entirely by land owned by Transwaste.
- 21 In future years, suitable material for the liner protection may be available from excavation works for new cells, as the landfill gets higher in the soil sequence, possibly negating the ongoing need for this metal haulage.
- 22 However, in the meantime, the trips required to bring in the metal have to be accommodated in any heavy vehicle limits. The haulage is intermittent, involving several days of up to 29 trips per day whilst the metal is stockpiled. The haulage period averages around one week in three to date, with no metal haulage for approximately two thirds of the time.
- 23 As cell construction occurs during summer months, the potential for liner protection layer gravel haulage to coincide with the maximum seasonal waste volume haulage in the pre-Christmas period is high.

EXISTING VEHICLE MOVEMENT SITUATION

- 24 The existing situation in relation to vehicle trips was described in detail in the Review of Heavy Vehicle Traffic Generation report attached in the Application as Appendix A. This has been updated using actual heavy vehicle trip data for the ten month period from 1 July 2005 to 30 April 2006, the latest figures available for the first financial year of landfill operation at the time of lodging evidence, which is attached as **Appendix D**. The data below comes from the detailed figures in **Appendix D**.

Waste Trips

- 25 Heavy vehicles carrying waste to the landfill averaged 283.5 trips per seven day period. This compares closely to the weekly average of 281 calculated from the original application (which only provided annual figures) by Traffic Design Group in their response to the Hurunui District Council request for further information. A copy of the response to Hurunui District Council is included in the evidence of Mr McKenzie.

- 26 The highest number of waste truck trips in any seven day period was 358 in the period immediately prior to Christmas. This is below the weekly peak of 390 calculated from the original application peaking factors by Traffic Design Group in their response to the Hurunui District Council request for further information.
- 27 The lowest number of waste truck trips in any seven day period was 190.
- 28 Of the 303 days in the record, waste was hauled on 299 days.

Gravel Trips

- 29 Heavy vehicles carrying liner protection layer gravel from the Waipara River to the landfill averaged 38.3 trips per seven day period. The highest number of gravel truck trips in any seven day period was 133. The lowest number of gravel truck trips in any seven day period was zero.
- 30 There were no gravel truck trips anticipated in the original application.
- 31 Of the 303 days in the record, gravel was hauled on 112 days, or 37% of the days.

Leachate Trips

- 32 Heavy vehicles carrying leachate from the landfill averaged 6.7 trips per seven day period. This is less than the weekly average of 16 calculated from the original application (which only provided annual figures) by Traffic Design Group in their response to the Hurunui District Council request for further information.
- 33 The highest number of leachate truck trips in any seven day period was 25. This is more than the weekly peak of 16 calculated from the original application by Traffic Design Group in their response to the Hurunui District Council request for further information.
- 34 The lowest number of waste truck trips in any seven day period was zero.
- 35 Of the 303 days in the record, leachate was hauled on 129 days, or 42.6% of the days.

Other Heavy Vehicle Trips

- 36 Heavy vehicles entering the landfill that were not associated with waste, gravel or leachate averaged 15.2 trips per seven day period.

This compares closely to the weekly average of 16 calculated from the original application by Traffic Design Group in their response to the Hurunui District Council request for further information.

- 37 The highest number of other truck trips in any seven day period was 189. This is much higher than the weekly peak of 35 calculated from the original application by Traffic Design Group in their response to the Hurunui District Council request for further information. This peak week appears to coincide with final road construction work in the vicinity of the traffic counter on the access road.
- 38 The lowest number of other truck trips in any seven day period was zero.
- 39 Of the 303 days in the record, other heavy vehicle trips occurred on 109 days, or 36% of the days.
- 40 The high number of other heavy vehicle trips which have occurred in relatively short periods relate to internal site construction activity (i.e. trucks moving back and forth within the landfill site), oil exploration activity elsewhere on the property but using the landfill access road for site access, and public open days.

Total Heavy Vehicle Trips

- 41 The total number of heavy vehicles entering the landfill averaged 342.9 trips per seven day period. This compares with the weekly average of 313 calculated from the original application by Traffic Design Group in their response to the Hurunui District Council request for further information.
- 42 The highest number of total heavy vehicle trips in any seven day period was 447. This compares closely to the weekly peak of 441 calculated from the original application by Traffic Design Group in their response to the Hurunui District Council request for further information.
- 43 The lowest number of total heavy vehicle trips in any seven day period was 217.

Heavy Vehicle Trips Summary

- 44 In summary, the landfill site itself currently generates on average less than 300 trips per seven day period of heavy vehicles carrying waste to the landfill, although there are peak periods where more than 300 waste truck trips are necessary. Heavy vehicles carry

crushed river metal to the landfill for the liner protection layer and other heavy vehicles use the road for a variety of reasons which are described in the traffic assessment provided with the application.

- 45 The total heavy vehicle trips in the current financial year on the Mt Cass Road east of the Omihi Stream, is on average 343 in a seven day period.
- 46 The total heavy vehicle trips in the current financial year on any part of State Highway One is on average 305 in a seven day period. While most of these trips would use SH1 to the south of the Waipara Junction, a small number would access Mt Cass Road from SH1 on the north side of the Waipara Junction, and some from SH7.

Peaks

- 47 The effect of peaks is clearly demonstrated in the differences between average trips and maximum trips. The difference between the highest waste trips week and the lowest waste trips week is 168 trips. Much higher peaking factors occur with gravel, leachate and other trips, as these activities tend to be either on or off.
- 48 A good understanding of the effect of peaks in activity and consequent traffic flows is essential if a seven day heavy vehicle count is to continue to be used as a limiting condition.
- 49 It is conceivable that at some time over the life of the landfill all activities could peak during the same seven day period. Consequently, in order to continue to operate within its consents, any heavy vehicle limit on the landfill must combine the realistic peaks of all of the various potential heavy traffic streams.
- 50 This combination results in a significantly higher number for the limit than average heavy traffic trips. This is demonstrated in the difference between the predicted 440 seven day average heavy vehicle trips predicted in future years and the 800 heavy vehicle trip peak sought as the practical limit, should the condition not be cancelled.

COMPLIANCE

- 51 At all stages during the operations to date, Transwaste has complied with its understanding of the meaning of the heavy vehicle limit as set out in Condition 22 of the District Council's land use consent RCO20069.

- 52 The highest seven day count of total heavy vehicles of 447 trips is below the consented limit as interpreted by Transwaste of 600 trips.
- 53 The highest seven day count of total heavy vehicles of 447 trips is above the consented limit as interpreted by Hurunui District Council of 300 trips.

Dated: 26 May 2006

Martin John Pinkham

Appendix A

Photographs of Counter/Classifier

Appendix B

Photographs of Weighbridge

Appendix C

Annual Waste To Landfill 1985 to 2005

Appendix D

Vehicle Count Data 1 July 2005 to 30 April 2006